Morven Offshore Wind Farm



Morven Hawthorn Pit Grid Connection Project

Preliminary Environmental Information Report

Volume 4, Annex 1.3: Landscape and Visual Resources Impact Assessment Methodology

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Glossary

Term	Meaning
Alternating Current (AC) connection cable corridor	The corridor within which the AC connection cables will be located, from the onshore land substation to the National Grid Hawthorn Pit Substation.
Amenity	The natural environment, cultural heritage, landscape and visual quality. Also includes the impact of the Applicant's works on communities, such as the effects of noise and disturbance from construction activities.
Baseline	Existing conditions as represented by the latest available data, whether from literature or survey and used as a benchmark for making comparisons to assess the impact of a development or project.
Blue Onshore Land Substation (LSS) Option Area	Proposed location option for the onshore land substation, located west of the A19 and south of the access road to the Jade Business Park.
Character Areas	These are single unique areas which are the discrete geographical areas of a particular landscape type.
Conservation Area	An area of special architectural or historic interest, the character, appearance or setting of which it is desirable to preserve or enhance.
Decommissioning	The period during which a development and its associated processes are removed from active operation.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
Environmental Impact Assessment (EIA)	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Field survey	The direct on-site observation and collection of environmental data, through sampling and recording, undertaken within the Survey Area.
Green Onshore Land Substation (LSS) Option Area	Proposed location option for the onshore land substation, located between Jade Business Park (Spring Rd, Murton, Seaham SR7 9DR) and the National Grid Hawthorn Pit Substation.

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Impact	A change caused by an action that occurs during a project's lifetime.
Key characteristics	Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place.
Land use	What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry.
Landfall	The area in which the offshore export cables make landfall (come onshore) and the transitional area between the offshore cabling and the onshore cabling. This term applies to the entire landfall area between the trenchless technique exit pits and the transition joint bay inclusive of all construction works.
Landform	The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes.
Landscape	An area, as perceived by people, the character of which is the result of the action and interaction of natural and/or human factors.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape Character Assessment	The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive. The process results in the production of a Landscape Character Assessment.
Landscape effects	Effects on the landscape as a resource in its own right.
LiDAR	A remote sensing method used to generate accurate three dimensional data about the earth surface.
Likely Significant Effect	Effects from the Proposed Development that have a pathway for effect to the National site that could affect the conservation objectives for the site's qualifying features. If the proposed development 'would be likely to have significant effect on a 'National site' as per the Habitat Regulations, then an appropriate assessment of the plan or project must be carried out by the Competent Authority.

Local Authority	The Local Authority is a body empowered by law to exercise various statutory functions for a particular geographic area of the United Kingdom. This includes District Councils and County Borough Councils. For a DCO, the Local Authority acts as a statutory consultee, advising on local planning matters, environmental impacts and compliance with relevant policies and community considerations.
Magnitude	A combination of the spatial extent, duration, frequency and reversibility of an impact
MHPGC Project PEIR Red Line Boundary	The area within which all components of the MHPGC Project will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).
MHPGC Project Scoping Report	A Scoping Report for the MHPGC Project, scoping the likely significant effects of the project on the environment, was submitted and accepted by Planning Inspectorate (PINS) and submitted to the Scottish Ministers, via the Marine Directorate – Licencing Operations Team (MD-LOT) in February 2025.
Morven Hawthorn Pit Grid Connection Project	The MHPGC Project is comprised of the offshore export cables in Scottish and English waters from the Morven North or the Morven South offshore substation platform(s) (OSP), landfall, onshore export cables, the onshore land substation (LSS) and AC connection cables. Also referred to in this report as the MHPGC Project, for ease of reading.
Onshore export cables	HVDC cables which bring electricity from the TJB to the onshore land substation.
Onshore Land Substation (LSS)	A purpose-built site comprising a compound containing the electrical components for converting the HVDC to HVAC power. The LSS site associated with the MHPGC Project adjusts the power quality and power factor to meet the requirements of power supply being fed to the National Grid Hawthorn Pit Substation.
Perception	Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences).

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Photomontage	A visualisation which superimposes an image of a proposed development upon a photograph or series of photographs.
Receptor	A specific environmental feature, resource, population or asset that may be affected by the MHPGC Project, either directly or indirectly, and which falls within the environmental topics considered under the EIA Regulations.
Scheduled Monument	A monument which has been scheduled by the Historic Environment Scotland (acting on behalf of the Scottish Ministers) in Scotland, or the Secretary of State in England, as being of national importance under the 'Ancient Monuments and Archaeological Areas Act 1979'.
Seascape	Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other.
Significance	Effect factor that is determined by the magnitude of impact along with the sensitivity of the receptor.
Susceptibility	The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.
the Study Area	For each environmental topic, the baseline environment will be characterised, and the likely significant effect will be described within a topic-specific Study Area. Specific Study Areas are defined for each topic and are based on the maximum spatial extent across which likely significant effects of the MHPGC Project may be experienced by the relevant receptors (i.e. Zone of Influence (ZoI)).
Tranquillity	A state of calm and quietude associated with peace, considered to be a significant asset of landscape.
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 the people living, working, recreating, visiting or travelling through an area.
Visual effects	Effects on specific views and on the general visual amenity experienced by people.
Visual receptors	Individuals and/or defined groups of people who have the potential to be affected.
Zone of Theoretical Visibility (ZTV)	A computer-generated map that illustrates the area from which a proposed development may be visible based on a digital model.

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Acronyms

Acronym	Meaning
AC	Alternating Current
AHLV	Area of Higher Landscape Value
AVR	Accurate Visual Representation
DCO	Development Consent Order
DTM	Digital Terrain Model
DSM	Digital Surface Model
EIA	Environmental Impact Assessment
ES	Environmental Statement
EWG	Expert Working Group
GLVIA3	Guidelines for Landscape and Visual Impact Assessment (Third Edition) (GLVIA3)
IEMA	The Institute of Environmental Management and Assessment
LI	Landscape Institute
LSS	onshore land substation
LVIA	Landscape and Visual Impact Assessment
LVMF	London View Management Framework
MHPGC	Morven Hawthorn Pit Grid Connection
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
PRoW	Public Rights of Way
TGN	Technical Guidance Note
ZTV	zone of theoretical visibility

Units

Unit	Meaning
°	degrees
m	metre
mm	millimetre
%	percent

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Executive Summary

This report presents the Landscape and Visual Impact Assessment Methodology for the Morven Hawthorn Pit Grid Connection Project. It forms **Volume 4, Annex 1.3: Impact Assessment Methodology, of the Preliminary Environmental Information Report (PEIR)**.

The purpose of this report is to describe the impact assessment methodology followed within **Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR**. The report sets out:

- the guidance that has been followed;
- the approach to Landscape and Visual Impact Assessment (LVIA);
- the value and susceptibility criteria used to inform the sensitivity of landscape and visual receptors;
- the assessment criteria for magnitude of impact arising from the MHPGC Project with respect to landscape character and visual amenity; and
- the method employed in reaching conclusions as to the significance of landscape and visual effects.

The report also details the methodology used for technical outputs of zone of theoretical visibility (ZTV), photography and photomontages.

1 Introduction

1.1 Overview

1.1.1.1 This report presents the landscape and visual amenity impact assessment methodology for the Morven Hawthorn Pit Grid Connection Project (referred to hereafter as 'the MHPGC Project'). It forms **Volume 4, Annex 1.3: Landscape and Visual Amenity Impact Assessment Methodology, of the Preliminary Environmental Information Report (PEIR)** prepared for the MHPGC Project and supports **Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR**.

1.1.1.2 It sets out the guidance that has been followed, defines the criteria for assessing sensitivity, magnitude and significance for landscape and visual amenity and provides details of the methodology used for technical outputs of photography, photomontages and the zone of theoretical visibility (ZTV).

1.1.1.3 The report presented is informed by the following technical chapters:

- **Volume 1, Chapter 2: Project Description, of the PEIR;**
- **Volume 1, Chapter 4: Approach to Environmental Impact Assessment, of the PEIR**;
- **Volume 1, Chapter 5: Policy and Legislation, of the PEIR**.

2 Approach and assessment criteria

2.1 Approach

2.1.1.1 The preliminary assessment has been carried out in accordance with the following guidance documents:

- Landscape Institute and The Institute of Environmental Management and Assessment (IEMA) (2013). Guidelines for Landscape and Visual Impact Assessment (Third Edition) (GLVIA3);
- Landscape Institute (2024). LITGN-2024-01 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3);
- Landscape Institute (2019). Technical Guidance Note 6/19 Visual Representation of Development Proposals;
- Landscape Institute (2021). TGN 02-21: Assessing landscape value outside national designations.

2.1.1.2 GLVIA3 states that there is a need for an approach that is proportionate to the scale of the project being assessed and the nature of its likely effects. In accordance with GLVIA3, within **Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR** undertaken for the MHPGC Project, 'impact' is defined as change caused by an action that occurs during the MHPGC Project lifetime and the 'effect' is used to express the consequence of an impact.

2.1.1.3 The LVIA has been informed by a combination of desk-top research, consultation with the Expert Working Group (EWG), digital analysis and site visits. Further details on the baseline sources are included in **Volume 4, Annex 1.1: Landscape Character Baseline Technical Report, of the PEIR** and **Volume 4, Annex 1.2: Visual Baseline Technical Report, of the PEIR**.

2.1.1.4 GLVIA3 notes that "Well-organised and timely consultation and engagement with both stakeholders and public can bring benefits to a project, including improved understanding of what is proposed and access to local environmental information that might otherwise". The approach for the LVIA has been consulted initially through the MHPGC Project Scoping Report and subsequently through agreement of viewpoint locations, information requests and two EWG workshops.

2.1.1.5 The LVIA assesses the likely significant effects of the construction, operation and maintenance and decommissioning of the MHPGC Project on the landscape and visual receptors within the Landscape and Visual Amenity Study Area.

2.1.1.6 GLVIA3 advises on approaches to best practice without being prescriptive, this methodology is tailored to the MHPGC Project based on the nature of the development, the local landscape and visual amenity, and consultation with stakeholders.

2.1.1.7 The LVIA comprises the following process:

- Baseline analysis: Identification and description of existing landscape and visual resources, their value, susceptibility and sensitivity against which to judge the effects of the MHPGC Project.
- Understanding the nature of change: Identification of features or aspects of the MHPGC Project with potential to affect the landscape or visual resource, including mitigation measures incorporated into the design.
- Assessment of residual construction, operation and maintenance and decommissioning landscape and visual effects.

2.1.1.8 The Landscape Institute in GLVIA3 provides the following definition with regard to landscape effects: "An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... 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".

2.1.1.9 In accordance with GLVIA3, the term 'landscape' encompasses areas of 'townscape' and coastal areas of 'seascape'. In this assessment, the term 'landscape' is used to describe landscape and seascape unless otherwise noted.

2.1.1.10 The assessment forms part of an iterative process, whereby the baseline analysis and impact assessment have been, and will continue to be, used to improve the siting, layout and design of the MHPGC Project through exploration of opportunities to avoid, reduce, mitigate, or offset potential landscape and visual impacts.

2.1.1.11 The assessment criteria apply to both the MHPGC Project and the cumulative assessment.

2.1.1.12 In assessing the potential impacts of the MHPGC Project, the worst-case scenario for each landscape and visual receptor has been considered and reported (for example Green LSS Option Area or Blue LSS Option Area), therefore potential impact of the alternative option for each receptor would be less than or equal to the reported significance of effect.

2.1.1.13 Assumptions and limitations are detailed in **Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR, Section 1.5.6**.

2.1.2 Study area

2.1.2.1 The Landscape and Visual Amenity Study area is presented on **Figure 1.1: Landscape and visual amenity study area**.

2.1.2.2 GLVIA3 notes that "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. This will usually be based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly. However, it may also be based on the extent of the area from which the development is potentially visible, defined as the Zone of Theoretical Visibility, or a combination of the two."

2.1.2.3 The Landscape and Visual Amenity Study Area was defined in the MHPGC Project Scoping Report; however, the MHPGC Project Scoping Report noted that "The Onshore and Offshore LVIA Study Areas should be regarded as preliminary at this stage and will be informed by further desk and site-based analysis". The MHPGC Project has since been refined and reduced in extent, including refinement to two LSS Option Areas.

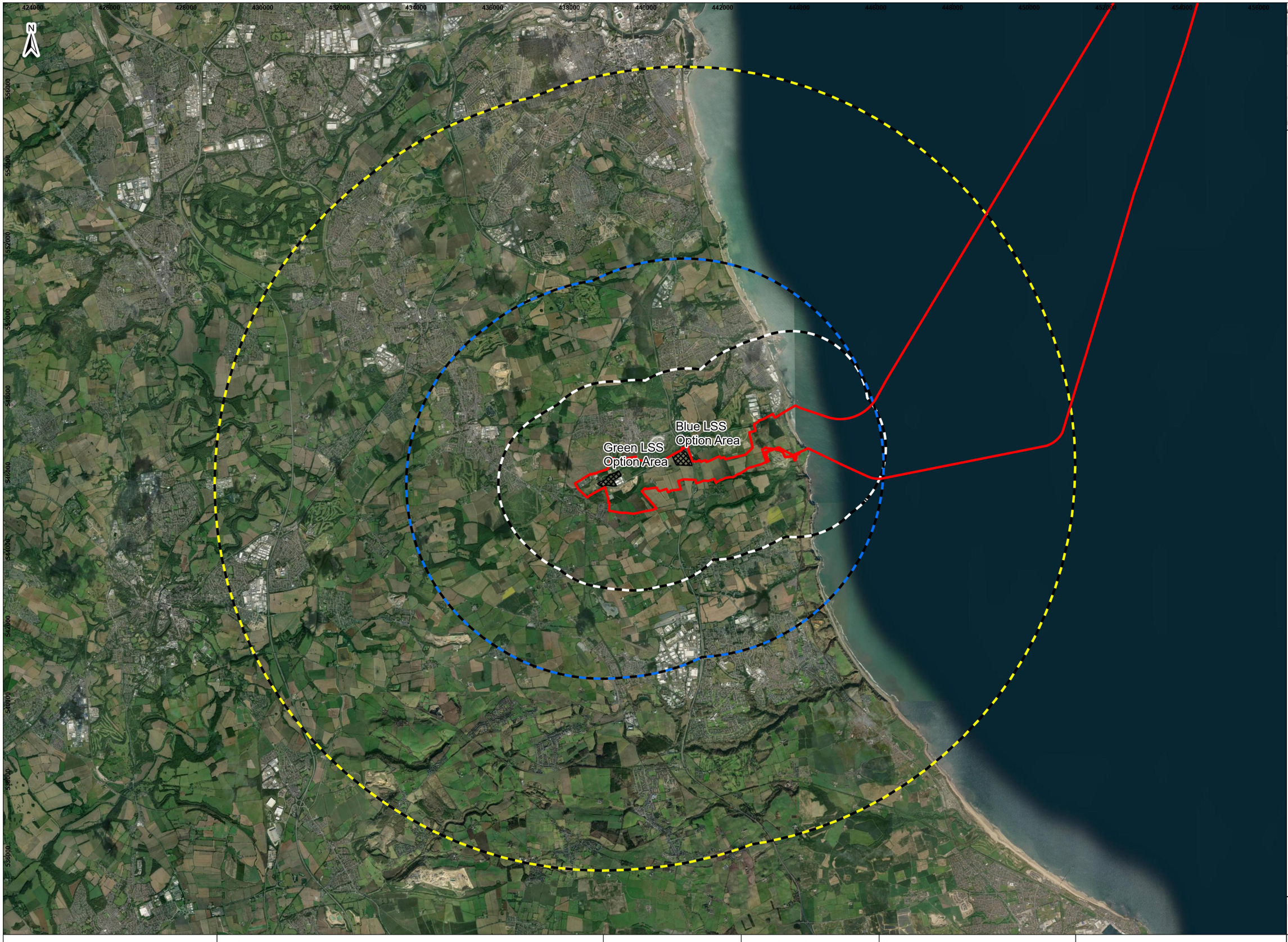
2.1.2.4 The Landscape and Visual Amenity Study Area has therefore been based on the refined MHPGC Project PEIR Red Line Boundary: Onshore, using the same offset distances as defined within the MHPGC Project Scoping Report, it is comprised of the combined extent of two offsets described below:

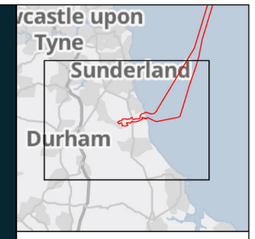
- Landfall, onshore export cables corridor and Alternating Current (AC) connection cable corridor: The Landscape and Visual Amenity Study Area extends 2km from the MHPGC Project PEIR Red Line Boundary: Onshore.
- Onshore LSS: The Landscape and Visual Amenity Study Area extends 5km from the LSS Option Areas.

2.1.2.5 The study area distances are judged to be the maximum distance at which there are likely to be any potential significant landscape or visual impacts arising from a development of this nature. There is limited theoretical visibility of the MHPGC Project from beyond 5km as illustrated on the ZTV (presented on **Figure 1.2: Zone of theoretical visibility and viewpoints – green LSS** and **Figure 1.3.3: Zone of theoretical visibility and viewpoints – blue LSS**).

2.1.2.6 Where landscape and visual receptors that were initially included in the MHPGC Project Scoping Report are now located outside of the Landscape and Visual Amenity Study Area within the PEIR, a review has been conducted to confirm their suitability to be scoped out from the PEIR. This approach and the revised study area was presented and agreed with the EWG.

2.1.2.7 The cumulative landscape and visual amenity study area extends 10km from the LSS Option Areas. This allows for consideration of a worst-case scenario where a receptor located at the edge of the 5km Landscape and Visual Amenity Study Area may be impacted by both the MHPGC Project in one direction and a cumulative project in another.





LEGEND

- MHPGC Project PEIR Red Line Boundary
- LSS Option Areas
- Landscape and Visual Amenity Study Area – 2km
- Landscape and Visual Amenity Study Area – 5km
- Cumulative Landscape and Visual Amenity Study Area

The Landscape and Visual Amenity Study Area extends 5km from the LSS Option Areas and 2km from the MHPGC Project PEIR Red Line Boundary: Onshore.

The Cumulative Landscape and Visual Amenity Study Area extends 10km from the LSS Option Areas.

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Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 1.1: LANDSCAPE AND VISUAL AMENITY STUDY AREA

0 2 km

Scale@A3 1:90,000

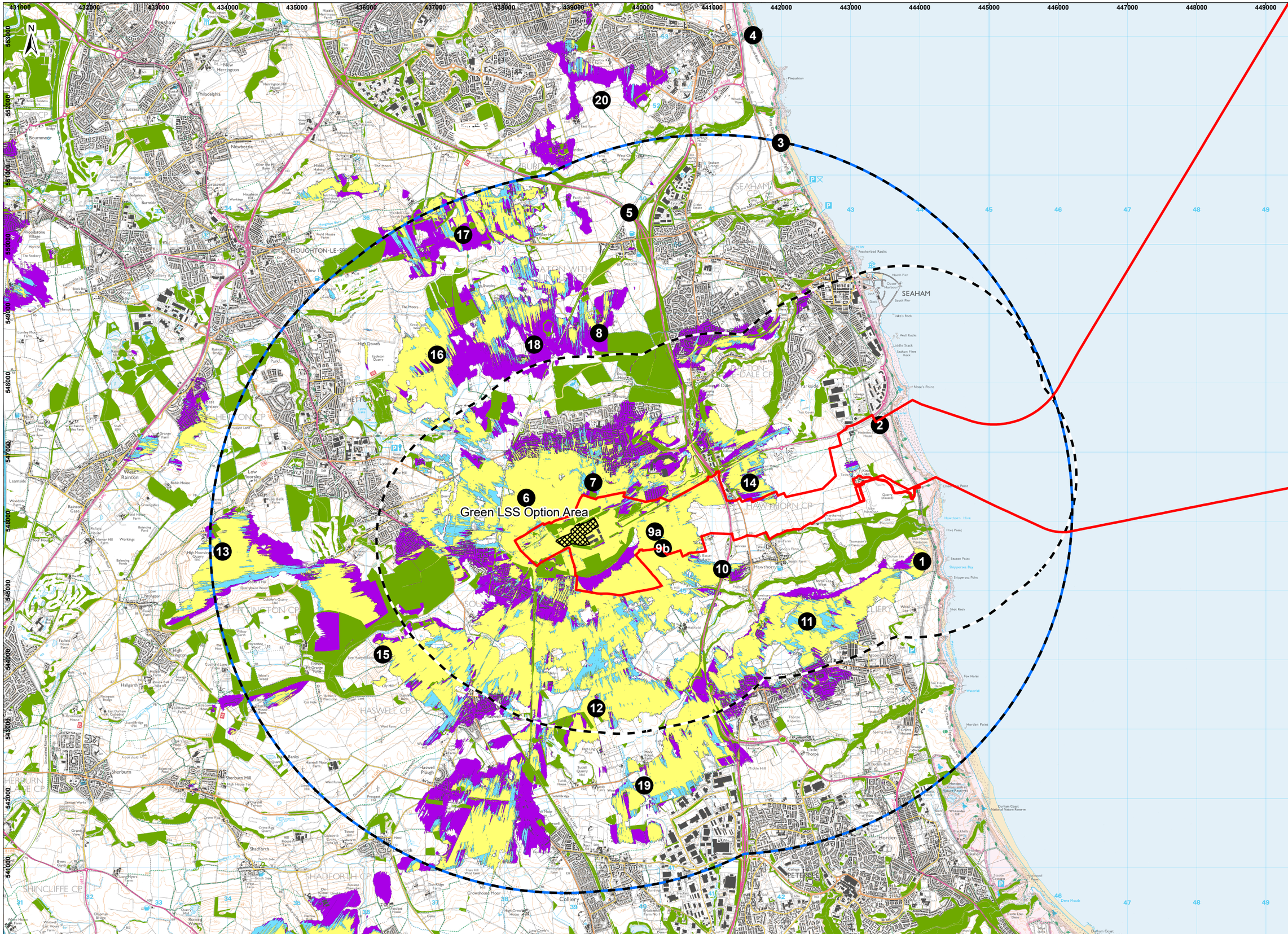
Geodetic Information:
Datum: OSGB 1936
Projection: British National Grid

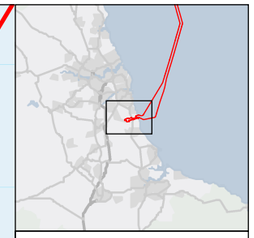
Data Sources:
M3, Ramboll, Ordnance Survey

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03	20/08/26	Updates	JC	BW	IL
04	29/09/26	Updates	BW	JC	IL





LEGEND

- MHPGC Project PEIR Red Line Boundary
- Green LSS Option Area
- Landscape and Visual Amenity Study Area – 2km
- Landscape and Visual Amenity Study Area – 5km
- Building
- Woodland
- Viewpoint Location

Zone of Theoretical Visibility (ZTV) Scenarios:

DTM (Digital Terrain Model)
No obstructions; visibility based solely on terrain

DTM + Buildings + Woodland
Visibility obstructed by buildings and woodland areas

DSM (Digital Surface Model)
Visibility obstructed by all above-ground features, including buildings, vegetation, and other structures

Disclaimer:

1. ZTV were calculated using points placed at 100m intervals around the LSS Option boundary, set at 30m above ground level as the height would not extend across the full extent of the LSS Option area.

2. Visibility analysis was conducted for three different scenarios using the DEFRA LIDAR Composite DTM and DSM (2m x 2m resolution, 8-bit unsigned pixel depth) excluding the area that extends offshore, along with Open Data layers representing woodland and buildings.

3. Predicted visibility based on a viewer eye height 2m above ground.

4. Observation Points set to 30m above ground level.

5. Effect of earth curvature and light refraction is included.

6.The Landscape and Visual Amenity Study Area extends 5km from the LSS Option Areas and 2km from the MHPGC Project PEIR Onshore Red Line Boundary.

Morven Offshore Wind Farm

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Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 1.2: ZONE OF THEORETICAL VISIBILITY AND VIEWPOINTS - GREEN LSS

0 1 km

Scale@A3 1:50,000

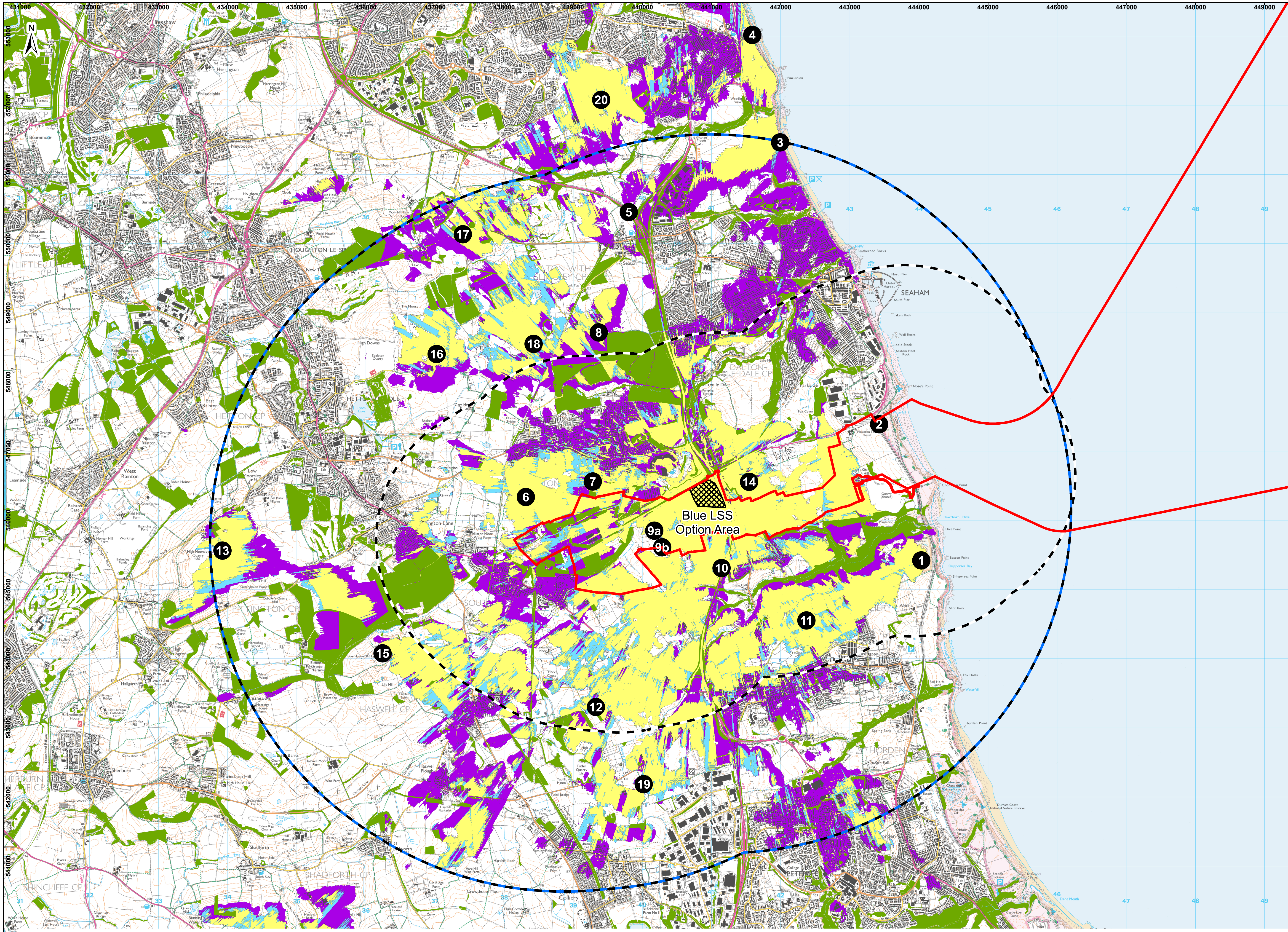
Geodetic Information:
Datum: OSGB 1936
Projection: British National Grid

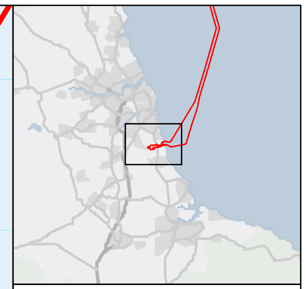
Data Sources:
M3, Ramboll, Ordnance Survey, DEFRA, Environment Agency

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01	14/07/26	Initial	BW	KB	IL
02	20/08/26	Update	JC	BW	IL





LEGEND

- MHPGC Project PEIR Red Line Boundary
- Blue LSS Option Area
- Landscape and Visual Amenity Study Area – 2km
- Landscape and Visual Amenity Study Area – 5km
- Building
- Woodland
- Viewpoint Location

Zone of Theoretical Visibility (ZTV) Scenarios:

- **DTM (Digital Terrain Model)** No obstructions; visibility based solely on terrain
- **DTM + Buildings + Woodland** Visibility obstructed by buildings and woodland areas
- **DSM (Digital Surface Model)** Visibility obstructed by all above-ground features, including buildings, vegetation, and other structures

Disclaimer:

1. ZTV were calculated using points placed at 100m intervals around the LSS Option boundary, set at 30m above ground level as the height would not extend across the full extent of the LSS Option area.

2. Visibility analysis was conducted for three different scenarios using the DEFRA LIDAR Composite DTM and DSM (2m x 2m resolution, 8-bit unsigned pixel depth) excluding the area that extends offshore, along with Open Data layers representing woodland and buildings.

3. Predicted visibility based on a viewer eye height 2m above ground.

4. Observation Points set to 30m above ground level.

5. Effect of earth curvature and light refraction is included.

6.The Landscape and Visual Amenity Study Area extends 5km from the LSS Option Areas and 2km from the MHPGC Project PEIR Onshore Red Line Boundary.

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Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 1.3: ZONE OF THEORETICAL VISIBILITY AND VIEWPOINTS - BLUE LSS

0 1 km
Scale@A3 1:50,000

Geodetic Information:
Datum: OSGB 1936
Projection: British National Grid

Data Sources:
M3, Ramboll, Ordnance Survey, DEFRA, Environment Agency

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2.1.3 Landscape

2.1.3.1 GLVIA3, paragraph 5.4, advises that Landscape Character Assessment should be regarded as the main source for baseline studies and identifies the following factors which combine to create areas of distinct landscape character:

- "the elements that make up the landscape in the study area including:
  - physical influences – geology, soils, landform, drainage and water bodies;
  - landcover, including different types of vegetation and patterns and types of tree cover; and
  - the influence of human activity, including land use and management, the character of settlements and buildings, and pattern and type of fields and enclosure.
- the aesthetic and perceptual aspects of the landscape – such as, for example, its scale, complexity, openness, tranquillity or wildness;
- the overall character of the landscape in the study area, including any distinctive Landscape Character Types or Areas that can be identified, and the particular combinations of elements and aesthetic and perceptual aspects that make each distinctive, usually by identification as key characteristics of the landscape".

2.1.3.2 GLVIA3 notes (paragraph 2.6) that it "is equally applicable to all forms of landscape and does not separate townscape and seascape out for special treatment". The European Landscape Convention (Council of Europe, 2000) also has an inclusive definition of landscape (inclusive of seascape), with Article 2 stating that "Subject to the provisions contained in Article 15, this Convention applies to the entire territory of the Parties and covers natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas. It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes".

2.1.3.3 The GLVIA3 glossary defines seascape as "Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other."

2.1.3.4 The understanding of landscape character and reporting of baseline characteristics is informed by:

- Published character studies by organisations such as Natural England, Marine Management Organisation, and local authorities;
- Analysis of topography, land use, and features using Ordnance Survey data, aerial photography, and GIS tools;
- Site visits across the study area;
- Review of landscape designations and classifications within the study area and associated descriptions/documents.

2.1.3.5 Relevant character areas are examined in detail and analysed to determine whether a significant landscape effect would occur.

2.1.3.6 The landscape baseline is described in **Volume 4, Annex 1.1: Landscape Character Technical Baseline Report, of the PEIR**.

2.1.4 Visual

2.1.4.1 Visual effects are concerned wholly with the effect of the development on views and the general visual amenity. The Landscape Institute in GLVIA3 provides the following definition with regard to visual effects: "An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... 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".

2.1.4.2 Visual effects are identified for different receptors (people) who would experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area.

2.1.4.3 Viewpoint analysis is used to assist the assessment and is conducted from selected viewpoints within the study area. The purpose of this is to assess both the level of visual effect for particular

receptors and to help guide the design process and focus the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur.

2.1.4.4 Representative viewpoint locations were agreed with stakeholders, with reporting of baseline visual amenity informed by:

- ZTV analysis to identify locations with theoretical visibility towards the MHPGC Project;
- Visits to viewpoint locations and photography at different times of year (with vegetation in and out of leaf);
- Identification and mapping of open spaces, public rights of way (PRoW), and residential properties using Ordnance Survey data, aerial photography, and local authority datasets.

2.1.4.5 The visual baseline is described in **Volume 4, Annex 1.2: Visual Baseline Technical Report, of the PEIR**.

2.2 Assessment criteria

2.2.1 Landscape sensitivity

2.2.1.1 Landscape sensitivity is determined through combining judgements of the susceptibility of the receptor and the value related to that receptor. As noted in **Section 2.1.3**, all definitions and criteria related to landscape also encompass seascape aspects.

2.2.1.2 The value and susceptibility criteria used to inform the sensitivity of landscape receptors are based on guidance within GLVIA3. The guidance does not specifically apply criteria on a weighted scale and therefore the application of professional judgement has been used.

2.2.1.3 Landscape value is 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, with professional judgement used for this assessment.

2.2.1.4 Landscape susceptibility is the ability of a defined landscape receptor to accommodate the type of development proposed without undue negative consequences.

2.2.1.5 The value attached to individual landscape receptors will be defined as low, medium, or high based on qualitative interpretation of a combination of factors including the following:

- national landscape designation;
- local landscape designation or classification;
- landscape quality;
- landscape condition;
- scenic quality;
- rarity;
- representativeness;
- conservation interest;
- recreational value;
- perceptual aspects; and
- cultural associations.

2.2.1.6 The value of landscape receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.1**.

Table 2.1: Landscape value

Value	Criteria
High	Typically, a landscape predominantly of international or national designation or classification e.g., World Heritage site, National Park or National Landscape with a strong sense of place and contains attractive features worthy of conservation and an absence of distracting features.

Value	Criteria
Medium	A reasonably attractive landscape that may have some regional recognition e.g. containing Conservation Areas, Grade II Listed Buildings, Registered Parks and Gardens, Heritage Coast, or Area of Higher Landscape Value. Contains a number of distinguishing features and is an ordinary landscape with some potential for substitution.
Low	Likely to be undesignated, but may be locally valued landscape, with few features worthy of conservation, evidence of degradation and some detracting features. Has a high potential for substitution and has a quality and condition that is fairly commonplace or poor.

2.2.1.7 The susceptibility of landscape receptors to accommodate a development of the type proposed without undue consequences will be defined as low, medium, or high based on a combination of parameters including the following:

- the scale and pattern of the landscape and its elements/features;
- the simplicity or complexity of the landscape;
- the nature of skylines;
- landscape quality or condition;
- existing land use;
- visual enclosure/openness of views;
- the scope for effective mitigation, which would be in character with the existing landscape.

2.2.1.8 The susceptibility of landscape receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.2**.

Table 2.2: Landscape susceptibility

Susceptibility	Criteria
High	The receptor is highly susceptible to the nature of the proposed change and has a low capacity to accommodate the proposed change without undue adverse effects, taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies/strategies.
Medium	The receptor is moderately susceptible to the nature of the proposed change and has some capacity to accommodate the proposed change without undue adverse effects, taking account of the existing character and quality of the landscape, and/or achievement of relevant planning policies/strategies.
Low	The receptor is able to accommodate the nature of the proposed change without undue consequences for the baseline situation.

2.2.1.9 The sensitivity of landscape receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.3**.

Table 2.3: Landscape sensitivity

	Susceptibility			
Value		**Low**	**Medium**	**High**
	High	Medium	High	Very High
	Medium	Low	Medium	High
	Low	Negligible	Low	Medium

Table 2.4 Landscape sensitivity definition

Susceptibility	Criteria
Very high	Receptor with high value and high susceptibility. Likely characteristics: • Landscape value recognised by international or national designation. • The landscape resource has very little ability to absorb change of the type proposed without fundamentally altering its present character and is of very high importance, rarity and value. • Sense of relatively high levels of tranquillity or remoteness specifically noted in landscape character/tranquillity assessment. • High sensitivity to disturbance specifically noted in landscape character assessment. • The qualities for which the landscape is valued are in very good or good condition, with a clearly apparent distinctive character and absence of detractors. • Very limited potential for substitution.
High	Receptor with a combination of high and medium value and susceptibility. Likely characteristics: • Landscape value recognised by national designation. • The landscape resource has little ability to absorb change of the type proposed without fundamentally altering its present character and/or is of high importance, rarity or value. • Sense of relatively high levels of tranquility or remoteness specifically noted in landscape character/tranquility assessment. • High sensitivity to disturbance specifically noted in landscape character assessment. • The qualities for which the landscape is valued are in good condition, with a clearly apparent distinctive character and absence of detractors. • Limited potential for substitution.
Medium	Receptor with high and low, or medium and medium value and susceptibility. Likely characteristics: • Landscape value is recognised or designated locally. • The landscape resource has moderate capacity to absorb change of the type proposed without significantly altering its present character and/or is of medium importance, rarity or value. • The landscape is relatively intact, with a distinctive character and some detractors; and is reasonably tolerant of change. • Sense of moderate levels of tranquillity or remoteness noted in landscape character/tranquillity assessment. Medium sensitivity to disturbance. • Limited potential for substitution.
Low	Receptor with a combination of low and medium value and susceptibility. Likely characteristics: • The landscape resource is tolerant of change of the type proposed without detriment to its character and/or is of low importance, rarity or value. • Landscape integrity is low, with a poor condition with the presence of detractors • Capacity to potentially accommodate high levels of change. • Sense of relatively low levels of tranquillity or remoteness noted in landscape character/tranquillity assessment. • Low sensitivity to disturbance.

Susceptibility	Criteria
Negligible	Receptor with low value and low susceptibility. Likely characteristics: • The landscape resource is tolerant of change of the type proposed without detriment to its character and/or is of low importance, rarity or value. • Landscape integrity is low, with a poor condition and a degraded character with the presence of detractors such as dereliction. • Capacity to potentially accommodate considerable change. • Sense of relatively low levels of tranquility or remoteness noted in landscape character/tranquility assessment. • Negligible sensitivity to disturbance.

2.2.2 Visual sensitivity

2.2.2.1 Landscape sensitivity is determined through combining judgements of the susceptibility of the receptor and the value related to that receptor.

2.2.2.2 Visual receptors include people within the study area in a range of situations including users of recreational routes and public rights of way, local residents, users of open spaces, people playing sport and people travelling through the landscape. Their sensitivity relates to their susceptibility to the change in views and visual amenity and also the value attached to particular views.

2.2.2.3 The value and susceptibility criteria used to inform the sensitivity of visual receptors are based on guidance within GLVIA3. The guidance does not specifically apply criteria on a weighted scale and therefore the application of professional judgement has been used.

2.2.2.4 Visual value is the relative value that is attached to different views by society, a view may be valued by different stakeholders for a whole variety of reasons, with professional judgement used for this assessment.

2.2.2.5 Visual susceptibility is mainly a function of the occupation or activity of people experiencing the view at particular locations, and the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience at particular locations.

2.2.2.6 The value associated with the amenity experienced by visual receptors will be identified as low, medium and high based on qualitative interpretation of a combination of factors including the following:

- the value attached to particular views, for example through protected or advertised or recognised views;
- indicators of the value attached through appearance on guidebooks and maps;
- provision of facilities for receptors such as benches and interpretation panels;
- references to views in cultural artifacts such as prominent paintings or literature;
- whether the nature of view is particularly rare or common within the area; and
- whether the view includes elements or features perceived as positive/negative within the local landscape.

2.2.2.7 The value of visual receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.5.**

Table 2.5: Visual value

Value	Criteria
High	Typically, locations or views that may be identified in local planning policy, published in guidebooks, notable views within designated landscapes identified within associated management plans, or on tourist maps.

Value	Criteria
Medium	Typically, locations where there is provision of facilities for the enjoyment of the view (such as parking places, sign boards and interpretive material) and references to them in literature or art, or views that are particularly noteworthy within the wider landscape.
Low	Typically, views that are commonplace within the wider landscape.

2.2.2.8 The susceptibility of the visual resource and different visual receptors to impact upon the composition of views is partially conditioned by the occupation or activity of people experiencing the view at public locations, and the extent to which their attention or interest may therefore be focused on the views and the visual amenity they experience (and expect) at that location.

2.2.2.9 The susceptibility of visual receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.6**.

Table 2.6: Visual susceptibility

Susceptibility	Criteria
High	Typically, residents at home or people engaged in outdoor recreation (including use of public rights of way) whose attention or interest is likely to be focused on the landscape and on particular views, visitors to heritage assets or other attractions where views of the surroundings are an important contributor to the experience, or communities where views contribute to the landscape setting enjoyed by residents in the area.
Medium	Typically, people traveling on road, rail, by boat or on other transport routes, or users of public open spaces.
Low	Typically, people engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape, or people at their place of work whose attention may be focused on their work or activity and not on their surroundings.

2.2.2.10 The sensitivity of visual receptors will be classified as low, medium or high, in accordance with the criteria set out in **Table 2.7**.

Table 2.7: Visual sensitivity

		Susceptibility		
Value		**Low**	**Medium**	**High**
	High	Medium	High	Very High
	Medium	Low	Medium	High
	Low	Negligible	Low	Medium

Table 2.8 Visual sensitivity definition

Susceptibility	Criteria
Very high	Receptor with high value and high susceptibility. Likely to be receptors whose attention is very likely to be focused on the landscape within nationally designated landscapes where high levels of tranquillity are most likely to be experienced e.g., users of strategic recreational footpaths and cycleways; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas.

Susceptibility	Criteria
High	Receptor with a combination of high and medium value and susceptibility. Likely to be receptors whose attention is focused on the landscape. Includes areas within nationally designated landscapes where high levels of tranquility may be experienced e.g., residents experiencing views from dwellings; users of strategic recreational footpaths and cycleways; people experiencing views from important landscape features of physical, cultural or historic interest, beauty spots and picnic areas. Occupiers of vehicles in highly scenic areas or on recognised tourist routes.
Medium	Receptor with high and low, or medium and medium value and susceptibility. Likely to be receptors whose attentions may be focused on landscape, such as users of pavements, footways and secondary footpaths in urban areas, and people engaged in outdoor sport or recreation e.g., horse riding or golf. Occupiers of vehicles in rural areas.
Low	Receptor with a combination of low and medium value and susceptibility. Likely to be receptors at their place of work, or engaged in similar activities, whose attention may be focused on their work or activity and who may therefore be potentially less susceptible to changes in view. Occupiers of vehicles whose attention may be focused on the road.
Negligible	Receptor with low value and low susceptibility. Likely to be receptors at their place of work, or engaged in similar activities, whose attention is most likely to be focused on their work or activity and who therefore are potentially less susceptible to changes in view. Occupiers of vehicles in urban areas.

2.2.3 Magnitude of impact

2.2.3.1 The magnitude of impact (change) arising from the MHPGC Project with respect to landscape character and visual amenity will be described as No Change, Negligible, Low, Medium, or High based on the interpretation of a combination of largely quantifiable parameters:

- distance of the receptor from the MHPGC Project, whether near or distant;
- angle of view in relation to the main activity of the receptor, whether in direct line of sight or oblique;
- degree to which aesthetic or perceptual aspects of the landscape would be altered by removal or alteration to existing components or with the addition of new elements;
- context in which the MHPGC Project would be seen or located;
- degree of contrast between the MHPGC Project and baseline context, whether it is similar or different and if it contributes or detracts;
- geographic area over which the visibility of the MHPGC Project would be perceived, whether across most of a character area, along the full length of a public right of way, or from specific locations;
- scale of impact within the view with respect to the loss or addition of features and impacts on its composition, including the proportion of the view occupied by the MHPGC Project;
- duration of the impact, whether short, medium, or long term; and
- reversibility of the impact, the potential for the baseline condition to be restored in the future if desired.

2.2.3.2 GLVIA3 notes that "word scales, with ideally three or four but a maximum of five categories, are preferred as the means of summarising judgements for each of the contributing criteria". A scale of five categories, with one of those being No Change, has been used for this LVIA, to more effectively identify different levels of impact and nuances between each landscape and visual receptors and between each scenario assessed and the illustrative MHPGC Project.

2.2.3.3 The magnitude of impact will be classified in accordance with the criteria set out in **Table 2.9** and **Table 2.10**.

Table 2.9: Magnitude of impact - landscape

Magnitude	Definition
High	MHPGC Project located within affected landscape. Total loss, or/very substantial loss or addition of key elements/features/patterns of the baseline (i.e., pre-development landscape) and/or introduction of dominant, uncharacteristic elements compared with the attributes of the receiving landscape. Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (adverse). Large scale or major improvement of landscape character; extensive restoration or enhancement of quality (beneficial).
Medium	MHPGC Project is within or adjacent to affected landscape. Notable loss or addition of, or notable alteration to, one or more key elements/features/patterns of the baseline (i.e., pre-development landscape) and/or introduction of elements that may be notable but would not be substantially uncharacteristic in comparison to the attributes of the receiving landscape. Notable loss of/damage to key characteristics, features or elements, but not adversely affecting the integrity of landscape (adverse). Notable scale improvement of landscape character; partial restoration or enhancement of quality (beneficial).
Low	Discernible loss or addition of, or alteration to, one or more key elements/features/patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that may not be uncharacteristic compared with the surrounding landscape. Discernible loss of, or alteration to, one (maybe more) key characteristics, features or elements (adverse). Discernible benefit to, or addition of, one (maybe more) key landscape characteristics, features or elements due to partial restoration or enhancement (beneficial).
Negligible	Barely discernible loss or addition of, or alteration to, one or more key elements/features/patterns of the baseline (i.e., pre-development landscape) and/or introduction of elements that are not uncharacteristic in comparison to the surrounding landscape; approximating to a 'no-change' situation. The effect of change on the landscape, the physical characteristics, features or elements is barely discernible (adverse). Barely discernible benefit to or positive addition of one or more landscape characteristics, features or elements (beneficial).
No change	No discernible impact apparent.

Table 2.10: Magnitude of impact - visual

Magnitude	Definition
High	The proposed change forms a dominant or immediately apparent feature that would considerably alter and change view. Where there are substantial changes affecting the amenity of the view through loss of or severe damage to key existing or elements. Scale, mass and form of development out of character with existing elements within view. Substantial change to perception of amenity due to proposed disturbance (adverse). Large scale or major improvement of view; extensive restoration or enhancement of visual quality (beneficial).

Magnitude	Definition
Medium	The proposed change forms a notable new element that would affect and change the view. The proposed development forms a visible and recognisable feature in the landscape. Scale of development fits with existing features within view, with some loss of or alterations to elements of the view. Notable change to perception of tranquillity due to proposed disturbance (adverse). Notable scale improvement of view; partial restoration or enhancement of visual quality (beneficial).
Low	The proposed change constitutes only a minor component of view, which is discernible, although might be missed by the casual observer. Awareness of the proposed change would not change the overall nature and amenity of the view. Discernible loss of, or alteration to, one (maybe more) key elements within view. Discernible change to perception of tranquillity due to proposed disturbance (adverse). Discernible benefit to, or improvement in quality of view due to partial restoration or enhancement (beneficial).
Negligible	The proposed change would be barely perceptible, and/or it is at such a distance that it would be scarcely appreciated. Consequently, it would have very little effect on view. The effect of change on the perception of the visible landscape is barely discernible. Barely discernible change to perception of amenity due to proposed disturbance (adverse). Barely discernible benefit to or improvement in quality of view due to partial restoration or enhancement (beneficial).
No change	No discernible impact apparent.

2.2.4 Significance of effect

2.2.4.1 The significance of the effect upon landscape and visual amenity is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in **Table 2.11**.

2.2.4.2 Following the classification of an effect using this methodology, a clear statement will then be made as to whether that effect is significant or not significant. Major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects. Typical definitions for the classification of effects are shown in **Table 2.12** (if the magnitude is reported as **No change**, the significance of effect would be **Neutral**).

Table 2.11: Matrix used for the assessment of the significance of the effect

Sensitivity of receptor	Magnitude of impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major
Very high	Minor	Moderate or major	Major	Major

Table 2.12: Significance definitions

Significance classification	Definition	Significant effect
Major	A large and detrimental change to a valuable/sensitive receptor, likely exceeding an accepted threshold. A large and beneficial change, resulting in enhancements in baseline conditions, transitioning from previously poor conditions to new legal compliance, or making a major contribution to national goals. These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional scale. Major effects may relate to features that are unique and irreplaceable.	Significant
Moderate	A medium scale change that, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless offset by significant positive benefits of the project. If adverse, these effects are likely to be important at a regional or local scale and on their own could influence on decision making. A positive moderate effect is a medium scale change that is improves baseline conditions sufficiently to contribute to guideline targets.	Significant
Minor	A minor adverse change that remains within legal and planning policy limits. A minor positive change that is unlikely to significantly impact the overall balance of considerations. These effects might be raised as local issues and could be relevant to the detailed design of a project, but they are unlikely to be critical in the decision-making process.	Not significant
Negligible	A very small change that is so inconsequential it can be considered acceptable to disregard. These effects fall below perceptible limits, lie within normal variations, or fall within the margin of forecasting error. They are unlikely to influence decision-making.	Not significant

2.2.4.3 Based on the reported nature of change and significance of effect for viewpoints representative of residential receptors, consideration will be given as to whether there is potential for the Residential Amenity Threshold to be breached, and therefore whether a Residential Visual Amenity Assessment is required.

3 Technical outputs

3.1 Visibility mapping

3.1.1.1 To inform selection of viewpoint locations, a ZTV has been produced and is shown on **Figure 1.2** and **Figure 1.3**. The ZTV has been produced based on a theoretical height of 30m for each onshore land substation (LSS) Option Area. For each LSS Option Area, visibility has been calculated using points placed at 100m intervals around each LSS Option Area boundary (as a proportionate number of analysis points to identify theoretical visibility across the Landscape and Visual Amenity Study Area, the nature of the surrounding landscape and height of the analysis points mean a greater density of points would not add to areas of theoretical visibility). This provides a worst-case scenario as only one LSS would be constructed and a development height of 30m would not extend across the full extent of the LSS Option Area.

3.1.1.2 Three ZTV scenarios have been created using data to British National Grid coordinate system and accounting for earth curvature, with the extent of theoretical visibility reducing with each iteration:

- Using a Digital Terrain Model (DTM) (Defra LiDAR 2m), which is equivalent to a bare earth with no screening by above ground elements. This represents a worst-case extent of visibility. Any areas shown purple on the ZTV are those areas where there would be a line of sight only in the absence of, or heavily filtered by, buildings or woodland blocks.
- Adding large woodland blocks and buildings (based on Ordnance Survey (OS) data) as screening elements to the DTM (at a height of 10m above DTM for woodlands 9m above DTM for buildings). This represents a likely worst-case extent of visibility, where buildings would provide solid screening and woodlands would be of sufficient depth to screen views in both summer and winter. Any areas shown blue on the ZTV are those areas where there would be views that are likely screened or filtered by other elements not included in the visibility analysis such as hedgerows, individual trees, walls, etc.
- Using a Digital Surface Model (DSM) (Defra LiDAR 2m), provides a more likely case of the extent of theoretical visibility as the model includes any above ground features. However, the visibility shown is likely to be greater than would be the case in reality, as the point sampling was taken on a 2m grid, therefore some above ground elements (such as fences and walls) or their highest points (such as the exact highest point of a tree or building) would inevitably fall between that grid sampling.

3.1.1.3 The resulting ZTV provides an indication of where each of the LSS Options would theoretically be visible from. Given the inherent limitations of the ZTV (in that the accuracy of the output is limited by the detail within the data, which is digital and theoretical, and captured on a grid that would not capture all screening elements such as fences and walls) it has only been used as a tool to inform the understanding of the general pattern of visibility of the MHPGC Project, selection of representative viewpoints and as a basis for further study and analysis.

3.2 Photography

3.2.1.1 Representative viewpoints to be used as the basis for the visual assessment were agreed through the Environmental Impact Assessment (EIA) Scoping process, a technical note and consultation with the LVIA Expert Working Group (EWG) including via meetings and email correspondence. Representative viewpoints were selected based on a ZTV, photographs taken in the field and analysis of the MHPGC Project within Google Earth 3D. Full details of consultation undertaken is provided within **Volume 4, Chapter 1**.

3.2.1.2 The locations of the representative viewpoints have been selected to demonstrate the nature of existing views and assess the impacts of the MHPGC Project, for a range of receptor types, distances and directions.

3.2.1.3 Site photography has been taken with vegetation in and out of leaf to illustrate the temporal nature of views throughout the year.

3.2.1.4 Photography from all viewpoints has been taken as single-shot images in daytime hours, using a Full Frame Sensor camera with 50mm Fixed Focal Length Lens mounted on tripod, to provide

consistency between all viewpoints. Photography was captured in a 360° sequence from each viewpoint.

3.2.1.5 Due to the extent of the MHPGC Project PEIR Red Line Boundary, each viewpoint photograph has been presented as a single-shot 50mm fixed lens image (in the direction of the LSS Option Area, and Landfall for relevant viewpoints, a 90° context view in the direction of the LSS Option Areas (and Landfall for relevant viewpoints) and as a full 360° panorama. All viewpoint photographs are presented as Type 1 images along with details of date, time, weather conditions, coordinates, and height AOD.

3.2.1.6 The following camera and tripod configuration was used for all photography:

- camera body: Nikon D5 professional specification digital SLR (full frame CMOS sensor);
- sensor size: 24.0 x 36.0;
- camera lens: Nikkor AF 50mm f1.8 prime (fixed lens);
- tripod: Manfrotto 055MF4 with Manfrotto 438 ball leveller;
- panoramic head: Manfrotto 303SPH.

3.2.1.7 The following camera settings were used for all photography:

- camera mode: Manual Priority;
- ISO: 200-400 depending on available light;
- aperture: f8-13 depending on available light;
- shutter speed: Manual;
- lens focussing: Manual;
- image format: RAW;
- image orientation: Portrait and Landscape;
- image overlap: Approximately 50%;
- image cropping: None.

3.3 Visualisation

3.3.1.1 **Figure** 1.**4** is extracted from Landscape Institute (LI) Technical Guidance Note (TGN) 06/19, Visual Representation of Development Proposals. The definitions within **Figure 1.4** and the associated document are used within this methodology, the footnote text referenced in the figure can be found within the TGN.

Table 2 Visualisation Types 1-4		Type 1	Type 2	Type 3	Type 4
		Annotated Viewpoint Photograph	3D Wireline / Model (non-photographic)	Photomontage / Photowire	Photomontage / Photowire Survey / Scale Verifiable
Aim of the Visualisation		To represent context and outline or extent of development and of key features	To represent 3D form of development / context	To represent appearance, context, form and extent of development	To represent scale, appearance, context, form, and extent of development
Photographic Equipment	Tripod	Recommended but discretionary	Not relevant	Recommended	Necessary
	Panoramic head	Not relevant		Recommended for panoramas	Necessary for panoramas
	Minimum Camera / Lens	Cropped frame or FFS + 50mm	Not relevant	Cropped frame or FFS + 50mm	Full Frame Sensor (FFS) + 50mm FL lens [1]
Locational Accuracy	Source of camera/viewpoint location data	GPS, OS Maps, geo-referenced aerial photography	Varies according to technology	Use good quality data: GPS, OS Maps, geo-referenced aerial photography, LiDAR	Use best available data: High resolution commercial data, LiDAR, GNSS, or measured / topographic surveys
	Survey-verified [2]	Not relevant			When appropriate
Data & Presentation	Verifiable (SNH) [3]	Not relevant			Required
	3D model	Not required	Required		
	Image Enlargement [4]	Typically 100%	Not relevant	Typically 100%	100% - 150%
	Form of Visualisation	sketch / outline / arrows	massing / wireline / textured	wireline / massing / rendered / textured to agreed AVR level [5]	
	Viewpoint mapping	Dedicated viewpoint location plan			Dedicated viewpoint location plan, + individual inset maps recommended
	Reporting of methodology and data sources	Outline description of sources and methodology recommended		Data, sources and methodology recommended	Verifiable data, sources and methodology required

Figure 1.4: Visualisation Types 1-4 (from LI TGN 06/19, Visual Representation of Development Proposals)

3.3.1.2 **Figure 1.4** references Accurate Visual Representation (AVR) Level (for Type 3 and Type 4 under 'Form of Visualisation'), which is derived from the London View Management Framework (Mayor of London, 2012). The definition of each AVR Level is provided below:

- AVR Level 0: Location and size of proposal. This equates to a photo wire and provides an outline of the proposal overlaid onto the photograph base.
- AVR Level 1: Location, size and degree of visibility of proposal. This shows the massing of the proposal within a 3D context represented by the photograph; that is, what can and cannot be seen.
- AVR Level 2: As AVR Level 1 + description of architectural form. This illustrates architectural form such as doors, windows and floors, and gives a sense of the form and shading of the development within its context.
- AVR Level 3: As AVR Level 2 + use of materials. This is a fully rendered photomontage, usually photo-realistic with texture, shading and reflections as appropriate.

3.3.1.3 Type 4 photomontage visualistions have been prepared from five viewpoint locations at AVR Level 1. They show a wireline of the MHPGC PEIR Red Line Boundary, the maximum height and extent of the LSS Option Areas and an indication of the maximum building width within the LSS Option Areas. This approach and the number and location of visualisations was agreed with the Landscape and Visual Assessment EWG.

3.3.1.4 To ensure verification of the photomontages (accurate scale and position of the MHPGC Project) a range of measures has been used. The TGN 06/19 glossary states that verified means subjected to a quality assurance process to confirm that what is being presented is an accurate reflection of the true situation.

3.3.1.5 To achieve a high level of locational accuracy and a verifiable process, a combination of GPS during field survey (approximately 1m accuracy), OS Maps, aerial photography and 3D Model data, along with the measured tripod height above ground, has been used to position each viewpoint location within a geolocated 3D digital model of the MHPGC Project.

3.3.1.6 The digital model includes the MHPGC Project (placed at real world coordinates), as well as existing ground level. Exports from the model have been generated including the location of reference points visible in photographs such as buildings, pylons, lamp posts, or trees. If upon export of the image from the digital model the angle or alignment of the MHPGC Project initially appeared slightly incorrect, the camera position was micro-sited within the model to reflect the scene in the photograph, ensuring the MHPGC Project is positioned and scaled at an accurate and verifiable position. Once positioned, the LSS Option Area extents and MHPGC Project PEIR Red Line Boundary: Onshore was exported from the final virtual camera position and added into the baseline photograph to provide a photomontage.

3.3.1.7 While this approach is not 'survey verified' it is verified based on the information sources and methodology used, to avoid assuming the scale of position of the MHPGC Project in the view. This level of accuracy and approach is sufficient to be confident of the overall position, scale and nature of the MHPGC Project in each view and inform the findings of the LVIA.

4 References

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