CD 3.1

HUMBERZERO

PHILLIPS 66

VPI

Humber Zero Planning Statement

Phillips 66 Limited

Project number: 15862

March 2023

DWD

CONTENTS

TABLES

FIGURES

LIST OF ABBREVIATIONS

Abbreviation	Definition
ALC	Agricultural Land Classification
BEIS	Department for Business Energy and Industrial Strategy
CO_2	Carbon Dioxide
CCS	Carbon Capture and Storage
CCUS	Carbon Capture Usage and Storage
DAS	Design and Access Statement
DPD	Development Plan Documents
EIA	Environmental Impact Assessment
EWP	The Energy White Paper
CHP	Combined Heat and Power
FCC	Fluid Catalytic Cracker
GHG	Greenhouse Gas
HELA	Housing and Employment Land Allocations
LDF	Local Development Framework
LVIA	Landscape and Visual Impact Assessment
MT	Million tonnes
MW	Megawatt
NLC	North Lincolnshire Council
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	National Policy Statement
OCGT	Open Cycle Gas Turbine
PCCC	Post Combustion Carbon Capture
RIGS	Regionally Important Geological Sites
SAC	Special Area of Conservation
SHB	South Humber Bank
SHBSES	South Humber Bank Strategic Employment Site
SCR	Selective Catalytic Reduction
SPA	Special Protection Area
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
TCPA	Town and Country Planning Act 1990
ZTV	Zone of Theoretical Visibility

LIST OF TERMS

Term	Definition
The Applicant	Phillips 66 Limited
The Applicants (for Humber Zero overall)	Phillips 66 Limited and VPI Immingham LLP
Core Strategy	North Lincolnshire Local Development Framework Core Strategy 2011
Local Plan	North Lincolnshire Local Plan 2003
Emerging Local Plan	North Lincolnshire Local Plan Publication Draft 2022
The Site	The land required for the Proposed Development and enclosed by a red line in the Site Location Plan, comprising land at Eastfield Road in and adjoining the Humber Refinery
HLCPP	The Humber Low Carbon Pipelines Project, a CO_2 and hydrogen pipeline project being promoted by National Grid Ventures
Viking CCS Project	Decarbonisation Partnership in the Humber Region focused on capturing, transporting and storing CO_2 emissions, to decarbonise industrial operations. Previously named 'V Net Zero Project'
1990 Act	Town and Country Planning Act 1990

Revision	Description	Originated	Checked	Reviewed	Authorised	Date
0	Final for Issue	CD	CT	CT	CT	28.02.23

DWD Job Number: 15862

1.0 INTRODUCTION

1.1 Preamble

1.1.1 This Planning Statement has been prepared in support of an application for full planning permission ('the Application') submitted to North Lincolnshire Council (the 'Council') under the provisions of the Town and Country Planning Act 1990 (as amended) on behalf of Phillips 66 Limited (the 'Applicant').

1.2 Overview of the Proposed Development

1.2.1 The proposed development comprises a Post-Combustion Carbon Capture (PCC) Plant for the existing Fluid Catalytic Cracker stack at Phillips 66 Limited's Humber Refinery (the 'Proposed Development'). Section 3 presents further information on the Proposed Development's characteristics.

1.2.2 For the avoidance of doubt, the 'Proposed Development' in this document corresponds precisely to the 'Proposed Phillips 66 Development' in the Humber Zero Environmental Statement, which reports on the findings of the combined Environmental Impact Assessment carried out for the 'Proposed Phillips 66 Development' and also the 'Proposed VPI Development'. The latter comprises a PCC plant and associated facilities for capturing CO_2 from two of the gas turbines (GT1 and GT2) and two auxiliary boilers at the VPI Immingham CHP Plant and is subject to a separate planning application promoted by the applicant VPI Immingham LLP.

1.2.3 The Proposed Development, along with the Proposed VPI Development, together comprise the first phase of the Humber Zero project.

1.3 The Humber Zero Project

1.3.1 By 2050, the UK has committed to reducing carbon emissions to net zero. This can only be achieved by decarbonising existing industry effectively. Energy intensive industries account for more than 20% of the economy and 1 in 10 jobs in the Humber.

1.3.2 Humber Zero is a large-scale decarbonisation programme, being advanced in collaboration by VPI Immingham LLP and the Applicant, that aims to remove up to 8 million tonnes (MT) of atmospheric CO_2 emissions per annum from the Immingham industrial cluster by 2030 through the deployment of a number of technologies such as Carbon Capture, Utilisation and Storage (CCUS).

1.3.3 By 2028, the first phase of Humber Zero could remove up to 3.8 Mt of CO_2 annually by capturing carbon from the Humber Refinery's FCC stack and two of the gas turbines and auxiliary boilers at the VPI Immingham CHP Plant.

1.3.4 Further information is available on the Humber Zero website, available at: https://www.humberzero.co.uk/

1.3.5 The CO_2 transportation network that the Proposed Development will connect into is also under development by others. There are two potential networks that the Proposed Development could be connected to: the proposed Viking CCS CO_2 transportation and storage network (promoted by Harbour Energy) which is anticipated to commence in the southern part of the VPI Site, or the

East Coast Cluster Humber Low Carbon Pipelines Project (HLCPP) (promoted by National Grid). Both pipeline networks will run close to the Phillips 66 Limited's Humber Refinery Site and the decision as to which network will be connected in to initially will be made following Government funding announcements. It is likely that access to both transportation networks would be available in the long-term development of the networks.

1.4 Pre-Application Consultation

1.4.1 The Applicant has carried out a comprehensive pre-application community and stakeholder engagement exercise in respect of the 'Humber Zero' project, of which the Proposed Development forms part. The full details of the community and stakeholder consultation are appended to this planning application in a Consultation Report.

1.4.2 The community and stakeholder consultation took a two-stage approach between March and July 2022 during which a range of consultation methods were employed, including:

- Stage 1 – included briefing emails and a Humber Zero 'launch event' for key stakeholders.
- Stage 2 – formal public consultation period, from May to July 2022, which included newsletters to residents and businesses within the vicinity of the Proposed Development and Humber Zero, virtual consultation events and tools (including a Virtual Consultation Room [VCR]), face-to-face consultation events, and some press and social media coverage.

1.4.3 Consultees were able to provide comments and feedback via a feedback form (online, via Freepost or at the events) and via a project email address or verbally at various consultation events.

1.4.4 As set out in the Consultation Report, the vast majority of respondents supported the Proposed Development and the contribution of 'Humber Zero' to achieving 'net zero'. A small number of respondents expressed scepticism about the benefits of the Proposed Development and future hydrogen phases of development, which are not within the scope of this phase or the planning application. Other themes raised by respondents included querying the benefits and disbenefits of the project; the consultation process; amenity and health impacts to nearby residents, including noise, visual and air quality impacts; environmental risks and standards; traffic generation during construction and operation; and queries about the future hydrogen phases of the project and nearby projects within the Humber region, particularly the Viking CCS Pipeline.

1.4.5 The Applicant has considered the points raised during the consultation period. In response to the consultation feedback, further community consultation was undertaken by means of additional social media posts and one additional in-person community consultation event at South Killingholme. The remaining comments that were raised are generally high-level in nature and have not resulted in amendments to the planning application in the early design phase. As detailed design stages progress, the consultation feedback will be considered, and any amendments needed would be made at this time.

1.5 Environmental Impact Assessment

1.5.1 The 2017 Town and Country Planning (Environmental Impact Assessment) Regulations (as amended) (EIA Regulations) apply to applications for planning permission under the 1990 Town and Country Planning Act.

1.5.2 The Applicant submitted a request for an Environmental Impact Assessment ('EIA') Scoping Opinion, including a 'Humber Zero EIA Scoping Report' to the Council on 25th January 2022. The Council issued its Scoping Opinion on 11th March 2022 which confirmed that EIA is required for the Proposed Development and set out the range of matters to be addressed in the final production of the Environmental Statement.

1.5.3 Information pursuant to Regulation 18 of the EIA Regulations and as specified in Council's Scoping Opinion is provided in the enclosed Environmental Statement by AECOM Limited.

1.6 Planning Application Submission

1.6.1 The planning application submission consists of the following documents:

- Cover Letter.
- Application forms and certificates (including CIL Form and Article 13 Letters).
- Ownership Certificate and Agricultural Land Declaration
- Planning Statement (this Document).
- Design and Access Statement.
- Consultation Report.
- Environmental Statement Non-Technical Summary
- Environmental Statement and technical appendices and figures.
- Arboricultural Survey Report and Tree Constraints Plan.
- Report to Inform Habitats Regulation Assessment.
- Biodiversity Net Gain Report and Metric.
- Parameter plans and drawings (for approval):
  - Site Location Plan, Figure 1, 1:2500 at A1
  - Existing Site Plan, Figure 2 Sheets 1-8, 1:400 at A1
  - Site Plan Ref. 215005-00703-00-AR-DXG-00001, 1:5000 at A3.
  - Parameters drawing Ref. 215005-00703-00-AR-DXG-30001, 1:1250 at A3.
  - Elevations Parameters Ref. 215005-00703-00-AR-DXG-30002, 1:1000 at A3.
  - Elevations Parameters Ref. 215005-00703-00-AR-DXG-30003, 1:1000 at A3.
  - Permanent Access General Arrangement, Ref. 60668866-001, 1:250 at A1

- Permanent Access Visibility Splays, Ref. 60668866-002, 1:250 at A1
- Permanent Access Vehicle Tracking, Ref. 60668866-003, 1:250 at A1
- Temporary Access General Arrangement, Ref. 60668866-004, 1:250 at A1
- Temporary Access Visibility Splays, Ref. 60668866-005, 1:250/1:500 at A1
- Temporary Access Vehicle Tracking 01, Ref. 60668866-006, 1:500 at A1
- Temporary Access Vehicle Tracking 01, Ref. 60668866-007, 1:250 at A1

- Other Plans and Drawings
  - General Plan Ref. 215005-00703-00-AR-DXG-10001, 1:1250 at A3.
  - Proposed Elevation Ref. 215005-00703-00-AR-DXG-20001, 1:1000 at A3.
  - Proposed Elevation Ref. 215005-00703-00-AR-DXG-20002, 1:1000 at A3.
  - Proposed Elevation and Plan View Ref. 215005-00703-00-AR-DXG-20003, 1:250 at A3
  - Proposed Elevation and Plan View Ref. 215005-00703-00-AR-DXG-20004, 1:250 at A3
  - Civil Layout Ref. 215005-00703-00-CI DAL 00003, 1:200
  - Main incoming substation SS23 Plans Ref. 215005-00703-08-EL DAL 0001, 1:150
  - CCU Substation 24 Plans Ref. 215005-00703-08-EL DAL 0009, 1:100
  - Layout Drawing H08 IEH Layout Ref. 215005-00703-08-IC DAL 00039, 1:25

1.7 The Purpose and Structure of the Planning Statement

1.7.1 The Planning Statement assesses the planning considerations associated with the Proposed Development in relation to the context of the relevant national and local planning policy, as well as any supplementary planning guidance and other material considerations.

1.7.2 The Planning Statement draws upon and cross-refers, where relevant, to the other documents that form part of the planning application submission.

1.7.3 The Planning Statement has been prepared in accordance with Council's Validation List which confirms that a Planning Statement should identify material planning consideration and justifications, including all national and local planning policies.

1.7.4 Pre application engagement with NLC planning department has resulted in officer level pre application advice in relation to drawings and the list of documentation set out above.

Structure

1.7.5 The remainder of the Planning Statement is structured as follows:

1.7.6 Section 2: describes the site and its key features, the planning history of relevance that relates to it, any local planning designations and allocations that apply;

1.7.7 Section 3: provides an overview of the Proposed Development, including use, amount, layout, appearance and access;

1.7.8 Section 4: outlines the need for the development in this location, and carbon capture technology in general.

1.7.9 Section 5: sets out the relevant policy and material planning considerations for the determination of the planning applications.

1.7.10 Section 6: provides an assessment of the Proposed Development against relevant policy.

1.7.11 Section 7: sets out the conclusions of this Planning Statement in terms of the overall acceptability of the Proposed Development against the relevant criteria in planning legislation.

2.0 THE SITE AND SURROUNDING AREA

2.1 Introduction

2.1.1 This section describes the location and key features of the Site and surrounding area, identifies any relevant planning and environmental designations, and explains the Applicant's site selection process.

2.2 Site Location, Description and Use

2.2.1 The Immingham industrial cluster is located on the south bank of the River Humber, approximately 1 kilometre from the coastline with the North Sea.

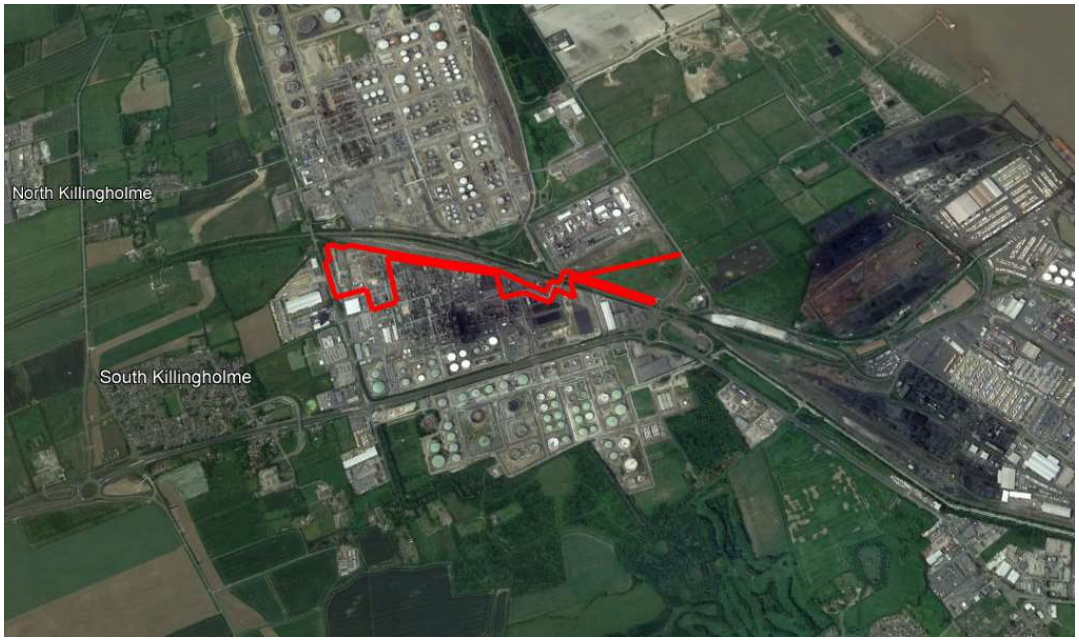
2.2.2 The Site is 15.68 hectares ('ha') and comprises a range of vacant areas of, and land adjoining, the existing Phillips 66 Humber Refinery which occupies a large area either side of Eastfield Road, east of South Killingholme, generally south of the railway line.

2.2.3 The Site is largely within the operational Humber Refinery, accessed from Eastfield Road, but also includes land to the east of the Refinery for pipeline and cable connections, including part of the railway line between the Port of Immingham and Ulceby and Phillips 66 railway sidings, which will need to be traversed by pipelines and cables.

2.2.4 The main area required for the Proposed Development (the proposed PCC Plant and carbon dioxide compression) is in the north-west corner of the Humber Refinery and is currently used for open storage and temporary uses such as site cabins for maintenance contractors, which will be relocated to other parts of the Humber Refinery. The westernmost part of the proposed Phillips 66 PCC plant area is used for access (via an existing access from Eastfield Road and a proposed new access from Eastfield Road) and car parking. This is not anticipated to be required for the Phillips 66 PCC plant itself.

2.2.5 Indicative locations for the PCC Plant within the Humber Refinery are shown in Figure 2.1 below.

Figure 2.1: Site Location



2.2.6 The Lindsey Oil Refinery is immediately north and the VPI Immingham CHP Pilot Plant is located immediately east, bisected by a railway line. Immingham Dock is approximately 2.0 km to the northeast at its closest point. The Humber port is located approximately 980m north at its closest point. The nearest settlement is the village of South Killingholme, which is located approximately 500m to the west of the Site, and the nearest residential properties includes a group of five single dwelling properties property on Humber Road (a local road off the A160 Humber Road) located approximately 240m to the southwest. These properties are separated from the Site by the A160.

2.2.7 The land to the northeast is the site of the proposed VPI Immingham Open Cycle Gas Turbine ('OCGT') Power Station (also known as VPI Energy Park 'B'), which was granted development consent on 7 August 2020. In 2018 planning permission was granted on land to the north of and within the VPI Immingham CHP Plant (Council application reference. PA/2018/918) for the construction of a gas fired power station with a gross electrical output of up to 49.9 megawatts (known as VPI Immingham Energy Park 'A').

2.2.8 The Proposed Development is located within the administrative area of North Lincolnshire Council, which is a unitary authority, and the administrative boundary of North East Lincolnshire Council lies 1km to the south.

2.2.9 The surrounding area comprises industrial and agricultural uses. Further eastwards beyond the railway line are agricultural fields which are approximately 1km away and located towards the Humber Estuary. A large portion of these agricultural fields (approx. 100.3 ha) has been identified for future development of the Able Marine Energy Park (AMEP) which was granted under Development Consent Order (DCO) in December 2013. The scale of the project is substantial in comparison to the Proposed Development with the AMEP site covering an area of 268 ha on the southern bank of the Humber Estuary and structure/building heights up to 45m above FFL. The AMEP site will be developed for a new quay and industrial uses, and will primarily serve the emerging renewable marine energy sector. This demonstrates the context of large-scale and intensified industrial activity in the vicinity, specifically with a focus in decarbonisation of energy production.

2.2.10 There is further large scale planned industrial and energy related development within 5km of the Site, particularly along the South Humber coast reinforcing the industrial character of the site and surrounding area. Further details are provided in the Environmental Statement chapter 18 Cumulative and Combined Effects.

2.2.11 Industrial activities associated with the storage and export of gas and oil and other port activities occur at various locations along the banks of the Estuary itself, approximately 1.5km from the Site at its closest point.

2.3 Planning and Environmental Designations

2.3.1 A review of the Council's interactive Planning Policy Map has identified the following designations on or in proximity to the Site (Figure 2.3). The Policy map for the Draft Local Plan is in Figure 2.4.

North Lincolnshire Core Strategy 2011

- Ports and wharves (CS1; CS11; CS12; CS26).

- Area of Search for Waste Facility (CS20).
- Major Road Improvement (CS1; CS4; CS11; CS12; CS26).

Housing and Employment Land Allocations DPD 2016

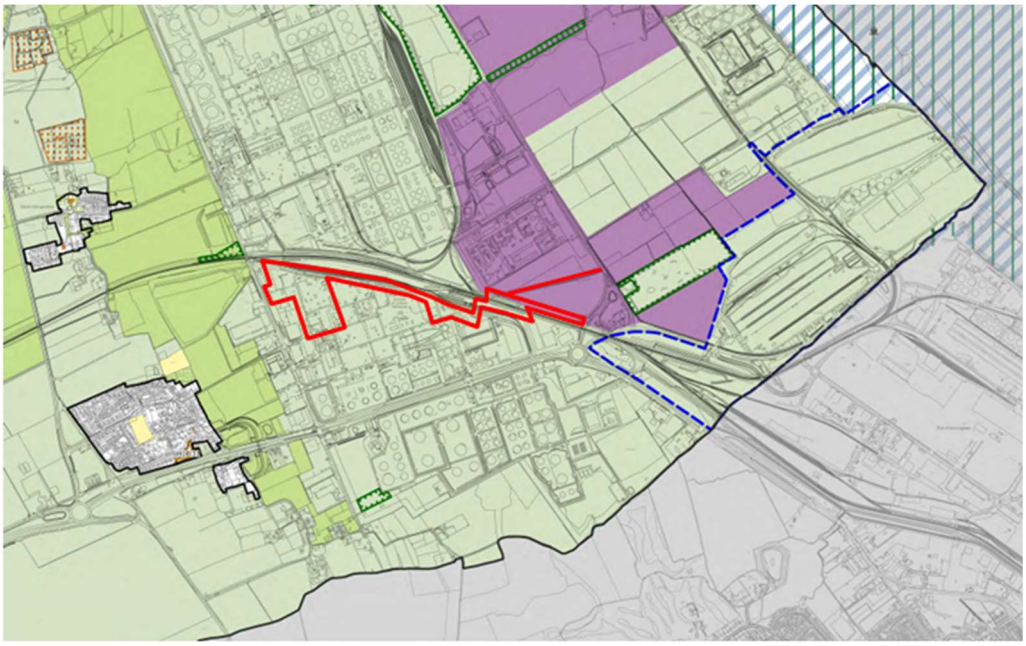
- Proposed Development IN12-6.
- Site of Importance for Nature Conservation (LC4) adjacent to the east and the north.
- South Humber Bank Landscape Initiative (LC20) to the west.
- Listed Building HE-5 to the east.
- T17 highway improvement to the south.

North Lincolnshire Local Plan Stage 5 Publication Addendum

- South Humber Bank Landscape Initiative (EC4).
- Landscape enhancement (DQE2).

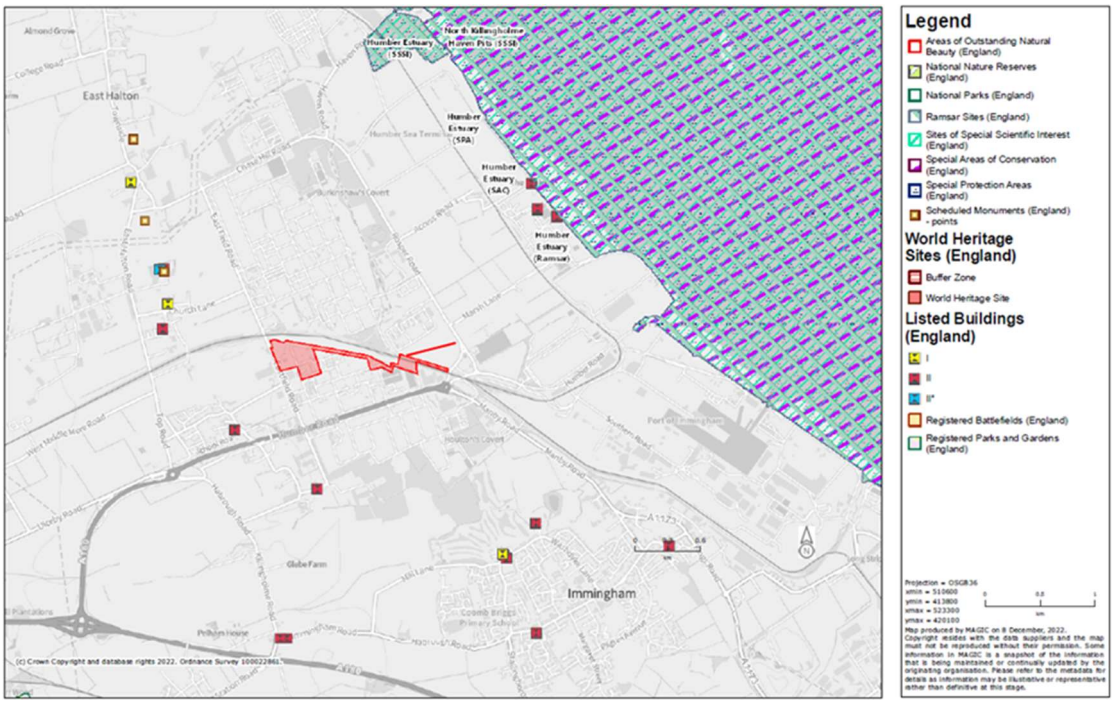
Figure 2.3: North Lincolnshire Local Development Framework Proposals Map.

Figure 2.4: North Lincolnshire Draft Local Plan Proposals Map



2.3.2 A search of the Government's MAGIC Map database revealed that the site does not contain any environmental or heritage designations. An extract of the MAGIC Map search is provided as Figure 2.5. The nearest designated sites being the Humber Estuary SSSI, SPA, SAC and Ramsar site, located approximately 1.6km to the north-east at its nearest point. Other important ecological features include the Humber Estuary EMS, Killingholme Haven Pits SSSI, Eastfield Road Railway Embankment LWS and hedgerows.

Figure 2.5: MAGIC Map Extract – Environmental and Heritage Designations

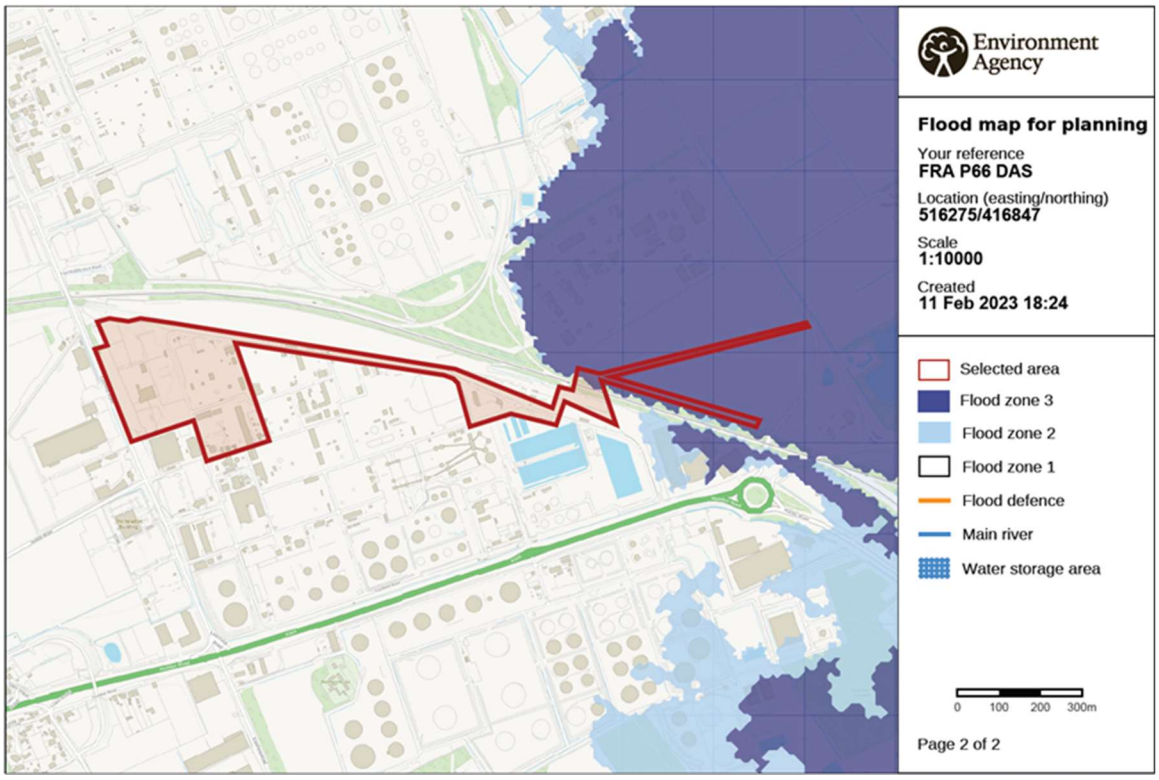


2.3.3 The closest environmental designation is the Humber Estuary which is designated as a Site of Special Scientific Interest ('SSSI'), a Special Protection Area ('SPA'), a Special Area of Conservation ('SAC') and Ramsar site, lying 1.5km to the north-east.

2.3.4 No heritage designations have been identified within the Site. The nearest listed buildings are three Grade 2 light houses 1.8km to the east and the Nook a Grade 2 listed building in South Killingholme, 1.6km to the west. Manor Farm Moated Site (NHLE 1008044) Scheduled Monument is approximately 2.1 km to the north-west.

2.3.5 A search of Environment Agency mapping shows the majority of the Site is located within Flood Zone 1. A small portion of land in the southeast corner of the Site is in Flood Zones 2 and 3 as illustrated in Figure 2.6. The red line showing in this figure is a sketch of the true application boundary.

Figure 2.6: Flood Mapping



2.4 Planning History

2.4.1 A search of the Council's online planning register identified the following planning applications and records within the Site.

Table 2.1: Site Planning History

Application Reference	Proposal Description	Decision
PA/2009/1093	Planning permission to replace two gas turbine air inlet filter houses	Approved
PA/2011/0370	Planning permission to erect office extension	16/10/2009
PA/2021/1039	Application for a non-material amendment following a grant of planning permission PA/2018/918 to amend conditions 3, 5, 6, 8, 9, 13 and 16	Approved
PA/2021/1407	Planning permission to create new access	26/05/2011
PA/2012/0984	Application for determination of the requirement for prior approval for the demolition of a two storey office building and single storey operators changing rooms	Approved 08/07/2021
PA/2019/2071	Advertisement consent to display a non-illuminated sign on existing chimney	Approved 1/11/2021

3.0 PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 This section provides a description of the Proposed Development, including its main components, construction and operation.

3.2 Development Summary

3.2.1 The Proposed Development comprises a Post-combustion Carbon Capture (PCC) Plant for the existing Fluid Catalytic Cracker stack (FCC) at the Humber Refinery. It forms part of the 'Humber Zero' project along with a proposed PCC for the existing VPI Immingham Combined Heat and Power (CHP) Plant. The latter is the subject of a separate planning application.

3.2.2 The Proposed Development will be designed to operate 24 hours a day, 7 days a week as per the existing Humber Refinery FCC Plant. The Proposed Development will operate under an Environmental Permit from the Environment Agency which will stipulate the required environmental monitoring and controls to be employed, including emissions monitoring systems.

3.2.3 The Proposed Development will require water, power and steam when under operation. It is anticipated that these utilities will be sourced from within the Humber Refinery. The Proposed Development will also require chemicals such as caustic and solvents which treat the flue gases to remove the carbon dioxide.

3.2.4 The PCC facility will be designed to capture up to 95% of the flue gases directly emitted from the FCC stack at the Phillips 66 Humber Refinery, during steady state operation.

3.2.5 It is intended that CO_2 will be exported at high pressure (dense phase) via an interface to a CO_2 gathering network adjacent to the VPI Site.

Main Components

3.2.6 The Proposed Development comprises a PCC plant and associated facilities for the Fluid Catalytic Cracker (FCC) at the Humber Refinery and associated works.

3.2.7 The Proposed Development will include the following components:

- FCC flue gas waste heat exchanger for energy recovery;
- ducting over an existing internal access road to connect the FCC unit to the PCC plant;
- flue gas pre-treatment using Selective Catalytic Reduction (SCR), a wet gas scrubber and wet electrostatic precipitator with associated air-cooled heat exchangers;
- one PCC unit with associated absorber, stack, stripper/ regenerator, thermal reclaimer unit and air-cooled heat exchangers/ fin fans;
- low pressure and high pressure CO_2 vent stack for use during start up, shut down and emergencies only;
- CO_2 compression facility with associated air-cooled heat exchangers/ fin fans;
- oxygen removal and dehydration facilities;

- CO_2 metering and a pipeline connecting the PCC plant and compression facilities to the CO_2 gathering network interface, including a pipeline crossing of the Phillips 66 railway sidings and Network Rail railway line;
- on-site electrical substation;
- caustic, solvent and other chemical offloading and storage facilities;
- utilities (including chillers, steam generator and air compressors)
- internal access roads;
- surface water and foul water drainage systems;
- construction and maintenance laydown areas; and
- a new site access from Eastfield Road.

3.2.8 The maximum dimensions of the key components are set out in Table 3.1 (Design Parameters). In order to ensure a robust assessment of the likely significance of the environmental effects of the Proposed Development, the EIA has been undertaken adopting the principles of the 'Rochdale Envelope' approach where appropriate. This involved assessing the maximum parameters for the elements where flexibility needs to be retained (such as building dimensions). As such the ES presents a reasonable worst-case assessment of the Proposed Development.

3.3 Carbon Capture and Associated Stacks

3.3.1 The Proposed Development will include one absorber tower and one regenerator tower. The flue gas will pass through a waste heat boiler and a pre-treatment before entering the CO_2 absorber tower where it will come into contact with the amine solvent. The CO_2 lean flue gas (flue gas with up to 95% CO_2 removed) will be released from the absorber tower, and the CO_2 rich amine will be heated to separate the CO_2 from the amine in the regenerator tower (also known as CO_2 stripper).

3.3.2 The Applicant has selected Shell as the technology provider and CANSOLV DC 103 as the amine solvent. The majority of the amine will be cooled using air cooled heat exchangers and treated for re-use in the PCC plant. A very small quantity of amine will be emitted from the process (released with the CO_2 lean flue gas from the absorber towers) and the amine will also degrade over time so 'fresh' amine will be required throughout the operation of the PCC plant. The thermal reclaiming units at the PCC plants will treat the amine to arrest amine degradation and limit emissions from the absorber.

3.4 Carbon Dioxide Venting, Treatment and Compression

3.4.1 The gaseous CO_2 will be saturated with water and will contain traces of oxygen which will need to be removed to achieve the specification required by the CO_2 gathering network operator.

3.4.2 During start up and shut down of the PCC plant (for example before and after a maintenance outage) when the required CO_2 specification cannot be achieved, CO_2 will need to be safely

vented to the atmosphere. CO_2 venting may also be required during emergency situations to ensure safe operation of the PCC plant. CO_2 vent stacks are therefore included as part of both the Proposed Development, with the height of the emission point (40 m) designed to ensure safe dispersion of the CO2.

3.4.3 The captured CO_2 will need to be compressed ready for injection into the CO_2 gathering network. Compression will be undertaken in two phases – first low pressure (LP) compression to approximately 30 to 40 barg, then high pressure (HP) compression to 135 barg (the pressure required for injection into the CO_2 gathering network).

3.5 Transport to CO_2 Gathering Network

3.5.1 The Proposed Development will connect to Viking CCS and/ or Humber Low Carbon Pipelines Project to transport CO_2 to a storage site under the North Sea. As noted earlier, both of these CO_2 gathering networks are the subject of DCO applications due to be submitted in early 2023 by Harbour Energy and National Grid Carbon, respectively. Therefore, at this stage it is important for the Proposed Development to retain flexibility regarding the final CO_2 gathering network.

3.5.2 The Proposed Development includes a CO_2 pipeline and associated control cables across the Network Rail railway line between the Humber Refinery and the land south of the VPI Immingham CHP Plant. The CO_2 pipeline and cables will be routed over the existing pipe bridge. The design of this crossing has been discussed with Network Rail.

3.5.3 Metering and analysing will also be provided to measure the quantity and quality of CO_2 leaving each of the Proposed Development.

3.6 Other Components

3.6.1 In addition to the main components described above (CO_2 capture, compression and connection to the CO_2 gathering network), the Phillips 66 Development will also require:

- an electrical substation to supply the required electrical power to the PCC plant;
- chemical offloading storage and distribution facilities for caustic, solvent and other chemicals required for the PCC plant;
- solvent disposal and purge water disposal;
- utilities to supply the PCC plant with cooling, steam and compressed air requirements;
- internal access roads providing access around the Phillips 66 Development and connecting the Phillips 66 Development to existing roads in and around the Refinery;
- surface and foul water drainage systems, connecting to the existing waste water treatment plant at the Humber Refinery for treatment and discharge to South Killingholme Drain;
- construction and maintenance laydown areas and welfare facilities, which will be located on existing areas of hardstanding within the Phillips 66 Site; and
- a new site access from Eastfield Road, which together with a recently constructed access from Eastfield Road for another development in the northwest corner of the Refinery will allow one way entry and one way exit from the Phillips 66 Development.

3.7 Access

3.7.1 The Proposed Development will utilise the existing access to the Phillips 66 Site during both construction and operation.

3.7.2 A new access is also proposed to be constructed from the public highway (Eastfield Road) into the north-west corner of the Phillips 66 Site for construction use, including for access and egress for HGVs and AILs. An existing track access from Rosper Road near its junction with Humber Road is also included in the application boundary. This will be used in connection with the construction and maintenance of the pipeline crossing of the railway line.

3.7.3 Construction staff will use existing access points to the Refinery and existing car parking areas.

3.7.4 During operation and for ongoing maintenance purposes, the main point of access for HGVs will be the recently constructed access on Eastfield Road, to the north of the proposed new access. The main point of egress for HGVs will be the proposed new access on Eastfield Road. Other existing Refinery access points may also be used by HGVs where appropriate and/or necessary. Operational staff will use the existing access points to the Refinery and existing car park areas.

3.8 Landscaping and Biodiversity

3.8.1 Existing boundary vegetation will be retained and protected with the exception of approximately 17 m of hedgerow which will need to be removed at the location of the proposed new access to the Site on Eastfield Road. The trees either side of the Network Rail railway line will be retained and protected with the exception of a small area of low value trees (G14) which encroach into the Proposed Development area and may therefore need to be removed.

3.8.2 An Arboricultural Survey Report and Tree Constraints Plan have been undertaken to identify the nature and level constraints posed by existing trees on the Site and inform the design of the Proposed Development to ensure potential impacts on significant trees are fully considered.

3.8.3 It concludes that trees flanking the railway line in the northeast of the Site form a spatial constraint to any potential development works. A key consideration for any development activity will be the protection of the surrounding trees. The default position is that all Root Protection Areas (RPA) and canopies of retained trees would be fenced off as exclusion zones with no access. Where this is not feasible, limited access may be acceptable using fit for purpose ground protection or other protective measures in accordance with BS5837. Outside of the canopy and RPA, development works are not likely to be significantly constrained by trees, however it is important not to significantly impact on ground water levels in proximity to trees and where this could be a potential impact specific arboricultural advice must be obtained. It is anticipated that as the detailed design progresses, an Aboriculturalist would be engaged to inform this process.

3.8.4 Existing landscape planting is in place along Eastfield Road, providing a buffer between the Humber Refinery and Eastfield Road. There is very limited space within the Site for landscaping and biodiversity habitat creation but opportunities to provide landscape planting within the Site will be considered at the detailed design stage.

3.8.5 A Biodiversity Net Gain (BNG) assessment has been undertaken and a BNG Strategy accompanies this planning application. This identifies options for off-site biodiversity

enhancements to achieve 10% BNG for the Proposed Development, the details of which will be secured by planning condition(s).

3.9 Security Fencing and CCTV

3.9.1 It is not expected that additional fencing and CCTV are required in the Humber Refinery.

3.10 External Lighting

3.10.1 Lighting will be provided to achieve illumination necessary for safe operation and maintenance of the Proposed Development.

3.10.2 External street lighting will be of LED type positioned to minimise light spill from the boundaries of the Site. Where appropriate, outdoor lighting will be switched on and off centrally by means of photocells or timers. The lighting will be designed to reduce glare and sky glow and to minimise energy use and associated carbon emissions.

3.11 Design Parameters

3.11.1 The technical assessments that accompany this planning application are based on the site layout parameters plans presented in Figure 3.2.

3.11.2 The exact positions of each component including the stacks cannot be fixed as the detailed design has not been completed. Each technical assessment presented has therefore adopted a relevant worst case using the parameters plans (Figure 3.2 and Table 3.1) to represent the worst-case impact at receptors.

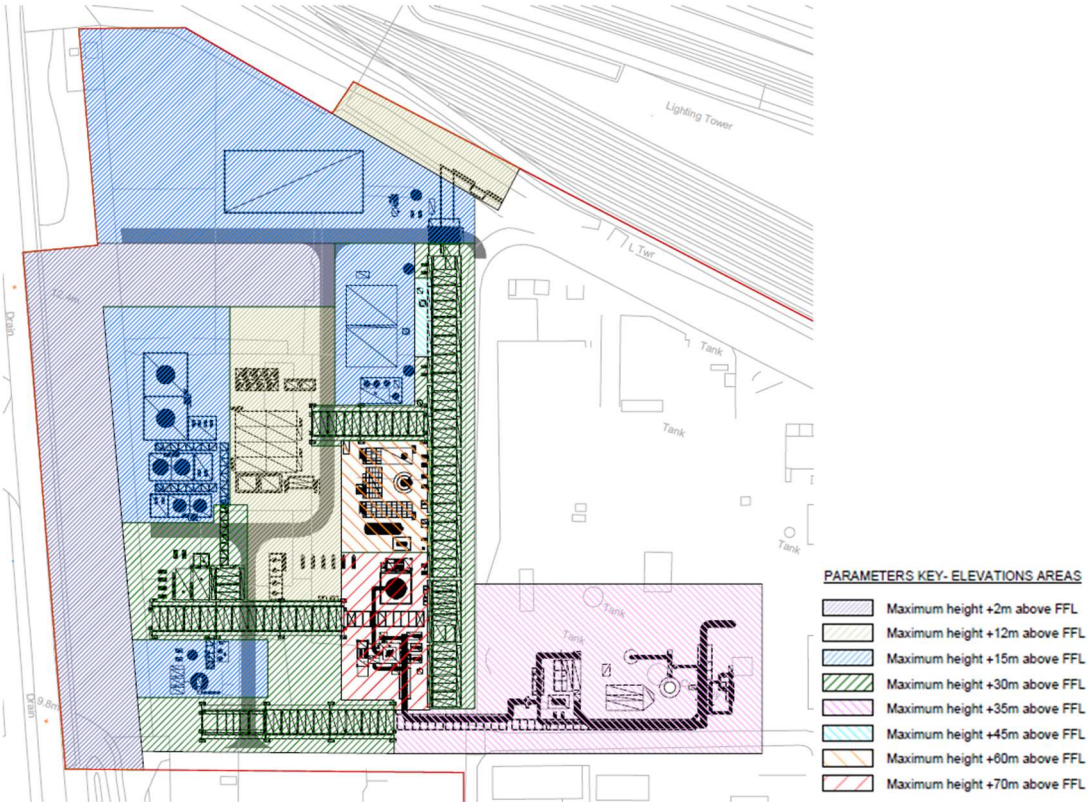
3.11.3 Table 3.1 sets out the maximum and minimum dimensions of the main components of the Proposed Development which has been used as the basis for the various technical assessments presented in this ES to ensure a robust assessment based on reasonable and appropriate worst-case assumptions. This approach is referred to as 'the Rochdale envelope' approach.

3.11.4 For clarity, the drawings enclosed with the Application represent one way in which the development could appear or be laid out, within those maximum design parameters. The design of the Proposed Development is not yet finalised and therefore the detailed design could vary in appropriate (and in EIA terms insignificant) respects from the drawings. We anticipate detailed designs would be reserved by condition.

Table 3.1: Maximum Design Parameters for the Proposed Development

Development Component	Maximum Design Parameter
Absorber and column and associated stack	70 m height above ground level (top of stack at 79.5 m AOD)
Wet gas scrubber stack	Up to 70 m above ground level (top of stack at 79.5 m AOD)
CO_2 regenerator/ stripper column	65 m height above ground level (74.5 m AOD)

Figure 3.2: Parameter plan layout of the Proposed Development



3.12 Construction Programme Approach

3.12.1 As discussed in ES Chapter 3 (Proposed Developments, Description, Need and Alternatives Considered) and Chapter 4 (Construction Programme and Management) construction of the Proposed Development could (subject to the necessary consents being granted and government policy/ funding support being in place to enable an investment decision being made) potentially start in Quarter 1 of 2024.

3.12.2 It is common for much of the groundwork, for example piling and pouring of concrete slabs, to be completed prior to the erection of any above ground permanent structures. The completion of buildings and structural components, such as cladding and external civil works, usually continues whilst mechanical erection is ongoing. However, the detailed phasing of construction is the responsibility of the appointed EPC contractor(s) and may vary dependent on plant layout and procurement of key equipment.

3.12.3 During the detailed design stage, the approach to construction will be defined. For the purposes of this ES, it is assumed that certain parts of the capture plant will be modularised and assembled. Modularised units, along with large specialist equipment are likely to require special transport and lifting considerations. Off-site pre-fabrication will be supplemented by on-site construction of certain larger components which due to their size or weight, may involve fabrication and erection on-site. Small components and modules will be transported using the existing road network with more significant modules potentially being transported to the Port of Immingham.

3.13 Construction Methods

Site Enabling and Preparation Including Earthworks

3.13.1 Early works at the Phillips 66 Site are anticipated to commence in Quarter 1 of 2024 and are anticipated to be completed by the end of Quarter 4 2024. These will include initial site clearance/ demolition, bulk earthworks and installation of temporary construction facilities.

3.13.2 Earthworks will include the clearing of unsuitable soil and reprofiling with clean infill (where required). As far as reasonably practicable, a material cut and fill balance will be sought to minimise waste arisings.

3.13.3 For the Proposed Development, two existing buildings and some smaller structures within the Humber Refinery will be demolished.

3.13.4 All soils will be managed in accordance with the Department for the Environment, Food and Rural Affairs (Defra) Construction Code of Practice for the Sustainable Use of Soil on Development Sites (Defra, 2009) to minimise impacts on soil structure and quality.

3.13.5 Any excess spoil generated during construction of the Proposed Development will be managed through a Site Waste Management Plan (SWMP) that would form part of the Contractors CEMP. Demolition waste will also be managed through an SWMP. Demolition and construction waste is assessed in Chapter 15: Waste and Resource Management.

3.13.6 Spoil which cannot be re-used will be removed from site for re-use, treatment or disposal at a permitted facility. The re-use of excavated materials during construction will be governed by a Materials Management Plan developed in accordance with relevant guidance.

3.13.7 Where necessary, suitable measures will be put in place to prevent sediment being washed off-site, and the stockpiles will be visually monitored for wash away during and after periods of prolonged rainfall.

3.13.8 Existing services within the Sites may require relocation within the Humber Refinery.

Construction Laydown Areas and Welfare Facilities

3.13.9 Proposed laydown areas required during construction, including equipment and material storage, site offices, batch concrete facilities, welfare facilities and car parking, environmental/ waste handling areas and vehicle wheel wash areas will be located within the Site. Laydown areas will be required for the duration of construction.

3.13.10 The main laydown areas for the Proposed Phillips 66 Development will be in the north-west part of the Phillips 66 Site. A dedicated construction and welfare village will be created and is planned to be retained as a permanent facility for maintenance use following commissioning of the project.

3.13.11 Where storage space is limited, materials will be delivered in a phased manner to suit construction requirements month to month.

3.13.12 Where required, laydown areas will be levelled to provide an even surface and underlain by semi-permeable surfacing, to allow surface water and rainwater to percolate through. No hazardous materials would be stored unbunded within the construction laydown areas. All construction laydown areas would be secured by security fencing and gates as appropriate.

Main Civil and Process Works

3.13.13 Following site preparation, the Contractor will undertake piling and excavation for main foundations for some of the larger elements of the Proposed Development. Below groundworks may require dewatering by well pointing for larger foundations. If water is encountered during below ground construction, suitable de-watering methods will be used. Any significant groundwater dewatering required will be undertaken in line with the requirements of the Environment Agency under the Water Resources Act 1991 as amended and Environmental Permitting (England and Wales) Regulations 2016.

3.13.14 Piling and penetrative foundation design method statements, informed by a risk assessment, will be undertaken for each Proposed Development in accordance with Environment Agency guidance (2001). All piling and penetrative foundation works will be carried out in accordance with the approved method statements to prevent contamination of the underlying soils and groundwater.

3.13.15 Building erection and plant installation will be carried out as concurrent activities, noting that not all buildings will be erected prior to the commencement of plant installation. Large plant may be first placed on foundations with structures erected around it.

3.13.16 Plant and equipment will be pre-fabricated where practicable, however, it is anticipated that larger equipment may need to be fabricated and erected onsite due to its anticipated size.

Construction Staff

3.13.17 It is estimated that there will be circa 790 personnel contracted to work on the Proposed Development at the peak of construction. This figure is based on experience of other comparable developments and informs the transport assessment presented in Chapter 8: Traffic and Transport and Appendix 8A: Transport Assessment (ES Volume II).

3.13.18 Information on proposed measures to manage the impacts of construction staff traffic is provided in the Framework Construction Workers' Travel Plan (CWTP) in Appendix 8C (ES Volume II).

Construction Working Hours

3.13.19 Normal construction working hours for the Proposed Phillips 66 Development would be based on a 48 hour work week (base) and could be 24/7 (where required) for priority jobs as per the existing Humber Refinery operating and maintenance working hours.

Construction Traffic and Site Access

3.13.20 Access to the Phillips 66 Site during construction for both construction workers and HGV traffic will be via the existing access road and the new access road from Eastfield Road, with signage provided for routing of construction traffic.

3.13.21 Framework Construction Traffic Management and Construction Worker Travel Plans are provided in Appendices 8B and 8C (ES Volume II).

3.13.22 Combining construction workforce vehicle movements with construction HGV movements over the entire construction programme for both Proposed Developments, the overall peak HGV movements will be approximately 480 per day (240 in and 240 out). Further information on traffic volumes and routing is provided in Appendix 8A: Transport Assessment (ES Volume II).

Construction Lighting

3.13.23 Construction temporary site lighting, including external lighting is proposed to enable safe working on the Site in the hours of darkness.

3.13.24 The external lighting schemes will be designed to provide safe working conditions whilst reducing light pollution and the visual impact on the local environment. The temporary construction lighting will be arranged so that glare is minimised outside the Site.

Security

3.13.25 Security will be managed to ensure that risks are maintained to as low as reasonably practicable. The approach to security will include:

3.13.26 compliance with the existing security policies, procedures and arrangements for the Humber Refinery;

- controlled pedestrian and vehicular access to the Site;
- perimeter fencing around the Site; and
- closed circuit television surveillance and intruder alerts.

Wheel Wash Facilities

3.13.27 In the interests of highway safety, wheel cleaning facilities will be installed at the Site from the start of the construction phase. The need for this measure will be periodically reviewed throughout the construction phase.

Construction Environmental Management Plan (CEMP) and Site Waste Management Plan (SWMP)

3.13.28 A CEMP will be developed to control construction activities at the Site to minimise potential impacts on the environment and include best practice mitigation during the construction of the Proposed Development. An Outline CEMP is provided in Appendix 4A (ES Volume II).

3.13.29 A SWMP will be developed as part of the CEMP to control and manage all wastes arising from the construction activities to minimise, as far as reasonably practicable, impacts on the environment. The SWMP will specify the waste streams to be estimated and monitored and will set goals with regards to the waste produced.

3.13.30 Construction best practice measures that will be adopted during the construction phase are set out in each technical chapter of the ES (Chapters 6 to 17) and have been taken into account in the EIA.

Commissioning and Testing

3.13.31 Commissioning of the Proposed Development will include testing and commissioning of the process equipment in order to ensure that that all systems and components installed are in accordance with the requirements. This is anticipated to take approximately six to nine months for the Proposed Development. A commissioning plan will be required to be agreed with the Environment Agency under the Environmental Permit, which will specify monitoring and control procedures to be used and set out a schedule of commissioning and testing activities.

3.13.32 Commissioning and testing activities include both cold and hot testing as a structured process to include static, dynamic, energised, functional and performance testing. These activities will generally commence using inert materials such as air, water and nitrogen and lubricants before progressing to pressurised operation using process fluids such as natural gas and steam.

3.14 Operation

Hours of Operation

3.14.1 The Proposed Development will be designed to operate 24 hours a day, 7 days a week as per the existing Humber Refinery FCC.

Staff

3.14.2 The Proposed Development will be operated as part of the wider Humber Refinery operations. The Proposed Development will create approximately 15 new full time equivalent (FTE) jobs.

Process Inputs Including Chemicals, Electricity, Water and Steam

3.14.3 The Proposed Development will use various raw materials during operation, which will be delivered by road.

3.14.4 Materials including chemicals to be stored and used within the Proposed Development will be subject to control via the Environmental Permits, Hazardous Substances Consents (where applicable), Control of Major Accident Hazards (COMAH) regime (where applicable) and other necessary consents required, and are anticipated to include the following:

- caustic;
- activated carbon;
- antifoam agent;
- amine (Shell CANSOLV solvent DC 103);
- sodium carbonate;
- hydrogen;
- silica gel;
- ammonia; and
- coagulant and flocculant.

3.14.5 All liquid chemicals stored on site will be kept in bunded controlled areas with a containment volume of 110% of storage capacity and be appropriately segregated, in order to reduce the risk of contamination.

3.14.6 Odour will be controlled where relevant by appropriate storage, for example ammonia will be delivered to site and stored in sealed tanks to avoid any nuisance odours.

3.14.7 The potential for odour to occur from the amine solvent use and storage will be dependent on the volatility of the CANSOLV DC-103 solvent. The solvent has a low volatility, a boiling point of 105°C, i.e. higher than water, and it has a very low vapour pressure of <0.13 hPa at 20°C.

Although it is described as having a 'sweet' odour, it is considered that due its low volatility there is minimal potential for odour issues to arise through its use.

3.14.8 The PCC processes will also have electricity, water and steam demands. Electricity and steam will be supplied from the CHP Plant (which already supplies these utilities to the adjacent Phillips 66 Refinery) and water will be supplied from the existing CHP Plant water supply network. The water demand for the PCC processes will result in approximately 10% increase in water demand for the Phillips 66 Humber Refinery. Water used in the PCC process will require treatment to generate demineralised water; other water demands include firewater.

Process Outputs Including Emissions to Air Waste Management

3.14.9 The Proposed Phillips 66 Development will introduce three new emission sources to the air:

- the wet gas scrubber, which will emit treated flue gas (diverted from the existing FCC stack) during times when the PCC plant is not operational, e.g. maintenance outages;
- the absorber, which will emit the pre-treated, CO_2 lean FCC flue gas; and
- a CO_2 vent stack for use during start up, shut down, and emergencies only.

3.14.10 The PCC processes will generate waste materials which will be collected, stored and manged in accordance with best practice, current site waste management policies and in compliance with all relevant legal requirements. Waste materials will include:

- waste from site offices; and
- waste from the PCC plant.

3.14.11 ES Chapter 16 (Materials and Waste) provides the findings of an assessment of the likely significant effects on materials and waste as a result of the Proposed Development.

Process Cooling

3.14.12 Following a Best Available Technique (BAT) assessment of cooling options, the Proposed Development has been designed to predominantly use air cooling, with the use of evaporative water cooling during high ambient temperatures and for the chilling of CO_2 before export to the transport and storage network. This is largely due to the limited water resources available in the area, and limited impact on the PCC plants' efficiency, which favour air cooling over water or hybrid cooling techniques.

Site Drainage and Water Treatment

3.14.13 The Site areas within the existing Humber Refinery will be drained as at present with process and non-process drainage collected and treated at the Refinery's waste water treatment plant before being discharged into South Killingholme Drain to the east of the Refinery in accordance with the existing discharge permit (no changes are expected to be required), and foul waste water discharged to Anglian Water sewer. Some liquid effluents (e.g. the new solvent (amine) drain system for the PCC Plant) may be collected and tankered off site for disposal.

3.14.14 The Proposed Development in areas outside the Refinery will not generate any foul drainage or create new areas of hardstanding that require surface water drainage.

Maintenance

3.14.15 The objective of plant maintenance is to ensure the Proposed Development operates safely and reliably, and inspection and maintenance activities have informed the Proposed Development's layout.

3.14.16 Routine maintenance will be planned and scheduled as for the existing Humber Refinery, approximately every three to five years. Maintenance activities require additional contractors to work on site.

3.14.17 The Proposed Development will have an initial design life of at least 25 years, although the operational life could potentially be longer subject to market conditions.

Hazard Prevention and Emergency Planning

3.14.18 The Applicant's aim is to protect human health by safely and responsibly managing activities on site. A Health and Safety Plan covering the works, commissioning and operation of the Proposed Development will be prepared by the Applicant. For design and construction, a competent and adequately resourced Construction (Design and Management) (CDM) Coordinator and Principal Contractor will be appointed. The Applicant will ensure that its own staff, its designers and contractors follow the Approved Code of Practice (ACoP) laid down by the CDM Regulations 2015.

3.14.19 Written procedures clearly describing responsibilities, actions and communication channels will be available for operational personnel dealing with emergencies. Procedures will be externally audited, and contingency plans written in preparation for any unexpected complications.

3.14.20 The inventory of materials to be stored on the Site will be finalised through the respective detailed designs. However, where storage of hazardous materials, individually or in-combination (with Phillips 66) exceeds the relevant thresholds, separate permissions will be sought from the HSE and local planning authority for their storage, under the COMAH and Hazardous Substance Consent regimes respectively. All chemical storage will also be regulated by the Environment Agency through the environmental permits that will be required for the operation of the Proposed Development.

3.14.21 As set out in ES Chapter 18 (Major Accidents and Disasters), carbon dioxide is not harmful to human health at low concentrations, it is not flammable, and it will not support combustion. As the concentration of carbon dioxide in air rises, the hazardous effects on people and the environment increase. However, compared with other materials, such as natural gas and ethylene, the risks of harm (e.g. of asphyxiation or freeze burns) is relatively low. The key risk relates to its toxicity at elevated concentrations and potential to act as an asphyxiant gas in low lying locations or confined spaces should it displace air from these locations due to its density being higher than that of air.

3.14.22 Guidance and best practice information for carbon capture technology and transport via pipeline is available from the Health and Safety Executive (HSE). Carbon dioxide is not currently defined as a dangerous substance under the COMAH Regulations 2015 and the status of the Proposed Development relating to the COMAH Regulations 2015 has not yet been confirmed. Guidance and best practice information for PCC is, however, available from the HSE. The HSE does not

currently provide Land Use Planning (LUP) advice for carbon dioxide capture, although for LUP purposes, HSE uses Dangerous Toxic Load (DTL) to describe a substance's airborne concentration and duration of exposure which would produce a particular level of toxicity in the general population. This advice has been considered in designing the Proposed Development including safety distances from high pressure carbon dioxide equipment on the Site.

Environmental Management

3.14.23 The Proposed Development will operate under Environmental Permits from the Environment Agency (as variations to the existing Permits of the Humber Refinery) which will stipulate the required environmental monitoring and controls to be employed, including emissions monitoring systems.

3.14.24 The Proposed Development will be operated in line with existing environmental management system (EMS) for the Humber Refinery, which is certified to International Standards Organisation (ISO) 14001:2015. The EMS will outline requirements and procedures required to ensure that the Proposed Development is operating to the appropriate standard, including procedures for:

- sampling and analysis of emissions using CEMS prior to discharge from the stacks in accordance with the Environmental Permits;
- storage of chemicals;
- waste management and disposal;
- surface and foul water drainage; and
- planned maintenance

3.15 Decommissioning

3.15.1 At the end of the Proposed Development's design life, it is expected that the Proposed Development will have some residual life remaining. A decision whether to continue to operate the PCCs would then be made for the Proposed Development based on the market conditions prevailing at that time. Throughout the design life of the PCC, ongoing maintenance would be carried out and upgrades would be implemented as needed to maintain the performance of the asset and ensure it meets ongoing and new regulatory requirements.

3.15.2 At the end of its operating life, the Proposed Development will be decommissioned in line with relevant standard and best practices and in accordance with permit conditions and any relevant legal requirements. This will include at minimum safe shutdown, purging and isolation of equipment along with removal of any hazardous chemicals and substances, up to full demolition and restoration of the Site. It should be noted that the PCC will form part of larger operational Humber Refinery site for which it is not the primary activity, and it is therefore conceivable that the operational site could continue to operate with the PCC decommissioned. Surrender of site permits will be undertaken in accordance with all regulatory obligations.

3.15.3 The bulk of the relevant plant and equipment will have some limited residual value as scrap or recyclable materials, and the demolition contractor will be encouraged to use materials that could be recycled.

3.15.4 Prohibited materials such as asbestos, polychlorinated biphenyls (PCB), ozone depleting substances and carcinogenic materials will not be allowed within the design of the Proposed Development. Other materials recognised to pose a risk to health, but which are not prohibited, will be subject to a detailed risk assessment.

3.15.5 Prevention of contamination is a specific requirement of the Environmental Permits for the operation of the Proposed Development and therefore the Proposed Development is being designed such that it will not create any new areas of ground contamination or pathways to receptors as a result of construction or operation. Once the relevant plant and equipment have been removed to ground level, it is expected that the hardstanding and sealed concrete areas will be left in place. Any areas of the Proposed Development which are to be decommissioned that are below ground level will be backfilled to ground level to leave a levelled area.

3.15.6 Decommissioning Plans (including Decommissioning Environmental Management Plans (DEMPs) would be produced at the time of decommissioning each Proposed Development and agreed with the Environment Agency as part of the Environmental Permitting and site surrender process. The DEMPs would consider in detail all potential environmental risks on the Site and contain guidance on how risks can be removed or mitigated during the decommissioning and demolition.

3.15.7 The Decommissioning Plans will include outline programmes of works. It is anticipated that it would take up to a year to decommission each Proposed Development, with demolition following thereafter, i.e., taking approximately two years to complete.

3.15.8 During decommissioning and demolition there will be a requirement for the provision of office accommodation and welfare facilities.

4.0 NEED FOR THE DEVELOPMENT

4.1.1 The UK Government has committed to meeting a legally binding target of 'net zero' carbon emissions by 2050.

4.1.2 The Energy White Paper: Powering our Net Zero Future (HM Government, 2020) (the 'EWP') confirms the Government's support for Carbon Capture Usage and Storage ('CCUS') drawing upon the resource provided by the North Sea and new hydrogen technologies. The Government estimates (Introduction, page 15) that the measures in the EWP could reduce emissions across power, industry and buildings by up to 230 million tonnes of carbon dioxide (Mt CO2e) in the period to 2032 and enable further savings in other sectors such as transport. In doing so, these measures could support up to 220,000 jobs per year by 2030. These figures include the energy measures from the Ten Point Plan as well as additional measures set out in the EWP. However, the EWP recognises that more will need to be done to meet key milestones on the journey to Net Zero. The Government's key policies and commitments to put the UK on the course to Net Zero are grouped under headings including 'Transform Energy', 'Support a Green Recovery from Covid-19' and 'Creating a Fair Deal for Consumers'.

4.1.3 Chapter 2 of the EWP deals with 'Power' with the stated goal being to use electricity to enable the transition away from fossil fuels and decarbonise the economy cost-effectively by 2050. Due to increases in electricity demand a four-fold increase in clean electricity generation is required alongside the decarbonisation of electricity. The EWP states that the Government is not targeting a particular generation mix by 2050 and its view remains that the electricity market should determine the best solutions for very low emissions and reliable supply, at a low cost to consumers. While the EWP (page 43) states that a low-cost, net zero consistent system is likely to be composed predominantly of wind and solar, in order to ensure the system is reliable, it needs to be complemented by technologies which provide power, or reduce demand, when the wind is not blowing, or the sun does not shine. This includes gas with CCS and short-term dispatchable generation providing peaking capacity. The EWP (page 47) recognises that:

4.1.4 "In the power sector, gas-fired generation with CCUS can provide flexible, low-carbon capacity to complement high levels of renewables. These characteristics mean that deployment of power CCUS projects will play a key role in the decarbonisation of the electricity system at low cost."

4.1.5 The challenge of decarbonising industry is covered at Chapter 5 'Industrial energy' of the EWP, in particular, the need for emissions from industry to fall by around 90% from today's levels by 2050 if the Net Zero target is to be met (page 118). The EWP (page 120) highlights how about half of all emissions from manufacturing and refining are concentrated in the UK's major industrial clusters (EWP Figure 8.1). These 'hubs' are seen as critical drivers of local and regional economic activity and a vital component of the UK's national economy. It goes on to state (page 122):

4.1.6 "Improved efficiency in the energy performance of buildings and industrial processes will lay the groundwork for the transformation of industrial energy. But we cannot rely on energy efficiency alone to reduce emissions in line with our 2050 goal. Manufacturing industry will need to capture their carbon for onward storage and switch from using fossil fuels to low-carbon alternatives."

4.1.7 The EWP notes (page 124) that many clusters are located in regions in need of economic revitalisation and that decarbonising those clusters can act as a driver of prosperity for the surrounding areas. Furthermore, that investments in key technologies like CCUS will be crucial to enhancing local economic growth and creating jobs together with prosperity.

4.1.8 The EWP confirms that the deployment of CCUS is fundamental to the decarbonisation of energy intensive industries such as steel, cement, oil refining and chemicals. It highlights the role of CCUS in helping to secure the long-term future of these industries and enabling the production of low-carbon hydrogen at scale. It stresses how the UK is in a strong position to become a global technology leader in CCUS, with the potential to store 78 billion tonnes of carbon dioxide. It recognises that deployment of CCUS could create new markets for UK businesses, at home and abroad, as other countries look to meet their emissions reduction commitments and could support 50,000 jobs in the UK by 2030.

4.1.9 The UK Government's Net Zero Strategy (2021) expands on key commitments in the Energy White Paper, proposing to deliver "four carbon capture usage and storage (CCUS) clusters, capturing 20-30 $MtCO_2$ across the economy, including 6 Mt CO_2 of industrial emissions, per year by 2030". This comprises 6 Mt CO_2 per year to be captured from industrial emissions, implying a commitment of between 14-24 $MtCO_2$ per year to be captured from energy sources. Energy intensive industries account for more than 20% of the economy and 1 in 10 jobs in the Humber.

4.1.10 More recently, the Government released the British Energy Security Strategy (2022) which seeks to set out "how Great Britain will accelerate homegrown power for greater energy independence." The report supports the objective for low carbon emissions, and is committed to investing in CCUS by providing £1 billion in public investment to decarbonise our industrial clusters.

4.1.11 The 'Energy Security Bill', introduced into Parliament on 6 July 2022, seeks to deliver a cleaner, more affordable and secure energy system by growing the UK-based energy market (including the diversity of energy sources) to reduce dependency on fossil fuels. A key aspect of the Bill is to focus on low carbon energy, in particular the role of CCUS technologies and the creation of hydrogen using carbon dioxide captured from the CCUS process (also known as 'blue hydrogen') in achieving the aims of the Bill.

5.0 PLANNING POLICY CONTEXT

5.1 Introduction

5.1.1 This section provides a brief overview of the relevant planning policy and guidance at the local and national level. The Proposed Development has been influenced by these policies and is assessed against at Section 6 of this Planning Statement.

5.1.2 The planning application would be determined in accordance with section 70(2) of the Town and Country Planning Act 1990 (as amended), which states that in dealing with applications, local planning authorities shall have regard to the provisions of the statutory development plan and to other material considerations.

5.2 Statutory Development Plan

5.2.1 The Site is located within North Lincolnshire Council ('NLC'). The following planning policy documents are considered most relevant to the proposed Development:

- North Lincolnshire Core Strategy (Adopted June 2011).
- North Lincolnshire Local Plan (Adopted May 2003) – Saved Policies.
- North Lincolnshire Housing and Employment Land Allocations Development Plan Document (Adopted March 2016).

5.2.2 The following policies are considered of most relevance:

Core Strategy (2011)

5.2.3 Policy CS1: Spatial Strategy for North Lincolnshire sets out the overarching spatial strategy for growth with the key focuses being:

"part d) Supporting the development of key strategic employment sites at the South Humber Bank, Humberside Airport and Sandtoft Airfield."

5.2.4 Specifically, this involves:

"The development of the nationally important South Humber Bank ports will be supported by safeguarding around 900ha of land in and around the port complexes for estuary related development as well as to support the continued growth of the chemical and renewable energy industries."

5.2.5 Policy CS1 concludes with an overarching objective for:

"All future growth regardless of location should contribute to sustainable development in particular in respect of those criteria set out in policy CS2 as well as the other policies of the plan. All change will be managed in an environmentally sustainable way by avoiding/minimising or mitigating development pressure on the area's natural and built environment, its existing utilities and associated infrastructure and areas at risk of flooding."

5.2.6 The implementation of Policy CS1 is supported by Policy CS2: Delivering More Sustainable Development which directs development to the most sustainable locations using a sequential approach.

"Any development that takes place outside the defined development limits of settlements or in rural settlements in the countryside will be restricted. Only development which is essential to the functioning of the countryside will be allowed to take place. This might include uses such as that related to agriculture, forestry or other uses which require a countryside location or which will contribute to the sustainable development of the tourist industry.

A 'sequential approach' will also be applied to ensure that development is, where possible, directed to those areas that have the lowest probability of flooding, taking account the vulnerability of the type of development proposed, its contribution to creating sustainable communities and achieving the sustainable development objectives of the plan. Where development does take place in the flood plain, mitigation measures should be applied to ensure that the development is safe.

All future development in North Lincolnshire will be required to contribute towards achieving sustainable development. Proposals should comply with the overall spatial strategy together with the following sustainable development principles:

- *Be located to minimise the need to travel and to encourage any journeys that remain necessary to be possible by walking, cycling and public transport. It should be compliant with public transport accessibility criteria as set out in the Regional Spatial Strategy*
- *Be located where it can make the best use of existing transport infrastructure and capacity, as well as taking account of capacity constraints and deliverable transport improvements particularly in relation to junctions on the Strategic Road Network*
- *Where large freight movements are involved the use of rail and water transport should be maximised*
- *Contribute towards to the creation of locally distinctive, sustainable, inclusive, healthy and vibrant communities*
- *Contribute to achieving sustainable economic development to support a competitive business and industrial sector*
- *Ensure that everyone has access to health, education, jobs, shops, leisure and other community and cultural facilities that they need for their daily lives*
- *Ensure the appropriate provision of services, facilities and infrastructure to meet the needs of the development, but where appropriate it is to be recognised that a phased approach may not be required on small scale development proposals.*
- *To be constructed and operated using a minimum amount of non-renewable resources including increasing the use of renewable energy in construction and operation*
- *Take account of local environmental capacity and to improve air, water and soil quality and minimise the risk and hazards associated with flooding, and*
- *Be designed to a high standard, consistent with policy CS5, and use sustainable construction and design techniques."*

5.2.7 Policy CS3: Development Limits states *"…development outside these defined boundaries* [the development limit] *will be restricted to that which is essential to the functioning of the countryside. This will include uses such as that related to agriculture, forestry or other uses which require a countryside location or that which will contribute to the sustainable development of the tourist industry".*

5.2.8 Policy CS5: Delivering Quality Design in North Lincolnshire sets out the policy for achieving good design and states:

"All new development in North Lincolnshire should be well designed and appropriate for their context. It should contribute to creating a sense of place. The council will encourage contemporary design, provided that it is appropriate for its location and is informed by its surrounding context. Design which is inappropriate to the local area or fails to maximise opportunities for improving the character and quality of the area will not be acceptable.

- *Incorporate the principles of sustainable development throughout the whole design process. This will include site layout, minimising energy consumption, maximising use of on-site renewable forms of energy whilst mitigating against the impacts of climate change; for instance flood risk.*
- *Create safe and secure environments, which reduce the opportunities for crime and increase the sense of security for local residents through the use of Secured by Design guidance."*

5.2.9 Policy CS6: Historic Environment states the council will promote the effective management of North Lincolnshire's historic assets through:

- *"…*
- *Preserving and enhancing the rich archaeological heritage of North Lincolnshire…*

  The council will seek to protect, conserve and enhance North Lincolnshire's historic environment, as well as the character and setting of areas of acknowledged importance including historic buildings, conservation areas, listed buildings (both statutory and locally listed), registered parks and gardens, scheduled ancient monuments and archaeological remains.

  …

  Development proposals should provide archaeological assessments where appropriate."

5.2.10 Policy CS11: Provision and Distribution of Employment Land sets out the Council's support for the for the expansion and improvement of its employment land. The general provisions of this policy state that the Council will support development elsewhere (outside the four broad strategic employment locations) within North Lincolnshire that meet local employment needs and maximises other special locations.

5.2.11 Policy CS12: South Humber Bank Strategic Employment Site sets out the approach for fortifying and improving the South Humber Bank Strategic Employment Site (SHBSES) and describes its economic importance to North Lincolnshire and the wider region.

5.2.12 Policy CS17 'Biodiversity' seeks effective stewardship of wildlife through (as relevant):

"1. Safeguarding national and international protected sites for nature conservation from inappropriate development.

2. Appropriate consideration being given to European and nationally important habitats and species.

3. Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors, links and stepping stones between areas of natural green space.

4. Ensuring development retains, protects and enhances features of biological and geological interest and provides for the appropriate management of these features…"

5.2.13 Policy CS18: Sustainable Resource Use and Climate Change aims to reduce the size of North Lincolnshire's ecological footprint, reduce the causes of climate change, and move North Lincolnshire towards a more resource efficient future. The policy consists of 13 parts and states that the Council will promote development that utilises natural resources as efficiently and sustainably as possible. This will include, inter alia:

"10. Ensuring development and land use helps to protect people and the environment from unsafe, unhealthy and polluted environments, by protecting and improving the quality of the air, land and water.

4. Meeting required national reductions of predicted CO_2 emissions by at least 34% in 2020 and 80% in 2050 by applying the following measures on development proposals. Requiring all industrial and commercial premises greater than 1000 square metres to provide 20% of their expected energy demand from on site renewable energy until the code for such buildings is applied nationally. Where developers consider these Codes and targets cannot be met on the basis of viability they will be required to provide proof through open book discussions with the council at the planning application stage.

12. Supporting new technology and development for carbon capture and the best available clean and efficient energy technology, particularly in relation to the heavy industrial users in North Lincolnshire, to help reduce CO_2 emissions."

5.2.14 Policy CS19: Flood Risk states:

The council will support development proposals that avoid areas of current or future flood risk, and which do not increase the risk of flooding elsewhere. This will involve a risk based sequential approach to determine the suitability of land for development that uses the principle of locating development, where possible, on land that has a lower flood risk, and relates land use to its vulnerability to flood. Development in areas of high flood risk will only be permitted where it meets the following prerequisites:

1. *It can be demonstrated that the development provides wider sustainability benefits to the community and the area that outweigh flood risk.*
2. *The development should be on previously used land. If not, there must be no reasonable alternative developable sites on previously developed land.*
3. *A flood risk assessment has demonstrated that the development will be safe, without increasing flood risk elsewhere by integrating water management methods into development.*

Within the final paragraph, the policy notes that the Council will also seek to reduce the increase in flood risk due to climate change through measures to reduce carbon dioxide.

5.2.15 Policy CS20: Sustainable waste Management states that the Council will promote sustainable waste management by:

- *Requiring the integration of facilities for waste minimisation, re-use, recycling and composting, in association with the planning, construction and occupation of new development.*

5.2.16 Policy CS25: Promoting Sustainable Transport seeks to ensure that development proposals provide high quality and sustainable transport arrangements and contains a range of transport network and demand management tools.

5.2.17 CS27: Planning Obligations states:

Where a development proposal generates an identified need for additional infrastructure, North Lincolnshire Council will, through the negotiation of planning obligations pursuant to Section 106 of the Town & Country Planning Act 1990 and in accordance with guidance set out in Circular 05/2005, seek to ensure that the development proposal:

i. *Meets the reasonable cost of new infrastructure and improvements to existing infrastructure made necessary by the proposal in order to support, for example, affordable housing, maintenance payments, highway infrastructure, nature conservation, transport initiatives, utilities, education, community facilities, health, leisure and recreation provision, public art and waste management; and/or*
ii. *Mitigates the impact(s) of the development; and/or*
iii. *Offsets the loss of any significant amenity or resource through compensatory provision elsewhere; and/or*

b. *Provides for the ongoing maintenance of facilities provided as a result of the development.*

North Lincolnshire Local Plan (Adopted May 2003) - Saved Policies

5.2.18 There are many policies from the North Lincolnshire Local Plan (2003) that have been 'saved' and continue to inform planning policy and decision making.

5.2.19 Policy IN1 - Industrial Development Location and Uses identifies the South Humber Bank as an area of 740.7 ha for Estuary related B1, B2, B8 uses.

5.2.20 Policy IN3 – Industrial and Commercial Development in the Urban Area, Principal Growth Settlements, South Humber Bank (including North Killingholme Airfield) and Humberside International Airport states B1, B2 and B8 industrial and commercial development in this area will be supported, provided that (as relevant):

- *the development should respect its position and setting within the landscape and be, in particular adjoining residential areas. Landscaped buffer zones shall be provided to separate uses where appropriate.*
- *provision should be made within the curtilage of each industrial site for loading, off loading and 78 North Lincolnshire Local Plan - Adopted Plan May 2003 Industry and Employment vehicle turning facilities.*

- *comprehensive landscaping schemes, including suitable boundary treatment, should be submitted as part of a detailed planning application and be treated as an integral part of the development.*

5.2.21 Policy RD2 Development in the Open Countryside states that development will be strictly controlled and only granted for certain uses, including employment related development, subject to development standards being met, including that it does not have a detrimental impact on the character or appearance of the open countryside, residential amenity or the highway safety.

5.2.22 Policy T2 Access to Development states that:

"All development must be provided with a satisfactory access. In larger developments it should be served adequately by:

i. being readily accessible by a choice of transport modes; and

ii. existing public transport services and infrastructure; or

iii. additions or extensions to such services linked directly to the development; and

iv. the existing highway network."

5.2.23 Policy T3 Transport Statements states that

"Developers of major schemes will be required to provide transport assessments, which:

i. assess the likely modal split of journeys to and from the site; and

ii. provide details of proposed measures to improve access to public transport, walking and cycling; and

iii. reduce the number and impact of motorised journeys associated with the proposal.

5.2.24 Policy T11 Protecting Rail Routes states:

"The existing network of rail freight and passenger routes will be safeguarded. Disused railway alignments will be protected from development where there is a reasonable prospect of their re-use for transport purposes or where there is potential for recreational use."

5.2.25 Policy T18 Traffic Management requires traffic management measures to be introduced where there may be impacts on traffic generated and volume, parking provision, amenity and safety.

5.2.26 Policy T19 - Car Parking Provision and Standards states that:

"Provision will be made for car parking where it would:

i. meet the operational needs of businesses; or

ii. be essential to the viability of a new development; or

iii. improve the environment or safety of streets; or

iv. meet the needs of people with disabilities; or

v. v) be needed by visitors to the countryside;

vi. and comply with Parking Provision Guidelines."

5.2.27 Policy DS1 – General Requirements states *"A high standard of design is expected in all developments in both built-up areas and the countryside and proposals for poorly designed development will be refused."*

5.2.28 Policy LC1 'Special Protection Areas, Special Areas of Conservation and Ramsar Sites', Policy LC2 'Site of Special Scientific Interest and National Nature Reserves' and Policy LC4 'Development Affecting Sites of Local Nature Conservation Importance' seek to protect sites and habitats of varying ecological status and designation and sets out guidance and development standards for proposals to follow. These policies generally state that proposals will not be permitted where they would cause unnecessary harm and/or are likely to affect these sites unless there is an imperative need for the proposal and/or its need would outweigh the harm, and those impacts are kept to a minimum.

5.2.29 LC4 – Development Affecting Sites of Local Nature Conservation Importance states:

"Any development or land use change which is likely to have an adverse impact on a Local Nature Reserve, a Site of Importance for Nature Conservation or a Regionally Important Geological Site will not be approved unless it can be clearly demonstrated that there are reasons for the proposal which outweigh the need to safeguard the intrinsic nature conservation value of the site or feature. In all cases where development is permitted which may damage the nature conservation value of the site, such damage shall be kept to a minimum. Where development is permitted the use of conditions or planning obligations to ensure the protection and enhancement of the site's nature conservation value and other appropriate compensatory measures will be considered."

5.2.30 LC5 – Species Protection states that *"Planning permission will not be granted for development or land use changes which would have an adverse impact on badgers or species protected by Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981 (as amended)."*

5.2.31 LC7 – Landscape Protection states: *"Where development is permitted within rural settlements or within the open countryside, special attention will be given to the protection of the scenic quality and distinctive local character of the landscape. Development which does not respect the character of the local landscape will not be permitted."*

5.2.32 LC12 – Protection of Trees, Woodland and Hedgerows requires proposals for all new development will, wherever possible ensure the retention of trees, woodland and hedgerows.

5.2.33 Policy LC20 – South Humber Bank Landscape Initiative sets out design measures to be implemented for both industry and agricultural uses within the South Humber Bank Landscape Initiative area, including stepped back security fencing fringed with shrubs trees, and vegetation screening more generally.

5.2.34 Policy HE9 – Archaeological Evaluation requires that:

Where development proposals affect sites of known or suspected archaeological importance, an archaeological assessment to be submitted prior to the determination of a planning application will be required. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the remains present and the degree to which the proposed development is likely to affect them.

Sites of known archaeological importance will be protected. When development affecting such sites is acceptable in principle, mitigation of damage must be ensured and the preservation of the remains in situ is a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before and during development.

5.2.35 Policy DS1 – General Requirements states inter alia

"*A high standard of design is expected in all developments in both built-up areas and the countryside and proposals for poorly designed development will be refused. All proposals will be considered against the criteria set out below:*

Quality of Design

i. The design and external appearance of the proposal should reflect or enhance the character, appearance and setting of the immediate area; and

ii. the design and layout should respect and where possible retain and/or enhance the existing landform of the site.

Amenity

i. No unacceptable loss of amenity to neighbouring land uses should result in terms of noise, smell, fumes, dust or other nuisance, or through the effects of overlooking or overshadowing; and

ii. no pollution of water, air or land should result which poses a danger or creates detrimental environmental conditions.

Conservation

i. development proposals should include the results of archaeological assessment, where appropriate, and adequate measures to ensure that there would be no unacceptable impacts on archaeological remains. Conditions will be imposed to secure suitable mitigation at the appropriate time in the development process.

5.2.36 Policy DS7 – Contaminated Land states:

"In the case of proposals for development on land known or strongly suspected as being contaminated, applicants will be required to demonstrate that the level of contamination can be overcome by remedial measures or improvements.

Permission will only be granted on contaminated sites where a detailed site survey has been submitted, and a suitable scheme of remedial measures has been agreed to overcome any existing contamination. Conditions will be imposed and/or a planning obligation entered into to secure the implementation of such a scheme at the appropriate time in the development process and to otherwise restrict and control the development."

5.2.37 Policy DS9 - Development of Land in the Vicinity of Established Hazardous Installations and Pipelines states

"In the significant risk area surrounding a hazardous installation or pipeline planning permission will only be granted for housing or any commercial, industrial, retail or recreational use which introduces a significant number of people into the risk area, where it can be demonstrated that the associated hazards and risks identified with locating in proximity to the installation are acceptable or can be overcome through the imposition of appropriate planning conditions".

5.2.38 DS10 - New Hazardous Installations and Pipelines states

"Planning permission for development which involves the storage of materials or the carrying out of processes that are toxic, highly reactive, explosive or highly flammable will only be granted if

the applicant can demonstrate that the proposal will impose no significant development restrictions upon surrounding land users; will not put at risk surrounding residential properties; or prove a risk to other premises in the locality where significant numbers of people regularly congregate."

5.2.39 Policy DS11 Polluting Activities states:

"Planning permission for development, including extensions to existing premises and changes of use, will only be permitted where it can be demonstrated that the levels of potentially polluting emissions, including effluent, leachates, smoke, fumes, gases, dust, steam, smell or noise do not pose a danger by way of toxic release; result in land contamination; pose a threat to current and future surface or underground water resources; or create adverse environmental conditions likely to affect nearby developments and adjacent areas."

5.2.40 Policy DS13 – Groundwater Protection and Land Drainage states:

"DS13 - Groundwater Protection and Land Drainage All development proposals must take account of the need to secure effective land drainage measures and ground water protection in order to control the level of water in the land drainage system."

5.2.41 DS14 - Foul Sewage and Surface Water Drainage states

"The Council will require satisfactory provision to be made for the disposal of foul and surface water from new development, either by agreeing details before planning permission is granted, or by imposing conditions on a planning permission or completing planning agreements to achieve the same outcome."

5.2.42 DS15 - Water Resources

Development will not be permitted which would adversely affect the quality and quantity of water resources or adversely affect nature conservation, fisheries and amenity by means of:

i. pollution from the development; or

ii. water abstraction unless adequate measures are undertaken to reduce the impact to an acceptable level.

5.2.43 DS16 - Flood Risk has a similar purpose to Core Strategy Policy CS19 and states:

"Development will not be permitted within floodplains where it would:

i. increase the number of people or buildings at risk; or

ii. impede the flow of floodwater; or

iii. impede access for the future maintenance of watercourses; or

iv. reduce the storage capacity of the floodplain; or

v. increase the risk of flooding elsewhere; or

vi. undermine the integrity of existing flood defences."

5.2.44 DS17 - Overhead Power Lines and High Powered Electrical Installations

"The Council will seek to minimise the environmental effects of proposals for overhead power lines of 132kv or over, and high-powered electrical installations. The Council will not support such

development within or in locations where the development would have a detrimental impact upon the following areas:

i. Special Protection Areas, Special Areas of Conservation and Ramsar sites;

ii. SSSIs or other statutory nature conservation sites;

iii. Conservation Areas and sites and buildings of historic or archaeological interest, including listed buildings and scheduled monuments;

iv. existing committed or allocated housing areas.

In view of the substantial practical, technical and cost disadvantages involved, it is only in exceptional circumstances that the Council will seek to have lines placed underground, where this is not damaging to sites of nature conservation value or archaeological importance. Careful line routing will usually be the most appropriate way to minimise the visual impact of high voltage power lines. To ensure a satisfactory built environment the Council will have regard to the amenity of potential future occupiers in determining applications for development close to overhead power lines

Housing and Employment Land Allocations Development Plan (2016)

5.2.45 The Housing and Employment Land Allocations ('HELA') Development Plan Document ('DPD') sets out which sites the Council has allocated for future housing development and where new employment opportunities will be located.

5.2.46 Policy PS1 'Presumption in Favour of Sustainable Development' states that: "When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will always work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area".

5.2.47 The Site is adjacent to the west of Employment Land Allocation SHBE-1 'South Humber Bank', a 900 hectare site allocation of land along the Humber coast. Policy SHBE-1 is allocated as a strategic site for port activities to take special advantage of its location, adjacent to a deep water channel of the River Humber as an extension to Immingham Port and Humber Sea Terminal. This employment site is a major part of the South Humber Gateway which forms a four-mile area fronting the Humber estuary. Some of the site-specific development criteria contained in Policy SHBE-1 are applicable only to high-employment generating uses and/or are closer than the proposed development to the internationally designated sites along the Humber coast. The following site-specific criteria are considered relevant to the proposed development with the remainder being applicable as they relate to greenfield developments of a permanent nature:

- *"Development of the site shall only take place if there has been appropriate consideration given to the international, national and local protected sites for nature conservation. This includes complying with the tests of the European Habitats Regulations (Birds and Habitat Directives).*

- *A Transport Assessment and Travel Plan will be required for all large developments.*
- *An ecological assessment will be required.*
- *Pollution and waste control measures should be implemented wherever practical and relevant to the proposed development.*
- *Use of materials and development works shall be sensitive to the location.*
- *A structural landscape scheme is required as a buffer to limit the visual impact of development and improve the amenity of nearby communities between the western edge of the employment site and the villages of South Killingholme, North Killingholme and East Halton.*
- *On site and off site landscaping schemes and biodiversity enhancement shall be considered within the framework of the South Humber Bank Landscaping Initiative in relation to development proposals*
- *Landscape buffering of at least 15 metres width around the Local Wildlife Sites will be required*
- *A surface water and sewage management solution is required to accommodate development on the employment site to the satisfaction of the North East Lindsey Water Management Board and the Anglian Water Authority.*
- *A Flood Risk Assessment will be required for individual developments on the majority of the site in compliance with National and Local flood risk guidance and Core Strategy Policy CS19.*
- *A Heritage Assessment will be required to demonstrate that the development will have no adverse impact on the historic environment. Particular regard will need to be undertaken of the impact of any proposals upon those elements which contribute to the significance of the Scheduled Monuments to the west of this allocation. Development proposals should ensure that those elements which contribute to their significance are conserved "*

5.3 Other Material Considerations

Planning for Renewable Energy Development – Supplementary Planning Document

5.3.1 North Lincolnshire Council' 'Planning for Renewable Energy Development' Supplementary Planning Document ('SPD') provides more detailed guidance on the existing renewable energy policies in the Local Development Framework ('LDF'). Paragraph 3.10 describes how the South Humber gateway is ideally located for carbon capture development and the opportunity this presents both environmentally and economically.

5.3.2 Policy 1 - Biodiversity states:

"Developers should assess the effects of potential renewable energy developments, alone or cumulatively on biodiversity sites, habitats and species and identify measures to avoid or mitigate harm to them and secure their conservation and enhancement.

If a scheme, alone and/or in combination with other plans and projects, could have an impact on an internationally designated site developers must submit all relevant information to the council

for them to carry out an assessment of the likely significant effects of the scheme in accordance with the Habitats Regulations.

Developers should also pay attention to assessing the effects of renewable energy developments, alone and in combination with other development on bats, birds and other mobile species within and around the site. Measures should be identified to avoid or mitigate the harm to these species and secure their conservation and enhancement."

5.3.3 Policy 2 – Landscape states that:

"Developers should consider the landscape impacts of their proposal for renewable energy development. Consideration should be given at the earliest stage in the design process to the character and quality of the landscape, the extent of the physical change involved, and the ability of the landscape to accommodate the change.

Proposals in areas of high landscape value or which affect their setting will be rigorously assessed in relation to their impacts on these important landscapes. If adverse impacts are identified these should be avoided or mitigated. Should this prove impossible the proposal will be refused.

A Landscape and Visual Impact Assessment (LVIA), which must be agreed with the council, should be prepared and submitted alongside any planning application. Developers should also consult the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary."

5.3.4 Policy 3 Visual Effects states:

"The impact on visual amenity is a key consideration for developers in preparing schemes for renewable energy development. The size and appearance of the development should be taken into account from the earliest stage in the design process.

A Landscape and Visual Impact Assessment (LVIA), which must be agreed with the council, should be prepared and submitted alongside any planning application. Developers should consult the council's approved Supplementary Planning Guidance on Landscape Character Assessment and Guidelines, and Countryside Design Summary.

Where unacceptable negative impacts on visual amenity are identified, developers should ensure that they are satisfactorily addressed. If this cannot be done, the development will be refused."

5.3.5 Policy 4 Heritage assets states:

"Developers should consider the impact of their proposal for renewable energy development, both during and after construction on heritage and the historic environment.

Developers need to demonstrate that the objectives of the designation of the area or individual assets will not be compromised by the development, and that any significant adverse effects on the on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits."

5.3.6 Policy 5 - Soil and Hydrology recommends developers to consider the effects of their proposal for renewable energy development on the soil, hydrology, groundwater and water quality in and around a site. Development should avoid harming soils, hydrology and water quality that would have a negative effect on habitats of principal importance for the conservation of biodiversity.

Section 6 identifies the different policy considerations drawing on the existing policy approach in the LDF. Policy 6 Flood Risk states:

"Developers must provide a Flood Risk Assessment with any renewable energy development proposal of 1 hectare or more in Flood Zone 1 and any proposal in Flood Zone 2 or 3. If proposals are put forward in areas of high flood risk (zone 3), development will be required to pass an Exception Test. This must demonstrate that the development will be safe during its lifetime , without increasing flood risk elsewhere and where possible will reduce flood risk overall. These requirements also apply to proposals for ancillary development related to renewable energy developments."

National Planning Policy

5.3.7 The National Planning Policy Framework ('NPPF') was adopted in March 2012 and last updated in July 2021. It sets out the Government's planning policies for England and how these are to be applied. The policies contained within the NPPF are expanded upon and supported by National Planning Practice Guidance ('NPPG'), which was first published in March 2014 and has been periodically updated since.

5.3.8 Paragraph 45 requires that: *"Local planning authorities should consult the appropriate bodies when considering applications for the siting of, or changes to, major hazard sites, installations or pipelines, or for development around them"*. Further to this, Paragraph 97 notes that planning policies and decisions *"should promote public safety and take into account wider security and defence requirements by … anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate…this includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security."*

5.3.9 Paragraph 110 states that in assessing applications for development, it should be ensured that:

"b) safe and suitable access to the site can be achieved for all users"

Paragraph 111 states:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

5.3.10 And Paragraph 112 states that within this context, applications for development should:

"d) allow for the efficient delivery of goods, and access by service and emergency vehicles;"

5.3.11 Chapter 12 contains the NPPF planning policy in relation to good design. Paragraph 126 explains that the creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development.

5.3.12 The NPPF sets out its support for renewable energy development in Chapter 14 (Meeting the challenge of climate change, flooding and coastal change). Paragraph 152 states that:

"The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."

5.3.13 Paragraph 158 goes on to state:

"When determining planning applications for renewable and low carbon development, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy and [should] approve the application if its applications are (or can be made acceptable)."

5.3.14 Paragraph 159 of the NPPF outlines that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future).

5.3.15 Paragraph 161 notes that all plans should apply a sequential, risk- based approach to the location of development- taking into account the current and future impacts of climate change- so as to avoid, where possible, flood risk to people and property. The paragraph details that the sequential test should be applied, and if necessary, the exception test. Paragraph 158 explains that the aim of the sequential test is to steer new development to areas with the lowest risk of flooding.

5.3.16 Chapter 15 contains policies in relation to the conservation and enhancement of the natural environment. Paragraph 174 states: Planning policies and decisions should contribute to and enhance the natural and local environment by:

"a) 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);

b) 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;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) 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;…"

5.3.17 Paragraph 180 states that when determining planning applications local authorities should apply the following principle

"b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;"

5.3.18 Paragraph 183 states:

"Planning policies and decisions should ensure that: a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation); (…)

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments."

5.3.19 Paragraph 185 Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

"…mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life."

5.3.20 The policies contained within the NPPF are expanded upon and supported by National Planning Practice Guidance ('NPPG'), which was first published in March 2014 and has been periodically updated since. NPPGs considered most relevant to the Proposed Development include;

- Climate Change; https://www.gov.uk/guidance/climate-change
- Air Quality; https://www.gov.uk/guidance/air-quality--3
- Renewable and low carbon energy; https://www.gov.uk/guidance/renewable-and-low-carbon-energy

5.4 Emerging Policy

North Lincolnshire Local Plan (Submission Examination Version)

5.4.1 In November 2022, the Council submitted its draft Local Plan Secretary of State for an Examination in Public. In accordance with paragraph 48 of the National Planning Policy Framework (NPPF) the policies in this plan may be afforded weight in decision making.

5.4.2 This section avoids duplicating the emerging policies which largely replicate and bring forward existing policies, and instead focuses on acknowledging the emerging policies where there are new and/or extensive changes to existing policy that are specifically relevant to the Proposed Development.

5.4.3 Policy SS1 Presumption in Favour of Sustainable Development reflects the intent of the NPPF's presumption in favour of sustainable development and HELA Policy CS1.

5.4.4 Policy SS3 Development Principles sets out the key development principles all new development will be considered against. It states that all proposals for development in North Lincolnshire should reflect the following key principles (unless in practical terms they are not considered relevant by the case officer):

"e. Minimise the impacts arising from climate change and mitigate against its effect, including, reducing flood risk.

f. Provide high standards of amenity and privacy, by ensuring the impacts of development on adjacent and nearby properties are minimised. These impacts include noise, odour, fumes, dust or other nuisance, or the effects of overlooking or overshadowing.

h. Plan positively and enhance local landscape characteristics, natural capital, geological conservation interests and soils, and avoid, remedy or mitigate any impacts on natural capital features and open spaces.

l. Take account of existing and/or planned infrastructure, and contribute towards the provision of additional infrastructure to ensure that development is well served by physical, social and environmental infrastructure.

n. Contribute towards healthy communities and places, and consider the health impacts of development and the needs of existing and future users."

5.4.5 The emerging Local Plan Policy SS8 adjacent to the site also intends to allocate the adjacent South Humber Bank as a strategic site allocation. Policy SS10 contains the criteria which the site will be developed in accordance with. The wording replicates the wording of Housing and Employment Land Allocations DPD (2016) Policy SHBE-1.

5.4.6 Policy SS11 Development Limits replicates existing Cores Strategy Policy CS3.

5.4.7 A Landscape Enhancement Scheme is proposed for the South Humber Bank under Policy DQE2 'Landscape Enhancement', the specific requirements of which, are set out in Policy EC4.

5.4.8 Further to this, Policy EC4: South Humber Bank Landscape Initiative replicates the wording of Local Plan saved policy LC20.

5.4.9 Policy RD1: Supporting Sustainable Development in the Countryside will support development outside of development limits for:

g. Employment uses where it is an appropriate scale to its location and it respects the character of the surrounding landscape. Proposals should:

i. Be within or adjacent to an existing industrial estate or business park; or

ii. Involve the expansion of an existing business; or

iii. Involve the conversion of an existing building; or

iv. Have a functional need to be in that particular location that cannot be met either on a nearby allocation, or on a site that satisfies any of the above criteria.; and

i. New and enhanced infrastructure

5.4.10 Policy DEQ1: Protection of Landscape, Townscape and Views

5.4.11 Policy DEQ3: Biodiversity and Geodiversity replicates and consolidates the intent of Local Plan Saved Policies LC1, LC2 and LC4.

5.4.12 Policy DQE5: Managing Flood Risk builds upon Core Strategy Policy CS19 and states:

4. The risk and impact of flooding will be minimised through:

a) directing new development to areas with the lowest probability of flooding;

b) ensuring that all new development addresses the effective management of all sources of flood risk;

c) *ensuring that development does not increase the risk of flooding elsewhere; and*

d) *ensuring wider environmental benefits of development in relation to flood risk.*

A site-specific flood risk assessment (FRA) should be provided for all development in Flood Zone 2 and 3. In Flood Zone 1 a FRA should accompany all proposals for development of sites of 1 hectare or more or land which has been identified by the Local Lead Flood

5. *The Council will support development proposals within areas at risk of flooding (flood zones 2 and 3 or at risk as shown on the flood hazard maps in the Strategic Flood Risk Assessment), where it meets the following prerequisites:*

   a) *it can be demonstrated that there are no other sites available at a lower risk of flooding (i.e. that the sequential test is passed). The sequential test will be based on a districtwide area of alternative sites unless local circumstances relating to the catchment area for the development justify a reduced search area, i.e. there is a specific need for the development in that location. The sequential test is not required for sites allocated in the Local Plan, for minor development (as defined in Planning Practice Guidance, paragraph 046 (Reference ID:7-046-20140306) or for change of use (except for a change of use to a caravan, camping or chalet site, or to a mobile home or park home site);*

   b) *it can be demonstrated that the development provides wider sustainability benefits to the community and the area, that outweigh flood risk;*

   c) *a flood risk assessment has demonstrated that the development will be safe for its lifetime, taking into account the latest guidance and allowances for climate change, without increasing flood risk elsewhere, has integrated water management methods into the development, and incorporated mitigation measures in line with the Standing Advice set out in the SFRA, which has been agreed between the Council and the Environment Agency;*

6. *All development proposals, including proposals in flood zone 1, will be permitted providing it is demonstrated that:*

   a) *the peak rate of runoff over the lifetime of the development, allowing for climate change, is no greater for the developed site than it was for the undeveloped site;*

   b) *the post-development volume of runoff, allowing for climate change over the development lifetime, is no greater than it would have been for the undeveloped site. If this cannot be achieved, then the maximum discharge from the site should not exceed the calculated greenfield runoff rate for all rainfall events, up to and including the 1% annual probability event plus allowance for climate change;*

   c) *the development incorporates appropriate mitigation so that flooding of property in and adjacent to the development would not occur for 1% annual probability event, with appropriate allowance for climate change, and exceedance flood flow paths are taken into account;*

d) *the proposals in the first instance consider water re-use measures to encourage the conservation of water before infiltration to manage surface water, wherever this is feasible;*

e) *The proposal should consider the full separation of foul and surface water flows within the development.*

f) *the final discharge locations have the capacity to receive all foul and surface water flows from the development into water bodies and into sewers, including discharge by infiltration. Where capacity is not currently available within the public sewer network and/or receiving wastewater treatment facility it can be demonstrated that it can be made available in time to serve the development;*

g) *there is a management and maintenance plan for drainage and flood risk management infrastructure (where appropriate) for the lifetime of the development, which includes the implementation arrangements for adoption by any public authority, statutory undertaker or management company and any other arrangements to secure the operation and mitigation measures of the scheme throughout its lifetime; the final destination of the discharge complies with the following priority order to: water re-use at point of run-off*

i. *ground via infiltration;*

ii. *a water body; surface water sewer.*

h) *where appropriate, SuDS have been included in line with the requirements of Policy DQE6 Sustainable Drainage Systems of this Plan.*

5.4.13 Policy DQE7 Climate Change and Low Carbon Living states:

1. *Proposals for development should be designed to mitigate the impacts of climate change and minimise carbon emissions to meet the climate change challenge.*
2. *All development proposals should be resilient to climate change and decrease the negative impacts of climate change on neighbouring areas by:[…]*

   c) *through their location, taking into account the risk of flooding from all sources of flooding;*

3. *All development proposals should promote low carbon living through the reduction of carbon emissions by:*

   d) *maximising the reuse or recycling of materials in new construction and making the best use of existing building and infrastructure;*

5.4.14 Policy HE1: Conserving and Enhancing the Historic Environment replicates the policy stance of Local Plan saved policy HE9 Archaeology Evaluation.

5.4.15 Policy WAS6 Waste Management states:

1. *Proposals for new development should support the efficient use and recovery of resources throughout its lifetime, including during construction, operation and/or occupation. This should include giving due consideration to sustainable waste management.*

2. *New developments should include:*
    a) *Design principles and construction methods that minimise the use of primary minerals and encourage the use of building materials made from recycled and alternative materials;*
    b) *Measures that support the implementation of the waste hierarchy, including construction and demolition methods that minimise waste production, maximise the re-use and recovery of materials (as far as practicable) on-site and minimise off-site disposal. In major developments the production of a waste audit and the use of Site Waste Management Plans are encouraged; and,*
    c) *Design and layout that complements sustainable waste management by providing appropriate storage and segregation facilities. Proposals for major development that seek to deliver the housing requirement or employment land will be encouraged to incorporate neighbourhood waste management facilities (where appropriate). Any waste management facilities or bin/waste storage should be well designed and integrated into the development in order to reduce impacts on the community and environment. Provision for waste collection should also be reflected in the design and layout of development.*

5.4.16 Policy DM1 'General Requirements' requires that:

"5. Planning permission for development will only be permitted where it can be demonstrated that the levels of potentially polluting emissions, including effluent, leachates, smoke, fumes, gases, dust, steam, smell or noise do not pose a danger by way of toxic release; result in land contamination; pose a threat to current and future surface or underground water resources; or create adverse environmental conditions likely to affect nearby developments and adjacent areas."

5.4.17 Policy DM3 sets out the emerging policy in relation to environmental protection, which (subject to examination and formal adoption) will replace, consolidate and generally strengthen the saved development management policies DS7 (Contaminated Land), DS9 (Development of Land in the Vicinity of Established Hazardous Installations and Pipelines); DS12 (Light Pollution); DS13 (Groundwater Protection and Land Drainage), DS14 (Foul Sewage and Surface Water Drainage), DS15 (Water Resources):

1. *Development proposals as appropriate to their nature and scale, should demonstrate that environmental impacts on receptors have been evaluated and appropriate measures have been taken to minimise the risks of adverse impacts to air, land and water quality, whilst assessing vibration, heat, energy, light and noise pollution.*

5.4.18 With regards to Air Quality the policy states:

2. *The Council will seek to ensure that proposals for new development will not have an unacceptable negative impact on air quality and will not further exacerbate air quality in the Scunthorpe Town AQMA or contribute to air pollution in areas which may result in a new AQMA. Applicants will be required to provide an air quality impact assessment to demonstrate this.*

3. *The Council will seek to ensure that where a sensitive use is being proposed in an area of known poor air quality, the applicant will be required to provide an air quality impact assessment to demonstrate the development will not result in adverse effects on human health and local amenity. Residential development within the Scunthorpe AQMA will not be permitted where there is evidence of adverse effects on human health and local amenity.*

5.4.19 In relation to Noise pollution the policy states:

6. *Development generating noise which is likely to create significant adverse impacts on health and quality of life and cannot be mitigated and controlled through the use of conditions will not be permitted.*

5.4.20 In relation to Contaminated land:

7. *In the case of proposals for development on land known or strongly suspected as being impacted by contamination, hazardous gases, land instability, of a sensitive end use, the applicant will be required to provide sufficient information that demonstrates that the level of contamination can be overcome by remedial measures or improvements. In these cases permission will only be granted where a phase 1 desk based assessment and detailed site survey has been submitted. Where significant risks to human health and/or the environment are present; planning permission will only be granted in circumstances where a suitable scheme of remedial measures has been agreed that will be obtained via a planning condition and/or legal agreement to overcome any existing contamination.*

5.4.21 In relation to the Water Environment

10. *Development will not be permitted where it would have an adverse effect on the quality or quantity of groundwater resources or watercourses and water bodies. Opportunities for environmental improvement are encouraged, particularly:*

    a) the availability of water to support the development;

    b) the capacity to effectively and sustainably manage foul and surface water;

    c) sustainable drainage systems;

    d) water efficiency;*

    e) access to infrastructure and water environments for the purpose of maintenance and monitoring;

    *f) acknowledging the requirements of the Water Framework Directive. (*The requirement for higher water efficiency standard of 110 l/person/day).*

5.4.22 In relation to Hazardous Installations it states:

12. *Proposals for the development of hazardous installations/pipelines, modifications to existing sites, or development in the vicinity of hazardous installations or pipelines, will be permitted where it has been demonstrated that the amount, type and location of hazardous substances would not pose unacceptable health and/or safety risks.*

5.4.23 Policy ID1 Delivering Infrastructure states:

1. *The Council will require all developments to meet the on and off-site infrastructure requirements needed to support the development and mitigate the impact of the development on the existing community and environment to make it acceptable in planning terms.*

6.0 ASSESSMENT OF THE PROPOSED DEVELOPMENT

6.1 Introduction

6.1.1 This section of the Planning Statement provides an assessment of the Proposed Development, in order to demonstrate how the Proposed Development has been influenced by and is compliant with relevant planning policy. The key topics are considered to be as follows:

6.2 The Principle of Development

Carbon Capture Technology

6.2.1 The principle of the PCCC Plant has planning policy support at all levels. Although not explicitly referenced in NPPF policy, Paragraph 152 establishes the planning system's overarching objective to support the transition to a low carbon future and support for low carbon energy, associated infrastructure. Paragraph 158 states that applicants should not be required to demonstrate the overall need for low carbon energy and recognises that even small-scale low carbon developments play a valuable role in reducing emissions.

6.2.2 Local Planning policy explicitly expresses support for carbon capture technology. NLC Core Strategy Policy CS 18 supports new technology and development for carbon capture, particularly in relation to the heavy industrial users in North Lincolnshire, to help reduce CO_2 emissions. Building on this, the Planning for Renewable Energy Development SPD supplements Policy CS18 identifying the South Humber gateway, where the Proposed Development is located, as being ideally located for carbon capture development.

6.2.3 Achieving sustainable development is the core purpose of the NPPF, this has both an economic, social and environmental objective. This purpose is reflected in NLC Policy CS2 where the achievement of sustainable development requires proposals to contribute to support a competitive business and industrial sector and also account for local environmental capacity and to improve air, water and soil quality and minimise the risk and hazards associated with flooding. This policy intent would be (in part) carried forward in the emerging Local Plan Policy PS1 'Presumption in Favour of Sustainable Development' wherein a positive approach to proposals which improve the economic, social and environmental conditions of the area are considered favourably. As stated previously in this document, and confirmed by the ES, the proposal would allow for favourable socio-economic outcomes in terms of enhanced and continued investment, employment opportunities and has been designed to avoid and minimise adverse impacts on human and environmental health.

Spatial Plan and Strategic Site Allocation

6.2.4 Policy CS2 requires development to achieve sustainable development and comply with the overall spatial strategy alongside the principles of sustainable development. The Site does not have a strategic or site-specific allocation within the Spatial Strategy; however, it does directly adjoin the

South Humber Bank Strategic Employment Site (SHBSES). Further to the Spatial Strategy, Policy CS11 offers general provisions for supporting development elsewhere in North Lincolnshire where it meets local employment needs and maximises other special locations. Emerging Policy SS11 enables development outside of development limits where it requires a countryside location.

6.2.5 The Proposed Development relates to an existing industrial site (the Humber Refinery) and seeks to make the best use of its existing infrastructure and operations to capture CO_2 emissions, thereby being in accordance with the Spatial Strategy and Policy CS11 and SS11. The Proposed Development maximises the opportunities of its proximity to the SHBSES to support its existing industrial and energy sector through the decarbonisation initiatives of 'Humber Zero' and other relevant projects, such as the 'Viking CCS' pipeline.

6.2.6 Further to the above, the location of the Proposed Development would not conflict with the Spatial Strategy as there are no relevant policy allocations for the Site (i.e. it is not classified as rural land, an allocated site for retail and town centre or housing, or for biodiversity purposes).

6.3 Air Quality

6.3.1 Protection of the natural environment is an important part of the NPPF's environmental objective. Paragraph 174 introduces the planning policies for the protection and conservation of the natural and local environment including preventing new development from contributing to unacceptable levels of air pollution. Paragraph 188 encourages planning decisions to be made on whether a proposed development is an acceptable use of land and should assume that pollution control regimes will operate effectively. Within Core Strategy Policy CS2 the achievement of sustainable development includes taking account of local environmental capacity to improve air quality. Saved Policy DS11 will only permit development where it can be demonstrated that the levels of potentially polluting emissions do not pose a danger.

6.3.2 ES Chapter 6 assesses the impact of the development in terms of air quality during construction (construction dust), operation (process emissions) and decommissioning of the Proposed Development.

6.3.3 The Proposed Development and the surrounding area are not within a declared Air Quality Management Area (AQMA), with the nearest being 12.6km east in Grimsby and is designated for the exceedance of annual mean NO2 concentration.

6.3.4 The ES identifies that during construction, the Proposed Development is anticipated to generate short-term airborne dust from construction activities and emissions associated with motor vehicle exhaust. In terms of dust and vehicle emissions, other than industry wide standard best practice measures, no specific additional mitigation is necessary for the construction phase of the Proposed Development. The enforcement of these standards would be secured through a condition requiring approval of a CEMP in line with the Outline CEMP enclosed in ES Appendix AA.

6.3.5 The ES identifies that during operation there would be no significant effects on any human or ecological receptors as a result of emissions from the Proposed Development. As such, no specific additional mitigation is necessary for the operational phase of the Proposed Development

and there would be no significant effects on human health receptors, subject to the following embedded mitigation measures:

6.3.6 Emission Limit Value compliance will be met for the operational plant, in accordance with use of Best Available Techniques ('BAT') under the environmental permitting regime;

6.3.7 design of the stack height to minimise ground level air quality and optimise opportunities for dispersion; and

6.3.8 emissions control practices which would allow amines to be captured from flue gas and returned to the process train for re-use.

6.3.9 No additional mitigation has been identified as necessary for the decommissioning phase of the Proposed Development and decommissioning effects are predicted to be comparable to, or less than, those assessed for construction activities.

6.3.10 It is anticipated that decommissioning impacts would be similar to those experienced during construction, and therefore no significant effects would be realised on any ecological or human receptors.

6.4 Noise and Vibration

6.4.1 Paragraphs 174 and 185 of the NPPF seek to ensure that new development does not contribute to unacceptable levels of noise pollution and land instability, and avoids significant adverse impacts on the health and quality of life. The aims of the NPPF are further upheld in local policy DS11 of the Saved Policies and DM3 of the emerging local plan, the latter of which states that if such affects cannot be mitigated, then development will not be approved.

6.4.2 ES Chapter 7 and Chapter 13 assess the potential noise and vibration impacts of the Proposed Development on residential and other human receptors and ecological receptors during construction, operation and decommissioning, including the cumulative impacts of other committed developments in the future.

6.4.3 The nearest residential receptors identified are approximately 770m from the Proposed Development, and are likely already accustomed to industrial noise sources given the character of development in the locality.

6.4.4 The Proposed Development would aim to meet the 'ABC' construction noise limits defined by British Standard (BS) 5228 and achieve no greater than +5 dB above the background sound level, where practicable, during operation.

6.4.5 The construction working hours could be 24/7 where required for critical work items as per the existing Humber Refinery operating and maintenance working hours.

6.4.6 ES Chapter 7 concludes that the Proposed Development may (without mitigation) have negligible-minor adverse (non-significant) effects during the daytime and negligible to major adverse (significant) effects during the evening, weekend and night-time on residential noise sensitive receptors during construction. Further detailed assessment and CEMP once contractor appointed and appropriate mitigation is employed such that the BS 5228 ABC noise criteria are met. The noise effects from construction traffic would be negligible adverse (non-significant) and no further mitigation measures are considered to be necessary unless the number of proposed construction

vehicle movements changes. The impacts of construction noise are therefore predicted to be not significant.

6.4.7 There are no residential receptors in close proximity to the Proposed Developments which have the potential to be affected by construction vibration in terms of effects on amenity and damage to buildings and structures, and any effects are considered to be minor adverse or less (non-significant). If piling, heavy earthworks and vibration producing activities are to occur, this would be subject to further consideration once construction methods are confirmed and mitigation measures would be put in place. The impacts on existing buildings within the Site would be within the control of the Applicant and effectively managed by the Applicant and their contractor.

6.4.8 The Outline CEMP submitted with this Application includes measures to mitigate noise impacts which are detailed further in ES Chapter 7, and broadly include: abiding to NLC agreed construction noise limits, use of plant which complies with UK Noise emission requirements, hydraulic techniques for breaking, use of lower noise piling, off-site prefabrication of components and appropriate routing of construction traffic, where reasonably practicable; and informing residents ahead of noisy works and ongoing monitoring (to name a few). The mitigation measures would be agreed with NLC and secured by way of condition for a final CEMP prior to commencement of works.

6.4.9 The Proposed Development would be operated in accordance with Environmental Permits as regulated by the Environmental Agency, and operational noise limits would be secured by way of planning condition. ES Chapter 7 concludes that the Proposed Development may have negligible adverse (not-significant) to major adverse (significant) effects during the daytime and night-time on residential noise sensitive receptors during operation. Further to this, the detailed design phase would incorporate measures such as appropriate plant, building cladding, silencers / attenuators (where needed) to minimise noise of a tonal, impulsive or intermittent nature.

6.4.10 The traffic generation associated with the operational phase of the Proposed Developments is predicted to be limited (as explained in the sub-section Traffic and Transport below) and therefore would not result in unacceptable impacts to amenity.

6.4.11 The operational vibration impacts would not be significant given the distances of the Proposed Development to surrounding residential development and sensitive receptors. It is not anticipated that there would be venting of CO_2 or steam lines during normal operation, being limited to emergency situations. Should this occur, it would be controlled by way of Environmental Permit and would not result in significant adverse impacts in terms of noise amenity.

6.4.12 The impacts experienced during decommissioning in terms of noise amenity and vibration would be similar to or less than those during construction and would be secured by way of planning condition for a Decommissioning Environmental Management Plan (DEMP).

6.4.13 Following the implementation of relevant best practice mitigation to reduce noise and vibration, the residual impacts would be minor adverse (not significant) during construction and likely during decommissioning, and minor adverse (not significant) or less during operation.

6.4.14 Cumulative effects are discussed in sub-section Cumulative and Combined Effects and ecological effects are discussed in sub-section Biodiversity and Ecology of Section 6 of this Document.

6.5 Traffic and Transport

6.5.1 The NPPF and Core Strategy Policy CS 25 have an overarching presumption in favour of promoting sustainable transport requiring a development to manage its impact on the transport network. Further to this, NPPF Paragraph 111 states that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe. Saved Policy T2 and T18 requires a development to ensure that satisfactory access can be provided to the site and that traffic management measures are implemented to address traffic generation, safety, amenity and parking demand.

6.5.2 ES Chapter 8 assesses the impact of the Proposed Development in terms of traffic and transport during construction, operation, and decommissioning phases, and Appendix 8A includes the Transport Assessment.

6.5.3 During construction, it is anticipated that the development would generate 336 additional two-way trips of cars, vans and HGVs in the AM and PM peak periods, with the most significant increase in traffic expected on Eastfield Road in those peaks. These figures do not account for mitigation measures included within the submitted Construction Worker Travel Plan (CWTP) and Construction Traffic Management Plan (CTMP).

6.5.4 During the peak month of construction for HGV movements, the increase of traffic on key road links around the Phillips 66 site, namely the A180 (between A15/A1173 junction), A160, A15 and Humber Road were assessed as being negligible (not significant). This is with the exception of Eastfield Road which is expected to experience a minor adverse effect mainly due to the 26.8% increase in HGV movements during the peak month for HGV traffic generation. However given the lack of sensitive receptors and relative short-term nature of the impact in respect of the total construction programme, as well as the ability for Eastfield Road to accommodate HGVs, the effect is considered to be not significant.

6.5.5 Furthermore, it is anticipated that all transport links examined (as stated above) would experience a negligible (not significant) effect on road safety during the construction of the Proposed Development, achieving consistency with NPPF Paragraph 111.

6.5.6 In terms of severance, the surrounding road linkages would experience a negligible (not significant) effect during construction.

6.5.7 Pedestrian and cycling linkages are generally expected to experience minor adverse (not significant) or less effects, with moderate adverse (significant) effects at the following road link: A160 near Killingholme, A160 south of the Site, and Humber Road. However, these areas do not contain pedestrian or cycle facilities and are not considered to be appropriate routes for these modes of transport access to the Proposed Development. In addition, these effects are temporary in nature. As such, the effects are considered not significant.

6.5.8 A mitigation strategy to minimise impacts of the Proposed Development will be delivered through the Construction Environmental Management Plan (CEMP) (see Outline CEMP in Appendix 4A in Volume II of the ES), Construction Traffic Management Plan (CTMP) (Appendix 8B in Volume II of the ES) and Construction Worker Travel Plan (CWTP) (Appendix 8C in Volume II of the ES).

6.5.9 The period assessed for HGV traffic is also the worst-case scenario, during the absolute peak of traffic generation for HGVs. This period is expected to be very short lived so even the minor effects taking place on Rosper Road where HGV numbers are expected to be 200+ HGV movements daily are only expected to last around 6 months.

6.5.10 The residual effects of the additional HGV traffic generated by the Proposed Development following the implementation of associated mitigation at every transport link considered is considered to be not significant during the construction period for the Proposed Development.

6.5.11 The residual effects on road safety, severance impacts and pedestrians/cyclists once mitigation measures are adopted would be not significant for all road links examined.

6.5.12 During the operational phase, it is expected that 10 HGV and 100 vehicular trips associated with maintenance of the proposed development would be generated across both the Site and VPI site. Assuming this would be split equally across each site this could be easily accommodated by the existing highway network around the site. Moreover, maintenance would be expected to occur at regular intervals and be scheduled in advance further reducing the likelihood of disruption to the highway network.

6.5.13 In light of the above, it is therefore considered the proposal would not have an adverse impact on the highway network and would provide safe access/egress meaning it is consistent with national and local policy with regards to traffic and transport.

6.6 Water Environment and Flood Risk

6.6.1 National and local policies adopt a risk-based 'sequential approach' to ensure that development is directed to those areas that have the lowest probability of flooding, taking into account current and future impacts of climate change, and the vulnerability of the type of development, its contribution to creating sustainable communities and achieving sustainable development objectives. National and Local policy requires that new development be accompanied by a Flood Risk Assessment where the Site is more than 1 ha in size in Flood Zone 1 or where it is located in Flood Zone 2 or 3.

6.6.2 Chapter 9 of the ES provides an assessment of the effects of the Proposed Development on flood risk and drainage and has been informed by a Flood Risk Assessment ('FRA') (Appendix 9A). It identifies the water features that could potentially be affected include local land drains (located adjacent to the Site boundaries), NELIDB watercourses (South Killingholme Drain - Watercourse 9 and 9A), the Humber Lower (Humber Estuary) and the Rosper Road Pools.

6.6.3 The Proposed Development is largely located in Flood Zone 1, the zone at least risk of flooding, and the zone to which development should be directed in the first instance. However, there are small patches of Flood Zone 2 and 3 associated with the CO_2 gathering network tie-in and pipeline north of the rail line and south of the existing VPI CHP Plant site.

6.6.4 The Proposed Development is considered to be 'Essential Infrastructure', and in accordance with the NPPF Planning Practice Guidance (PPG) is permitted in Flood Zones 1 and 2 and may be permitted in Flood Zone 3 where it passes the Exception Test, which requires that the development provides wider sustainability benefits to the community to outweigh flood risk, would

not increase flood risk elsewhere and would reduce flood risk overall through new or improved flood defences and improved drainage.

6.6.5 The Proposed Development would utilise the land drainage ditches and South Killingholme Drain adjacent to the Site for surface water drainage and site drainage would use the existing connection via the currently operational ETP at the Humber Refinery to South Killingholme Drain.

Flood Risk

6.6.6 During construction, the temporary construction laydown areas, parking areas, and other areas of hardstanding may result in localised and temporary changes in flood risk however these effects would not be expected beyond the Site boundaries. As such, there would not be any significant adverse impacts to off-site receptors such as local land drains, watercourses and the Humber Estuary. This is subject to mitigation and avoidance measures being employed as detailed in Chapter 9 of the ES.

6.6.7 The detailed CEMP will incorporate measures aimed at preventing an increase in flood risk during the construction works, and as a precaution, flood resilience measures would be incorporated into the final design, such as containment of storage areas, emergency response procedures and implementation of a Surface Water Management Strategy.

6.6.8 The flood resilience measures adopted during the construction phase would remain in-situ over the operational life of the Proposed Development and it is not expected that any watercourses would be affected during the operational phase.

Drainage and Water Quality

6.6.9 An outline CEMP has been submitted with this planning Application and includes mitigation measures for pollution to surface waters and flood risk during construction. All construction works would be completed in accordance with a detailed CEMP which would be secured by way of planning condition and would be in accordance with the outline CEMP and relevant best practice guidance including the Guidance for Pollution Prevention (GPP). Further to the mitigation measures within the detailed CEMP, there would be construction staff awareness and training of potential impacts to water features arising from construction and procedures to follow in the event of accidental pollution, and the implementation of Pollution Prevention Plans for accidental water pollution incidents (secured by planning condition) and appropriate discharge/ disposal of site runoff.

6.6.10 During the operational phase, the Proposed Development would slightly increase the area of impermeable surfaces at the Site. A number of the impact avoidance measures employed during construction would remain and be maintained through the contractor's Environmental Management System (EMS).

6.6.11 A conceptual drainage strategy for the Site has been prepared and is described in detail within the Flood Risk Assessment (Appendix 9A of ES Chapter 9). It includes drainage systems and measures to manage the following discharge / drainage categories:

- non-process drainage streams (e.g. rainwater runoff from non-process areas, sanitary wastewater);

- process drainage streams (including intentional drainage from process vessels, and accidental overflows and spillages);
- closed process drains (including accidental leaks and spillages); and
- firewater.

6.6.12 Potentially hazardous substances would be isolated from other discharge streams through appropriate bunding / kerbing. Potentially contaminated site runoff and material would be discharged and/or disposed in accordance with the relevant licence and/or as agreed in advance with the Environment Agency, NLC and North East Lindsey Internal Drainage Board (NELIDB). Process areas without the risk of contamination would be drained to surface water drains with procedures in place to ensure no contamination is allowed into these drains (e.g. use of temporary bunding or spill kits). The storage, transport, handling and use of minor volumes of potentially polluting substances (such as diesel fuel and chemicals) would be regulated by the Environmental Agency through environmental permitting.

6.6.13 The removal of sulphur oxides from the FCC flue gas by the wet gas scrubber as part of the flue gas pre-treatment process would result in significantly elevated sulphate levels in the effluent from the Proposed Development to South Killingholme Drain (via the existing Humber Refinery effluent treatment plant). This will be mitigated to an acceptable level using a desulphurisation additive.

6.6.14 Foul water generated from the Proposed Development would be segregated from other drainage systems and routed either to the Anglian Water foul water sewer or a new septic tank/cesspit.

6.6.15 Surface water will drain to South Killingholme Drain via the existing Humber Refinery effluent treatment plant and associated discharge.

6.6.16 The drainage measures would all be subject to final detailed design and the Applicant is prepared to accept a planning condition to secure the final drainage details for the Site.

6.6.17 In terms of the decommissioning phase, a detailed Decommissioning Environmental Management Plan (DEMP) would be prepared. It is anticipated that the impact avoidance measures would be similar to those in the construction phase.

Increased Water Demand and Ground Water Resources

6.6.18 The Site requires an additional water supply, which is approximately 10% of the existing usage. This will be sourced from Anglian Water rather than from the groundwater unit, and discussions with Anglian Water are ongoing. A new licence to abstract water is not being considered as it is understood the EA will not grant further consumptive licences due to the balances of the South Humber Bank groundwater unit.

6.6.19 As such, the Proposed Development would not impact the groundwater unit or the base flow to the surface water receptors, and the effects to the surface water receptors are negligible (not significant).

Conclusion

6.6.20 Chapter 9 of the ES concludes that, taking account of the surface water drainage system, sulphate mitigation and flood resilience measures, that all effects during construction, operation and decommissioning are assessed as being ‘negligible’ or ‘minor adverse’ (not significant).

6.6.21 Further to the above, the standard impact avoidance and mitigation measures proposed mean that there would be very limited potential for some residual risk to the water environment associated with the construction, operation and decommissioning of the Proposed Developments.

6.6.22 Further to this, the FRA (ES Appendix 9A) concludes that the Proposed Development would not increase the risk of flooding from fluvial, tidal, groundwater or overland flow sources.

6.7 Landscape and Visual Amenity

6.7.1 Protecting and enhancing valued landscape is an important part of NPPF's environmental objective. Policy 15 (Conserving and enhancing the natural environment) requires that the environment should be enhanced through several measures, including:

- 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; and
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

6.7.2 Relevant local policy from the North Lincolnshire Cores Strategy (adopted June 2011) includes Policy CS5 (Delivering Quality Design) and Saved Policy RD2. Relevant policies from the North Lincolnshire Local Plan Publication Draft Addendum Plan (adopted 2022) include North Lincolnshire Local Plan Publication Draft Addendum Plan Policy DQE1, DQE11, DQE12 and EC4.

6.7.3 Additionally, 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.

6.7.4 ES Chapter 11 undertakes a Landscape and Visual Impact Appraisal to identify the likely significant effects of the proposed development during construction and operation.

6.7.5 The Proposed Development is covered by National Character Area (NCA) Profile: 41 Humber Estuary (Natural England, 2013) 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 II). It is classified as being of 'medium' landscape value and 'medium' landscape sensitivity. 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 Development.

6.7.6 At the local scale, the North Lincolnshire Landscape Character Assessment and Guidelines (Estell Warren, 1999) characterises the Site within the 'Humber Estuary' Local Character Area (LCA) and within the 'industrial landscape' local landscape type (LLT) which has a 'very low' landscape value due to its low landscape condition, low levels of natural and cultural heritage and low levels of recreational opportunities. The LLT is described as a flat landscape which is mainly developed for large scale industry with pockets of reclaimed arable farmland and plantation

woodland with development resulting in relatively chaotic landscape which lacks unit. It is classified as having a 'low' landscape sensitivity rating.

6.7.7 The potential landscape impacts of the Proposed Development primarily relates 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 Development, this will relate to the following:

- movement of plant and heavy goods vehicles, both within the Proposed Development 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.

6.7.8 In the case of the operational phase of the Proposed Development 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.

6.7.9 Despite the potential construction and operational effects stated above, the ES concludes that the Proposed Development would be congruous with its context. It is considered that these effects would be limited to the localised landscape immediately adjacent to the Site and that there is low potential for the surrounding landscape character to be adversely affected.

6.7.10 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. Additionally, 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. No significant effects have been assessed for the Proposed Development during construction or operation.

6.7.11 The impacts on landscape character and visual amenity arising as a result of decommissioning of the Proposed Development 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 Development 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.

6.7.12 The following impact avoidance measures are proposed and have been taken into account in Chapter 11 of the ES:

- 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 Development;
- 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.

6.7.13 Accordingly, the Proposed Development is considered to be consistent with national and local policy with regards to landscape and visual impacts on amenity.

6.8 Cultural Heritage

6.8.1 Conserving and enhancing the historic environment is an important part of the NPPF's environmental objective. Paragraph 194 requires developers to submit an appropriate desk-based assessment, and where necessary, a field evaluation for Sites with, or the potential to include, assets of archaeological interest. Core Strategy Policy CS6, Saved Policy HE5 and emerging Policy HE1 require development to preserve and enhance the rich archaeological heritage of North Lincolnshire and for archaeological assessments to be provided, as appropriate. Emerging Policy HE1 requires development to take every practical and reasonable step to protect and enhance (where possible) archaeological remains; to undertake appropriate and proportionate desk based assessments to understand the potential for significance of remains and any impact on them; and that in-situ preservation of such sites is preferred, however, in instances where this is not justified, adequate provision for excavation and recording is required.

6.8.2 ES Chapter 12 includes a Cultural Heritage Desk-Based Assessment, which in addition to a programme of previous ground investigations and archaeological works in the vicinity of the Site, considers matters of cultural heritage including above-ground built heritage and archaeology in accordance with national and local policy requirements. The previous ground investigations (2000, 2013 & 2016) and archaeological works (various dates between 1989-2009) undertaken included geotechnical and geophysical surveys, trial trench evaluation and paleoenvironmental evaluation.

6.8.3 The Study Area for the collation of information on heritage assets was defined by a 1km buffer from the Site Boundary for all heritage assets and a 5km buffer for designated heritage assets only and has been agreed with the Historic Environment Officer at NLC.

6.8.4 The Site and its environs is heavily industrialised, however, it does sit in an area of several archaeological and cultural heritage assets. Despite this, there are no designated or non-designated heritage assets, Scheduled Monuments, Registered Parks and Gardens or conservation areas on or within the Site. There are a number of (33) listed buildings (Grade I, II and II*) within the Study Area, including 4 which are within 1km, and 16 non-designated buildings within 1km of the Site.

6.8.5 There are no designated archaeological assets on or within 5 km of the Site. The Site contains the Humber Refinery and has been extensively developed previously with most of the Site comprising open storage and temporary uses, with some permanent buildings, existing utilities, internal roadways, railway sidings and the National Rail operated line between Grimsby, Immingham and Ulceby, and car parking.

6.8.6 The ES confirms that the Site does not fall within the setting of any listed buildings, Registered Parks and Gardens, or Scheduled Monuments. As such, the Proposed Development would not adversely impact any built heritage assets during the construction phases. During the operational phase, the ES concludes that any views of the Proposed Development from nearby designated built heritage assets are largely shielded by existing development (e.g. the Lindsey Oil Refinery or other modern buildings) combined with the undulating landscape, mature vegetation screening and/or hedgerows. Where the Proposed Development is partially visible, it would blend into the existing industrial landscape and would not have any effect on the understanding and appreciation of the setting of any built or archaeological assets identified.

6.8.7 In terms of archaeological assets, the ES identifies the possibility that an ancient tributary (paleochannel) of the ancient foreshore (A122) extending into the Site, and Iron Age rectilinear crop mark. It is expected that during the construction phase of the Proposed Development there would be the partial loss of archaeological material from the paleochannel of the ancient foreshore and Iron Age crop mark (if both are present within the Site). However, the ES considers there to be low likelihood of encounter of these assets, as it is likely such assets would have been removed (if present) during the construction of the Humber Refinery.

6.8.8 A programme of archaeological mitigation and investigation (based on the results of the previous evaluation and investigation works) would be adopted to mitigate against and reduce the significance of the effects of the above-stated impacts, as mitigation by ‘avoidance’ and ‘in-situ preservation’ would not be achievable. Following this, any further mitigation that would need to occur would be determined in liaison with the Heritage Environment Officer for North Lincolnshire Council.

6.8.9 Further mitigation measures would include a combination of the following, all of which would be implemented in a manner proportionate to the Proposed Development and, the anticipated archaeological remain/s (where present):

- Intrusive investigation and recording works, the location and extent of which would be informed by previous work options – includes such things as strip, map and record.
- Monitoring – archaeological monitoring of all construction works.
- Topographic survey / historic landscape survey.

- Publication - proportionate publication of all work undertaken.

6.8.10 During the operational phase, the Proposed Development would not result in adverse impacts on any designated and non-designated archaeological assets and remains. It further concludes that the Proposed Development would blend into the existing industrial landscape and would not have any effect on the understanding and appreciation of the setting of any archaeological assets identified.

6.8.11 Accordingly, the Proposed Development is considered to be consistent with national and local policy with regards to the historic environment, and the built heritage and archaeological assets.

6.9 Biodiversity and Ecology

6.9.1 Section 15 of the NPPF includes the requirement for plans to protect and enhance biodiversity by:

- Identifying and safeguarding local wildlife-rich habitats and wider ecological networks including international, national and local sites of importance for biodiversity and corridors that connect them.
- Promoting the restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species.
- Pursuing opportunities for securing measurable net gains for biodiversity.

6.9.2 Core Strategy Policies CS5, CS16 and CS17 relate to the protection of biodiversity resources, the maintenance of wildlife networks and green corridors and ensuring ecological enhancement through good design, respectively. Further to this, Saved Policy LC5, HELA Policy SHBE-1 South Humber Bank and emerging Local Plan Policy DQ3 set out the requirements of development to mitigate impacts on biodiversity and ecology, including to give appropriate consideration to international, national and local protected sites for nature conservation and to undertake an ecological assessment.

6.9.3 Chapter 13 of the ES provides an assessment of the effects of the Proposed Development upon ecology and biodiversity. The assessment of effects was informed by a number of ecological surveys of the Site (ES Appendix 13A).

6.9.4 The Site predominantly comprises operational areas dominated by buildings, the refinery infrastructure and hardstanding.

6.9.5 There is limited disturbed vegetation on the periphery of the Site (bramble scrub and very young self-set saplings) and adjacent to the railway corridor (ballast with sparse, low-lying ruderals) which have Negligible nature conservation value.

6.9.6 There is a tree belt adjacent to the railway line (for VPI also) which provides habitat for invertebrates, nesting birds and bats, and is of Local nature conservation value.

6.9.7 The unmanaged hedgerow on the Eastfield Road boundary which has non-ornamental hedgerows designated as S41 Habitats of County nature conservation value. A short section of this would be lost due to the Proposed Development.

6.9.8 The hedgerow along Eastfield Road and a section of tree belt to the north-east of the railway line are the only habitats which may be suitable for breeding birds, which will remain intact.

6.9.9 Taking account of good practice and the proposed mitigation measures, the potential effects for the construction phase (Table 13.15 of Chapter 13) are assessed as being negligible (non-significant) for the designated sites, habitats and most species, with the significance of the effects predicted to be minor adverse (non-significant) in respect of the loss of a small section of hedgerow on S41 habitat and nesting bird habitat, and pruning and/or removal of scrub on the nesting habitat of some bird species. The proposed mitigation measures include a CEMP, vegetation clearance outside of breeding season, covering excavations overnight, inspecting trees for roost features prior to felling and suitably designed temporary lighting.

6.9.10 The effects for the operational phase (Table 13.15 of Chapter 13) are assessed as being negligible (non-significant) following mitigation to reduce the level of sulphate in the effluent entering South Killingholme Drain from the Proposed Development to ensure the protection of aquatic life.

6.9.11 ES Chapter 13 considers the cumulative effects of the Proposed Development and the proposed VPI CCP during construction and operation, of which most are considered to be negligible (non-significant). This is with the exception of cumulative air quality impacts during operation which are considered to be 'minor adverse' (non-significant).

6.9.12 Cumulative effects of the Proposed Development and planned developments are considered separately in Chapter 18 and are detailed later in this Report.

6.9.13 A Biodiversity Net Gain (BNG) Report and Strategy has been prepared to support the Proposed Development. As there is insufficient opportunity to meet the 10% BNG commitment on land within the Site, an 'off-site' solution is required. Options for off-site solutions are being explored with a range of stakeholders with the assumption that the beneficial outcomes would be delivered within the construction phase. Whilst the precise solutions are still being finalised, there is confidence that the BNG solution will fully mitigate any and all adverse effects identified in the Ecological Impact Assessment (EcIA). This would be delivered through a Biodiversity Enhancement and Management Plan (BEMP) which would be agreed with Council prior to the commencement of work. This Applicant is willing to secure this by a suitably worded planning condition.

6.9.14 With embedded mitigation measures in place and the implementation of measures to achieve 10% BNG, it is anticipated that the residual effects during construction would be 'minor beneficial' (non-significant). With embedded mitigation measures in place it is anticipated that there would be no residual effects anticipated during the operational phase of the Proposed Development.

6.10 Geology, Hydrology and Contaminated Land

6.10.1 The European Union (EU) Directives and United Kingdom (UK) Acts outline the obligation for geology, hydrogeology and land contamination assessment, including risks to human health and the environment from ground conditions, are summarised as follows.

6.10.2 The NPPF references the responsibility of developers and/or landowners for safe development in paragraph 184. Paragraph 185 of the NPPF refers to minimising the effects of pollution and adverse impacts from the proposed development.

6.10.3 Although the Proposed Development and the Humber Zero Project is not an NSIP, National Policy Statement EN-1 still provides useful and relevant guidance.

6.10.4 The relevant policies from the North Lincolnshire Local Plan (2003) include DS1 (Requirements), DS7 (Contaminated Land), DS9 (Development of Land in the Vicinity of Established Hazardous Installations and Pipelines), DS10 (New Hazardous Installations and Pipelines), DS11 (Polluting Activities), DS13 (Groundwater Protection and Land Drainage), DS14 (Foul Sewage and Surface Water Drainage), and DS15 (Water Resources).

6.10.5 ES Chapters 10 assesses the impact of the Proposed Development in terms of geology, hydrology and contamination during construction, operation and decommissioning phases.

6.10.6 Natural England (2019) reports the ALC grade for most of the Site to be Grade Urban. A thin strip of land parallel to the railway line in the eastern part of the Site and across the vegetated land parallel to the railway lines and beneath the existing track (overlapping with the VPI Site) is designated as Grade 3.

6.10.7 The groundwater vulnerability for the Site varies between low and medium. The only areas of the Site that have a low vulnerability are within areas overlain by Tidal Flat Deposits (Clay and Silt), and the remaining are of the site are classified as medium vulnerability.

6.10.8 The south-east corner of Site, mostly within the area of land which overlaps into the adjacent VPI Site, is within Flood Zones 2 and 3. Flood Zone 2 are areas where there is a 1 in 100 to a 1 in 1,000 annual probability of river flooding (0.1% to 1%) or a 1 in 200 to 1 in 1,000 annual sea flooding probability (0.1% to 0.5%). Flood Zone 3 are areas assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

6.10.9 The remainder of the Site is classified as Flood Zone 1, which has a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%). The flood zones do not take into account the presence of flood defences in the area.

6.10.10 During the construction phase, surface water runoff will be controlled using appropriate drainage measures and segregating uncontaminated surface water from any potentially polluted waters, as well as impermeable surfacing to minimise infiltration into the ground where necessary. This will minimise the likelihood for potential contaminants to migrate to controlled waters. If piled foundations are proposed for the Proposed Development, piling risk assessments will be undertaken in accordance with Environment Agency guidance. These will be used to establish the means of mitigating any risks of causing new pollutant linkages and/ or worsening existing ones with respect to risks to controlled waters at the construction stage of the Proposed Development. A ground investigation is also planned to be undertaken at the Site. However, this will not be undertaken at the pre-planning stage.

6.10.11 The ground investigations will be used to determine the suitable founding material which will be required across the Site. Any residual risks relating to soft ground will be addressed during the detailed design stage, taking into account the ground investigation results. The specification

design will be determined using data from proposed ground investigation and chemical analysis of soil samples analysing the BRE Sulphate suite.

6.10.12 There are no offices or occupied buildings proposed on either Site, therefore ground gas mitigation measures have not been considered further.

6.10.13 During operation, there is potential for environmental risks associated with spillages due to road accidents or faulty vehicles. To manage potential impacts on controlled waters during the operational stage of the Proposed Development, suitable drainage systems (including interceptors) will be employed during construction and maintained during operation to prevent infiltration of surface water or potential contaminants into the ground, surface water drainage systems and water bodies during the operational phase.

6.10.14 At the decommissioning phase, mitigation measures similar to those employed for the construction phase of the Proposed Development will be implemented to minimise the risk of any contaminated surface water runoff from the Site to avoid detrimental effect on the receiving watercourse and the underlying aquifers. The surface water runoff will be controlled using appropriate drainage measures and segregating uncontaminated surface water from any process effluent streams, as well as impermeable surfacing to minimise infiltration into the ground.

6.10.15 The potential effect, after mitigation measures are applied, is considered to be minor adverse (not significant) for human health, off-site human health, development infrastructure and controlled waters receptors in the construction phase. The potential effect for agricultural soils at the Site is considered to be moderate adverse (significant).

6.10.16 The potential effect, after mitigation measures are applied, to human health is considered to be negligible (not significant) for the direct contact with contamination and inhalation of dust and/or soil derived vapours pathway during the operational phase. The potential effect, after mitigation measures are applied, to controlled waters is considered to be negligible (not significant) during the operational phase. The assessment for development infrastructure receptors indicates the potential effect is minor adverse (not significant) for migration of ground gas and direct contact pathways. The potential effect (after mitigation measures are applied) to human health associated with migration of ground gas during the operational phase is considered to be minor adverse (not significant).

6.10.17 The potential effects (after mitigation measures are applied) during the decommissioning phase for human health, off-site human health and development infrastructure is considered to be minor adverse (not significant). The potential effects to controlled waters is considered to be negligible (not significant) following the implementation of mitigation measures.

6.10.18 Therefore, the potential impacts associated with the Humber Zero project from a geology, hydrogeology and land contamination perspective are considered to be not significant for the construction, operation and decommissioning phases.

6.10.19 As such, the Proposed Development would accord with national and local policies relating to geology, hydrology and contamination.

6.11 Waste Management and Minerals

6.11.1 Minimising waste and using natural resources prudently are important parts of the NPPF's environmental objective. Policy SHBE-1 of the HELA requires development to implement waste control measures (where practical) and use materials sensitive to the location. Emerging Policy WAS6 encourages efficient resource use and, and sustainable waste management practices embedded throughout the lifecycle of a development from design, construction, and operation.

6.11.2 ES Chapters 4 and 15 identify and/or assess the impact of the Proposed Development in terms of materials and wastes during the construction (construction dust), operation (process emissions) and decommissioning phases.

6.11.3 There are no allocated mineral sites or Mineral Safeguarding Areas (MSAs), nor allocated or safeguarded waste sites within the Site. As such, the Proposed Development would not result in any adverse impacts or conflict with local and national policy in terms of mineral and waste allocations.

6.11.4 The materials used and wastes generated during construction are not anticipated to generate significant effects on any receptors, with the weight of each construction material to be used being below national baseline consumption levels (i.e. no individual construction material is equal to or greater than 1% by weight of baseline consumption). This includes construction site operations waste streams from workers facilities. In accordance with the principles of emerging Policy WAS6, it is not anticipated that demolition or excavation will require a large quantity of construction material use, with any demolition waste likely to have a high potential recovery rate. Excavation waste and materials (fill) are anticipated to be balanced for the Proposed Development with no offsite management of material.

6.11.5 The ES Chapter 15 details the expected operational wastes streams associated with the Proposed Development, their source, classification, and estimated quantity. The operation wastes generated would mainly arise from the Proposed PCC Plant, and to a lesser extent from site offices. The operational wastes from the Proposed PCC would include solid wastes that may be hazardous, some of which would be suitable for landfill disposal, high temperature incineration, or managed by hazardous liquid waste facilities, as appropriate and detailed in the ES.

6.11.6 The ES concludes that the anticipated materials used for, and wastes generated by the Proposed Development would not result in significant effects ('slight adverse' [not significant]) on any receptors, and as such there are no mitigation and enhancement measures proposed, nor any residual effects.

6.11.7 Notwithstanding, an Outline Construction Environmental Management Plan (CEMP) has been submitted with this planning application and a detailed CEMP would be secured by way of planning condition to minimise potential impacts on the environment and include best practice mitigation during the construction of the Proposed Development.

6.11.8 A Site Waste Management Plan (SWMP) will be developed as part of the CEMP to control and manage all wastes arising from the construction activities to minimise, as far as reasonably practicable, impacts on the environment. The SWMP will specify the waste streams to be estimated and monitored and will set goals with regards to the waste produced.

6.11.9 As such, the Proposed Development would accord with national and local policies relating to waste management and mineral use.

6.12 Climate Change and Carbon

6.12.1 The Proposed Development is strongly supported by policies CS1, CS2, CS5 and CS18 of the Core Strategy (2011) which aim to contribute Councils own climate goals as well the UK Government's commitment to meeting the legally binding target of 'net zero' carbon emissions by 2050.

6.12.2 The revised National Planning Policy Framework (NPPF) sets out the Government's planning policies for England. Policies of relevance to climate change include those meeting the challenge of moving to a low carbon economy, climate change, flooding and coastal change. The NPPF states that the planning system should support this transition by supporting low carbon energy and associated infrastructure.

6.12.3 The National Planning Practice Guidance (NPPG) for Climate Change advises on how to identify and implement suitable mitigation and adaptation measures in the planning process. The guidance states that *"effective spatial planning is an important part of a successful response to climate change as it can influence the emission of greenhouse gases… Planning can also help increase resilience to climate change impact through the location, mix and design of development"* (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (DLUHC), 2014).

6.12.4 It is noted that the Proposed Development is not an NSIP, however, Draft Overarching National Policy Statement for Energy (EN-1) and (EN-2) are of relevance and support the decarbonisation of current infrastructure.

6.12.5 The Proposed Development is also strongly supported by a variety of UK Climate Change Government Strategy and Policy including *'Net Zero Strategy: Build Back Greener', 'Net Zero - Opportunities for the Power Sector' and the 'Clean Growth Strategy.'* Additional UK Climate Policy and their support for the Proposed Development are discussed in Section 4.0.

6.12.6 Chapter 14 of the ES assess the potential effects of the construction and operation (including maintenance) of the Proposed Development at the Humber Refinery FCC in terms of climate change and sustainability. The Proposed Development will be designed to be capable of capturing 95% of carbon emissions during steady state operation. It is intended that the CO_2 will be exported at high pressure via an interface to a CO_2 transportation network adjacent to the Site.

6.12.7 Chapter 14 of the ES undertakes a Greenhouse Gas (GHG) assessment for the Proposed Development that estimates the amount of carbon emissions produced during construction and operation and uses this to understand to what extent the Proposed Development will contribute towards the UK achieving a science-based 1.5 C aligned transition towards net zero. This is calculated in line with the GHG Protocol.

6.12.8 The assessment concludes that the Proposed Development achieves emission mitigation that are fully in line to achieve UK's trajectory towards net zero and can be assessed as having a beneficial effect that is significant in terms of GHG emissions.

6.12.9 The anticipated that the resultant construction emissions for the Proposed Development during the construction period would be 7,184,312 tCO2e (comprising 25,951 tCO2e from construction emissions and 7,158,361 tCO2e produced while the refinery continues to operate during construction). Embodied carbon in construction materials accounts for the highest proportion of overall GHG construction emissions with 79%, followed by on-site construction activities representing 15% and transportation of construction materials representing 5%.

6.12.10 Aspects of construction GHG emissions will be managed through the Construction Environmental Management Plans (CEMPs) and related plans including the Site Waste Management Plans (SWMPs). An Outline CEMP is provided in Appendix 4A (Volume II of this ES) and a detailed CEMP would be secured by planning condition and developed by the appointed contractors at a later stage to measure, monitor and report energy and water consumption and GHG emissions during construction of each Proposed Development.

6.12.11 When fully installed and operational, the Proposed Phillips 66 Development would capture 95% of the flue gases directly emitted from the FCC stack at the Phillips 66 Humber Refinery. When factoring in other emission sources identified at the Proposed Phillips 66 Development such as electricity, steam, waste, maintenance etc, the direct carbon capture rate, relative to baseline conditions, reduces to 90%. The overall carbon capture rate is further reduced to 31% when upstream and downstream emissions from the wider value chain are taken into account. These are emissions associated with the extraction, refining and transportation of the refinery feedstock and products, over which Phillips 66 have less control[1].

6.12.12 As such, the Proposed Development would accord with national and local policies.

6.13 Major Accidents and Disasters

6.13.1 Both national and local policy states that planning permission will only be granted for potentially hazardous installations and operations where it can be demonstrated that it would not impose significant restrictions and risk to surrounding land uses. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security. Further to this, the focus of national and local planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions, and planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.

6.13.2 Chapter 16 of the ES provides a summary of the assessment of the major accidents and disasters (defined in Chapter 16) that have the potential to arise during construction, operation and decommissioning of the Proposed Development, and any required mitigation. It acknowledges that these hazards and threats would be covered by regulatory regimes such as the Control of Major Accidents and Hazards (COMAH) Regulations and Environmental Permitting Regulations.

[1] This does not include emissions from the combustion refinery products by end users.

The major accidents and disasters considered include: fire and explosion, risk of harmful gas release, extreme weather events (such as extreme flooding), spillage or leakage of chemicals or hazardous substances into ground water and/or surface water, vandalism or terrorism, ground excavation or collapse, rail and major road traffic accidents, aircraft/drone impact, pandemic, domino effects from on-site facilities and/or neighbouring facilities, and utility strikes/failures.

6.13.3 The design of the Proposed Development would include a range of mitigation measures to address major accidents and disasters, including:

- incorporation of 'safety in design principles' following the hierarchy of 'eliminate', 'control' and 'protect' (e.g. personal protective equipment);
- implementation of Health and Safety Plans and appointment of competent contractors under the CDM Regulations;
- Major Accident Prevention Plans to inform the COMAH Licence for operational facilities (if required);
- siting and design of high-pressure CO_2 equipment, including with regard to areas of potential exposure and prevailing wind directions;
- design of security measures to prevent trespassers;
- surface water management systems to attenuate up to and including a 1 in 100 year storm event with an allowance for climate change; and
- acquiring the appropriate permissions for operation, including COMAH Licence (if required) and Environmental Permits, and operating in accordance with these.

6.13.4 During the construction phase, a range of mitigation measures would be employed including:

- the appointment of suitably experienced contractors;
- preparation and implementation of risk assessments, working method statements, operating procedures, and personnel training to reduce occurrence;
- preparation and implementation of a detailed CEMP in accordance with relevant legislation and environmental permits. This would include measures aimed at reducing flood risk during construction such as containment of storage areas to minimise pollution and damage to infrastructure, emergency response procedures and Flood Risk Management Plans, implementation of Surface Water Management Strategy;
- preparation and implementation of a CTMP to reduce occurrence of road-related accidents; and
- any additional site security and lighting requirements needed beyond the existing 24/7 security systems in place at the Humber Refinery.

6.13.5 During the operational phase, a range of mitigation measures for the Proposed Development would be employed including:

- update of the COMAH report for the existing Upper Tier refinery installation for any impacts or modifications to the current COMAH scenarios, as well as consideration of a new substances or scenarios, as needed;
- design and operational controls to manage risks associated with hazardous substances, including on-site storage of liquid chemicals in bunded controlled areas with appropriate storage capacity and segregation of incompatible materials;

6.13.6 Design and impact avoidance measures implemented during the decommissioning phase would be the same as those for the construction phase.

6.13.7 The ES concludes that the embedded mitigation measures identified (as detailed above) incorporate the appropriate standards, proven design methods and control measures necessary to control the identified risks as 'tolerable if as reasonably low as possible', and therefore all potential major accidents and disasters identified during construction, operation and decommissioning are classified as being 'not significant' and have no potential significant residual effects.

6.14 Socio-economics and Human Health

6.14.1 The presumption in favour of sustainable development, including economic outcomes, is an important part of national and local policy. Development that contributes to a competitive business and industrial sector and sustainable local communities is encouraged in Policies CS2 of the Core Strategy and PS1 of the HELA Development Plan.

6.14.2 Chapter 17 of the ES identifies and assesses the socio-economic impacts during the construction, operation and decommissioning phases of the Proposed Development.

6.14.3 The Proposed Development would contribute net gain of full-time employment (FTE) during construction (short term) and operation (long term). These jobs include direct, indirect and induced employment as a result of the Proposed Development and would benefit people from mostly within the local catchment, particularly in long-term operational employment.

6.14.4 This includes an average of 296 construction jobs over the 3.5 year construction period, with a peak number of construction staff of 790 during the construction period. There are likely to be similar outcomes for the decommissioning phase as with the construction phase. These effects are considered to be beneficial (significant) in the short term.

6.14.5 In the operational phase, it is anticipated that there would be a gross direct employment of 15 FTE jobs and a total net employment of 14 FTE jobs. It is expected that 13 of the FTE jobs would be from within the local catchment. These effects are considered to be beneficial (not significant) in the long term.

6.14.6 The effects on Human Health during construction, operation and decommissioning is covered in Chapters 6, 7, 8 and 17 of the ES, and has been addressed in the previous sections covering amenity in this Statement, including 'Air Quality', 'Noise and Vibration' and 'Traffic and Transport'. Overall, the ES concludes that the embedded mitigation measures will ensure the impacts on the health and wellbeing of the local population, construction workers and operational staff are not significant.

6.14.7 The ES concludes that the Proposed Development would have a moderate beneficial (significant) effect on the local economy. The Proposed Development is therefore considered to be consistent with national and local policy regarding sustainable economic development and enhancing the local economy and employment of the Humber area.

6.15 Cumulative and Combined Effects

6.15.1 The requirement for cumulative and combined effects assessments is stated in the EIA Regulations, at Schedule 4 Part 5 of the EIA Regulations which requires: "A description of the likely significant effects of the development on the environment resulting from, inter alia […] (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources".

6.15.2 ES Chapter 18 considers the residual cumulative and combined effects of the Proposed Development during construction, operation and decommissioning, taking into consideration the mitigation measures set out in the ES Chapters 6 to 17.

6.15.3 The cumulative effects considered the potential for cumulative effects with other plans and projects within the surrounding area.

6.15.4

6.15.5 The combined effects are the effects of more than one type of impact from the Proposed Development on a single receptor.

Cumulative Effects

6.15.6 The only significant cumulative effects identified relate to socio-economics effects which would have a 'moderate beneficial (significant)' impacts due to construction employment generation from various developments.

Combined Effects

6.15.7 No combined effects were identified that would be any greater than the individual effects assessed in each technical assessment.

6.16 Summary

6.16.1 As with all development proposals, it is necessary to assess the Proposed Development in terms of its conformity and compliance with relevant planning policy and weigh its benefits and any significant adverse environmental effects against each other (the 'planning balance').

6.16.2 Section 6 of this Planning Statement has assessed the Proposed Development's conformity with the relevant local and national planning policy. The Applicant's assessment has not identified any conflicts with the statutory (local) development plan or the NPPF.

6.16.3 This section of the Planning Statement demonstrates that there would be no significant adverse residual effects that would arise from the Proposed Development, subject to employing the recommended mitigation measures. It concludes that any significant effects arising from the development would be beneficial in terms of climate change abatement and reduction of greenhouse gas emissions, and short-term employment generated during construction and

decommissioning, including the cumulative employment generated from the Proposed Development in conjunction with surrounding planned developments during construction.

6.16.4 As such, the adverse effects are outweighed by the very substantial benefits of the Proposed Development. In the absence of material considerations to the contrary, planning permission should therefore be granted without delay.

7.0 CONCLUSIONS

7.1.1 The following conclusions can be drawn from this Planning Statement:

- In order to achieve net zero greenhouse gases by 2050, the UK's existing industry sector needs to be decarbonised. Energy intensive industries account for more than 20% of the economy and 1 in 10 jobs in the Humber.
- The Proposed Development forms part of the Humber Zero large-scale decarbonisation programme, being advanced in collaboration with the Applicant and Phillips 66 Limited, that aims to remove up to 8 million tonnes (MT) of atmospheric CO_2 emissions per annum from the Immingham industrial cluster by 2030 through the deployment of a number of technologies such as Carbon Capture, Utilisation and Storage (CCUS).
- By removing 95% of CO_2 emissions from one of the large industrial processes in the Humber cluster – the Humber Refinery's FCC – the Proposed Development will have a significant contribution in reducing the overall emissions from the Industrial Humber Cluster. The construction of the Proposed Development could (subject to the necessary consents being granted and government policy/ funding support being in place to enable an investment decision being made) potentially start in Quarter 1 of 2024.
- The Proposed Development will make a significant contribution toward the Humber area economy through the generation of a large number of construction jobs.
- The layout and design of the Proposed Development has necessarily been dictated by the processes involved and technical and safety considerations, however, it makes effective use of the Site and is considered appropriate given the industrialised context, characterised by energy intensive industry, within which it will sit.
- The Proposed Development involves land that is identified for employment and industrial development within a regionally important economic area. The Site is not subject to any nature conservation, heritage or other designations, and is located in an area of low risk of flooding. Whilst the Proposed Development is subject to landscape designations, it is considered that it would be congruous with its context and any effects would be limited to the localised with low potential to adversely affect the surrounding landscape character. Whilst it is located near the Humber Estuary (SSSI, SPA, SAC and Ramsar site), the ES concludes that with the implementation of standard mitigation measures there would be no significant adverse residual risks in terms of biodiversity and ecology and flood risk and drainage. Further to this, the Proposed Development will create habitat to achieve biodiversity net gain resulting in a significant beneficial effect for Open Mosaic Habitat, grassland / scrub habitat and small heath butterfly.
- The Site is therefore considered to represent an appropriate location for the Proposed Development.

- EIA undertaken for the Proposed Development, the findings of which are reported in the ES, has not identified any significant adverse environmental effects following the implementation of appropriate mitigation. The ES concludes that the Proposed Development would have very clear and substantial benefits, including significant beneficial effects for the capture of GHG emissions during operation and employment generated during the construction and decommissioning phases.

7.1.2 Section 70(2) of the TCPA states that in dealing with an application for planning permission, the LPA shall have regard to the provisions of the development plan, as far as it is material to the application, and any "other material considerations". The NPPF is a material consideration in the determination of applications for planning permission.

7.1.3 The assessment of the Proposed Development against relevant local and national planning policy has taken account of the findings of the EIA undertaken. The assessment has not identified any conflict with local development plan policy and it is considered that the Proposed Development also complies with the relevant policies of the NPPF.

7.1.4 The NPPF contains a presumption in favour of sustainable development and paragraph 11 of the NPPF states that LPAs should approve proposals for such development where they accord with an up-to-date development plan. The Proposed Development clearly represents sustainable development and has there is no conflict with the policies of the local development plan planning permission should therefore be granted without delay.