

Scottish Natural Heritage

# Visualisations for aquaculture

Guidance Note  
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## Introduction

1. Good quality visualisations inform decision-makers about the likely landscape and visual effects of an aquaculture proposal. They also help to inform local communities and the wider public about what change is likely if the planned development takes place. Visualisations therefore have to be of a good standard that reasonably portrays the likely effects of proposed development.
2. 'Visualisations for aquaculture' offers guidance on how to prepare illustrations of marine aquaculture proposals. It supplements SNH's 2011 guidance on The Siting and Design of Aquaculture in the Landscape, jointly prepared with the Scottish Salmon Producer's Organisation and Association of Scottish Shellfish Growers. That explains the legislative requirements to undertaking an assessment. It also offers advice on selecting an appropriate location for aquaculture and outlines the considerations to be made in siting and designing equipment and installations to lessen their landscape and visual impacts.
3. Usually, visualisations illustrate a Landscape and Visual Impact Assessment (LVIA) that can be one part of an Environmental Statement or of an 'appraisal' of development that falls outwith the environmental impact assessment regulations (e.g. shellfish). It is important to understand the limitations of visualisations, as well as their appropriate uses. Photographs, photomontages and sketches can assist in representing how a proposal will appear in its surroundings and how it will change views, for example from a coastal path or tourist route. Appropriate images offer a key means of showing the likely effects of a proposed development, although they can never replicate the full experience of seeing a fish farm or shellfish farm on site. Visualisations are important technical documents that need to follow basic principles, as set out in this guidance, if they are to communicate as well as possible the likely effect of an aquaculture proposal.
4. This guidance explains more about these aids. It is aimed at landscape practitioners, those involved in producing visual representations for aquaculture, and at planning officers and decision-makers involved in the planning process. It is based on techniques for wind farm visualisations but has been adapted to be relevant to aquaculture developments and was informed by consultation with local authorities and industry.
5. In recognition of continually changing technology, and also to ensure continued good practice, this guidance will be reviewed in due course. We also intend to sample some images to review against the constructed aquaculture scheme, to check the guidance's effectiveness.
6. In the following sections, background information on landscape and visual impact assessment is provided; the range of visualisation techniques and various stages of the application process are outlined; and there is guidance on the main techniques with an example of each.

<sup>1</sup> SNH, 2011 The siting and design of aquaculture in the landscape: visual and landscape considerations. Available at: <http://www.snh.org.uk/pdfs/publications/heritagemanagement/marineaquaculture.pdf>



## Landscape and Visual Impact Assessment

7. Visualisations are prepared in support of a Landscape and Visual Impact Assessment (LVIA) either as part of an Environmental Impact Assessment (EIA), or part of a planning application. LVIA is the method used to “identify and assess the likely significance of the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people’s views and visual amenity” (GLVIA2 see paragraph eight below).
8. General guidance on LVIA preparation is given in the Guidelines for Landscape and Visual Impact Assessment, 3rd edition, commonly referred to as GLVIA. ‘Landscape’ is taken to include the marine and coastal environment: e.g. ‘assessment of the Landscape and Visual effects of change in the marine and coastal environments should carefully consider the relationship between land and sea in coastal areas and...the open sea’ (GLVIA, paragraph 2.9 p.18).
9. In applying GLVIA principles to EIA or appraisal for aquaculture the following landscape issues are relevant. They are taken from “The Siting and Design of Aquaculture in the Landscape: visual and landscape considerations” 2011 p.51.

### **Environmental impact assessment for aquaculture: Requirements for landscape and visual impact assessment**

The landscape component of an Environmental Statement (ES), should:

- Demonstrate the options considered for the development location, and explain the reasons for the preferred location; include an explanation of environmental as well as economic, social and practical considerations;
- Explain how the proposal relates to relevant planning guidance for the area and the policies of other consultees; and
- Where the proposed location lies within, or near to a designated area, consider and describe the likely impact of the development on the qualities for which the area has been designated.

Developers are required to present an assessment of the impact of a scheme on the landscape and how any identified significant adverse impacts can be reduced by mitigating measures. Therefore an ES is likely to include:

- Information from the appropriate spatial plans and development plan policies, including how the relevant advice and guidance has been used to help locate and design the proposal;
- An explanation of how the proposed scheme responds to the key characteristics of the local coastal landscape, including details of how any predicted adverse impacts on the landscape character or visual amenity will be mitigated;
- If appropriate, an explanation of how the proposal will avoid creating an adverse cumulative impact on the landscape;
- A visual impact assessment; and
- A map indicating key viewpoints, accompanied by illustrations or photomontages. These should illustrate how the final, mitigated proposal will be seen in context.

<sup>2</sup> Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA)

10. Visualisation techniques continue to develop and are becoming increasingly sophisticated, for example video animation to illustrate sequential cumulative effects; or virtual reality simulations. Any such images would need to be agreed in discussion with the local authority. They would also be in addition to the more standard paper-based images recommended in this guidance.
11. LVIA for aquaculture proposals should accurately describe the equipment and infrastructure, and demonstrate an understanding of their likely effects in the assessment. As with any LVIA, the assessment should focus on the likely significant effects and be proportionate, providing a clear explanation of the assessment of effects and judgements involved.

## Cumulative landscape and visual effects

12. Cumulative effects have been defined as the additional changes caused by a proposed development in conjunction with other similar developments; or the combined effect of a set of developments taken together. For aquaculture, this would include both fin-fish and shellfish developments. For example, if a fin-fish farm is proposed near a shellfish farm, then the cumulative effects of adding more structures to the coastal area should be considered. In some situations, other water based development such as wave energy installations may also need to be included.
13. Cumulative effects can occur:
  - In combination, where two or more developments would be seen within the same arc of vision (i.e. a viewer would not need to turn his/her head);
  - In succession, where the observer would have to turn his/her head to see the various developments; and
  - Sequentially, where the observer has to move to another place to see the developments. These may be assessed for travel along regularly used routes such as roads, railways, ferry routes or footpaths.
14. Selecting cumulative viewpoints should consider the likely sequence of travel, the duration and angle of views, and the first 'reveal' of a view of the proposal. The presentation of the duration of sequential effects on a travel route as a bar chart is often used for wind farm proposals and may be helpful for aquaculture developments too.
15. As part of agreeing the scope of the assessment, the local authority will confirm which other installations should be considered along with the proposed. In addition to existing developments – and 'fallow' sites - these are likely to include relevant proposals in the planning system, generally those with reasonable levels of information on siting and design. Technically, existing aquaculture schemes or those under construction form part of the baseline for individual schemes' assessment but the effects of adding a further scheme still need to be taken into account.

## Visualisation techniques

16. Visual analysis is a component of visual impact assessment, itself part of LVIA. It is essential that a proposal is assessed within its wider landscape and visual context, and visualisations are important in illustrating this. .
17. Many of the principles applicable for preparing visualisations for other forms of development apply to preparing those for aquaculture proposals. Recent experience of visualisation techniques comes largely from their use in wind farm assessment and many of the principles can be applied to aquaculture.
18. Visualisations may include plans, maps, wirelines, photographs and photomontages. The main forms for aquaculture proposals will be plans, location maps, zones of theoretical visibility (ZTV) maps, and photomontages. Table 1 below outlines which format is likely to be suitable for the various stages of an application. Plans and location maps are straightforward to produce but visualisations such as 'zone of theoretical visibility' (ZTV) maps and preparing and producing photographs and photomontages require a particular approach which is the focus of this guidance.

<sup>4</sup> SNH, 2017, Visual Representation of Wind farms. Available at: <https://www.nature.scot/sites/default/files/2017-07/A2203860%20-%20Visual%20representation%20of%20wind%20farms%20-%20Guidance%20-%20Feb%202017.pdf>

## Application stages

19. Different visualisation methods and images will be useful at different stages in the application, assessment and decision process. These are in addition to the location plans that an application also requires.

Table 1		
Application stage	Visualisation type	Comments
Pre- application	ZTV	Draft ZTVs are very useful at this stage for early discussion of options, potential extent of effects, and are essential for consideration of design and illustrative viewpoints selection. They can also highlight likely cumulative assessment needs.
Scoping (of ES / appraisal)	<p>ZTV</p> <p>(This may include a map of planned viewpoints)</p> <p>Wirelines</p> <p>Photographs of similar equipment types – optional.</p>	<p>ZTVs are helpful in indicating potential extent of effects; allow discussion and agreement of illustrative viewpoints. The planning authority has the final decision on viewpoint locations, and may consult others in this process.</p> <p>Draft wirelines are useful in early stages for design development.</p> <p>Photographs of examples of similar equipment may also be useful for indicative illustration at this stage.</p>
Submission of ES or appraisal.	<p>ZTV</p> <p>viewpoints map</p> <p>photographs</p> <p>wirelines</p> <p>photomontages</p>	<p>Wirelines along with 'existing' photographs are useful.</p> <p>Photomontages from agreed viewpoints provide indication of how the proposal would appear. Paper copies are preferable, to ensure consistency.</p>
Community / public consultation	<p>ZTV</p> <p>viewpoints map</p> <p>photographs</p> <p>wirelines</p> <p>photomontages</p>	<p>To avoid confusion, use of the same images printed at the same size is recommended.</p> <p>Visualisations are very helpful for discussing proposals with the local community and public.</p>

## Zone of Theoretical Visibility Maps

20. An initial stage in a visual assessment is the preparation of a map depicting the Zone of Theoretical Visibility (ZTV). They are used to help identify the LVIA study area and key viewpoint locations (see section below on viewpoint selection). During pre-application and scoping, ZTVs are helpful in focussing the assessment to the most relevant areas, thereby ensuring more proportionate information requirements. The following is a summary of the main points. More detailed information, albeit tailored to turbine proposals, is available in SNH's Wind Farm Visualisation Guidance (see section 2, paragraphs 24 – 70).
21. ZTV maps depict the area from which a development can theoretically be seen. They are normally produced using specialised software and are based on a Digital Terrain Model (DTM) and overlaid on a map base. Use of such software requires a high level of expertise and understanding of the features and limitations (including margins of error) of the software. The name and details of software used should be noted in the ES and on the ZTV itself, including the version and date of the data used. The resolution of the digital data (DTM) needs to be appropriate: given that aquaculture developments are low-lying the DTM will generally need to be more detailed than those used for analysis of wind farm proposals.
22. ZTVs are a very useful tool but they require careful interpretation. The maps represent only theoretical visibility as the proposal may not be visible in reality due to localised screening. They do not give any idea of what a development will look like, nor the nature or magnitude of any change.
23. A site visit combined with a ZTV will help in deciding on a provisional list of viewpoints. At this stage, it is useful to consult the determining authority and consultees to judge how representative the list is of the range of likely landscape and visual receptors, and whether it includes particularly sensitive vantage points such as from designated landscapes, ferry routes, popular boating areas, and walking and tourist routes where relevant.
24. To be useable, it is essential that the underlying map information is clearly legible and at a detailed enough scale (OS 1:25,000 is recommended).

A ZTV map indicates areas from where an aquaculture development is theoretically visible within the study area, but it cannot show what it will look like nor indicate the nature of landscape or visual impacts.

## ZTV considerations

25. The viewer height in a ZTV map should be set at 2m above ground level. The accuracy of the DTM data is important and should be not less than 1m (+ or -) within 5km.
26. The DTM generally uses topographic information to present the bare ground visibility. In some cases it may be necessary to consider forestry which would screen a development site, but forestry does not provide a permanent screen, as it will be felled and replanted over a period of time. As a general rule, ZTVs should be generated to err on the side of caution, i.e. over-representing visibility.
27. ZTV production requires accurate data on the locations of the proposal (e.g. cages and feed barges). The height of structures will also need to be provided although a general height of cage superstructure may suffice for cages. Onshore infrastructure may need to be included.



## Extent of ZTVs

28. The extent of the ZTV map, illustrating locations from where the development might be visible, should extend far enough to include the areas where potentially significant visual impacts are likely to occur (acknowledging that these cannot be established until the impact assessment has been completed; but the ZTV provides an essential starting-point). This forms the basis from which the LVIA 'study area' will be agreed. Experience suggests a starting point of a 10km radius, and 15km or so where there may be cumulative issues – these are search areas within which the ZTV will be confirmed: see paragraph 29 below.
29. The extent of the ZTV required may need to be adjusted inwards or outwards according to the specific characteristics of the landscape and/or the development. For example:
- where a development is proposed for a steep-sided, narrow loch with limited access and no high-level views, the visual effect is likely to be restricted within the loch system. A ZTV with a radius of 2km may suffice.
  - for elevated views, the nature of view will differ and it will probably be necessary to consider a greater distance;
  - where a proposal is sited in an open or expansive coast, the ZTV radius will be greater, e.g. 7km or up to 10km.;
  - other factors such as complex seaways or straits, or the presence of ferry routes, or sensitive viewpoints may require a larger ZTV radius to ensure they are appropriately considered;
  - if a proposal is likely to stand out or be highly visible for example because it includes paler colours, e.g. a feed barge or coloured top-nets, then a wider ZTV may be needed (higher contrast, e.g. pale colours against a dark background, are more visible over a wider area). This is regardless of elevation of viewpoints.
  - when illustrating cumulative effects with a series of ZTVs, the overall radius is likely to be larger still (15km or so).
30. For most aquaculture proposals, an A3 size ZTV is likely to be adequate. However, the extent of the ZTV must be discussed with, and will be agreed by, the determining authority and consultees. Proposals with novel or unusual components or siting should be discussed early on with relevant authority and consultees. Separate maps may be required for onshore and water-based equipment and discussion with the determining authority and consultees will help with deciding whether this is appropriate. Figure 1 shows an example of a ZTV extending to approximately 8km.

## Presentation of ZTVs

31. A ZTV should be presented on a single sheet of paper using OS 1:50,000 as the base map. For a ZTV to be clear and legible when overlain with colour-shading, the base map needs to be in greyscale but still be clear and legible. This is to prevent confusion of overlays. The base map must also be of a high quality.
32. Each cage or line of buoys, and any feed barge, should be clearly marked on the ZTV. Numbered viewpoint locations should also be shown on the main ZTV, labelled so as to avoid obscuring ZTV information. For ease of legibility, and particularly with larger radius ZTVs, concentric rings to indicate different distances from the proposed development, e.g. 2km, 5km are recommended.

33. Areas of potential visibility should be illustrated by a colour overlay. This should be transparent so the detail of the underlying OS map (1:25,000 or 1:50,000) can be seen clearly. Showing the cages' visibility in a different colour from that of any feedbarge is useful. The ZTV should be legible by colour-blind people. Information on key assumptions made in ZTV production must be shown or summarised in the ES. More detail on these aspects is included in SNH's wind farm visualisation guidance, paragraphs 53 – 63.

## Viewpoint selection

34. Viewpoints that are appropriate to the range of landscape sensitivities and receptors are essential to a fair assessment. The number of viewpoints used should be proportionate to the assessment; more may be required in more settled and visited areas. Section 4 in SNH's *Siting and Design guidance for Aquaculture* (2011) provides detail on viewpoint selection, as does section 3 in SNH's *Visual Representation of Wind Farms Guidance*.
35. It will also need to be decided which views need illustrated by photomontage. The final decision on the list of proposed viewpoints is determined by the planning authority, often in consultation with SNH or others, and its local knowledge will be invaluable in selecting appropriate viewpoints.
36. Viewpoint locations to illustrate likely effects will be required. There may also be design viewpoints, by which the location and design may be reviewed and amended, particularly if these were considered at pre-application stage.
37. For most proposals, there will be a range of high-level and low-level viewpoints; and close-up and more distant views. There will also be a range of viewers. These are regarded as being generally highly or less susceptible to change. This ranges from residents, and people whose attention is likely to be on the landscape or views (e.g. outdoor informal recreation, paths and routes or visitors to heritage assets or other attractions); to those at places of work. Travellers tend to be in an intermediate category, although users of recognised scenic routes could be expected to have higher awareness of views. Transport routes are one of the main ways in which the landscape is experienced, and viewpoints to illustrate effects on these will generally be required. The number of viewers is also a consideration. The *Guidelines for Landscape and Visual Impact Assessment* provide more detail on these aspects.
38. In addition to being useful for assessment and illustration, viewpoints ought to be accessible. The illustration should have a thumbnail map and grid reference to show the precise location, so a viewpoint can easily be found by assessors and others.
39. Fixed viewpoints are easiest for good quality photography. If 'mobile' viewpoints are needed, e.g. from ferry routes, applicants should aim to provide visualisations as closely in accordance with these standards as possible. However, some leeway may be required on the resulting photographic quality.
40. It is difficult to judge the distance or scale of an object when it is out at sea, especially where there is no 'scale indicator' in the view to give a familiar, comparative size. Therefore, in preparing photographs, consider any reference points on shore or in the view and give the viewpoint's precise geographical reference point as this will help the viewer to place the image in its context on site. Existing landmarks like lighthouses and prominent on-shore buildings will aid in estimating the scale and extent of a development, while distinctive landforms like cliffs, headlands, hills and islands will be key to appreciating effects at the location (see Figure 2).

<sup>5</sup> Guidelines for Impact Assessment, 3rd edition, 2013 (GLVIA) 6.31 to 6.36

41. The precise siting of viewpoints is important. The view of the proposed development must not be obscured, but it is also inappropriate to move too far from the precise viewpoint in an effort to avoid typical foreground objects. Viewpoints should be free from avoidable foreground objects that would screen all or part of the development, e.g. fences, walls, signs, or trees, shrubs or foliage. It is also important that viewpoints are publicly accessible, for example not within private property.
42. Where temporary structures such as oil platforms or rigs are in the area, they will be included in any baseline photographs taken when they are present. But, given their temporary nature they should not generally be included as part of the assessment of landscape and visual effects.

<sup>6</sup> Landscape Institute Advice Note 01/11. Photography and photomontage in landscape and visual assessment. This is being reviewed (2017-18). The current Advice Note is available via <https://www.landscapeinstitute.org/visualisation/photography-and-photomontage>, where the revised version should also be found in due course.

## Visualisations

### Aquaculture equipment and structures: what to illustrate

43. Visualisations should depict the range of structures to be used, the scale and configuration of equipment, including the colour schemes of any feed barges and larger structures including accommodation modules.
44. Relevant components for fin-fish proposals are likely to include:
  - cages (including top nets if relevant);
  - feed barges;
  - feed pipes (particularly from elevated viewpoints).
45. Relevant components for shellfish proposals are likely to include:
  - buoy lines or
  - trestles.
46. The location and extent of any unused sites should be indicated. This may be by a dotted line, or hatching / semi-transparent overlay on the photomontage or the baseline photograph accompanying the wireline.
47. For all aquaculture proposals, the worst case scenario needs to be illustrated and assessed. This includes top-nets on cages and feed pipes, where relevant, as well as feed barges.
48. Showing alternative options, e.g. for feed barge size, design or colour; or cages' layout, can be very helpful to demonstrate the design process. How the feed barges are located in relation to the cage layout, and in turn how these relate to the coastline, can all be represented by photomontages from agreed viewpoints. Alternative situations can include showing likely effects at different times, for example if installations near coastal cliffs are in shadow for part of the day.
49. For oyster farms, which are located in the intertidal zone, the visualisations should present the situation at low tide. Although oyster trestles are submerged for much of the time, and are only intermittently visible, the foreshore is particularly sensitive and light effects can contrast dramatically with surrounding land, drawing more attention to any trestles.

## Photography

50. Undertaking photography for visualisations requires high quality specification and equipment. SNH's wind farm visualisation guidance (e.g. Annex F on cameras, lenses and data provision), together with the Landscape Institute's photography and photomontage Advice Note 01/11, provide more detail on this. The key points, for the recommended method of producing photomontages for aquaculture proposals, are summarised in Table 2 on page 12).
51. All baseline photographs must be taken in good visibility. This will generally mean clear skies and in conditions that allow sufficient contrasts between the different elements in the landscape. It must also be sufficiently good to see key features in the background (e.g. islands, buildings, coastal features) for orientation.
52. Baseline panorama photographs can be helpful to provide more of the landscape context. This additional information is often useful as an aide memoire after review in the field, as well as for orientation.

## Wirelines

53. Wirelines are computer-generated line drawings, based on a Digital Terrain Model (DTM), that indicate the three-dimensional shape of the landscape in combination with additional elements. They are valuable in the design and assessment process, allowing the assessor, designer or viewer to compare the position and scale of the proposal's elements with the existing view of the landscape. Wireline production uses standard software, so detailed guidance is not provided here (or in SNH's wind farm visualisation guidance).
54. The accuracy of a wireline depends on the accuracy of the data used to create in which, in general, will be the same as that used for calculation of the ZTVs, i.e. OS Terrain products. Sufficient 'background' DTM data is required to match the aquaculture elements to the photograph of the existing landscape. This is likely to be particularly important for water-based elements, and may need to include jetties or other artificial elements.
55. To allow direct comparison and avoid confusion, wirelines should be provided in planar projection using the same perspective geometry and image height as the photomontage.
56. DTM grid lines should, generally, be removed to provide a simple image. A contrasting colour should be used for the cages, feed barge etc., so they are clearly seen against the DTM image.

## Photomontages

57. Photomontages combine a photograph of an existing 'baseline' view with a computer-rendered image of a proposal. Thus photomontages illustrate the likely view of the aquaculture proposal as it would be seen in a photograph taken after the development's installation. While photomontages are based on a photograph of the existing landscape view, they are not a substitute for a field visit. They are one tool to aid the assessment of a proposal. Nevertheless, they are useful as they help gain an understanding of the potential appearance – scale, form and configuration – of a development.
58. Photomontages and ZTVs at A3 will generally suffice for illustrating aquaculture proposals. There may be occasions when larger images are required (e.g. close-up views of larger schemes or from sensitive viewpoints); the landscape consultant should identify when this may be required. The planning authority, in consultation with SNH if required, will decide if larger illustrations are needed.
59. Paper copies of visualisations must be supplied to decision-makers and consultees, and members of the public must also have access to these colour, paper copies. This ensures the same images are referred to. Visualisations are useful but they must be used with care. The following table outlines the scope of their usefulness:



Table 2	
Usefulness	Limitations
Visualisations given an impression of a proposed aquaculture development and how it will look in its landscape context.	Neither photographs nor illustrations can replicate a view as seen in reality by the human eye.
Used carefully in the field, visualisations can be used to inform assessment; and aid development and appraisal of a development's layout and design.	Visualisations provide a tool for assessment that can be compared with an actual view in the field; they are not a substitute for a site visit.
	Images are static and do not convey wave movement; they can only represent the view from a single location at a particular time and in particular weather and light conditions.

60. The weather conditions and light quality in our coastal and marine environment changes rapidly and is far more variable than inland, so it is not possible to represent the whole spectrum of conditions. Visualisations need to show optimum visibility and clarity – how a development is likely to appear in the clearest conditions. Figure 2 is an example of a photomontage of a proposed fish farm development.

## Production of images

61. The proposed development needs to be accurately located within the baseline photograph. An accurate GPS position, taken when the photography was carried out, should be sufficient. Where there are few topographic features to facilitate a match, then man-made features may need to be used but these are harder to identify accurately from maps. Adjustments should be made until a satisfactory match between topographic or other features across the image to ensure there are no errors of scale.
62. Lighting conditions in the photomontages should be reasonably faithful to that in the baseline photograph. Consequently, the date and time at which the photographs were taken should be recorded by the photographer or assessor.
63. The images for each viewpoint should be compiled on the basis of:
  - Existing photograph - context
  - Existing photograph - baseline - with proposed wireline above
  - Proposed photomontage.
64. An appendix of supporting photographs and images to show the progression of the siting and design process will also be useful. That could include examples of alternative feed barges or cage layouts.

## Other techniques

65. Techniques for illustration continue to develop, e.g. video images for sequential cumulative effects, or virtual reality simulations. Any such images would need to be agreed in discussion with the local authority. They would also be in addition to the more standard paper-based images recommended in this guidance.

Figure 1:  
Example of Zone of Theoretical  
Visibility, extending beyond 8km  
radius. Different colours show  
visibility of cages and of feed  
barge. Image designed for A3  
size.

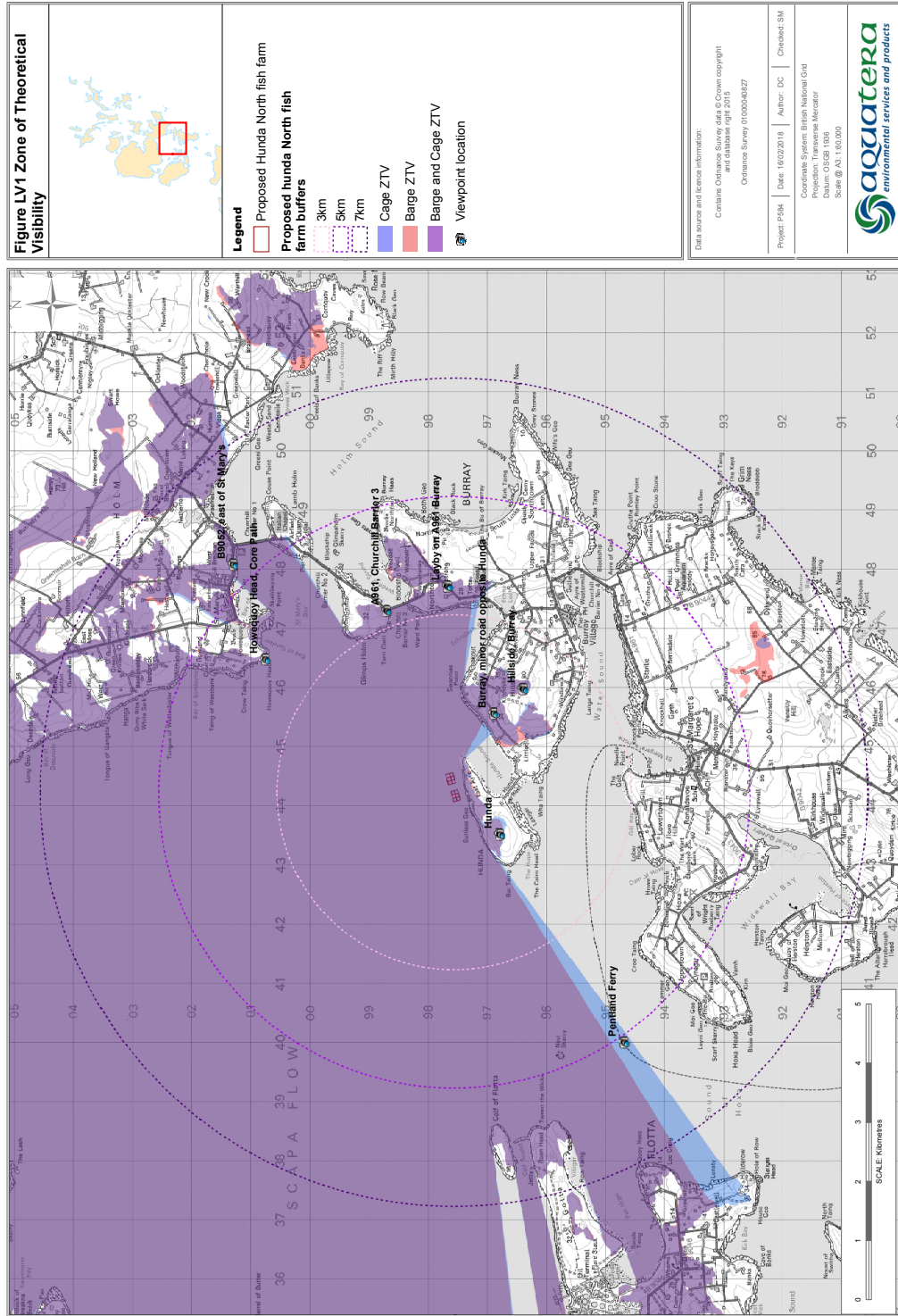


Figure 2:  
Example of photomontage  
illustrating a proposed fish farm  
development in Orkney. Image  
designed for A3 size.

**Figure LV13g: Viewpoint 7 panoramic cumulative photomontage**



<b>Table 3</b> <b>Specification for preparing photographs : Key Points</b>		
Photography	Camera	Full Frame digital SLR set on a tripod. This helps achieve good quality images at a correct scale. Use of smartphone or compact cameras is not acceptable.
	Lens	50mm fixed focal length
	Camera tripod height	1.5m (unless alternative height is justified, in agreement with planning authority)
	Location	8 figure grid reference and relevant location map, provided.
Photomontage	Image	Clear of foreground objects, though identifiable features required in coastal locations; check with planning authority.
	Conditions	Visibility sufficiently good. Enhancement or rendering cannot compensate for photographs that have been taken in poor light or weather conditions. Photos may need to be re-taken if the images are not adequate.
	Photomontage	<p>A3 single frame photomontage.</p> <p>(There may be rare occasions where it is necessary to produce a 53.5 degree planar projection photomontage to illustrate the development. This should have a HFOV of 53.5 degrees, VFOV = 18.2 degrees and be 820mm in length.)</p>
	Baseline photograph	A3 single frames from viewpoints agreed with determining authority. The preferred option is A3, image size HFOV 27 degrees. Where this would not provide adequate context, an A3 image with HFOV of 39 degrees may be used.
	Principal distance	Printed on photomontages
Maps	Viewpoint map	To include overall viewpoint location map (combined with ZTV). Generally, A3 will suffice. In addition, a thumbnail location map provided for each viewpoint.



## References and links

*Landscape Institute Advice Note 01/11. Photography and photomontage in landscape and visual assessment.* (Available at: <https://www.landscapeinstitute.org/visualisation/>)

Scottish Natural Heritage (2011) *The siting and design of aquaculture in the landscape: visual and landscape considerations*

Scottish Natural Heritage (March 2012) *Assessing the Cumulative Impact of Onshore wind energy developments.*

Scottish Natural Heritage (February 2017). Visual Representation of Windfarms (v.2.2)

The Highland Council (2015). *Aquaculture Supplementary Guidance. Stùireadh Leasachail a thaobh Tuathanachas Uisge.* Consultation draft

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