Table of Contents

Tables

11. Landscape and Visual Amenity

11.1 Introduction

11.1.1 This chapter of the Environmental Statement (ES) addresses the potential effects of the construction, operation (including maintenance) and decommissioning of two proposed Post-Combustion Carbon Capture (PCC) developments at VPI's Combined Heat and Power (CHP) Plant (the 'Proposed VPI Development') and Phillips 66 Limited's Humber Refinery (the 'Proposed Phillips 66 Development'), together referred to as the 'Proposed Developments', on landscape character (as a resource in its own right) and visual amenity.

11.1.2 The assessment considers:

- the present-day and future baseline conditions during construction and at Year 1 of opening;
- the effects of construction of the Proposed Developments on landscape character and visual amenity;
- the effects of operation of the Proposed Developments on landscape character and visual amenity; and
- the potential effects of the eventual decommissioning of the Proposed Developments.

11.1.3 This chapter is supported by Appendix 11A: Landscape and Visual Impact Assessment Methodology (Volume II of this ES). Figures 11.1-11.34 also accompany the chapter are provided in Volume III of this ES. Indicative site layouts for the Proposed Developments (Figures 3.1 and 3.2) are presented in Volume III of this ES and these have also informed this chapter.

11.2 Legislation and Planning Policy Context

11.2.1 The Legislation and Planning Policy Context section of this chapter provides a brief overview of the relevant legislation, planning policy and technical guidance relevant to the landscape and visual assessment.

Legislation

11.2.2 The landscape and visual impact assessment takes account of the legislation relevant to landscape and visual issues, including the aims of the European Landscape Convention (ELC) (Council of Europe, 2007).

11.2.3 The ELC recognises landscape in law. It focuses specifically on landscape issues and highlights the importance of integration of landscape into areas of policy, to promote protection, management and planning of all landscapes including the assessment of landscape and analysis of landscape change.

11.2.4 The ELC defines landscape as "*an area, as perceived by people, whose character is the result of the action and interaction of natural and/ or human factors*". The ELC considers landscape as a whole (land or marine), from urban to rural areas, and whether special or degraded.

National Policy

11.2.5 The revised National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021) sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development.

11.2.6 Policy 15: Conserving and enhancing the natural environment recognises that the environment should be enhanced by:

- *"protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- *recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- *maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- *minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate".*

Local Policy

11.2.7 The local development planning policies that are relevant to the Proposed Developments include:

- North Lincolnshire Core Strategy (adopted June 2011); and
- North Lincolnshire Local Plan Publication Draft Addendum Plan (May 2022).

11.2.8 These documents contain a number of policies relevant to the Proposed Developments in terms of landscape and visual amenity, are summarised below.

North Lincolnshire Core Strategy

11.2.9 Policy CS5 - Delivering Quality Design in North Lincolnshire notes that all new design in North Lincolnshire should be well designed and appropriate for its context. It notes that developments should incorporate appropriate landscaping and planting that enhances biodiversity and contributes to green infrastructure.

11.2.10 Policy CS12 – South Humber Bank Strategic Employment Site states that biodiversity and landscape character of the Humber Estuary should be protected and enhanced by harmonising the landscape with port related development activities. The policy states that the South Humber Gateway Conservation Mitigation Strategy Delivery Plan will develop new green infrastructure directly linked to the Green Infrastructure Strategy for North Lincolnshire.

11.2.11 North Lincolnshire Local Plan Publication Draft Addendum Plan Policy DQE1 – Protection of Landscape, Townscape and Views requires that development proposals do not cause unacceptable harm and protect the distinctive character and quality of the landscape. Development proposals should also take account of views in to and out of development areas and preserve local views and vistas.

11.2.12 North Lincolnshire Local Plan Publication Draft Addendum Plan Policy DQE11 – Green Infrastructure Network sets out measures to maintain and improve the green infrastructure network and recognises the value and multifunctional benefits of the network. It states that proposals which assist in the delivery of the identified principles will be supported. Where loss or harm is unavoidable, suitable mitigation is provided for project where the need for and benefits outweigh adverse impacts.

11.2.13 North Lincolnshire Local Plan Publication Draft Addendum Plan Policy DQE12 – Protection of Trees, Woodland and Hedgerows states that trees, woodland and hedgerows will be retained and protected, and planting schemes will be required to accompany applications for development.

Other Guidance

11.2.14 The Countryside Design Summary (CSC) for North Lincolnshire (Estell Warren, 1999) forms a suite of Supplementary Planning Guidance (SPG) documents to be used in conjunction with saved policies of the North Lincolnshire Local Plan. The purpose of this particular document is to show how necessary development can be accommodated in ways which protect local character and to provide a basis for the production of SPG. The document provides design guidelines for each of the character types within North Lincolnshire.

11.3 Assessment Methodology and Significance Criteria

Overview

11.3.1 This section outlines the methodology employed for establishing the baseline conditions for landscape and visual amenity and for assessing the likely significant effects arising from the construction and operation of the Proposed Developments.

Study Area

11.3.2 The extent of the Study Area is determined by the potential visibility of the Proposed Developments in the surrounding landscape and are proportionate to the size and scale of the Proposed Developments and nature of the surrounding landscape. The Guidelines for Landscape and Visual Amenity Third Edition (Landscape Institute and Institute of Environmental Management and Assessment, 2013) (GLVIA3) states that the Study Area should include *"the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner*".

11.3.3 For the purposes of this landscape and visual assessment an initial Zone of Theoretical Visibility (ZTV) was identified up to 10 km from the Proposed Developments' Site boundaries ('the Sites'). Through a combination of analysis (see below), professional judgement and the extent of likely significant effects it has been determined that a 5 km Study Area is proportionate to the extent of visibility and scale of the Proposed Developments. Based upon the tallest elements of the Proposed VPI Development being the two absorber stacks at 110 m above ground level (AGL) (114.9 m Above Ordnance Datum (AOD)), and the tallest element of the Proposed Phillips 66 Development being the absorber stack at up to 70 m AGL (79.5 m AOD), it is considered that it is highly unlikely that significant effects will be experienced from further than 5 km from the boundaries of the Sites.

Sources of Information/ Data

11.3.4 Baseline data has been gathered from a study of Ordnance Survey (OS) maps and aerial photographs, publicly available documents such as landscape character assessment documents from local authorities within the immediate area and national character mapping available from Natural England. A site visit was undertaken by a Chartered Landscape Architect on 15th March 2022, to provide background knowledge on the existing landscape character of the Study Area and to record potential views that receptors would have of the Proposed Developments from representative viewpoints to inform this assessment.

Limitations and Assumptions

11.3.5 Assessment of visual impact through the use of representative viewpoints is often limited/ restricted by the limits of public access. Land outside of the control of the Applicants was accessed from points of public access (roads and public rights of way) only. This is considered to be good practice and therefore has not affected the appropriateness of the viewpoints selected nor the robustness of the assessment.

11.3.6 The viewpoints that have been included within the assessment were based on representative views from where the receptor was considered the most sensitive (based on professional judgement).

11.3.7 Views of the Proposed Developments other than those assessed are acknowledged to exist. The viewpoints are not intended to provide an exhaustive or fully comprehensive catalogue of views of the Proposed Developments; rather they provide a representative sample for the purpose of the landscape and visual amenity assessment, using viewpoints agreed with key consultees.

11.3.8 Viewpoints during the winter months when deciduous vegetation is without leaf have not been captured. Where screening vegetation is present and the view is likely to change during the winter months then this has been captured within the assessment.

Consultation

11.3.9 Potential viewpoint locations were sent to the landscape lead at North Lincolnshire Council on the 5th January 2022 for agreement. An additional viewpoint location from the England Coastal Footpath near to Marsh Lane was requested and is included in the assessment.

11.3.10 The EIA Scoping Opinion from North Lincolnshire Council requested a view from the village of South Killingholme towards Eastfield Road and the residents of Marsh Lane and the users of the England Coast Path. These locations are represented by viewpoints 7 and 3.

Impact Assessment Methodology

11.3.11 The landscape and visual impact assessments have been carried with due reference to the following guidance documents:

- GLVIA, Third Edition (The Landscape Institute and Institute of Environmental Management and Assessment, 2013);
- Visual Representation of Development Proposals, Technical Guidance Note 06/19 (Landscape Institute, 2019);
- Assessing landscape value outside national designations, Technical Guidance Note 02/21 (Landscape Institute, 2021); and
- Infrastructure, Technical Guidance Note 04/2020 (Landscape Institute, 2020).

11.3.12 GLVIA places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The assessment is undertaken by Chartered Landscape Architects with experience in the assessment of similar types of project. Professional judgement is used in combination with structured methods and criteria to evaluate landscape and visual value and susceptibility, the resulting sensitivity, magnitude, and significance of effect.

11.3.13 The assessment recognises that different stages of the Proposed Developments may result in different levels of landscape and visual effects. In addition, it recognises the potential for landscape and visual effects to change over time, particularly where the Proposed Developments incorporates mitigation planting. The assessment therefore includes consideration of effects at the following stages:

- construction (anticipated start 2023/24); and
- operation (year 1 of opening, anticipated 2027).

11.3.14 A future operation year is not included in the assessment as no mitigation planting is proposed as part of the Proposed Developments so the effects will be the same as at year 1 of operation.

11.3.15 Effects relating to future decommissioning of the Proposed Developments (anticipated after 2052) are considered to be similar to those of construction and as such are not discussed further in this assessment.

11.3.16 The following section provides details of the methodology for the assessment which builds on the general assessment methodology presented in Chapter 1: Introduction and EIA Methodology. For clarity and in accordance with good practice, the assessment of potential effects on landscape character and visual amenity, although closely related, are undertaken separately.

Sensitivity of Landscape Receptors

11.3.17 Landscape receptors are described as components of the landscape that are likely to be affected by the Proposed Developments. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the Proposed Developments and these landscape receptors which has potential to result in landscape effects (both adverse and beneficial).

11.3.18 The sensitivity of the landscape receptor is a combination of the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

11.3.19 Landscape value is frequently addressed by reference to international, national, regional, and local designations, determined by statutory bodies and planning agencies. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource. The evaluation of landscape value is informed by the Landscape Institute TGN 02/21 (Landscape Institute, 2021) and undertaken considering the following factors and classified as high, medium, or low with evidence provided as to the basis of the evaluation:

- natural heritage - landscape with clear evidence of ecological, geological, geomorphological, or physiographic interest which contribute positively to the landscape;
- cultural heritage - landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape;
- landscape quality/condition - the measure of the physical state of the landscape including the intactness of the landscape and the condition of individual elements;
- scenic quality - the level of visual and sensory appeal of the landscape;
- perceptual aspects - the extent that the landscape receptor is recognised for its perceptual qualities (e.g. scenic, wildness or tranquillity);
- functional - landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape;
- rarity - the presence of unusual elements or features;
- representativeness/distinctiveness- the presence of particularly characteristic features;
- recreation - the extent that recreational activities contribute to the landscape receptor; and
- association - extent that cultural or historical associations contribute to the landscape receptor.

11.3.20 Landscape susceptibility relates to the ability of a particular landscape to accommodate a proposed development. It is appraised through consideration of the baseline characteristics of the landscape, and in particular, the scale or complexity of a given landscape. The evaluation of landscape susceptibility is defined as high, medium or low and is supported by a clear explanation based upon the analysis of the landscape receptor and the extent to which it is able to accommodate the type of change proposed, specific to the proposed development.

11.3.21 The overall sensitivity assessment of the landscape receptor is made by employing professional judgement to combine and analyse the identified value and susceptibility with overall levels given from high to medium to low.

Table 11.1: Sensitivity of landscape receptors

	Higher Sensitivity	Lower Sensitivity
Value	A designated landscape (National Park, National Scenic Area, World Heritage Site) or a	Landscapes containing few if any notable elements / features, of poor condition or containing

	Higher Sensitivity		Lower Sensitivity
	landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.		several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	⟷	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Sensitivity of Visual Receptors

11.3.22 Sensitivity of visual receptors is defined through appraisal of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

11.3.23 The value of the view is an appraisal of the value attached to views and is often informed by the appearance on OS or tourist maps and in guidebooks, literature or art or identified in policy. Value can also be indicated by the provision of parking or services, signage, and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view is classified as high, medium, or low and is supported by evidenced, professional judgements.

11.3.24 The susceptibility of visual receptors is a function of the occupation or activity of people experiencing the view and the extent to which their attention or interest is focussed on the view and the visual amenity they experience at a particular location. For example, residents in their home, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, may indicate a higher level of susceptibility. Whereas, receptors occupied in outdoor sport where views are not important or at their place of work could be considered less susceptible to change.

11.3.25 Conclusions in relation to the susceptibility of visual receptors are described as high, medium, or low using consistent and reasoned judgements.

11.3.26 The overall sensitivity assessment of the visual receptor is determined by employing professional judgement to combine and analyse the identified value and susceptibility on a scale from high, medium to low. The basis of the assessment is made clear in the evaluation of each visual receptor.

Table 11.2: Sensitivity of visual receptors

	Higher Sensitivity		Lower Sensitivity
Value	Views protected by designation, or nationally recognised, or recorded on maps / guidebooks or with cultural associations. Views that have high scenic qualities relating to the content and composition of the view.	⟷	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings.	⟷	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment.

Landscape Magnitude of Change

11.3.27 Magnitude of landscape change refers to the extent to which a proposed development would alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape.
- the extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by addition of new ones.
- whether the change alters the key characteristics of the landscape, which are integral to its distinctive character.
- the geographic area over which the change will be felt (within the application boundary itself, the immediate setting, at the scale of the landscape character area, on a larger scale influencing several landscape character areas).
- the duration of the change short term, medium term, or long term (which is defined in Chapter 1: Introduction and EIA Methodology), and its reversibility (whether it is permanent, temporary, or partially reversible).

11.3.28 An overall assessment of the magnitude of landscape change resulting from the Proposed Developments on the landscape receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being high, medium, low, very low or none, with reference to the criteria descriptions set out in Table 11.3, below.

Table 11.3: Magnitude of impact – landscape receptors

Magnitude	Criteria
High	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term impacts, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term impacts, permanent or reversible.
Low	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term impacts, permanent or reversible.
Very Low	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short term impacts, permanent or reversible.
None	No change to the landscape receptor.

Visual Magnitude of Change

11.3.29 Visual magnitude of change relates to the extent to which the Proposed Developments would alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- the scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the Proposed Developments;
- the degree of contrast or integration of any new features or changes in the form, scale, composition, and focal points of the view;
- the nature of the view of the Proposed Developments in relation to the amount of time over which it will be experienced and whether views will be full, partial or glimpsed;
- the angle of view in relation to the main activity of the receptor, distance of the viewpoint from the Proposed Developments and the extent of the area over which the changes would be visible; and
- the duration of the change short term, medium term, or long term (which is defined in Chapter 1: Introduction and EIA Methodology (EIA Report Volume I)) and its reversibility (whether it is permanent, temporary, or partially reversible).

11.3.30 An overall assessment of the magnitude of visual change resulting from the Proposed Developments on the visual receptor is made combining the above judgements using evidence and professional judgement. The levels of magnitude of change are described as being high, medium, low, very low or none, with reference to the criteria descriptions set out in Table 11.4, below.

Table 11.4: Magnitude of change – visual receptors

Magnitude	Criteria
High	The Proposed Developments, or a part of either/ both, would become the dominant and contrasting feature or focal point in the view. Little or no scope for adequate mitigation.
Medium	The Proposed Developments, or a part of either/ both, would form a prominent feature or element of the view which is readily apparent to the receptor in the view. Partial mitigation is possible.
Low	The Proposed Developments, or a part of either/ both, would be noticeable but not alter the overall balance of features and elements that comprise the existing view. Partial or full mitigation is possible.
Very Low	Only a very small part of the Proposed Developments would be discernible, or it is at such a distance that it would form a barely noticeable feature or element of the view and/ or occupy a negligible proportion of the view. Full mitigation is possible.
None	No change to the view.

Significance of Effects

11.3.31 Determination of the significance of landscape and visual effects has been undertaken by employing professional judgement and experience to combine and analyse the magnitude of change against the identified sensitivity of the receptor. The assessments have taken account of direct and indirect change on existing landscape elements, features, key characteristics and evaluates the extent to which these would be lost or modified, in the context of their importance in determining the existing baseline character. The visual assessment takes into account likely changes to the visual composition, including the extent to which new features would distract or screen existing elements in the view or disrupt the scale, structure, or focus of the existing view.

11.3.32 The levels of landscape and visual effects are described with reference to the criteria outlined in Table 11.5, below. For the purposes of this assessment, effects of moderate or major are generally considered to be significant.

Table 11.5: Significance of effects

Significance of Effect Rating	Landscape Criteria	Views and Visual Amenity Criteria
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.

Significance of Effect Rating	Landscape Criteria	Views and Visual Amenity Criteria
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic within the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

Cumulative Landscape and Visual Effects

11.3.33 The assessment of cumulative effects follows a similar process to that described above, first identifying and describing the cumulative baseline, followed by an assessment of the magnitude of change and significance of effect.

11.3.34 The cumulative baseline involves a theoretical scenario in which other consented and application stage schemes are present in addition to existing schemes. The assessment of cumulative magnitude of change and significance of effects involves consideration of the additional change resulting from the Proposed Developments to the defined cumulative baseline scenario.

11.3.35 It is important to note that cumulative effects may vary from the effects of the Proposed Developments considered in isolation. For example, it is possible for a scheme to have effects that are judged of relatively high significance on a particular receptor when taken on its own, but when considered together with the effects of other developments the additional cumulative effect of the scheme may be lower.

11.3.36 The cumulative impact assessment is reported in Chapter 18: Cumulative and Combined Effects.

Key Parameters for Assessment

11.3.37 The landscape and visual impact assessment has been undertaken in accordance with the Planning Inspectorate Guidance Note Nine: Using the Rochdale Envelope (The Planning Inspectorate, 2018). The key measurements for the implementation for the Rochdale Envelope (i.e. the maximum parameters for the Proposed Developments and in particular its main buildings and structures) are detailed in Chapter 3: Proposed Developments Description, Need and Alternatives.

11.3.38 The magnitude of visual impacts of the Proposed Developments relate to (amongst other criteria) the size and scale of the structures and geographical extent of the area influenced by them. The assessment is based upon the largest possible dimensions for the Proposed Developments, as these are considered to represent the worst-case scenario.

11.3.39 In addition to the Rochdale Envelope parameters, there are also limits of deviation within which the Proposed Developments could be constructed as shown on the parameters plans at Figures 3.3 and 3.4 (ES Volume III). Given the defined parameters for each part of the Proposed Developments, it is considered that the overall conclusions of the assessment presented in this chapter would not be materially affected by the positioning of the buildings and structures within these limits.

11.4 Baseline Conditions

Landscape Baseline

Landscape Characterisation

National Character Areas

11.4.1 At a national scale the Study Area includes the National Character Area (NCA) Profile: 41 Humber Estuary (Natural England, 2013) which covers the Proposed Development Sites and the majority of the eastern section of the Study Area and NCA Profile: 42 Lincolnshire Coast and Marshes which lies to the west of the Study Area as illustrated on Figure 10.2 (ES Volume III).

11.4.2 NCA 41: Humber Estuary is an open, low-lying flat landscape influenced by the changing character of the river. The area is characterised by arable farming in large regular fields on the reclaimed, formerly inter-tidal landscape. Internationally valuable habitats are in strong contrast to the urban and industrial landscape surrounding Hull, including the Humber Bridge, a strong link between the north and south banks of the Humber Estuary. The Humber Estuary NCA is valuable as an important ecological corridor, functional estuary with low landscape condition resulting in a **medium** value.

11.4.3 NCA 42: Lincolnshire Coast and Marshes lies south-east of Hull. This is an area of predominantly flat land, sparsely wooded with open views. The coastal strip has been developed during the 20th century as a tourist destination and larger settlements are located along the coast.

11.4.4 The likelihood of significant adverse landscape effects on NCA 42 is considered negligible, as a result of the scale of the NCA, limited intervisibility and the distance from the Proposed Developments and is therefore not assessed further.

Regional Landscape Characterisation

11.4.5 The Sites and Study Area are not covered by any regional Landscape Character Assessment.

Local Landscape Characterisation

11.4.6 At the local scale the greater part of the Study Area lies within North Lincolnshire and is characterised by the North Lincolnshire Landscape Character Assessment and Guidelines (Estell Warren, 1999). The Draft North Lincolnshire Landscape Character Assessment (North Lincolnshire Council, 2021) forms part of the evidence base for the emerging Local Plan and is considered within the landscape character baseline.

11.4.7 The southern part of the Study Area is covered by the North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study (FPCR, 2015) which should be read in conjunction with the North East Lincolnshire Landscape Character Assessment Study (North East Lincolnshire Council, 2010). The south-west of the Study Area is covered by the West Lindsey Landscape Character Assessment (Environmental Resources Management, 1999).

North Lincolnshire Landscape Character Assessment and Guidelines

11.4.8 North Lincolnshire identify Landscape Character Areas (LCA) that are then sub-divided into Local Landscape Types (LLT). The Humber Estuary LCA covers the site and surrounding area. The Lincolnshire Drift LCA lies to the west of the Study Area.

11.4.9 The Humber Estuary LCA is flat, expansive and low-lying, being characterised by arable fields, relatively sparse tree cover and urban and industrial complexes. Views of the Humber Estuary and north shore are limited due to the visual obstruction caused by the flood defence embankment. High ground to the south and east of Barton upon Humber rises up to approximately 50 m AOD, enabling long distance views to the north bank of the estuary.

11.4.10 The Lincolnshire Drift LCA is a gently undulating, open arable landscape being characterised by dispersed settlements, large scale intensively farmed fields with pockets of smaller-scale historic landscape and medium sized woodland blocks. The landscape is degraded in many places, influenced by transmission lines and views of industry.

11.4.11 The Humber Estuary and Lincolnshire Drift LCA are further subdivided into local landscape types (LLT). Within the Study Area four lie within the Humber Estuary LCA and three lie within the Lincolnshire Drift LCA. These are:

- Humber Estuary LCA:
  - Flat Open Farmland LLT;
  - Industrial Landscape LLT;
  - Open Undulating Farmland LLT; and
  - Wooded Farmland LLT.
- Lincolnshire Drift LCA;
  - Open Undulating Farmland LLT;
  - Flat Open Farmland LLT; and
  - Wooded Farmland LLT.

11.4.12 The likelihood of significant adverse landscape effects on the following landscape receptors is considered negligible as a result of the scale of the LCA, lack of intervisibility and the distance from the Proposed Developments and are therefore not assessed further:

- Flat Open Farmland LLT (Humber Estuary and Lincolnshire Drift) due to long distance from the Sites and limited intervisibility; and
- Wooded Farmland LLT (Lincolnshire Drift) due to long distance from the Sites and limited intervisibility.

11.4.13 The relevant characteristics of the LLT within the Humber Estuary LCA scoped into the assessment are briefly described below.

11.4.14 The Sites lie within the Industrial Landscape LLT which is described as a flat landscape which is mainly developed for large scale industry with pockets of reclaimed arable farmland and plantation woodland. Development has resulted in a relatively chaotic landscape which lacks unity. The value of the Industrial Landscape LLT is **very low** as a result of the low landscape condition, low levels of natural and cultural heritage and low levels of recreational opportunities.

11.4.15 The Open Undulating Farmland LLT lies to the west of the Sites and contains large, intensively farmed arable fields bounded by clipped, degraded hedges with limited woodland blocks present.

The simple, peaceful open landscape is interrupted by views of pylons, infrastructure and adjacent industry. The value of the Open Undulating Farmland LLT is **low** as a result of the degraded rural condition, low number of cultural heritage features and moderate levels of recreational opportunities.

11.4.16 The Wooded Farmland LLT is located to the west of the Sites and is described as gently undulating, well-treed landscape with pockets of arable farmland and pasture. It has a strong rural character with tightly nucleated villages. Ecological and historic associations are present as remnant ancient landscape areas. The value of the Woodland Farmland LLT is **medium** as a result of the moderate natural heritage features, strong cultural heritage and good physical condition.

11.4.17 The relevant characteristics of the LLT within the Lincolnshire Drift LCA scoped into the assessment is briefly described below.

11.4.18 The Open Undulating Farmland LLT, located to the west of the Sites, is described as an open, undulating terrain with large settlements in the north. Large, intensive arable fields with clipped hedgerow boundaries with limited woodland blocks. The simple, peaceful open landscape is interrupted by views of pylons, infrastructure and adjacent industry. The value of the Open Undulating Farmland LLT is **medium** as a result of the presence of cultural heritage features, moderate levels of recreational opportunities and degraded rural condition in parts of the LLT.

North Lincolnshire Landscape Guidelines

11.4.19 The landscape guidelines for the Industrial Landscape LLT state that mitigation planting should principally be mixed broadleaf, irregular large-scale blocks linking to existing tree planting and hedgerow, and should seek to soften security fences of industrial complexes by planting trees and shrubs.

North East Lincolnshire Landscape Character Assessment

11.4.20 North East Lincolnshire identify LCA that are then sub-divided into Landscape Types (LT). The Humber Estuary LCA lies to the south-east of the Sites and includes the Industrial Landscapes LT. The Lincolnshire Coast and Marshes LCA lies to the south-west of the Sites and includes the Open Farmland LT and the Wooded Open Farmland LT. The impact on landscape character will be assessed at the LT level.

11.4.21 The Humber Estuary LCA lies to the south-east of the Study Area and is expansive, flat and low-lying comprising largely of industrial complexes and farmland. The simple landscape is characterised by large unbounded arable fields with industrial/urban and semi-natural habitat land uses providing local variety. Hedgerow and tree cover is limited, with occasional woodland blocks visually prominent and interrupting views. In many areas flood alleviation berms block views of the River Humber.

11.4.22 The Industrial Landscape LT is virtually flat, visually intrusive area dominated by on-shore oil and gas refineries and other large scale industrial units and extends inland to the A180 (T). Medium to large scale open arable farmland bounded by established, low cut hedgerows with hedgerow trees. Network of busy roads, including the main A180 which is bounded by tall native hedgerows and trees. The value of the Industrial Landscape LT is **very low** as a result of the low landscape condition, low levels of natural and cultural heritage and low levels of recreational opportunities.

11.4.23 The Lincolnshire Coast and Marshes LCA is described as "*a transition zone between the higher Wolds and the coast. It is an unexceptional agricultural landscape without a strong sense of place or setting. Areas close to the A180 are often affected by traffic noise which can have a detracting influence on the quality of the landscape character*".

11.4.24 The Open Farmland LT is virtually flat, open arable farmland with medium to large scale fields bounded by native hedgerows, becoming sparse and gappy in the north. The landscape allows open views towards settlement edges and industrial development. Networks of busy roads including the main A180 transport route and the Grimsby to Doncaster railway line are present within the landscape. The value of the Open Farmland LT is **medium** as a result of the presence of cultural heritage features, moderate landscape condition and moderate functional integrity of the landscape.

11.4.25 The likelihood of significant adverse landscape effects on the Wooded Open Farmland LT is considered negligible, as a result of the scale of the LCA, lack of intervisibility and the distance from the Proposed Development and is therefore not assessed further.

West Lindsey Landscape Character Assessment

11.4.26 West Lindsey Council identify Broad Landscape Areas (BLA) and LCA. The Wolds BLA and Wolds' Estate LCA lie to the south-west of the Sites.

11.4.27 The likelihood of significant adverse landscape effects on the Wolds' Estate LCA is considered **negligible** as a result of the scale of the LCA, lack of intervisibility and the distance from the Proposed Developments and is therefore not assessed further.

Vegetation Cover

11.4.28 Tree and shrub cover within the Study Area is generally sparse. There are a limited number of small to medium blocks of woodland dispersed around the edges of the industrial landscape and within the open agricultural landscape. Tree cover is largely restricted to along the main arterial routes including the A180 and A160. The wider agricultural landscape tends to consist of small to medium scale fields defined by , where present, well-established native hedgerows up to 3 m in height. Hedgerow trees are infrequent to the east with larger numbers near settlements at East Halton, North Killingholme and South Killingholme.

Topography and Drainage

11.4.29 The topography of the Study Area is low lying and predominately flat between 4 and 15 m AOD. Localised areas of high ground rising to around 20 m AOD lie within areas around North and South Killingholme. Land rises in the south-west of the Study Area around Hendale Wood to around 83 m AOD.

11.4.30 The Humber Estuary lies to the east of the Study Area with a number of local flood alleviation berms restricting views of the Estuary from further inland.

Settlement

11.4.31 The south-east of the Study Area includes the settlement of Immingham which lies approximately 1.6 km to 1.9 km to the south-east of the Sites. In close proximity to the Sites the settlement pattern comprises small and medium sized villages including East Halton located to the north-west, and North Killingholme and South Killingholme to the west. A number of villages, isolated properties and farmsteads are also scattered throughout the Study Area.

Transport Infrastructure and Rights of Way

11.4.32 The A180 is the main transport corridor connecting Immingham and Grimsby to the wider transport network. It is located approximately 2.5 km to the south of the Sites. A comprehensive network of B roads connect small villages across the wider area.

11.4.33 The South Humberside main line railway, which runs from Doncaster to Cleethorpes, is located to the south of the Sites. The Barton branch line, which runs between the South Humberside main line railway to Immingham and onto Scunthorpe, intersects the Phillips 66 Site (to the south) and the VPI Site (to the west/ south-west).

11.4.34 A number of Public Rights of Way (PRoW) are located within the Study Area.

11.4.35 There are several bridleways and footpaths in close proximity to the Sites. The long distance coastal path route, the Nev Cole Way runs north to south along numerous PRoW between East Halton and Immingham.

11.4.36 To the east, NKIL 50 and KIL 50 run north to south along the coastline with SKIL 100 extending westwards along Marsh Lane to Rosper Road. SKIL 91A is shown on maps to run immediately to the south of the VPI Immingham CHP Plant between Rosper Road and the railway line, but this

PRoW has not been present on the ground for many years and an application has been made to extinguish this section of the PRoW. These footpaths follow the proposed Coastal Path Route.

The Sites and Their Immediate Setting

11.4.37 The Sites and their immediate surrounding areas are heavily influenced by power related industrial structures. The large industrial complexes of the VPI Immingham CHP Plant, Lindsey Oil Refinery, Phillips 66 Humber Refinery and Killingholme Power Stations lie within and/ or in close proximity of the Sites.

11.4.38 The VPI Site includes the VPI CHP Plant to the north and bounded by Rosper Road and farmland to the east, Immingham West Fire Station and PD Ports development to the south and the Barton branch railway line and the Phillips 66 Humber Refinery to the south-west and west.

11.4.39 The Phillips 66 Site is bounded by the Barton branch railway line to the north and Lindsey Oil Refinery beyond, the Phillips 66 Humber Refinery to the south, DSV Road Ltd, SCANGRIT and arable land to the west.

11.4.40 The VPI Site lies at approximately at 2.7 to 6.2 m AOD. The VPI Site contains areas of bare ground and rough grassland and the CHP Plant site to the north. A ditch is located along Rosper Road and through the southern area of the proposed VPI PCC development area.

11.4.41 The Phillips 66 Site lies approximately at 9 to 13.4 m AOD. The Phillips 66 Site contains areas of existing hard standing currently used for storage, areas of scrub to the northern and western boundaries, railway sidings and Network Rail railway lines to the north and existing materials storage areas to the east.

11.4.42 The landscape of the Study Area comprises open, low lying agricultural land, large scale industrial development and transport routes. The low lying nature of the landscape allows for long distance views which often contain large, tall structures including stacks and pylons. The Study Area contains limited PRoW or other recreational resources.

Landscape Designations

11.4.43 The Brocklesby Grade I Registered Park and Garden is located approximately 5.3 km to the south-west of the Phillips 66 Site. This designation is unlikely to be significantly affected by the Proposed Developments owing to distance, together with intervening vegetation and built form, and therefore is not considered further within this assessment.

11.4.44 A number of scheduled monuments, listed buildings are located within the Study Area (as set out in more detail in Chapter 12: Cultural Heritage of this ES).

11.4.45 The Study Area does not contain any further national or local landscape designations.

Existing Visual Baseline

Zone of Theoretical Visibility Analysis

11.4.46 In order to identify locations with potential to have views of the Proposed Developments, a ZTV has been produced for each of the Sites. These identify those areas which have potential for views of the Proposed Developments and to what extent it is likely to be visible. The ZTVs are illustrated in Figures 11.2: Zone of Theoretical Visibility Phillips 66, 11.3: Zone of Theoretical Visibility VPI Immingham and 11.4: Zone of Theoretical Visibility Combined (ES Volume III).

11.4.47 The ZTV for the VPI Site has been prepared for the Proposed VPI Development based upon the tallest structures, i.e. the two absorber towers and stacks, at up to 110 m AGL (114.9 m AOD) each. The ZTV for the Phillips 66 Site has been prepared for the Proposed Phillips 66 Development based upon the tallest structures, i.e. the single absorber tower and stack, at up to 70 m AGL (79.5 m AOD). These both present a worst-case scenario, in order to identify the likely maximum extent of theoretical visibility of the Proposed Developments. The ZTVs have been generated by analysis of a 3D digital terrain model (DTM) of the surrounding terrain and the Proposed Developments themselves.

Buildings have been incorporated into the DTM from OS Open Map Local with an assumed height of 7.5 m. Woodland from the National Forest Inventory has also been incorporated into the DTM with an assumed height of 12 m, with an observer eye height of 1.6 m.

11.4.48 The ZTVs illustrate that theoretical visibility of the Proposed Developments is intermittent across the 5 km Study Area primarily due to woodland blocks located on the edges of industrial developments. Built form distributed throughout the 5 km Study Area also reduces visibility of the Proposed Developments.

Transient Views

11.4.49 Users of the main transport routes and long-distance walking trails will gain transient views towards the Sites to varying degrees, dependent on intervening structures, screening vegetation, elevation and direction of travel.

11.4.50 Users of the Barton upon Humber to Grimsby passenger railway line will gain transient, dynamic views towards the Sites. Views will include a landscape containing large areas of farmland, overhead power lines and highway infrastructure. In close proximity to the Sites, views of existing stacks and structures around Immingham are just visible above screening vegetation.

11.4.51 Within the Study Area, there are a number of local roads in close proximity which join the settlements. Generally, views for receptors from these roads will continually change as they travel. Views are often broken or restricted by screening vegetation and built form located along the road corridors. Where views are open, the structures located around Immingham are clearly visible.

Representative Viewpoints

11.4.52 A total of seven viewpoints were initially proposed at the scoping stage (illustrated on Figure 11.4 in ES Volume III).

11.4.53 The representative viewpoints have been chosen to illustrate the typical range of views of the Proposed Developments from within the 5 km Study Area as experienced from settlements, publicly accessible roads, and PRoW towards the Proposed Developments. These representative viewpoints are described in the table below and their location illustrated on Figure 11.5: Viewpoint Locations.

11.4.54 Photographs of the view from each representative viewpoint are presented within Figures 11.6 to 11.13 (ES Volume III). Wirelines and photomontages from viewpoints 2, 3, and 7 are presented within Figures 11.14 to 11.34.

Table 11.6: Representative viewpoints

Viewpoint ID	Name & Location	Receptor Type	Elevation m (AOD)	Grid Reference	View
1	PRoW EHAL 74, East Halton	Users of PRoW	11	514120, 420297	View from the PRoW, looking south-east. Partially open view, contained by boundary vegetation to the right of the view, across arable farmland. In the middle distance, intervening hedgerow and hedgerow trees partially obscure the refineries in the far distance. Uppermost parts of structures and stacks within the Humber Refinery, Lindsey Oil Refinery and the VPI Immingham CHP Plant are visible on the horizon, viewed against the skyline. Value of view: Local view with no recognised quality containing a small number of detractors. Low.
2	PRoW NKIL 50, Killingholme Marshes	Users of PRoW	2	518033, 418152	View south-west from the PRoW over low level structures within the Killingholme gas fields. Localised mounding in the middle ground screens views further south. Large scale industrial development at Humber Refinery, Lindsey Oil Refinery and the VPI Immingham CHP Plant are clearly visible within the middle distance and extending across a large proportion of the skyline. Intermittent hedgerow and trees along nearby roads partially obscure lower parts of the industrial structures. Alternative views across the Humber Estuary are the focus for receptors at this location. Value of view: Local view with medium visitor numbers and high level of detractors in the background. Medium.
3	PRoW NKIL 100 Marsh Lane, Killingholme	Residential, users of PRoW	4	517300, 417324	View from a single residential property on Marsh Lane with native hedgerows lining the highway boundaries. The structures located within the VPI Immingham CHP Plant site are visible in the background of the view. Upper storey windows from the nearby residential property are likely to gain clearer views above garden vegetation and tall hedgerows lining the highway. Value of view: Local view with no recognised quality containing a high number of detractors. Low.

Viewpoint ID	Name & Location	Receptor Type	Elevation m (AOD)	Grid Reference	View
4	Church Lane, Immingham	Residential	9	517641, 415096	View from Church Lane across the Immingham golf course. View across open space in the foreground with tree planting along St Andrews Lane and within the golf course restricting long distance views. A tall stack is visible on the skyline above the tree canopy. Representative of views from residential properties along Church Lane. Value of view: A local view with no recognised quality and unlikely to be visited specifically to experience the view. Low.
5	PRoW, Brocklesby	Users of PRoW	16	514660, 414267	View north-east from Killingholme Road. Open view across flat arable farmland. Field boundary vegetation largely obscures lower parts of the industrial structures in the far distance. Large scale industrial development at Humber Refinery, Lindsey Oil Refinery and VPI Immingham CHP Plant defines the skyline in the middle distance and extending across a large proportion of the view. Value of view: A local view with no recognised quality and unlikely to be visited specifically to experience the view. Low.
6	Staple Road, South Killingholme	Residents	12	514776, 417325	View east from Staple Road. View across arable farmland with the Humber Refinery and Lindsey Oil Refinery visible in the middle distance. Trees along Staple Road effectively screen the view to the right with hedgerow to the left containing the view to the north. In the near distance bounding hedgerow and trees, buildings within the Scangrit site and vegetation along Eastfield Road partially screen low level buildings and lower parts of structures within the refineries from view. Stacks and taller structures are prominent on the skyline. Value of view: Local view with no recognised quality containing a high number of detractors. Low.
7	PRoW NKIL 83 Church Lane, North Killingholme	Users of PRoW and residents	16	514681, 417305	View east from Church Lane. The partially open view includes Church Lane, roadside hedgerow alongside in the foreground and arable farmland beyond. Roadside hedgerow effectively screens low level buildings and lower parts of structures in the background from view. Stacks and taller structures are prominent within Humber Refinery and Lindsey Oil Refinery visible on the skyline. Value of view: Local view with no recognised quality containing a high number of detractors. Low.

Viewpoint ID	Name & Location	Receptor Type	Elevation m (AOD)	Grid Reference	View
8	PRoW Broc 5/1	Users of PRoW	32	514466, 411236	View north-east from the PRoW. Wide, expansive view over flat arable farmland in the foreground. In the middle distance intervening hedgerow and trees screen low the structures within the Humber Refinery and Lindsey Oil Refinery from view. Pylons, stacks and flares in the distance partially define the skyline, extending across part of the horizon. Value of view: Local view with no recognised quality containing a low number of detractors. Medium.

Future Baseline

11.4.55 As part of the future baseline scenario in the absence of the Proposed Developments, it is predicted that small amounts of development within existing settlement boundaries would have been constructed, but the general landscape character and features would remain in a similar condition as they are now.

11.4.56 An assessment of the effects resulting from the Proposed Developments and other developments identified as having the potential for significant effects is provided in Chapter 17: Cumulative and Combined Effects.

11.5 Development Design and Impact Avoidance

11.5.1 The following impact avoidance measures have been taken into account during the assessment presented in Section 11.6 below:

- suitable materials will be used, where possible, in the construction of structures to reduce reflection and glare and to assist with breaking up the massing of the buildings and structures;
- the selection of finishes for the buildings and other infrastructure will be informed by the finishes of the adjacent developments and will be developed in consultation with North Lincolnshire Council in order to minimise the visual impact of the Proposed Developments;
- construction temporary lighting will be designed so that excessive glare is minimised outside of the construction site as far as reasonably practicable; and
- permanent external lighting during the operational phase will seek to reduce light pollution and the visual impact on the local environment.

11.6 Likely Impacts and Effects of the Proposed Developments

11.6.1 The potential landscape impacts of the Proposed Developments primarily relate to the visibility of proposed structures (temporary and permanent), including how this affects the perceptual qualities and tranquillity of a character area. In the case of the construction phase of the Proposed Developments, this will relate to the following:

- movement of plant and heavy goods vehicles, both within the Proposed Developments and in the surrounding area;
- temporary stockpiling of storage of materials on site;
- establishment of site compounds resulting in temporary structures to serve the workforce;
- crane activity to assist high level construction works;
- building construction including new stacks; and
- external lighting to illuminate site operations after dark associated with the Proposed Developments.

11.6.2 In the case of the operational phase of the Proposed Developments this will relate to the following:

- introduction of permanent large-scale structures including the buildings (including stack and absorber);
- introduction of other permanent large-scale structures; and
- presence of plumes from the stacks

Assessment of Visible Plumes

Proposed VPI Development

11.6.3 Air quality modelling results show that the plumes from the proposed VPI absorber stacks are predicted to be visible for up to 85% of the time, with average plumes being up to 123 m long, that is slightly longer than the stack height. Visible plumes are predicted to be longer than the stack height for up to 34% of the time.

Table 11.7: Assessment of visible plumes from the VPI absorber stacks

Met Year	Percentage of Time Plume is Visible	Longest Visible Plume Length	Average Visible Plume Length (m)	Percentage of Year Visible Plume is Over 110 m
2017	83%	1,791 m	117 m	32%
2018	81%	1,648 m	123 m	33%
2019	82%	1,648 m	117 m	34%
2020	82%	1,648 m	117 m	34%
2021	85%	1,648 m	113 m	30%

Proposed Phillips 66 Development

11.6.4 Air quality modelling results show that the plumes from the proposed Phillips 66 absorber stack and wet gas scrubber are predicted to be visible for up to 22% of the time, with average plumes being up to 12 m. Occasional longer visible plumes are predicted (up to 241 m), however these are predicted to occur for less than 1% of the time.

Table 11.8: Assessment of visible plumes from the Phillips 66 WGS and absorber stacks

Met Year	Percentage of Time Plume is Visible	Longest Visible Plume Length	Average Visible Plume Length (m)	Percentage of Year Visible Plume is Over 65 m
2017	18%	194 m	12 m	1%
2018	22%	241 m	12 m	1%
2019	19%	174 m	8 m	<1%
2020	16%	147 m	7 m	<1%
2021	20%	174 m	11 m	1%

11.6.5 The presence of visible plumes will occur in the context of other multiple stacks/ plumes and although this will represent some intensification it will be characteristic of the context and not add to other landscape or visual effects to such an extent that they become significant as a result.

Assessment of Landscape Effects

11.6.6 The main potential for effects on landscape character relates to the intervisibility between the Proposed Developments and the LLTs. Given that the Proposed Developments are located within an area characterised by large-scale industrial development, it is considered that it is likely to be congruous with its context and therefore there is a low potential for the landscape character of the surrounding areas to be affected.

11.6.7 Due to the existing industrial character of the Sites and the setting of the Proposed Developments, it is anticipated that there is low likelihood that the effects will be sufficient to result in an inherent change to the existing landscape character at a local scale. Overall, the influence of the Proposed Developments will be limited to the localised landscape immediately adjacent to the Sites.

Table 11.9: Landscape sensitivity assessment

Landscape Receptor	Sensitivity assessment		
	Value	Susceptibility	Sensitivity
Natural England National Character Areas			
Humber Estuary NCA 41	Medium	As a result of the low-lying, relatively flat landscape and presence of major energy infrastructure this LCA does offer some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be medium.	Medium
North Lincolnshire Landscape Character Assessment			
Industrial Landscape – South Humber Bank LLT	Very low	As a result of the low-lying, relatively flat landscape and presence of major energy infrastructure this LLT does offer some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be low.	Low
Open Undulating Farmland LLT (Humber Estuary LCA)	Low	As a result of the low-lying, relatively flat landscape and the presence of major energy infrastructure adjoining this LLT, there is some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be medium.	Medium
Wooded Farmland LLT (Humber Estuary LCA)	Medium	Due to the low-lying, relatively flat landscape and the presence of major energy infrastructure nearby, this LLT does offer some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be medium.	Medium
Open Undulating Farmland LLT (Lincolnshire Drift LCA)	Medium	As a result of the low-lying, relatively flat landscape and the presence of major energy infrastructure adjoining this LLT, there is some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be medium.	Medium
North East Lincolnshire Landscape Character Assessment			
Industrial Landscape LT 1 (Humber Estuary LCA)	Very low	As a result of the low-lying, relatively flat landscape and presence of major energy infrastructure this LLT does offer some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be low.	Low
Open Farmland LT 2 (Lincolnshire Coast and Marshes LCA)	Medium	As a result of the low-lying, relatively flat landscape and the presence of major energy infrastructure adjoining this LLT, there is some capacity to absorb the type of development proposed. Susceptibility to change is therefore considered to be medium.	Medium

Table 11.10: Assessment of landscape effects - construction

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
Natural England National Character Areas				
Humber Estuary NCA 41	Medium	**Proposed VPI Development** Construction activity will result in the removal of areas of grassland, introduction of construction compounds, laydown areas, machinery and the use of machines and cranes within the NCA. Construction activities will be viewed in context with the existing large-scale power related structures. Construction activity will result in a direct, very slight alteration over a very limited area without altering the overall perception and tranquillity of the NCA. Impacts are assessed to be very low, over a small geographical extent, short term and reversible.	Very low	Negligible (not significant)
		Proposed Phillips 66 Development Construction activity will result in the introduction of construction compounds, laydown areas, machinery and the use of machines and cranes within the NCA. Construction activities will be viewed in context with the existing large-scale power related structures. Construction activity will result in a direct, very slight alteration over a very limited area without altering the overall perception and tranquillity of the NCA. Impacts are assessed to be very low, over a small geographical extent, short term and reversible.	Very low	Negligible (not significant)
North Lincolnshire Landscape Character Assessment				
Humber Estuary LCA				
Industrial Landscape LLT	Medium	**Proposed VPI Development** Construction activity as set out above will result in direct impacts on the LLT although viewed in context with the existing large-scale power and industrial related structures. Construction activity will result in a direct, slight alteration over a limited area without altering the overall perception and tranquillity of the LLT. Impacts are assessed to be low, over a medium geographical extent, short term and reversible.	Low	Minor adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
		Proposed Phillips 66 Development Construction activity as set out above will result in direct impacts on the LLT although viewed in context with the existing large-scale power and industrial related structures. Construction activity will result in a direct, intensive change over a limited area without altering the overall perception and tranquillity of the LLT. Impacts are assessed to be low, over a medium geographical extent, short term and reversible.	Low	Minor adverse (not significant)
Open Undulating Farmland LLT	Medium	**Proposed VPI Development** The VPI Site lies outside of this LLT but will introduce views of construction activity into it. Due to the wooded nature of the LLT there will be limited views of the taller sections of construction activity, whilst ground level activities will be completely screened by existing structures. An indirect change resulting from high level construction activities would be very limited as a result of the existing industrial nature surrounding the VPI Site. The impact is assessed as very low over a medium geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LLT but will introduce near to medium views of construction activity into it. Ground level activities will be visible from areas that are in close proximity, but completely screened from the majority of the LLT as a result of intervening structures. An indirect change resulting from high level construction activities will be limited as a result of the existing industrial nature in which the Philips 66 Site lies. The impact is assessed as low over a medium geographical extent, short term and reversible.	Low	Minor adverse (not significant)
Wooded Farmland LLT	Medium	**Proposed VPI Development** The VPI Site lies outside of this LLT but will introduce views of construction activity into it. Due to the wooded nature of the LLT there will be limited views of the taller sections of construction activity, whilst ground level activities will be completely screened by existing structures. An indirect change resulting from high level construction activities would be very limited as a result of the existing industrial nature surrounding the VPI Site. The impact is assessed as very low over a small geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LLT but will introduce views of construction activity into it. Due to the short distance to the southern section of the LLT, there will be views of construction operations including the movement of plant including cranes, the introduction of laydown areas and construction compounds. The indirect change to the LLT will be limited as a result of its wooded characteristics and lack of intervisibility from the northern sections from existing screening structures. Impacts are assessed to be low, over a small geographical extent, short term and reversible.	Low	Minor adverse (not significant)
Lincolnshire Drift LCA				
Open Undulating Farmland LLT	Medium	**Proposed VPI Development** The VPI Site lies outside of this LLT but will introduce views of construction activity into it. Due to the wooded nature of the LLT there will be limited views of the taller sections of construction activity, whilst ground level activities will be completely screened by existing structures. An indirect change resulting from high level construction activities would be very limited. The impact is assessed as very low over a small geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips Site lies outside of this LLT but will introduce views of construction activity into it. Due to the wooded nature of the LLT there will be limited views of the taller sections of construction activity from the majority of the LLT. An indirect change resulting from high level construction activities would be very limited. The impact is assessed as very low over a small geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)
North East Lincolnshire Landscape Character Assessment				
Industrial Landscape LT 1 (Humber Estuary LCA)	Low	**Proposed VPI Development** The VPI Site lies outside of this LT but will introduce medium to long distance views of construction activity into it, viewed in context with the existing large-scale power and industrial related structures. Construction activity will result in an indirect, very slight alteration over a limited area without altering the overall perception and tranquillity of the LT. Impacts are assessed to be very low, over a medium geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LT but will introduce near to medium views of construction activity, viewed in context with the existing large-scale power and industrial related structures. Construction activity will result in an indirect, intensive change over a limited area without altering the overall perception and tranquillity of the LT. Impacts are assessed to be very low, over a medium geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)
Open Farmland LT 2 (Lincolnshire Coast and Marshes LCA)	Medium	**Proposed VPI Development** The VPI Site lies outside of this LT but will introduce views of construction activity into a very small proportion of it. Due to the wooded nature of the LT there will be very limited views of the taller sections of construction activity, whilst ground level activities will be completely screened. An indirect change resulting from high level construction activities would be very limited. The impact is assessed as very low over a small geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips Site lies outside of this LT but will introduce views of construction activity into a very small proportion of it. Due to the wooded nature of the LT there will be limited views of the taller sections of construction activity from the majority of the LT. An indirect change resulting from high level construction activities would be very limited. The impact is assessed as very low over a small geographical extent, short term and reversible.	Very low	Negligible adverse (not significant)

Table 11.11: Assessment of landscape effects - operation

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
Natural England National Character Areas				
Humber Estuary NCA 41	Medium	**Proposed VPI Development** The Proposed VPI Development will increase views of industrial structures within the NCA. The operational structures including tall absorber stacks and plumes will be viewed in context with the existing large-scale power related structures resulting in a direct, very slight alteration over a very limited area without altering the overall perception and tranquillity of the NCA. Impacts are assessed to be very low, over a small geographical extent, long term and permanent.	Very low	Negligible (not significant)
		Proposed Phillips 66 Development The Proposed Phillips 66 Development will marginally increase views of industrial structures within the NCA. The operational development will be viewed in context with the existing large-scale power related structures resulting in a direct, very slight alteration over a very limited area without altering the overall perception and tranquillity of the NCA. Impacts are assessed to be very low, over a small geographical extent, long term and permanent.	Very low	Negligible (not significant)
North Lincolnshire Landscape Character Assessment				
Humber Estuary LCA				
Industrial Landscape LLT	Medium	**Proposed VPI Development** The operational Proposed VPI Development would result in direct impacts on the LLT although viewed in context with the existing large-scale power and industrial related structures. The operational structures including tall absorber stacks and plumes will result in a direct, slight alteration over a limited area without altering the overall perception and tranquillity of the LLT. Impacts are assessed to be low, over a medium geographical extent, long term and permanent.	Low	Minor adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
		Proposed Phillips 66 Development The operational Proposed 66 Development will result in direct impacts on the LLT although viewed in context with the existing large-scale power and industrial related structures. The operational structures including stack and plume will result in a direct, intensive change over a limited area without altering the overall perception and tranquillity of the LLT. Impacts are assessed to be low, over a medium geographical extent, long term and permanent.	Low	Minor adverse (not significant)
Open Undulating Farmland LLT	Medium	**Proposed VPI Development** The Proposed VPI Development lies outside of this LLT but will introduce views of operational structures into it. Due to the wooded nature of the LLT there will be limited views of the absorber stacks and plumes, whilst ground level structures will be completely screened by existing structures. An indirect change resulting the taller operational structures including absorber stacks would be very limited as a result of the surrounding industrial developments. The impact is assessed as very low over a medium geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LLT but will introduce near to medium views of operational structures into it. Ground level structures will be visible from areas that are in close proximity, but completely screened from the majority of the LLT as a result of intervening structures. An indirect change resulting from the stack, tall structures and plumes will be limited as a result of the existing industrial nature in which the Philips 66 Site lies. The impact is assessed as low over a medium geographical extent, long term and permanent.	Low	Minor adverse (not significant)
Wooded Farmland LLT	Medium	**Proposed VPI Development** The VPI Site lies outside of this LLT but will introduce views of operational structures into it. Due to the wooded nature of the LLT there will be limited views of the taller structures including absorber stacks and plumes, whilst ground level activities will be completely screened by existing structures. An indirect change resulting from high level structures would be very limited as a result of the industrial nature in which the VPI Site lies. The impact is assessed as very low over a small geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LLT but will introduce views of operational structures into it. Due to the short distance to the southern section of the LLT, there will be views of the operation development including stack and plume. The indirect change to the LLT will be limited as a result of its wooded characteristics and lack of intervisibility from the northern sections from existing screening structures. Impacts are assessed to be low, over a small geographical extent, long term and permanent.	Low	Minor adverse (not significant)
Lincolnshire Drift LCA				
Open Undulating Farmland LLT	Medium	**Proposed VPI Development** The VPI Site lies outside of this LLT but will introduce views of operational structures into it. Due to the wooded nature of the LLT there will be limited views of the taller structures including absorber stacks and plumes, whilst ground level structures will be completely screened by existing structures. An indirect change resulting from limited views of the taller operational structures would be very limited as a result of the industrial context of the sites location. The impact is assessed as very low over a small geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips Site lies outside of this LLT but will introduce views of operational structures into it. Due to the wooded nature of the LLT there will be limited views of the taller structures including stack and plume from the majority of the LLT. An indirect change resulting from high level construction activities would be very limited as a result of the industrial nature in which the Phillip 66 Site lies. The impact is assessed as very low over a small geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)

Landscape receptor	Sensitivity of receptor	Description of impact	Predicted magnitude of impact	Classification of effect
North East Lincolnshire Landscape Character Assessment				
Industrial Landscape LT 1 (Humber Estuary LCA)	Low	**Proposed VPI Development** The VPI Site lies outside of this LT but will introduce medium to long distance views of operational structures into it, viewed in context with the existing large-scale power and industrial related structures. Operation of the Proposed VPI Development including the presence of absorber stacks and plumes will result in an indirect, very slight alteration over a limited area without altering the overall perception and tranquillity of the LT. Impacts are assessed to be very low, over a medium geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Philips 66 Site lies outside of this LT but will introduce near to medium views of operational structures, viewed in context with the existing large-scale power and industrial related structures. The introduction of operational structures will result in an indirect, intensive change over a limited area without altering the overall perception and tranquillity of the LT. Impacts are assessed to be very low, over a medium geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)
Open Farmland LT 2 (Lincolnshire Coast and Marshes LCA)	Medium	**Proposed VPI Development** The VPI Site lies outside of this LT but will introduce views of operational structures into a very small proportion of it. Due to the wooded nature of the LT there will be very limited views of the taller structures including absorber stacks and plumes, whilst ground level structures will be completely screened. An indirect change resulting from the introduction of tall structures would be very limited as a result of the existing industrial nature in which the VPI Site lies. The impact is assessed as very low over a small geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)
		Proposed Phillips 66 Development The Phillips Site lies outside of this LT but will introduce views of operational structures into a very small proportion of it. Due to the wooded nature of the LT there will be limited views of the taller structures including stack and plume from the majority of the LT. An indirect change resulting from the introduction of operational structures would be very limited as a result of industrial nature surrounding the Phillips Site. The impact is assessed as very low over a small geographical extent, long term and permanent.	Very low	Negligible adverse (not significant)

Visual Amenity

11.6.8 Potential visual effects of the Proposed Developments in comparison with the future baseline visual context are considered in Table 11.12 by reference to representative viewpoints. The assessments contained within Table 11.12 should be read in conjunction with Figures 11.6 to 11.13 (ES Volume III) which illustrate the baseline situation at each viewpoint.

Table 11.12: Viewpoint assessment

Viewpoint 1: PRoW EHAL 74, East Halton

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
514120, 420297	Recreational	9.3	VPI Site – 3.89 km Phillips 66 Site – 3.53 km	South-east
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms primary focus for recreational receptors along the local PRoW. Therefore, susceptibility is assessed to be medium.		Low		Medium for PRoW users.
Size/ scale, duration and reversibility of impact at construction				
Proposed VPI Development Views of ground level construction operations would be obscured by localised landform, intervening vegetation and built form including the VPI Immingham CHP Plant. High level construction activities associated with the stacks will be discernible beyond intervening structures, filtered by vegetation in the middle distance. The long distance to the Proposed VPI Site and the presence of other detracting features in the landscape reduce the impact that the Proposed VPI Development has on visual amenity. The magnitude of impact is assessed to be **very low**, over a small geographical extent, short term and reversible, which results in a **negligible adverse** (not significant) effect at construction. **Proposed Phillips 66 Development** Construction operations within the Phillips 66 Site will not be visible from this location due to distance, localised landform and intervening vegetation. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect at construction.				
Size/ scale, duration and reversibility of impact during operation				
Proposed VPI Development The majority of the operational development would be screened by localised landform, existing built structures and intervening vegetation. The stack will be visible amongst existing tall stacks and flares that are apparent on the skyline. The stack will be barely noticeable in the view, although will not change the overall balance of the view. The magnitude of impact is assessed to be **very low**, over a small geographical extent, long term and reversible, which results in a **negligible adverse** (not significant) effect during operation. **Proposed Phillips 66 Development** Operational development within the Phillips 66 Site will not be visible from this location due to distance, localised landform and intervening vegetation. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect during operation.				

Viewpoint 2: PRoW NKIL 50, Killingholme Marshes

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
51802, 418160	Recreational	4.8	VPI Site – 1.38 km Phillips 66 Site – 1.46 km	South-east
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms secondary focus for recreational receptors on a local PRoW at this location. Therefore, susceptibility is assessed to be medium.		Low		Medium for PRoW users.

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development

Views of ground level construction operations would be obscured by localised landform vegetation and built form including the VPI Immingham CHP Plant. High level construction activities associated with the stack will be noticeable on the skyline, visible amongst a high number of existing stacks and flares. The construction of the stack including high level cranes will be visible, forming a small, barely noticeable feature within the wider view. The magnitude of impact is assessed to be **low**, over a medium geographical extent, short term and reversible, which results in a **minor adverse** (not significant) effect at construction.

Proposed Phillips 66 Development

Construction operations within the Phillips 66 Site will be completely screened from this location due to localised intervening landform and existing structures on the Phillips 66 industrial site. The magnitude of impact is assessed to result in **no change** to the existing view, short term and reversible, which results in **no change** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development

Views of low level operational structures will be obscured by localised landform vegetation and built form including the VPI Immingham CHP Plant. The operational absorber stack, including plume will be noticeable on the skyline, visible amongst a high number of existing stacks and flares. The stack and plume will form a small, barely noticeable feature within the wider view. The magnitude of impact is assessed to be **low**, over a medium geographical extent, long term and permanent, which results in a **minor adverse** (not significant) effect during operation.

Proposed Phillips 66 Development

Operational development within the Phillips 66 Site will not be visible from this location due to distance, localised landform and intervening structures. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect during operation.

Viewpoint 3: PRoW NKIL 100, Marsh Lane, Killingholme

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
517300, 417324	Residential and recreational users	2.9	VPI Site – 0.3 km Phillips 66 Site – 0.36 km	South-west
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms primary focus for recreational receptors on a local PRoW and secondary focus for residential receptors at this location. Therefore, susceptibility is assessed to be high for residential receptors and medium for recreational receptors.		Low		High for residential receptors and medium for PRoW users.

Size/ scale, duration and reversibility of impact at construction

VPI Proposed Development

Views of ground level construction operations would be partially obscured by localised vegetation bordering Marsh Lane which would provide low level screening in the summer months when in leaf. High level construction activities associated with the absorbers and stacks will be noticeable on the skyline, visible to the left of the existing stacks and flares within the VPI Immingham CHP Plant site. The use of high level cranes will be visible as a prominent feature on the skyline, from this location. Mid-level construction activities will be visible as glimpsed views, partially filtered by intervening vegetation. Construction operations will be visible, forming a prominent feature within the wider view. The magnitude of impact is assessed to be **medium**, over a large geographical extent, low number of viewers, short term and reversible, which results in a **moderate adverse** (significant) effect at construction for both residential and PRoW users.

Phillips 66 Proposed Development

View of construction operations within the Phillips 66 Site will be mostly screened from this location due to intervening vegetation and existing structures on the Humber Refinery site. The construction of the absorbers and stacks would be barely noticeable as part of the wider view which contains a high number of existing tall structures. The magnitude of impact is assessed to be **very low**, short term and reversible, which results in a **negligible adverse** (not significant) effect at construction for both residential and PRoW users.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development

Views of low level operational structures will be partially screened by vegetation along Marsh Lane and field boundaries. The taller structures, including the operational absorber stacks, including plumes will be prominent, extending the proportion of tall industrial structures that will be visible across the skyline. The stacks and plumes will form a prominent feature, although seen in the context of a high number of stacks and flares visible within the wider view. The magnitude of impact is assessed to be **medium**, over a large geographical extent, affecting a small number of viewers, long term and permanent, which results in a **moderate adverse** (significant) effect during operation for both residential and PRoW users.

Proposed Phillips 66 Development

Operational development within the Phillips 66 Site will be barely noticeable from this location due to intervening vegetation and structures. The magnitude of impact is assessed to be **very low**, long term and permanent, which results in a **negligible adverse** (not significant) effect during operation for both residential and PRoW users.

Viewpoint 4: Church Lane, Immingham

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
517641, 415096	Residential	6.51	VPI Site – 1.77 km Phillips 66 Site – 1.77 km	North

Visual susceptibility to change	Value of view	Sensitivity of receptor
View forms primary focus for residential receptors at this location. Therefore, susceptibility is assessed to be high.	Low	High for residential receptors.

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development
Construction operations within the VPI Site will be completely screened from this location due to intervening vegetation within the Immingham Golf Course grounds. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect at construction.

Proposed Phillips 66 Development
Construction operations within the Phillips 66 Site will be completely screened from this location due to intervening vegetation along St Andrews Lane, within St Andrews churchyard and the Immingham Golf Course grounds. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development
Views of operational structures will be completely screened from this location due to intervening vegetation. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect during operation.

Proposed Phillips 66 Development
Operational development within the Phillips 66 Site will not be visible from this location due to intervening vegetation. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect during operation.

Viewpoint 5: PRoW, Brocklesby

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
514660, 414267	Recreational	16.4	VPI Site – 3.2 km Phillips 66 Site – 2.6 km	North-east
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms secondary focus for recreational receptors at this locally used track. Therefore, susceptibility is assessed to be medium.		Low		Medium for recreational receptors

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development

Views of ground level construction operations would largely be obscured by intervening vegetation in the middle distance. Construction of the taller structures, including absorber stacks will be visible to the right of the existing stacks and tall structures within the VPI Immingham CHP Plant site. Construction operations would be a visible element, although noticeable, within the wider view. Construction of the Proposed VPI Development would, slightly alter the balance of tall structures and industrial developments which are visible. The magnitude of impact is assessed to be **low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction.

Proposed Phillips 66 Development

Views of low level construction operations within the Phillips 66 Site will be screened by existing intervening vegetation. Construction of taller structures will be visible to the left of the existing tall structures within the view. Construction of the Proposed Phillips 66 Development would be barely noticeable, set within a view containing a number of tall industrial structures which are highly visible across the skyline. The magnitude of impact is assessed to be **very low**, over a small geographical extent, short term and reversible, which results in **negligible adverse** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development

Views of low level operational structures will be partially screened by vegetation in the middle distance. The taller structures, including the operational absorber stacks and plumes, will be noticeable, seen in the context of a considerable number of stacks and flares that are visible across the skyline. The magnitude of impact is assessed to be **low**, over a small geographical extent, long term and permanent, which results in **minor adverse** (not significant) effect at construction.

Proposed Phillips 66 Development

Operational low level structures will not be visible as a result of intervening vegetation. The uppermost sections of the structures will be visible above the vegetation line, to the left of the stacks and flares within the existing Phillips 66 Site. The structures will be barely noticeable, marginally increasing the width of structures that are visible across the skyline. The magnitude of impact is assessed to be **very low**, over a small geographical extent, long term and permanent, which results in **negligible adverse** (not significant) effect at construction.

Viewpoint 6: Staple Road, South Killingholme

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
514776, 417325	Residents	17	VPI Site – 1.6 km Phillips 66 Site – 0.7 km	East

Visual susceptibility to change	Value of view	Sensitivity of receptor
View forms primary focus for a small number of residential receptors and primary focus for recreational receptors on a local, well used route at this location. Therefore, susceptibility is assessed to be high for residential receptors and medium for recreational receptors.	Low	Attractive view which contains some discordant features. High for residential receptors and Medium for recreational receptors.

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development

Views of ground level construction operations would be screened by vegetation lining Staple Road. High level construction activities associated with the upper most section of the absorber and stack will be visible, although located behind vegetation lining Staple Road and the tall stacks and flares currently present on the skyline. The construction of the stack including high level cranes will be just visible, forming a small, barely noticeable feature within the wider view. The magnitude of impact is assessed to be **very low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction, long term and permanent, which results in **negligible adverse** (not significant) effect at construction.

Proposed Phillips 66 Development

Construction operations within the Phillips 66 Site will be screened behind intervening vegetation and structures located with the DSV Ltd site. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development

Views of low level operational structures will be screened by localised vegetation. The operational absorber stack, including plume will be visible on the skyline, beyond vegetation along Staple Road and visible amongst a high number of existing stacks and flares. The stack and plume will form a small, barely noticeable feature within the wider view. The impact magnitude is assessed to be **very low**, over a small geographical extent, long term and permanent, which results in a **negligible adverse** (not significant) effect during operation.

Proposed Phillips 66 Development

Operational development within the Phillips 66 Site will not be visible from this location due to distance, localised landform and intervening structures. The magnitude of impact is assessed to result in **no change** to the existing view, which results in **no change** (not significant) effect during operation.

Viewpoint 7: PRoW NKIL 83 Church Lane, North Killingholme

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
514681, 417305	Recreational and residents	16.4	VPI Site – 1.7 km Phillips 66 Site – 0.8 km	East
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms primary focus for a small number of residential receptors at this location. Therefore, susceptibility is assessed to be high.		Low		View which contains a high number of discordant features and experienced by residents at home. High.

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development

Views of ground level construction operations would be screened by existing vegetation along Church Lane and structures located within the Phillips 66 Site. High level construction activities associated with the absorber and stacks will be visible, located to the left of the tall stacks and flares currently present on the skyline, although at a further distance to the receptor. The construction of the stack including high level cranes will be visible, forming a small, noticeable feature within the wider view. The magnitude of impact is assessed to be **low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction.

Proposed Phillips 66 Development

Ground level construction operations within the Phillips 66 Site will be screened behind hedgerow along Church Lane. Mid and high level construction operations will be visible in the near distance, appearing closer to the receptor in comparison to the existing flares, stacks and other structures within the Phillips 66 Site that are visible on the horizon from this location. Construction operations will occupy a small proportion of the view and shorter than the majority of structures visible at this location. The magnitude of impact is assessed to be **low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development

Views of low level operational structures will be screened by localised vegetation and built form including the Phillips 66 Development. The operational absorber stacks, including plumes will be visible on the skyline, visible amongst a high number of existing stacks and flares. The stacks and plumes will form a small, barely noticeable feature within the wider view. The magnitude of impact is assessed to be **very low**, over a small geographical extent, long term and permanent, which results in **negligible adverse** (not significant) effect during operation.

Proposed Phillips 66 Development

Views of low level operational structures will be screened by localised vegetation and built form from this location. The upper sections of the operational structures will be visible on the skyline, viewed in front of the existing developments with the flares and stacks within the Phillips 66 Site visible above the Proposed Phillips 66 Development. The structures would form a noticeable feature within the wider view. The magnitude of impact is assessed to be **low**, over a small geographical extent, long term and permanent, which results in **minor adverse** (not significant) effect during operation.

Viewpoint 8: PRoW Broc 5/1

Grid reference	Receptor type	Elevation (m AOD)	Approx. distance from the Sites (km)	Direction of view
514466, 411236	Recreational	32.3	VPI Site – 6 km Phillips 66 Site – 5.6 km	North-east
Visual susceptibility to change		**Value of view**		**Sensitivity of receptor**
View forms secondary focus for recreational receptors at this location. Therefore, susceptibility is assessed to be medium.		Medium		Medium for recreational receptors.

Size/ scale, duration and reversibility of impact at construction

Proposed VPI Development
Ground level construction operations within the VPI Site will be completely screened from this location due to intervening vegetation. High level construction activities associated with the absorbers and stacks will be visible, located to the right of the tall stacks and flares currently present on the skyline, although at a further distance to the receptor. The construction of the stack including high level cranes will be visible, forming a small, noticeable feature within the wider view. The magnitude of impact is assessed to be **low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction.

Proposed Phillips 66 Development
Ground level construction operations within the Phillips 66 Site will be completely screened from this location as a result of intervening vegetation. High level construction operations will be visible in the distance amongst the existing stacks and flares. Construction operations will occupy a small proportion of the view. The magnitude of impact is assessed to be **low**, over a small geographical extent, short term and reversible, which results in **minor adverse** (not significant) effect at construction.

Size/ scale, duration and reversibility of impact during operation

Proposed VPI Development
Views of low level operational structures will be screened from this location. The operational absorber stacks including plumes will be visible on the skyline amongst a high number of existing stacks and flares. The stacks and plumes will form a small, barely noticeable feature within the wider view. The magnitude of impact is assessed to be **very low**, over a small geographical extent, long term and permanent, which results in **negligible adverse** (not significant) effect during operation.

Proposed Phillips 66 Development
Views of low level operational structures will be screened by localised vegetation from this location. The upper sections of the operational structures will be visible on the skyline, viewed against the existing flares and stacks. The structures would form a barely noticeable feature within the wider view. The magnitude of impact is assessed to be **very low**, over a small geographical extent, long term and permanent, which results in **negligible adverse** (not significant) effect during operation.

Transient Views

11.6.9 Users of the main transport routes and long-distance walking trails will gain dynamic views towards the Sites to varying degrees, dependent on intervening structures, screening vegetation, elevation and direction of travel. Due to the height of the tallest structures within the Proposed Developments (the absorbers and stacks, with a maximum proposed height of 110 m AGL/ 114.9 m AOD for the Proposed VPI Development and 70 m AGL/ 79.5 m AOD for the Proposed Philips 66 Development) these receptors will gain a wide variety of views, dependent upon the proximity to the Proposed Developments, and direction of travel.

11.6.10 The value of the view from the Barton upon Humber to Grimsby passenger railway line is considered to be medium as a result of the rural, agricultural landscape with limited detracting features. Susceptibility is considered to be medium with overall sensitivity to change considered to be medium.

11.6.11 Views from the trains will be intermittent as a result of intervening vegetation including that associated with the A180 road corridor and occasional structures. Views of existing stacks and flares will be visible on the horizon in proximity to the Sites. As a result of the long distance to the Sites, high level of intervening screening vegetation and numerous existing detractors on the skyline and the dynamic nature of views, the magnitude of impact is therefore predicted to be very low at all assessment scenarios, resulting in a **negligible adverse** effect (not significant) that ranges from short to long term and that is reversible.

11.6.12 The local roads within the study area that will gain views of the Proposed Developments are located within and around the settlements including land between settlements. The value of the view is considered to range from low to medium. The direction of the view ranges and susceptibility is considered to be low as result of existing views containing industrial related structures such as stacks and flares. Overall sensitivity is considered to be low. Views of the Proposed Developments will range from clear and open to restricted by intervening vegetation or built form. Where views in proximity to the Proposed Developments are available, they would be clear. The magnitude of impact is therefore predicted to be low at all assessment scenarios, resulting in a **minor adverse** effect (not significant) that is short term and reversible.

Decommissioning Phase

11.6.13 The impacts on landscape character and visual amenity arising as a result of decommissioning of the Proposed Developments are considered (using professional judgement) to be similar to those identified at the construction stage. For landscape this is as a result of the scale and nature of the Proposed Developments in relation to the existing industrial structures and complexes present in the wider landscape and the large-scale of the LCA. For visual amenity, this is as a result of the visibility of decommissioning and demolition activities not being prominent for the majority of viewpoints as a result of long-distance views and, intervening vegetation.

Table 11.13: Summary of effects on visual assessment

Viewpoint Reference	Sensitivity of receptor	Receptor location	Receptor type	Significance of effect			
				Proposed VPI Development		Proposed Phillips 66 Development	
				Construction	Operation	Construction	Operation
1	Medium	PRoW EHAL 74, East Halton	Recreational	Negligible adverse (not significant)	Negligible adverse (not significant)	No change (not significant)	No change (not significant)
2	Medium	PRoW NKIL 50, Killingholme Marshes	Recreational	Negligible adverse (not significant)	Negligible adverse (not significant)	No change (not significant)	No change (not significant)
3	High and Medium	Marsh Lane, Killingholme	Residential and recreational	Moderate adverse (significant)	Moderate adverse (significant)	Negligible adverse (not significant)	Negligible adverse (not significant)
4	High	Church Lane, Immingham	Residential	No change (not significant)	No change (not significant)	No change (not significant)	No change (not significant)
5	Medium	PRoW, Brocklesby	Recreational	Minor adverse (not significant)	Minor adverse (not significant)	Negligible adverse (not significant)	Negligible adverse (not significant)
6	High and Medium	Staple Road, South Killingholme	Residential and recreational	Negligible adverse (not significant)	Negligible adverse (not significant)	No change (not significant)	No change (not significant)
7	High	PRoW NKIL 83 Church Lane, North Killingholme	Residential and recreational	Minor adverse (not significant)	Negligible adverse (not significant)	Minor adverse (not significant)	Minor adverse (not significant)
8	Medium	PRoW Broc 5/1	Recreational	Minor adverse (not significant)	Negligible adverse (not significant)	Minor adverse (not significant)	Negligible adverse (not significant)

11.7 Mitigation and Enhancement Measures

11.7.1 Moderate adverse (**significant**) visual amenity effects have been assessed for Viewpoint 3 (Marsh Lane, Kilingholme) for residential and PRoW users during construction and operation of the Proposed VPI Development. No further significant effects have been assessed for either of the Proposed Developments during construction or operation.

11.7.2 The opportunity for mitigation of the visual effects of the Proposed VPI Development at Marsh Lane is limited due to the size and scale of the Proposed VPI Development. It is considered that the addition of landscape features such as trees and woodland would not be effective in reducing these effects on visual amenity.

11.7.3 The final finishes of the buildings and exact sizes of component parts will not be finalised until the final detailed design is complete. Implementation of detailed design parameters is proposed to be secured by a requirement of planning conditions including siting, layout, scale and external appearance, including colour, materials and surface finishes of permanent buildings and structures.

11.8 Residual Effects and Conclusions

11.8.1 The assessment has determined that single residential and recreational receptor Marsh Lane (Viewpoint 3) is likely to experience significant short-term adverse effects as a result of the close distance and limited intervening vegetation to the Proposed VPI Development.

11.8.2 No significant adverse effects are identified for the Proposed Phillips 66 Development.

11.8.3 A summary of significant landscape and visual effects is presented in Table 11.14.

Table 11.14: Summary of significant effects

Phase	Description of Effect	Significance of Effect (Before Mitigation)	Mitigation Measures	Significance of Effect (After Mitigation)	Duration (short/ medium/ long term) and Reversibility
Construction	Impact on residential and recreational receptors at Viewpoint 3, Marsh Lane (Proposed VPI Development)	Moderate adverse (significant)	None	Moderate adverse (significant)	Short term, reversible
Operation	Impact on residential and recreational receptors at Viewpoint 3, Marsh Lane (Proposed VPI Development)	Moderate adverse (significant)	None	Moderate adverse (significant)	Long term, irreversible
Decommissioning	Impact on residential and recreational receptors at Viewpoint 3, Marsh Lane (Proposed VPI Development)	Moderate adverse (significant)	None	Moderate adverse (significant)	Short term, reversible

11.9 References

Council of Europe (2007) 'European Landscape Convention'.

Environmental Resources Management (1999). 'West Lindsey District Council Landscape Character Assessment'. West Lindsey District Council.

Estell Warren (1999) 'Countryside Design Summary for North Lincolnshire'. North Lincolnshire Council.

Estell Warren (1999). 'North Lincolnshire Landscape Character Assessment and Guidelines'. North Lincolnshire Council.

FPCR (2015). 'North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study'. North East Lincolnshire Council.

Landscape Institute and Institute of Environmental Management and Assessment (2013). 'The Guidelines for Landscape and Visual Amenity Third Edition'.

Landscape Institute (2019). 'Visual Representation of Development Proposals, Technical Guidance Note 06/19'.

Landscape Institute (2021). 'Assessing landscape value outside national designations, Technical Guidance Note 02/21'.

Landscape Institute (2020). 'Infrastructure, Technical Guidance Note 04/2020'.

Ministry of Housing, Communities and Local Government (2021) 'National Planning Policy Framework'.

Natural England (2013). 'National Character Area Profile: 41 Humber Estuary'.

Natural England (2013). 'National Character Area Profile: 42 Lincolnshire Coast and Marshes'.

North Lincolnshire Council (2021). 'Draft North Lincolnshire Landscape Character Assessment'

North Lincolnshire Council (2011) 'North Lincolnshire Core Strategy: North Lincolnshire Local Plan Publication Draft Addendum Plan'.