

Humber Carbon Capture Pipeline

Preliminary Environmental Information Report – Volume 1 – Non-Technical Summary

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1 Introduction

1.1 What is this document?

- 1.1.1 This Non-Technical Summary document presents a summary of the information presented within the Preliminary Environmental Information Report. The Preliminary Environmental Information Report is a technically detailed document, with the Non-Technical Summary prepared to provide a succinct, informative and understandable overview of the information submitted within the main volume of the document.
- 1.1.2 The Applicant would like to hear your opinion on the Project and the various facets associated with it (for example, the preliminary measures outlined in order to reduce potential negative effects on the environment). Ways of contacting the Applicant are included in Section 5.
- 1.1.3 Table 1-1 provides a summary of each section to help navigate the document.

Table 1-1 – Sections of the Non-Technical Summary

Section Number	Section Title	What is included?
1	Introduction	This section provides a brief introduction to the Project, the Applicant, and the process of obtaining consent.
2	Overview of the Project	This section provides an overview of who the client is and why the Project is required along with details on the Project and what is to be built, including details of how it would be built.
3	Environmental Impact Assessment	This section explains how the preliminary environmental assessment has been undertaken and how it will be informed by consultation and stakeholder engagement. Volume 2 - Chapter 4: Environmental Impact Assessment Methodology of the Preliminary Environmental Information Report contains further information on the methodology of the environmental assessments.
4	Summary of Environmental Assessment and Impacts	For each of the environmental topics considered as part of the Environmental Impact Assessment, this section provides an overview of what is being assessed and the results of the preliminary assessment. Volume 2 - Chapters 5 to 21 of the Preliminary Environmental Information Report contain further information on the preliminary environmental assessments undertaken.
5	Have Your Say	This section explains how you can have your say on the proposals.
6	Next Steps	This section explains what happens next in the Environmental Impact Assessment process.

2 Overview of the Project

- 2.1.1 The Humber Carbon Capture Pipeline Project (the 'Project') comprises a below-ground pipeline to transport carbon dioxide (to facilitate carbon capture and storage), along with associated Above Ground Installations and a Pump Facility.
- 2.1.2 Humber Carbon Capture Pipeline would be built underground between the Drax area in North Yorkshire and the coast north of Easington in the East Riding of Yorkshire, crossing through North Lincolnshire and North East Lincolnshire. At the coast north of Easington, the pipeline would connect to an offshore pipeline to continue the transportation of carbon dioxide to a saline aquifer under the North Sea where the carbon dioxide will be permanently stored. The Project encompasses the onshore works down to Mean Low Water Springs in the intertidal zone at Easington. The Project would allow for connections to several carbon capture projects across the Humber region.

2.2 Who are Northern Endurance Partnership?

- 2.2.1 The Project is being developed by Net Zero North Sea Storage Limited (the Applicant), which is the promoter entity for the Northern Endurance Partnership. Northern Endurance Partnership is an independent joint venture with shareholders comprising bp, Equinor and TotalEnergies. Northern Endurance Partnership was formed to develop the carbon dioxide transportation and storage infrastructure to serve a diverse range of industries in the Teesside and Humber regions.

2.3 Why is the Project Needed?

- 2.3.1 The UK government has set a legally binding target of achieving net zero carbon dioxide emissions by 2050. To meet this target, the UK needs to transition towards cleaner sources of energy, while decarbonising existing infrastructure.
- 2.3.2 The need for new energy infrastructure is a core principle of the Nationally Planning Statement EN-1. EN-1 provides clear statements that establish the urgent national need for all types of energy infrastructure that support the transition to a low-carbon economy, including carbon capture pipelines.
- 2.3.3 The Humber region has a high concentration of energy intensive industries concentrated in a 'cluster' and is also the UK's most carbon intensive region. As

the UK's largest industrial cluster, the Humber region produces 12.4 million tonnes of carbon dioxide emissions per year.

- 2.3.4 Carbon capture and storage is the process of capturing carbon dioxide (CO₂) from industrial activity, transporting it, and then storing it in underground storage sites. In the UK, all prospective carbon dioxide storage sites are located offshore, with a large storage volume available in the North Sea region.
- 2.3.5 The objective of this Project is to deliver a new onshore pipeline infrastructure within the Humber region. This would transport captured carbon dioxide from the region's industrial emitters for safe storage offshore in the North Sea to support the UK Net Zero targets.

2.4 Key Elements of the Project

Pipeline

- 2.4.1 As discussed above, the Project shall comprise the construction of a pipeline system, as well as associated Above Ground Installations.
- 2.4.2 The main pipeline would be approximately 66 cm in diameter. The pipeline for the spur lines to Carbon Capture Projects would be up to approximately 30 cm in diameter. The pipeline is approximately 92 km on the mainline pipe and approximately 29 km of spur lines.
- 2.4.3 The pipeline would be underground throughout the extent of the Project, at approximately 1.2 m below the surface. Only small sections of the pipeline within the boundary of some Above Ground Installations and the Pump Facility would be above ground, to allow for operational maintenance access and monitoring.
- 2.4.4 The pipeline is designed to transport up to 17 million tonnes of carbon dioxide per year. The pipeline would transport carbon dioxide in the dense phase (a highly compressed fluid that demonstrates properties of both liquid and gas) from carbon capture projects.

Above Ground Installations

- 2.4.5 In addition to the pipeline, the Project would include some Above Ground Installations. These are securely fenced compounds which provide the maintenance facility and transition between the pipeline systems and the Connected Projects. The different types of Above Ground Installations are as follows:

- **Inlet:** Would serve as the connection point from the Carbon Capture Projects to the pipeline.
- **Junction:** Would connect a spur line to the main pipeline.
- **Block Valve Stations:** Would allow the isolation and monitoring of the pipeline.

2.4.6 Further details of the Above Ground Installations are provided in Volume 2 - Chapter 2: Project Description of the Preliminary Environmental Information Report.

Pump Facility

2.4.7 A facility (referred to as a Pump Facility) is proposed north of Easington in the East Riding of Yorkshire. The Pump Facility would increase the pressure of the carbon dioxide to enable onward transportation to the offshore subsea storage site. The Pump Facility would be located near to the proposed landfall point – where the onshore and offshore pipeline would interact.

2.4.8 Further details of the Pump Facility are provided in Volume 2 - Chapter 2: Project Description of the Preliminary Environmental Information Report.

2.5 Construction

Overview

2.5.1 Subject to the Development Consent Order being granted, it is anticipated that construction works would commence in 2029. Not all locations would be subject to construction works for the entire period of the Project construction phase.

2.5.2 Twenty-four-hour working would be required to align with critical work activities such as tunnelling, drilling, boring, testing or works associated with offshore interfaces. Throughout the EIA process each environmental discipline will assess the likely significant effects of 24-hour working.

2.5.3 Further detail on the anticipated construction phasing and programme will be provided in the Environmental Statement.

Pipeline Construction

2.5.4 Construction of the pipeline would involve various methods and a sequence of activities that are typical for the pipeline industry and are used for the construction of other onshore, cross-country pipelines, such as natural gas.

- 2.5.5 The pipeline would be buried. The minimum depth from the top of the pipe to the ground surface (i.e. pipeline cover) would be 1.2 m. This may be deeper in some areas. Additional cover may be required to avoid existing buried utilities, to provide additional separation from surface-level features (watercourses, roads, tracks, etc.) or where trenchless construction techniques are used.
- 2.5.6 The pipeline would be constructed via the excavation of an open trench, lowering of the pipe into it and then refilling the trench with the excavated material (this is known as backfilling).
- 2.5.7 Construction works would generally be contained within a fenced working area, termed the construction working width. The construction working width for the pipeline would be a maximum of 40 m wide. This would be the typical width for areas where construction works are unconstrained. Between Salt End and Easington the construction working width may be wider than assumed for the majority of the pipeline due to the power cable requiring a similar construction width to the pipeline and may be subject to its own minimum separation distance. Until the distance can be confirmed, a 90 m construction working width is assumed for this section.
- 2.5.8 The sequence of activities for pipeline construction across the route would typically comprise:
- The construction working width, i.e. the total area within which construction work would take place, is marked out.
 - The topsoil is carefully stripped and stored next to the route.
 - The pipeline sections are welded together and coated.
 - The pipeline trenches are dug, with excavated material being stored separately from the topsoil on the opposite side of the trenches.
 - The pipeline is lowered into the trenches using special vehicles called 'side booms' and welded to the pipeline already laid.
 - The trench is filled in using the previously excavated material and the topsoil reinstated.
 - The pipeline is cleaned and hydrotested.
 - Following reinstatement of the excavated material, the land is returned to its previous use.
- 2.5.9 For crossings of railway lines, major roads (motorways and A-roads), main rivers, the cliff at Easington and other major infrastructure, specialist trenchless techniques would be used. A trenchless technique is a method that allows the pipeline to be installed without disturbing the ground surface.

Above Ground Installation Construction

- 2.5.10 The Above Ground Installations would typically be constructed as follows:
- Pre-construction activities (for example, the creation of temporary working areas).
 - Construction of an access road if required or upgrading of an existing access way.
 - Installation of below ground works (such as concrete foundations).
 - Construction of above ground structures (for example, above ground pipework and equipment).
 - Installation of pipeline and equipment and associated infrastructure.
 - Connection to utilises / services (for example, electrical, telecommunications etc).
 - Testing activities and commissioning.
 - Perimeter landscape works and removal of temporary infrastructure.

Temporary Working Areas

- 2.5.11 Temporary working areas would be required to facilitate construction activities. The likely types of temporary working areas are as follows:
- Construction working width along the length of the route (including temporary accesses).
 - Temporary construction compounds.
 - Above Ground Installation laydown areas.
 - Site offices.
 - Welfare, yard and workshop facilities.
 - Pipe delivery areas.
 - Compound for crossing of the cliffs and inter-tidal zone.

- 2.5.12 The locations of temporary working areas will be presented in the Environmental Statement.

2.6 Operation and Maintenance

- 2.6.1 The pipelines would be designed, constructed, operated and maintained in accordance with relevant industry codes of practice, standards and recommended practice. The pipeline and the Above Ground Installations will have an operational design life of at least 25 years.
- 2.6.2 Once the Project commences operation, the pipeline would be protected by restrictions placed on the land over and immediately around the pipeline,

referred to as the 'Permanent Rights Corridor'. This will restrict excavation, building or any other activity that can affect the operation, safety and / or the environmental protection of the pipeline. The Permanent Rights Corridor is ordinarily expected to be 9 m or 6 m either side of the pipeline, but this may vary.

- 2.6.3 The Above Ground Installations would be operated remotely; however, the design would include provisions for the facilities to be operated locally for maintenance purposes or in the case of any unforeseen operating events.
- 2.6.4 The pipelines and associated Above Ground Installations would also be regularly maintained to ensure their continued reliability using trained and competent personnel and all work would be strictly controlled.
- 2.6.5 It is anticipated that personnel would occasionally pay on-site visits to Above Ground Installations to undertake a security check and inspection. This would be infrequent (i.e. a visit approximately once per month) and is assumed to involve an operative/s travelling to each Above Ground Installation in a vehicle using the existing road network to inspect the site.
- 2.6.6 A Leak Detection System (LDS) in the form of a Fibre Optic Cable running parallel to the pipeline would be implemented to monitor the pipeline system and would alert the operator to potential leaks. Up to two fibre optic cables would be installed throughout the length of the pipeline and connect to the AGIs and the Pump Facility.
- 2.6.7 The Pump Facility would be permanently staffed by approximately four people. Occasionally, there may be a need for approximately 19 additional people to temporarily work at the Pump Facility to support key operation and maintenance tasks. This would include activities such as meter calibrations, instrument and electrical routines, grounds maintenance, rigging and lifting of plant, fabric maintenance and major pump overhaul. Key operation and maintenance tasks would be scheduled to maximise efficiency.
- 2.6.8 For further information on the operation and maintenance of the Project refer to Section 2.10 of Volume 2 - Chapter 2: Project Description of the Preliminary Environmental Information Report.

2.7 Decommissioning

- 2.7.1 When it reaches the end of its operational life, the pipelines would be safely decommissioned. It is anticipated that the pipelines would be made safe and left

in the ground. The Above Ground Installations and the Pump Facility would be dismantled; all equipment would be removed and the land returned to agricultural or other appropriate uses.

2.7.2 For further information on decommissioning of the Project refer to Section 2.11 of Volume 2 - Chapter 2: Project Description of the Preliminary Environmental Information Report.

2.8 Consideration of Alternatives

2.8.1 A number of alternatives have been looked at in terms of: (i) alternative pipeline routes and (ii) alternative location of Above Ground Installations. The design and siting of the Project will be subject to refinement following Statutory Consultation and the final design will be assessed in the Environmental Statement submitted as part of the Development Consent Order Application.

2.8.2 By prioritising safety, environmental stewardship and deliverability, the Project aims to deliver a reliable, sustainable, and secure carbon capture infrastructure that contributes to the UK's decarbonisation efforts while fostering long-term environmental benefits.

2.8.3 There are several parameters that form the underlying basis of design and will continue to inform the design. These are summarised below:

- Process Safety - The safety of the population residing, living, and working in proximity to the pipeline is at the core of the HCCP pipeline routeing. To aid the routeing exercise, a risk assessment was undertaken in line with industry standards and updated at each major revision of the route to guarantee the safety of the route and achieve a continual risk reduction during pipeline route development. In addition, all requirements of Land Use Planning (LUP) were followed to ensure that the HSE would provide a "Does Not Advise Against" ("DNAA") response to Planning Authorities (PA). As the design develops, this will continue to be a guiding principle.
- Environmental and Planning Constraints – The design of the pipeline will be continually cognisant of all environmental and planning constraints, with avoidance of constraints, where feasible, forming the basis of routeing. While this has not always been possible, routeing has been developed through areas where there are fewer environmental constraints present.
- Technical Constraints – The constructability of the pipeline was key to the design, with site visits aiming to confirm the working widths, equipment manoeuvrability and accessibility. Similarly, the number and type of crossings of watercourses and utilities has been, and will continue to be,

integral to the design of the Project and pipeline routing to ensure the financial and technical feasibility of HCCP.

2.8.4 For further information refer to Volume 2 – Chapter 3: Consideration of Alternatives of the Preliminary Environmental Information Report.

3 Environmental Impact Assessment

3.1 What is an Environmental Impact Assessment?

- 3.1.1 The term Environmental Impact Assessment describes a process that must be followed for certain projects before they can be granted consent. The process is a means of drawing together an assessment of a project's likely significant environmental effects. This helps to ensure that the anticipated effects and proposed mitigation for avoiding, preventing, reducing or, if possible, offsetting them are properly understood by stakeholders and the determining authority before granting consent.
- 3.1.2 Assessments are made on the significance of an effect on a wide range of receptors, including physical, biological and human, and mitigation measures are proposed to reduce any significant effects.
- 3.1.3 This Preliminary Environmental Information Report presents a snapshot in time of how the Environmental Impact Assessment is progressing and presents an early indication of likely significant effects. The Environmental Statement will present the final assessment based on the updated design, which will be updated following the Statutory Consultation and all feedback received.

3.2 How have the Environmental Impacts been Identified?

- 3.2.1 The Applicant submitted an Environmental Impact Assessment Scoping Report to the Planning Inspectorate in January 2025. A response to this (the 'Scoping Opinion') was received from the Planning Inspectorate in February 2025 which considered comments from a range of stakeholders. The Scoping Opinion has formed the basis of this Preliminary Environmental Information Report and will form the basis of the Environmental Statement by identifying and confirming the topics that require assessment.
- 3.2.2 Within this Preliminary Environmental Information Report, for each topic, a description of the current environmental baseline has been identified through a combination of desk-based study, environmental surveys and consultation. Potential impacts of the construction, operation and decommissioning of the Project have been identified. A preliminary assessment has then been made on the severity of each potential impact and where needed; mitigation measures have been proposed to reduce impacts to acceptable levels where possible.

- 3.2.3 The Project will continue to take a proactive approach to avoid or minimise environmental effects and all mitigation measures (i.e. commitments) will be presented within a Register of Commitments as part of the Environmental Statement.
- 3.2.4 A summary of the environmental assessments is presented within this Non-Technical Summary.

4 Summary of the Environmental Assessment and Impacts

4.1 Agriculture and Soils

- 4.1.1 The Project is located in an area that is predominantly agricultural and under arable production, with small areas of grassland and woodland.
- 4.1.2 The preliminary assessment has identified potential significant effects associated with the permanent loss of agricultural land and soil functions during construction due to the Above Ground Installations and Pump Facility. The preliminary assessment has also identified potential significant effects associated with the temporary loss of agricultural land and soil function and volume during construction due to the trenching work of the pipeline, compounds and haul roads. The Above Ground Installations and Pump Facility were additionally identified as having potential significant effects on reinstated agricultural land during decommissioning.
- 4.1.3 There were no other potential significant effects identified at this stage during the construction, operation or decommissioning phases of the Project. It is considered that given the scale of the Project, the route-wide potential impacts on agricultural land and soils would likely be significant. However, mitigation measures to reduce any potential effects on sensitive agricultural receptors (including the grade of agricultural land) have been proposed, including (but not limited to) ongoing design work (to avoid sensitive areas where practicable) and good site practice measures in relation to approaches to soil handling that would be documented in a Construction Environmental Management Plan.
- 4.1.4 For further information refer to Volume 2 – Chapter 5: Agriculture and Soils of the Preliminary Environmental Information Report.

4.2 Air Quality

- 4.2.1 The existing baseline for air quality was evaluated using data from publicly available sources. In general, given the predominantly rural nature of the Study Area, data suggests that the concentrations of airborne pollutants are likely within the air quality objectives and therefore, existing air quality is generally considered to be ‘good’, with the exception of three nearby Air Quality Management areas located near the construction transport routes, located in Hull, Scunthorpe and Selby. These are all within 6 km of the Project.

- 4.2.2 No potential air quality impacts have been identified at this stage that would require design changes to the Project. The preliminary assessment has identified that there would be no significant adverse effects on human health, ecological receptors or dust soiling as a result of fugitive dust emissions during the construction and decommissioning phases of the Project. Measures to control airborne pollutants would be implemented through good site practice measures that would be documented in a Construction Environmental Management Plan. The preliminary construction dust risk assessment will be reviewed and updated in the Environmental Statement to determine the risk category and associated mitigation measures to ensure dust impacts are not significant.
- 4.2.3 The preliminary assessment has identified that the potential significant effects associated with increases in nitrogen dioxide (NO₂) and particulate matter (PM₁₀ and PM_{2.5}) concentrations and nitrogen deposition rates (as a result of construction vehicle emissions during construction, operation and decommissioning) will also likely not be significant due to their temporary and transient nature. However, this will be reported in the Environmental Statement, after further assessment.
- 4.2.4 The design development of the Project will continue to be reviewed to assess potential air quality impacts and the Project's final design will be reported in the Environmental Statement. Construction and operational traffic flows will be screened to determine if further assessment is required.
- 4.2.5 For further information refer to Volume 2 – Chapter 6: Air Quality of the Preliminary Environmental Information Report.

4.3 Ecology and Biodiversity

- 4.3.1 The predominant habitats within the area surrounding the Project include mainly arable habitat with areas of running water and / or marine components, semi-improved grassland, built areas and hardstanding, and woodland. Much of the habitat within close proximity (2 km) of the Project has the potential to support priority habitats, ancient woodland, notable plants, protected and notable invertebrates (terrestrial and aquatic), fish, amphibians (including great crested newt), and reptiles (particularly viviparous lizard, slow worm and grass snake). Habitat within the Project and the surrounding area has the potential to support passage, breeding and / or non-breeding birds.

- 4.3.2 The Project crosses (using trenchless techniques to avoid direct impacts) the following sites with statutory designations for ecological features:
- Humber Estuary Ramsar.
 - Humber Estuary Special Area of Conservation.
 - Humber Estuary Special Protection Area.
 - Humber Estuary Site of Special Scientific Interest.
 - Holderness Inshore Marine Conservation Zone.
 - Greater Wash Special Protection Area (marine).
 - North Killingholme Haven Pits Site of Special Scientific Interest.
- 4.3.3 There are a further 14 statutory designated sites within the 2 km of the Project.
- 4.3.4 Various desk-based and field surveys to characterise the ecology and biodiversity of the area (including surveys for flora and fauna) have been undertaken. To date, surveys have identified the following within their search area:
- Bats
 - Badgers
 - Otters
 - Water voles
 - Brown hares
 - Hedgehogs
 - Harvest mice
 - Arboricultural features (Tree Preservation Orders and potential veteran trees)
- 4.3.5 A Habitats Regulations Assessment will be carried out to determine any likely significant effects on qualifying features of European sites. Mitigation measures to reduce any potential effects on biodiversity have been proposed and would include good site practice measures, documented in a Construction Environmental Management Plan and a Decommissioning Environmental Management Plan. As a result of this, the preliminary assessment has identified that there would be no significant adverse effects during the construction, operation or decommissioning phases of the Project at this stage, but this is to be confirmed in the Environmental Statement.
- 4.3.6 On-going design work will focus on minimising impacts on important ecological features through the avoidance of valuable habitats, identified through current and future survey work. Opportunities for biodiversity enhancement measures will be maximised where possible.

4.3.7 For further information refer to Volume 2 – Chapter 7: Ecology and Biodiversity of the Preliminary Environmental Information Report.

4.4 Climate Resilience

4.4.1 The significance of any anticipated climatic impacts on the Project has been determined by a Climate Resilience assessment. Climatic variables assessed include, but are not limited to, storms, droughts, extreme weather events, and sea level rise. The assessment involves a review of the likely future changes to the climate variables where the Project is located, and an assessment of the potential impacts these changes could have on each element of the Project.

4.4.2 The Project crosses the Humber Estuary and out to Mean Low Water Springs. These areas are vulnerable to sea level rise. Large parts of the Project are within areas of flood risk.

4.4.3 In assessing Climate Resilience, the preliminary assessment has identified potential significant effects associated with human health (e.g. site workers) during the construction phase due to prolonged dry conditions. In the operational and decommissioning phases, potential significant effects on human health have been identified as a result of potential heavy rainfall and high temperatures, resulting in increased safety risks to site workers.

4.4.4 During the operational phase, the preliminary assessment has identified potential significant effects associated with the overheating of Above Ground Infrastructure, resulting in structural damage. Further identified potential significant effects during the operational phase include the impact of high temperatures and drought on any proposed landscape planting and on soil stability, which could increase the risk of ground movement and damages to the pipeline and Above Ground Infrastructure.

4.4.5 The preliminary assessment also identified potential significant effects associated with damage to infrastructure as a result of heavy rainfall / flooding causing drainage system failure during the operational phase.

4.4.6 Alongside the measures integrated into the Project's design, additional measures to reduce the vulnerability of construction workers and constructions compounds to climate change would be implemented through good site practice measures that would be recorded in a Construction Environmental Management Plan.

- 4.4.7 For further information refer to Volume 2 – Chapter 8: Climate Resilience of the Preliminary Environmental Information Report.

4.5 Greenhouse Gases

- 4.5.1 Greenhouse gas emissions occur constantly and widely as a result of natural and human activity, including land use and land use change, transport, energy consumption and industrial processes.
- 4.5.2 Greenhouse Gas emissions from the construction of the Project would be minimised by design optimisation and environmentally sensitive practices reflecting the Carbon Reduction Hierarchy. During the construction phase, emissions could be minimised by prioritising use of more sustainable materials with reduced embodied emissions and materials with higher proportion of recycled content. During operation, emissions could be minimised by specifying long-lasting, high efficiency materials that require minimal maintenance and refurbishment, and using best practice in energy efficiency when carrying out maintenance and refurbishment works. Decommissioning emissions could be reduced by maximising potential for reuse, recycling, and / or recovery of materials at end-of-life, whilst minimising the volume of waste being disposed of at landfill.
- 4.5.3 As a result of the nature of the Project and mitigation measures outlined prior, the preliminary assessment does not anticipate any likely significant effects. However, this will be reported in the Environmental Statement.
- 4.5.4 For further information refer to Volume 2 – Chapter 9: Greenhouse Gases of the Preliminary Environmental Information Report.

4.6 Ground Conditions and Hydrogeology

- 4.6.1 Historical mapping shows the Project site has remained largely undeveloped agricultural farmland since the earliest available map circa 1830. The Project site is predominantly flat agricultural fields separated by field drains and hedgerows. One Geological Site of Special Scientific Interest and has been identified within the Project site (Dimlington Cliffs), though there are no anticipated interactions between the designation and the Project. Additionally, sections of the Project fall within the Nottinghamshire Coal Mining Reporting Area, however the Project is not anticipated to interact with historical mining activities or infrastructure, therefore the risks posed by this are not considered to be significant.

- 4.6.2 Several Water Framework Directive groundwater bodies are also present. Both Source Protection Zones and Nitrate Vulnerable Zones have been identified, which are areas considered vulnerable to changes in groundwater chemistry.
- 4.6.3 A brief summary of the geology for the Project is presented below:
- Superficial deposits:
 - Warp, Peat, Alluvium, Beach and Tidal Flat Deposits, Head Deposits, Lacustrine Deposits, Brighton Sand Formation, Hemingbrough Glaciolacustrine Formation, Glaciofluvial Deposits (Devensian), Till and Clay-with-Flints
 - Bedrock geology:
 - Mercia Mudstone Group, Sherwood Sandstone Group, Flamborough Chalk Formation, Burnham Chalk Formation, Welton Chalk Formation, Ferriby Chalk Formation, Kimmeridge Clay Formation, Ampthill Clay Formation, West Walton Formation, Oxford Clay Formation, Kellaways Sand Member, Cornbrash Formation, Rutland Formation, Grantham Formation, Lower Lincolnshire Limestone Member, Raventhorpe Beds, Thorncroft Sand Member, Kirton Cementstone Beds, Hibaldstow Limestone, Whitby Mudstone Formation, Marlstone Rock Formation, Frodingham Ironstone Member, Charmouth Mudstone Formation, Scunthorpe Mudstone Formation, Penarth Group
- 4.6.4 A brief summary of the hydrogeology for the Project is presented below:
- Underlying aquifers:
 - Principal, Secondary A & B and undifferentiated (Principal aquifers are used for public water supply)
- 4.6.5 With regard to ground conditions and hydrogeology, the preliminary assessment has identified multiple potential significant effects associated with the Project, of varying significance. The preliminary assessment has identified potential significant effects of associated with Made Ground and contaminant disturbance affecting groundwater features, surface water features, and human health. Potential sources include (but are not limited to) chemical spillages and leaks from construction plant and machinery, chemicals and other contaminants stored on site causing the potential pollution of ground or groundwater.
- 4.6.6 The assessment also identified short-term potential significant effects associated with temporary disturbance of seabed habitats and geological features from construction activities. Pipeline route optimisation in the nearshore will be conducted where reasonably practicable to minimise impacts

on potential features of conservation interest. During construction and decommissioning, Dimlington Cliffs could also have the potential to be adversely impacted by the Project. Mitigation measures are in place to reduce resource loss, including utilising trenchless methods for pipeline installation.

4.6.7 Consideration will be given to the potential effects of dewatering on adjacent water features both from drawdown during abstraction and secondary effects such as saline intrusion. Potential effects would be managed via integration into the design of the Project, good practice measures that would be recorded in a Construction Environmental Management Plan, and a programme of ground investigations and monitoring. Further detailed assessments concerning ground conditions and hydrogeology will be conducted for the Environmental Statement.

4.6.8 For further information refer to Volume 2 – Chapter 10: Ground Conditions and Hydrogeology of the Preliminary Environmental Information Report.

4.7 Cultural Heritage

4.7.1 The Project extends between the Drax area in North Yorkshire and the coast north of Easington in the East Riding of Yorkshire, which have a rich historical and archaeological heritage. Activity is known in the area from the Palaeolithic period through to the modern day, shown through archaeological finds and features, built heritage, and from changes within the landscape. 25 Scheduled Monuments, 138 Listed Buildings, and 8 Conservation Areas are located within the Project site and the surrounding area (500 m).

4.7.2 The preliminary assessment has utilised data from the respective local historic environmental records alongside other designated heritage datasets. The historic settlement cores, historic earthworks and ancient enclosures of the Project's medieval landscape all fall outside of the Project's boundaries. However, historic settlement cores and historic earthworks are present adjacent to the Project. Most lie near access roads to Above Ground Infrastructure compounds, therefore their settings may be impacted during the construction and operation phase.

4.7.3 The preliminary assessment has identified that there are potential significant effects associated with the heritage value of assets due to minor changes in the setting during the construction phase (increases in construction traffic, noise and waste material in the area). Pipeline construction and routing during this phase will require boundary alteration involving tree and hedgerow removal. Project construction activities, although temporarily, will introduce a modern

industrial setting to these historic landscape types and as a result, will impact their legibility. The construction phase will only slightly and temporarily alter the landscape, and it is intended that the Project will be routed underground, which will mitigate most impacts to the landscape during the construction phase. However, the temporary loss of the rural setting will still result in a temporary significant effect.

- 4.7.4 Significant effects during operation would be due to a permanent change in an asset's setting, due to the presence of an Above Ground Installation. The Above Ground Installation locations will not alter the existing fields' shape or pattern but will introduce a permanent industrial element to these landscape types, altering how a heritage asset is experienced and slightly impacting the historic legibility of these areas of the Project. As a result, it is considered that the operational phase will have a potential significant impact on the Project's landscape types.
- 4.7.5 A number of mitigation methods are suggested for Project impacts on cultural heritage including archaeological excavation and recording, reinstatement of land to limit changes in setting, landscape planting to reduce visual impact of the Above Ground Infrastructures in the setting of the asset and good practice measures during construction that would be recorded within a Construction Environmental Management Plan.
- 4.7.6 To further inform the understanding of the cultural heritage associated with the Project, further work will be undertaken such as a geoarchaeological assessment and continuing geophysical surveys. Continued engagement will be undertaken with members of the Project's Heritage Working Group, established with consultees from Historic England, and the respective local authority archaeological advisors and conservation officers.
- 4.7.7 For further information refer to Volume 2 – Chapter 11: Cultural Heritage of the Preliminary Environmental Information Report.

4.8 Landscape and Visual

- 4.8.1 Desk-based data was reviewed, and site surveys were undertaken to identify suitable specific 'viewpoints' to better understand the character of the local landscape. Representative Viewpoints were chosen to assess impacts on visual receptors, including settlements or public rights of way. The impacts of the Project were assessed in relation to nearby sensitive receptors and the visual impact on any designated landscapes.

- 4.8.2 There are no nationally designated landscapes such as National Landscapes within the Project's landscape and visual Study Area. The majority of the Project lies within a generally open, expansive and low-lying landscape interspersed with large and medium infrastructure elements (particularly related to energy, transport corridors, and port infrastructure), with varying levels of tree cover and built form which serve to limit inter-visibility in some locations and directions.
- 4.8.3 The preliminary assessment did not identify any potential significant effects as a result of the Project. The majority of landscape and visual disturbance associated with the Project would be associated with the construction and decommissioning phases which would be temporary in nature and of relatively short duration. Potential landscape and visual impacts may arise from the operational stages of the Above Ground Installations depending on location and scale.
- 4.8.4 The design of the Project will consider the implementation of mitigation measures to reduce any potential adverse effects. These measures include (but are not limited to) ensuring construction compounds are located on previously developed sites where practicable, and the re-instatement of affected landscape features including ground contouring, in addition to good practice construction measures being followed and recorded within a Construction Environmental Management Plan. Replacement of agricultural grass, hedgerow and tree planting would also be undertaken as part of the mitigation in conjunction with biodiversity measures. A full Landscape and Visual Amenity Impact Assessment will be reported in the Environmental Statement, which will further develop the understanding of significance of impacts.
- 4.8.5 For further information refer to Volume 2 – Chapter 12: Landscape and Visual of the Preliminary Environmental Information Report.

4.9 Noise and Vibration

- 4.9.1 The majority of the Project is located within a rural setting, typically comprising agricultural land use. The acoustic environment varies significantly along the route depending on proximity to prominent noise sources; these sources include agricultural activities, road and rail infrastructure, industrial facilities, commercial premises / activities, wind turbines, an airport and the North Sea.
- 4.9.2 The preliminary assessment has identified potential for short-term effects associated with disturbances from increased noise and vibration levels during the construction phase.

- 4.9.3 It is predicted that there will be potential for long-term effects on the occupants of nearby sensitive receptors to the Pump Facility due to increased noise levels during the operational phase. However, the magnitude of impact will be determined as part of the Environmental Statement, once the details of noise emitting plant / equipment associated with the Pump Facility have been confirmed.
- 4.9.4 During the decommissioning phase of the Project, the resultant noise and vibration levels are expected to be broadly similar to those generated during the construction phase, albeit localised to the Pump Facility and Above Ground Infrastructure. The decommissioning phase activities would be undertaken during core daytime hours, consistent with the construction phase so to mitigate potential noise / vibration as much as practicable.
- 4.9.5 Mitigation during the construction and decommissioning phases of the Project would include Best Practicable Means (for example, choosing low noise equipment and optimising the location of equipment / activities). Further measures to consider in reducing noise levels during construction include utilising temporary acoustic barriers for the duration of key activities and limiting night-time working.
- 4.9.6 For further information refer to Volume 2 – Chapter 13: Noise and Vibration of the Preliminary Environmental Information Report.

4.10 Socio-economics

- 4.10.1 Desk-based data was reviewed, and site surveys / engagement activities were undertaken to establish the underlying socio-economic conditions to inform the subsequent preliminary assessment.
- 4.10.2 The preliminary assessment has identified that, during construction, the Project has the potential to have a temporary significant effect on a local business.
- 4.10.3 No tourism attractions are situated within the Project. However, the Project is intersected by two National Cycle Routes, the Trans Pennine Trail and other long distance walking routes in and around the site. Mitigation measures aim to consider appropriate footpath diversions, as well as ensuring the public are appropriately informed of the nature, timing and duration of construction activities.
- 4.10.4 A more detailed assessment of the Project's potential access and amenity impacts on socio-economic, recreation and tourism receptors will be carried out

as part of the Environmental Impact Assessment process and reported in the Environmental Statement. In addition, the assessment of local economy and employment effects during construction and decommissioning will be refined as more detailed information on workforce requirements becomes available.

- 4.10.5 For further information refer to Volume 2 – Chapter 14: Socio-economics, Recreation and Tourism of the Preliminary Environmental Information Report.

4.11 Human Health and Wellbeing

- 4.11.1 Data has been gathered to identify whether the existing population in the vicinity of the Project are sensitive to changes in aspects such as the physical environment, income levels, employment, education, social support, and housing, which may be caused by the construction and operation and decommissioning of the Project.
- 4.11.2 The surroundings adjacent to the Project consist of agricultural land, industrial areas and residential properties. Key features include a network of public rights of way, community facilities, agricultural land and a number of residential settlements. There are some health sensitivities in relation to vulnerable groups and health inequalities, for example, in some surrounding areas there is an ageing population.
- 4.11.3 The preliminary assessment has determined there are no likely significant effects to health and wellbeing as a result of the Project. However, potential impacts and additional mitigation measures may be identified following further stakeholder engagement, which will be detailed as part of the Environmental Statement. Where practicable, the Project has been designed to avoid direct impacts onto the surrounding social infrastructure, public rights of way, cycling and walking infrastructure and areas of open space. A Public Right of Way Management Plan should be considered to ensure that where it is necessary to cross a public right of way the route would be adequately diverted and sign posted accordingly.
- 4.11.4 For further information refer to Volume 2 – Chapter 15: Human Health and Wellbeing of the Preliminary Environmental Information Report.

4.12 Traffic and Transport

- 4.12.1 Desk-based data was collated and reviewed for all roads within the Construction Traffic Routes to and from the Project, up to the Strategic Road Network.

- 4.12.2 The Preliminary Construction Routes, where practicable, have been developed to avoid existing highways constraints, settlements, sensitive receptors, single carriage roads, to utilise the shortest available route and to use A roads as a priority before exploring B and C roads. It is noted that there are a number of public rights of way crossing or linking the roads along the construction routes.
- 4.12.3 Given the temporary nature of the construction and decommissioning works and following the implementation mitigation measures, for example implementing a Construction Traffic Management Plan, the only anticipated significant effect on traffic and transport during construction will be to marine traffic. There is potential for the physical presence of vessels associated with Project construction to obstruct other sea users, i.e., marine traffic. Whilst it is appreciated installation activities may cause a degree of disturbance to marine traffic in the Humber (due to prominent port locations), vessels operating in the area will be experienced in navigating around installation vessels. Any displacement will therefore be highly localised and occur over short durations. Impacts at Easington Landfall are considered to be limited considering low vessel densities which overlap with the Project boundaries.
- 4.12.4 The operation of the Project would not create any notable increase in movements of vehicles, only movements associated with maintenance activities which are not considered to be significant.
- 4.12.5 For further information refer to Volume 2 – Chapter 16: Traffic and Transport of the Preliminary Environmental Information Report.

4.13 Waste and Materials

- 4.13.1 The preliminary desk-based assessment identified that there are currently no significant effects associated with the supply and stock of key construction material / mineral resources to the Project. As the design continues to progress, further data regarding quantities of materials required for construction will be utilised in a Materials and Waste Assessment. The outcomes of the assessment/s, including any potential significant effects, will be detailed in the Environmental Statement.
- 4.13.2 The Project passes through and close to several mineral safeguarding areas. Therefore, the Project has the potential to sterilise these mineral sites by preventing future extraction of the mineral resource. A Minerals Assessment will therefore be prepared to support the Environmental Statement and in order to fully assess the impacts of the Project on these natural assets.

- 4.13.3 The current land use in the area surrounding the Project generates minimal volumes of waste. Waste management facilities and materials recovery infrastructure is available throughout the local area. As a result, there is strong potential to divert site arisings from landfill, and for their reuse and recycling. In order to manage the waste on site, a Site Waste Management Plan would be implemented, this would outline the framework for the management of wastes generated during the construction of the Project and where practicable identify materials that can be reused within the Project.
- 4.13.4 For further information refer to Volume 2 – Chapter 17: Waste and Materials of the Preliminary Environmental Information Report

4.14 Hydrology and Land Drainage

- 4.14.1 The preliminary desk-based data has revealed that the Project crosses 13 main rivers including the River Humber, in addition to further main rivers within 500m of the Project. The majority of the waterbodies share similar quality characteristics. They are all failing with regard to chemical status and, except for two main rivers, have a moderate ecological status. The exceptions include one surface waterbody with a poor ecological status (Barrow Beck) and one with a bad ecological status (Skitter Beck / East Halton Beck).
- 4.14.2 The preliminary assessment has identified that there would be some moderate to minor effects during the construction, operation or decommissioning phases of the Project. During the construction phase, these include potential temporary effects on water quality due to installation activities and the generation of silted runoff associated with dewatering activities, in addition to temporary effects to the land drainage regime through, for example, damage to soil structure and construction of Above Ground Infrastructure on greenfield land. The preliminary assessment has also identified that temporary construction structures (vessels and jack-up barge) could lead to resuspension of contaminants due to localised seabed erosion and sediment resuspension.
- 4.14.3 Further potential significant effects identified in the operational and decommissioning phases of the Project are associated with flooding impacting the Above Ground Infrastructure, construction sites, and people within the floodplain. Mitigation measures to reduce any potential effects on sensitive receptors would be implemented through on-going design work (to avoid sensitive areas) and good site practice (including sediment and pollution control mechanisms), which would be recorded in a Construction Environmental Management Plan.

4.14.4 For further information refer to Volume 2 – Chapter 18: Hydrology and Land Drainage of the Preliminary Environmental Information Report.

4.15 Major Accidents and Disasters

4.15.1 A Major Accident is an event that threatens immediate or delayed serious damage to human health, welfare and / or the environment and requires the use of resources beyond those of the Applicant or its contractors to respond to the event.

4.15.2 A disaster is a naturally occurring phenomenon such as an extreme weather event (for example, a storm or flood) or ground-related hazard events (for example, landslide or earthquake) with the potential to cause an event or situation that meets the definition of a Major as defined above.

4.15.3 The preliminary assessment has concluded that there will be no significant effects associated with the Project in relation to major accidents and disasters. Appropriate mitigation will be in place to manage any remaining risk. Measures include (but are not limited to) programme of hazard studies to produce an inherently safe design, a failsafe emergency shutdown system on the carbon dioxide and hydrogen transmission system, and the implementation of various environmental, health and safety management systems.

4.15.4 For further information refer to Volume 2 – Chapter 19: Major Accidents and Disasters of the Preliminary Environmental Information Report.

4.16 Coastal Processes

4.16.1 For the consideration of coastal processes and to effectively capture the dynamic sediment regime, the Study Area expanded 15 km offshore and along the shorelines. The intertidal zone of the Project is bordered by cliffs that are subject to significant erosion (sandy, shingle beach with clay platform). The 2025 shoreline walkover survey observed a difference in cliff extent and notable cliff retreat since the previous 2022 survey.

4.16.2 Identified receptors for coastal processes included statutory designated sites, Marine Conservation Zones, Sediment transport regimes and coastal waterbodies, all of which were assessed for any potential significant effects.

4.16.3 The preliminary assessment has identified potential significant effects associated with localised cliff erosion due to altered hydrodynamics and wave energy during Project construction and following reinstatement. These effects

would be mitigated through ongoing monitoring of cliff retreat and consultee agreements. Further potential significant effects are associated with temporary interruption of sediment transport pathways, which could potentially reduce sediment supply to designated sites as a result of installation and presence of a temporary construction infrastructure. Mitigation measures include a Beach Monitoring and Management Plan of erosion rates, cliff retreat and beach profile, and agreement on the requirements in the nearshore at Easington will be reached with consultees for any post-installation surveys in the intertidal. No significant effects have been identified during the operation or decommissioning phases.

- 4.16.4 The design of the Project, alongside both the embedded and additional mitigation presented are deemed sufficient to minimise any significant impacts. The design will be assessed and discussed to minimise impacts on the Coastal Processes receptor.
- 4.16.5 For further information refer to Volume 2 – Chapter 20: Coastal Processes of the Preliminary Environmental Information Report.

4.17 Cumulative Effects

- 4.17.1 The Environmental Impact Assessment will assess the potential for significant combined and cumulative environmental effects as a result of the Project. Combined and cumulative effects are defined as follows:
- Intra-Project Combined effects are the interaction of different environmental effects on the same receptor as caused by the Project.
 - Inter-Project Cumulative effects are the effects caused by the Project in combination with the effects caused by other developments in a similar area, on the same receptor.

Intra-Project Combined Effects

- 4.17.2 The approach to the assessment of intra-project combined effects will consider the changes in baseline conditions at common sensitive receptors as a result of the Project. For example, a residential property could be exposed to changes in noise levels and air quality changes as a result of the construction of the Project.
- 4.17.3 Common sensitive receptor groups have been identified to assess intra-project effects, since a single receptor can be affected by multiple environmental topics. This approach helps account for differences in how effects are reported across topics and locations and will be used to report the remaining (residual)

intra-project effects. These common sensitive receptor groups are as follows; Public Rights of Way (including users of), Biodiversity Sites, Residents of residential properties, Local Businesses and Community Facilities.

- 4.17.4 For further information refer to Volume 2 – Chapter 21: Cumulative Effects of the Preliminary Environmental Information Report.

Inter-Project Cumulative Effects

- 4.17.5 The assessment of inter-project cumulative effects considers the change of existing baseline conditions at sensitive receptors as a result of both the Project and one or more 'Other Developments'. 'Other Developments' are likely to include other infrastructure projects under construction or under consideration by the local authorities within a certain distance from the Project.
- 4.17.6 The assessment will follow a four-stage process. The Inter-project cumulative effects assessment for the Project is currently at Stage 1 – which involves establishing a long list of other developments. This list will be agreed with consultees before a short-list of 'Other Development' is prepared to inform the assessment. The available environmental information for each of the developments on the short list will be reviewed, and any common environmental impacts would be identified.
- 4.17.7 This Project, in-combination with the offshore pipeline would enable future carbon capture projects to transport and store carbon (within the Endurance store) and would remove up to 17 million tonnes of carbon from being emitted to the atmosphere. The reduction in CO₂ emissions would have a beneficial effect of major significance.
- 4.17.8 The cumulative effects assessment will be carried out during the environmental impact assessment and will be reported in the Environmental Statement.
- 4.17.9 For further information refer to Volume 2 – Chapter 21: Cumulative Effects of the Preliminary Environmental Information Report.

5 Have Your Say

- 5.1.1 This Non-Technical Summary of the Preliminary Environmental Information Report forms part of the current statutory consultation being undertaken between 29th October 2025 and 17th December 2025, which also includes a series of community consultation events. Please share any ideas, local knowledge, feedback, questions or concerns that you may have. Consultation events will be held in person at 13 locations and 2 online events, please find details at <https://www.nephccp.co.uk>. It should be noted that if the dates of the statutory consultation period (and any associated event) change, this will be advertised accordingly.
- 5.1.2 Further information on the consultation can be found on our webpage at <https://www.nephccp.co.uk> All the consultation materials will be digitally available, including:
- This Non-Technical Summary.
 - The full Preliminary Environmental Information Report.
 - The Project Brochure.
- 5.1.3 You can also view copies of the brochure and additional materials at reference locations as detailed in the Statement of Community Consultation. Please contact our project team at info@nephccp.co.uk to request an accessible format of the brochure.
- 5.1.4 You are able to respond using the following methods:
- Visit our website <https://www.nephccp.co.uk> and complete a digital feedback form. You can also find all copies of our consultation materials on our website.
 - Complete the consultation response form available on request from the project team or at Consultation events (as listed in the consultation brochure) and return the form to us at an event or post it to: FREEPOST NEP HCCP.
 - Email your response to info@nephccp.co.uk
 - Call us on Freephone 0800 024 1436 or
 - Write to us at FREEPOST NEP HCCP.
- 5.1.5 All responses should be returned by **23:59 on Wednesday 17 December 2025**.

6 Next Steps

- 6.1.1 Following consultation on the Preliminary Environmental Information Report, all consultation responses received will be reviewed and considered as part of the ongoing Environmental Impact Assessment and Project design processes, and ultimately the production of the final Environmental Statement to be submitted with the Development Consent Order Application.
- 6.1.2 Further survey and assessment work will be undertaken and will feed into the design of the Project. The assessments presented in the Preliminary Environmental Information Report will be revisited once the design of the Project has been finalised, and complete detailed design information and data is available.
- 6.1.3 The results of the further surveys and assessments will be presented as part of the Environmental Statement submitted alongside the Development Consent Order Application.
- 6.1.4 We expect to submit our application in early 2027, provided consent is granted, construction work is expected to start in 2029. Once we submit our application, the Planning Inspectorate (acting on behalf of the Secretary of State) will examine the Application and may hold some public hearings, before making a recommendation to the Secretary of State for The Department for Energy Security and Net Zero. Who will decide on whether or not the Project will go ahead.

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