



AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement - Volume 3 - Appendix 15.3 - Landscape and Visual Assessment Methodology

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations
2009 – Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

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Assessment Methodology

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APPENDIX 15.3 LANDSCAPE AND VISUAL ASSESSMENT METHODOLOGY

1.1. GUIDANCE

- 1.1.1.1. The assessment methodology follows the ‘Guidelines for Landscape and Visual Impact Assessment’ Third Edition (GLVIA3), (Landscape Institute, IEMA, 3rd Edition, 2013). As recommended by GLVIA3, this is not a generic LVIA methodology, but has been tailored to be proportionate to the nature and location of the Proposed Development. The methodology also considers guidance within ‘An Approach to Landscape Character Assessment’ (Natural England, 2014).

1.2. INTRODUCTION

- 1.2.1.1. Essentially, the level of landscape or visual effect (and whether or not this is significant) is determined through consideration of the ‘sensitivity’ and ‘susceptibility’ of the landscape or visual receptor to the Proposed Development and the ‘magnitude of change’ that would be brought about by the Proposed Development, were it to be constructed.
- 1.2.1.2. The assessment process has involved a process of iterative design and the Proposed Development includes elements of landscape and visual mitigation that have been designed in (and are thus considered embedded mitigation). The assessment considers the remaining effects: the residual effects that could not otherwise be mitigated or ‘designed out’.
- 1.2.1.3. The type of effect is also considered: whether it is direct or indirect, short or long term, temporary (reversible) or permanent, as well as whether the effect is positive (beneficial), neutral or negative (adverse). Cumulative effects – the effect of the Proposed Development in conjunction with other proposed developments are also considered.
- 1.2.1.4. The landscape and visual assessment unavoidably involves a combination of both quantitative and qualitative assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.

1.3. STAGES OF DEVELOPMENT

1.3.1.1. The assessment considers the Proposed Development and associated infrastructure from construction to decommissioning, with the assessment divided into three stages of development as follows.

1.3.2. CONSTRUCTION

1.3.2.1. This part of the assessment considers the short-to long-term and temporary to permanent effects arising from construction activities including the presence of temporary site compounds, car parks and laydown areas. The long-term permanent effects that occur progressively during the construction period but which persist through the operational period, such as the removal of trees and hedges are considered under the operational period.

1.3.3. OPERATIONAL PERIOD

1.3.3.1. This part of the assessment considers the medium to long-term permanent effects that persist through the operational life of the Proposed Development, specifically the existence of the Converter Station, ORS and associated infrastructure and the removal of trees and hedges.

1.3.3.2. The operational period assessment considers the residual effects of the development at three points during the operational period: on completion, after 10 years and; after 20 years. This is reflective of the time it would take for mitigation planting to become established.

1.3.4. DECOMMISSIONING

1.3.4.1. This part of the assessment considers the landscape and visual effects of demolishing and removing the Converter Station and the ORS at the Landfall.

1.4. ASSESSMENT PROCESS

1.4.1.1. The flow chart on the following page, taken from GLVIA3, summarises the assessment process. The detail is set out in the landscape and visual assessment sections below.

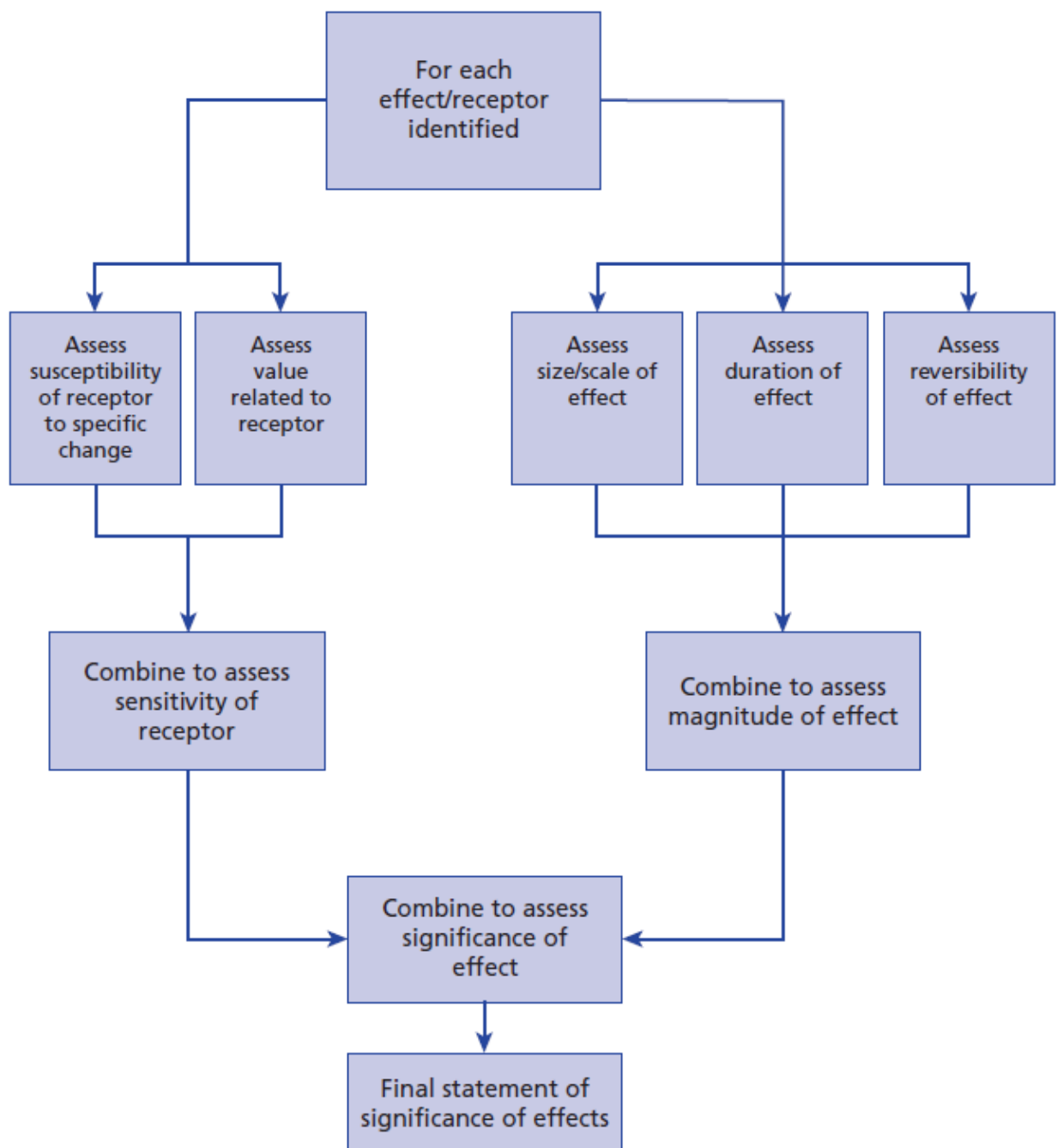


Plate 1 - Assessment Process (Figure 3.5 from GLVIA3)

1.5. TERMINOLOGY

1.5.1.1. A description of the terms used in this LVIA is provided below:

1.5.2. SENSITIVITY OF RECEPTOR

1.5.2.1. This is established by considering the value of the receptor and its susceptibility to change. Both these two aspects inform the sensitivity of landscape and visual

receptors as set out in Tables below. For the purposes of this LVIA, receptor sensitivity is classified on a four-point scale of: negligible, low, medium, and high.

1.5.3. RESOURCE / RECEPTOR VALUE

- 1.5.3.1. For the landscape resource this is related to the value that is attached to different landscapes by society. A landscape may be valued by different people for different reasons.
- 1.5.3.2. For visual receptors this relates to the recognition attached to a particular view (for example in relation to heritage assets or through planning designations) and indicators of value attached to views by visitors (for example through appearances in guidebooks or on tourist maps and the provision of facilities such as car parking and interpretation).
- 1.5.3.3. For the purposes of the LVIA a receptor value is classified on a four-point scale of: negligible, low, medium, and high (see Tables 2 and 5).

1.5.4. SUSCEPTIBILITY TO CHANGE

- 1.5.4.1. For landscape receptors this means the ability to accommodate a proposed development without undue consequences for the maintenance of the baseline situation and/or achievement of landscape planning policies and strategies.
- 1.5.4.2. For visual receptors this is a product of the occupation or activity of people experiencing the view and the extent to which their attention or interest may therefore be focused on the views and visual amenity they experience.
- 1.5.4.3. For the purposes of this LVIA, susceptibility to change is classified on a three-point scale of: low, medium, and high (see Tables 1 and 4).

1.5.5. MAGNITUDE OF CHANGE

- 1.5.5.1. This is gauged by assessing the type and amount of change predicted to occur in relation to the landscape or visual receptor. Factors influencing the magnitude of change include: size, scale and nature of change; geographical extent; and duration and reversibility of effect. For the purposes of the LVIA, magnitude of change is classified on a four-point scale of: negligible, small, medium, and large.

1.5.6. LEVEL OF EFFECT

- 1.5.6.1. The level of landscape and visual effect is gauged by considering the magnitude of change along with the sensitivity of the receptor using professional judgement. For the purposes of the LVIA, level of effect is classified on a six-point scale of: negligible, minor, minor to moderate, moderate, moderate to major and major.
- 1.5.6.2. In line with best practice guidance set out in GLVIA3, in addition to assessing level, effects are classified as: positive (beneficial), negative (adverse) or neutral as well as direct and indirect. An effect is understood to be neutral when the predicted residual

change would, on balance, result in neither an improvement, nor a deterioration of the landscape and visual resource compared with the existing situation.

1.5.7. EFFECT SIGNIFICANCE

1.5.7.1. The Infrastructure Planning (Environmental Impact Assessment) (England) Regulations (HM Government, 2017) require that a judgement is made on whether an environmental effect is 'significant' or not.

1.5.7.2. Landscape and visual effects found to be moderate to major or greater are considered significant, whilst effects of minor or less are considered not significant. Effects which are minor to moderate or moderate may or may not be significant depending on the context and the specific landscape resource or visual receptor in question. This is a matter of professional judgement.

1.5.8. ASSESSMENT OF EFFECT

1.5.8.1. In accordance with GLVIA3 the assessment of landscape and visual effects are separate but linked procedures; the landscape is assessed as an environmental resource in its own right, whereas visual effects are assessed on views and visual amenity experienced by people.

1.6. LANDSCAPE ASSESSMENT

1.6.1.1. Landscape effects are defined by the Landscape Institute in GLVIA3, paragraphs 5.1 and 5.2 as follows:

“An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern here is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character” (paragraph 5.1)

“The study area should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner.” (paragraph 5.2)

1.6.1.2. Landscape is characterised by dividing the study area into geographical areas which have readily identifiable characteristics in common. Landscape takes its character from a combination of elements, including: topography / landform, watercourses, patterns of land use; land cover / vegetation, open space, cultural influences, urban grain and building form. Where there are major elements of infrastructure, such as roads and railways, these often serve to divide one area from another. Character is not just about the physical elements and features of the landscape, but also embraces aesthetic, perceptual and experiential aspects often referred to as intangible.

- 1.6.1.3. Landscape effects can be defined as the changes in the fabric, character and quality of the landscape as a result of a development, through:
- Direct effects upon the landscape fabric (specific features and elements that make up the landscape), through the addition of new elements, or the removal of existing elements, such as trees, vegetation and buildings and other characteristic elements of the landscape character type;
 - Indirect effects on the overall patterns of elements and on the perceptual and aesthetic aspects (referred to as intangible) that give rise to landscape character and regional and local distinctiveness. These changes to the landscape ‘qualities’, through the degradation / erosion of landscape elements and patterns, and perceptual characteristics, particularly those that form key characteristic elements of landscape character types or contribute to landscape value.;
 - Cumulative addition of new features, the magnitude of which is sufficient to alter the overall landscape character type of an area, where more than one development may lead to a potential landscape effect; and
- 1.6.1.4. The landscape receptors identified within the assessment, including the LCA’s / LCTS, the setting of the National Park within 3 km of the Converter Station Area and specific landscape features which inform local landscape character. The sensitivity of these receptors has been arrived at by considering the landscape receptor value and the landscape susceptibility of the receptor to the change proposed, in accordance with Tables 1 and 2 below. Whilst the tables below are a useful guide, professional judgement has been used as far as possible to give an objective evaluation of sensitivity.

1.6.2. LANDSCAPE SUSCEPTIBILITY

- 1.6.2.1. Landscape susceptibility is defined in GLVIA3 to mean 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”* (paragraph 5.40).
- 1.6.2.2. 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. Landscape susceptibility varies according to different areas of landscape character and whilst accepting that development is likely to lead to high levels of landscape change in most circumstances, factors that commonly indicate lower landscape susceptibility or capacity to accommodate development include landscape characteristics of larger scale, uniformity, simple landform and skylines with limited landscape features. Generally speaking, lower landscape susceptibility together with lower landscape quality and value tends to indicate lower

landscape sensitivity to development. Conversely, higher landscape susceptibility, quality and value tend to indicate higher landscape sensitivity to development.

Table 1 – Susceptibility to Change

	Susceptibility to Change
High	Low ability to accommodate the specific proposed change; undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies / strategies.
Medium	Moderate ability to accommodate the specific proposed change; some undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies / strategies.
Low	High ability to accommodate the specific proposed change; little or no undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies / strategies.
Negligible	Very high ability to accommodate the specific proposed change; no undue consequences for the maintenance of the baseline situation (receptor value) and/or achievement of relevant planning policies / strategies

1.6.3. LANDSCAPE VALUE

- 1.6.3.1. This includes the consideration of a range of features which may include the presence or absence of landscape designation, landscape and scenic qualities, rarity / representativeness, conservation interests, recreational value, perceptual qualities such as tranquillity and historical or cultural associations. The importance attached to a landscape, often as a basis for designation or recognition, which expresses national or local consensus, because of its quality including cultural associations, scenic or aesthetic qualities
- 1.6.3.2. Landscape value may be indicated by the presence or absence of a landscape planning designation such as a National Park, Area of Outstanding Natural Beauty, Country Parks or Registered Parks and Gardens, indicating a landscape of national or local value accordingly
- 1.6.3.3. The absence of a landscape planning designation does not necessarily mean that an area is of 'low' landscape value. Undesignated areas are often valued locally. Indications of this may be present in the form of local cultural or natural heritage records and works of art, observation or records of scenic or aesthetic qualities such as wildness, or the presence of viewing platforms or benches.
- 1.6.3.4. It should be noted that a landscape of high value may not always equate to areas of high landscape quality and that areas of low landscape value may contain areas of

higher landscape quality. The state of repair or condition of the elements of a particular landscape, its integrity and intactness and the extent to which its distinctive character is apparent are also relevant. The quality of a landscape element or characteristic may also be influenced by the degree to which it may contribute to the overall landscape character, its rarity, fragility, and potential for replacement or mitigation. Landscapes of lower quality tend to include those under intensive agriculture, forestry or urban fringe situations where the landscape elements and patterns have been eroded, often creating a new landscape character.

Table 2 – Landscape Receptor Value

Value	Recognition	Features / Quality	Condition
High	Typically a landscape / feature of international or national recognition e.g.: World Heritage Sites, National Parks, Scheduled Monuments and Grade I and II* Listed Buildings, Registered	A strong sense of place with landscape / features worthy of conservation; Absence of detracting features.	A very high quality landscape / feature; attractive landscape / feature; exceptional
Medium	Regional recognition e.g.: Conservation Areas; Grade II Listed Buildings, Registered Parks and Gardens	A number of distinguishing features worthy of conservation; evidence of some degradation and occasional detracting features.	Ordinary to good quality landscape / feature with some potential for substitution; a reasonably attractive landscape / feature.
Low	Undesignated, but locally valued landscape / features	Few landscape features worthy of conservation; evidence of degradation with some detracting features.	Ordinary landscape / feature with high potential for substitution; quality that is fairly commonplace.

1.6.4. LANDSCAPE SENSITIVITY

1.6.4.1. GLVIA3 indicates that combining susceptibility and value can be achieved in a number of ways and needs to include professional judgement. However, it is generally accepted that a combination of high susceptibility and high value is likely to result in the highest sensitivity, whereas a low susceptibility and low value is likely to result in the lowest level of sensitivity. A summary of the likely characteristics of the different levels of sensitivity is described below in Table 3. It should be noted that the levels are indicative and in practice there is not a clear distinction between criteria levels.

Table 3 – Landscape Sensitivity

Landscape Resource Sensitivity	Characteristics
High	<p>Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would generally be a lower landscape capacity or scope for landscape change or positive enhancement, and higher landscape value and quality. Often includes landscapes which are highly valued for their scenic quality, including most statutorily (nationally / internationally designated landscapes).</p> <p>Elements/features that could be described as unique or are nationally scarce.</p> <p>Mature vegetation with provenance such as ancient woodland or mature parkland trees, and/or mature landscape features which are characteristic of and contribute to a sense of place and illustrates time-depth in a landscape and if replaceable, could not be replaced other than in the long term.</p>
Medium	<p>Landscape character, characteristics, and elements where, through consideration of the landscape resource and characteristics, there would be a medium landscape capacity or some scope for landscape change. Often includes landscapes of medium landscape value and quality which may be locally designated.</p> <p>Areas that have a positive landscape character but include some areas of alteration/degradation/or erosion of features.</p> <p>Perceptual/aesthetic aspects has some vulnerability to unsympathetic development; and/or features/elements that are locally commonplace;</p>

Landscape Resource Sensitivity	Characteristics
	unusual locally but in moderate/poor condition; or mature vegetation that is in moderate/poor condition or readily replicated.
Low	<p>Landscape character, characteristics and elements where, through consideration of the landscape resource and characteristics, there would be higher landscape capacity or scope for landscape change or positive enhancement.</p> <p>Damaged or substantially modified landscapes with few characteristic features of value.</p> <p>Capable of absorbing major change, and landscape elements/features that might be considered to detract from landscape character such as obtrusive man-made features (e.g. power lines, large scale developments, etc.).</p>
Negligible	<p>Landscape character, characteristics and elements where there is a high landscape capacity or a planned desire for landscape change. Usually applies to landscapes with a lower landscape susceptibility or higher landscape capacity for the development. May also apply to derelict landscapes, spoil heaps, and de-graded urban fringe areas that require restoration or re- development / re-planting.</p> <p>Areas that are relatively bland or neutral in character with few/no notable features.</p> <p>A landscape that includes areas of alteration/degradation or erosion of features, and/or landscape elements/features that are common place or make little contribution to local distinctiveness.</p> <p>Opportunities for the restoration of landscape through mitigation measures associated with the proposal.</p>

1.7. VISUAL ASSESSMENT

1.7.1.1. Visual assessment is concerned wholly with the effect of the development on views, and the general visual amenity. They are defined by the Landscape Institute in GLVIA 3, paragraphs 6.1 as follows:

“An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people

may be specifically affected by changes in the context and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements.”

- 1.7.1.2. Visual effects relate to changes in available views of the landscape and the effect of those changes on people, including:
- The direct effects of the Proposed Development on the content and character of views through the intrusion or obstruction and/or the change or loss of existing elements.
 - The overall effect on visual amenity, be it degradation or enhancement.
- 1.7.1.3. Visual effects are identified for different receptors (people) who will experience the view at their places of residence, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:
- Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of the introduction of the proposed development or the loss of particular landscape elements or features already present in the view.
 - Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a greater effect than any one individual development.
- 1.7.1.4. The visual assessment aims to determine where the Proposed Development can be seen from; this is known as the visual envelope or, when determined by computer modelling, the Zone of Theoretical Visibility ('ZTV'). Once determined, a series of representative and key viewpoints (publicly accessible places from where it may be possible to see the Proposed Development) are chosen to illustrate the assessment, such as residential areas, public open spaces, Public Rights of Way ('PRoW') / public footpaths and roads.
- 1.7.1.5. In predicting the effects of the Proposed Development on the visual receptors from specific viewpoints being assessed, GLVIA3 (para 6.27) states that it is helpful to consider (but not restricted to) the following issues:
- Nature of the view (full, partial or glimpsed);
 - Proportion of the Proposed Development visible (full, most, part or none);
 - Distance of the viewpoint from the Proposed Development and whether it would be the focus of the view or only a small element;
 - Whether the view is stationary, transient or sequential; and
 - The nature of the changes to the view.
- 1.7.1.6. Additionally, the seasonal effects of vegetation are to be considered, in particular the varying degree of screening and filtering of views.

1.7.2. ZONES OF THEORETICAL VISIBILITY

- 1.7.2.1. In order to assist with viewpoint selection and to appreciate the potential influence of the development in the wider landscape, preliminary ZTV plans are used. ZTV plans illustrate the area from where it may be theoretically possible to view all, or part, of the Converter Station. The ZTV does not however, take account of the screening effects of buildings, localised landform and vegetation, unless specifically mentioned (see individual figures). As a result, there may be roads, tracks and footpaths in the vicinity of the site and in the wider setting which, although shown as falling within the ZTV, are screened or filtered by banks, walls and vegetation which would otherwise preclude viewing opportunities.
- 1.7.2.2. The ZTVs provide a starting point in the assessment process and accordingly tend towards giving a 'worst case' or greatest calculation of the theoretical visibility.
- 1.7.2.3. It should be noted that in reality, changing weather patterns and local climatic conditions, would influence the visibility of the Converter Station in terms of the extent of view, the colour and contrast of the Converter Station against the skyline, and thus the perceived visual impact. There would be periods of low visibility (i.e. fog, low cloud, and bright sunny conditions that are accompanied by haze) as well as periods of high visibility in clear weather. In some instances, and from some locations, the proposed building may be naturally 'back-lit' (i.e. appearing darker in colour during sunset/sunrise and periods of pale or white blanket cloud) and in other circumstances may appear to be naturally 'up-lit' (i.e. during stormy periods that combine dark clouds and bright sunshine). As a result, careful consideration on the colour and type of render of the Converter Station's external facade, and roof type, will assist in the reduction of such contrast in different climatic conditions.

1.7.3. VIEWPOINT ANALYSIS

- 1.7.3.1. Viewpoint analysis is used to assist the LVIA and is conducted from selected viewpoints within the study area. The purpose of this is to assess both the level of visual impact for particular receptors and to help guide the design process and focus the landscape and visual assessment.
- 1.7.3.2. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur. By arranging the viewpoints in order of distance it is possible to define a threshold or outer limit beyond which there would be no further significant effects.
- 1.7.3.3. The assessment involves visiting the viewpoint location and viewing wirelines and / or photomontages prepared for each viewpoint location. The fieldwork is conducted in periods of fine weather and good visibility and also considers seasonally reduced leaf cover.

1.7.4. EVALUATING VISUAL SENSITIVITY TO CHANGE

- 1.7.4.1. To determine visual effects both the sensitivity of the visual receptor and the magnitude of change must be considered. Determining visual sensitivity is the combination of susceptibility to change and value of a view. A combination of high susceptibility to change and high value is likely to result in the highest sensitivity, whereas a low susceptibility and value is likely to result in the lowest level. The value, susceptibility to change and resultant sensitivity of a visual receptor are broadly categorised based on the following Tables 4 and 5 below. It should be noted that the levels are indicative: in practice there is not a clear distinction between criteria levels.
- 1.7.4.2. The susceptibility of visual receptors to changes in the view and visual amenity is related to activity they are engaged in and the extent to which their attention is focussed on the views and visual amenity at that location. As such those receptors most sensitive to change are likely to include people engaged in outdoor activities where an appreciation of the landscape is the focus and residential receptors, as GLVIA3 paragraph 6.36 states,
- ”it is important to recognise that residents may be particularly susceptible to changes in their visual amenity - residents at home, especially using rooms normally occupied in waking or daylight hours, are likely to experience views for longer than those briefly passing through an area”*
- 1.7.4.3. Conversely, those considered least sensitive to change include (but are not restricted to) people engaged in outdoor sports or recreation where there is no focus on the surrounding landscape/views and people at their place of work where the focus is on the work activity. See Table 4 below for a full description of the criteria used to assess the susceptibility of viewpoints.

Table 4 – Susceptibility to Change

Susceptibility to Change	
High	<ul style="list-style-type: none"> • Residents at home including students at University of Portsmouth - Langstone Student Village. • Views from places where the enjoyment and appreciation of the view has an important bearing on the reason for people being there, e.g.: <ul style="list-style-type: none"> ○ Most public rights of way and designated cycle routes. ○ Long distance trails. ○ Designated or otherwise recognised scenic routes. ○ Recognised viewpoints. ○ Protected landscapes. ○ Heritage assets where views of the surroundings are an important contributor to the experience.
Medium	<ul style="list-style-type: none"> • Views from places where the appreciation of the view contributes to the reasons for people being there but is not a prime factor, e.g.: <ul style="list-style-type: none"> ○ Boats. ○ Local public rights of way used mainly to get from A to B or dog walking. ○ Golf clubs. ○ Schools grounds and those of places of worship. ○ Restaurants and hotels set up to take advantage of a view. ○ Most roads. ○ Scenic and heritage railways. ○ Heritage assets where views of the surroundings make a lesser contribution to the experience.

Susceptibility to Change	
Low	<ul style="list-style-type: none"> • Workplaces where people can reasonably be expected to concentrate on their day to day activities. • High speed roads (except where there are open clear views) and other roads where the focus is on the road ahead owing to traffic conditions and/or the context or composition of the view. • Most rail lines. • Views experienced by those playing or spectating at outdoor sports or engaged in recreational activities where the view of the surroundings is secondary to the enjoyment of the activity.

1.7.4.4. In making judgements about the value of each view, the assessment should take into account the following:

- Recognition of the value to a particular view, e.g. in relation to heritage assets or planning designations.
- Indicators of the value attached to views by others, e.g., in guide books, tourist maps, literary references, painting etc.

1.7.4.5. Table 5 below shows a full description of the criteria used to assess the value of the view.

Table 5 - Value of View Criteria

Value of View Criteria	
High	<ul style="list-style-type: none"> • Views from designated landscapes (National Parks, important Local Landscape Areas, Parks / Gardens, Scheduled Monuments, Listed Buildings and Conservation Areas. • Recognised /important views including from tourist destinations and marked on maps.
Medium	<ul style="list-style-type: none"> • Views from within medium quality non-designated but locally valued landscapes which has no strong cultural associations.

Low	<ul style="list-style-type: none"> Views from within unattractive non-designated landscapes of local importance and unlikely to be visited specifically to experience the view available.
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1.7.4.6. In combining susceptibility to change and value visual sensitivity criteria are summarised in the Table 6 below.

Table 6 – Visual Sensitivity Criteria

Visual Sensitivity	
High	<ul style="list-style-type: none"> A well-balanced view containing attractive features and notable for its scenic quality. A view which is an important reason for receptors being there. A view which is experienced by a large number of people and/ or recognised for its qualities.
Medium	<ul style="list-style-type: none"> An otherwise attractive view that includes some attractive or discordant features or visual detractors. A view which plays a small part in the reason why a receptor would be there. A view which is locally recognised.
Low	<ul style="list-style-type: none"> A view that is unattractive, discordant and/or contains many visual detractors. A view which is unlikely to be part of the receptor’s experience.

1.8. MAGNITUDE OF CHANGE

1.8.1.1. The magnitude of landscape and visual change depends upon a combination of factors including the size, scale and nature of change in relation to the context; the geographical extent of the area influenced and its duration and reversibility, as summarised in Table 7 below.

1.8.1.2. Duration in the context of the Proposed Development is as follows:

- Short term – 0 -3 years (temporary)
- Medium term – 3 – 20 years (temporary and permanent)
- Long term – 20 to 40 years (permanent)

Table 7 – Magnitude of Landscape and Visual Change

Magnitude	Size, scale and nature	Geographical Extent	Duration and Reversibility
Large	Occupies an extensive proportion of the view and may even obstruct a significant portion of the view. Views may become the dominant feature. Considerable change to the majority / many existing landscape elements and/or landscape character; fundamental changes the surroundings and baseline to a large extent; very noticeable	Ranging from notable change over extensive area to intensive change over a more limited area.	Long term; permanent / non-reversible or partially reversible.
Medium	Occupies much of the view but would not fundamentally change its characteristics. Changes would be immediately visible but not a key feature of the view. Some change to existing landscape elements and /or landscape character; discernible changes the surroundings of a receptor, such that its baseline is partly altered; readily noticeable.	Moderate changes in a localised area.	Medium term; semi-permanent or partially reversible.
Small	Occupies a small portion of the view and therefore would not result in a	Minor changes in a localised area.	Short term / temporary; partially

Magnitude	Size, scale and nature	Geographical Extent	Duration and Reversibility
	<p>change to the view's composition.</p> <p>Small change to existing landscape elements and/or landscape character; slight, but detectable impacts that do not alter the baseline of the receptor materially not readily noticeable</p>		<p>reversible or reversible.</p>
<p>Negligible / no change</p>	<p>Occupies little or no portion of the view.</p> <p>Little or limited /no change in existing landscape elements and/or landscape character, barely distinguishable change from baseline conditions; not noticeable.</p>	<p>No change discernible.</p>	<p>Short term / temporary</p>

1.9. SIGNIFICANCE OF EFFECT AND CRITERIA

- 1.9.1.1. The level of landscape and visual effect and whether it is significant or not has been assessed based on the sensitivity of the affected resource / receptor, and the magnitude of change caused by the Proposed Development, as set out for each above in the preceding tables.
- 1.9.1.2. The combined sensitivity and magnitude used to determine the level of effect and whether significant or not is summarised within Table 8 below. Note that effects can be either positive or negative and, in some cases, neutral (neither positive, nor negative).

Table 8 – Matrix for Determining Significance of Effect

		Sensitivity (value / importance)			
		High	Medium	Low	Negligible
Magnitude of Change	Large	Major	Moderate - major	Minor - Moderate	Negligible
	Medium	Moderate – Major	Moderate	Minor	Negligible
	Small	Minor - Moderate	Minor	Negligible - Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

1.9.1.3. The dark grey shaded cells are generally considered to be significant in the context of the Infrastructure Planning (Environmental Impact Assessment) (England) Regulations (HM Government, 2017). The light grey shaded cells denote effects which may be significant, or not significant, depending on the factors relating to the context and the specific landscape or visual receptor in question.

1.9.1.4. Unshaded cells denote effects that would be ‘not significant’ and therefore ones which are generally considered to be not material to the planning decision.

1.9.1.5. It should be noted that the above matrix is intended as a framework for assessment only and that the level of effect (significance) will vary depending on the circumstances, the type and scale of development proposed, the baseline context and other factors. The gradations of magnitude of change and level of effect used in the assessment represent a continuum; the assessor has used professional judgement when gauging the level of effect and determining whether or not an effect should be considered significant.

1.9.1.6. The Table 9 below provides a more detailed summary of the categories of effect.

Table 9 -Categories of Landscape and Visual Effect

Level of Effect	Description of Landscape Effect	Description of Visual Effect
Major	Considerable change over an extensive area of a highly sensitive landscape, fundamentally affecting the key characteristics and the	The development would become a prominent feature and would result in a very noticeable change to an existing highly sensitive and well composed view.

Level of Effect	Description of Landscape Effect	Description of Visual Effect
	overall impression of its character.	
Moderate	Small or noticeable change to a highly sensitive landscape or more intensive change to a landscape of medium or low sensitivity, affecting some key characteristics and the overall impression of its character.	The development would introduce some enhancing or detracting features to an existing highly sensitive and well composed view, or would be prominent within a less well composed and less sensitivity view, resulting in a noticeable improvement or deterioration of the existing view.
Minor	Small change to a limited area of landscape of high or medium sensitivity or a more widespread area of a less sensitive landscape, affecting few characteristics without altering the overall impression of its character.	Where the Proposed Development would form a perceptible but not enhancing or detracting feature within a view of high or medium sensitivity or would be a more prominent feature within a poorly composed view of low sensitivity, resulting in a small improvement or deterioration of the existing view.
Negligible	No discernible improvement or deterioration to the existing landscape character.	No discernible improvement or deterioration in the existing view.
No Effect	The development would not affect the landscape receptor.	The development would not affect the view

1.10. CUMULATIVE ASSESSMENT

- 1.10.1.1. The assessment of cumulative effects is essentially the same as for the assessment of the stand-alone landscape and visual effects, in that the level of landscape and visual effect is determined by assessing the combination of sensitivity of the landscape or visual receptor (ranging from high to negligible) and the magnitude of change (ranging from high to zero).
- 1.10.1.2. Types of cumulative effect are defined as follows:
- Cumulative Landscape Effects: Where more than one type of development may have an effect on a landscape designation or particular area of landscape character.
 - Cumulative Visual Effects: Where the cumulative or incremental visibility of similar types of development combined generate a cumulative visual effect.
- 1.10.1.3. These can be further defined as follows:
- Simultaneous or combined: where two or more developments may be viewed from a single fixed viewpoint simultaneously, within the viewer's field of view and without requiring them to turn their head.
 - Successive or repetitive: where two or more developments may be viewed from a single viewpoint successively as the viewer turns their head or swivels through 360°.
 - Sequential: where a number of developments may be viewed sequentially or repeatedly at increased frequency, from a range of locations when travelling along a route within the study area.
- 1.10.1.4. A cumulative landscape or visual effect simply means that more than one type of development is present or visible within the landscape. Other forms of existing development and land use such as woodland and forestry, patterns of agriculture, built form, and settlements already have a cumulative effect on the existing landscape that is already accepted or taken for granted. These features often contribute strongly to the existing character, forming a positive component of the local landscape. Landscapes however, will have a finite capacity for new development, beyond which further change or alteration to the existing landscape character may be unacceptable in landscape terms.
- 1.10.1.5. Whilst the Cumulative LVIA considers other development, it should not be considered as a substitute for individual LVIA assessment in respect of each of the other developments concerned.
- 1.10.1.6. The methodology for cumulative assessment follows that contained within GLVIA3. GVLIA3 (para 7.8) and requires that the baseline includes additional changes to the baseline landscapes or visual resources as a result of other development.

1.10.1.7. Existing similar types of developments are therefore included within the baseline description, and cumulative effects of consented and Proposed Development are considered separately.

1.10.1.8. Cumulative effects will be considered within the LVIA study areas for both the proposed Converter Station and for the connecting Onshore Cable Route.

1.10.2. MAGNITUDE OF CUMULATIVE CHANGE

1.10.2.1. Cumulative landscape and visual effects may result from additional changes to the baseline landscape or visual resources, as a result of the Proposed Development, in conjunction with other developments.

1.10.2.2. The principle of magnitude of cumulative change thus makes it possible for the Proposed Development to have a major effect on a particular receptor, while having only a minor cumulative effect in conjunction with other existing developments.

1.10.2.3. The cumulative landscape and visual magnitude of change is determined with reference to the criteria set out above and the following considerations:

- The number of visible existing and/or potentially visible proposed developments.
- The distance to existing and/or proposed developments.

1.10.3. SIGNIFICANCE OF CUMULATIVE EFFECTS

1.10.3.1. Determination of the significance of cumulative landscape and visual effects has been undertaken by employing professional judgement to combine and analyse the cumulative magnitude of change against the identified sensitivity to change. It should be noted that the cumulative assessment is the result of the addition of the Proposed Development to the identified cumulative baseline scenario.

1.11. VISUAL ASSESSMENT OF RESIDENTIAL PROPERTIES

1.11.1.1. Planning law contains a widely understood principle that individuals (i.e. visual receptors at a single residential property) have no 'right to a view' and that the outlook or view from a private property is a private interest and not therefore protected by the UK planning system.

1.11.1.2. However, the planning system also recognises situations where the effects on residential visual amenity are considered as a matter of public interest. This matter has been examined at a number of public inquiries where the key determining issue was not the identification of significant effects on views, but whether a proposed development would have an overbearing effect and/or result in unsatisfactory living conditions, leading to a property being regarded, objectively, as an unattractive (as opposed to a less attractive) place in which to live.

1.11.1.3. As a consequence, the visual assessment methodology provides for a much more detailed assessment of the closest residential properties. This allows the assessor, and consequently the determining authority, to make a judgement as to whether the

residents at these properties would be likely to sustain unsatisfactory living conditions which it would not be in the public interest to create. Reviews of decisions demonstrate that significant changes to the views available from a residential property, and its curtilage, are not the decisive consideration.

1.11.1.4. By way of further clarification, the methodology for assessing the visual effects on views from residential properties allows for two stages of assessment as follows:

- The first stage is to identify those properties where a significant visual effect on a view from the property is likely to occur.
- The second stage is to consider the residential amenity and whether, in terms of the wider public interest, the visual effects would result in unsatisfactory living conditions, leading to a property being regarded, objectively, as an unattractive (as opposed to a less attractive) place in which to live.

1.11.1.5. A residential property, for the purposes of environmental impact assessment, should be one that was designed and built/converted for that purpose and currently (at the time of the assessment) remains in a habitable condition, of a safe construction, wind and water tight with appropriate vehicle access, and services (drinking water, sanitation, and power supply). Related buildings such as barns/outbuildings, garage, huts and derelict properties should generally be excluded from the assessment, unless they form part of the curtilage of an existing residence.

1.11.1.6. The sensitivity of individual residential receptors is assessed as high in each case.

1.11.1.7. The assessment of residential properties or groups of residential properties in this case has been limited to those properties within 1.2 km of the proposed Converter Station, which appear on the Ordnance Survey 1: 25,000 scale map. Whilst most of the properties can be viewed at close range from public roads and footpaths, some of these properties are accessed via private or gated roads and due to these access limitations, they have been assessed from the nearest public road or PRoW which may be at greater distance from the property. The assessment, in this instance, should therefore be regarded as a 'best estimate' of the likely visual effects.

1.11.1.8. The assessment has been further supported by aerial and ground level photography as well as map-based data. The assessment takes account of the likely views from the ground floors of properties and main garden areas but excludes upper floors and other land that may be connected with the property. Relevant information considered as part of the assessment may include, but is not limited to the following:

- Scale of Development:
 - Number and height of the Proposed Development;

- The horizontal extent or AOV of the visible array; and
- Separation distance (closest and furthest buildings).
- Description of Property, as far as this can be ascertained:
 - Orientation and size of property and whether views from the property towards the development would be direct or oblique;
 - Location of principle rooms and main living areas such as living/dining rooms, kitchens and conservatories, as opposed to working areas such as farm buildings and utility areas;
 - Location of principle garden areas which may include patios and seating areas as opposed to less well used areas such as paddocks or garages; and
 - The effects of any screening by landform, vegetation or nearby built development.
- Location and Context:
 - The aspect of the property in terms of the overall use and relationship to the garden areas and surrounding landscape;
 - The principle direction of main views and visual amenity; and
 - The context and nature of any intervening structures e.g. other existing development, farm buildings or forestry.

1.11.1.9. It should be noted that the LVIA does not go as far as presenting a full Residential Visual Amenity Assessment; based on advice prepared by the Landscape Institute on Residential Visual Amenity Assessment, Technical Advice Note (Landscape Institute, February 2019).

1.12. ACCURATE VISUAL REPRESENTATIONS

1.12.1.1. Field verified visualisations \ photomontages \ Accurate Visual Representations ('AVRs') were prepared for three agreed local viewpoints to illustrate the likely visual effects of the Converter Station based on the Scheme design in July 2019.

1.12.1.2. The field verified wirelines (AVRs) demonstrate the existing view and view following completion of the Converter Station. The AVRs were Level 3 detailing the location and size of the proposal as well as the degree of visibility of the proposal, the architectural form and use of lighting.

1.12.1.3. The methodology used and outlined in further detail below was compliant with relevant sections of:

- ‘Guidelines for Landscape and Visual Impact Assessment’ Third Edition, Landscape Institute and the Institute of Environmental Assessment, 2013 (GLVIA3).
- ‘Photography and photomontage in landscape and visual impact assessment’ Landscape Institute Advice Note 01/11, 2011.
- A Public Consultation Draft ‘Photography and Photomontage in Landscape and Visual Impact Assessment’ published by the Landscape Institute as a Technical Guidance Note (2018-06-01).
- Visual Representation of Development Proposals / Landscape Institute Technical Guidance Note 02/17 (31 March 2017).

1.12.1.4. At the time of the production of the visualisations Technical Guidance Note 02/17 / Draft Consultation 2018 was not formally adopted, but the principles therein were reviewed and the figures produced within the LVIA for the Proposed Development have accorded with the emerging advice.¹

1.12.1.5. The outputs of the images are on A3 and A3 Extended Sheet PDF documents, with a viewpoint location plan with baseline photography and wireline images.

1.12.2. PHOTOGRAPHIC SURVEY

1.12.2.1. All photography was carried out by WSP visualisation team photographer under the supervision of a chartered landscape architect. Field verified views were taken using a Canon EOS 6D SLR Camera with a Canon fixed 50mm f1:8 lens, a Manfrotto 190go tripod and MHXPRO-3W X-PRO 3-way head with a Trimble Juno Series GPS Reader. The camera viewpoint position was at a height of 1.6 m and stabilised using the tripod with 3 axis levelling bubbles. Camera settings were locked to ensure aperture and shutter speed were consistent in each batch of photographs.

1.12.2.2. A log was kept of the time, date and weather conditions that the photographs were taken so that lighting conditions could be recreated in the visualisers software 3DS Max. A GPS reading was taken to mark the position of the camera and these were then converted into National Grid co-ordinates. A photograph to record the exact location of the tripod is also taken for the project record.

¹ It should be noted that new guidance ‘TGN 06/19 Visual Representation of Development Proposals’ was published on 17 September 2019. The Landscape Institute advises that the new guidance should apply to new commissions undertaken from 17 September 2019, but a reasonable grace period would apply and reasonable judgements made over the implications of the changeover. The Guidance Note replaces LI Advice Note 01/11 and Technical Guidance Note 02/17. In the case of this assessment no changes were made to the visualisations prepared.

1.12.3. CREATING 3D GROUND MODEL

1.12.3.1. All necessary information regarding the Converter Station was supplied to WSP visualisation team. All of the supplied information was modelled in an appropriate professional modelling software.

1.12.4. PREPARING PHOTOGRAPHY

1.12.4.1. All baseline images were reviewed by the WSP visualisation team and chartered landscape architect prior to the start of production. Both cameras produce a raw file and jpeg format.

1.12.4.2. In AVR's, having the camera pointing 'horizontally' (parallel with the ground) is desirable to ensure that vertical elements of the photographed scene remain perpendicular to the horizon. In reality, the eye and brain compensate for non-perpendicular verticals and it is desirable to replicate this with photography. The tripod used by WSP's visualisation team photographers has a 3-way head with built-in spirit level 'bubbles' to assist the photographer in keeping the vertical building elements 'vertical'.

1.12.5. CAMERA MATCHING – 3D VISUAL ALIGNMENT

1.12.5.1. For each viewpoint position, a physical camera within the software was set up in 3DS Max using the six-figure national grid reference coordinates of each viewpoint position. The physical camera (model as described in Table 10) was then set up to match the camera's sensor width, focal length and the dimensions of the photograph.

Table 10 - Camera Model

Camera Model	Sensor Size	Image Size (Width x	Height)
Canon EOS 6D with Fixed 50mm f1:8 lens	35.8 X 23.9mm (full frame)	5472	3648

1.12.5.2. The following information was then used for the camera alignment process:

- Specific details of the camera and lens used to take the photograph.
- OS mapping and survey data from our database for lining up*.
- The GPS co-ordinates (x,y,z values) of the camera position.

The following elements have been used as target points to check the horizontal alignment:

- Electricity pylons.
- Telegraph poles.

- Existing buildings.
- LIDAR DSM.
- LIDAR DTM.
- OS mapping.

The following elements have been used as target points to check the vertical alignment:

- Existing buildings.
- Electricity pylons.
- Topography.

1.12.5.3. Note: Some small movements of the camera in the x, y and z planes are required to get a more accurate match, it is accepted that OS data and GPS coordinates have certain tolerances to which the visualiser works within.

1.12.6. IMAGE POST PRODUCTION

1.12.6.1. Post production was undertaken in Adobe Photoshop Creative Cloud. The rendered image of the combined with the original baseline photograph to create the final image.

1.12.6.2. Photographs deemed too dark or underexposed for viewing were lightened to achieve a realistic environment.

1.12.6.3. For Level 1 2 or 3 AVR's, the render layer is placed in the scene, to make it appear behind those items in the photograph which would partially or wholly obscure it in reality. The process of bringing certain elements in the photograph to the foreground and allowing others to be obscured by the development in the background is known as 'masking'.

1.12.6.4. For Level 3 AVR's the lighting and materials may require some minor adjustments to blend the new render elements into the photograph. This is open to some artistic interpretation.

1.12.7. REAL SCALE VIEWING

1.12.7.1. As should be treated as an aid to visual assessment and are not a substitute to site-based assessment of an individual scene.

1.12.7.2. When assessing a development using AVR's the scale of the development in the scene should be taken into account together with what the human eye would experience at the scene.

1.12.7.3. The aim of AVR's is to represent the landscape context of Proposed Development that is under consideration as accurately as is practically possible.

1.12.7.4. The AVR's produced by WSP visualisation team were produced in accordance with Landscape Institute Guidelines Advice Note 01/2011 and Technical Guidance Note 02/17, based on the following criteria that the images should:

- Be reproduced at a size and level of geometric accuracy to permit impact assessment, which must include inspection at the location where the photograph was taken.
- Be based on a replicable, transparent and structured process, so that the accuracy of the representation can be verified, and trust established.
- Use techniques with appropriate explanation, that in the opinion of the landscape professional best represent the Proposed Development under consideration and its proposed environment as accurately as possible.
- Be easily understood, and usable by members of the public and those with a non-technical background.
- Be based on a good quality photographic image taken in representative weather conditions.
- In order to assess the images at a size and resolution suitable for use in assessment work in the field, the images were prepared with a field of view and viewing distance that accurately reconstructs the perspective and scale of elements experienced at the scene.
- As advised by the Landscape Institute Advice Note 01/2011 the method for determining the viewing distance was calculated using Scottish Natural Heritage's Good Practice Guide for the representation of windfarms, (Scottish Natural Heritage, 2006), para 126.

REFERENCES

- HM Government. (2017). Infrastructure Planning (Environmental Impact Assessment) .
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