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# 18. Cumulative and Combined Effects

## 18.1 Introduction

- 18.1.1 This chapter of the Environmental Statement (ES) provides an assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Developments. Each of the Proposed Developments are assessed separately and together.
- 18.1.2 Cumulative and combined effects are defined as follows:
- cumulative effects: these may occur when the environmental impacts and effects of the Proposed Development(s) interact with effects associated with other planned developments to result in a greater or lesser effect on an environmental receptor, for example the cumulative effects of noise from several developments on a noise sensitive receptor; and
  - combined effects: these occur where more than one type of effect resulting from a single development act on a receptor to collectively cause an overall effect of greater or lesser significance, for example the combination of noise, visual and dust effects on a nearby property.
- 18.1.3 The assessment presented in this chapter draws on the assessments provided in Chapters 6 to 17 (ES Volume I), and information in the public domain relating to other developments that are proposed within the study area. This includes information on the two potential carbon dioxide (CO<sub>2</sub>) gathering networks that the Proposed Developments could be connected to: the proposed Viking CCS CO<sub>2</sub> transmission and storage network (promoted by Harbour Energy); and the East Coast Cluster Humber Low Carbon Pipeline (HLCP). Other Nationally Significant Infrastructure Projects (NSIPs), planning applications registered with the local planning authority that are already consented but have not yet been constructed or begun operating, and developments that have progressed through the EIA Scoping stage, are also considered in the cumulative impact assessment.
- 18.1.4 The cumulative assessment does not consider developments that are already constructed and operating; such existing operational facilities are accounted for in the baseline conditions established for the main assessments reported within Chapters 6 to 17. Similarly, the assessment does not consider developments that are being constructed and would be operating in the future, prior to construction of the Proposed Developments.
- 18.1.5 This chapter is supported by Figures 18.1 and 18.2 (ES Volume III) which illustrate the locations of the Proposed Developments in relation to other developments that have been considered in the cumulative impact assessment.

## 18.2 Legislation and Planning Policy Context

- 18.2.1 Due to the potential for cumulative effects to occur as a result of the construction and operation (including maintenance) of the Proposed Developments, a cumulative assessment has been undertaken as part of the Environmental Impact Assessment (EIA) in accordance with the Town and Country Planning (EIA) (England and Wales) Regulations 2017 ('the EIA Regulations')
- 18.2.2 The requirement for cumulative and combined effects assessments is stated in the EIA Regulations, at Schedule 4 Part 5 of the EIA Regulations which requires "A description of the likely significant effects of the development on the environment resulting from, *inter alia* [...] (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources"

## 18.3 Assessment Methodology and Significance Criteria

### Cumulative Effects

- 18.3.1 The assessment of cumulative effects considers the effects on environmental resources and receptors that will likely occur from the changes arising from the Proposed Development(s) in conjunction with those associated with other planned developments. A combination of professional judgement and established guidance has been used to confirm the scope of the cumulative effects assessment and to aid the identification and (where necessary) mitigation of likely significant effects. With regard to cumulative effects, the ability to quantify the extent to which the environmental effects of other schemes can interact with those associated with the Proposed Development(s) depends upon on the level of information available regarding such other schemes. Where environmental assessment information regarding other schemes is not available or is uncertain, the cumulative assessment will be necessarily qualitative and assessed using professional opinion.
- 18.3.2 When considering cumulative and combined effects, the mitigation measures set out in Chapters 6 to 17 (ES Volume I) have been taken into account (i.e. only residual (after mitigation) effects of the Proposed Development(s) have been considered within the cumulative assessment). Where possible, cumulative effects are assessed to be neutral, minor, moderate or major; where insufficient information on other developments is available the assessment simply concludes whether the cumulative effects are likely to be ‘significant’ or ‘not significant’. Moderate or major effects are considered to be significant, using the methodologies outlined in each technical chapter (refer to Chapters 6 to 17 of this ES (ES Volume I)).
- 18.3.3 Planning Inspectorate (PINS) Advice Note Seventeen ‘Cumulative effects assessment relevant to nationally significant infrastructure projects’ (PINS, 2019a) sets out a four-stage approach to the assessment of cumulative effects:
- Stage 1: identify the Zone of Influence (ZOI) and establish a long list of ‘other existing development and/or approved development’;
  - Stage 2: identify a shortlist of ‘other existing development and/or approved development’ for cumulative assessment;
  - Stage 3: information gathering; and
  - Stage 4: assessment
- 18.3.4 This approach is viewed as best practice and has been followed for the cumulative assessment presented in this chapter.

#### Stage 1: Establishing the Long List

- 18.3.5 Stage 1 involves establishing the Proposed Development(s) ZOI and identifying a long list of ‘other developments’ and establishing their level of certainty, with levels of certainty defined as per Table 18.1.

**Table 18.1: Level of certainty for each tier**

Tier	Degree of certainty	Decreasing level of detail likely to be available
Tier 1	<ul style="list-style-type: none"> <li>• Under construction;*</li> <li>• Permitted application(s), whether under the PA2008 or other regimes, but not yet implemented; and</li> <li>• Submitted application(s) whether under the PA2008 or other regimes but not yet determined.</li> </ul>	
Tier 2	<ul style="list-style-type: none"> <li>• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted</li> <li>• Projects for which EIA Scoping Reports have recently been submitted to the local planning authority, but planning applications have not yet been submitted.</li> </ul>	
Tier 3	<ul style="list-style-type: none"> <li>• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted;</li> <li>• Identified in the relevant Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that there will be limited information on any relevant proposals; and</li> <li>• Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.</li> </ul>	

*\*Where other projects are expected to be completed before construction of the proposed NSIP and the effects of those projects are fully determined, effects arising from them should be considered as part of the baseline and may be considered as part of both the construction and operational assessment. The ES should clearly distinguish between projects forming part of the dynamic baseline and those in the CEA. Adapted from Table 2 in PINS Advice Note Seventeen (PINS, 2019a)*

18.3.6 The following criteria have been applied to establish the Long List;

- focus the search on major applications;
- exclude applications over 5 years old, under 1 hectare and/ or under 50 dwellings;
- include Tier 1 and 2 developments; and
- exclude Tier 3 developments because insufficient information is available to inform a meaningful assessment of cumulative effects.

18.3.7 A long list of other schemes considered to be of relevance to the cumulative assessment (November, 2022) is presented in Section 18.4 of this chapter.

**Stage 2: Identifying the Short List**

18.3.8 This stage involved a review of the Long List of planned developments, to identify those to be taken forward (shortlisted) into the cumulative assessment. In determining which of the developments should be shortlisted, a minimum level of information is necessary. Only those developments that are permitted but not implemented and submitted but not determined or with at least a Scoping Report or ES (if EIA Development) or a planning application supported by relevant technical appendices (e.g. a Transport Assessment) available were considered for shortlisting (Tier 1 and 2).

18.3.9 Developments that are already in existence i.e. those which are completed and operational, are considered to form part of the environmental baseline conditions within which the Proposed Development(s) will be implemented. They have therefore been accounted for through establishment of the current or future baseline within each technical assessment presented in Chapters 6 - 17 (ES Volume I) and were therefore not considered for shortlisting.

- 18.3.10 The shortlisting process was informed by interrogation of available development information, including information on environmental effects, and the professional judgement of the environmental specialists undertaking the EIA.
- 18.3.11 Where individual technical disciplines have scoped out assessment of developments included on the Short List for the purposes of their topic-specific cumulative assessment, the reasoning for this is set out in Section 18.6.
- 18.3.12 The schemes identified for cumulative assessment have been categorised into tiers to indicate the level of certainty associated with each scheme (Table 18.1). Those in Tier 1 are most certain, while those in Tier 3 have been excluded due to insufficient information being available.

### **Stage 3: Information Gathering**

- 18.3.13 This stage involved reviewing the available information relating to the shortlisted developments to establish the details of their likely environmental effects, considering factors including the ZOI of the environmental topics assessed; the planned timescales for construction, operation and (where relevant) decommissioning; and details of their potential or likely significant effects.

### **Stage 4: Assessment**

- 18.3.14 Those developments which meet the criteria set out in the above stages i.e. are both reasonably foreseeable in terms of delivery (e.g. the applicable scheme has consent or is in the planning/ consenting process, and are geographically located in a position where environmental impacts are reasonably likely to act together to create an effect that is more (or less) significant overall than the effect of the individual developments alone) were incorporated into the cumulative effects assessment. This involved identifying where effects are likely to occur and assessing the significance of those effects on environmental receptors and resources, taking into account any mitigation measures.
- 18.3.15 Operational impacts are generally long-term, and whilst construction impacts are often short-term and temporary, they can potentially be of a large magnitude. Consequently, when cumulative effects that could be associated with construction at one site and operation at another are considered, the difference in duration and reversibility is considered within the assessment.
- 18.3.16 When assessing cumulative effects, it is appropriate to also acknowledge the relative contributions that different schemes make to a cumulative effect, and carefully consider whether a cumulative effect could occur, at all. For example, effects associated with a large-scale scheme may be significant, and whilst a smaller scheme may contribute to this effect, the cumulative effect of the schemes together may only be considered as being significant if it is of greater significance than the effect of either project in isolation. Professional judgement is required in order to determine whether cumulatively effects could become significant when added to those of another project.

### **Study Area**

- 18.3.17 Cumulative effects are generally unlikely to arise unless other proposed development sites are in close proximity to the Proposed Development Sites, recognising that actual distance varies with the nature of the potential effect and the nature of the receptor (e.g. cumulative air quality effects could occur for developments a greater distance apart than say noise effects). Construction projects are, as a matter of routine, required to employ regulatory and managerial controls and good practice to mitigate environmental impacts, as far as reasonably practicable. Nevertheless, consideration has been given to the presence of common pathways from any nearby schemes to a single receptor, and whether there is potential for impacts of a sufficient magnitude whereby a particular receptor could experience cumulative effects that may be significant.
- 18.3.18 The study area for the consideration of cumulative and combined effects has been developed taking into account the predicted ZOI for each technical discipline/ extent of impacts associated with the Proposed Developments as detailed within Chapters 6 to 17 of this ES.

18.3.19 The study area for each environmental assessment topic is defined in the relevant ES technical chapters (Chapters 6 to 17) and outlined in Table 18.2, below.

**Table 18.2: Zone of Influence (ZOI) summary table**

Environmental Topic	Zone of Influence (ZOI)
Air Quality	<p><b>Construction:</b> up to 350 m beyond the Sites' boundaries and 50 m from the construction traffic route (up to 500 m from the Site's entrances), for human health receptors. Up to 50 m from the Sites' boundaries and construction traffic routes (up to 500 m from the Sites' entrances) for ecological receptors. For construction road traffic emissions, properties and habitat sites within 200 m of affected roads.</p> <p><b>Operation:</b> 15 km from the PCC plant stacks, in order to assess the potential impacts on sensitive ecological receptors:</p> <ul style="list-style-type: none"> <li>• Special Protection Area (SPA), Special Areas of Conservation (SAC), Ramsar sites and Sites of Special Scientific Interest (SSSI) within 15 km</li> <li>• non-statutory designated ecological receptors including Local Wildlife Sites (LWS) within 2 km.</li> </ul> <p>Refer to <b>Chapter 6: Air Quality</b> (ES Volume I) for more information</p>
Noise and Vibration	<p><b>Construction:</b> 300 m for noise sensitive receptors (NSRs) from the Sites. For construction road traffic noise, NSRs within 50 m of affected roads.</p> <p><b>Operation:</b> 1 km from the Sites for operational noise.</p> <p>Refer to <b>Chapter 7: Noise and Vibration</b> (ES Volume I) for more information.</p>
Traffic and Transport	<p><b>Construction:</b> The study area incorporates key roads surrounding the proposed carbon capture facilities, namely the A180 between the A15 junction and A1173 junction, the A160, the A15, Humber Road, Rosper Road and Eastfield Road.</p> <p><b>Operation:</b> N/A</p> <p>Refer to <b>Chapter 8: Traffic and Transport</b> (ES Volume I) for more information.</p>
Ecology	<p><b>Construction and Operation:</b> A maximum ZOI of 15 km has been applied:</p> <ul style="list-style-type: none"> <li>• 15 km for international and national statutory designated sites;</li> <li>• 2 km ZOI for local statutory and non-statutory designated sites; and</li> <li>• 1 km for protected and notable habitats and species.</li> </ul> <p>Refer to <b>Chapter 13: Ecology</b> (ES Volume I) for more information.</p>
Water Environment and Flood Risk	<p><b>Construction and Operation:</b> 1 km ZOI generally for water quality assessment and flood risk – as water effects propagate downstream and flood risk can affect upstream receptors, a wider study area based on professional judgement has also been applied where relevant.</p> <p>Refer to <b>Chapter 9: Water Environment and Flood Risk</b> (ES Volume I) for more information.</p>
Geology, Hydrogeology and Land Contamination	<p><b>Construction and Operation:</b> The study area extends 250 m from the Proposed Development Site extended for hydrogeology to a 1 km ZOI.</p> <p>Refer to <b>Chapter 10: Geology, Hydrogeology and Land Contamination</b> (ES Volume I) and Land Contamination for more information.</p>
Landscape and Visual Amenity	<p><b>Construction and Operation:</b> 7.5 km ZOI based upon the tallest element of the Proposed Development being the absorber stack (110 m AGL).</p> <p>Refer to <b>Chapter 11: Landscape and Visual Amenity Assessment</b> (ES Volume I) for more information.</p>
Cultural Heritage	<p><b>Construction and Operation:</b> A maximum ZOI of 5 km has been applied:</p> <ul style="list-style-type: none"> <li>• 5 km for designated assets of highest value (World Heritage Sites, Scheduled Monuments and Grade I listed buildings);</li> <li>• 3 km for other designated assets (grade II and II* listed buildings, conservation areas, registered parks and gardens, registered battlefields); and</li> <li>• 1 km for non-designated assets.</li> </ul> <p>Refer to <b>Chapter 12: Cultural Heritage</b> (ES Volume I) for more information.</p>
Socio-economics and Human Health	<p><b>Construction and Operation:</b> This has been based on the Grimsby Travel to Work Area (TTWA).</p> <p>Refer to <b>Chapter 17: Socio-economics</b> (ES Volume I) for more information</p>

## Environmental Zone of Influence (ZOI) Topic

Climate Change and Carbon	<p>The greenhouse gas (GHG) ZOI includes all GHG emissions from within the Proposed Development Site boundary arising during all stages of the construction and operation of the Proposed Development. It also includes emissions arising from offsite activities which are directly related to the onsite activities, such as transport, and treatment of materials and waste disposal.</p> <p>Refer to <b>Chapter 14: Climate Change and Sustainability</b> (ES Volume I) for more information.</p>
Materials and Waste	<p>A ZOI for materials and waste is not set in the cumulative assessment since a detailed cumulative assessment is not conducted for materials and waste as outlined in paragraphs 18.4.13 - 18.4.17. The study areas for materials and waste are also large e.g. regional or England and it not deemed appropriate to collate a list of developments for these geographical areas.</p>

## Assessment of Combined Effects

- 18.3.20 The assessment of combined effects considers whether an individual environmental receptor or resource would be affected by more than one type of impact as a result of the Proposed Development(s). For example, a single receptor, such as a property or habitat, being subject to noise, air quality and visual impacts associated with the Proposed Development(s). The study area for the assessment of combined effects is defined by the study areas used in each of the environmental topics set out in Chapters 6 - 17.
- 18.3.21 The sources of data for the assessment of combined effects are the specialist environmental assessments presented within Chapters 6 - 17.
- 18.3.22 The assessment methodology for combined effects involves the identification of environmental resources and receptors where there is potential for more than one impact to be experienced and therefore potential for interactions between these. This enables the identification of the overall combined environmental effects of the Proposed Development(s).
- 18.3.23 The following environmental resources and receptor groups have been identified and considered in relation to the potential for more than one type of impact to be experienced by a single receptor:
- human receptors (residents, local community using community facilities);
  - ecological receptors;
  - geology and soils;
  - waterbodies; and
  - users and operators of local businesses and tourism amenities.
- 18.3.24 Geological strata and soils are not considered likely to be affected by impacts other than those identified within the assessment in Chapter 13: Geology, Hydrogeology and Land Contamination and are therefore not subject to combined effects.
- 18.3.25 The potential interactions between individual effects have been identified by reviewing the likely significant residual effects assessments within the topic chapters presented in Chapters 6 to 17 (ES Volume I). Some of these chapters have already addressed interactions between different types of impact relating to specified environmental resources and receptors, as described below:
- Chapter 6: Air Quality (ES Volume I) includes an assessment of the potential impacts of construction dust and operational emissions upon ecological receptors. These have also been taken into account in the assessment of effects upon terrestrial ecology and nature conservation as reported in Chapter 13: Ecology (ES Volume I).

- Chapter 9: Water Environment and Flood Risk (ES Volume I) considers the potential impacts of air quality upon water quality, as well as the potential impacts of climate change upon flood risk.
  - Chapter 10: Geology, Hydrogeology and Land Contamination (ES Volume I) considers the potential impacts of soils disturbance and mobilisation of contamination on ecological and hydrological receptors.
  - Chapter 12: Cultural Heritage (ES Volume I) considers the combined effects of noise, air quality, disturbance, water contamination and ground contamination on ecological receptors in the vicinity of the Site.
  - Chapter 13: Ecology (ES Volume I) takes into consideration the potential for air quality, dust and noise and vibration impacts and therefore how they could (in combination with other ecological impacts, such as habitat loss) affect ecological receptors. In addition, effects on the water environment set out in Chapter 9: Water Environment and Flood Risk (ES Volume I) are considered including how they could in turn affect ecological receptors.
  - Chapter 14: Climate Change (ES Volume I) considers the effects of climate variables such as temperature, rainfall, sea level rise on the Proposed Development. The greenhouse gas (GHG) impact assessment considers the combined impacts of emission sources such as embodied carbon, waste, transport and energy consumption.
- 18.3.26 The effects due to the interaction of different types of impact which form an inherent part of the technical assessments listed above are not included within this combined effects' assessment. The combined effects assessment considers only those effects which could arise as a result of multiple impacts on single receptors which have not been identified elsewhere within this ES.
- 18.3.27 Therefore, as potential combined effects on ecological resources, geology and soils and waterbodies are considered in the above chapters, this chapter considers the combined effects on human receptors only. The types of impacts that could be experienced by these receptors and which may interact are noise and vibration, air quality, landscape and visual effects and traffic and transport during both construction and operation.
- 18.3.28 The following effects have been considered for each topic:
- air quality – effects on receptors identified as being sensitive with respect to construction dust (i.e. at more than negligible risk) and receptors experiencing a minor adverse or worse effect during operation;
  - noise and vibration – effects on receptors experiencing a minor adverse or worse effect during construction or operation;
  - traffic and transport - effects on receptors experiencing a minor adverse or worse effect during construction; and
  - visual effects – effects on receptors experiencing a minor adverse or worse effect during construction, opening (start of operation), and operation (15 years post-opening).
- 18.3.29 For definitions of these criteria please refer to: Chapter 6: Air Quality, (Section 6.3: Assessment Methodology); Chapter 7: Noise and Vibration, (Section 7.3: Assessment Methodology and Significance Criteria); Chapter 8: Traffic and Transport, (Section 8.3: Assessment methodology and Significance Criteria and Chapter 11: Landscape and Visual Amenity (Section 11.3: Assessment Methodology and Significance Criteria) (ES Volume I).
- Consultation**
- 18.3.30 A summary of consultation activities relevant to the cumulative and combined effects assessment is provided in Table 18.3 below.

**Table 18.3: Consultation Summary**

<b>Consultee</b>	<b>Method of Consultation (Date)</b>	<b>Summary</b>	<b>Addressed</b>
Natural England	EIA Scoping Opinion for the Proposed Developments (February 2022)	<p>The ES should fully consider the implications of the whole development proposal. This should include an assessment of all supporting infrastructure.</p> <p>An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):</p> <ol style="list-style-type: none"> <li>existing completed projects;</li> <li>approved but uncompleted projects;</li> <li>ongoing activities;</li> <li>plans or projects for which an application has been made and which are under consideration by the consenting authorities; and</li> <li>plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.</li> </ol>	<p>Noted, the ES considers all aspects of the Proposed Development, and resultant effects considered in the combined and cumulative assessment.</p> <p>Types of projects encompassed by points a and b are not considered within the cumulative assessment. See paragraph 18.1.5 of this chapter.</p> <p>Details of the schemes considered and assessed in the cumulative assessment are provided in Table 18.4.</p>
North Lincolnshire Council	EIA Scoping Opinion for the Proposed Developments (March 2022)	<p>'Having considered this section of the report, this details the committed developments in the vicinity of the application site and which more recent committed developments are of relevance when considering cumulative effects. It is considered that the list of committed developments appears generally up to date. However, it should be noted that an application for the V Net Zero Pipeline is expected to be submitted to the Planning Inspectorate Q4 of 2023.'</p>	<p>List of committed developments were updated in November 2022 prior to assessment. V Net Zero Pipeline, now referred to as Viking CCS Pipeline, is included in the list.</p>
North Lincolnshire Council	EIA Scoping Opinion for the Proposed Developments (March 2022)	<p>In addition to these projects, the local planning authority are aware that the Humber Nature Partnership now maintain an In Combination Database for the Humber Estuary. This was developed to aid in combination assessments for HRA's for projects adjacent to the Estuary but is a useful tool for cumulative impact assessments as part of an ES also. It may be worthwhile checking with the Humber Nature Partnership to see if their database flags any additional developments that have not been identified via other means. The contact for this database is Jackson Sage – tel: 01652 631522, email: Jackson.sage@humburnature.co.uk.</p>	<p>The Humber nature Partnership have been contacted and sent our list of committed developments. Pending response as to whether any other developments are flagged by their In Combination Database.</p>

## 18.4 Cumulative Effects Assessment (Stage 1 – 3)

- 18.4.1 Taking into account feedback provided in Table 18.3, the staged methodology advocated in the PINS Advice Note Seventeen (PINS, 2019a) was utilised to provide the basis for the final shortlist of developments to be assessed.

### **Stage 1: Establishing the ZOI and Identifying a Long List of ‘Other Development’**

- 18.4.2 The initial CEA assessment undertaken at the scoping stage (Stage 1 of the CEA) has been revisited to identify any further potential major and other developments and plans within a 15 km radius of the Proposed Development Site to create a final ‘long list’ for consideration within the CEA. Searches included applications within the marine environment (applying a 15 km study area downstream and upstream), however no relevant marine licensable activities were noted that required consideration. Available information on schemes identified was obtained, with details regarding each being provided in Table 18.4. The location of the ‘other developments’ on the final long list are shown in Figure 18.1 (ES Volume III).

**Table 18.4: Identification of ‘Other Development’ for the CEA**

Stage 1 (long list)								
ID	Planning Reference Number	Grid Reference	Application for ‘other development’ and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
46	<a href="#">PINS (Chrysaor Production (UK) Limited)</a>	516889, 416927 (Overlapping area)	The Viking CCS Pipeline project comprises a new 55 km (approx.) onshore underground pipeline from land south of VPI Immingham CHP Plant to the Theddlethorpe Gas Terminal.	Within Sites	Expected to be submitted to the Planning Inspectorate Q1 2023	2	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to proximity
53	<a href="#">PA/2018/918 North Lincolnshire Council</a>	516855, 417291	VPI Immingham Energy Park A: Planning permission to construct a new gas-fired power station with a gross electrical output of up to 49.9 megawatts.	Within VPI Site	Approved 7 <sup>th</sup> September 2018	1	Yes, falls within ZOI for some of topics scoped into ES	Yes, due to proximity
48	<a href="#">PINS (VPI Immingham B Ltd)</a>	516809, 417402	VPI Immingham OCGT. The construction and operation of a new Open Cycle Gas Turbine (‘OCGT’) Power Station of up to 299 megawatts (‘MW’) gross output and associated development including gas and electrical connections.	Within VPI Site	Granted Consent - 7 Aug 2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to proximity
45	<a href="#">PA/SCO/2022/7 North Lincolnshire Council</a>	517511, 418219	EIA scoping request for enabling works on and adjacent to the AMEP site.	Adjacent	Decided – 3 <sup>rd</sup> August 2022	2	Yes, falls within ZOI for some of topics scoped into ES	Yes, due to proximity
6	<a href="#">PINS (Able Humber Ports Ltd)</a>	517082, 418740	Able Marine Energy Park Material Change 1 - Material Change (MC) to a DCO	Adjacent	Pre-application Stage	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to the MC only applying to land acquisition

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
7	<a href="#">PINS (Able Humber Ports Ltd)</a>	517082 , 418740	Able Marine Energy Park Material Change 2	Adjacent	Recommendation Stage	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature of material changes
8	<a href="#">PINS (Able Humber Ports Ltd)</a>	517082, 418740	Able Marine Energy Park	Adjacent	Granted - 18/12/2013	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to size, proximity and ongoing submissions to Planning Inspectorate.
52	<a href="#">PA/SCO/2022/13</a> North Lincolnshire Council	517181, 417064	Gigastack: EIA Scoping request for a 100 MW hydrogen electrolyser together with an underground electrical cable connection to the Hornsea Two onshore substation, water discharge and a hydrogen export pipeline to the Humber Refinery.	0.01 km	Scoping report submitted in December 2022. Currently pending scoping opinion from the local planning authority.	2	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to proximity
38	<a href="#">PA/2022/1400</a> North Lincolnshire Council	517222, 416609	Planning permission to demolish existing office building and replace with office building and new secure vehicle compound.	0.2 km	Not yet determined	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to size and nature of development
37	<a href="#">PA/2022/1223</a> North Lincolnshire Council	517529, 416842	Hybrid application comprising full planning permission for the construction of a hardstanding area for external level storage with landscaping, drainage, access and associated works, and outline planning permission to erect 26,096 m <sup>2</sup> floor space for	0.2 km	Not yet determined	1	Yes, falls within ZOI for some of topics	<b>Yes</b> , due to proximity

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
			industrial/storage and distribution, (Use Class B2/Use Class B8) including ancillary offices (Use Class E) with appearance, landscaping, layout and scale reserved for subsequent consideration - AMENDED DOCUMENT - Heritage Statement				scoped into ES	
1	<a href="#">PA/2019/1789</a> North Lincolnshire Council	515761, 416176	Refinery Filling Station, Humber Road, South Killingholme, DN40 3DJ Planning permission to extend and redevelop the existing petrol filling station to include new/ altered access points, underground fuel storage tanks, canopies and new shop building, and associated external works.	0.5 km	Approved 26 <sup>th</sup> August 2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , as development is already constructed and operational
39	<a href="#">PA/2021/1525</a> North Lincolnshire Council	517351, 418074	Planning permission to erect a monopole manufacturing facility.	0.5 km	Approved Full Planning with EIA - 8 August 2022	1	Yes, falls within ZOI for some of topics scoped into ES	Yes, due to proximity
2	<a href="#">PA/2020/1908</a> North Lincolnshire Council	515063, 419317	Planning permission for the construction and operation of a compound consisting of 7 x gas generators, security fencing with ancillary structures & associated works ADDITIONAL SUPPORTING INFORMATION	1.95 km	Permitted (March 18, 2021)	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to size and proximity
28	<a href="#">PINS (National Grid)</a>	514903, 419430	Humber Low Carbon Pipelines	2 km	Expected to be submitted to the Planning Inspectorate Q1 2023	2	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to nature of development and proximity
51	<a href="#">PA/SCO/2022/12</a> North Lincolnshire Council	515312, 418863	EIA scoping request for the Humber Hub Blue Project	2.01 km	Scoping report submitted in November 2022. Currently	2	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to proximity

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
					pending scoping opinion from the local planning authority.			
11	<a href="#">PINS (Associated British Ports)</a>	520421, 415352	Immingham Eastern Ro-Ro Terminal	2.3km	Submitted to the Planning Inspectorate January 2022	1	Yes, falls within ZOI for some of topics scoped into ES	Yes, due to nature and proximity
					At the time of writing, the application had not yet been accepted by the Planning Inspectorate so no application documents were available for review.			
3	<a href="#">DM/0762/21/F UL</a> North East Lincolnshire Council	520634, 414113	Erect 80 MW battery energy facility and associated external works	2.44 km	Permitted – 06/01/2022	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature of development and distance
4	<a href="#">DM/0211/20/R EM</a> North East Lincolnshire Council	514948, 413994	Reserved matters application following DM/0950/15/OUT (Outline application for a residential development of up to 118 dwellings, with access to be considered) to erect 118 dwellings with appearance, landscaping, layout and scale to be considered	2.47 km	Permitted – 2/3/2021	1	Yes, falls within ZOI for some of topics	<b>No</b> , due to distance and type of development

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
							scoped into ES	
9	<a href="#">DM/0728/18/OUT</a> North East Lincolnshire Council	518068, 413689	Outline planning application for the development of up to 525 residential dwellings together with an extra care facility for the elderly with up to 80 units with access to be considered	3.03 km	Permitted – 12/09/2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
10	<a href="#">PINS (C.GEN Killingholme Ltd)</a>	516014, 420259	North Killingholme Power Project	3.13 km	Granted - 11/03/2014	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to nature and proximity
47	<a href="#">PINS (Associated British Ports)</a>	520792, 415202	Immingham Green Energy Terminal	3.6 km	The application is expected to be submitted to the Planning Inspectorate Q2 2023.	2	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to nature and proximity
12	<a href="#">PA/2022/443</a> North Lincolnshire Council	510697, 417240	Planning permission for the installation of a solar photovoltaic array/ solar farm & associated infrastructure	3.7 km	Pending Consideration	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to nature and proximity
13	<a href="#">DM/1145/19/FUL</a> North East Lincolnshire Council	519181, 413249	Construction and operation of an energy park comprising photovoltaic (PV) solar panels together with energy (battery) storage and associated infrastructure	4.19 km	Permitted – 06/09/2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to nature and proximity

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
14	<a href="#">PA/2018/2525</a> North Lincolnshire Council	511626, 414680	Outline planning permission to erect 90 dwellings and construct access, with appearance, landscaping, layout and scale reserved for subsequent approval	4.27 km	Appeal Allowed 18 March 2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
15	<a href="#">DM/0858/19/R</a> <a href="#">EM</a> North East Lincolnshire Council	519849, 413224	Reserved matters application following DM/0105/18/FUL (Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62 ha Business Park comprising up to 120,176 sq.m for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution), associated infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations, pumping stations, drainage and landscaping. (Amended FRA and Drainage Strategy July 2018)) to erect a detached business unit of mixed use (B1/ B8) to include access road, car park with HGV loading, landscaping and associated works.	5.08 km	Permitted – 12/12/2019	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature and distance
16	<a href="#">140099</a> West Linsey District Council	516688, 410240	Outline planning application for the erection of up to 80 no. dwellings - access to be considered and not reserved for subsequent applications.	6 km	Approved	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature and distance
17	<a href="#">140100</a> West Linsey District Council	516519, 410259	Outline planning application for a medical centre with associated parking and demolition of existing farm buildings - access to be considered and not reserved for subsequent applications.	6 km	Approved	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature and distance
18	<a href="#">DM/1070/18/F</a> <a href="#">UL</a> North East Lincolnshire Council	522921, 413294	Construction of an energy from waste facility of up to 49.9MWe gross capacity including emissions stack(s), associated infrastructure including parking areas, hard and soft landscaping, the creation of a new access to South Marsh Road, weighbridge facility, and drainage infrastructure, on land at South Humber Bank Power Station	6.23 km	Permitted – 12/04/2019	1	Yes, falls within ZOI for some of topics	<b>No</b> , due to prevailing wind direction and distance.

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
							scoped into ES	
20	<a href="#">PINS (EP Waste Management Ltd)</a>	522977, 413374	South Humber Bank Energy Centre	6.4 km	Granted – 10/10/2021	1	Yes, falls within ZOI for some of topics scoped into ES	No, due to prevailing wind direction and distance
19	<a href="#">DM/0198/20/R EM</a> North East Lincolnshire Council	521089, 410978	Reserved matters application following DM/0378/15/OUT (Outline planning application with means of access to be considered for the construction of up to 250 residential dwellings, a new primary access with Stallingborough Road and secondary/emergency access via Larkspur Avenue, public open space, and landscaping, surface water drainage attenuation and associated works) to erect 150 dwellings, play equipment, public open space and infrastructure with appearance, landscaping, layout and scale to be considered (Amended Plans January 2021)	7.71 km	Permitted – 05/02/2021	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to nature and distance
21	<a href="#">DM/0850/21/F UL</a> North East Lincolnshire Council	523438, 412567	Erect waste water treatment plant with associated access, plant and equipment, install site office, car parking and temporary access with parking and contractors compound	8.04 km	Not Yet Determined	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
23	<a href="#">18/04071/STP LFE</a> East Riding of Yorkshire Council	517415, 427653	Hybrid planning application for the development of land at Hedon Haven comprising: 1. An application for full planning permission for the construction of a new estate road between Hull Road (A1033) and Paull Road, together with associated infrastructure and works; and 2. An application for outline planning permission for the construction of up to 394,839sqm of employment floorspace (Class B2 (Industrial) / Class B8 (Storage & Distribution)), including ancillary office (Class B1) floorspace, and up to 5,111sqm of flexible commercial floorspace, to include Classes A1-5 (Retail), B1 (Business), C1 (Hotel), D1 (Non-Residential Institutions), D2 (Assembly and Leisure) and other ancillary sui generis uses, and associated landscaping and infrastructure	9.8 km	Permitted – 01/04/2022	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
44	<a href="#">22/01545/EIA/SCQ</a> East Riding of Yorkshire Council	518600, 427343	Proposed Solar Farm Ground mounted solar photovoltaic (PV) panels spread across six agricultural fields to the south of Hedon, with a total output of 42MW. Includes onsite control building and associated NG infrastructure.	10.7 km	Answered Mon 27 Jun 2022	2	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
24	<a href="#">DM/0975/20/F/UL</a> North East Lincolnshire Council	524663, 408181	Hybrid planning application consisting of full planning permission for site access and roads within the site. Outline planning permission for up to 297 residential units and a 90 bed extra care facility and the associated infrastructure and landscaping with means of access and landscaping to be considered	11.61 km	Permitted – 01/04/2021	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
25	<a href="#">DM/0331/21/F/UL</a> North East Lincolnshire Council	525305, 410008	Construction and operation of 8MW (export) solar panel development, erection of palisade fencing, substation, cabins, CCTV units, a satellite mast, service roads and associated works	11.73 km	Not Yet Determined	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and nature of development
26	<a href="#">22/00301/STR/EME</a> East Riding of Yorkshire Council	517020, 429238	Erection of an Energy Centre, a Data Centre and associated infrastructure following Outline Permission 17/01673/STOUTE (Appearance, Landscaping, Layout and Scale to be considered)	11.8 km	Not Yet determined	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> due to distance
27	<a href="#">DM/0237/21/F/UL</a> North East Lincolnshire Council	525839, 408794	Erection of 75 dwellings together with a sales suite, construction of garages, driveways, estate roads, associated infrastructure, raising of ground levels, laying out of natural green space and associated works. 'additional noise assessment' - Amended ball strike assessment December 21 - amended site layout and information dated 8th April 2022	11.89 km	Not yet determined	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development
30	<a href="#">PA/2020/1628</a>	504057, 422199	Planning permission to erect 317 dwellings, including associated garages, access road, playground, ponds and public open space	13 km	Permitted - 31 March 2022	1	Yes, falls within ZOI for some of topics	<b>No</b> , due to distance and

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
							scoped into ES	type of development
42	<a href="#">DM/0915/22/PAT</a> North East Lincolnshire Council	524465, 406166	Prior approval for the installation of 20 m high slim-line monopole, supporting 6 no. antennas, 1 no. wraparound equipment cabinet at the base of the monopole, 2 no. equipment cabinets, 1 no. electric meter cabinet and ancillary development thereto including 1 no. GPS module.	13 km	Pending Consideration	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development
31	<a href="#">19/00537/FUL</a> Hull City Council	509064, 428640	Erection of six storey building to create 110 bedroom hotel, 1st floor restaurant, and associated car parking provision (access from Midland Street) to the ground floor with associated amenity space	13.3 km	Permitted (10 Oct 2019)	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development
32	<a href="#">19/00057/FUL</a> Hull City Council	510518, 429647	Erection of a fully enclosed non-hazardous/ Commercial and Industrial (C&I) waste processing and refuse derived fuel (RDF) production facility, with associated ancillary facilities, servicing/parking and circulation space and vehicular access.	13.8 km	Permitted (25 July 2019)	1	Yes, falls within ZOI for some of topics scoped into ES	<b>Yes</b> , due to type of development
33	<a href="#">DM/1142/19/REM</a> North East Lincolnshire Council	526193, 406791	Reserved Matters Application pursuant to DM/0937/15/OUT (Outline application for residential development for up to 131 dwellings with Step Down Care Unit (approximately 40 bedrooms), Assisted Living Unit (approximately 80 bedrooms), Retirement Living Unit (approximately 59 apartments), NHS Trust Accommodation (approximately 125 apartments & 96 student bedrooms) and club house, with means of access to be considered) specifically for zones 3A and 3B providing details of access, appearance, landscaping, layout and scale for the erection of 78 dwellings (revising details of DM/0713/18/REM)	13.9 km	Permitted – 23/10/2020	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development
34	<a href="#">20/00566/FUL</a>	513563, 430259	A hybrid planning application comprising:-	14 km	Permitted (18 Jan 2021)	1	Yes, falls within ZOI for some of	<b>No</b> , due to distance and

Stage 1 (long list)

ID	Planning Reference Number	Grid Reference	Application for 'other development' and a brief description	Distance from the Sites	Status	Tier	Within ZOI	Progress to Stage 2?
	Hull City Council		1) Full planning application for residential development (242) dwellings, public and private access roads, public and private landscaping, recreational facilities and associated drainage works. 2) Outline planning application for residential development (all matters reserved except for access).				topics scoped into ES	type of development
35	<a href="#">21/00256/FUL</a> Hull City Council	509219, 429159	Erection of mixed use development comprising 249 residential units and 6 ground floor commercial units with associated access and landscaping, over 14 floors (maximum) (Revised Design) Following demolition of existing buildings	14.1 km	Permitted	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development
36	<a href="#">20/00829/FUL</a> Hull City Council	508740, 429119	Change of use of existing offices to provide 60 residential units and erection of 3 to 5 storey new build to provide 68 residential units. Laying out of associated parking area.	14.1 km	Permitted (29 Mar 2021)	1	Yes, falls within ZOI for some of topics scoped into ES	<b>No</b> , due to distance and type of development

## **Stage 2: Identify Short List of ‘Other Development’ for the CEA**

- 18.4.3 Following Stage 1, PINS Advice Note Seventeen (PINS, 2019a) advises that the Applicant should identify a short list of other developments for assessment. The Stage 1 long list in Table 18.4 has therefore been re-screened based on the ZOI for each of the technical disciplines considered within this ES (as detailed in Table 18.2). In addition to the ZOI threshold criteria, the geographical and temporal scope of the ‘other development’ has been considered in relation to the geographical and temporal scope of the Proposed Development, and professional judgement applied to identify the short list of development to be considered further for the CEA (Stage 3 and 4). Information on the ‘other developments’ within the short list is detailed in Table 18.5.
- 18.4.4 Where other developments have not been short-listed, this has been on the basis of professional judgement by relevant discipline leads, using available information, in order to determine whether cumulatively, effects of the Proposed Development could become significant when added to those of the particular scheme.

**Table 18.5: Identification of ‘Other Development’ for the CEA (Stage 2 short list)**

ID	Planning Reference Number	Grid Reference	Name	Distance from the Sites	Overlap in temporal scope?	Scale and nature of development likely to have significant effect?	Progress to Stage 3 and 4?
46	<a href="#">PINS (Chrysaor Production (UK) Limited)</a>	516889, 416927 (Overlapping area)	Viking CCS Pipeline	Within Sites	The development has not yet been granted planning permission. Information on the project construction start date is not yet available but the construction programme is approximately 24 months long. Expected to be submitted to the Planning Inspectorate mid 2023.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
53	<a href="#">PA/2018/918</a> North Lincolnshire Council	516855, 417291	VPI Immingham Energy Park A	Within VPI Site	The development has been granted planning permission. Construction start date has been delayed since the Environmental Statement was submitted in May 2018, which stated an 18 month construction period beginning in early 2019. As construction has not started, there is potential for the Proposed Developments’ construction phases to now overlap.	No – <b>unlikely due to the small-scale nature of development, intermittent operation and lack of any significant environmental effects being predicted in the environmental statement.</b>	No
48	<a href="#">PINS (VPI Immingham B Ltd)</a>	516809, 417402	VPI Immingham OCGT	Within VPI Site	Potential for the Proposed Developments’ construction phases to overlap. The construction start date was originally Q1 2022 however this has been delayed, with no works starting yet. There is a 24 month construction period.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
45	<a href="#">PA/SCO/2022/7</a> North Lincolnshire Council	517511, 418219	EIA scoping request for enabling works on and adjacent to the AMEP site.	Adjacent	The development is at scoping stage and has not yet been granted planning permission. Information on the project construction start date is not yet available.	Yes – the potential for significant environmental effects that merit consideration within the CEA.	Yes
8	<a href="#">PINS (Able Humber Ports Ltd)</a>	517082, 418740	Able Marine Energy Park	Adjacent	Potential for the Proposed Developments’ construction phases to overlap. The proposed development is expected to have a construction programme of approximately 2 years.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
52	<a href="#">PA/SCO/2022/13</a>	517181, 417064	Gigastack	0.01 km	Potential for the Proposed Developments’ construction phases to overlap. The development has not yet been granted planning permission. Information available in the scoping report states	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>

ID	Planning Reference Number	Grid Reference	Name	Distance from the Sites	Overlap in temporal scope?	Scale and nature of development likely to have significant effect?	Progress to Stage 3 and 4?
	North Lincolnshire Council				construction is expected to commence in Q4 of 2023 with operations commencing within 2025.		
37	<a href="#">PA/2022/12/23</a> North Lincolnshire Council	517529, 416842	Hybrid application for Land Adjacent to Westgate Entrance, Port of Immingham.	0.2 km	The development has not yet been granted planning permission. Information on the project construction start date is not yet available.	Yes – the potential for significant environmental effects that merit consideration within the CEA.	Yes
39	<a href="#">PA/2021/15/25</a> North Lincolnshire Council	517351, 418074	Monopole Manufacturing Facility. Land at Able Marine Energy park	0.5 km	Potential for the Proposed Developments' construction phases to overlap due to 2022 construction start date with a 21 month construction period.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
2	<a href="#">PA/2020/19/08</a> North Lincolnshire Council	515063, 419317	Killingholme Emergency Auxiliary Power Facility	1.95 km	Potential for the Proposed Developments' construction phases to overlap as the development was granted permission in Q1 2021 and development must begin within 3 years.	<b>No</b> - Unlikely due to distance from the Sites and small-scale nature of the proposal. No significant adverse effects are predicted within the Noise and Air Quality Assessments for this proposed development.	<b>No</b>
28	<a href="#">PINS (National Grid)</a>	514903, 419430	Humber Low Carbon Pipelines	2 km	The development has not yet been granted planning permission. Information on the project construction start date is not yet available but the construction programme is approximately 44 months long. Expected to be submitted to the Planning Inspectorate Q1 2023.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>

ID	Planning Reference Number	Grid Reference	Name	Distance from the Sites	Overlap in temporal scope?	Scale and nature of development likely to have significant effect?	Progress to Stage 3 and 4?
51	<a href="#">PA/SCO/2022/12</a> North Lincolnshire Council	515312, 418863	Humber Hub Blue Project	2.01 km	The development has not yet been granted planning permission. Information available in the scoping report states the extent and duration of the construction programme is not yet known.	<b>No</b> – unlikely due to distance from the Sites, the nature and scale of the proposal and direction of the prevailing wind (such that peak air quality impacts will occur at different locations).	<b>No</b>
11	<a href="#">PINS (Associated British Ports)</a>	520421, 415352	Immingham Eastern Ro-Ro Terminal	2.3 km	Potential for the Proposed Developments' construction phases to overlap. It is estimated that construction works will start in Summer 2023 and be largely completed by mid-2025.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
10	<a href="#">PINS (C.GEN Killingholme Ltd)</a>	516014, 420259	North Killingholme Power Project	3.13 km	Potential for the Proposed Developments' construction phases to overlap. In 2021 a five-year extension was granted to allow the applicant to commence works up to 2026.	<b>Yes</b> – the potential for significant environmental effects that merit consideration within the CEA.	<b>Yes</b>
47	<a href="#">PINS (Associated British Ports)</a>	520792, 415202	Immingham Green Energy Terminal	3.6 km	The development has not yet been granted planning permission. Information on the project construction start date is not yet available or visible within the scoping report. The landside elements of the proposed development will have a design life of up to approximately 25 years.	Yes – the potential for significant environmental effects that merit consideration within the CEA.	Yes
12	<a href="#">PA/2022/443</a> North Lincolnshire Council	510697, 417240	Planning permission for the installation of a solar photovoltaic array/ solar farm & associated infrastructure	3.7 km	The development has not yet been granted planning permission. Information on the project construction start date is not yet available, however it is expected to last approximately 6 months.	<b>No</b> - unlikely due to distance from the Sites, small-scale nature of the proposal and lack of intervisibility.	<b>No</b>

ID	Planning Reference Number	Grid Reference	Name	Distance from the Sites	Overlap in temporal scope?	Scale and nature of development likely to have significant effect?	Progress to Stage 3 and 4?
13	<a href="#">DM/1145/19/FUL</a> North East Lincolnshire Council	519181, 413249 <a href="#">Site Location Plan</a>	Construction and operation of an energy park comprising photovoltaic (PV) solar panels together with energy (battery) storage and associated infrastructure	4.19 km	Potential for the Proposed Developments' construction phases to overlap. Development must commence within 3 years of November 2020 and construction is expected to last up to 6 months.	<b>No</b> - unlikely due to distance from the Sites, small-scale nature of the proposal and lack of intervisibility..	<b>No</b>
32	<a href="#">19/00057/FULL</a> Hull City Council	510518, 429647	Erection of a fully enclosed non-hazardous/ Commercial and Industrial (C&I) waste processing and refuse derived fuel (RDF) production facility, with associated ancillary facilities, servicing/parking and circulation space and vehicular access.	13.8 km	Potential for the Proposed Developments' construction phases to overlap. Information of the construction start date is not yet available however the construction programme will last approximately 6 months, after which there would be a brief commissioning period.	<b>No</b> - Unlikely due to distance from the Sites and small-scale nature of the proposal.	<b>No</b>

- 18.4.5 On the basis of the above short list, the following developments identified in Table 18.5 are considered to have the potential to generate significant cumulative effects when considered alongside the Proposed Developments, by virtue of their nature, proximity to the Proposed Development Sites and/ or temporal scope (i.e. the planned timescales for construction and operation):
- ID: 46 – PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline;
  - ID: 48 – PINS (VPI Immingham B Ltd) – VPI Immingham OCGT;
  - ID: 45 - PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site;
  - ID 8 - PINS (Able Humber Ports Ltd) - Able Marine Energy Park;
  - ID: 52 - PA/SCO/2022/13 – Gigastack;
  - ID: 37 - PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham;
  - ID: 39 - PA/2021/1525 - Monopole Manufacturing Facility. Land at Able Marine Energy park;
  - ID 28 - PINS (National Grid) - Humber Low Carbon Pipelines;
  - ID 11 - PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal;
  - ID 10 - PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project; and
  - ID 47 – PINS (Associated British Ports) – Immingham Green Energy Terminal.
- 18.4.6 The locations of the shortlisted developments in relation to the Proposed Developments are shown on Figure 18.2 (ES Volume III).
- 18.4.7 These developments have therefore been progressed to Stage 3 and 4 of the CEA and have been assessed in relation to each environmental topic included in the ES (Volume I), with the exceptions of Climate Change and Carbon, Major Accidents and Disasters, and Materials and Waste (discussed below).
- 18.4.8 Chapter 14: Climate Change and Carbon (ES Volume I) assesses the contribution that the Proposed Developments make to climate change as a result of GHG-emitting activities. Climate change is the result of cumulative impacts as it is the result of innumerable GHG-emitting activities from sources across the UK and beyond. The cumulative effects of GHG emissions on the global climate are acknowledged as being potentially significant, but it is not possible to quantitatively assess these effects within this assessment. Whilst the emissions from the Proposed Developments can be estimated and compared against sectoral national carbon budgets, as has been undertaken in Chapter 14: Climate Change and Carbon and determined to be not significant, the combined effect together with all other GHG-emitting activities cannot be assessed due to data not being available.
- 18.4.9 Once neighbouring industries are able to connect to the Humber Low Carbon Pipeline and/ or Viking CCS networks and carbon can be captured from existing sources, it is envisaged that the Proposed Developments will form part of a decarbonised cluster that could result in a net reduction in carbon emissions from current levels.
- 18.4.10 The Climate Change Resilience (CCR) assessment reported in Chapter 14: Climate Change and Carbon and supported by Appendix 14A: Sustainability Review (ES Volume II) considers the influence of climate change upon the Proposed Developments and therefore a cumulative or combined assessment of CCR is not applicable.
- 18.4.11 With regards Major Accidents and Disasters, cumulative effects assessment has not been undertaken in this chapter given the assessment of cumulative effects is inherent in Chapter 16: Major Accidents and Disasters (ES Volume I) which considers potential effects of other projects and developments; in particular domino effects. The chapter specifically identifies sites which are (or have the potential to be given previous hazardous substances consent status) licenced under the Control of Major Accident Hazard (COMAH) Regulations (HM

Government, 2015), be classified under the Pipelines Safety Regulations (PSR) (HM Government, 1996) as a Major Accident Hazard Pipeline (MAHP) or require Hazardous Substances Consent (HSC) under the Planning (Hazardous Substances) Regulations as amended (HM Government, 2015).

- 18.4.12 The measures to reduce the risk to As Low as Reasonably Practicable (ALARP) in Chapter 16: Major Accidents and Disasters are considered appropriate for any future potential COMAH, MAHP or HSC development and on this basis, it has been concluded that there would be no significant residual effects as a result of the Proposed Developments. As there would be no residual effects, either during construction or operation of the Proposed Developments, consideration of cumulative effects due to major accidents and disasters has been scoped out of this assessment.
- 18.4.13 In regards to Materials and Waste, a detailed cumulative effects assessment has not been undertaken because:
- as part of their planning function, Waste Planning Authorities (WPAs) are required to ensure that enough land is available to accommodate facilities for the treatment of all waste arising in the area, either within the WPA area, or through export to suitable facilities in other areas; and
  - Minerals Planning Authorities (MPAs) are similarly required to ensure an adequate supply of minerals, sufficient to meet the needs of national and regional supply policies, and local development needs.
- 18.4.14 In preparing their waste management strategies, the WPAs already take into account waste generation at the regional and sub-regional scale, since these are the figures which are then used for determining the need for waste facilities. The landfill void capacity remaining (which is used to evaluate the effects of the Proposed Development) already takes into account the cumulative effects of waste generated by other developments, and hence a separate cumulative impact assessment is not required for waste.
- 18.4.15 It is therefore not necessary or feasible for each development within the region to, in effect, duplicate the function of the WPA as part of the EIA process.
- 18.4.16 Furthermore, only limited materials and waste information is available for some of the other developments, and these are deemed to be relatively small in scale development and will not require large quantities of construction materials or generate large quantities of construction waste and operational waste. Where materials and waste information is available for projects the quantities of waste are relatively small in the national or regional context and no significant effects have been identified.
- 18.4.17 Since the quantities of construction materials required and the quantity of waste generated by the Proposed Developments will result in no likely significant effects, and the timescales for some of the other large project waste generation do not align there are not expected to be any cumulative waste and resources impacts as a result of the Proposed Developments together with the identified other developments in the surrounding area.

### **Stage 3: Information Gathering**

- 18.4.18 Following an initial information search on the short-listed developments at Stage 2, a search for more detailed information was made for the short-listed developments. In line with PINS Advice Note Seventeen (PINS, 2019a), this included searching for and noting the following information, where available:
- development design and location information;
  - construction, operation and decommissioning information; and
  - any accompanying environmental assessment information detailing baseline data and effects arising from other development.

18.4.19 As discussed in Section 18.4, the information gathered at this stage was primarily from the public domain (including North Lincolnshire Council, Doncaster Council planning portals and the Planning Inspectorate website).

18.4.20 Information available for each of the schemes carried forward for CEA is described below:

- ID 46 – PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline –
  - this proposed development is situated on land starting south of VPI Immingham CHP Plant and finishing at the Theddlethorpe Gas Terminal;
  - the published documents state construction is expected to take 24 months. Whilst the start date is currently not disclosed, the Pipeline is due to be commissioned in 2027. The operational life is expected to be 40 years. Decommissioning details would be subject to further assessment in the future;
  - further information including the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/v-net-zero-pipeline/?ipcsection=overview>;
- ID 48 – PINS (VPI Immingham B Ltd) – VPI Immingham OCGT –
  - this proposed development is situated at and adjacent to the existing VPI Immingham Power Station, Rosper Road, Immingham DN40 3DZ. Grid Ref: 516809, 417402;
  - the construction programme for the proposed development is due to take approximately 24 months. It was originally due to start in Q1 2021 however construction works have not yet started. The operational life of the development is 40 years before decommissioning, however it is expected that the development will have some residual life remaining after this;
  - further information including the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/north-east/vpi-immingham-ocgt/?ipcsection=overview>;
- ID 45 - PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site –
  - this proposed development is situated south of Station Road to the north-east of the VPI Site. DN40 3ED. Grid reference: 517511, 418219;
  - the construction programme and operational life of the proposed development is not currently confirmed. Decommissioning is not foreseeable for the proposed development;
  - further information including the environmental assessments is available at <https://apps.northlincs.gov.uk/application/pa-sco-2022-7>;
- ID 8 - PINS (Able Humber Ports Ltd) - Able Marine Energy Park –
  - the proposed development lies between the Humber Sea Terminal and Immingham port. DN40 3ED. Grid reference 517082, 418740;
  - the proposed development is expected to have a construction programme of approximately 2 years and operation will be 24 hours. The Quay will be maintained rather than decommissioned, whereas the industrial buildings have a nominal 60 year design life;
  - further information regarding the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/able-marine-energy-park/?ipcsection=docs>;
- ID 52 - PA/SCO/2022/13 – Gigastack –
  - this proposed development is situated on land to the east of Rosper Road, South Killingholme, DN40 3EA, Grid Ref: 517181, 417064.

- The EIA Scoping Report states construction is expected to commence in Q4 of 2023, with operation commencing within 2025. Details of the project design life and decommissioning are not currently available.
- Further information including the environmental assessments is available at <https://apps.northlincs.gov.uk/application/pa-sco-2022-13>
- ID 37 - PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham –
  - this proposed development is situated north of Immingham and to the east of the VPI Site along Rosper Road. DN40 3DX. Grid Ref: 517529,416842;
  - the construction programme for this proposed development is currently uncertain. The proposed storage element of the development will be operational for at least 5 years, whilst the proposed buildings element has a suggested 10 year operational period;
  - further information including the environmental assessments is available at <https://apps.northlincs.gov.uk/application/pa-2022-1223>;
- ID 39 - PA/2021/1525 - Monopole Manufacturing Facility. Land at Able Marine Energy Park –
  - this proposed development is situated at Able Marine Energy Park, south of Station Road, South Humber Bank, South Killingholme, Grid Ref: 517351,418074;
  - construction is expected to take 21 months and commence in 2022. Operation will be 24 hours a day and high mast (50 m) lighting will be in use. Rather than decommission redundant buildings the intention is to repurpose them;
  - further information including the environmental assessments is available at <https://apps.northlincs.gov.uk/application/pa-2021-1525>;
- ID 28 - PINS (National Grid) - Humber Low Carbon Pipelines –
  - the proposed development has a westernmost extent at Drax Power Station and extends east before reaching Easington. Closest approximate postcode DN40 3PT. Grid Reference: 514903, 419430;
  - the overall construction programme will be approximately 44 months. Once operational the pipelines will be monitored 24 hours a day with low level lighting provided at above ground installations whilst work is being undertaken. The pipelines will have an operational life of at least 40 years and will be decommissioned under a separate consent;
  - further information regarding the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/humber-low-carbon-pipelines/?ipcsection=docs>;
- ID 11 - PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal –
  - the proposed development lies on land in the Port of Immingham. DN40 2QN. Grid reference 520421, 415352;
  - it is estimated that construction works will start in Summer 2023 and be largely completed by mid-2025. It is anticipated that the proposed development would be in use beyond the design life of the infrastructure;
  - further information regarding the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/immingham-eastern-ro-ro-terminal/?ipcsection=docs>;
- ID 10 - PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project –
  - the proposed development lies on land to the west of Humber Sea Terminal. DN40 3JP. Grid reference 516014, 420259;

- it is estimated that peak construction period will be approximately 3 years, however further detail of the full construction programme is not currently available. The design life of the plant is 30 years;
- further information regarding the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/north-killingholme-power-project/?ipcsection=overview>;
- ID 47 – PINS (Associated British Ports) – Immingham Green Energy Terminal –
  - the proposed development lies on land on the eastern side of the Port of Immingham, North Lincolnshire. DN41 8DR. Grid reference 520792, 415202;
  - application is expected to be submitted Q2 2023. Information on the project construction start date is not yet available or visible within the scoping report. The landside elements of the proposed development will have a design life of up to approximately 25 years;
  - further information regarding the environmental assessments is available at <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/immingham-green-energy-terminal/>

## 18.5 Cumulative Effects Assessment (Stage 4)

18.5.1 This section presents the results from the detailed CEA conducted for the 11 developments scoped into the CEA. These developments are shown on Figure 18.2 (ES Volume III). Section 18.5 considers in turn each ‘scoped in’ environmental discipline and assesses whether effects associated with each short-listed development would be able to interact with the effects associated with the Proposed Development in a manner that has the ability to generate potentially significant cumulative effects.

18.5.2 Where the location of a development falls outside of the study area for a topic this development has been scoped out for that topic on the basis of distance and there being no reasonable pathway by which effects could propagate, unless otherwise stated.

## Air Quality

18.5.3 An assessment of potential cumulative effects on the air quality due to the Proposed Developments and the other developments are presented in Table 18.6.

**Table 18.6: Air quality cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No operational emissions are envisaged from the Viking CCS Pipeline.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No operational emissions are envisaged from the Viking CCS Pipeline.	Potential for construction activities to overlap. Cumulative impacts of this development with the Proposed Developments will need to be considered within the DCO application for the Pipeline, however it is anticipated that Good Practice Measures employed during construction activities for all developments will ensure that construction dust impacts are minimised.	No significant residual effects are anticipated.
48	Tier 1 PINS (VPI B Immingham Limited) VPI Immingham OCGT	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. Cumulative operational emissions for the OCGT with the operation of the existing VPI Immingham CHP Power Plant were considered at the time of the OCGT DCO application. Given that the Proposed VPI Development only results in negligible increases in pollutant concentrations that will be released from the OCGT, no cumulative impacts are anticipated.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. Given that the Proposed Phillips Development results in negligible impacts for the pollutant concentrations that will be released from the OCGT, no cumulative impacts are anticipated.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. Cumulative operational emissions are not considered to be significant.	No significant residual effects are anticipated.
45	Tier 2 PA/SCO/2022/7	Potential for construction activities to overlap.	Potential for construction activities to overlap.	Potential for construction activities to overlap.	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Enabling works on and adjacent to the Able Marine Energy Park site	Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.	Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.	Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.	
8	Tier 1 PINS (Able Humber Ports Ltd), Able Marine Energy Park	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.  Operational impacts from the Able Marine Energy Park of pollutant species that are relevant to the Proposed Developments have been assessed as having an imperceptible magnitude of change, as such there is limited potential for cumulative impacts.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.  Operational impacts from the Able Marine Energy Park of pollutant species that are relevant to the Proposed Developments have been assessed as having an imperceptible magnitude of change, as such there is limited potential for cumulative impacts.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic.  Operational impacts from the Able Marine Energy Park of pollutant species that are relevant to the Proposed Developments have been assessed as having an imperceptible magnitude of change, as such there is limited potential for cumulative impacts.	No significant residual effects are anticipated.
52	Tier 2 PA/SCO/2022/13 Gigastack	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No detail on the construction and operation traffic flows are available for the Gigastack project, however an assessment is proposed, and this will need to consider the cumulative impacts with the VPI Proposed Development.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No detail on the construction and operation traffic flows are available for the Gigastack project, however an assessment is proposed, and this will need to consider the cumulative impacts with the Proposed Phillips 66 Development.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No detail on the construction and operation traffic flows are available for the Gigastack project, however an assessment is proposed, and this will need to consider the cumulative impacts with the Proposed Developments. The only operational emissions from the Gigastack project are venting of oxygen	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		The only operational emissions from the Gigastack project are venting of oxygen and hydrogen, and therefore no cumulative impacts are anticipated.	The only operational emissions from the Gigastack project are venting of oxygen and hydrogen, and therefore no cumulative impacts are anticipated.	and hydrogen, and therefore no cumulative impacts are anticipated.	
37	Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. No operational emissions that could result in cumulative impacts.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. No operational emissions that could result in cumulative impacts.	Potential for construction activities to overlap. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Negligible impacts from construction traffic. No operational emissions that could result in cumulative impacts.	No significant residual effects are anticipated.
39	Tier 1 PA/2021/1525 Monopole Manufacturing Facility. Land at Able Marine Energy park	Potential for construction activities to overlap. Low risk of dust soiling and human health impacts identified from construction activities for the Monopole Manufacturing Facility. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Construction and operation traffic impacts have been assessed as negligible for the Monopole Manufacturing Facility. No operational emissions from the Monopole Manufacturing Facility that could result in cumulative impacts.	Potential for construction activities to overlap. Low risk of dust soiling and human health impacts identified from construction activities for the Monopole Manufacturing Facility. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Construction and operation traffic impacts have been assessed as negligible for the Monopole Manufacturing Facility. No operational emissions from the Monopole Manufacturing Facility that could result in cumulative impacts.	Potential for construction activities to overlap. Low risk of dust soiling and human health impacts identified from construction activities for the Monopole Manufacturing Facility. Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. Construction and operation traffic impacts have been assessed as negligible for the Monopole Manufacturing Facility. No operational emissions from the Monopole Manufacturing Facility that could result in cumulative impacts.	No significant residual effects are anticipated.
28	Tier 2 PINS (National Grid) Humber Low Carbon Pipelines	Potential for construction activities to overlap, but due to distance from the Proposed VPI Development and the Study Area for construction type	Potential for construction activities to overlap, but due to distance from the Proposed Phillips 66 Development and the Study Area for construction type	Potential for construction activities to overlap, but due to distance from the Proposed Developments (2.4 km), and the Study Area for construction type	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		activities being 350 m, there is limited potential for cumulative effects. No operational emissions that could result in cumulative impacts.	activities being 350 m, there is limited potential for cumulative effects. No operational emissions that could result in cumulative impacts.	activities being 350 m, there is limited potential for cumulative effects. No operational emissions that could result in cumulative impacts.	
11	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal	Potential for construction activities to overlap, but due to distance from the Proposed VPI Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed Development, although no assessment has been carried out to date, as the project is only at scoping stage.	Potential for construction activities to overlap, but due to distance from the Proposed Phillips 66 Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed Development, although no assessment has been carried out to date, as the project is only at scoping stage.	Potential for construction activities to overlap, but due to distance from the Proposed Developments and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed Development, although no assessment has been carried out to date, as the project is only at scoping stage.	Significant impacts considered unlikely.
10	Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	Potential for construction activities to overlap, but due to distance from the Proposed VPI Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Operational emissions from the North Killingholme Power Project and the Proposed Developments will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed Developments, and the prevailing wind direction (from the south-west) will mean that the location	Potential for construction activities to overlap, but due to distance from the Proposed Phillips 66 Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Operational emissions from the North Killingholme Power Project and the Proposed Developments will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed Developments, and the prevailing wind direction (from the south-west) will mean that the location	Potential for construction activities to overlap, but due to distance from the Proposed Developments (3.1 km), and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Operational emissions from the North Killingholme Power Project and the Proposed Developments will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed Developments, and the prevailing wind direction (from the south-west) will mean that the location of peak impacts from both	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		of peak impacts from both developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen.	of peak impacts from both developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen.	developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen.	
47	Tier 2 PINS (Associated British Ports) Immingham Green Energy Terminal	Potential for construction activities to overlap, but due to distance from the Proposed VPI Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Due to the location of the Immingham Green Energy Terminal (to the southeast) and the prevailing wind direction in the area (from the southwest) there is minimal potential for cumulative operational impacts to occur.	Potential for construction activities to overlap, but due to distance from the Proposed Phillips Development and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. Due to the location of the Immingham Green Energy Terminal (to the southeast) and the prevailing wind direction in the area (from the southwest) there is minimal potential for cumulative operational impacts to occur.	Potential for construction activities to overlap, but due to distance from the Proposed Developments, and the Study Area for construction type activities being 350 m, there is limited potential for cumulative effects. No operational emissions that could result in cumulative impacts.	No significant residual effects are anticipated.

## Noise and Vibration

18.5.4 An assessment of potential cumulative noise and vibration effects due to the Proposed Developments and the other developments are presented in Table 18.7.

**Table 18.7: Noise and vibration cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments comply with any assigned noise and vibration limits and follow the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects, although provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that cumulative operational noise effects at nearby receptors will be significant.</p> <p>However, given the current uncertainties with respect to the construction methods and programme and operational noise impacts for the Viking CCS Pipeline, a detailed assessment is not considered possible.</p>	Same as for Proposed VPI Development (see previous column).	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments comply with any assigned noise and vibration limits and follow the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that significant cumulative construction noise effects will occur at nearby receptors.</p> <p>There is also the potential for cumulative operational noise effects, although provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.</p> <p>However, given the current uncertainties with respect to the construction methods and programme and operational noise impacts for the Viking CCS Pipeline, a detailed assessment is not considered possible at this time.</p>	No significant residual cumulative effects are anticipated.
48	Tier 1 PINS (VPI Immingham B	There is the potential for some cumulative noise effects if simultaneous construction works	Same as for Proposed VPI Development (see previous column).	There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments	No significant residual cumulative effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Ltd) – VPI Immingham OCGT	<p>occur. Provided all developments comply with any assigned noise and vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.</p>		<p>comply with any assigned noise and vibration limits and follow the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that significant cumulative construction noise effects will occur at nearby receptors.</p> <p>There is also the potential for cumulative operational noise effects, although provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.</p>	
45	Tier 2 PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided all developments comply with any assigned noise and vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that</p>	Same as for Proposed VPI Development (see previous column).	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided all developments comply with any assigned noise and vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors. .There</p>	No significant residual cumulative effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		<p>significant cumulative operational noise effects will occur at nearby receptors. .There is potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.</p>		<p>is potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.</p>	
8	<p>Tier 1 PINS (Able Humber Ports Ltd) - Able Marine Energy Park</p>	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided all developments comply with any assigned noise and vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors. .There is potential for cumulative operational noise effects. However, provided each development complies with any operational noise</p>	<p>Same as for Proposed VPI Development (see previous column).</p>	<p>There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided all developments comply with any assigned noise and vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.</p> <p>There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors. .There is potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant</p>	<p>No significant residual cumulative effects are anticipated.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.		cumulative operational noise effects will occur at nearby receptors.	
52	Tier 2 PA/SCO/2022/13 Gigastack	There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments comply with any assigned noise and vibration limits and follow the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant. There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors. The proposed Gigastack development may also provide some screening between Proposed VPI Development and the residential NSRs (Hazel Dene) to the East.	This development is outside Zol for construction. However there is the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors	There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments comply with any assigned noise and vibration limits and follow the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant. There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors. The proposed Gigastack development may also provide some screening between Proposed Developments and the residential NSRs (Hazel Dene) to the East.	No significant residual cumulative effects are anticipated.
37	Tier 1 PA/2022/1223 - Land Adjacent to the Westgate	There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided all developments comply with any assigned noise and	Same as for Proposed VPI Development (see previous column).	There is the potential for some cumulative noise effects if simultaneous construction works occur. Provided that all developments comply with any assigned noise and vibration limits and follow the general	No significant residual cumulative effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Entrance, Port of Immingham	vibration limits and follows the general guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that cumulative construction noise effects at nearby receptors will be significant.  There is also the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.		guidance contained within BS 5228-1 with respect to noise mitigation, it is considered unlikely that significant cumulative construction noise effects will occur at nearby receptors.  There is also the potential for cumulative operational noise effects, although provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.	
39	Tier 1 PA/2021/1525 – Monopole Manufacturing Facility. Land at Able Marine Energy park	Outside Zol for construction.  There is the potential for cumulative operational noise effects. However, provided each development complies with any operational noise limits or planning conditions/ requirements to protect residential amenity, it is considered unlikely that significant cumulative operational noise effects will occur at nearby receptors.	Outside Zol for construction and operation.	Same as for VPI.	No significant residual cumulative effects are anticipated.
28	Tier 2 PINS (National Grid) - Humber Low Carbon Pipelines	Outside Zol for construction and operation.	Outside Zol for construction and operation.	Outside Zol for construction and operation.	No significant residual cumulative effects are anticipated.
11	Tier 1 PINS (Associated British Ports) -	Outside Zol for construction and operation.	Outside Zol for construction and operation.	Outside Zol for construction and operation.	No significant residual cumulative effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Immingham Eastern Ro-Ro Terminal				
10	Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	Outside Zol for construction and operation.	Outside Zol for construction and operation.	Outside Zol for construction and operation.	No significant residual cumulative effects are anticipated.
47	Tier 2 PINS (Associated British Ports) – Immingham Green Energy Terminal	Outside Zol for construction and operation.	Outside Zol for construction and operation.	Outside Zol for construction and operation.	No significant residual cumulative effects are anticipated.

## Traffic and Transport

18.5.5 An assessment of potential cumulative effects on traffic and transport due to the Proposed Developments and the other developments are presented in Table 18.8.

**Table 18.8: Traffic and transport cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline	The majority of the Viking CCS Pipeline is located several kilometres to the south of the VPI Site. There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed VPI Development cannot be determined. The Humber Zero and Viking CCS project teams are working collaboratively to manage cumulative construction traffic impacts.	The majority of the Viking CCS Pipeline is located several kilometres to the south of the Phillips 66 Site. There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Phillips 66 Development cannot be determined. The Humber Zero and Viking CCS project teams are working collaboratively to manage cumulative construction traffic impacts.	The majority of the Viking CCS Pipeline is located several kilometres to the south of the Sites. There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Developments cannot be determined. The Humber Zero and Viking CCS project teams are working collaboratively to manage cumulative construction traffic impacts.	No significant residual effects are anticipated.
48	Tier 1 PINS (VPI B Immingham Limited) VPI Immingham OCGT	The application has the potential to generate minor cumulative impacts associated with the Proposed VPI Development due to directing traffic, both staff and HGV, onto similar road links on the network. These include Rosper Road, the A160, the A180 and the A1173. These amount to an estimated 248 extra daily two-way trips on Rosper Road and a further 123 on the A160, A180 and A1173.  Rosper Road was identified as a location where there would be a significant increase in overall traffic as a result of the Proposed VPI Development. The addition of 248 daily two-way trips could potentially	It is considered that the cumulative impacts of this application and the Proposed Phillips 66 development would be negligible as the only mutual links affected would be the A160, A180 and A1173, on which the anticipated increase in trips of 123 two-way daily movements is considered to be not significant.	The cumulative impacts of both Proposed Developments are considered negligible on all links other than Rosper Road where the addition of the VPI B development would grow the traffic increase from 45.1% associated with the Proposed Developments to over 50%, which is not considered to be significant.	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		<p>generate a cumulative effect. This would bring the total traffic increase on Rosper Road from 45.1% as a result of the Proposed VPI Development to over 50%, which is not considered to be significant.</p> <p>It is considered that the additional trips from this application on the A160, A180 and A1173 would have a negligible cumulative effect.</p>			
45	<p>Tier 2 PA/SCO/2022/7 Enabling works on and adjacent to the Able Marine Energy Park site</p>	<p>Traffic and Transport was scoped out of this application and therefore it is assumed that the cumulative impacts of this development and the Proposed VPI Development are not significant.</p>	<p>Traffic and Transport was scoped out of this application and therefore it is assumed that the cumulative impacts of this development and the Proposed Phillips 66 Development are not significant.</p>	<p>Traffic and Transport was scoped out of this application and therefore it is assumed that the cumulative impacts of this development and the Proposed Developments are not significant.</p>	<p>No significant residual effects are anticipated.</p>
8	<p>Tier 1 PINS (Able Humber Ports Ltd), Able Marine Energy Park</p>	<p>This application refers to a development which, like the Proposed VPI Development, will be accessed from Rosper Road. There is therefore potential for cumulative effects between this development the Proposed VPI Development due to mutual links including Rosper Road, the A160, A180, Humber Road and the A1173.</p> <p>In terms of daily traffic, it is anticipated that this development will generate 2,932 daily two-way construction trips on Rosper Road with 6,266 daily two-way trips associated with the operation of the site. If this is combined with the Proposed VPI Development it would be likely to generate a significant impact.</p>	<p>At this stage the specific dates associated with the start/end of construction and operation for this site are unknown. It is not possible to assess whether this traffic would be on the road network at the same time as the Proposed Philips 66 Development traffic, therefore an accurate assessment of the cumulative impacts is also not possible.</p>	<p>At this stage the specific dates associated with the start/end of construction and operation for this site are unknown. It is not possible to assess whether this traffic would be on the road network at the same time as the traffic from both developments, therefore an accurate assessment of the cumulative impacts is also not possible.</p>	<p>It is not possible to assess cumulative impacts.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		<p>Based on the information provided within the application the development was approved in 2014 with an initial construction period running up to 2017. This has since been extended in 2020 for a further 5 years for construction to begin. A revised PEIR was produced in 2021, however there was no revised programme or assessment included within the traffic chapter. As such the specific dates associated with the start/end of construction and operation for this site are unknown. It is not possible to assess whether this traffic would be on the road network at the same time as the Proposed VPI Development traffic, therefore an accurate assessment of the cumulative impacts is also not possible.</p>			
52	Tier 2 PA/SCO/2022/13 Gigastack	<p>There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed VPI Development cannot be determined. However consideration of the EIA Scoping Report for the project suggests the site will be accessed from Rosper Road, similar to the Proposed VPI Development and therefore there is potential for cumulative effects. However based on the published information construction is proposed to begin in Q4 of 2023 and operations commencing in 2025 and therefore should not clash with the anticipated peak</p>	<p>There is currently no transport and traffic submission with regards to this project and therefore cumulative effects of this and the Proposed Phillips 66 Development cannot be determined. However, the EIS Scoping Report indicates that the A160 will be a route considered in the EIS assessment and therefore there is potential for cumulative effect with the Proposed Phillips 66 Development. Based on the published information peak periods of construction are unlikely to overlap with operations commencing for this development in 2025 while the peak construction traffic periods for the Proposed Phillips 66 Development are anticipated to be late</p>	<p>There is currently no transport and traffic submission with regards to this project and therefore cumulative effects of this and the Proposed Developments cannot be determined. However, the site is proposed to be access from Rosper Road and the A160 will form part of the assessment in the EIS chapter for the project. This would indicate there is potential for cumulative effects between this development and the Proposed Developments. Given the published information on construction programme indicated commencement in Q3 2023 and operation by 2025, it is unlikely that the periods of peak construction traffic will overlap. The Humber Zero and Gigastack project teams (which both</p>	<p>No significant residual effects are anticipated.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		<p>construction period for the Proposed VPI Development of 2027. The A160 will be assessed in the EIS therefore cumulative effects on the A160 could be anticipated, however the lack of crossover in peak construction periods should minimise any effect. The Humber Zero and Gigastack project teams (which both include Phillips 66) are working collaboratively to manage cumulative construction traffic impacts.</p>	<p>2025. The Humber Zero and Gigastack project teams (which both include Phillips 66) are working collaboratively to manage cumulative construction traffic impacts.</p>	<p>include Phillips 66) are working collaboratively to manage cumulative construction traffic impacts.</p>	
37	<p>Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham</p>	<p>This application includes a Transport Assessment which contains anticipated total daily trip generation as well as AM and PM peak trip generation. The application affects similar links to the Proposed VPI Development in the A160, A180 and A1173.  The TA anticipates that the development would generate an additional 1004 daily two-way trips which could potentially cause cumulative impacts with the Proposed VPI Development. However, the development and would not generate a cumulative traffic increase of more than the 30% significance threshold.</p>	<p>This application includes a Transport Assessment which contains anticipated total daily trip generation as well as AM and PM peak trip generation. The application affects similar links to the Proposed Phillips 66 Development in the A160, A180 and A1173.  The TA anticipates that the development would generate an additional 1004 daily two-way trips which could potentially cause cumulative impacts with the Proposed Phillips 66 Development. However, the development and would not generate a cumulative traffic increase of more than 30%.</p>	<p>This application includes a Transport Assessment which contains anticipated total daily trip generation as well as AM and PM peak trip generation. The application affects similar links to the Proposed Developments in the A160, A180 and A1173.  The TA anticipates that the development would generate an additional 1004 daily two-way trips which could potentially cause cumulative impacts with the Proposed Developments. However, the development and would not generate a cumulative traffic increase of more than 30%.</p>	<p>No significant residual effects are anticipated.</p>
39	<p>Tier 1 PA/2021/1525 Monopole Manufacturing Facility. Land at</p>	<p>The application is accessed from Rosper Road. A Technical Note was included in the application to cover Transportation matters. As the Proposed VPI Development is also accessed from Rosper Road, there is</p>	<p>Cumulative effects would be less for the Proposed Phillips 66 Development as this application due to the access being from Eastfield Road rather than Rosper Road. However, there is potential for cumulative effects across</p>	<p>The Transport Technical Note submitted with this application sets out that the proposed Monopole Factory anticipates generation of an additional 193 daily two-way trips on top of the already consented DCO application. This would not</p>	<p>No significant residual effects are anticipated.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Able Marine Energy park	potential for cumulative effects across multiple links including Rosper Road, the A160, A180, A15 and A1173. However, the Transport Technical Note sets out that Proposed Monopole Factory is anticipated to generate an additional 193 two-way vehicle trips per day on top of the already consented DCO application. This would be expected to have negligible cumulative effect on the Proposed VPI Development and would not generate a cumulative traffic increase of more than 30%.	multiple links including the A160, A180, A15 and A1173. However, the Transport Technical Note sets out that Proposed Monopole Factory is anticipated to generate an additional 193 two-way vehicle trips per day on top of the already consented DCO application. This would be expected to have negligible cumulative effect on the Proposed Phillips 66 Development and would not generate a cumulative traffic increase of more than 30%.	generate a cumulative traffic increase of more than 30%.	
28	Tier 2 PINS (National Grid) Humber Low Carbon Pipelines	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed VPI Development cannot be determined.	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Phillips 66 Development cannot be determined.	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Developments cannot be determined.	No significant residual effects are identified.
11	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal	The assessment for this development suggests impacts on several shared links with the Proposed VPI Development. These include the A160 and A180. However, the cumulative impact of this development and the Proposed VPI Development are not sufficient enough to put them over the 30% threshold to mark them as significant.	The assessment for this development suggests impacts on several shared links with the Proposed Phillips 66 Development. These include the A160, A180 and Humber Road. However, the cumulative impact of this development and the Proposed Phillips 66 Development are not sufficient enough to put them over the 30% threshold to mark them as significant.	The cumulative impacts of this development and the Proposed Developments are not sufficient to breach the 30% significance threshold and therefore are not considered significant.	No significant residual effects are anticipated.
10	Tier 1 PINS (C.GEN Killingholme Ltd) -	The assessment for this development suggests impacts on several shared links with the Proposed VPI Development. These include the A160, A180, Humber Road and the A1173.	The assessment for this development suggests impacts on several shared links with the Proposed Phillips 66 Development, notably Eastfield Road from which the Phillips 66 site is	The cumulative impacts of this development and the Proposed Developments are not sufficient to breach the 30% significance threshold	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	North Killingholme Power Project	However, the cumulative impact of this development and the Proposed VPI Development are not sufficient enough to put them over the threshold to mark them as significant.	accessed. These also include the A160, A180, Humber Road and A1173. However, the cumulative impact of this development and the Proposed Phillips 66 Development are not sufficient enough to push them beyond the threshold to be considered significant. The cumulative impact on Eastfield Road would be 28% and therefore below the significance threshold of 30%.	and therefore are not considered significant.	
47	Tier 2 PINS (Associated British Ports) Immingham Green Energy Terminal	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed VPI Development cannot be determined.	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Phillips 66 Development cannot be determined.	There is currently no transport and traffic submission with regards to this project and therefore the cumulative effects of this and the Proposed Developments cannot be determined.	No significant residual effects are identified.

## Water Environment and Flood Risk

18.5.6 An assessment of potential cumulative effects on the water environment and flood risk due to the Proposed Developments and the other developments are presented in Table 18.9.

**Table 18.9: Water environment and flood risk cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline	<p>Potential for construction activities to overlap</p> <p><b>Flood Risk.</b> Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p> <p><b>Water Environment</b> Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p>	<p>Potential for construction activities to overlap</p> <p><b>Flood Risk.</b> Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p> <p><b>Water Environment</b> Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p>	<p>Potential for construction activities to overlap</p> <p><b>Flood Risk.</b> Mitigation for construction activities will be employed based on best practice measures for the level of risk defined. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p> <p><b>Water Environment</b> Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged from the Viking CCS Pipeline.</p>	No significant residual effects are anticipated

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
48	Tier 1 PINS (VPI Immingham B Ltd) – VPI Immingham OCGT	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the VPI Immingham OCGT site. The VPI Immingham OCGT site and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant (negligible) following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. The VPI Immingham OCGT does not propose to discharge process water, and water quality treatment is proposed. Therefore no operational cumulative impacts are envisaged.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the VPI Immingham OCGT site. The VPI Immingham OCGT site and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> – Potential for cumulative water quality effects during construction to minor drainage ditches, South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. The VPI Immingham OCGT does not propose to discharge process water, and water quality treatment is proposed. Therefore no operational cumulative impacts are envisaged.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the VPI Immingham OCGT site. VPI Immingham OCGT site and Proposed VPI and Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to minor drainage ditches, South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. The VPI Immingham OCGT does not propose to discharge process water, and water quality treatment is proposed. Therefore no operational cumulative impacts are envisaged.</p>	No significant residual effects are anticipated.
45	Tier 2 PA/SCO/2022/7 Enabling works on and adjacent	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b></p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b></p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b></p>	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	to the Able Marine Energy Park site	<p>The Enabling Works are located partly on the Able Marine Energy Site where no significant residual effects are identified. Flood risk assessment specific to the Enabling Works application is limited (comprising an EIA Screening and Scoping Opinion Request), however, the Enabling Works and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant due to the scale of the development and application of good practice measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p>The Enabling Works are located partly on the Able Marine Energy Site where no significant residual effects are identified. Flood risk assessment specific to the Enabling Works application is limited (comprising an EIA Screening and Scoping Opinion Request), however, the Enabling Works and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant due to the scale of the development and application of good practice measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p>The Enabling Works are located partly on the Able Marine Energy Site where no significant residual effects are identified. Flood risk assessment specific to the Enabling Works application is limited (comprising an EIA Screening and Scoping Opinion Request), however, the Enabling Works. Proposed VPI and Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are assessed as not significant due to the scale of the development and application of good practice measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	
8	Tier 1 PINS (Able Humber Ports Ltd), Able Marine Energy Park	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Residual flood risks (tidal flood risk associated with a breach and/or overtopping of the flood defences and failure of the Killingholme Marshes</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Residual flood risks (tidal flood risk associated with a breach and/or overtopping of the flood defences and failure of the Killingholme Marshes</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Residual flood risks (tidal flood risk associated with a breach and/or overtopping of the flood defences and failure of the Killingholme Marshes</p>	No significant residual effects are anticipated.

ID Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	<p>Drainage System identified as the main sources of flood risk for the Able Marine Energy Park. Negligible off site flood risk impacts to surrounding developments identified. The Able Marine Energy Park and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sedimentation of the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p>Drainage System identified as the main sources of flood risk for the Able Marine Energy Park. Negligible off site flood risk impacts to surrounding developments identified. The Able Marine Energy Park and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sedimentation of the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p>Drainage System identified as the main sources of flood risk for the Able Marine Energy Park. Negligible off site flood risk impacts to surrounding developments identified. The Able Marine Energy Park and Proposed VPI and Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sedimentation of the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	
52 Tier 2 PA/SCO/2022/13 Gigastack	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b></p> <p>The Gigastack and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations</p>	<p>Potential for construction activities to overlap</p> <p><b>Flood Risk</b></p> <p>The Gigastack and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b></p> <p>The Gigastack and the Proposed Developments will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p>	<p>No significant residual effects are anticipated for Flood Risk</p> <p>With collaborative working going forward, no new significant residual effects are anticipated for Water Environment</p>

ID Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	<p>and good practice measures for the level of risk defined.</p> <p>Limited flood risk information is included in the Scoping Report for the Gigastack project, however a FRA including all sources of flooding is proposed, and the this will need to consider the cumulative impacts with the VPI Proposed Development.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are likely to be not significant (negligible) following application of good practice measures and embedded mitigation, and the peak construction periods should not clash.</p> <p>Potential for reduced flow within South Killingholme Drain during operation due to water consumption from the Phillips 66 stormwater pond. This may slightly increase concentrations of contaminants within South Killingholme Drain, but unlikely to result in a change in WFD classification, and therefore effect is anticipated to be minor and not significant.</p> <p>The Humber Zero and Gigastack project teams (which both include</p>	<p>practice measures for the level of risk defined.</p> <p>Limited flood risk information is included in the Scoping Report for the Gigastack project, however a FRA including all sources of flooding is proposed, and the this will need to consider the cumulative impacts with the Proposed Phillips 66 Development.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are likely to be not significant (negligible) following application of good practice measures and embedded mitigation, and the peak construction periods should not clash.</p> <p>Potential for reduced flow within South Killingholme Drain during operation due to water consumption from the Phillips 66 stormwater pond. This may slightly increase concentrations of contaminants within South Killingholme Drain, especially associated with the moderate effect associated with sulphate discharge. The change in flow will not result in a change in WFD classification, and therefore effect is anticipated to remain moderate and no new or more significant impacts as a cumulative effect.</p>	<p>Limited flood risk information is included in the Scoping Report for the Gigastack project, however a FRA including all sources of flooding is proposed, and the this will need to consider the cumulative impacts with the Proposed Developments.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are likely to be not significant (negligible) following application of good practice measures and embedded mitigation, and the peak construction periods should not clash.</p> <p>Potential for reduced flow within South Killingholme Drain during operation due to water consumption from the Phillips 66 stormwater pond. This may slightly increase concentrations of contaminants within South Killingholme Drain, but unlikely to result in a change in WFD classification, and therefore effect is anticipated to be minor and not significant.</p> <p>The Humber Zero and Gigastack project teams (which both include Phillips 66) are working collaboratively to manage cumulative water impacts.</p>	

ID Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Phillips 66) are working collaboratively to manage cumulative water impacts.	The Humber Zero and Gigastack project teams (which both include Phillips 66) are working collaboratively to manage cumulative water impacts.		
37 Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the Land Adjacent to the Westgate Entrance site. The Land Adjacent to the Westgate Entrance and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are not significant following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the Land Adjacent to the Westgate Entrance site. The Land Adjacent to the Westgate Entrance and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are not significant following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Flood Risk</b> Low risk of flooding from all sources identified for the Land Adjacent to the Westgate Entrance site. Land Adjacent to the Westgate Entrance and Proposed VPI and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b> Potential for cumulative water quality effects during construction to South Killingholme Drain, Rosper Road Ponds and Humber Estuary, however effects are not significant following application of good practice measures and embedded mitigation. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	No significant residual effects are anticipated.
39 Tier 1 PA/2021/1525	Potential for construction activities to overlap.	Potential for construction activities to overlap.	Potential for construction activities to overlap.	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Monopole Manufacturing Facility. Land at Able Marine Energy park	<p><b>Flood Risk</b></p> <p>Low risk of flooding from all sources identified for the Monopole Manufacturing Facility. The Monopole Manufacturing Facility and Proposed VPI Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p><b>Flood Risk</b></p> <p>Low risk of flooding from all sources identified for the Monopole Manufacturing Facility. The Monopole Manufacturing Facility and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p><b>Flood Risk</b></p> <p>Low risk of flooding from all sources identified for the Monopole Manufacturing Facility. The Monopole Manufacturing Facility and Proposed VPI and Proposed Phillips 66 Development Sites will be constructed and operated in accordance with environmental legislation, regulations and good practice measures for the level of risk defined.</p> <p><b>Water Environment</b></p> <p>Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p>No significant residual effects are anticipated.</p>
28	Tier 2 PINS (National Grid) Humber Low Carbon Pipelines	<p><b>Flood Risk</b></p> <p>No cumulative effects are anticipated for both the construction and operational phases as the Proposed VPI Development is not considered to share a source-pathway-receptor linkage with Humber Low Carbon Pipelines project in relation to flood risk and drainage.</p>	<p><b>Flood Risk</b></p> <p>No cumulative effects are anticipated for both the construction and operational phases as the Proposed Phillips 66 Development is not considered to share a source-pathway-receptor linkage with Humber Low Carbon Pipelines project in relation to flood risk and drainage.</p>	<p><b>Flood Risk</b></p> <p>No cumulative effects are anticipated for both the construction and operational phases as the Proposed Developments are not considered to share a source-pathway-receptor linkage with Humber Low Carbon Pipelines project in relation to flood risk and drainage.</p> <p><b>Water environment</b></p>	<p>No significant residual effects are anticipated.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		<p><b>Water environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. The magnitude of impact would be Negligible for both developments following embedded mitigation measures, while the distance between the sites will prevent localised impacts. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p><b>Water environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. The magnitude of impact would be Negligible for both developments following embedded mitigation measures, while the distance between the sites will prevent localised impacts. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	<p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. The magnitude of impact would be Negligible for both developments following embedded mitigation measures, while the distance between the sites will prevent localised impacts. Significant cumulative impacts are therefore not foreseen.</p> <p>No operational cumulative impacts are envisaged.</p>	
11	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal	<p><b>Flood Risk</b></p> <p>There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Eastern Ro-Ro Terminal site falls outside of Proposed VPI Development Zol for flood risk and drainage.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sediment impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will not be significant for either development following embedded mitigation</p>	<p><b>Flood Risk</b></p> <p>There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Eastern Ro-Ro Terminal site falls outside of Proposed Phillips 66 Development Zol for flood risk and drainage.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sediment impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will not be significant for either development following embedded mitigation</p>	<p><b>Flood Risk</b></p> <p>There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Eastern Ro-Ro Terminal site falls outside the Proposed Developments Zol for flood risk and drainage.</p> <p><b>Water Environment</b></p> <p>Potential for construction activities to overlap. Cumulative effects during construction would be associated with sediment impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will not be significant for either development following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.</p>	No significant residual effects are anticipated.

ID Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.	measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.	No operational cumulative impacts are envisaged.	
10 Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	<p><b>Flood Risk</b> No cumulative effects are anticipated for both the construction and operational phases as the Proposed VPI Development is not considered to share a source-pathway-receptor linkage with North Killingholme Power project in relation to flood risk and drainage.</p> <p><b>Water Environment</b> – Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will(?) not be Negligible for either developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p><b>Flood Risk</b> No cumulative effects are anticipated for both the construction and operational phases as the Proposed Phillips 66 Development is not considered to share a source-pathway-receptor linkage with North Killingholme Power project in relation to flood risk and drainage.</p> <p><b>Water Environment</b> Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will (?) not be Negligible for either developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	<p><b>Flood Risk</b> No cumulative effects are anticipated for both the construction and operational phases as the Proposed Developments are not considered to share a source-pathway-receptor linkage with North Killingholme Power project in relation to flood risk and drainage.</p> <p><b>Water Environment</b> Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will (?) not be Negligible for either developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen. No operational cumulative impacts are envisaged.</p>	No significant residual effects are anticipated.
47 Tier 2 PINS (Associated British Ports) - Immingham Green Energy Terminal	<p><b>Flood Risk</b> There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Green Energy Terminal site falls outside of Proposed VPI</p>	<p><b>Flood Risk</b> There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Green Energy Terminal site falls outside of Proposed Phillips</p>	<p><b>Flood Risk</b> There are no cumulative effects anticipated for both the construction and operational phases as the Immingham Green Energy Terminal site falls outside the Proposed</p>	No significant residual effects are anticipated.

ID Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	<p>Development Zol for flood risk and drainage.</p> <p><b>Water Environment</b>                      Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.                      No operational cumulative impacts are envisaged.</p>	<p>66 Development Zol for flood risk and drainage.</p> <p><b>Water Environment</b>                      Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.                      No operational cumulative impacts are envisaged.</p>	<p>Developments Zol for flood risk and drainage.</p> <p><b>Water Environment</b>                      Potential for construction activities to overlap. Cumulative effects during construction would be associated with water quality impacts to the Humber Estuary. Although the sensitivity of this receptor is High sensitivity, the magnitude of impact will be Negligible for both developments following embedded mitigation measures. Significant cumulative impacts are therefore not foreseen.                      No operational cumulative impacts are envisaged.</p>	

## **Geology, Hydrogeology & Contaminated Land**

- 18.5.7 An assessment of potential cumulative (hydro) geological and land contamination effects due to the Proposed Developments and the other developments are presented in Table 18.10. The zone of influence for the geology, hydrogeology and contaminated land chapter is 250 m. A 1 km buffer is included for controlled waters therefore, controlled water receptors are only considered for developments within 250 m – 1 km of the Sites.
- 18.5.8 Human health, development infrastructure, controlled waters and agricultural soils receptors have been considered for development IDs 8, 37, 45, 46 and 52.
- 18.5.9 Controlled waters receptors have been considered for development IDs 39, 48 and 37.
- 18.5.10 Development IDs 28, 10, 11, 47 have been scoped out of the assessment as they are not located within the zone of influence for geology, hydrogeology and contaminated land.

**Table 18.10: (Hydro)geological and contaminated land cumulative effects assessment**

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of the Viking CCS Pipeline from the off-site human health receptors in South Killingholme (approximately 1.8 km west).</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. The soils within the VPI Site will be removed as part of the Proposed VPI Development regardless of the potential overlap of construction for the Viking CCS Pipeline.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health (on site): moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of the Viking CCS Pipeline from the off-site human health receptors in South Killingholme (approximately 1.8 km west).</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: moderate adverse (significant) but this will be mitigated</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>No significant residual effects are anticipated.</p>

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.	for each development as required by legislation and best practice		
			<p><b>Agricultural soils</b></p> <p>Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. The soils within the Phillips 66 Site, where it partly overlaps with the VPI Site, will be removed as part of the Proposed VPI Development and Phillips 66 Proposed Development regardless of the potential overlap of construction for the Viking CCS Pipeline. For mitigation measures for all receptors considered see Section 10.7</p>		

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
48	Tier 1 PINS (VPI B Immingha m Limited) VPI Immingha m OCGT	<p>Potential for construction activities to overlap.</p> <p><b>Human health, development infrastructure and agricultural soils</b> - no cumulative effects identified outside of Zol.</p> <p><b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b></p> <p>Cumulative effect: Minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p>For mitigation measures see Section 10.7</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health, development infrastructure and agricultural soils</b> No cumulative effects identified outside of Zol.</p> <p><b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b></p> <p>Cumulative effect: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p>For mitigation measures see Section 10.7</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health, development infrastructure and agricultural soils</b></p> <p>no cumulative effects identified outside of Zol.</p> <p><b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b></p> <p>Cumulative effect: Minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p>For mitigation measures see Section 10.7</p>	<p>No significant residual effects are anticipated.</p>

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
45	PA/SCO/2 022/7 – Enabling works on and adjacent to the Able Marine Energy Park site -	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Able Marine Energy Park enabling works from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health (on site): moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Able Marine Energy Park enabling works from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Able Marine Energy Park enabling works from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse</p>	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
			<p><b>Agricultural soils</b>                      Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils.                      For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>(significant) but this will be mitigated for each development as required by legislation and best practice.  <b>Agricultural soils</b>                      Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils.                      For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
8	PINS (Able Humber Ports Ltd) –Able Marine Energy Park	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Able Marine Energy Park from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health (on site): moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Able Marine Energy Park from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to</p>	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
			<p><b>Agricultural soils</b>                      Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils.                      For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>be a cumulative effect on the agricultural soils.                      For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
52	PA/SCO/2 022/13  North Lincolnshir e Council Gigastack	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Gigastack from the off-site human health receptors in South Killingholme (approximately 1.8 km west).</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. The soils within the VPI Site will be removed as part of the Proposed VPI Development regardless of the potential overlap of construction for Gigastack For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health (on site): moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance of Gigastack from the off-site human health receptors in South Killingholme (approximately 1.8 km west).</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
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**Agricultural soils**

Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. The soils within the Phillips 66 Site, where it partly overlaps with the VPI Site, will be removed as part of the Proposed VPI Development and Phillips 66 Proposed Development regardless of the potential overlap of construction for the Gigastack. For mitigation measures for all receptors considered see Section 10.7

ID	Tier Applicatio n Reference Descripti on	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
37	PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance and nature of the development from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Agricultural soils</b> Cumulative effect for agricultural soils: There is not considered to be a cumulative effect on the agricultural soils. For mitigation measures for all receptors considered see Section 10.7 of ES Chapter 10.</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health (on site): moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance and nature of the development from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice</p>	<p>Potential for construction activities to overlap.</p> <p><b>Human health</b> Cumulative effect for human health: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. Cumulative effect for off-site human health: There is not considered to be a cumulative effect for off-site human health receptors due to the distance and nature of the development from the off-site human health receptors in South Killingholme.</p> <p><b>Development infrastructure</b> Cumulative effect for development infrastructure: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice.</p> <p><b>Controlled waters (superficial and bedrock aquifers and the North Beck Drain catchment)</b> Cumulative effect for controlled waters: minor adverse (not significant) to moderate adverse (significant) but this will be</p>	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
39	Tier 1 PA/2021/1 525	Potential for construction activities to overlap.  <b>Human health, development infrastructure and agricultural soils</b>	Potential for construction activities to overlap.	Potential for construction activities to overlap.	No significant residual effects are anticipated.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Monopole Manufacturing Facility. Land at Able Marine Energy park	No cumulative effects identified, outside of Zol.  <b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b> Cumulative effect: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. For mitigation measures see Section 10.7	<b>Human health, development infrastructure and agricultural soils</b> No cumulative effects identified outside of Zol.  <b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b> Cumulative effect: moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. For mitigation measures see Section 10.7	<b>Human health, development infrastructure and agricultural soils</b> No cumulative effects identified outside of Zol.  <b>Offsite controlled waters (superficial and bedrock aquifers and North Beck Drain Catchment)</b> Cumulative effect: minor adverse (not significant) to moderate adverse (significant) but this will be mitigated for each development as required by legislation and best practice. For mitigation measures see Section 10.7	

## **Landscape and Visual Amenity**

- 18.5.11 The assessment considers the potential for cumulative impacts to static views within the landscape which may be either simultaneous (where developments would be observable at the same time) or successive (where an observer would be required to turn to experience multiple developments).
- 18.5.12 Cumulative landscape effects may result where effects resulting from a number of developments combine, increasing the prevalence of such development within a landscape to an extent where they may become a defining characteristic. The likely significance of these effects relates to the number of developments affecting the landscape, their scale, their inter-relationship and the sensitivity and ability of the particular landscape to accommodate this type of development.
- 18.5.13 Cumulative visual effects may result where effects resulting from a number of developments combine to increase the appearance and dominance within a particular view. The likely significance of these effects relates to the number of developments visible and their scale, location and inter-relationship to each other within the view.

## **Landscape Cumulative Effects**

- 18.5.14 Landscape receptors that have been assessed as having negligible adverse effects from the Proposed Developments alone have not been included in the assessment of cumulative effects, as it is considered unlikely that the addition of a negligible adverse effect to the cumulative effects of other developments within the Zol would lead to a significant cumulative impact.
- 18.5.15 Potential cumulative effects which may arise during the construction and operation phases of the Proposed Developments are outlined in Table 18.11 below.
- 18.5.16 The shortlisted developments identified in Table 18.5, which lie in the Industrial Landscape Local Landscape Type (LLT), have been screened into the assessment of cumulative landscape effects below. The other developments were scoped out of the cumulative landscape assessment as they lie within landscape receptors that have been assessed as having a negligible adverse effect from the Proposed Developments as set out above.
- 18.5.17 For the purposes of this assessment, the unlikely worst-case scenario of all the shortlisted developments being constructed and therefore present in the landscape simultaneously has been assumed and if construction were not to occur simultaneously then the reported cumulative effect would be reduced.

**Table 18.11: Landscape cumulative effects assessment**

Landscap e type	Recept or Sensitiv ity	Developments included in assessment	Description of impact	Residual cumulative effect
Industrial Landscape LLT (North Lincolnshire)	Medium	ID;46 PINS - Viking CCS Pipeline	<p><b>Proposed VPI Development</b>  <b>Construction:</b> The cumulative developments will introduce construction activity into the LLT. Due to the high number of existing large-scale industrial complexes that influence the LLT it is assessed that the introduction of construction activity associated with the short listed cumulative developments alongside the Proposed VPI Development would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same for the Proposed VPI Development assessed in isolation.</p> <p><b>Operation:</b> The cumulative developments will introduce additional built form within views from the LLT. Due to the high number of existing large-scale industrial complexes that influence the LLT it is assessed that the impact associated with the Proposed VPI Development alongside the cumulative developments would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same as for the Proposed VPI Development assessed in isolation.</p>	<p><b>Construction:</b> Minor adverse (not significant)</p> <p><b>Operation:</b> Minor adverse (not significant)</p>
		ID;52 PA/SCO/2022/3 Gigastack		
		ID; 39 PA/2021/1525 - Able Marine Energy Park		
		ID;48 PA/SCO/2022/7 – VPI Immingham OCGT		
		ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham		
Industrial Landscape LLT (North Lincolnshire)	Medium	ID;45 PA/SCO/2022/7 – AMEP 8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park	<p><b>Proposed Phillips 66 Development</b>  <b>Construction:</b> As above, it is assessed that the introduction of construction activity associated with the cumulative developments alongside the Proposed Phillips 66 Development would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same for the Proposed Phillips 66 Development assessed in isolation.</p> <p><b>Operation:</b> As above, it is assessed that the impact associated with the Proposed Phillips 66 Development alongside the cumulative developments would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same as for the Proposed Phillips 66 Development assessed in isolation.</p>	<p><b>Construction:</b> Minor adverse (not significant)</p> <p><b>Operation:</b> Minor adverse (not significant)</p>
		ID; 10 - PINS (C.GEN Killingholme Ltd) - North		

Killingholme Power  
Project

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**Both Proposed Developments**

**Construction:** The introduction of construction activity associated with both Proposed Developments alongside the cumulative developments would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same for the Proposed Developments assessed in isolation.

**Operation:** As above, it is assessed that the impact associated with both Proposed Developments alongside the cumulative developments would result in a limited change to the LLT. It is assessed that the cumulative impact would remain at low, the same as for the Proposed Developments assessed in isolation.

**Construction:** Minor adverse (not significant)

**Operation:** Minor adverse (not significant)

## Visual Cumulative Effects

18.5.18 The visual cumulative assessment assesses the potential for cumulative effects upon identified visual receptors within the study area, i.e. the landscape and visual Zol, as defined in Table 18.2.

18.5.19 The following other proposed developments were scoped into the assessment of cumulative visual effects, due to their scale, their potential to be visible from the identified sensitive receptors, and their inter-relationships within the view:

- ID: 46 – PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline;
- ID 52 – PA/SCO/2022/13 – Gigastack;
- ID: 39 - PA/2021/1525 - Monopole Manufacturing Facility. Land at Able Marine Energy Park;
- ID: 48 – PINS (VPI Immingham B Ltd) – VPI Immingham OCGT;
- ID: 37 - PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham
- ID 45 - PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site;
- ID 8 - PINS (Able Humber Ports Ltd) - Able Marine Energy Park; and
- ID 10 - PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project.

18.5.20 Table 18.12 below outlines the reasoning for the other shortlisted developments presented in Table 18.5 being scoped out of the assessment of cumulative visual effects. All other short list developments have been scoped in as set out in Table 18.12.

**Table 18.12: Visual effects cumulative effects assessment**

ID	Application reference and description	Reason for scoping out of cumulative visual effects assessment
28	PINS (National Grid) Humber Low Carbon Pipelines	Discounted due to lack of inter-visibility with the representative viewpoints.
11	PINS (Associated British Ports) Immingham Eastern Ro-Ro Terminal	Discounted due to of lack inter-visibility with the representative viewpoints.
47	PINS (Associated British Ports) Immingham Green Energy Terminal	Discounted due to lack inter-visibility with the representative viewpoints and distance from the Proposed Developments.

18.5.21 Potential cumulative visual effects of the Proposed Developments together with the other developments are summarised in Table 18.13, below, by reference to representative viewpoints. Viewpoint locations are shown in Figure 11.15 Representative Viewpoint Locations (ES Volume III).

18.5.22 Visual receptors that have been assessed as having a negligible effect due to the Proposed Developments have not been included in the assessment of cumulative effects, as it is considered unlikely that the addition of a negligible effect to the cumulative effects of other developments would lead to a significant cumulative effect. This applies to:

- Viewpoint 1 (PRoW EHAL 74, East Halton) at all assessment scenarios for both Proposed Developments;
- Viewpoint 2 (PRoW NKIL 50, Killingholme Marshes) at construction and operation for the Proposed Phillips 66 Development;
- Viewpoint 3 (PRoW NKIL 100, Marsh Lane, Killingholme) at construction and operation for the Proposed Phillips 66 Development;

- Viewpoint 4 (Church Lane, Immingham) at all assessment scenarios for both Proposed Developments;
- Viewpoint 5 (PRoW, Brocklesby) at construction and operation for the Proposed Phillips 66 Development;
- Viewpoint 6 (Staple Road, South Killingholme) at all assessment scenarios for both Proposed Developments;
- Viewpoint 7 (PRoW NKIL 83 Church Lane, North Killingholme) at operation for the Proposed VPI Development; and
- Viewpoint 8 (PRoW Broc 5/1) at operation for both Proposed Developments.

**Table 18.13: Visual cumulative effects assessment**

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
VP2	Proposed VPI Development (construction and operation)	<p>ID;46 PINS - Viking CCS Pipeline</p> <p>ID;39 PA/2021/1525_ – Able Marine Energy Park</p> <p>ID:48 PA/SCO/2022/7 – VPI Immingham OCGT</p> <p>ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham</p> <p>ID;45 PA/SCO/2022/7 – AMEP</p> <p>8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park</p>	Medium for PRow users	<p><b>Construction:</b> The construction of ID 8 Able Marine Energy Park will be visible across the view, in front of and partially screening the construction activity associated with the Proposed VPI Development. The presence of other characteristic, cumulative developments will slightly intensify the built visible structures from this location. The addition of the construction activities associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed VPI Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant effect).</p> <p><b>Operation:</b> The presence of the identified cumulative developments will slightly intensify the visibility of characteristic built structures from this location. The addition of the structures associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed Development in isolation. The impact will be long term and reversible, resulting in a minor adverse (not significant) effect.</p>	No additional mitigation proposed for cumulative effects.	<p><b>Construction:</b> Minor adverse (not significant)</p> <p><b>Operation:</b> Minor adverse (not significant)</p>

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
VP3	Proposed VPI Development (construction and operation)	<p>ID;46 PINS - Viking CCS Pipeline 52 PA/SCO/2022/3 Gigastack</p> <p>ID;39 PA/2021/1525 – Able Marine Energy Park</p> <p>ID;48 PA/SCO/2022/7 – VPI Immingham OCGT</p> <p>ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham</p> <p>ID;45 PA/SCO/2022/7 – AMEP</p> <p>ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park</p>	High for residential receptors and medium for PRoW users.	<p><b>Construction:</b> The construction activity associated with the identified cumulative developments, (with the exception of the Gigastack development), will be visible, spread across the horizon to the east, viewed separately from the Proposed VPI Development. The construction of the Gigastack development will be clearly visible in the foreground to the left of the view, partially screening construction operations associated with the Proposed VPI Development. The presence of the other characteristic, cumulative developments, will intensify the built structures visible from this location. The addition of the construction operations associated with the Proposed VPI Development will result in a low cumulative impact, lower than that assessed for the Proposed VPI Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.</p> <p><b>Operation:</b> The presence of the identified cumulative developments will intensify the visibility of characteristic built structures from this location. The addition of the structures associated with the Proposed VPI Development will be partially screened behind the Gigastack development and will result in a low cumulative impact, lower than that assessed for the Proposed VPI Development in isolation. The impact will be long term and reversible, resulting in a minor adverse (not significant) effect.</p>	No additional mitigation proposed for cumulative effects.	<p>Construction: Minor adverse (not significant)</p> <p>Operation: Minor adverse (not significant)</p>

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
VP5	Proposed VPI Development (construction and operation)	<p>ID;52 PA/SCO/2022/3 Gigastack</p> <p>ID;39 PA/2021/1525 – Able Marine Energy Park</p> <p>ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham</p> <p>ID;45 PA/SCO/2022/7 – AMEP</p> <p>ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park</p> <p>ID;10 PINS (C.GEN Killingholme Ltd) North Killingholme Power Project</p>	Medium for recreational receptors	<p><b>Construction:</b> The construction of the cumulative developments will be visible across the panoramic view alongside the construction activity associated with the Proposed VPI Development. The presence of other characteristic, cumulative developments will slightly intensify the built visible structures from this location. The addition of the construction activities associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed VPI Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant effect).</p> <p><b>Operation:</b> The presence of the identified cumulative developments will slightly intensify the visibility of characteristic built structures from this location. The addition of the structures associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed Development in isolation. The impact will be long term and reversible, resulting in a minor adverse (not significant) effect.</p>	No additional mitigation proposed for cumulative effects.	<p><b>Construction:</b> Minor adverse (not significant)</p> <p><b>Operation:</b> Minor adverse (not significant)</p>
VP7	Proposed VPI Development for construction	ID;39 PA/2021/1525 – Able Marine Energy Park	High for residential receptors	<b>Construction:</b> The upper sections of construction activity associated with the identified cumulative developments will be visible from this location, spread across the view. The presence	No additional mitigation proposed for cumulative effects.	<b>Construction:</b> Minor adverse (not significant)

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		<p>ID;52 PA/SCO/2022/3 Gigastack</p> <p>ID;48 PA/SCO/2022/7 – VPI Immingham OCGT</p> <p>ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham</p> <p>ID;45 PA/SCO/2022/7 – AMEP</p> <p>ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park</p>		<p>of the other characteristic, cumulative developments, will slightly intensify the built structures visible from this location. The addition of the construction operations associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed VPI Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.</p>		
VP7	Proposed Phillips 66 Development construction and operation	<p>ID;39 PA/2021/1525 – Able Marine Energy Park</p> <p>ID;52 PA/SCO/2022/3 Gigastack</p>	High for residential receptors	<p><b>Construction:</b> The upper sections of construction activity associated with the identified cumulative developments will be visible from this location, spread across the view. The presence of the other characteristic, cumulative developments, will slightly intensify the built structures visible from this location. The addition of the construction operations associated with the Proposed Phillips 66 Development will result in a low cumulative impact, although no greater</p>	No additional mitigation proposed for cumulative effects.	<p><b>Construction:</b> Minor adverse (not significant)</p> <p><b>Operation:</b> Minor adverse (not significant)</p>

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		ID;48 PA/SCO/2022/7 – VPI Immingham OCGT		than that assessed for the Proposed Phillips 66 Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.		
		ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham		<b>Operation:</b> The structures associated with the cumulative developments will be visible, spread across the horizon, intensifying the built structures visible from this location. The addition of the Proposed Phillips 66 Development will result in a low cumulative impact, although no greater than that assessed for the Proposed Phillips 66 Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.		
		ID;45 PA/SCO/2022/7 – AMEP				
		ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park				
VP7	Both Proposed Developments construction and operation	ID;39 PA/2021/1525 – Able Marine Energy Park	High for residential receptors	<b>Construction:</b> As above, the presence of the other characteristic, cumulative developments, will slightly intensify the built structures visible from this location. The addition of the construction operations associated with both Proposed Developments will result in a low cumulative impact, although no greater than that assessed for the Proposed Developments in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect. <b>Operation:</b> The structures associated with the cumulative developments will be visible, spread across the horizon, intensifying the built	No additional mitigation proposed for cumulative effects.	<b>Construction:</b> Minor adverse (not significant)  <b>Operation:</b> Minor adverse (not significant)
		ID;52 PA/SCO/2022/3 Gigastack ID;48 PA/SCO/2022/7 – VPI Immingham OCGT				

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham		structures visible from this location. The addition of the Proposed Developments will result in a low cumulative impact, although no greater than that assessed for the Proposed Developments in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.		
		ID;45 PA/SCO/2022/7 – AMEP				
		ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park				
VP8	Proposed VPI Development (construction only)	ID;39 PA/2021/1525 – Able Marine Energy Park  ID;52 PA/SCO/2022/3 Gigastack  ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham  ID;45 PA/SCO/2022/7 – AMEP	Medium for recreational receptors	<b>Construction:</b> The upper sections of construction activity associated with the identified cumulative developments will be visible from this location, spread across the view. The presence of the other characteristic, cumulative developments, will slightly intensify the built structures visible from this location. The addition of the construction operations associated with the Proposed VPI Development will result in a low cumulative impact, although no greater than that assessed for the Proposed VPI Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.	No additional mitigation proposed for cumulative effects.	<b>Construction:</b> Minor adverse (not significant)

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park				
		ID;10 PINS (C.GEN Killingholme Ltd) North Killingholme Power Project				
VP8	Proposed Phillips 66 Development (construction only)	ID;39 PA/2021/1525 – Able Marine Energy Park  ID;52 PA/SCO/2022/3 Gigastack  ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham  ID;45 PA/SCO/2022/7 – AMEP  ID;8 PINS (Able Humber Ports	Medium for recreational receptors	<b>Construction:</b> As above the addition of the construction operations associated with the Proposed Phillips 66 Development will result in a low cumulative impact, although no greater than that assessed for the Proposed Phillips 66 Development in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.	No additional mitigation proposed for cumulative effects.	<b>Construction:</b> Minor adverse (not significant)

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		Ltd) - Able Marine Energy Park  ID;10 PINS (C.GEN Killingholme Ltd) North Killingholme Power Project				
VP8	Both Proposed Developments (construction only)	ID;39 PA/2021/1525 – Able Marine Energy Park  ID;52 PA/SCO/2022/3 Gigastack  ID;37 PA/2022/1223 – Land adjacent to Westgate Entrance, Immingham  ID;45 PA/SCO/2022/7 – AMEP ID;8 PINS (Able Humber Ports Ltd) - Able Marine Energy Park	Medium for recreational receptors	<b>Construction:</b> As above the addition of the construction operations associated with both Proposed Developments will result in a low cumulative impact, although no greater than that assessed for the Proposed Developments in isolation. The impact will be short term and reversible, resulting in a minor adverse (not significant) effect.	No additional mitigation proposed for cumulative effects.	<b>Construction:</b> Minor adverse (not significant)

Viewpoint	Proposed Developments relevant to CEA for this viewpoint	Other developments relevant to CEA for this viewpoint	Sensitivity of receptor	Assessment of cumulative effect with the Proposed Development(s)	Proposed mitigation applicable to the Proposed Development(s)	Residual cumulative effect
		ID;10 PINS (C.GEN Killingholme Ltd) North Killingholme Power Project				

## Cultural Heritage

- 18.5.23 There is the potential for cumulative effects on heritage assets due to impacts of the Proposed Developments operating in conjunction with those of other developments – these impacts arising from simultaneous construction works and the operation of either or both the Proposed Developments and other developments.
- 18.5.24 The Zol for potential cumulative heritage effects is detailed in Table 18.2 and illustrated in Figures 18.1 and 18.2
- 18.5.25 Effects on cultural heritage assets may comprise:
- impact on setting: This is usually as a result of visual intrusion of a development (or an element of it) into the visual landscape of an asset. For example, the appearance of a large building or a tall stack in an otherwise rural setting. Such intrusions can affect our ability to understand, appreciate and experience an asset and so have an impact upon it. Such impacts can be temporary (e.g., noise during construction) or permanent (e.g., visibility of a new building during its operational life.)
  - direct physical Impact: Usually the result of construction (or other ground intrusive works) which have the potential to truncate, remove, compact or otherwise physically ‘damage’ an asset. Such impacts are permanent and typically generated during the construction phase.
- 18.5.26 The Proposed Developments have been assessed both independently and together, with the potential cumulative effect of the other developments.

### *Cumulative Effects on the Setting of Heritage Assets*

- 18.5.27 ES Chapter 21 Section 12.6 assesses the impact on setting of cultural heritage assets due to the Proposed Developments. As this section (paragraph 12.6.1 onwards) demonstrates the Proposed Developments potential impact on the settings of cultural heritage assets ranges from no impact, to neutral to negligible. This is largely due to the fact that the landscape around the Proposed Developments, which contains the heritage assets, is already very industrial in nature. The Proposed Developments alter this, and the views into and across it, very little.
- 18.5.28 As the Proposed Developments generate no significant impact on setting on their own, cumulative effects on the setting do not need to be considered as part of the CEA. Whilst other developments may impact the setting of cultural heritage assets they cannot be seen as cumulative with these Proposed Developments. The impacts generated by other developments are unique to them and will need to be considered, along with the means to mitigate these impacts them, within the environmental assessment process for these other developments.

### *Cumulative Effects on the Physical Remains of Heritage Assets*

- 18.5.29 Cumulative effects on the physical remains of an asset are generated when a single asset is subject to direct physical impact from more than one development. For instance if a single asset covers a large spatial area (such as a field full of ridge and furrow remains) one part of the asset may be affected by one development and another part affected by another development. There are six instances of this in relation to cultural heritage assets affected by physical impacts from the Proposed Developments and one or more other developments:
- the construction of both the Proposed VPI Development and the Proposed Phillips 66 Development may have a direct physical impact upon archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries) – detailed as asset **[A122]** in ES Chapter 12: Cultural Heritage. This asset extends across a large spatial area, including into the Sites as well as beyond to the east, north and south. As a result, it may also be affected by other developments - specifically ID 39 PA/2021/1525 Monopole Manufacturing Facility at Able Marine Energy park, ID 45 PA/SCO/2022/7 Enabling works on and adjacent to the Able Marine

Energy Park site, ID 46 Viking CCS Pipeline, ID 52 PA/SCO/2022/13 Gigastack, ID 8 Able Marine Energy Park and ID 48 VPI Immingham OCGT;

- the construction of both the Proposed Developments may have a direct physical impact upon archaeological evidence for medieval field systems and agricultural practices, in particular remnant ridge and furrow (detailed as asset **[A53]** in ES Chapter 12: Cultural Heritage). This asset extends across a large spatial area, including into the Sites as well over much of the landscape around the Proposed Developments. As a result, it may also be affected by other developments - specifically ID 39 PA/2021/1525 Monopole Manufacturing Facility at Able Marine Energy park, ID 45 PA/SCO/2022/7 Enabling works on land adjacent to the Able Marine Energy Park site ID 46 Viking CCS Pipeline ID 8 Able Marine Energy Park and ID 48 VPI Immingham OCGT;
- the construction the Proposed VPI Development may have a direct physical impact upon archaeological evidence for a Bronze Age – Roman Settlement (detailed as assets **[A11]**, **[A12]**, **[A13]** **[A16]** and **[A26]** in Chapter 12: Cultural Heritage). These assets encompass an area at least 300 m in length, extending from within the VPI Site out beyond it to the south-east. As a result, the asset may also be affected by development ID 37 PA/2022/1223 Land Adjacent to the Westgate Entrance at Port of Immingham, and ID 46 Viking CCS Pipeline;
- the construction the Proposed VPI Development may have a direct physical impact upon archaeological evidence Medieval/ Post Medieval field boundary ditches (detailed as asset **[A72]** in ES Chapter 12: Cultural Heritage). This asset lies within the VPI Site, and as ID 46 Viking CCS Pipeline also exists partially within the same area the asset may also be affected by this other development;
- the construction the Proposed VPI Development may have a direct physical impact upon below ground remains associated with historically important hedgerows (detailed as assets **[A70]** and **[A71]** in ES Chapter 12: Cultural Heritage). These assets lie within the VPI Site, and as ID 46 Viking CCS Pipeline, ID 52 PA/SCO/2022/13 Gigastack and ID 48 VPI Immingham OCGT also exists partially within the same area the asset may also be affected by these other developments; and
- the construction of the Proposed VPI Development may have a direct physical impact upon the below ground archaeological remains of a significant Iron Age – Roman settlement site (detailed as asset **[A20]** in ES Chapter 12: Cultural Heritage). This asset lies within the VPI Site, and as ID 46 Viking CCS Pipeline also exists partially within the same area the asset may also be affected by this other development. The asset is also likely to extend beyond the bounds of the VPI Site, to the east, and as elements of ID 52 PA/SCO/2022/13 Gigastack, ID 45 PA/SCO/2022/7 Enabling works on and adjacent to the Able Marine Energy Park and, ID 8 Able Marine Energy Park and lie directly to the east of the VPI Site (on the other side of Rosper Road it is highly likely that these other developments will also impact this asset. ID 48 VPI Immingham OCGT sits partially within the Proposed VPI Site boundary and may impact the north-east edge of this asset.

18.5.30 The cumulative effects of these impacts and the residual cumulative effects following mitigation are detailed in Table 18.14.

18.5.31 All other shortlisted developments have been scoped out of the assessment.

**Table 18.14: Cultural Heritage cumulative effects assessment**

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
46	Proposed Phillips 66 Development	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity which sit within the Phillips 66 Site and so will be subject to the cultural heritage mitigation measures proposed for this development;</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries) which sits within the Phillips 66 Site and so will be subject to the cultural heritage mitigation measures proposed for this development;</p> <p>The construction works associated with this other development would result in the removal/truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and this other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects is possible or necessary, in relation to these assets. Where this other development affects assets/ portions of assets outside of the Phillips 66 Site the environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant) Asset <b>[A122]</b> – negligible adverse (not significant)</p>
46	Proposed VPI Development	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development;</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries) which sits within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development;</p> <p>Assets <b>[A11]</b> – <b>[A13]</b>, <b>[A16]</b> and <b>[A26]</b> which comprise the known (and suspected) remains of a Settlement site with remains dating from the Bronze through to the Roman period site. This other development has the potential to impact portions of these assets which sit within the VPI site (and so will be subject to the cultural heritage mitigation measures proposed for this development) but also portions of the assets which sit outside of the VPI Site and so which will not be subject to mitigation measure as part of the Proposed VPI Development.</p> <p>Asset <b>[A20]</b> comprises the known (and suspected) remains of a Settlement site with remains dating from the Iron Age Bronze through to the Roman period site, which sit within the VPI Site</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant) Asset <b>[A122]</b> – negligible adverse (not significant) Assets <b>[A11]</b> – <b>[A13]</b>, <b>[A16]</b> and <b>[A26]</b> – major adverse (significant) Assets <b>[A20]</b> – minor adverse (not significant) Assets <b>[A70]</b> and <b>[A71]</b> – minor</p>

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
			<p>and so will be subject to the cultural heritage mitigation measures proposed for this development.</p> <p>Assets <b>[A70]</b> and <b>[A71]</b> - Potential buried archaeological remains (field boundaries) associated with extant historically important hedgerows which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development; and</p> <p>Asset <b>[A72]</b> – Potential buried archaeological remains associated with Medieval/ Post Medieval field boundary ditches, which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development.</p> <p>The construction works associated with this other development would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed VPI Development and this other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse                      Asset <b>[A122]</b> – negligible adverse                      Assets <b>[A11]</b> – <b>[A13]</b>, <b>[A16]</b> and <b>[A26]</b> – major adverse                      Assets <b>[A20]</b> – minor adverse                      Assets <b>[A70]</b> and <b>[A71]</b> – minor adverse                      Asset <b>[A72]</b> – minor adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects is possible or necessary, in relation to any of these assets. Where this other development affects assets/ portions of assets outside of the VPI Site the environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>	<p>adverse (not significant)</p> <p>Asset <b>[A72]</b> – minor adverse (not significant)</p>
48	Proposed Phillips 66 Development	Tier 1 PINS (VPI B Immingham Limited) VPI Immingham OCGT	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse                      Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p>

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
			possible or necessary in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.	
48	Proposed VPI Development	Tier 1 PINS (VPI B Immingham Limited) VPI Immingham OCGT	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>Asset <b>[A20]</b> comprises the known (and suspected) remains of a Settlement site with remains dating from the Iron Age Bronze through to the Roman period site, which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development. Elements of this asset may extent east beyond the VPI Site and so have the potential to be impacted by this other development. These elements of the asset will not be not be subject to mitigation measure as part of the Proposed VPI Development; and</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear.</p> <p>Assets <b>[A70]</b> and <b>[A71]</b> - Potential buried archaeological remains (field boundaries) associated with extant historically important hedgerows which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development.</p> <p>The cumulative effect upon these assets from the Proposed VPI Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p> <p>Asset <b>[A122]</b> – negligible adverse</p> <p>Assets <b>[A20]</b> – minor adverse</p> <p>Assets <b>[A70]</b> and <b>[A71]</b> – minor adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p> <p>Assets <b>[A20]</b> – minor adverse (not significant)</p> <p>Assets <b>[A70]</b> and <b>[A71]</b> – minor adverse (not significant)</p>

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
45	Proposed Phillips 66 Development	Tier 2 PA/SCO/2022/7 Enabling works on and adjacent to the Able Marine Energy Park site	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p> <p>Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p>
45	Proposed VPI Development	Tier 2 PA/SCO/2022/7 Enabling works on and adjacent to the Able Marine Energy Park site	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>Asset <b>[A20]</b> comprises the known (and suspected) remains of a Settlement site with remains dating from the Iron Age Bronze through to the Roman period site, which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development. Elements of this asset may extent east beyond the VPI Site and so have the potential to be impacted by this other development. These elements of the asset will not be not be subject to mitigation measure as part of the Proposed VPI Development; and</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed VPI Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p> <p>Asset <b>[A122]</b> – negligible adverse</p> <p>Assets <b>[A20]</b> – minor adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p> <p>Assets <b>[A20]</b> – minor adverse (not significant)</p>

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
			associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works upon these assets.	
8	Proposed Phillips 66 Development	Tier 1 Able Marine Energy Park	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p>
8	Proposed VPI Development	Tier 1 Able Marine Energy Park	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>Asset <b>[A20]</b> comprises the known (and suspected) remains of a Settlement site with remains dating from the Iron Age Bronze through to the Roman period site, which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development. Elements of this asset may extent east beyond the VPI Site and so have the potential to be impacted by this other development. These elements of the asset will not be not be subject to mitigation measure as part of the Proposed VPI Development; and</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed VPI Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p> <p>Assets <b>[A20]</b> – minor adverse (not significant)</p>

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
			<p>Asset <b>[A122]</b> – negligible adverse                      Assets <b>[A20]</b> – minor adverse                      Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works upon these assets.</p>	
52	Proposed Phillips 66 Development	Tier 2 <a href="#">PA/SCO/2022/13</a> Gigastack	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:                      Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries) which sits within the Phillips 66 Site and so will be subject to the cultural heritage mitigation measures proposed for this development.                      The construction works associated with this other development would result in the removal/truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and this other development will be:                      Asset <b>[A122]</b> – negligible adverse                      Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects is possible or necessary, in relation to this asset. Where this other development affects assets/ portions of assets outside of the Phillips 66 Site the environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>	Asset <b>[A122]</b> – negligible adverse (not significant)
52	Proposed VPI Development	Tier 2 <a href="#">PA/SCO/2022/13</a> Gigastack	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:                      Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries) which sits within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development;                      Asset <b>[A20]</b> comprises the known (and suspected) remains of a Settlement site with remains dating from the Iron Age Bronze through to the Roman period site, which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development. Elements of this asset may extent east beyond the VPI Site and so have the potential to be impacted by this other development. These elements of the asset will not be not be subject to mitigation measure as part of the Proposed VPI Development; and</p>	Asset <b>[A122]</b> – negligible adverse (not significant) Assets <b>[A20]</b> – minor adverse (not significant) Assets <b>[A70]</b> and <b>[A71]</b> – minor adverse (not significant)

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
<p>Assets <b>[A70]</b> and <b>[A71]</b> - Potential buried archaeological remains (field boundaries) associated with extant historically important hedgerows which sit within the VPI Site and so will be subject to the cultural heritage mitigation measures proposed for this development.</p> <p>The construction works associated with this other development would result in the removal/truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed VPI Development and this other development will be:</p> <p>Asset <b>[A122]</b> – negligible adverse  Assets <b>[A20]</b> – minor adverse  Assets <b>[A70]</b> and <b>[A71]</b> – minor adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects is possible or necessary, in relation to any of these assets. Where this other development affects assets/portions of assets outside of the VPI Site the environmental assessment process associated with this other development will need to consider and recommend appropriate mitigations measure to offset the impacts of its works upon these assets.</p>				
37	Proposed VPI Development (Proposed Phillips 66 Development has no impacts on the assets impacted by this other development)	Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with assets <b>[A11] – [A13]</b>, <b>[A16]</b> and <b>[A26]</b> which comprise the known (and suspected) remains of a Settlement site with remains dating from the Bronze through to the Roman period site, specifically the elements of these widespread assets which sit outside of the VPI Site. The construction works associated with this other development have the potential to remove/ truncate portions of these assets – again specifically those portions of these assets which sit outside of the VPI Site (and so will not be examined as part of the mitigation works associated with the Proposed VPI Development). The extent of the potential damage to these assets from the other development is as yet unclear. The cumulative effect upon this asset from the Proposed VPI Development and this other development would be major adverse in nature.</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works.</p>	Assets <b>[A11] – [A13]</b> , <b>[A16]</b> and <b>[A26]</b> – major adverse (significant)

ID	Proposed Development	Tier Application Reference Description	Assessment of cumulative effect with Proposed Developments and proposed mitigation	Residual cumulative effect
39	Proposed Phillips 66 Development	Tier 1 PA/2021/1525 Monopole Manufacturing Facility. Land at Able Marine Energy park	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed Phillips 66 Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p> <p>Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p>
39	Proposed VPI Development	Tier 1 PA/2021/1525 Monopole Manufacturing Facility. Land at Able Marine Energy park	<p>The construction works which may form part of this development have the potential to directly impact buried archaeological remains, particularly those associated with:</p> <p>Asset <b>[A53]</b> – traces of medieval ridge and furrow activity; and</p> <p>Asset <b>[A122]</b> – archaeological evidence of the ancient foreshore of the River Humber and associated paleochannels (ancient tributaries).</p> <p>This would result in the removal/ truncation of these assets to an extent which is as yet unclear. The cumulative effect upon these assets from the Proposed VPI Development and the other development will be:</p> <p>Asset <b>[A53]</b> – minor adverse</p> <p>Asset <b>[A122]</b> – negligible adverse</p> <p>Other than the mitigation measures already proposed in Chapter 12 (see Sections 12.5 and 12.7) no further mitigation measures to reduce potential cumulative effects are considered possible or necessary, in relation to either asset. The environmental assessment process associated with this other development will need to consider and recommend appropriate mitigation measures to offset the impacts of its works upon these assets.</p>	<p>Asset <b>[A53]</b> – minor adverse (not significant)</p> <p>Asset <b>[A122]</b> – negligible adverse (not significant)</p>

## Ecology

18.5.32 An assessment of potential cumulative ecological effects due to the Proposed Developments and the other developments are presented in Table 18.15.

**Table 18.15: Ecological cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and Proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and Proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) Viking CCS Pipeline	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified in the scoping report. No operational emissions are envisaged.  Humber Estuary SPA/ Ramsar birds – Viking CCS may impact functionally linked land, but no potential for cumulative effects as Proposed VPI Development does not impact functionally linked land.	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified in the scoping report. No operational emissions are envisaged.  Humber Estuary SPA/ Ramsar birds – Viking CCS may impact functionally linked land, but no potential for cumulative effects as Proposed Phillips 66 Development does not impact functionally linked land.	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified in the scoping report. No operational emissions are envisaged.  Humber Estuary SPA/ Ramsar birds – Viking CCS may impact functionally linked land, but no potential for cumulative effects as Proposed Developments do not impact functionally linked land.	No residual cumulative effects predicted
48	Tier 1 PINS (VPI B Immingham Limited) VPI Immingham OCGT	Noise/ visual disturbance – potential for piling noise to disturb waterbirds feeding, roosting and loafing in Rosper Road fields to the east. With mitigation no adverse effects were identified. Operational noise was assessed to be within ambient levels across the fields.  Air Quality – operational air quality emissions assessed as negligible, and therefore no potential for cumulative effects with Proposed VPI Development.	Noise/ visual disturbance – potential for piling noise to disturb waterbirds feeding, roosting and loafing in Rosper Road fields to the east. With mitigation no adverse effects were identified. Operational noise was assessed to be within ambient levels across the fields.  Air Quality – operational air quality emissions assessed as negligible, and therefore no potential for cumulative effects with Proposed Phillips 66 Development.	Noise/ visual disturbance – potential for piling noise to disturb waterbirds feeding, roosting and loafing in Rosper Road fields to the east. With mitigation no adverse effects were identified. Operational noise was assessed to be within ambient levels across the fields.  Air Quality – operational air quality emissions assessed as negligible, and therefore no potential for cumulative effects with Proposed Developments.	No residual cumulative effects predicted.
45	Tier 2 PA/SCO/2022/7	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of	No residual cumulative effects predicted.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and Proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and Proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Enabling works on and adjacent to the Able Marine Energy Park site	functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  It is assumed that the Applicant's EIA will consider all potential pathways for likely significant effects, including noise and visual disturbance during construction and operation. However, as all the land within and surrounding the site has been either developed, or planned/ consented for future development there is a presumption that this area will be lost for SPA/ Ramsar birds (which has driven the creation of the HMWGS), and consequently all SPA/ Ramsar waterbirds will be permanently displaced.	functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  It is assumed that the Applicant's EIA will consider all potential pathways for likely significant effects, including noise and visual disturbance during construction and operation. However, as all the land within and surrounding the site has been either developed, or planned/ consented for future development there is a presumption that this area will be lost for SPA/ Ramsar birds (which has driven the creation of the HMWGS), and consequently all SPA/ Ramsar waterbirds will be permanently displaced.	functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  It is assumed that the Applicant's EIA will consider all potential pathways for likely significant effects, including noise and visual disturbance during construction and operation. However, as all the land within and surrounding the site has been either developed, or planned/ consented for future development there is a presumption that this area will be lost for SPA/ Ramsar birds (which has driven the creation of the HMWGS), and consequently all SPA/ Ramsar waterbirds will be permanently displaced.	
8	Tier 1 PINS (Able Humber Ports Ltd), Able Marine Energy Park	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  Noise/ visual disturbance - Site clearance work within the AMEP development boundary has been ongoing for several years, and therefore is part of the baseline conditions that birds within the remaining Rosper Road fields (south of Station Road) will be experiencing. Any birds present in these fields are therefore present within this context, and therefore there is no potential for	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  Noise/ visual disturbance - Site clearance work within the AMEP development boundary has been ongoing for several years, and therefore is part of the baseline conditions that birds within the remaining Rosper Road fields (south of Station Road) will be experiencing. Any birds present in these fields are therefore present within this context, and therefore there is no potential for	Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).  Noise/ visual disturbance - Site clearance work within the AMEP development boundary has been ongoing for several years, and therefore is part of the baseline conditions that birds within the remaining Rosper Road fields (south of Station Road) will be experiencing. Any birds present in these fields are therefore present within this context, and therefore there is no	No residual cumulative effects predicted

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and Proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and Proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		effects in combination with the Proposed VPI Development.	effects in combination with the Proposed Phillips 66 Development.	potential for effects in combination with the Proposed Developments.	
52	Tier 2 PA/SCO/2022/13 Gigastack	Noise/ visual – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to Humber Estuary SPA/ Ramsar); however, further assessment work to be completed by Applicant as insufficient information available to inform cumulative assessment.  Humber Estuary SPA/ Ramsar birds – Gigastack may impact functionally linked land, but no potential for cumulative effects as Proposed VPI Development does not impact functionally linked land.	Noise/ visual – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to Humber Estuary SPA/ Ramsar); however, further assessment work is to be completed by Applicant as insufficient information available to inform cumulative assessment.  Humber Estuary SPA/ Ramsar birds – Gigastack may impact functionally linked land, but no potential for cumulative effects as Proposed Philips 66 Development does not impact functionally linked land.	Noise/ visual – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to Humber Estuary SPA/ Ramsar); however, further assessment work is to be completed by Applicant as insufficient information available to inform cumulative assessment.  Humber Estuary SPA/ Ramsar birds – Gigastack may impact functionally linked land, but no potential for cumulative effects as Proposed Developments do not impact functionally linked land.	No residual cumulative effects predicted at this stage; potential for cumulative noise/ visual disturbance during construction and operation.
37	Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham	Noise/ visual disturbance – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to the Humber Estuary SPA/ Ramsar). With mitigation, the scheme is not predicted to result in noise/ visual effects. Construction noise is within ambient levels and a substantial buffer area has been designed along the northern boundary of the site to Rosper Road Pools.	Noise/ visual disturbance – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to the Humber Estuary SPA/ Ramsar). With mitigation, the scheme is not predicted to result in noise/ visual effects. Construction noise is within ambient levels and a substantial buffer area has been designed along the northern boundary of the site to Rosper Road Pools.	Noise/ visual disturbance – potential for disturbance to waterbirds using Rosper Road Pools (functionally linked land to the Humber Estuary SPA/ Ramsar). With mitigation, the scheme is not predicted to result in noise/ visual effects. Construction noise is within ambient levels and a substantial buffer area has been designed along the northern boundary of the site to Rosper Road Pools.	No residual cumulative effects predicted.
39	Tier 1 PA/2021/1525 Monopole Manufacturing Facility. Land at	Noise/ visual – potential for disturbance to waterbirds using functionally linked land; however HRA for Able UK facility concluded that only small numbers of birds <1% threshold of the Humber Estuary population would be affected.	Noise/ visual – potential for disturbance to waterbirds using functionally linked land; however HRA for Able UK facility concluded that only small numbers of birds <1% threshold of the Humber Estuary population would be affected.	Noise/ visual – potential for disturbance to waterbirds using functionally linked land; however HRA for Able UK facility concluded that only small numbers of birds <1% threshold of the Humber Estuary population would be affected. No	No residual cumulative effects predicted

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and Proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and Proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
	Able Marine Energy park	No potential for lighting disturbance during operation was identified.  Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).	No potential for lighting disturbance during operation was identified.  Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).	potential for lighting disturbance during operation was identified.  Humber Estuary SPA/ Ramsar waterbirds – mitigation for loss of functionally linked land has already been delivered at Halton Marshes Wet Grassland Scheme (HMWGS).	
28	Tier 2 PINS (National Grid) Humber Low Carbon Pipelines	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified. No operational emissions are envisaged. Humber Estuary SPA/ Ramsar birds – pipeline may impact functionally linked land, but no potential for cumulative effects as Proposed VPI Development does not impact functionally linked land.  Noise/ visual disturbance – pipeline is approximately 2.4 km from the Proposed VPI Development and therefore there is no potential for cumulative noise/ visual disturbance to SPA/ Ramsar waterbirds.	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified. No operational emissions are envisaged. Humber Estuary SPA/ Ramsar birds – pipeline may impact functionally linked land, but no potential for cumulative effects as Proposed Phillips 66 Development does not impact functionally linked land.  Noise/ visual disturbance – pipeline is approximately 2.4 km from the Proposed Philips 66 Development and therefore there is no potential for cumulative noise/ visual disturbance to SPA/ Ramsar waterbirds.	Air Quality - There is the potential for construction activities to overlap, but no significant air quality effects have been identified. No operational emissions are envisaged. Humber Estuary SPA/ Ramsar birds – pipeline may impact functionally linked land, but no potential for cumulative effects as Proposed Developments do not impact functionally linked land.  Noise/ visual disturbance – pipeline is approximately 2.4 km from the Proposed Phillips 66 Development and therefore there is no potential for cumulative noise/ visual disturbance to SPA/ Ramsar waterbirds.	No residual cumulative effects predicted.
11	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal (IERRT)	Air Quality - Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed VPI Development, although no detailed assessment has been carried out to date, as the project is at scoping stage.	Air Quality - Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed Phillips Development, although no detailed assessment has been carried out to date, as the project is at scoping stage.	Air Quality - Emissions from vessels associated with the Ro-Ro Terminal could have the potential to result in cumulative impacts of combustion emissions with the Proposed Developments, although no assessment has been carried out to date, as the project is only at scoping stage. Further	No residual cumulative effects predicted at this stage; however, further assessment required by IERRT Applicant.

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and Proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and Proposed mitigation	Assessment of cumulative effects with both Proposed Developments	Residual cumulative effects (and for which of the Proposed Development(s))
		Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed VPI Development.	Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed Phillips 66 Development.	assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed Developments.	
10	Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	Air Quality - Operational emissions from the North Killingholme Power Project and the Proposed VPI Development will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed VPI Development, and the prevailing wind direction (from the south-west) will mean that the location of peak impacts from both developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed VPI Development.	Air Quality - Operational emissions from the North Killingholme Power Project and the Proposed Phillips 66 Development will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed Phillips 66 Development, and the prevailing wind direction (from the south-west) will mean that the location of peak impacts from both developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed VPI Development.	Air Quality - Operational emissions from the North Killingholme Power Project and the Proposed Developments will be subject to regulation via Environmental Permits and the use of Best Available Techniques for the control of emissions. The North Killingholme Power Project is 3.1 km north of the Proposed Developments, and the prevailing wind direction (from the south-west) will mean that the location of peak impacts from both developments will not occur in the same location. Significant cumulative impacts are therefore not foreseen. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed Developments.	No residual cumulative effects predicted
47	Tier 2 PINS (Associated British Ports) Immingham Green Energy Terminal (IGET)	Air Quality - Emissions from docked vessels associated with the new jetty could have the potential to result in cumulative impacts of combustion emissions with the Proposed VPI Development. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed VPI Development.	Air Quality - Emissions from docked vessels associated with the new jetty could have the potential to result in cumulative impacts of combustion emissions with the Proposed Phillips 66 Development. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed Philips 66 Development.	Air Quality - Emissions from docked vessels associated with the new jetty could have the potential to result in cumulative impacts of combustion emissions with the Proposed Developments. Further assessment work will be undertaken by the Applicant, and will consider potential in-combination effects with the Proposed Developments.	No residual cumulative effects predicted at this stage; however, further assessment required by IGET Applicant.

## Socio-economics

18.5.33 An assessment of the potential cumulative effects on socio-economics due to the Proposed Developments and the other developments are presented in Table 18.16.

**Table 18.16: Socio-economics cumulative effects assessment**

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments and proposed mitigation	Residual cumulative effects (and for which of the Proposed Development(s))
46	Tier 2 PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline	The development has not yet been granted planning permission. Information on the project construction start date is not yet available. However, if the construction phases of this development and the Proposed VPI Development were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
48	Tier 1 PINS (VPI Immingham B Ltd) – VPI Immingham OCGT	There is potential for the construction phases of this development and the Proposed VPI development to overlap. This development is expected to have a peak construction workforce of 150 and therefore if the construction phases were to overlap, it is likely that there would be a beneficial cumulative effect on the receptors affected by the Proposed VPI Development.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
45	Tier 2 PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site	The development has not yet been granted planning permission. Information on the project construction start date is not yet available. However, if the construction phases of this development and the Proposed VPI Development were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments and proposed mitigation	Residual cumulative effects (and for which of the Proposed Development(s))
8	Tier 1 PINS (Able Humber Ports Ltd) - Able Marine Energy Park	There is potential for the construction phases of this development and the Proposed VPI development to overlap. This development is expected to have a peak construction workforce of 20 and therefore even if the construction phases were to overlap, it is unlikely that there would not be a cumulative effect on the receptors affected by the Proposed VPI Development.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
52	Tier 2 PA/SCO/2022/1 3 Gigastack	The development has not yet been granted planning permission. However, if it were to gain permission, construction is expected to commence in Q4 of 2023 with operations commencing in 2025. Therefore, there is potential for the construction phases of this development and the VPI development to overlap, creating a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
37	Tier 1 PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham	The development has not yet been granted planning permission. Information on the project construction start date is not yet available. However, if the construction phases of this development and the Proposed VPI Development were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
39	Tier 1 PA/2021/1525 - Monopole Manufacturing Facility. Land at	There is potential for the construction phases of this development and the Proposed VPI development to overlap. This development is expected to create a construction workforce of 150 full-	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments and proposed mitigation	Residual cumulative effects (and for which of the Proposed Development(s))
	Able Marine Energy park	time equivalents and therefore if the construction phases were to overlap, it is likely that there would be a beneficial cumulative effect on the receptors affected by the Proposed VPI Development.			
28	Tier 2 PINS (National Grid) - Humber Low Carbon Pipelines	The development has not yet been granted planning permission. Information on the project construction start date is not yet available. However, if the construction phases of this development and the Proposed VPI Development were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
11	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal	There is potential for the construction phases of this development and the Proposed VPI development to overlap. There is limited information available at this time about the employment generated by this development. However, if the construction phases were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)
10	Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	There is potential for the construction phases of this development and the Proposed VPI development to overlap. There is limited information available at this time about the employment generated by this development. However, if the construction phases were to overlap, there could be a beneficial cumulative impact on employment generation.	See previous column. Effects are expected to be the same at the Phillips 66 Site.	See previous column. Effects are expected to be the same with both Proposed Developments.	Moderate beneficial (significant)

ID	Tier Application Reference Description	Assessment of cumulative effects with Proposed VPI Development and proposed mitigation	Assessment of cumulative effects with Proposed Phillips 66 Development and proposed mitigation	Assessment of cumulative effects with both Proposed Developments and proposed mitigation	Residual cumulative effects (and for which of the Proposed Development(s))
47	Tier 2 PINS (Associated British Ports) – Immingham Green Energy Terminal	<p>There is potential for the construction phases of this development and the Proposed VPI development to overlap. There is limited information available at this time about the employment generated by this development. However, if the construction phases were to overlap, there could be a beneficial cumulative impact on employment generation.</p>	<p>See previous column. Effects are expected to be the same at the Phillips 66 Site.</p>	<p>See previous column. Effects are expected to be the same with both Proposed Developments.</p>	<p>Moderate beneficial (significant)</p>

## 18.6 Combined Effects Assessment

- 18.6.1 Combined effects are those that may arise when several different impacts resulting from the Proposed Development(s) have the potential to affect a single receptor.
- 18.6.2 Each of the technical assessments reported in the ES have identified effects which may occur as result of the Proposed Development(s), ranging from negligible or minor (not significant) to moderate and major (significant). Multiple effects upon one or more common receptors could theoretically interact or combine, to result in a combined effect which is more or less significant than the effects individually.
- 18.6.3 The collation of this data has ensured that the ES is not a series of separate assessments collated into one document, but rather a comprehensive assessment drawing together all the environmental effects of the Proposed Developments.
- 18.6.4 As described in Section 18.3, some of the technical assessments have already considered effects that result from the combination or interaction of different types of impacts on individual receptors. Any effects arising from the interaction of impacts on individual receptors which have already been assessed within the technical assessments are not repeated here. This section considers only those combined effects which have not been identified elsewhere within the technical assessments. As such, this chapter considers only the potential combined effects on human receptors.
- 18.6.5 When considering combined effects, the mitigation measures as set out in Chapters 6 to 17 (ES Volume I) (including embedded mitigation measures built into the Proposed Development's design and measures embedded in the Outline CEMP (Appendix 4A ES Volume II)) must be taken into account. Therefore, only residual effects (post-mitigation) are considered.
- 18.6.6 In assessing potential combined effects, human receptors experiencing effects of minor or greater magnitude have been considered. The types of impacts that could be experienced by these receptors and which may interact are noise and vibration, air quality, traffic and transport, and landscape and visual effects during construction, and noise and vibration, air quality and landscape and visual effects during operation.
- 18.6.7 Mitigation of any combined effects identified is best achieved through management and control measures employed to prevent or reduce the individual effects in the first instance, thereby reducing the likelihood of the effects interacting and combining.
- 18.6.8 Table 18.17 below identifies where in the ES combined effects are considered in further detail with regard to the Proposed Developments, and considers other combined effects that are not discussed elsewhere.

**Table 18.17: Potential for significant combined effects**

Topic	Combined effects considered in technical chapter	Other combined effects to be considered for the Proposed VPI Development	Other combined effects to be considered for the Proposed Phillips 66 Development	Other combined effects to be considered for both Proposed Developments
Air Quality	<p>This topic considers the air quality effects of: dust generation construction; emission from road traffic and Non-Road Mobile Machinery (NRMM) during construction; process emissions during operation; and potential effects of decommissioning. The receptors for construction and operational effects are located in different locations. The traffic and potential dust emissions will occur before the plant is operational, so there is no potential for significant combined effects with operational air quality on a single receptor. No significant adverse effects are predicted.</p> <p>This topic also considers air quality effects on designated nature conservation sites due to process emissions from the operational phase. These sites are located 1.8 km from the Sites at the closest point so there is no potential for other effects from the construction and operation of the Proposed Developments (traffic, dust, noise, visual etc.) to combine with air quality effects, therefore no significant combined effects on designated nature conservation sites are predicted.</p>	<p><u>Construction</u></p> <p>There is potential for dust effects to combine with noise and vibration effects, traffic and transport effects and landscape and visual amenity effects across 6 receptors (Eastfield Road, Staple Road, A160, Church Lane (North Killingholme), Church Lane (Immingham) and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for dust effects to combine with noise and vibration effects, traffic and transport effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Operation</u></p> <p>There is potential for air quality effects to combine with noise and vibration and landscape and visual amenity effects across 4 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham) and Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p><u>Construction</u></p> <p>There is potential for dust effects to combine with noise and vibration effects, traffic and transport effects and landscape and visual amenity effects across 7 receptors (Eastfield Road, Staple Road, A160, Church Lane (North Killingholme), Church Lane (Immingham), Hazel Dene and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p><u>Operation</u></p> <p>There is potential for air quality effects to combine with noise and vibration effects and landscape and visual amenity effects across 5 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham), Hazel Dene and Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p><u>Construction</u></p> <p>There is potential for dust effects to combine with noise and vibration effects, traffic and transport effects and landscape and visual amenity effects across 6 receptors (Eastfield Road, Staple Road, A160, Church Lane (North Killingholme), Church Lane (Immingham) and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for dust effects to combine with noise and vibration effects, traffic and transport effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Operation</u></p> <p>There is potential for air quality effects to combine with noise and vibration and landscape and visual amenity effects across 4 receptors (Staple Road, Church Lane (north Killingholme), Church Lane (Immingham) and Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>

Topic	Combined effects considered in technical chapter	Other combined effects to be considered for the Proposed VPI Development	Other combined effects to be considered for the Proposed Phillips 66 Development	Other combined effects to be considered for both Proposed Developments
Noise and Vibration	<p>No combined effects identified.</p> <p>This topic assesses the impact of noise on residential and other human receptors. The assessment of noise impacts on relevant ecological receptors is presented in the Ecology section in this table.</p>	<p>There is also potential for air quality effects to combine with noise and vibration effects and landscape and visual effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Construction</u> There is potential for noise and vibration effects to combine with dust effects and landscape and visual amenity effects across 2 receptors (Staple Road and Church Lane (North Killingholme)). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for noise and vibration effects to combine with dust effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Operation</u> There is potential for noise and vibration effects to combine with air quality effects and landscape and</p>	<p><u>Construction</u> There is potential for noise and vibration effects to combine with dust effects and landscape and visual amenity across 3 receptors (Staple Road, Church Lane (North Killingholme) and Hazel Dene). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p><u>Operation</u> There is potential for noise and vibration effects to combine with air quality effects and landscape and visual amenity effects across 4 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham), Hazel Dene and Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p>There is also potential for air quality effects to combine with noise and vibration effects and landscape and visual effects at Hazel Dene residential receptor where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Construction</u> There is potential for noise and vibration effects to combine with dust effects and landscape and visual amenity effects across 2 receptors. Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for noise and vibration effects to combine with dust effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p> <p><u>Operation</u> There is potential for noise and vibration effects to combine with air quality effects and landscape and visual amenity effects across 3 receptors (Staple Road, Church Lane</p>

Topic	Combined effects considered in technical chapter	Other combined effects to be considered for the Proposed VPI Development	Other combined effects to be considered for the Proposed Phillips 66 Development	Other combined effects to be considered for both Proposed Developments
		<p>visual amenity effects across 3 receptors (Staple Road, Church Lane (North Killingholme) Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for noise and vibration effects to combine with air quality effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p>		<p>(North Killingholme) and Clarkes Road). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p>There is also potential for noise and vibration effects to combine with air quality effects and landscape and visual amenity effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p>
Traffic and Transport	<p>This topic considers the following traffic-related effects during construction on roadside receptors: impact of HGV construction traffic; severance; pedestrian delay; pedestrian amenity; and accidents and safety. No significant effects are predicted.</p>	<p><u>Construction</u></p> <p>There is potential for traffic and transport effects to combine with dust effects across 3 receptors (Eastfield Road, A160 and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p><u>Operation</u></p> <p>Traffic and transport assessment has been scoped out for operation for the Proposed Developments due to the low traffic generation.</p>	<p><u>Construction</u></p> <p>There is potential for traffic and transport effects to combine with dust effects across 3 receptors (Eastfield Road, A160 and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p><u>Operation</u></p> <p>Traffic and transport assessment has been scoped out for operation for the Proposed Developments due to the low traffic generation.</p>	<p><u>Construction</u></p> <p>There is potential for traffic and transport effects to combine with dust effects across 3 receptors (Eastfield Road, A160 and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p> <p><u>Operation</u></p> <p>Traffic and transport assessment has been scoped out for operation for the Proposed Developments due to the low traffic generation.</p>
Landscape and Visual Amenity	<p>No combined effects identified.</p>	<p><u>Construction</u></p> <p>There is potential for landscape and visual amenity effects to combine with dust effects and noise and</p>	<p><u>Construction</u></p> <p>There is potential for landscape and visual amenity effects to combine with dust effects and noise and</p>	<p><u>Construction</u></p> <p>There is potential for landscape and visual amenity effects to combine with dust effects and noise and</p>

Topic	Combined effects considered in technical chapter	Other combined effects to be considered for the Proposed VPI Development	Other combined effects to be considered for the Proposed Phillips 66 Development	Other combined effects to be considered for both Proposed Developments
		<p>vibration effects across 3 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham) and Rosper Road Pools). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p>vibration effects across 4 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham) and Hazel Dene). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p>vibration effects across 3 receptors (Staple Road, Church Lane (North Killingholme) and Church Lane (Immingham)). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>
		<p>There is also potential for landscape and visual amenity effects to combine with dust effects and noise and vibration effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p>	<p><u>Operation</u>                  There is potential for landscape and visual amenity effects to combine with air quality effects and noise and vibration effects across 4 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham) and Hazel Dene). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>	<p>There is also potential for landscape and visual amenity effects to combine with dust effects and noise and vibration effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate adverse). However, the total combined effects are not considered to be greater than moderate adverse.</p>
		<p><u>Operation</u>                  There is potential for landscape and visual amenity effects to combine with air quality effects and noise and vibration effects across 3 receptors (Staple Road, Church Lane (North Killingholme), Church Lane (Immingham)). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>		<p><u>Operation</u>                  There is potential for landscape and visual amenity effects to combine with air quality effects and noise and vibration effects across 3 receptors (Staple Road, Church Lane (north Killingholme) and Church Lane (Immingham)). Due to the low severity of the individual effects, combined effects are assessed to be not significant.</p>
		<p>There is also potential for landscape and visual amenity effects to combine with air quality effects and noise and vibration effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate</p>		<p>There is also potential for landscape and visual amenity effects to combine with air quality effects and noise and vibration effects at Hazel Dene residential receptor, where the landscape and visual amenity effect is assessed as significant (moderate</p>

Topic	Combined effects considered in technical chapter	Other combined effects to be considered for the Proposed VPI Development	Other combined effects to be considered for the Proposed Phillips 66 Development	Other combined effects to be considered for both Proposed Developments
		adverse). However, the total combined effects are not considered to be greater than moderate adverse.		adverse). However, the total combined effects are not considered to be greater than moderate adverse.

## 18.7 Limitations or Difficulties

- 18.7.1 The cumulative assessment is based on information available at the time of the assessment regarding the environmental effects of the other potential or committed schemes in the vicinity of the Sites that have been scoped into the assessment.
- 18.7.2 Any limitations that were encountered during the individual technical assessments are detailed within ES Chapters 6-17.

## 18.8 Summary of Likely Significant Residual Effects

- 18.8.1 The assessment of combined effects has considered the potential for the effects identified within each of the technical assessments reported within Chapters 6 to 17 (ES Volume I), to interact and combine to affect common receptors, and has concluded that there would be no new significant combined effects during either construction or operation of the Proposed Development. Those significant adverse residual effects assessed in relation to landscape and visual amenity during both construction and operational phases would remain classified as moderate adverse (significant) effects. The design and impact avoidance and mitigation measures proposed for noise and vibration, air quality and traffic and transport would mean the new significant combined effects are avoided.
- 18.8.2 The assessment of cumulative effects has considered other developments within 15 km of the Proposed Developments (identifying 44 developments for consideration at Stage 1 in the long list, and 16 for inclusion in the shortlist of developments. 11 other developments were taken forward into assessment at Stages 3 and 4; and the potential for cumulative effects to arise from these developments in combination with the Proposed Developments has been assessed qualitatively using information available in the public domain. Table 18.18 below displays the likely significant residual cumulative effects.

**Table 18.18: Summary of likely significant residual cumulative effects**

ID	Relevant element of Proposed Development	Other Development: Tier Application Reference Description	Residual cumulative effects
46	Proposed VPI Development	Tier 2 PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline	Cultural Heritage: <b>major adverse (significant)</b> effect during construction on the known (and suspected) remains of a Settlement site with remains dating from the Bronze through to the Roman period (assets <b>[A11] – [A13], [A16]</b> and <b>[A26]</b> ) which will be mitigated by archaeological evaluation for both the Proposed VPI Development and the Viking CCS Pipeline development.
46	Both Proposed Developments	Tier 2 PINS (Chrysaor Production (UK) Limited) – Viking CCS Pipeline	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
52	Both Proposed Developments	Tier 2 PA/SCO/2022/13 Gigastack	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
39	Both Proposed Developments	Tier 1 PA/2021/1525 - Monopole Manufacturing Facility.	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
48	Both Proposed Developments	Tier 1 PINS (VPI Immingham B Ltd) – VPI Immingham OCGT	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.

ID	Relevant element of Proposed Development	Other Development: Tier Application Reference Description	Residual cumulative effects
37	Proposed VPI Development	Tier 1 PA/2022/1223 Land Adjacent to the Westgate Entrance, Port of Immingham	Cultural Heritage: <b>major adverse (significant)</b> effect during construction on the known (and suspected) remains of a Settlement site with remains dating from the Bronze through to the Roman period (assets [A11] – [A13], [A16] and [A26]) which will be mitigated by archaeological evaluation for both the Proposed VPI Development and the Land Adjacent to Westgate Entrance project
37	Both Proposed Developments	Tier 1 PA/2022/1223 - Land Adjacent to the Westgate Entrance, Port of Immingham	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
45	Both Proposed Developments	Tier 2 PA/SCO/2022/7 - Enabling works on and adjacent to the Able Marine Energy Park site	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
28	Both Proposed Developments	Tier 2 PINS (National Grid) - Humber Low Carbon Pipelines	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
8	Both Proposed Developments	Tier 1 PINS (Able Humber Ports Ltd) - Able Marine Energy Park	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
10	Both Proposed Developments	Tier 1 PINS (C.GEN Killingholme Ltd) - North Killingholme Power Project	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
11	Both Proposed Developments	Tier 1 PINS (Associated British Ports) - Immingham Eastern Ro-Ro Terminal	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.
47	Both Proposed Developments	Tier 2 PINS (Associated British Ports) – Immingham Green Energy Terminal	Socio-economics: <b>moderate beneficial (significant)</b> effect during construction on employment generation.

## 18.9 References

Department of Energy and Climate Change (2011) Overarching National Policy Statement for Energy (EN-1). [Available at] [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/47854/1938-overarching-nps-for-energy-en1.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf)

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