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Application Site



Wider Survey Area (Land within the Applicants Ownership)



2.5 km, 5 km and 7.5 km Radii around the Application Site



Area of Outstanding Natural Beauty

Zone of Theoretical Visibility



Zone of Theoretical Visibility of Existing Development



Urban Areas



Woodlands

This drawing is based upon computer generated Zone of Theoretical Visibility (ZTV) studies. The areas shown are the maximum theoretical visibility, taking into account topography, principal woodlands and settlements as shown, which have been included in the model with the heights from Nextmap25. The model does not take into account any localised features such as small copses, hedgerows, mature trees or buildings and therefore gives an exaggerated impression of the extent of visibility. The actual visibility on the ground will be noticeably less than that suggested by this plan and visibility from principal settlements is likely to be possible from peripheral areas only.

The height of existing buildings is modelled from the 'Existing Building Heights Plan' produced by Pegasus which identifies approximate building heights for 12 zones within the Site.

The ZTV includes an adjustment that allows for the Curvature and Light Refraction of the Earth and has a $25 \mathrm{m}^2$ resolution.

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Figure 9: Zone of Theoretical Visibility -Existing

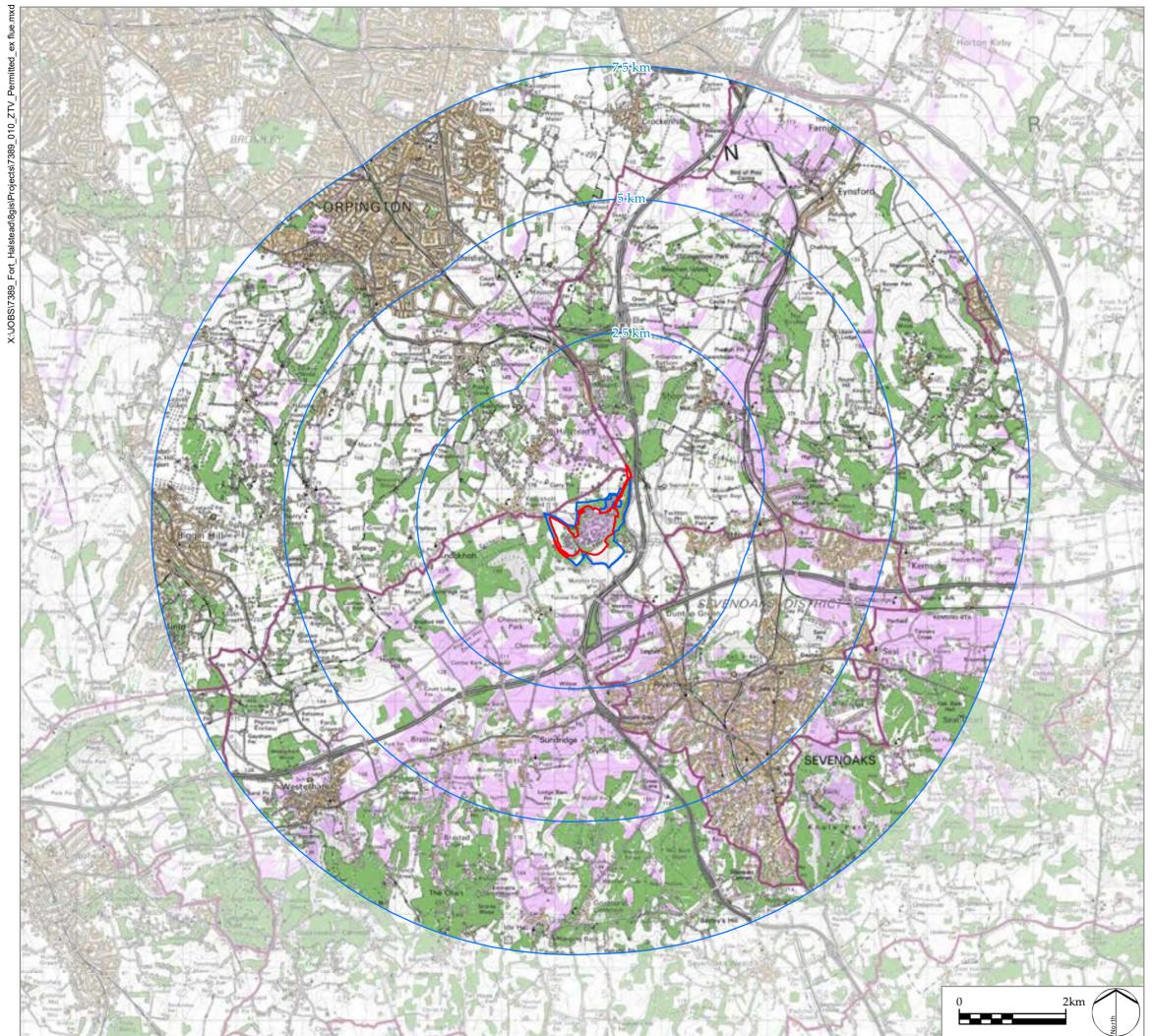
ISSUED BY T: 01865 887 050 Oxford May 2020 DRAWN DATE SD SCALE @A3 1:70,000 CHECKED ВС Final APPROVED PL STATUS

DWG. NO. 7389_010

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Sources: Ordnance Survey, Natural England



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Application Site



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2.5 km, 5 km and 7.5 km Radii around the Application Site



Area of Outstanding Natural Beauty

Zone of Theoretical Visibility



Zone of Theoretical Visibility of the Permitted Development (ex. energy centre flue)



Urban Areas



Woodlands

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The ZTV includes an adjustment that allows for the Curvature and Light Refraction of the Earth and has a $25m^2$ resolution.

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Figure 10: Zone of Theoretical Visibility - Permitted Development (excluding energy centre flue)

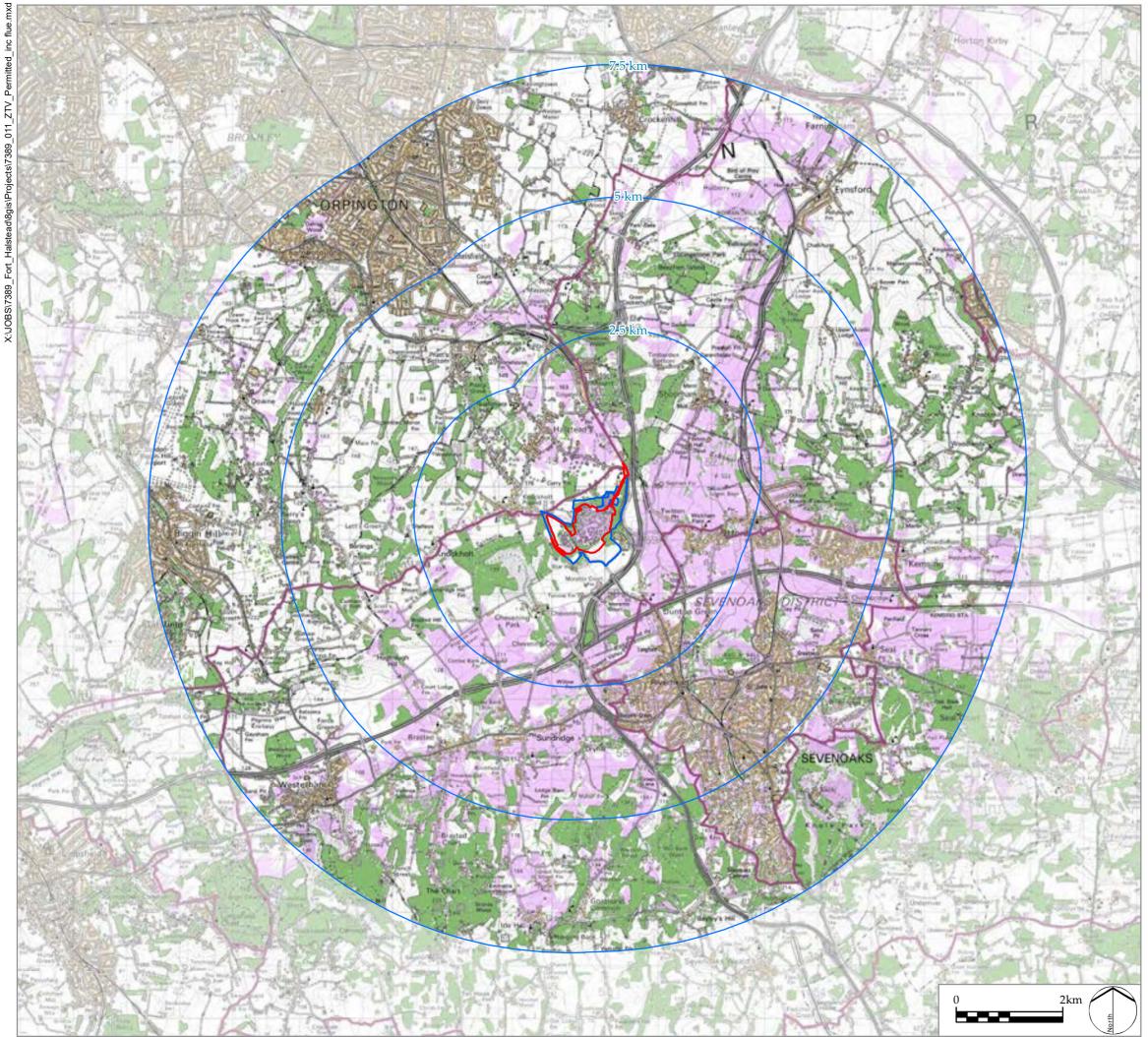
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STATUS Final APPROVED PL

DWG. NO. 7389_10

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Application Site



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Area of Outstanding Natural Beauty

Zone of Theoretical Visibility



Zone of Theoretical Visibility of the Permitted Development (inc. enegery centre flue)



Urban Areas



Woodlands

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The ZTV includes an adjustment that allows for the Curvature and Light Refraction of the Earth and has a $25m^2$ resolution.

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Figure 11: Zone of Theoretical Visibility - Permitted Development (inc. energy centre flue)

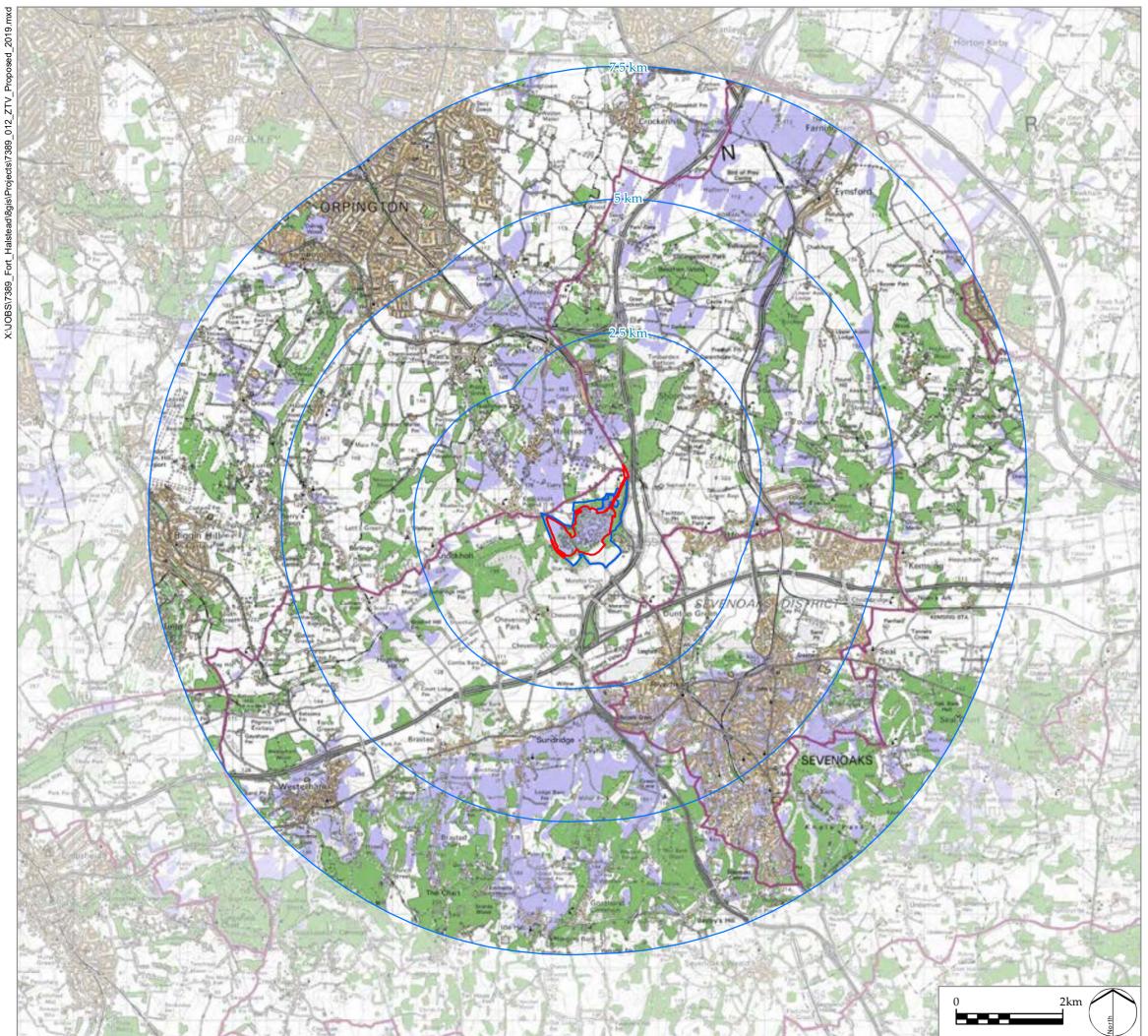
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Application Site



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2.5 km, 5 km and 7.5 km Radii around the Application Site



Area of Outstanding Natural Beauty

Zone of Theoretical Visibility



Zone of Theoretical Visibility of the Proposed Development



Urban Areas



Woodlands

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Proposed development is modelled from Building Heights Plan 00556I_PP02 Rev D9 (14th June 2019).

The ZTV includes an adjustment that allows for the Curvature and Light Refraction of the Earth and has a 25m^2 resolution.

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Figure 12: Zone of Theoretical Visibility - Proposed Development - September 2019

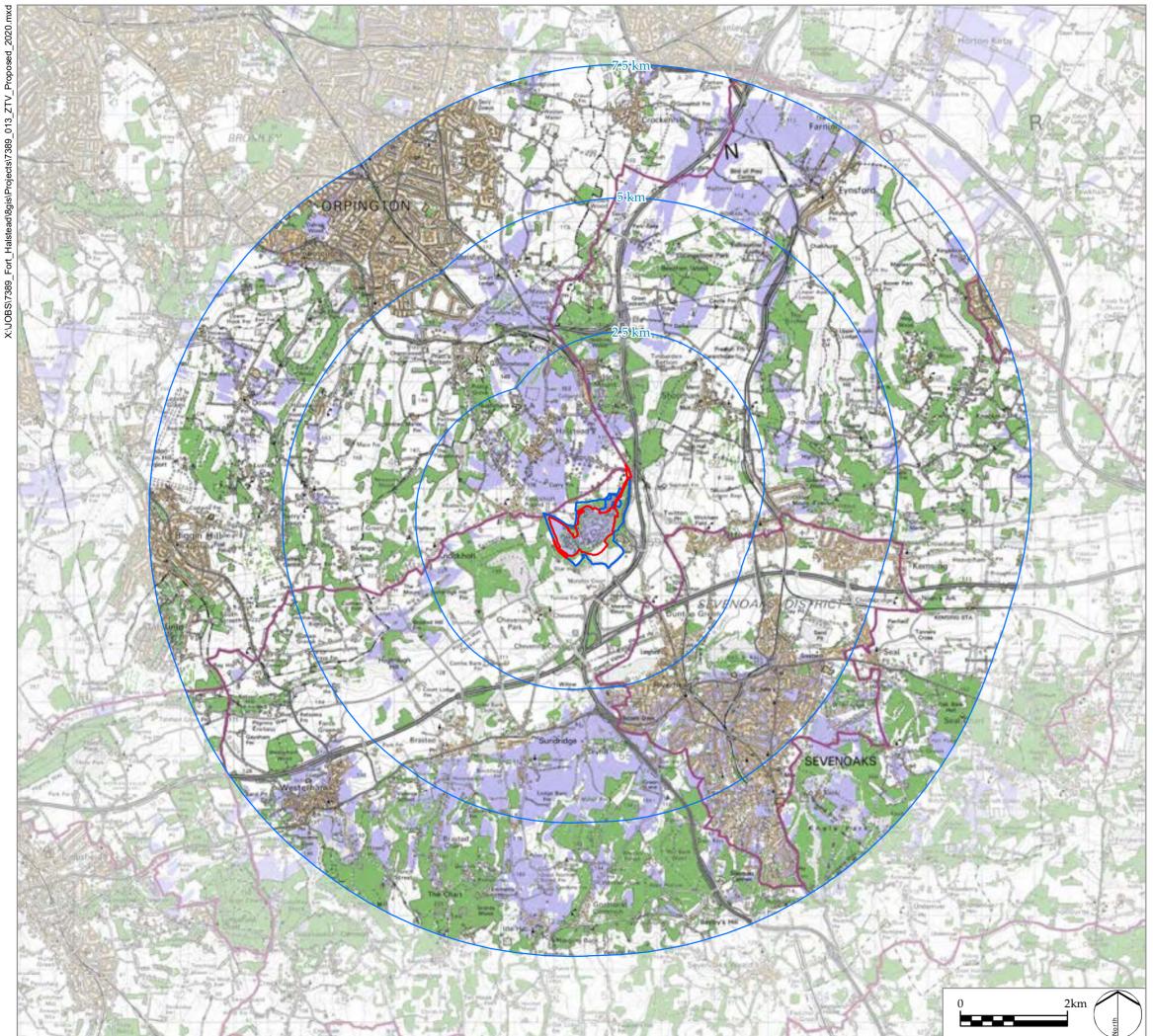
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Zone of Theoretical Visibility of the Proposed Development



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Proposed development is modelled from Building Heights Plan 00556I_PP02 Rev P2 (5th April 2020).

The ZTV includes an adjustment that allows for the Curvature and Light Refraction of the Earth and has a $25 \,\mathrm{m}^2$ resolution.

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Figure 13: Zone of Theoretical Visibility - Proposed Development – May 2020

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Sources: Ordnance Survey



Existing view



Wireframe overlay

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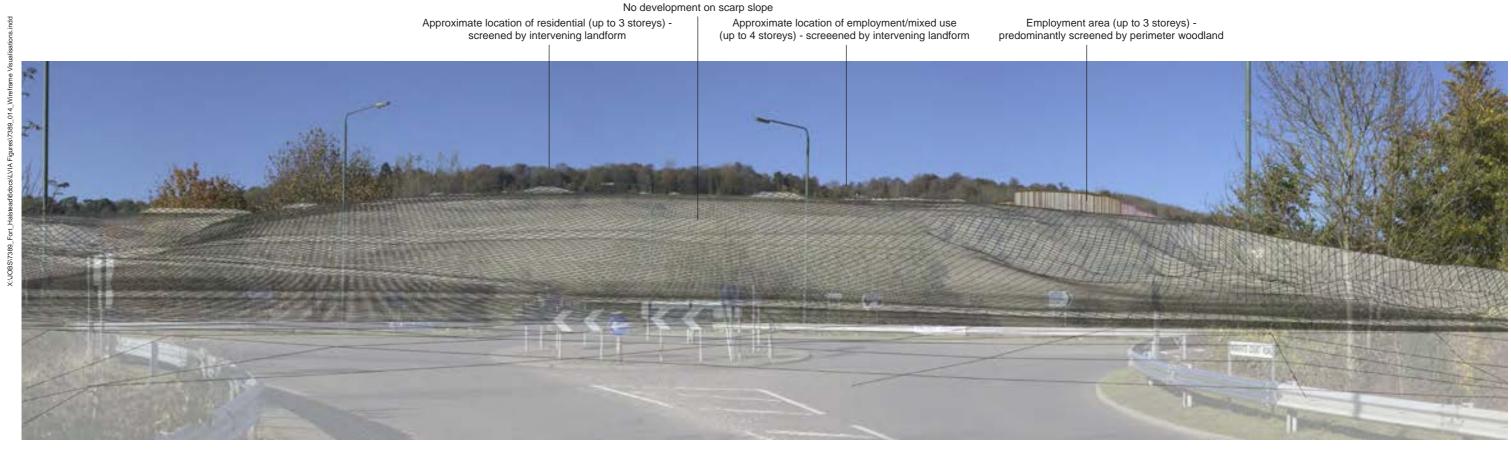
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Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 6: View from junction of Morants Court Road/Polehill Road (A224), on the North Downs Way, looking north



Annotated wireframe overlay

These visuals are based upon LiDAR terrain data with spot heights at 5m intervals and do not precisely model small scale changes in landform or sharp breaks in slope.

The three dimensional model of the development is indicative and is not based on an accurate

No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Location Plan: © Crown copyright and database rights 2020. Ordnance Survey 100030848.

LEGEND

Residential - up to 2 Storeys (modelled at 11m) Residential - up to 2.5 Storeys (modelled at 12.5m)

Residential - up to 3 Storeys (modelled at 13.5m)

Mixed Use - up to 3 Storeys (modelled at 16m)

Employment - up to 3 Storeys (modelled at 15m) School/Employment - up to 3 Storeys (modelled at 15m)

Employment/Mixed Use - up to 4 Storeys

(modelled at 1.2m)

VIEWPOINT INFORMATION

Grid Reference: 550180, 158259 Elevation (AOD): 109m Viewer Height: 1.6m Viewing Distance: 300mm

Angle (width): 75°, buildings occupy - 64° Digital SLR, 50mm Camera & Lens: 28/10/2014 13:30 Photo date / time:

Distance to site boundary: 639m



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Figure 13: Wireframe Visualisations of Permitted Development



Wireframe overlay 2015



Wireframe overlay 2020

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Figure 13: Wireframe Visualisations of Permitted Development

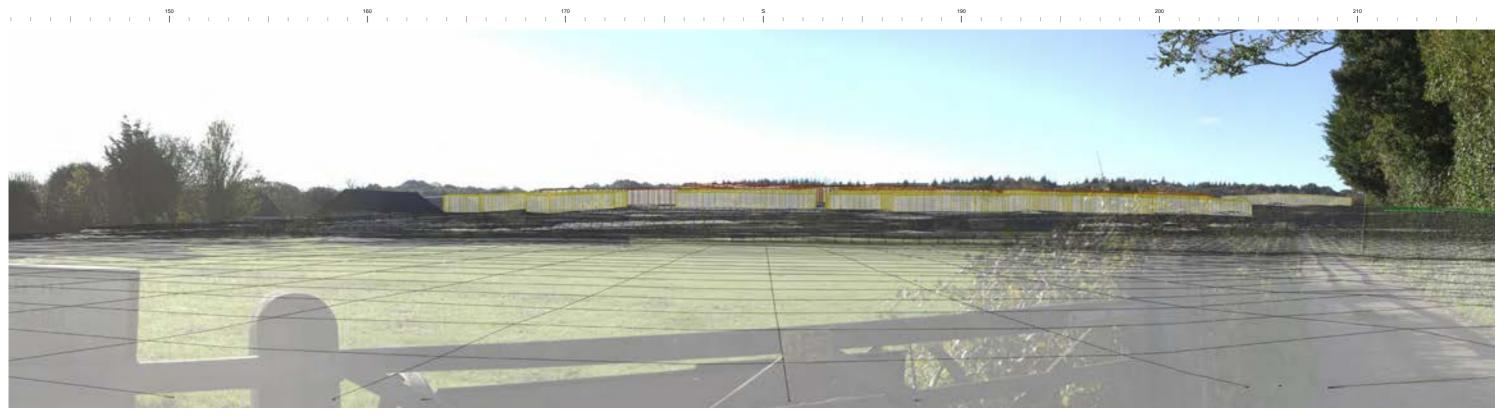
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Viewpoint 6: View from junction of Morants Court Road/Polehill Road (A224), on the North Downs Way, looking north



Existing view



Wireframe overlay

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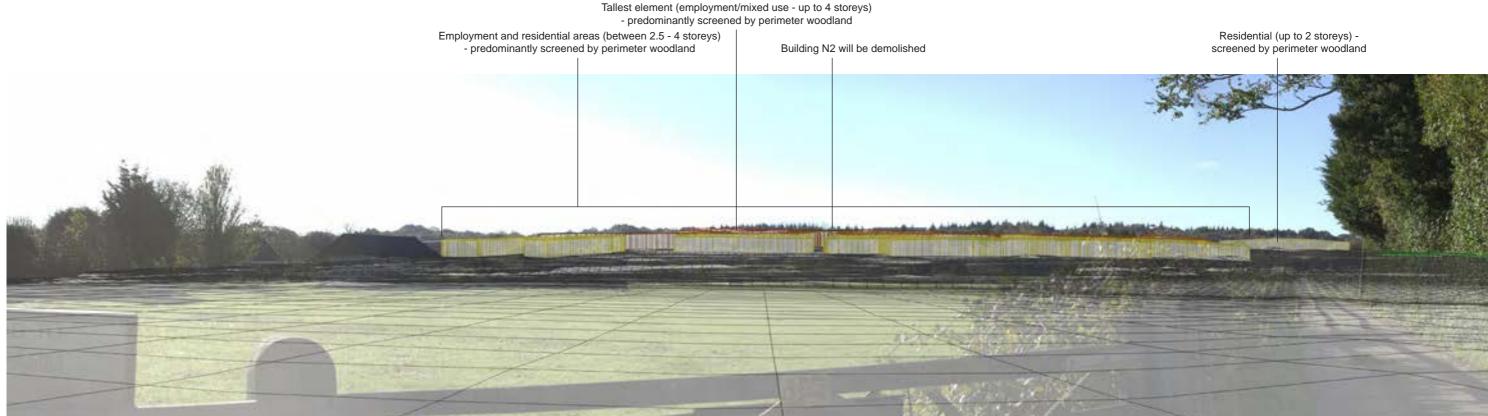
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PROJECT TITLE

Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 7: View from Otford Lane looking south



Annotated wireframe overlay

These visuals are based upon LiDAR terrain data with spot heights at 5m intervals and do not precisely model small scale changes in landform or sharp breaks in slope.

The three dimensional model of the development is indicative and is not based on an accurate design.

No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Location Plan: © Crown copyright and database rights 2020. Ordnance Survey 100030848.

LEGEND

Residential - up to 2 Storeys (modelled at 11m)

Residential - up to 2.5 Storeys (modelled at 12.5m)

(modelled at 12.5m)

Residential - up to 3 Storeys (modelled at 13.5m)

Mixed Use - up to 3 Storeys (modelled at 16m)

Employment - up to 3 Storeys (modelled at 15m)

School/Employment - up to 3 Storeys (modelled at 15m)

Employment/Mixed Use - up to 4 Storeys

Potential landform

(modelled at 1.2m)

VIEWPOINT INFORMATION

Grid Reference: 549906, 160429
Elevation (AOD): 175m

Viewer Height: 1.6m
Viewing Distance: 300mm

Angle (width): 75°, buildings occupy - 78°

Camera & Lens: Digital SLR, 50mm

Photo date / time: 28/10/2014 09:35

Distance to site boundary: 424m



Location Plan - 1:50,000 scale

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DATE May 2020 DRAWN SG PAGE SIZE 420mm x 297mm CHECKED SD STATUS Final APPROVED PL DWG. NO. 7389_014

Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 7: View from Otford Lane looking south

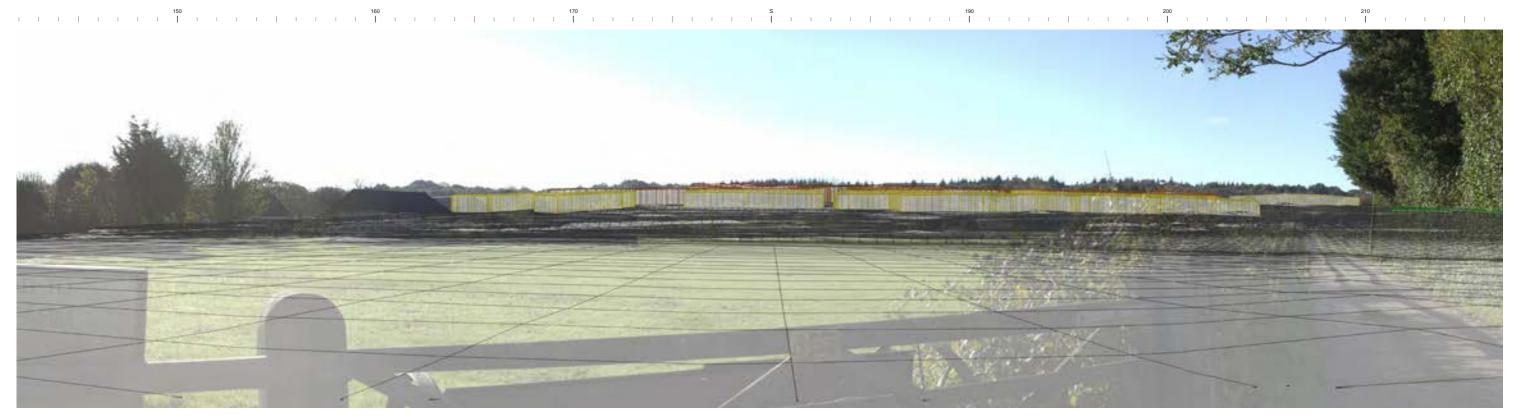
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Wireframe overlay 2015



Wireframe overlay 2020

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Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 7: View from Otford Lane looking south



Existing view



Wireframe overlay

DATE

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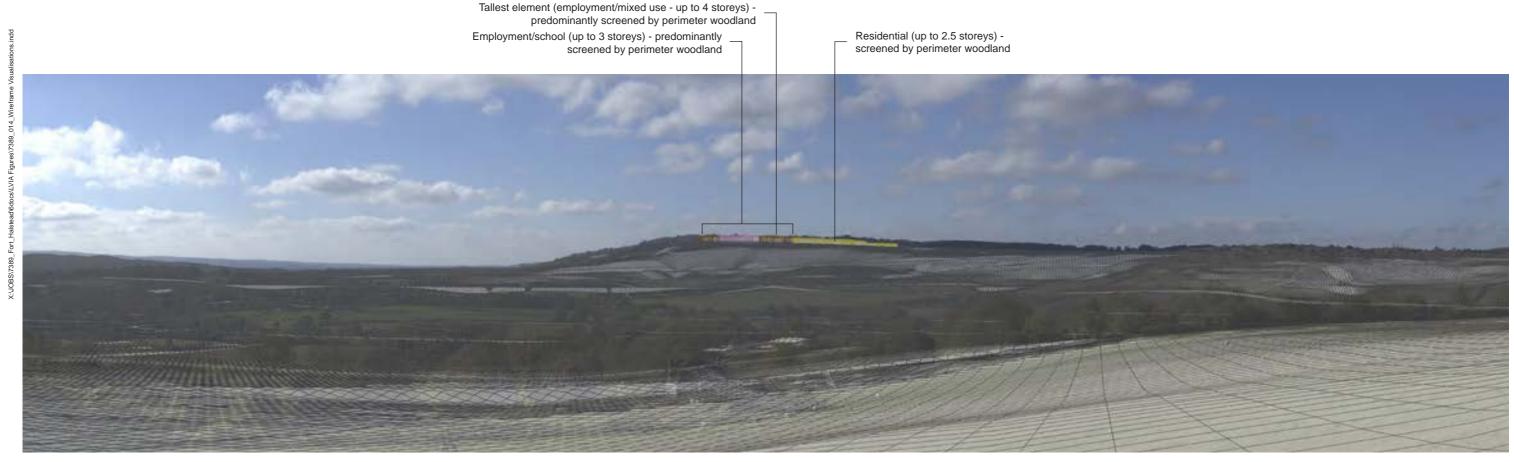
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Figure 13: Wireframe Visualisations of Permitted Development



Annotated wireframe overlay

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Location Plan: © Crown copyright and database rights 2020. Ordnance Survey 100030848.

LEGEND

Residential - up to 2 Storeys (modelled at 11m) Residential - up to 2.5 Storeys (modelled at 12.5m)

Residential - up to 3 Storeys (modelled at 13.5m)

Mixed Use - up to 3 Storeys (modelled at 16m)

School/Employment - up to 3 Storeys (modelled at 15m)

Employment - up to 3 Storeys (modelled at 15m)

Employment/Mixed Use - up to 4 Storeys (modelled at 16m)

(modelled at 1.2m)

VIEWPOINT INFORMATION

Grid Reference: 553091, 160257 Elevation (AOD): 126m

Viewer Height: 1.6m Viewing Distance: 300mm

Angle (width): 75°, buildings occupy - 14° Digital SLR, 50mm Camera & Lens: 28/10/2014 11:50 Photo date / time:

Distance to site boundary: 2.7km



Location Plan - 1:50,000 scale

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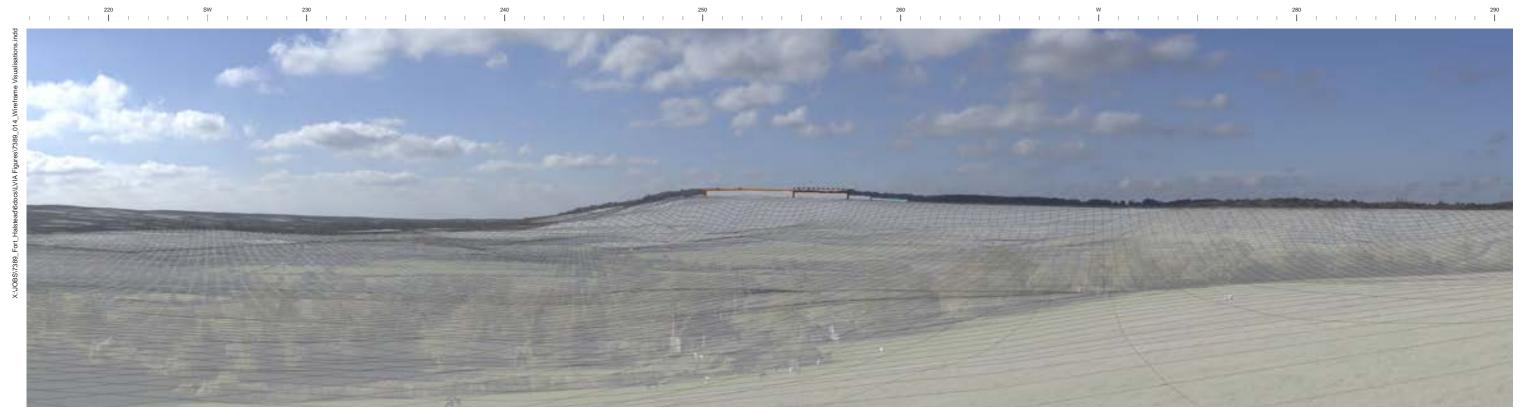
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Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 12: View from Footpath SR60, near Otford Mount, looking south west

PROJECT TITLE





Wireframe overlay 2015



Wireframe overlay 2020

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Figure 13: Wireframe Visualisations of Permitted Development



Existing view



Wireframe overlay

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Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 14: View from junction of London Road/Argyle Road, within Sevenoaks, looking north-west

Employment and residential areas (between 2.5 - 4 storeys) -



Annotated wireframe overlay

These visuals are based upon LiDAR terrain data with spot heights at 5m intervals and do not precisely model small scale changes in landform or sharp breaks in slope.

The three dimensional model of the development is indicative and is not based on an accurate

No dimensions are to be scaled from this drawing. All dimensions are to be checked on site. Area measurements for indicative purposes only.

Location Plan: © Crown copyright and database rights 2020. Ordnance Survey 100030848.

LEGEND

Residential - up to 2 Storeys (modelled at 11m)

Residential - up to 2.5 Storeys (modelled at 12.5m) Residential - up to 3 Storeys (modelled at 13.5m)

Mixed Use - up to 3 Storeys (modelled at 16m)

Employment - up to 3 Storeys (modelled at 15m)

School/Employment - up to 3 Storeys (modelled at 15m)

Employment/Mixed Use - up to 4 Storeys

(modelled at 1.2m)

VIEWPOINT INFORMATION

Grid Reference: 552850, 154935 Elevation (AOD): 141m Viewer Height: 1.6m

Viewing Distance: 300mm

Angle (width): 75°, buildings occupy - 16° Digital SLR, 50mm Camera & Lens: Photo date / time: 28/10/2014 14:30

Distance to site boundary: 4.9km



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Location Plan - 1:50,000 scale

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DRAWING TITLE Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 14: View from junction of London Road/Argyle Road, within Sevenoaks, looking north-west

Residential (up to 2 storeys) -

predominantly screened by perimeter woodland





Wireframe overlay 2015



Wireframe overlay 2020

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PROJECT TITLE FORT HALSTEAD

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Figure 13: Wireframe Visualisations of Permitted Development

Viewpoint 14: View from junction of London Road/Argyle Road, within Sevenoaks, looking north-west

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Appendices to Landscape and Visual Impact Assessment

May 2020

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May 2020 **Fort Halstead**

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Appendix 2 References
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Appendix 4 Visualisations and ZTV Studies
Appendix 5 National Planning Practice Guidance

Appendix 6 Extracts from Landscape Character Assessment

Version: Submission Version

Version date: May 2020 Comment Final

This document has been prepared and checked in accordance with ISO 9001:2008.

May 2020 **Fort Halstead**

Appendix 1 Glossary

Cumulative effects. The additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together. ¹

Landscape Character Areas These are single unique areas which are the discrete geographical areas of a particular landscape type. Each has its own individual character and identity, even though it shares the same generic characteristics with other types.²

Landscape character type. These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, historical land use, and settlement pattern.²

Landscape effects. Effects on the landscape as a resource in its own right. 1

Landscape character. A distinct and recognisable pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.²

Landscape quality (or condition). A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements. ¹

Landscape receptor. Defined aspects of the landscape resource that have the potential to be affected by a proposal. ¹

Landscape value. The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons. ¹

Magnitude (of effect). A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term, in duration. ¹

Mitigation. Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects).¹

Sensitivity. A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor. ¹

Susceptibility. The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences. $^{\rm 1}$

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Visual amenity. The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of people living, working, recreating, visiting or travelling through an area. ¹

Visual effect. Effects on specific views and on the general visual amenity experienced by people. 1

 $\it Visual\ receptor.$ Individuals and/or defined groups of people who have the potential to be affected by a proposal. 1

Zone of Theoretical Visibility (ZTV). A map, usually digitally produced, showing areas of land within which a development is theoretically visible.¹

 1 The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Landscape Institute with the Institute of Environmental Management and Assessment, 2013

 2 An Approach to Landscape Character Assessment Guidance for England and Scotland, Natural England, 2014.

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Fort Halstead

Appendix 2 References

- 1) The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Landscape Institute with the Institute of Environmental Management and Assessment, 2013.
- 2) An Approach to Landscape Character Assessment, Natural England, 2014.
- 3) Special Report The State of Environmental Impact Assessment Practice in the UK, Institute of Environmental Management and Assessment, 2011
- 4) Landscape Institute Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment.
- 5) Landscape Institute Technical Note 02/17 Visual Representation
- 6) European Landscape Convention, 2000.
- 7) Sevenoaks District Council Adopted Core Strategy Development Plan (2011)
- 8) Sevenoaks District Council Adopted Allocations and Development Management Plan (ADMP) (2015)
- 9) Sevenoaks District Council Proposed Submission Version of the Local Plan (2018)
- 10) Sevenoaks Landscape Character Assessment (2014)
- 11) Kent Downs AONB Management Plan 2014 2019
- 12) The Kent Downs AONB Landscape Design Handbook (undated)
- 13) Kent Design Guide (undated)
- 14) Adopted Development in the Green Belt SPD (2015)
- 15) Sevenoaks District Council Green Infrastructure Topic Paper (2013)

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Appendix 3 Methodology

Introduction

This appendix contains additional detail regarding the assessment methodology, supplementing the information provided within the LVIA text. This appendix sets out a standard approach – specific matters in terms of the scope of assessment, study area and modifications to the standard approach for this assessment are set out within the LVIA.

The methodology has the following key stages, which are described in more detail in subsequent sections, as follows:

- Baseline includes the gathering of documented information; agreement of the scope of the assessment with the EIA co-ordinator and local planning authority; site visits and initial reports to the EIAA co-ordinator of issues that may need to be addressed within the design.
- Design input into the design / review of initial design / layout / options and mitigation options.
- Assessment includes an assessment of the landscape and visual effects of the scheme, requiring site based work and the completion of a full report and supporting graphics.
- Cumulative Assessment assesses the effects of the proposal in combination with other developments, where required.

Baseline

The baseline study establishes the planning policy context, the scope of the assessment and the key receptors. It typically includes the following key activities:

- A desk study of relevant current national and local planning policy, in respect of landscape and visual matters, for the site and surrounding areas.
- Agreement of the main study area radius with the local planning authority.
- A desk study of nationally and locally designated landscapes for the site and surrounding areas.
- A desk study of existing landscape character assessments and capacity and sensitivity studies for the site and surrounding areas.
- A desk study of historic landscape character assessments (where available) and
 other information sources required to gain an understanding of the contribution of
 heritage assets to the present day landscape.

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- Collation and evaluation of other indicators of local landscape value such as references in landscape character studies or parish plans, tourist information, local walking & cycling guides, references in art and literature.
- The identification of valued character types, landscape elements and features which may be affected by the proposal, including rare landscape types.
- Exchanging information with other consultants working on other assessment topics for the development as required to inform the assessment.
- Draft Zone of Theoretical Visibility (ZTV) studies to assist in identifying potential viewpoints and indicate the potential visibility of the proposed development, and therefore scope of receptors likely to be affected. The methodology used in the preparation of ZTV studies is described within Appendix 12.4.
- The identification of and agreement upon, through consultation, the scope of assessment for cumulative effects.
- The identification of and agreement upon, through consultation, the number and location of representative and specific viewpoints within the study area.
- The identification of the range of other visual receptors (e.g. people travelling along routes, or within open access land, settlements and residential properties) within the study area.
- Site visits to become familiar with the site and surrounding landscape; verify documented baseline; and to identify viewpoints and receptors.
- Input to the design process.

The information gathered during the baseline assessment is drawn together and summarised in the baseline section of the report and reasoned judgements are made as to which receptors are likely to be significantly affected. Only these receptors are then taken forward for the detailed assessment of effects (ref. GLVIA 3rd edition, 2013, para 3.19).

Design

The design and assessment stages are necessarily iterative, with stages overlapping in parts. Details of any mitigation measures incorporated within the proposals to help reduce identified potential landscape and visual effects are set out within the LVIA.

Assessment

The assessment of effects includes further desk and site based work, covering the following key activities:

• The preparation of a ZTV based on the finalised design for the development.

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- An assessment, based on both desk study and site visits, of the sensitivity of receptors to the proposed development.
- An assessment, based on both desk study and site visits, of the magnitude and significance of effects upon the landscape character, designated and recreational landscape and the existing visual environment arising from the proposed development.
- An informed professional judgements as to whether each identified effect is positive, neutral or adverse.
- A clear description of the effects identified, with supporting information setting out the rationale for judgements.
- Identification of which effects are judged to be significant based on the significance thresholds set out within the LVIA
- The production of photomontages from a selection of the agreed viewpoints showing the anticipated view following construction of the proposed development.

Site

The effect of physical changes to the site are assessed in terms of the effects on the landscape fabric.

Landscape and Townscape Character Considerations

The European Landscape Convention (2000) provides the following definition:

"Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."

And notes also in Article 2 that landscape includes "natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas".

An Approach to Landscape Character Assessment (Natural England, 2014) defines landscape character as:

"a distinct and recognisable pattern of elements, or characteristics, in the landscape that make one landscape different from another, rather than better or worse."

The susceptibility of landscape character areas is judged based on both the attributes of the receiving environment and the characteristics of the proposed development as discussed under 'susceptibility' within the methodology section of the LVIA. Thus, the key characteristics of the landscape character types/areas are considered, along with scale, openness, topography; the absence of, or presence, nature and patterns of development, settlement, landcover, the contribution of heritage assets and historic landscape elements and patterns, and land uses in forming the character. The

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condition of the receiving landscape, i.e. the intactness of the existing character will also be relevant in determining susceptibility. The likelihood of material effects on the landscape character areas can be judged based on the scale and layout of the proposal and how this relates to the characteristics of the receiving landscape.

The introduction of any development into a landscape adds a new feature which can affect the 'sense of place' in its near vicinity, but with distance, the existing characteristics reassert themselves.

The baseline is informed by desk study of published landscape character assessments and field survey. It is specifically noted within An Approach to Landscape Character Assessment (Natural England, 2014) that:

"Our landscapes have evolved over time and they will continue to evolve – change is a constant but outcomes vary. The management of change is essential to ensure that we achieve sustainable outcomes – social, environmental and economic. Decision makers need to understand the baseline and the implications of their decisions for that baseline."

At page 51 it describes the function of Key Characteristics in landscape assessment, as follows:

"Key characteristics are those combinations of elements which help to give an area its distinctive sense of place. If these characteristics change, or are lost, there would be significant consequences for the current character of the landscape. Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed. They can be used as indicators to inform thinking about whether and how the landscape is changing and whether, or not, particular policies — for example - are effective and having the desired effect on landscape character."

It follows from the above that in order to assess whether landscape character is significantly affected by a development, it should be determined how each of the key characteristics would be affected. The judgement of magnitude therefore reflects the degree to which the key characteristics and elements which form those characteristics will be altered by the proposals.

Landscape value - considerations

Paragraph 5.19 of GLVIA states that "A review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape- such as trees, buildings or hedgerows -may also have value. All need to be considered where relevant."

Paragraph 5.20 of GLVIA indicates information which might indicate landscape value, including:

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- Information about areas recognised by statute such as National Parks, Areas of Outstanding Natural Beauty;
- Information about Heritage Coasts, where relevant;
- Local planning documents for local landscape designations;
- Information on features such as Conservation Areas, listed buildings, historic or cultural sites;
- Art and literature, identifying value attached to particular areas or views; and
- Material on landscapes of local or community interest, such as local green spaces, village greens or allotments.

An assessment of landscape value is made based on the following factors outlined in Box 5.1 of GLVIA3: Landscape quality (condition); scenic quality; rarity; representativeness; conservation interest; recreational value; perceptual aspects; and associations.

In addition to the above list, consideration is given to any evidence that indicates whether the landscape has particular value to people that would suggest that it is of greater than Community value.

Viewpoints and Visual Receptors - considerations

A wide variety of visual receptors can reasonably be anticipated to be affected by the proposed development. Within the baseline assessment, the ZTV study and site visits are used to determine which visual receptors are likely to be significantly affected and therefore merit detailed assessment. In line with guidance (GLVIA, 3rd Edition, 2013); both representative and specific viewpoints may be identified to inform the assessment. In general, the majority of viewpoints will be representative — representing the visual receptors at the distance and direction in which they are located and of the type(s) that would be present at that location. The representative viewpoints have generally been selected in locations where significant effects would be anticipated; though some may be selected outside of that zone — either to demonstrate the reduction of effects with distance; or to specifically ensure the representation of a particularly sensitive receptor.

The types of visual receptors likely to be included with the assessment are:

- Users of walking routes or accessible landscapes including Public Rights of Way, National and Regional Trails and other long distance routes, Common Land, Open Access Land, permissive paths, land held in trust (e.g. Woodland Trust, National Trust) offering free public access, and other regularly used, permitted walking routes:
- Visitors to and residents of settlements;

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- Visitors to specific valued viewpoints;
- Visitors to attractions or heritage assets for which landscape and views contribute to the experience; and
- Users of roads or identified scenic routes.

Visual receptors are grouped for assessment into areas which include all of the routes, public spaces and homes within that area. Groups are selected as follows:

- Based around settlements in order to describe effects on that that community
 e.g. a settlement and routes radiating from that settlement; or
- An area of open countryside encompassing a number of routes, accessible spaces and individual dwellings; or
- An area of accessible landscape and the routes within and around it e.g. a country park; and
- such that effects within a single visual receptor group are similar enough to be readily described and assessed.

With the exception of specific viewpoints, each route, settlement or location will encompass a range of possible views, which might vary from no view of the development to very clear, close views. Therefore effects are described in such a way as to identify where views towards the development are likely to arise and what the scale, duration and extent of those views are likely to be. In some cases this will be further informed by a nearby viewpoint and in others it will be informed with reference to the ZTV, aerial photography and site visits. Each of these individual effects are then considered together in order to reach a judgement of the effects on the visual receptors along that route, or in that place.

The representative viewpoints are used as 'samples' on which to base judgements of the scale of effects on visual receptors. The viewpoints represent multiple visual receptors, and duration and extent are judged when assessing impacts on the visual receptors.

For specific viewpoints (key and sometimes promoted viewpoints within the landscape), duration and extent are assessed, with extent reflecting the extent to which the development affects the valued qualities of the view from the specific viewpoint.

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Visual Receptor Sensitivity - typical examples

	High	Medium	Low
National/International	1	4	8
Local/District	2	5	8
Community	3	6	9
Limited		7	10

- Visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.
- 2) People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas.
- 3) People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land).
- 4) Users of promoted scenic rail routes.
- 5) Users of promoted scenic local road routes.
- 6) Users of cycle routes, local roads and railways.
- 7) Outdoor workers.
- 8) Users of A-roads which are nationally or locally promoted scenic routes.
- 9) Users of sports facilities such as cricket grounds and golf courses.
- 10) Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

Preparation and use of Visuals

The ZTVs are used to inform the field study assessment work, providing additional detail and accuracy to observations made on site. Photomontages may also be produced in order to assist readers of the assessment in visualising the proposals, but are not used in reaching judgements of effect. The preparation of the ZTVs (and photomontages where applicable) is informed by the Landscape Institute's Advice Note 01/11 – 'Photography and photomontage in landscape and visual impact

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assessment' and SNH 'Visual Representation of Wind Farms Best Practice Guidance' (both the 2007 and 2017 editions).

The following points should be borne in mind in respect of the ZTV study:

• Areas shown as having potential visibility may have visibility of the development obscured by local features such as trees, hedgerows, embankments or buildings.

A detailed description of the methods by which ZTVs and visualisations are prepared is included in Appendix 4.

In addition to the main visualisations, illustrative views are used as appropriate to illustrate particular points made within the assessment. These are not prepared to the same standard as they simply depict existing views, character or features rather than forming the basis for visualisations.

Cumulative Assessment

Cumulative assessment relates to the assessment of the effects of more than one development. A search area from the proposal site (typically of a similar scale to the study area) is agreed with the planning authority. For each of the identified cumulative schemes agreement is reached with the Planning Authority as to whether and how they should be included in the assessment.

Only operational and consented developments are considered, unless specific circumstances indicate that a development in planning should be included, with progressively decreasing emphasis placed on those which are less certain to proceed. Typically, operational and consented developments are treated as being part of the landscape and visual baseline. i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed.

The cumulative assessment examines the same groups of landscape and visual receptors as the assessment for the main scheme, though different viewpoints may be used in order to better represent the likely range of effects arising from the combination of schemes. The assessment is informed by cumulative ZTVs as necessary, showing the extent of visual effects of the schemes in different colours to illustrate where visibility of more than one development is likely to arise. Cumulative wirelines or photomontages may also be prepared.

In addition, the effects on users of routes through the area, from which developments may be sequentially visible as one passes through the landscape are also considered, if appropriate. This assessment is based on the desk study of ZTVs and aerial photography, and site visits to travel along the routes being assessed.

In relation to landscape and visual cumulative assessment, it is important to note the following:

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- For each assessed receptor, combined cumulative effects may be the same as for the application scheme, or greater (where the influence of multiple schemes would increase effects, or where schemes in planning other than the application scheme would have the predominant effects).
- For each assessed receptor, incremental cumulative effects may be the same as for the application scheme, or reduced (where the influence of other schemes in planning would be such that were they consented and considered to be part of the baseline, the incremental change arising from the addition of the application scheme would be less).
- Subject to the distance and degree of intervening landform, vegetation and structures there may be no cumulative effects.

The way in which the assessment is described and presented is varied depending on the number and nature of scenarios which may arise. This variation is needed in order to convey to the reader the key points of each assessment. For example, the three different cumulative combinations that may arise for an assessment in which there are two existing undetermined applications each can be assessed individually. A situation in which there are 10 applications cannot reasonably be assessed in this way and the developments may need to be grouped for analysis.

Residential Amenity

Paragraph 6.17 of GLVIA, 3rd edition notes that:

"In some instances it may also be appropriate to consider private viewpoints, mainly from residential properties.... Effects of development in private property are frequently dealt with mainly through 'residential amenity assessments'. These are separate from LVIA although visual effects assessment may sometimes be carried out as part of a residential amenity assessment, in which case this will supplement and form part of the LVIA for a project. Some of the principles set out here for dealing with visual effects may help in such assessments but there are specific requirements in residential amenity assessment"

When dealing with effects on residential properties, the outlook from a private property is essentially a private matter. The difference between that private interest and what should be protected in the public interest has been the subject of particular focus at Public Inquiries in relation to wind farm cases and the lessons learnt from Inspector's decisions have informed how effects on views from residential properties influence a planning decision. This is fully described and set out in paragraphs 209-211 of the decision regarding Spring Farm Ridge wind farm (APP/Z2830/A/11/2165035 — December 2014), which sets out the approach that in considering effects on private residential amenity — whether effects are visually significant is not relevant — effects which fall below the threshold of being "so unpleasant, overwhelming and oppressive that this would become an unattractive place to live" (known as the Lavender Test) "would not feature in the planning balance, irrespective of how many dwellings were so affected". The

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Inspector's report also makes clear that this is a separate exercise to "weighing in the balance, as a component of the character and appearance issue, the effects on the locality generally that would derive from visual effects on resident receptors", which is covered within the assessment of effects on visual receptors.

The Spring Farm Ridge Inspector's decision is for a wind farm but makes it clear that "the level of impact or threshold at which the public interest would be so engaged should be no different for wind turbines than would be the threshold applicable to other types of development." Wind farms are unusually tall developments with a greater chance that they could have such an effect. Most forms of development are unlikely to cause effects of such a high magnitude to render a property an unattractive place in which to live unless in very close to the property and occupying a large proportion of views.

Residential properties closest to the site are viewed on site and from aerial photography to consider whether a residential amenity assessment is required. Where such an assessment is required, it is provided as an appendix to the LVIA.

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Appendix 4 Visualisations and ZTV Studies

ZTV Studies

ZTV studies are prepared using the ESRI ArcGIS Viewshed routine. This creates a raster image that indicates the visibility (or not) of the points modelled. LDA Design undertake a ZTV study that is designed to include visual barriers from settlements and woodlands (with heights derived from NEXTMAP 25 surface mapping data). If significant deviations from these assumed heights are noted during site visits, for example young or felled areas of woodland, or recent changes to built form, the features concerned will be adjusted within the model or the adoption of a digital surface model will be used to obtain actual heights for these barriers.

The model is also designed to take into account both the curvature of the earth and light refraction, informed by the SNH guidance. LDA Design undertake all ZTV studies with observer heights of 2m.

The ZTV analysis begins at 1m from the observation feature and will work outwards in a grid of the set resolution until it reaches the end of the terrain map for the project.

For all plan production LDA Design will produce a ZTV that has a base and overlay of the 1:50,000 Ordnance Survey Raster mapping or better. The ZTV will be reproduced at a suitable scale on an A3 template to encompass the study area.

Ground model accuracy

Depending on the project and level of detail required, different height datasets may be used. Below is listed the different data products and their specifications:

Product	Distance Between Points	Vertical RMSE Error
LiDAR	50cm – 2m	up to +/- 5cm
Photogrammetrically Derived Heights	2m – 5m	up to +/- 1.5m
Ordnance Survey OS terrain 5	5 m	up to +/- 2.5m
NextMap25 DTM	25 m	+/- 2.06m
Ordnance Survey OS terrain 50	50 m	+/- 4m

Site-specific topographical survey data may also be used where available.

Photomontages and Photowires

Verified / verifiable photomontages are produced in seven stages. Photowires (wireframe visualisations) are produced using the same overall approach, but only require some of the steps outlined below.

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- 1) Photography is undertaken using a digital SLR camera and 50mm equivalent lens. A tripod is used to take overlapping photographs which are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to enable correct sizing when reproduced in the final images. The photographer also notes the GPS location of the viewpoint and takes bearings to visible landmarks whilst at the viewpoint.
- 2) Creation of a ground model and 3D mesh to illustrate that model. This is created using NextMap25 DTM point data (or occasionally other terrain datasets where required, such as site-specific topographical data or Photogrammetrically Derived Heights) and ground modelling software.
- 3) The addition of the proposed development to the 3D model. The main components of the proposed development are accurately modelled in CAD and are then inserted into the 3D model at the proposed locations and elevations.
- 4) Wireline generation The viewpoints are added within the 3D CAD model with each observer point being inserted at 1.5m above the modelled ground plane. The location of the landmarks identified by the photographer may also be included in the model. The view from the viewpoint is then is then replicated using virtual cameras to create a series of single frame images, which also include bearing markers. As with the photographs, these single frame images are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to ensure that they are the same size as the photographs.
- 5) Wireline matching The photographs are matched to the wirelines using a combination of the visible topography, bearing markers and the landmarks that have been included in the 3D model.
- 6) For the photomontage, an industry standard 3D rendering application is used to produce a rendered 3D view of the proposed development from the viewpoint. The rendering uses materials to match the intended surface finishes of the development and lighting conditions according to the date and time of the viewpoint photograph.
- 7) The rendered development is then added to the photograph in the position identified by the wireline (using an image processing application) to ensure accuracy. The images are then layered to ensure that the development appears in front of and behind the correct elements visible within the photograph. Where vegetation is proposed as part of the development, this is then added to the final photomontage.

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Appendix 5 National Planning Practice Guidance

Planning Practice Guidance for Natural Environment, January 2016

This document is intended to explain the key issues in implementing policy to protect biodiversity, but also contains a section on landscape. This section reiterates the policy set out in the NPPF, clarifying that development outside National Parks and Areas of Outstanding Natural Beauty "might have an impact on the setting of, and implementation of, the statutory purposes of these protected areas" (para 003), that "National Parks and Areas of Outstanding Natural Beauty management plans may also be material considerations in making decisions on individual planning applications, where they raise relevant issues" (para 004) and that Natural England has published advice on Heritage Coasts. This guidance indicates that heritage coasts are "managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors".

Planning Practice Guidance for Design, March 2014

The guidance sets out principles in respect of the design of a development, noting that:

"Achieving good design is about creating places, buildings, or spaces that work well for everyone, look good, last well, and will adapt to the needs of future generations.

Good design responds in a practical and creative way to both the function and identity of a place. It puts land, water, drainage, energy, community, economic, infrastructure and other such resources to the best possible use – over the long as well as the short term."

In respect of the determining applications and the relationship between a proposal and the surrounding townscape, the guidance notes that:

"Local planning authorities are required to take design into consideration and should refuse permission for development of poor design. Local planning authorities should give great weight to outstanding or innovative designs which help to raise the standard of design more generally in the area. This could include the use of innovative construction materials and techniques. Planning permission should not be refused for buildings and infrastructure that promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design..."

In respect of local character, the guidance further notes that:

"Development should seek to promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, local man-made and natural heritage and culture, while not preventing or discouraging appropriate innovation.

The successful integration of all forms of new development with their surrounding context is an important design objective, irrespective of whether a site lies on the urban fringe or at the heart of a town centre.

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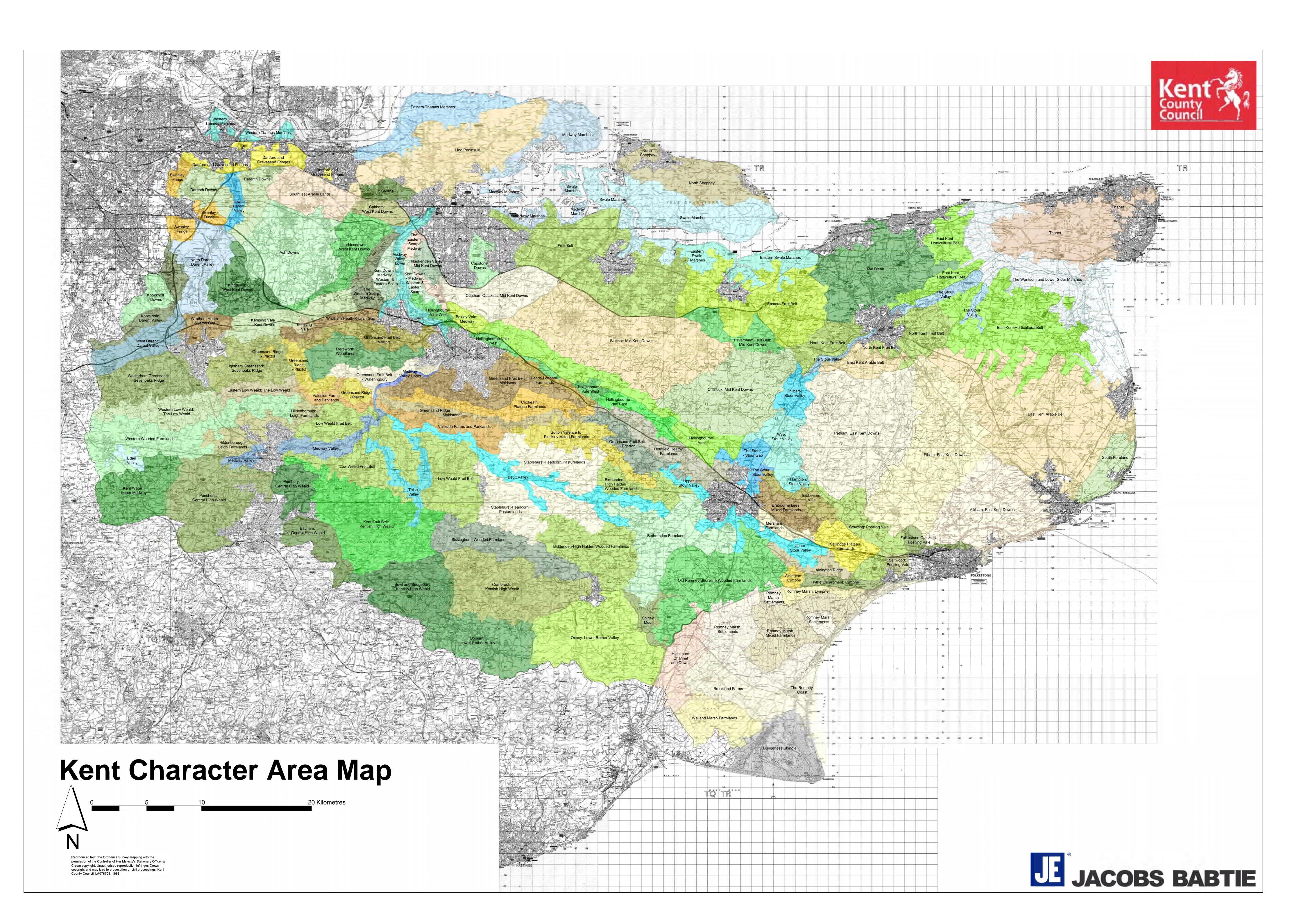
When thinking about new development the site's land form should be taken into account. Natural features and local heritage resources can help give shape to a development and integrate it into the wider area, reinforce and sustain local distinctiveness, reduce its impact on nature and contribute to a sense of place. Views into and out of larger sites should also be carefully considered from the start of the design process.

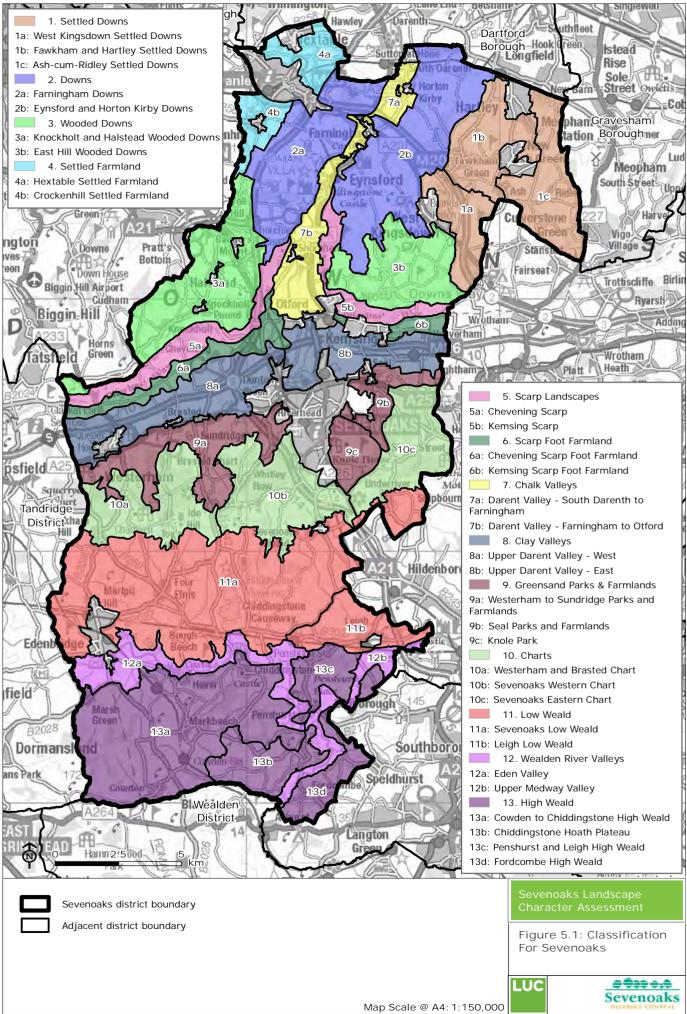
Local building forms and details contribute to the distinctive qualities of a place. These can be successfully interpreted in new development without necessarily restricting the scope of the designer. Standard solutions rarely create a distinctive identity or make best use of a particular site. The use of local materials, building methods and details can be an important factor in enhancing local distinctiveness when used in evolutionary local design, and can also be used in more contemporary design. However, innovative design should not be discouraged.

The opportunity for high quality hard and soft landscape design that helps to successfully integrate development into the wider environment should be carefully considered from the outset, to ensure it complements the architecture of the proposals and improves the overall quality of townscape or landscape. Good landscape design can help the natural surveillance of an area, creatively help differentiate public and private space and, where appropriate, enhance security."

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Appendix 6 Extracts from Landscape Character Assessment





Source: SDC, OS