

f

The Lighthouse Green Fuels Order

Application Reference: EN0110025

Applicant: LGF Projects Limited

Environmental Statement Volume IV Non-Technical Summary

Document Reference: 6.4

Revision: 00

APFP Reg. 5(2)(a) and EIA Reg. 14

Document Information

Author	Arup
Document Title	Environmental Statement Non-Technical Summary
Document Ref	6.4

Revision record

00	Purpose	DCO Application Submission
	Date	September 2026

Reason for issue record

Information Classification	Date	Reason for Issue
Public	September 2026	Proprietary information which will have no impact on the company if disclosed publicly

Contents

Abbreviations	1
1 Introduction	2
1.1 Overview	2
1.2 The Applicant.....	4
2 Assessment methodology.....	5
2.1 Environmental Impact Assessment methodology.....	5
2.2 EIA Scoping.....	5
2.3 Environmental Statement	6
3 Description of the existing environment.....	8
3.1 Overview	8
3.2 Existing environment	8
4 The Proposed Development.....	11
4.1 Components of the Proposed Development	11
4.2 Design parameters	13
4.3 Proposed Development construction	13
4.4 Proposed Development operation.....	15
4.5 Proposed Development decommissioning	16
4.6 Consideration of alternatives	16
4.7 Biodiversity enhancement.....	18
5 Summary of environmental effects	19
5.2 Air quality.....	19
5.3 Noise and vibration.....	20
5.4 Terrestrial ecology	21
5.5 Freshwater and marine ecology.....	22
5.6 Water environment	23
5.7 Landscape and visual amenity.....	26
5.8 Greenhouse gas emissions	30
5.9 Climate change resilience.....	31
5.10 Materials and waste.....	32
5.11 Socioeconomics	33
5.12 Traffic and transport.....	34

5.13	Major accidents and disasters	34
5.14	Marine navigation	35
5.15	Geology and soils	36
5.16	Cumulative and combined effects	37
6	Summary and conclusions	39
	References	41

Tables

Table 2.1	ES format	7
-----------	-----------------	---

Figures

Inset 1.1	Proposed Development boundary	2
Inset 1.2	Parts of the Wider Site	3
Inset 3.1	Designated conservation sites	9
Inset 4.1	Indicative Proposed Development layout	12
Inset 4.2	Outline Construction Programme	14
Inset 5.1	Environment Agency Flood Zones 2 and 3	26
Inset 5.2	Representative viewpoint from Saltholme RSBP (1.5km from the Site and north east direction of view) showing the current view (top image) and the view of the Proposed Development based on the indicative design (bottom image).....	29

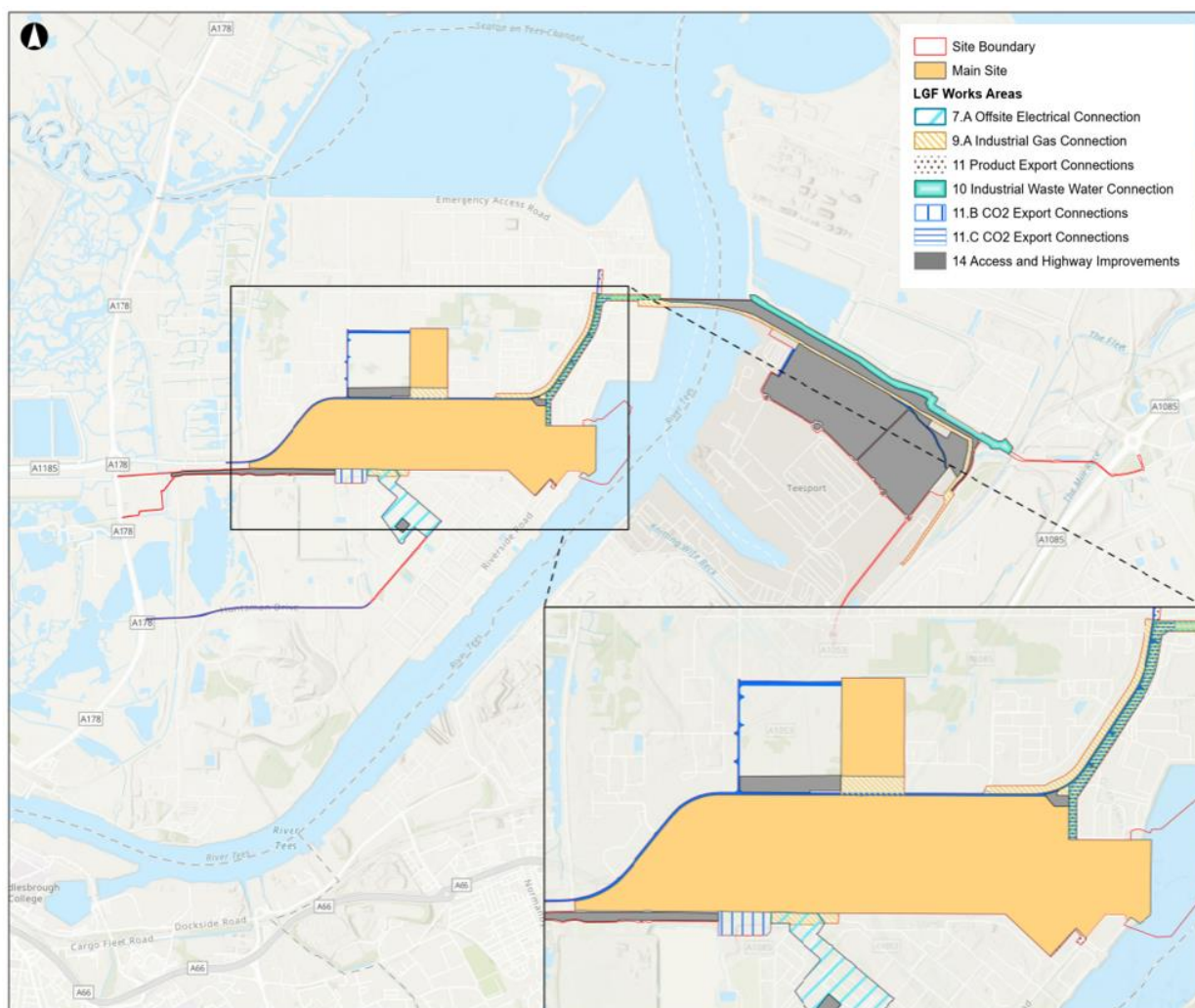
Abbreviations

Abbreviation	In Full / Term
ASU	Air Separation Unit
CHP	Combined Heat and Power
DCO	Development Consent Order
ES	Environmental Statement
fCEMP	Framework Construction Environment Management Plan
km	kilometre
LGF	Lighthouse Green Fuels
MW	Megawatts
MWe	Megawatts electrical
PINS	Planning Inspectorate
RCBC	Redcar and Cleveland Borough Council
SAF	Sustainable Aviation Fuel
STBC	Stockton-on-Tees Borough Council

A full abbreviations and definitions list for the DCO is provided in the **Project Glossary (Application Document Ref. 6.1.24)**

1.1.3 This DCO application replaces a previous proposed DCO application by a company connected to the Applicant for another site in Teesside (Planning Inspectorate Reference EN010150), which has been discontinued.

1.1.4 Key components of the Proposed Development include a SAF production facility, feedstock reception, handling and storage areas, and a biomass and waste wood fired Combined Heat and Power (CHP) plant to provide electricity and steam to the SAF production process. The Proposed Development would also include cooling and drainage infrastructure, a new quay and associated marine works, utility connections for electricity, natural gas and industrial gases, wastewater infrastructure, and pipelines for the export of SAF product, renewable naphtha and carbon dioxide (CO₂) (see Inset 1.2).



Inset 1.2 Parts of the Wider Site

1.1.5 This NTS is intended to act as a self-contained document that provides an overview of the Proposed Development and summarises the findings of the ES prepared under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) [Ref 1], which minimises technical language. Where the use of technical language is unavoidable due to the nature of the project, technical terminology has been defined in the **Project Glossary (Application Document Ref. 6.1.24)**.

1.2 The Applicant

1.2.1 LGF Projects Limited is wholly owned by Alfanar Energy Limited (Alfanar). Alfanar is part of a global project development, manufacturing, and engineering group headquartered in Saudi Arabia. Alfanar has developed significant in-house feedstock-to-SAF expertise. This experience will be utilised to construct and operate the Proposed Development.

2 Assessment methodology

2.1 Environmental Impact Assessment methodology

- 2.1.1 The Environmental Impact Assessment (EIA) process is intended to enable consenting decisions to be made with knowledge of the likely significant effects of a future development. The EIA is presented in **ES Volumes I – III (Application Document Ref. 6.1 – 6.3)** and summarised in this NTS.
- 2.1.2 An EIA is undertaken to help anticipate changes (or ‘impacts’) that may occur to the surrounding environment as a result of the construction, operation and maintenance of the Proposed Development (and, where possible and relevant, decommissioning).
- 2.1.3 The EIA process identifies potentially sensitive ‘receptors’ that may be affected by these changes (e.g. people living near the development, local flora and fauna) and assesses the extent to which these receptors are likely to experience a ‘significant effect’.
- 2.1.4 Through assessment of the scale or magnitude of the impacts and the sensitivity and importance of the receptors, the EIA process concludes whether the resulting effects are ‘significant’ or ‘not significant’. Where possible, standard methods and industry guidance are used to ensure consistency.
- 2.1.5 Where ‘significant’ adverse effects are identified, mitigation measures are proposed to reduce or avoid them. These measures are secured through planning conditions (called requirements) or other legal measures.

2.2 EIA Scoping

- 2.2.1 The EIA Scoping process is designed to identify relevant topics that should be included in the EIA and reported in the ES. An EIA Scoping Report and request for an EIA Scoping Opinion, under Regulation 10 of the EIA Regulations, was submitted to the Planning Inspectorate and relevant consultees on 1 October 2025 to allow them to comment on the extent of and approach to the environmental assessments to be undertaken.
- 2.2.2 A Scoping Opinion was received from the Planning Inspectorate on 11 November 2025.
- 2.2.3 The EIA includes assessments of the following environmental topics (**ES Volume I, Application Document Ref. 6.1**):
- **Chapter 8: Air Quality;**
 - **Chapter 9: Noise and Vibration;**
 - **Chapter 10: Terrestrial Ecology;**

- **Chapter 11: Freshwater and Marine Ecology;**
- **Chapter 12: Water Environment;**
- **Chapter 13: Landscape and Visual Amenity;**
- **Chapter 14: Greenhouse Gas Emissions;**
- **Chapter 15: Climate Change Resilience;**
- **Chapter 16: Materials and Waste;**
- **Chapter 17: Socioeconomics;**
- **Chapter 18: Traffic and Transport;**
- **Chapter 19: Major Accidents and Disasters;**
- **Chapter 20: Marine Navigation;**
- **Chapter 21: Geology and Soils; and**
- **Chapter 22: Cumulative and Combined Effects.**

2.2.4 Following the publication of the Scoping Opinion, the environmental information has been reported in two stages:

- a Preliminary Environmental Information Report (PEIR) was prepared to inform statutory (formal) consultation with the public and other stakeholders about the Proposed Development, based on the preliminary environmental information available at the time of consultation, in line with the legislation prevailing at the time; and
- an ES was then prepared to accompany the DCO application. The ES summarises the EIA of the Proposed Development, taking account of any design evolution that has taken place, as well as feedback received during the statutory consultation.

2.2.5 Regulation 14(2) of the EIA Regulations describes the requirements of an ES, which includes a description of the Proposed Development, its likely environmental effects, measures to avoid, prevent, reduce and offset likely significant adverse effects, a description of alternatives and reasons for the options chosen, and an NTS.

2.3 [Environmental Statement](#)

2.3.1 The format of the ES is outlined in Table 2.1.

Table 2.1 ES format

ES Volume	Content
Volume 1 – Main Chapters	Chapters 1 - 2 present an introduction to the project and EIA assessment methodology. Chapters 3 - 6 present a description of the Site and surrounding areas; components of the Proposed Development, their construction and decommissioning, shift, design evolution and alternatives. Chapter 7 presents a summary of relevant legislation and planning policy. Chapters 8 – 21 present the findings of the environmental assessments for each environmental topic, likely significant effects identified, and mitigation, monitoring and enhancement measures proposed. Chapter 22 provides an assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Development with other proposed developments. Chapter 23 provides a summary of the likely significant environmental effects identified.
Volume 2 - Appendices	Presents additional technical information to support the chapters in Volume I, including the following framework management plans: • Appendix 5A: Framework Construction Environmental Management Plan; • Appendix 5B: Framework Site Waste Management Plan; and • Appendix 18D: Framework Construction Traffic Management Plan.
Volume 3 – Figures	Presents figures that accompany the chapters in Volume I.
Volume 4 – Non-Technical Summary	A stand-alone summary of the ES in non-technical language (this document).

3 Description of the existing environment

3.1 Overview

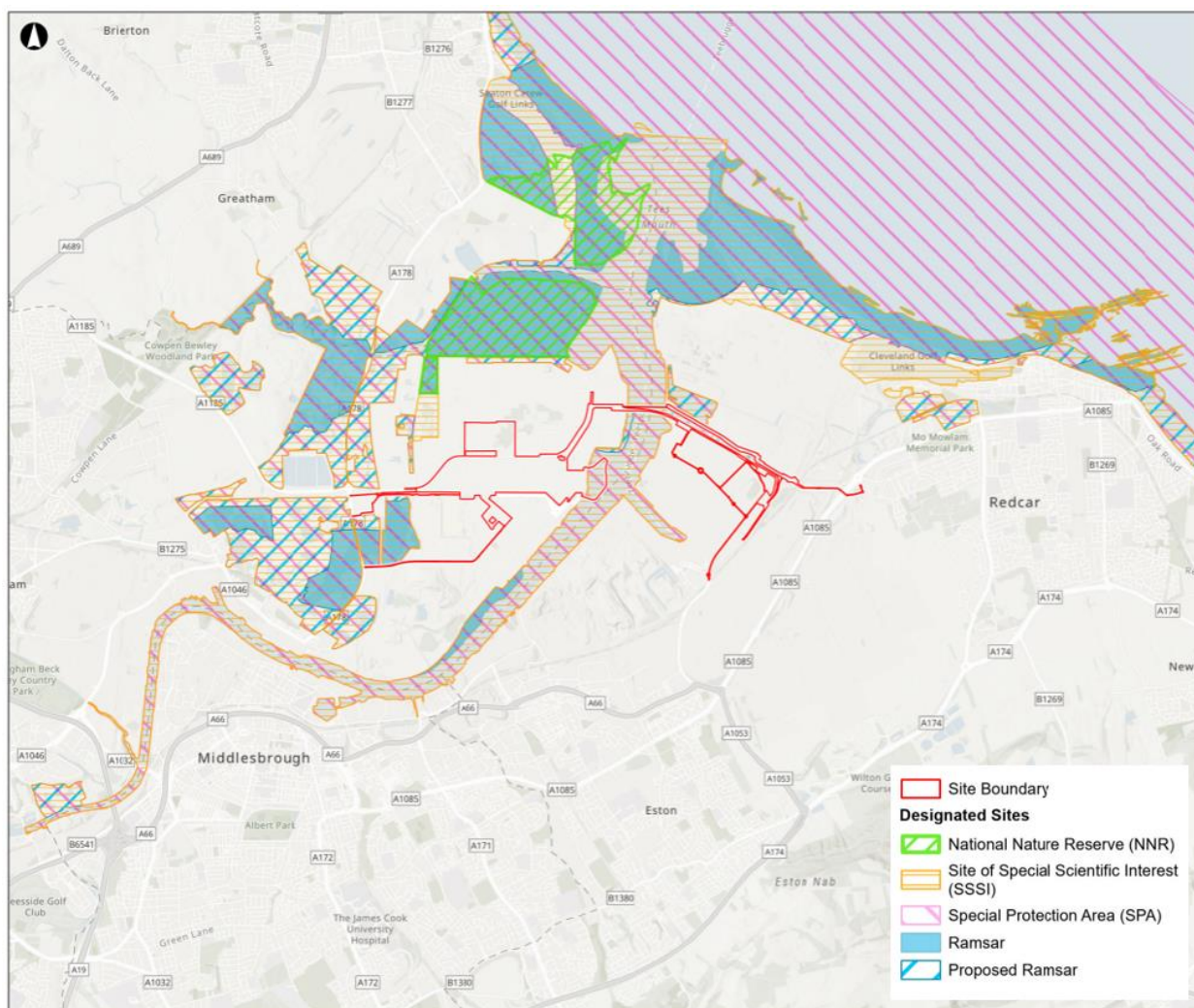
3.1.1 The Site is split into two connected areas – the Main Site (where the main development is being constructed and operated) and the Wider Site (used to facilitate connections required for the operation of the development). The Main Site is located within the Seal Sands industrial area of Teesside and includes part of the River Tees (where the new quay will be constructed). The Wider Site (connections and access corridors) extends across land on the north and south banks of the River Tees in the boroughs of Stockton-on-Tees and Redcar and Cleveland (Inset 1.2). The Main Site is approximately 104.6 hectares (ha) in area and the total Site area including the connections and access corridors is 190.8ha in area.

3.1.2 The Main Site was historically reclaimed from the river to form level land suitable for development. The portion south of Seal Sands Road was previously occupied by a chemical manufacturing facility (INEOS), which ceased operations in 2020 and has since been decommissioned and the site cleared. Today, the parcel consists largely of concrete hardstanding, areas of grassland and scrub, two disused river jetties, and an historic landfill area. The parcel north of Seal Sands Road has not previously been developed. The surrounding area is heavily industrialised, with chemical manufacturing, fuel storage, energy, port and waste management facilities located nearby.

3.2 Existing environment

Local environment and ecology

3.2.1 The Tees Estuary is subject to several nationally and internationally important nature conservation designations, particularly within its outer estuary and coastal areas where extensive intertidal habitats support internationally important bird populations. The Site lies within and adjacent to a number of these designated areas, including the Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI). These designations encompass intertidal habitats, saltmarsh, lagoons, coastal waters, and internationally important bird populations. The Site is also located near to the Royal Society for the Protection of Birds (RSPB) Saltholme Nature Reserve, Bran Sands Lagoon and Teesmouth National Nature Reserve (NNR) (Inset 3.1).



Inset 3.1 Designated conservation sites

3.2.2 Habitats within and around the Main Site provide opportunities for a range of protected and notable species. Habitats within the Main Site are primarily suitable for breeding and wintering birds, while habitats in the surrounding area may support other protected and notable species such as bats, reptiles, amphibians, otter, water vole and terrestrial invertebrates. Several Local Wildlife Sites (LWS) are also present within the wider area.

Nearby communities and infrastructure

3.2.3 The Site lies within the administrative boundaries of STBC (on the north bank of the Tees, where the Main Site is located), Billingham South Ward (on the north of the Tees) and RCBC (on the south of the Tees). The nearest settlements include Port Clarence, Cowpen Bewley, Middlesbrough, Redcar, Seaton Carew and Hartlepool. The closest settlement (Port Clarence) lies approximately 2.6km from the Main Site. Recreational and visitor destinations nearby include the RSPB Saltholme

Reserve, Teesmouth NNR, Copwen Bewley Woodland Country Park and the Grade II listed Haverton Hill and Port Clarence War Memorial.

- 3.2.4 The surrounding area contains extensive industrial infrastructure, including chemical processing facilities, fuel storage terminals, wastewater treatment works, pipeline networks, electrical infrastructure and Teesport, one of the UK's largest ports. Large-scale energy and low-carbon developments are also planned or under construction within the wider Teesside area.

Water and flood risk

- 3.2.5 The River Tees forms the eastern boundary of the Main Site and is a tidal estuary. Other nearby water features include Bran Sands Lagoon, Dabholm Gut, Greatham Creek and a network of ponds, reservoirs and drainage channels. These water bodies contribute to the ecological importance of the area and support designated habitats and species.
- 3.2.6 Most of the Main Site lies within Flood Zone 1, indicating a low risk of flooding. Limited areas of the Wider Site, including parts of utility corridors and access routes, are within Flood Zones 2 and 3 (areas with higher flood risk). Existing flood defences are present along parts of the River Tees.

Geology and soil

- 3.2.7 The Main Site is on land reclaimed from the Tees Estuary and comprises made ground associated with past industrial activity, land reclamation works and a former landfill.
- 3.2.8 The Wider Site is largely underlain by made ground associated with historic land reclamation, transport infrastructure, industrial development and waste disposal. Beneath these are estuarine and glacial deposits over Mercia Mudstone bedrock.
- 3.2.9 Groundwater is generally encountered at shallow depth and there are no groundwater abstraction licences or source protection zones within the immediate vicinity of the Main Site or Wider Site.

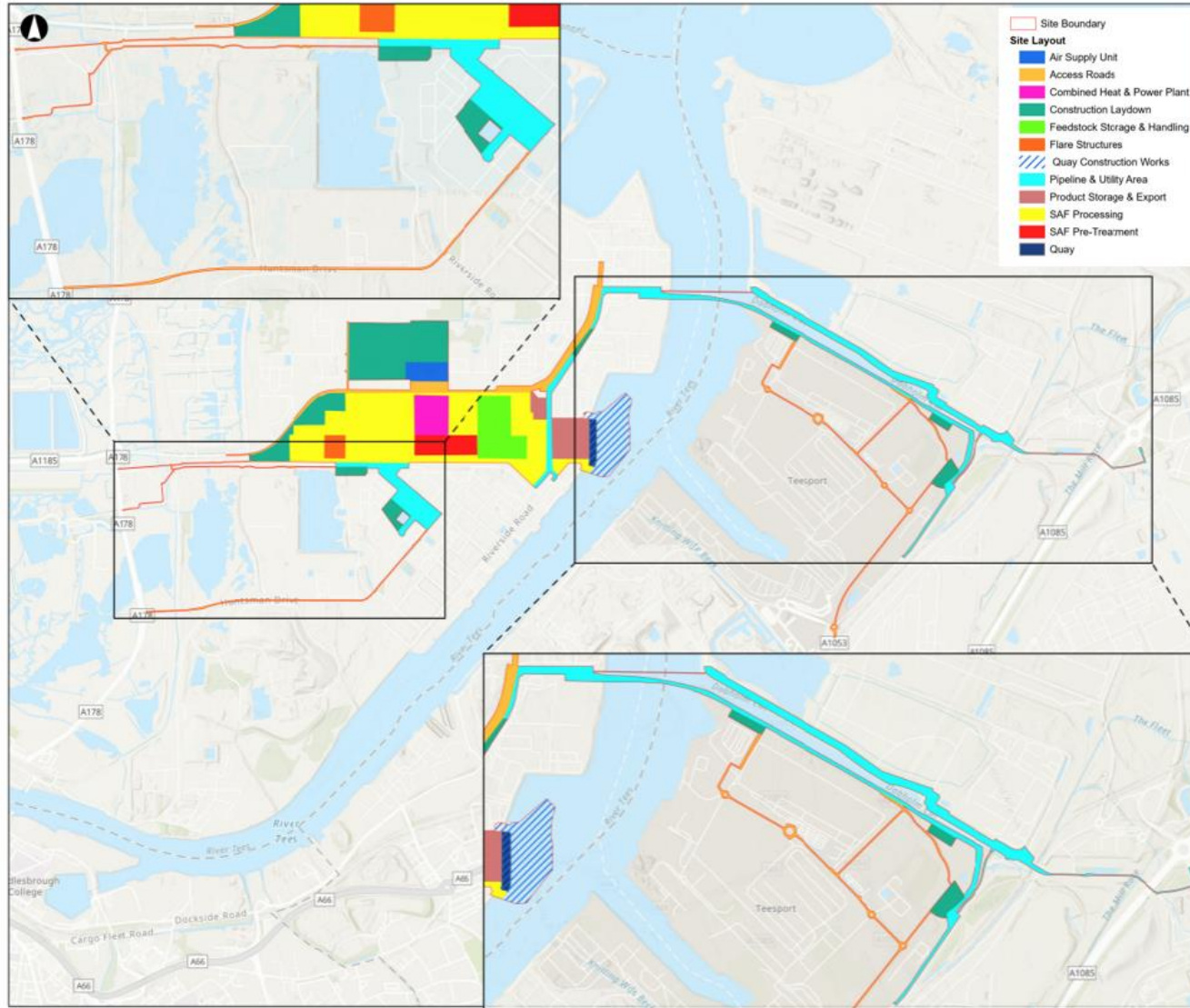
Landscape

- 3.2.10 The Site is located within a landscape characterised by major industrial post-related development associated with the Tees Estuary. The area includes extensive industrial infrastructure, shipping activities and energy facilities, set within a landscape that also contains internationally important coastal and estuarine habitats. Water bodies and nature reserves provide some separation between the industrial areas and nearby residential communities.

4 The Proposed Development

4.1 Components of the Proposed Development

- 4.1.1 The Proposed Development comprises a commercial-scale SAF production facility on Teesside. The facility is designed to convert sustainable biomass feedstock into SAF and renewable naphtha, helping to support the decarbonisation of the aviation sector and wider industrial processes. Biomass feedstock will be thermally pre-treated and then processed through gasification and fuel upgrading technologies to produce SAF for the aviation sector, together with renewable naphtha as a co-product.
- 4.1.2 The Proposed Development includes a new quay in the Tees for feedstock delivery (and large module delivery during construction) and a biomass and waste wood fuelled CHP plant capable of generating 200 megawatts (MW) of low-carbon electricity and steam for use within the SAF production facility, as well as natural gas, electricity, water and wastewater connections. Industrial gases (oxygen and nitrogen) required for the facility will either be supplied via connections to existing industrial infrastructure in south Tees, using existing tunnels and pipelines beneath the River Tees, or by a new on-site air separation unit (ASU).
- 4.1.3 The Proposed Development will convert sustainably sourced biomass from biogenic wastes and residues, including forestry, sawmill and agricultural residues, (collectively referred to as 'feedstocks') into SAF. The CHP plant will also use some types of waste wood feedstocks that are not classified as 'biomass' under the Industrial Emissions Directive [Ref 2]. The feedstocks will all be sourced in accordance with the sustainability criteria and other relevant requirements of the Renewable Transport Fuel Obligation [Ref 3]. Feedstocks will be delivered primarily by ship to the new quay, stored in enclosed facilities and processed on-site.
- 4.1.4 The products from the Proposed Development (SAF and renewable naphtha) will be exported via pipelines to existing third-party marine loading facilities, with road transport available as a contingency.
- 4.1.5 The Proposed Development includes infrastructure that would enable surplus biogenic CO₂ produced during the SAF production process to be exported by pipeline for permanent offshore storage when suitable carbon transport and storage infrastructure becomes available. The Main Site has been designed to allow space for the potential future development of a plant to capture carbon emissions from the CHP plant and feedstock pre-treatment facility, although this does not form part of the Proposed Development and would be subject to separate consents.
- 4.1.6 An indicative layout of the Proposed Development is shown in Inset 4.1.



Inset 4.1 Indicative Proposed Development layout

4.2 Design parameters

- 4.2.1 As the Proposed Development is a First-Of-A-Kind assemblage of technologies and the detailed design has not yet been finalised, the EIA has been undertaken using maximum design parameters. This approach ensures that the assessment considers the realistic worst-case environmental effects that could arise from the Proposed Development while allowing flexibility during the detailed design stage. This is known as the ‘Rochdale Envelope’ approach and is an accepted approach for an application for development consent under the Planning Act 2008. This is supported by the use of commitments set out in **Appendix 23A: Commitments Schedule (ES Volume III, Application Document Ref. 6.3)** and preparation of a **Design Approach Document** which is underpinned by **outline design principles (Application Document Refs 5.3.1 and 5.3.2 respectively)**.
- 4.2.2 The final design of the Proposed Development will be required by the **DCO (Application Document Ref. 3.1)** to remain within the parameters defined and assessed in the ES and in accordance with the **Works Plans (Application Document Ref. 2.3)** which define the broad area for each element of the Proposed Development.
- 4.2.3 The Main Site will be constructed on a raised development platform with a finished ground level of approximately 5.1m AOD (and the quay topside will be slightly higher). The tallest structures will be the CHP plant emission stack and the flare structures, both up to 140m AOD in height.
- 4.2.4 An indicative layout of the Main Site is presented in Inset 4.2.

4.3 Proposed Development construction

- 4.3.1 Subject to obtaining development consent and a final investment decision, construction is planned to commence in 2028, with commercial operations expected from 2031 following commissioning (Inset 4.2). The ES assesses a realistic worst-case construction scenario reflecting the current level of design information.

2028				2029				2030				2031					
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4		
Quay construction																	
Site preparation																	
		Civil engineering works															
								Module deliveries									
						Mechanical installation											
								Electrical & Instrumentation Installation									
				Pipeline construction													
												Commissioning					
															Operation		

Inset 4.2 Outline Construction Programme

- 4.3.2 Construction working hours will be between 07:00 and 19:00 Monday to Friday (except bank holidays), Saturday 07:00 to 16:00 and Sunday 08:00 to 17:00. Some activities may need to take place outside these hours, including certain continuous operations and marine works. This will be managed through a requirement in the **DCO (Application Document Ref. 3.1)**.
- 4.3.3 Construction impacts will be managed through a Construction Environmental Management Plan(s), which will be in accordance with **Appendix 5A: Framework Construction Environmental Management Plan (fCEMP) (ES Volume III, Application Document Ref. 6.3)**, The fCEMP includes measures to control noise, dust, traffic and other environmental effects.
- 4.3.4 Preliminary works will include site clearance, environmental and ground investigations, demolition of existing structures, establishment of construction compounds and preparation of an appropriate development platform within the Main Site (so that the Proposed Development is not at risk of flooding in the future, with climate change).
- 4.3.5 Construction of the new quay will require demolition of two existing disused jetties and revetment, construction of the quay wall and deck and capital dredging within the River Tees to create a berthing pocket and access channel for vessels.
- 4.3.6 Construction of the main facility will involve civil engineering works, installation of foundations, utility connections and construction of the SAF production plant, CHP plant and associated infrastructure. Wherever practicable, large plant components will be manufactured off-site and transported to Teesside by ship before being assembled on the Main Site,

reducing the need for abnormal road deliveries. Cranes of up to approximately 155m in height may be required during construction.

- 4.3.7 Utility works will include the installation of pipelines, electrical connections, water supply infrastructure and wastewater connections both within and outside the Main Site. Construction compounds, temporary welfare facilities, storage areas and laydown areas will be established to support these activities.
- 4.3.8 Infrastructure required to cross existing services and transport corridors, including bridges, culverts and other crossings, will be constructed, where required.
- 4.3.9 Construction traffic will primarily access the Main Site via Seal Sands Road. At the peak of construction, the workforce could reach approximately 2,200 staff, and there would be around 180 one-way HGV movements per day. Deliveries of large modular plant and equipment using the quay are expected to require a total of approximately 200 ship movements over the construction period.
- 4.3.10 Construction materials, excavated soils and waste will be managed in accordance with **Appendix 5B: Framework Site Waste Management Plan (ES Volume III, Application Document Ref. 6.3)** and the **fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3)**. Good industry practice environmental measures will be implemented throughout construction to minimise impacts on local communities, flora and fauna, water resources and the wider environment.

4.4 [Proposed Development operation](#)

- 4.4.1 Feedstocks will be delivered primarily by ship to the proposed new quay on the River Tees before being conveyed to on-site storage and processing facilities. Feedstocks for the SAF production process will undergo thermal pre-treatment and gasification before being converted into SAF and renewable naphtha through a series of advanced processing stages. Products will be stored in tanks on-site before being transferred via pipeline to existing third-party storage and marine export facilities, with road transport available as a contingency. Periodic maintenance dredging of the berth pocket and access channel will also be undertaken during operation to maintain safe vessel access to the quay.
- 4.4.2 Surface water and process wastewater will be managed through dedicated drainage and treatment systems in accordance with environmental permit requirements. Treated wastewater will be directed to Bran Sands Wastewater Treatment Plant for any final treatment prior to discharge. It is intended that the final discharge will utilise the proposed Long Sea Outfall

being developed by the operator of the Bran Sands Wastewater Treatment Plant.

- 4.4.3 The facility will operate continuously, 24 hours a day and seven days a week. Following start-up, it is envisaged that the plant will remain in continuous operation for periods of up to 36 months before the first routine maintenance shutdown. The Proposed Development is anticipated to create over 300 permanent operational jobs alongside employment associated with construction and major maintenance activities. The SAF production facility is anticipated to have an operating life of at least 25 years (potentially longer, depending on future market conditions and investment decisions), after which the facility will be decommissioned in accordance with environmental and safety requirements, with recycling and reuse of materials prioritised wherever practicable. The quay is expected to have a longer life than the production facility as it could be used by future site occupiers.

4.5 [Proposed Development decommissioning](#)

- 4.5.1 At the end of its operational life, the Proposed Development will be decommissioned, although some infrastructure, such as the quay, roads and raised development platform, may be retained for future reuse.
- 4.5.2 Prior to decommissioning, a Decommissioning Environmental Management Plan will be prepared and agreed with the relevant authorities. The plan will set out the approach to dismantling the facility, managing waste and protecting the environment. Decommissioning activities will be undertaken in accordance with relevant environmental, health and safety regulations in force at that time.

4.6 [Consideration of alternatives](#)

[Introduction](#)

- 4.6.1 The EIA Regulations require the ES to describe the reasonable alternatives considered by the Applicant and explain the reasons for selecting the preferred option, taking account of environmental, technical, social and economic factors. The Proposed Development has evolved through site selection, technology appraisal and ongoing design development, as summarised below.

[Alternatives considered](#)

- 4.6.2 The Applicant considered a range of alternatives during the evolution of the Proposed Development, including:
- alternative sites within Teesside;

- alternative feedstocks;
 - alternative SAF production technologies;
 - alternative quay designs; and
 - alternative utility supply options.
- 4.6.3 These alternatives were reviewed against a range of factors including environmental effects, technical feasibility, operational requirements, commercial viability and the ability to deliver SAF production at the scale required to support UK decarbonisation objectives.
- 4.6.4 Alternative locations were assessed both regionally and within Teesside. Following a review of industrial locations capable of supporting the Proposed Development requirements, Teesside was identified as the preferred regional location due to its access to carbon transport and storage infrastructure, industrial utilities, marine facilities and a skilled workforce. Within Teesside, the Applicant reviewed the former Huntsman Drive site, a large former industrial site in South Tees and the selected Seal Sands site.
- 4.6.5 Following a detailed review undertaken after the previous DCO application at Huntsman Drive, the Applicant concluded that site would not provide sufficient space for the revised SAF production process and associated infrastructure. That site also lacked access to a deep-water quay, meaning feedstock and construction materials would require additional transport and handling. This would increase construction complexity and could result in greater transport-related environmental effects.
- 4.6.6 A second former industrial site in South Tees was also considered. Although this site benefitted from access to key utility infrastructure and product export connections, and would require additional infrastructure across third-party land. The Seal Sands site was ultimately selected because it provides sufficient space for the SAF facility and CHP plant, direct access to the River Tees for importing feedstock and construction materials, proximity to marine export infrastructure, access to utilities and future carbon transport and storage infrastructure, and is located on predominantly brownfield land. Environmental considerations also influenced the selection of the Site, including the opportunity to use marine transport to reduce road transport requirements and the location of the Site within an established industrial area away from residential communities.
- 4.6.7 Alternative SAF production technologies and feedstocks were also considered. Gasification and Fischer-Tropsch technology was selected because it is considered one of the most technologically mature and commercially viable routes for producing SAF at the scale required by the

UK SAF Mandate [Ref 4]. Sustainably sourced biomass residues were selected at the main SAF production feedstock because they provide a higher level of technology readiness than alternative waste-based feedstocks. (Waste wood will also be used within the CHP plant to generate electricity and steam for the SAF production process but does not form part of the principal SAF production feedstock.)

- 4.6.8 Alternative quay designs were assessed, including suspended deck, combi-wall and set-back wall options. A combi-wall quay was selected following a multi-criteria assessment that considered environmental impacts, constructability, navigation, contamination risks and other engineering factors.

4.7 Biodiversity enhancement

- 4.7.1 The Proposed Development has been designed in accordance with the mitigation hierarchy, seeking to avoid, minimise and compensate for environmental effects where practicable. In addition to mitigation measures, the Proposed Development includes habitat enhancement and biodiversity compensation measures that will contribute to the long-term management and enhancement of habitats within the wider area. These measures include the creation and management on compensatory habitats for reedbeds, open mosaic habitat and ground-nesting birds, together with habitat enhancements associated with the proposed quay and long-term ecological management monitoring.
- 4.7.2 **A Framework Landscape and Biodiversity Mitigation and Enhancement Strategy (Application Document Ref. 5.8)** has been prepared to guide the detailed design and delivery of biodiversity measures. Habitat creation and enhancement proposals will be developed alongside a Biodiversity Net Gain strategy, with the objective of delivering long-term ecological benefits and supporting protected and notable species identified within the Main Site, Wider Site, and surrounding area.

5 Summary of environmental effects

- 5.1.1 This section provides a summary of the likely environmental effects predicted to occur as a result of the construction, operation, maintenance and decommissioning of the Proposed Development. These likely significant environmental effects are described further in **ES Volume I (Application Document Ref. 6.1)** and its accompanying technical appendices (**ES Volume III, Application Document Ref. 6.3**).

5.2 Air quality

- 5.2.1 **Chapter 8: Air Quality (ES Volume I, Application Document Ref. 6.1)** considers potential impacts on human health and ecological receptors from construction activities, road traffic, shipping movements and emissions from the operational plant. Atmospheric dispersion modelling and other recognised assessment methods were used to predict pollutant concentrations and compare them against relevant air quality standards.

Likely impacts and effects

- 5.2.2 During construction, potential effects from dust, construction traffic, construction plant and marine activities have been assessed. Good industry practice mitigation measures, including dust suppression, vehicle cleaning, careful material handling and controls through **Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)**, will be implemented. With these measures in place, construction dust effects and emissions from construction plant have been assessed to be **not significant**.
- 5.2.3 Construction traffic and shipping emissions have been assessed using conservative assumptions. Predicted changes in pollutant concentrations at nearby residential properties and ecological sites are small and remain below relevant assessment thresholds. The resulting effects on both human health and ecological receptors have been assessed to be **not significant**.
- 5.2.4 During operation, the assessment considers emissions from the SAF production facility, CHP plant, operational traffic and shipping. Atmospheric dispersion modelling has been used to predict concentrations of pollutants including nitrogen oxides, ammonia, particulates, sulphur dioxide and other trace substances. Predicted pollutant concentrations at nearby residential receptors remain well below relevant air quality standards (no significant effect), and operational traffic and shipping emissions have been assessed to be **not significant**.
- 5.2.5 The assessment also considered the potential effects of pollutant deposition at nearby nationally and international designated ecological sites. Following the application of embedded mitigation and emissions controls, including

the use of Best Available Techniques (BAT), effects on ecological receptors have been assessed to be **not significant**.

5.3 Noise and vibration

5.3.1 **Chapter 9: Noise and Vibration (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development during construction, operation and decommissioning. The assessment has used baseline noise surveys, computer modelling and recognised assessment methods to predict noise levels at nearby residential receptors and determine whether significant effects could occur. Noise effects on ecological receptors have been assessed separately within the relevant ecology chapters (**Chapter 10: Terrestrial Ecology and Chapter 11: Freshwater and Marine Ecology, ES Volume I, Application Document Ref. 6.1**).

Likely impacts and effects

- 5.3.2 The Proposed Development will be designed to minimise noise emissions through embedded mitigation measures, including careful plant selection and layout, acoustic enclosure of equipment where required, and compliance with operational noise limits. Noise management measures will form part of the detailed design process and will be secured through the environmental permit.
- 5.3.3 Construction noise and vibration from site preparation, earthworks, piling, plant and traffic were assessed. The assessment of underwater noise and vibration during construction is presented in Section 5.5. With mitigation secured through **Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)**, including controls on working practices, construction noise and vibration is assessed to have no significant effects on nearby residential receptors. Construction traffic has been assessed to result in only minor increases in road traffic noise. The resulting effects have been assessed to be **not significant**.
- 5.3.4 Operational noise from the SAF facility, CHP plant, feedstock handling and quay operations has been assessed using noise modelling. Predicted noise levels at nearby residential receptors are below relevant assessment criteria resulting in no significant effects. The resulting effects from operational traffic noise on nearby residential receptors have been assessed to be **not significant**.
- 5.3.5 Decommissioning activities are expected to be similar to, but generally less extensive than, those during construction. Accordingly, noise and vibration effects during decommissioning are assessed to be no greater than those

assessed for the construction phase (**not significant**) and will be managed through appropriate environmental management plans.

- 5.3.6 Overall, the assessment concludes that the Proposed Development will not result in significant adverse noise or vibration effects at nearby residential receptors during construction, operation or decommissioning.

5.4 Terrestrial ecology

- 5.4.1 **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential impacts of the Proposed Development on terrestrial ecology during construction and operation. The assessment has been informed by desk studies, habitat and protected species surveys, and consultation with relevant stakeholders. Receptors considered in the assessment include internationally and nationally designated sites, habitats of principal importance, and protected and notable species including birds, bats, otter, water vole, amphibians and terrestrial invertebrates.

Likely impacts and effects

- 5.4.2 Construction activities have the potential to result in habitat loss, disturbance from noise, vibration and lighting, and impacts on breeding and wintering birds, terrestrial invertebrates and other protected species. Embedded mitigation measures, secured through the **Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)** and **Framework Landscape and Biodiversity Mitigation and Enhancement Strategy (Application Document Ref. 5.3)**, include habitat protection, ecological supervision, seasonal working restrictions, invasive species management, pollution prevention measures and sensitive lighting design.
- 5.4.3 The assessment identifies the potential for significant effects on some habitats and species during construction, particularly due to habitat loss and noise disturbance to breeding and wintering birds and terrestrial invertebrates. A range of mitigation and compensation measures will be implemented, including off-site habitat creation and enhancement, ecological supervision, timing restrictions on vegetation clearance, acoustic and visual screening where required, dust suppression, pollution prevention measures and sensitive lighting design. With these measures in place, the residual effects have been assessed to be **not significant**.
- 5.4.4 During operation, potential impacts associated with air emissions, lighting, noise and water discharges have been assessed. Embedded design measures and environmental controls include advance emissions abatement systems to reduce nitrogen oxides and ammonia emissions, operational noise controls, surface water drainage and wastewater

treatment systems, pollution prevention measures, and a sensitive lighting strategy designed to limit light spill into surrounding habitats. Following the implementation of these measures, the resulting effects on designated sites, habitats and protected species have been assessed to be **not significant**.

5.4.5 The assessment identified the potential for significant effects from nutrient nitrogen deposition on a limited area of nearby designated habitats. Additional emissions control measures, including enhanced emissions abatement and wet scrubbing systems, have been incorporated into the design to reduce nitrogen deposition. Following implementation of these measures, the assessment concludes that residual effects on ecological receptors have been assessed to be **not significant**.

5.4.6 Decommissioning effects are expected to be similar to, or less than, those during construction (not significant) and will be managed through a Decommissioning Environmental Management Plan and appropriate ecological mitigation measures.

5.4.7 Subject to the implementation of mitigation and compensation measures, the assessment concludes that significant terrestrial ecological effects can be appropriately managed (and therefore assessed as **not significant**).

5.5 Freshwater and marine ecology

5.5.1 **Chapter 11: Freshwater and Marine Ecology (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential impacts of the Proposed Development on freshwater and marine ecology during construction, operation and decommissioning. The assessment considered designated nature conservation sites, habitats, fish, shellfish, marine mammals, aquatic species and invasive non-native species, using published data, site surveys, sediment dispersion modelling and underwater noise modelling. The Site lies within the Tees Estuary, an area of high ecological importance that supports nationally and internationally designated habitats and species.

5.5.2 The assessment has focused on the potential effects of quay construction, dredging, vessel movements, wastewater and surface water discharges, underwater noise, lighting and accidental spillages. Sensitive receptors include the Teesmouth and Cleveland Coast SPA, Teesmouth and Cleveland Coast SSSI, marine and estuarine habitats, migratory fish species such as Atlantic salmon and European eel, harbour- and grey seals and other marine wildlife.

Likely impacts and effects

- 5.5.3 During the construction phase, potential effects could arise from demolition of existing jetties, revetment and associated infrastructure, quay construction, dredging, piling and increased vessel activity within the River Tees. Embedded mitigation measures including pollution prevention controls, drainage management, biosecurity measures, navigation controls, sensitive lighting design and compliance with recognised marine construction guidance, will be implemented to minimise impacts on aquatic habitats and species. Most construction-related effects on water quality, designated sites, fish, marine mammals and freshwater habitats have been assessed to be **not significant**.
- 5.5.4 Construction activities have the potential to result in significant effects associated with the loss of subtidal habitats and species and disturbance to marine mammals and migratory fish from underwater noise. Additional mitigation has therefore been identified including alternative dredging methods, avoidance of dredging on ebb and spring tides, measures to reduce the risk of injury to marine mammals from underwater noise, and monitoring of seals during marine construction works. Following implementation of these measures, the residual effects have been assessed to be **not significant**.
- 5.5.5 During operation, potential impacts could arise from vessel movements, maintenance dredging, artificial lighting and water discharges. Operational activities will be controlled through the environmental permit, navigation procedures, legislative requirements and appropriate drainage and lighting design. The resulting effects on marine and freshwater habitats, fish, marine mammals and designated sites have been assessed to be **not significant**.
- 5.5.6 Decommissioning effects are expected to be similar to, or less than, those during construction and will be managed through a Decommissioning Environmental Management Plan. The resulting effects have been assessed to be **not significant**.
- 5.5.7 Subject to the implementation of mitigation and compensation measures, the assessment concludes that significant freshwater and marine ecological effects can be appropriately managed (and therefore assessed as **not significant**).

5.6 Water environment

- 5.6.1 **Chapter 12: Water Environment (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development on the water environment and flood risk during construction,

operation and decommissioning. The assessment has considered surface water, groundwater, flood risk, water quality and compliance with The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 [Ref 55]. Key receptors include the River Tees and Tees Estuary, nearby ponds, drainage channels, groundwater bodies and internationally designated ecological sites associated with the Teesmouth and Cleveland Coast SPA, Ramsar site and SSSI.

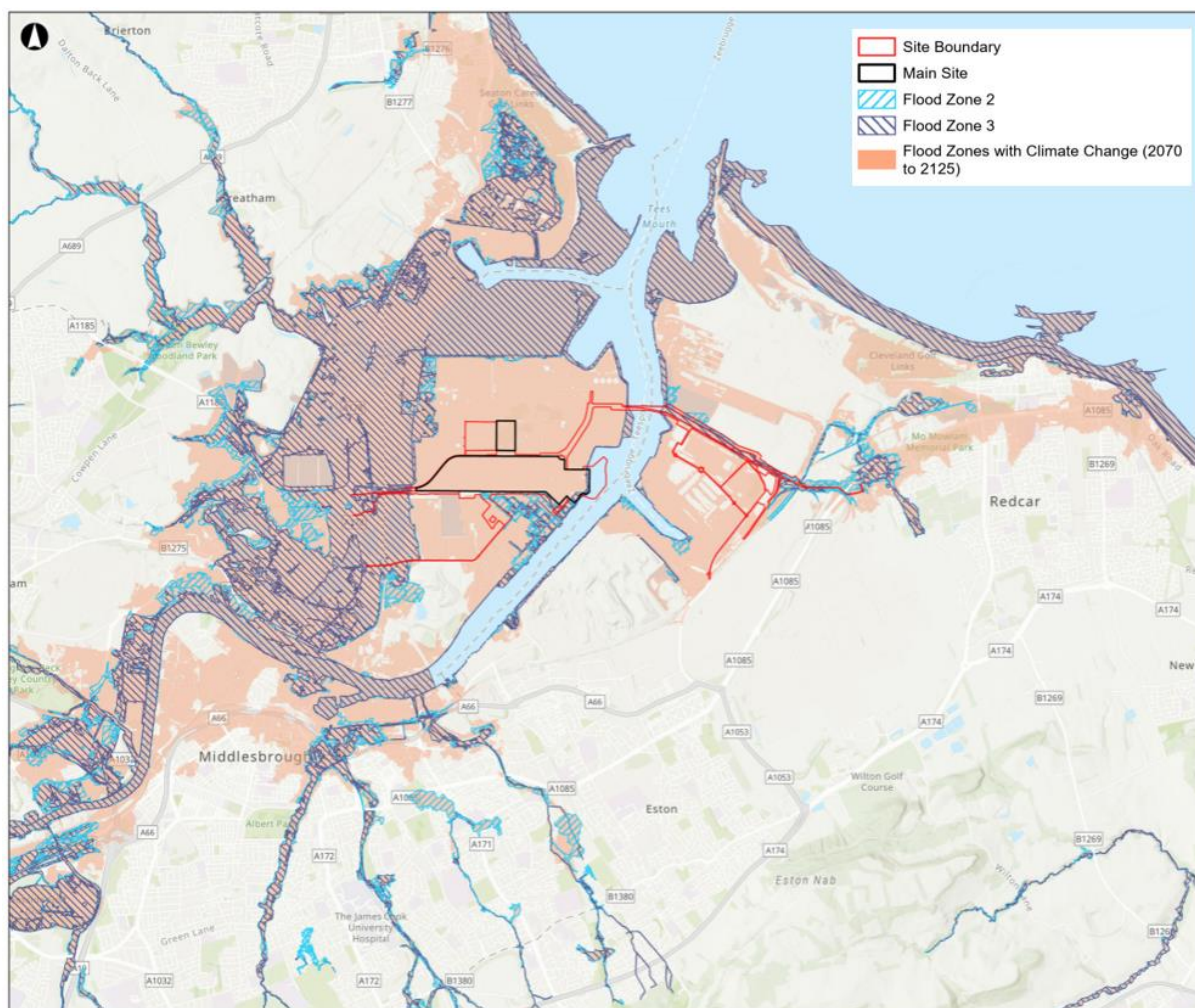
- 5.6.2 Flood risk has been assessed using flood modelling, taking account of future climate change impacts and the presence of existing flood defence infrastructure. Most of the Main Site is in an area of low flood risk (see Inset 5.1).

Likely impacts and effects

- 5.6.3 During construction, potential impacts on the water environment could arise from earthworks, demolition, dredging, dewatering and accidental spillages. Mitigation measures, including pollution prevention controls, water quality monitoring and temporary drainage systems, will be implemented as set out in **Appendix 5A: fCEMP (ES Volume III, Application Document Ref. 6.3)**. With these measures in place, effects on surface water and groundwater have been assessed to be **not significant**.
- 5.6.4 During operation, surface water and wastewater will be managed through dedicated drainage and treatment systems, incorporating water quality controls and water efficiency measures, including recycling and reuse where practicable.
- 5.6.5 In addition to the assessment of water quality and wastewater discharges, modelling has been undertaken to consider potential effects on tides, currents, sediment transport and dredging-related sediment plumes within the Tees Estuary. This numerical modelling indicates that increases in suspended sediment during construction dredging would be temporary and localised, with sediment concentrations reducing rapidly away from the dredging area and returning to background conditions shortly after dredging activities cease. The assessment also predicts only small and localised changes to sediment deposition patterns. These changes have been assessed to be **not significant**.
- 5.6.6 During operation, modelling indicates that the marine development would result in small localised changes to tidal currents and sediment transport within the immediate vicinity of the Proposed Development. Predicted changes in current speeds are small, generally less than 0.1m/s, and

effects on the wider Tees Estuary, navigation channels, sediment banks and shellfish waters are assessed as **not significant**.

- 5.6.7 Flood risk has been assessed for both current and future climate conditions. The Proposed Development will include appropriate flood resilience measures (including use of an appropriate height of development platform within the Main Site), drainage infrastructure and emergency planning procedures to ensure the Proposed Development remains safe and operational throughout its lifetime. The assessment concludes that the Proposed Development will **not significantly** increase flood risk on-site or elsewhere.
- 5.6.8 Decommissioning effects are expected to be similar to, or less than, those experienced during construction and will be managed through a Decommissioning Environmental Management Plan. The resulting effects have been assessed to be **not significant**.
- 5.6.9 Overall, taking account of the proposed mitigation and environmental controls, the assessments conclude that the Proposed Development would not result in significant effects on water resources, water quality, flood risk, coastal processes or estuarine processes. Detailed modelling demonstrates that changes to hydrodynamics, sediment transport and sedimentation within the Tees Estuary would be small, localised and **not significant**.



Inset 5.1 Environment Agency Flood Zones 2 and 3

5.7 Landscape and visual amenity

- 5.7.1 Chapter 13: Landscape and Visual Amenity (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development on landscape character and visual amenity (receptor views) during construction and operation. The assessment was informed by desk studies, field surveys, photography from representative viewpoints, computer-generated visibility modelling and visualisations of the Proposed Development.
- 5.7.2** The Site is located within the industrialised Tees Estuary landscape, characterised by large-scale industrial facilities, port infrastructure, energy developments, storage tanks, pylons and other prominent industrial features.
- 5.7.3** The surrounding landscape is generally industrial in nature, low-lying and open, with limited woodland and vegetation cover. This allows widespread views of existing industrial development across the Tees Estuary. Sensitive

receptors include nearby residential communities, recreational users, visitors to RSPB Saltholme and coastal areas, and users of public rights of way, cycle routes and long-distance walking routes. A Zone of Theoretical Visibility (ZTV) was used to identify areas where the Proposed Development may be visible and to select representative viewpoints for assessment.

Likely impacts and effects

- 5.7.4 During construction, potential effects will arise from site clearance, earthworks, cranes, construction compounds, temporary lighting, demolition of existing jetties and construction of the new quay and SAF facility. Although construction activity will be prominent at close range, it will take place within a landscape already dominated by large-scale industrial and port-related development. As a result, effects on landscape character have been assessed to be **not significant**.
- 5.7.5 During operation, the Proposed Development will introduce new industrial buildings, process plant, storage facilities, stacks, flare structures, utility infrastructure and a new quay. These elements will be seen within the context of the existing industrial character of the Tees Estuary. The resulting effects on the character of the surrounding landscape has been assessed to be **not significant**.
- 5.7.6 Visual effects have been assessed from a range of residential, recreational and transport-related viewpoints up to 10km from the Site. For most viewpoints, the Proposed Development will be seen in the context of existing industrial development and, due to distance or intervening features, the resulting visual effects have been assessed to be **not significant**.
- 5.7.7 Significant visual effects have been identified at the nearby RSPB Saltholme recreational viewpoint. At this viewpoint, the Proposed Development will form a noticeable new element within existing views and will increase the extent of large-scale industrial development visible in the landscape. The resulting visual effects have been assessed as **significant** during both construction and operation.
- 5.7.8 Measures have been incorporated into the design to reduce visual impacts where practicable, including consideration of building appearance, colours, materials and lighting design. Due to the scale of the Proposed Development and the height of some structures, additional planting would provide limited screening benefits and would not materially reduce the assessed visual effects.
- 5.7.9 Overall, the effects on landscape character have been assessed to be **not significant**. Significant visual effects are limited to the recreational

viewpoint at RSPB Saltholme, while all other visual effects have been assessed to be **not significant**.



Inset 5.2 Representative viewpoint from Saltholme RSBP (1.5km from the Site and north east direction of view) showing the current view (top image) and the view of the Proposed Development based on the indicative design (bottom image)

5.8 Greenhouse gas emissions

- 5.8.1 **Chapter 14: Greenhouse Gas Emissions (GHG) (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the GHG emissions associated with the construction, operation and decommissioning of the Proposed Development. The assessment also considered how the Proposed Development aligns with UK climate change policies, carbon budgets and net zero targets.

Likely impacts and effects

- 5.8.2 The assessment estimates that the construction and operation of the Proposed Development will result in approximately 4.3 million tonnes of carbon dioxide equivalent (CO₂e) emissions across its entire lifecycle. Around 87% of these emissions are associated with operation of the facility, with the remainder arising primarily from construction activities and the manufacture and transport of construction materials. Measures to reduce emissions have been incorporated into the design, including the use of a brownfield site, modular construction techniques, use of sustainable biomass feedstocks and an on-site biomass and waste wood fired CHP plant.
- 5.8.3 The lifecycle emissions associated with the Proposed Development represent only a small proportion of the UK's national carbon budgets. The assessment concludes that the Proposed Development is aligned with national decarbonisation policies, including the UK's Net Zero Strategy [Ref 6], Jet Zero Strategy [Ref 7] and SAF Mandate [Ref 4].
- 5.8.4 The purpose of the Proposed Development is the production of low carbon SAF, which will displace conventional fossil fuel-derived aviation fuel. The assessment estimates that use of the SAF produced by the Proposed Development will avoid approximately 12.8 million tonnes of CO₂e over its operational life. This is substantially greater than the lifecycle emissions generated by the Proposed Development itself and represents an overall net climate benefit.
- 5.8.5 The low carbon SAF produced by the Proposed Development is expected to have lifecycle emissions approximately 80% lower than conventional jet fuel. The facility will produce around 180 million litres of SAF each year and could contribute approximately 5% of the UK's SAF Mandate [Ref 2] requirement to deliver 22% of the UK's jet fuel demand with SAF from 2040 onwards, making a meaningful contribution to aviation decarbonisation targets.
- 5.8.6 The assessment concludes that, despite generating GHG emissions during construction and operation, the Proposed Development supports the UK's

transition to net zero by producing a lower-carbon alternative to conventional aviation fuel. Applying recognised assessment guidance and professional judgement, the overall greenhouse gas effect of the Proposed Development has been assessed to be **not significant**.

- 5.8.7 The Applicant has also considered future enhancements that could further reduce emissions, including the potential capture and permanent storage of CO₂ generated by the facility through connection to future consented carbon transport and storage infrastructure. While not relied upon in the assessment, such measures could further improve the net GHG emissions benefit of the Proposed Development in the future.

5.9 [Climate change resilience](#)

- 5.9.1 **Chapter 15: Climate Change Resilience (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the resilience of the Proposed Development to potential effects of future climate change during its operational life and during decommissioning. The assessment has considered the vulnerability of the Proposed Development to a range of future climate hazards using UK Climate Projections (UKCP18) [Ref 8], including extreme heat, storms and high winds, flooding, drought and sea level rise.

[Likely impacts and effects](#)

- 5.9.2 The assessment has identified potential risks associated with extreme heat, flooding, drought, storms, high winds and sea level rise. These risks include damage to buildings and infrastructure, disruption to operations and supply chains, increased maintenance requirements, reduced availability of process water and potential health and safety risks to workers during extreme weather events.
- 5.9.3 Climate resilience has been incorporated into the design of the Proposed Development through a range of embedded mitigation measures. These include raising ground levels within the Main Site and designing drainage infrastructure to manage flood risk, designing structures to relevant engineering standards, incorporating flood resilience measures, providing backup systems for critical equipment, protecting sensitive electrical infrastructure and ensuring equipment is suitable for future climate conditions.
- 5.9.4 The assessment also considers the resilience of the SAF production process and supporting infrastructure. Measures such as on-site power generation, emergency shutdown systems, maintenance programmes, contingency planning and provision for future climate conditions are

expected to minimise the potential for operational disruption caused by extreme weather.

- 5.9.5 Following consideration of the embedded mitigation measures, all identified climate change risks have been assessed to be **not significant**. The impacts on buildings, infrastructure, operations or personnel during the operational phase of the Proposed Development have also been assessed to be **not significant**.
- 5.9.6 Decommissioning activities will be managed through a Decommissioning Environmental Management Plan and appropriate health and safety procedures. Although future climate conditions may be more severe by the time decommissioning takes place, the risks have been assessed to remain **not significant**.
- 5.9.7 Overall, the assessment concludes that the Proposed Development is resilient to the projected effects of climate change over its anticipated lifetime. Following implementation of the proposed design and management measures, the resulting climate change risks have been assessed to be **not significant**.

5.10 Materials and waste

- 5.10.1 **Chapter 16: Materials and Waste (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development on material resource use and waste generation during construction, operation and decommissioning. Key materials assessed included aggregates, concrete, steel and copper, together with construction, demolition, excavation and operational waste streams.

Likely impacts and effects

- 5.10.2 Construction of the Proposed Development will require substantial quantities of materials, including aggregates, concrete and steel. However, the quantities required represent a small proportion of regional and national material availability. The use of construction materials will not place significant pressure on material supplies and has been assessed to be **not significant**.
- 5.10.3 Waste generated during construction, including demolition, excavation and dredging materials, will be managed in line with the waste hierarchy in accordance with the **Appendix 5B: Framework Site Waste Management Plan (ES Volume III, Application Document Ref. 6.3)**, with opportunities for reuse, recycling and recovery maximised wherever practicable. The amount of waste requiring landfill disposal is small relative to available landfill capacity and has been assessed to be **not significant**.

- 5.10.4 During operation, material requirements will be limited mainly to maintenance and process consumables. Operational waste, including process residues and general site waste, will be managed through existing treatment and disposal facilities and has been assessed to be **not significant**.
- 5.10.5 Overall, the Proposed Development has been assessed to be **not significant** in relation to material use or waste generation.

5.11 Socioeconomics

- 5.11.1 **Chapter 17: Socioeconomics (ES Volume I, Application Document Ref. 6.1)** presents the findings of the assessment of the potential socioeconomic effects of the Proposed Development during construction and operation. The assessment considers employment, economic activity, Gross Value Added (GVA), local businesses, accommodation demand, community and recreational facilities, public rights of way, tourism and population health. Baseline information has been reviewed for the local area, Teesside and the wider region, including population, employment, deprivation and health indicators.

Likely impacts and effects

- 5.11.2 Construction of the Proposed Development is expected to generate substantial economic benefits, supporting approximately 4,460 job-years in Teesside and around 22,940 'job-years' across the UK. Construction activity could also contribute around £700 million of Gross Value Added (GVA) within Teesside and approximately £1.88 billion nationally. A job-year represents one year of full-time equivalent employment and is not the same as the total number of individual jobs created. These employment and economic benefits have been assessed to be **significantly beneficial**.
- 5.11.3 Temporary effects on accommodation, local businesses, community facilities, tourism and public rights of way may occur during construction. However, these effects will be localised, temporary and managed through mitigation measures, and are assessed as not significant. Some local businesses may benefit from procurement and supply chain opportunities associated with construction.
- 5.11.4 Operation of the Proposed Development is expected to create approximately 310 jobs and support additional supply chain opportunities. While these jobs will provide a positive contribution to the local economy and health outcomes, the effects are assessed to be beneficial but **not significant**. Adverse effects on local communities, businesses, tourism or recreation during operation have been assessed to be **not significant**.

- 5.11.5 Overall, the Proposed Development will deliver significant and beneficial socioeconomic effects during construction and beneficial but not significant effects during operation.

5.12 Traffic and transport

- 5.12.1 **Chapter 18: Traffic and Transport (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development on traffic and transport during construction, operation and decommissioning. The assessment has considered construction worker and freight traffic, road network capacity, road safety, pedestrian and cyclist amenity, public rights of way, and potential effects on local communities. Traffic surveys, transport modelling and recognised assessment guidance have been used to evaluate the likely impacts on the surrounding highway network.

Likely impacts and effects

- 5.12.2 Construction is expected to generate the highest levels of traffic, with a peak workforce of approximately 2,200 people and up to 360 two-way HGV movements per day. Traffic management measures, including a Construction Traffic Management Plan and Construction Worker Travel Plan, will be implemented to minimise impacts on the local road network. The resulting effects on road safety, highway capacity, pedestrian amenity and local communities have been assessed to be **not significant**.
- 5.12.3 Operational traffic levels will be substantially lower than during construction. Biomass feedstocks will be delivered primarily by ship via the new quay, with only a limited proportion of feedstocks anticipated to be delivered by road. The assessment also includes operational traffic associated with consumables, waste streams and product movements. The resulting traffic and transport effects during operation have been assessed to be **not significant**.
- 5.12.4 Decommissioning effects are expected to be similar to, or less than, those during construction (not significant) and will be managed through a Decommissioning Environmental Management Plan. The resulting effects have been assessed to be **not significant**.
- 5.12.5 Overall, the traffic and transport effects have been identified for any phase of the Proposed Development.
- ## 5.13 Major accidents and disasters
- 5.13.1 **Chapter 19: Major Accidents and Disasters (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the vulnerability of the Proposed Development to external hazards and the potential for the

Proposed Development to cause significant environmental effects in the event of a major accident. Potential hazards assessed included extreme weather, flooding, existing major hazard industrial facilities, pipelines, transport incidents, pollution events, ground conditions and operational process failures.

Likely impacts and effects

- 5.13.2 A number of low probability but potentially high consequence accident scenarios were identified and assessed. The Proposed Development will be designed, constructed and operated in accordance with relevant safety and environmental regulations, including the Control of Major Accident Hazards (COMAH) regime, and will incorporate appropriate safety systems, emergency response procedures and environmental protection measures.
- 5.13.3 The assessment concludes that all identified risks can be reduced to a level that is As Low As Reasonably Practicable (ALARP). Unlike other EIA topics, where effects are assessed directly as significant or not significant, the Major Accidents and Disasters assessment considers whether low-probability, high-consequence risks have been reduced to a tolerable level through design measures, regulatory controls and emergency response arrangements. As all identified risks have been assessed as tolerable and managed ALARP, the resulting effects have been assessed to be **not significant** during construction, operation and decommissioning of the Proposed Development.

5.14 Marine navigation

- 5.14.1 **Chapter 20: Marine Navigation (ES Volume I, Application Document Ref. 6.1)** provides an assessment of the potential effects of the Proposed Development on marine navigation during construction and operation. The assessment considers vessel movements associated with the construction of the new quay and dredging works, delivery of construction materials and plant, and the import of biomass and waste wood feedstock during operation. The assessment has been informed by a Navigation Risk Assessment and consultation with the Statutory Harbour Authority, the Maritime and Coastguard Agency, Tees Bay Pilots and other marine stakeholders.

Likely impacts and effects

- 5.14.2 Construction of the quay, dredging activities and the delivery of construction materials and modular plant by sea will temporarily increase vessel movements within the River Tees. Potential effects on port operations, adjacent terminals and navigational safety, including collision, grounding and mooring risks, have been assessed. Appropriate mitigation measures,

including vessel deconfliction procedures, coordination with Vessel Traffic Services and agreed berthing arrangements, will be implemented to manage these risks.

- 5.14.3 During operation, the Proposed Development will receive biomass and waste wood feedstock via the new quay using ships. While this will increase marine traffic within the area, the assessment found that navigational risks will remain low and will be managed through existing port controls together with additional operational procedures agreed with the Statutory Harbour Authority.
- 5.14.4 Following implementation of the proposed mitigation measures, all identified effects on port operations, adjacent terminals and navigational safety are assessed as not significant. No significant cumulative effects with other planned developments within Teesport have been identified.
- 5.14.5 Overall, the assessment concludes that the Proposed Development will result in no significant effects on marine navigation during construction or operation.

5.15 Geology and soils

- 5.15.1 **Chapter 21: Geology and Soils (ES Volume I, Application Document Ref. 6.1)** provides an assessment of potential effects of the Proposed Development on geology, soils, groundwater and land contamination during construction, operation and decommissioning. The assessment has been informed by a desk-based geoenvironmental risk assessment (**Appendix 21A: Geoenvironmental Preliminary Risk Assessment, ES Volume III, Application Document Ref. 6.3**), review of historical site information and previous ground investigations. The Site has a long history of land reclamation, chemical manufacturing and waste disposal activities, which have the potential to have affected soil and groundwater quality.

Likely impacts and effects

- 5.15.2 Construction activities could disturb existing contamination in soils and groundwater, create contaminated runoff, and expose workers to contaminated materials or ground gases. A detailed desk-based geoenvironmental assessment, including a preliminary risk assessment and conceptual site model, have been undertaken to characterised these risks and identify appropriate mitigation measures. No significant contamination risks have been identified through the EIA. Further ground investigations, risk assessments and, where necessary, remediation measures will be undertaken prior to construction to verify the assessment findings, refine the understanding of site conditions and inform detailed design. Additional controls will be secured through **Appendix 5A: fCEMP (ES Volume III,**

Application Document Ref. 6.3), standard pollution prevention measures and appropriate health and safety procedures.

- 5.15.3 During operation, potential impacts could arise from accidental spills or leaks of fuels, chemicals and process liquids. These risks will be controlled through the design and operation of the facility, including drainage systems, pollution prevention measures and compliance with the requirements of the site's environmental permit.
- 5.15.4 With the proposed mitigation measures in place, effects on human health and the quality of soils, groundwater and surface waters, and also ecological receptors have been assessed to be **not significant** during construction and operation. Decommissioning effects are expected to be similar to, or less than, those during construction and have also been assessed to be **not significant**.

5.16 Cumulative and combined effects

- 5.16.1 **Chapter 22: Cumulative and Combined Effects (ES Volume I, Application Document Ref. 6.1)** considers whether the effects of the Proposed Development could act together (cumulatively) with those from other committed or reasonably foreseeable developments in the surrounding area (known as 'cumulative effects'), or whether multiple effects from the Proposed Development itself could interact to affect the same receptors (known as 'combined effects').

Cumulative effects

- 5.16.2 A review of major developments within the wider Teesside area identified a number of other projects with the potential to overlap with the Proposed Development during construction and/or operation. These include energy, hydrogen, carbon capture, industrial, port and infrastructure developments. Each project was reviewed to determine whether there was potential for environmental effects to occur at the same time and in the same location as those associated with the Proposed Development.
- 5.16.3 The assessment considered cumulative effects for the relevant environmental topics. For most environmental topics, **no significant** cumulative effects were identified. The assessment identified the potential for **significant** cumulative water quality effects and potential effects on some ecological receptors in the river if the Proposed Development's construction dredging activities were to overlap with construction dredging associated with another proposed marine development in the River Tees. Future project promoters will be required to consider the Proposed

Development within their own environmental assessments as further project information becomes available

Combined effects

- 5.16.4 Combined effects were assessed for nearby human receptors during construction and operation, including potential interactions between air quality, noise and visual effects. Combined effects on ecological receptors, geology and soils, waterbodies, local businesses and amenities are already considered within the relevant environmental assessments, so have not been replicated within the combined effects assessment. The assessment concluded that no significant combined effects are assessed following the implementation of the mitigation measures incorporated into the Proposed Development.
- 5.16.5 Overall, the assessment concludes that cumulative and combined effects are limited and that no significant cumulative or combined effects are assessed for the majority of environmental topics assessed.

6 Summary and conclusions

- 6.1.1 The ES presents the findings of the EIA process that has been undertaken for the Proposed Development and includes an assessment of the potential environmental impacts and effects of the Proposed Development during construction, operation and decommissioning phases.
- 6.1.2 Section 5 of this NTS summarises the findings of **ES Volume I Chapters 8-22 (Application Document Ref. 6.1)**. The assessment has been undertaken using the defined maximum design parameters (Rochdale Envelope) and worst-case assumptions where necessary for any aspects where the final design selection cannot yet be made and flexibility must be retained.
- 6.1.3 A range of environmental impact avoidance, design and mitigation measures have been identified to mitigate and control environmental effects during construction, operation and decommissioning phases of the Proposed Development. These will be secured through appropriate requirements within the **Draft Development Consent Order (Application Document Ref. 3.1)** and other legislative requirements including an environmental permit and, if required, COMAH for the operation of the Proposed Development.
- 6.1.4 **ES Volume I Chapter 23: Summary of Likely Significant Effects (Application Document Ref. 6.1)** identifies whether there are any likely significant effects of the Proposed Development either before or after the use of additional mitigation measures as identified by the EIA process. Effects that remain after the additional mitigation has been taken into account are known as 'residual effects'.
- 6.1.5 The assessment concludes that **no significant** residual effects are predicted for air quality, noise and vibration, terrestrial ecology, freshwater and marine ecology, water environment, landscape, greenhouse gas emissions, climate change resilience, materials and waste, traffic and transport, major accidents and disasters, marine navigation, or geology and soils.
- 6.1.6 **Significant adverse** residual visual effects are predicted during construction and operation at one nearby recreational viewpoint (RSPB Saltholme). At this location, the Proposed Development will introduce large-scale industrial structures into existing views and is considered to reduce the sense of openness. Due to the scale and nature of the Proposed

Development, opportunities for further mitigation are limited and these effects are assessed as significant.

- 6.1.7 The potential for **significant cumulative adverse** effects on water quality and some marine ecology if dredging for the construction of the Proposed Development's quay was to overlap with capital dredging for another marine development in the River Tees.
- 6.1.8 **Significant beneficial** residual socioeconomic effects are predicted during construction due to the creation of jobs and contribution of around £700 million GVA to the Teesside economy and around £1.88 billion to the national economy.

References

- Ref 1 HM Government (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online: <https://www.legislation.gov.uk/ukxi/2017/572/contents> [Accessed July 2026].
- Ref 2 European Union (2024) Industrial Emissions Directive 2010/75/EU. Available online: <https://eur-lex.europa.eu/eli/dir/2010/75/oj/eng> [Accessed September 2026]
- Ref 3 Department for Transport (2026) Renewable Transport Fuel Obligation (RTFO) and SAF Mandate technical information. Available online: <https://www.gov.uk/government/publications/rtfo-and-saf-mandate-technical-information> [Accessed September 2026]
- Ref 4 HM Government (2024) Sustainable Aviation Fuel (SAF) Mandate. Available online: <https://www.gov.uk/government/collections/sustainable-aviation-fuel-saf-mandate> [Accessed July 2026].
- Ref 5 HM Government (2017) The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available online: <https://www.legislation.gov.uk/ukxi/2017/407/contents> [Accessed July 2026].
- Ref 6 HM Government (2021) Net Zero Strategy: Build Back Greener. [Online] Available online: <https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf> [Accessed July 2026].
- Ref 7 Department for Transport (2022) Jet Zero Strategy: Delivering net zero aviation by 2050. Available online: <https://assets.publishing.service.gov.uk/media/62e931d48fa8f5033896888a/jet-zero-strategy.pdf> [Accessed July 2026].
- Ref 8 MetOffice (2018) UK Climate Projections (UKCP18). Available online: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp> [Accessed July 2026].

