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RECORD OF THE HABITATS REGULATIONS ASSESSMENT UNDERTAKEN UNDER REGULATION 5 OF THE OFFSHORE PETROLEUM ACTIVITIES (CONSERVATION of HABITATS) REGULATIONS 2001 (As Amended).

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Project Details	
Application reference	Drilling operations at Cygnus
Date application received:	05/09/2024
Applicant details	Ithaca (NE) E&P Limited
Applications Being Applied for	DR/2500/3 DR/2528/1 DR/2532/1 DR/2533/1

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Description of the Activity

Ithaca (NE) E&P Limited (Ithaca) have proposed to drive four conductors (44/12a-AAF, 44/12a- AJ, slot 1 and slot 6) and drill one well through the 44/12a-AAF conductor at the Cygnus Alpha Wellhead Platform from the Valaris Norway jack-up rig (Figure 1). There is potential for the three other wells to be drilled too but these are not considered part of the project in this Habitats Regulations Assessment.

The conductor-driving and drilling activities will involve:

- Conductor driving (akin to piling): four 30" conductors will be driven into the seabed using water-based mud (WBM)
- Drilling of the following sections of the 44/12a-AAF well:
    - 26" section using WBM, the cuttings of which will be discharged overboard
    - 17.5" and 12.25" sections using low toxicity oil-based mud (LTOBM)
    - 8.5" section pilot hole for data acquisition using LTOBM
    - 8.5" section geological side-track and 6" sections using LTOBM
    - Contingency mechanical side-track from the 17.5" section with LTOBM as a worst-case
    - All LTOBM will be skipped and shipped to shore and there will be no discharge to the marine environment
    - Well completion
    - Wellbore clean-up operations
    - Well test which will be less than 96 hours long and combust less than 2,000 tonnes of hydrocarbons

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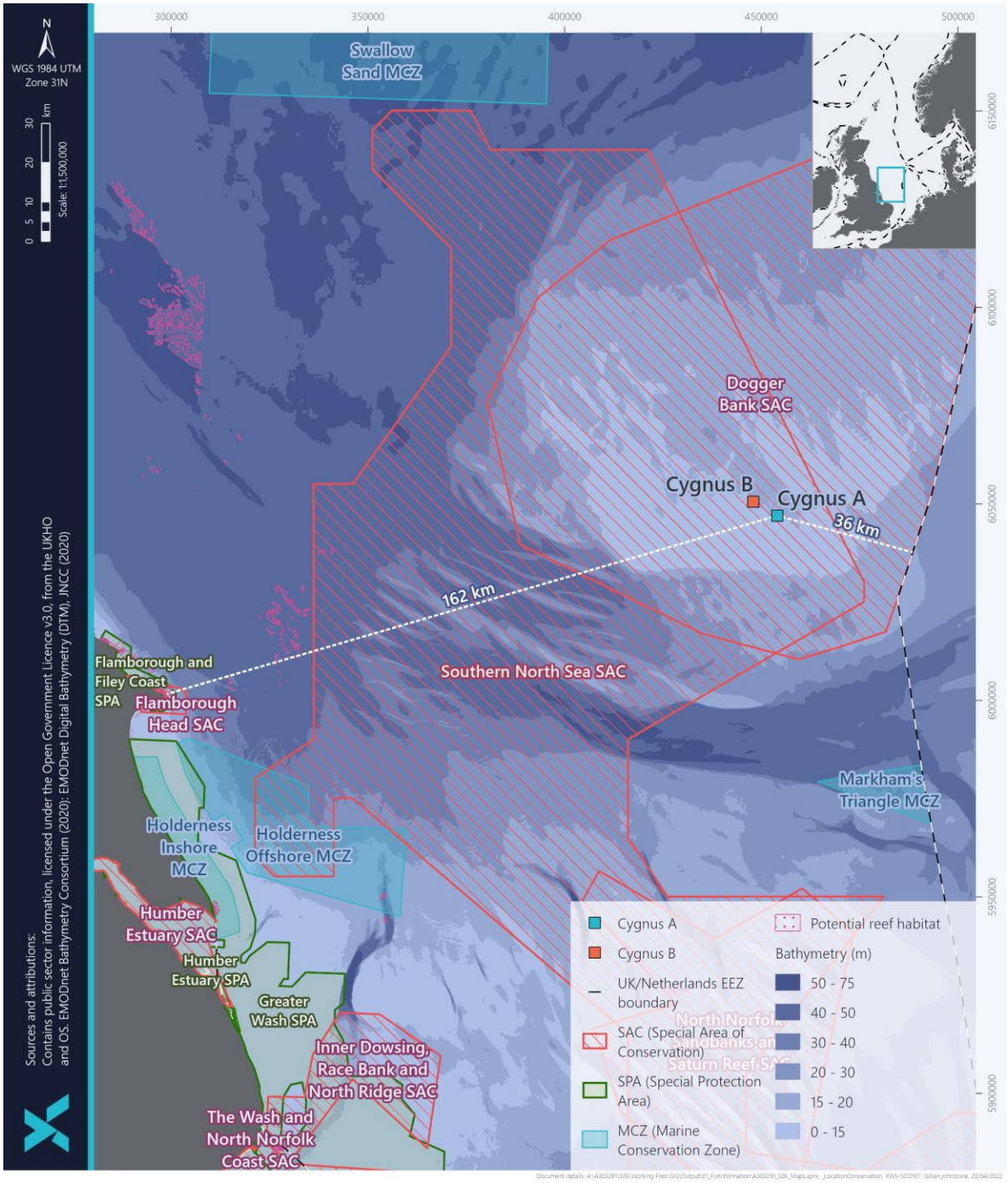

Figure 1: Location of the Cygnus Alpha infrastructure

Location

The proposed project area is located at the Cygnus field, next to the Cygnus Alpha Wellhead Platform in the Southern North Sea (SNS), in UKCS Block 44/12, approximately 162 kilometres (km) from the UK coastline, and 36 km from the UK/Netherlands Median Line, at a depth of approximately 22 metres (m).

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Timing

The timing of conductor driving operations is expected to take place between March 2025 and 30th April 2025. Drilling operations are expected to take 160 days for the 44/12a-AAF well and, depending on weather, may take place up to 31st December 2025.

Requirement for a Habitats Regulations Assessment

Regulation 5 of the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 (As amended) outlines that the Secretary of State (SoS), before agreeing to the grant of consent of any activity which is likely to have a significant on a relevant site, make an appropriate assessment of the implications for the site in view of its conservation objectives. This document is the record of the SoS appropriate assessment.

Where the term 'Site' is used within this document, it means any site forming the UK National Site Network site. The National Site Network is the UK network of protected sites on land and sea which were designated under the Habitats and Wild Birds directives namely Special Protection Areas (SPA) or Special Areas of Conservation (SAC).

The assessment will first determine what sites and protected features are likely to have conservation objectives which could be significantly affected by the activity and will then proceed to undertake an appropriate assessment of the implication of these effects on the site's integrity.

Stage 1: Test of likely Significant effects (LSE)

Is the activity likely to have a significant effect on the site's conservation objectives?

Pressures associated with the activity

The project is considered to exert the following pressures on the environment:

Underwater noise (impulsive noise)

Underwater noise from impulsive sources for this project are conductor driving activities. These will be undertaken for the planned wells. The operations are expected to take place in accordance with the parameters in Table 1.

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Table 1. Conductor driving parameters

Parameter	Values
Number of conductors piles	4
Maximum conductor pile diameter	0.77 m
Maximum hammer energy (kJ)	90
Conductor pile material	Carbon Steel
Conductor pile length	Approx. 97.5 m
Conductor driving duration	14 hours (based on continuous operations for 4 conductors piles in one day)

Underwater noise (non-impulsive noise)

Underwater noise from non-impulsive sources such as vessel engines will be generated during the proposed conductor driving and drilling operations.

Seabed disturbance and discharge of water-based muds cuttings

The drilling activities will involve the use of a jack-up vessel which will jack down onto the seabed using anchors, anchor chains, steel legs and spud cans which will cause temporary disturbance and smothering of seabed sediments. The drilling of the top sections of the 44/12a-AAF well will involve the discharge of water-based mud cuttings.

Screening of protected sites

The activity is within the following sites:

- Southern North Sea (SNS) SAC
- Dogger Bank SAC

Screened out of the LSE screening assessment

There is no pathway for potential effects on other sites due to the large distance between the sites and the project area (Figure 1).

LSE Assessment

Site features and conservation objectives are taken from relevant SNCB conservation advice packages found on the following webpages:

- https://jncc.gov.uk/our-work/southern-north-sea-mpa/
- https://jncc.gov.uk/our-work/dogger-bank-mpa/

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Table 2. Test of likely significant Effect

Pressures exerted by Activity	Feature	Is there likely to be a significant effect on the conservation Objectives alone
Southern North Sea SAC		
Underwater noise (impulsive: conductor driving-based	Harbour porpoise (*Phocoena phocoena*)	No. The project area supports high numbers of harbour porpoise and the proposed operations will take place in the summer area of the SNS SAC during between March 2025 and December 2025, with conductor driving taking place between March 2025 and 30th April 2025. Noise modelling undertaken indicates that, based on the weighted SEL threshold, there is potential for sound levels to cause the onset of permanent threshold shift to harbour porpoise out to 33 m (DR/2500/3, DR/2528/1 (Version 1), DR/2532/1 (Version 1) and DR/2533/1 (Version 1)). It is not expected that killing or injury will take place given the operation's methodology and adherence to the JNCC "*Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise*". The proposed operations involve driving conductors and as such the effective deterrence range of 15 km has been considered for the activity which may take up to approximately one day. The percentage of the summer area of the SNS SAC that may be excluded as a result of proposed operations is 0.014% seasonally and 2.62% daily. The scale of disturbance is sufficiently small and of such short duration (one day) to be considered to not result in a likely significant effect when considered alone. Based on the predicted extent of potential impacts, it is concluded that there is no potential for a likely significant effect on harbour porpoise from the proposed activity within or adjacent to the Southern North Sea SAC when considered alone.
Underwater noise (non-impulsive: vessel-based)	Harbour porpoise (*Phocoena phocoena*)	No.

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Pressures exerted by Activity	Feature	Is there likely to be a significant effect on the conservation Objectives alone
		The underwater noise generated by the vessel's engines and machinery is not expected to result in significant impacts including permanent or temporary threshold shift nor behavioural disturbance.
Seabed disturbance and discharge of water-based muds cuttings	Harbour porpoise (*Phocoena phocoena*)	No. The temporary placement of anchor chains, anchors and spudcans, as well as the discharge of WBM cuttings on the seabed is expected to be highly localised and unlikely to disrupt prey availability for harbour porpoise. Further, the WBM cuttings to be discharged are expected to disperse in the wider area as a result of the hydrodynamic regime of the Southern North Sea. This will allow for the habitat and prey of harbour porpoise to rapidly recover.
Dogger Bank SAC		
Underwater noise (impulsive: conductor driving-based)	1110 Sandbanks which are slightly covered by seawater all the time	No. There is no impact pathway for this designated feature from underwater noise.
Underwater noise (non-impulsive: vessel-based)	1110 Sandbanks which are slightly covered by seawater all the time	No. There is no impact pathway for this designated feature from underwater noise.
Seabed disturbance and water-based muds cuttings	1110 Sandbanks which are slightly covered by seawater all the time	No. The temporary placement of anchor chains, anchors and spudcans, as well as the discharge of WBM cuttings is expected to be highly localised and unlikely to change the sedimentary composition of the sandbank because the WBM cuttings to be discharged are expected to disperse in the wider area as a result of the hydrodynamic regime of the Southern North Sea over a period of time. There is high confidence that the sandbank feature and its benthic assembly have high recoverability and are resilient to physical disturbance.

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LSE Conclusion: Alone

When considered alone the project is unlikely to cause a significant effect on the conservation objectives of any site.

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LSE In-combination assessment

Southern North Sea SAC:

The following projects have been evaluated to ascertain if they ***could*** exert a pressure on the SNS SAC's designated feature ("Harbour porpoise (*Phocoena phocoena*)"), which when considered in-combination with those of the proposed operations could result in a significant effect on the site's conservation objectives (Table 3). These projects, in combination, exceed the disturbance thresholds published in the Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs of 20% for daily and 10% for seasonal underwater noise. Therefore, there is potential for likely significant effects in the SNS SAC.

Table 3. Likelihood of plans acting in-combination to cause a likely significant effect for the SNS SAC. Blue highlighted entry denotes the proposed operations.

Project	Significant In-combination effect likely?	What pressures may act in-combination? * See Table 4 for references
NEP EPCI 2 SBP Survey	Yes	1
Sofia OWF Survey	Yes	1
Sofia OWFMonopiling(Unabated)	Yes	1
East Anglia Three Monopiling (Unabated)	Yes	1
East Anglia Three Monopiling (Abated)	Yes	1
East Anglia Three Pin Piling	Yes	1
Hornsea Three April Low Order UXO Clearance (1 per day)	Yes	1
Hornsea Three April Low Order UXO Clearance (2 per day)	Yes	1
Hornsea Three April High Order UXO Clearance (1 per day)	Yes	1
Hornsea Three August Low Order UXO Clearance (1 per day)	Yes	1
Hornsea Three August Low Order UXO Clearance (2 per day)	Yes	1
Hornsea Three August High Order UXO Clearance (1 per day)	Yes	1
Dogger Bank B Monopiling (Unabated)	Yes	1
Dogger Bank C Monopiling (Unabated)	Yes	1
NEP Phase 1 Seismic Survey	Yes	1
NEP Expansion Seismic Survey CS025	Yes	1
NEP Expansion Seismic Survey CS007	Yes	1
NEP EPCI 1 Survey	Yes	1
NEP EPCI 3 Survey	Yes	1
INEOS Pegasus West	Yes	1
Ithaca Cygnus Conductor Piling	**Yes**	**1**
Total	Yes	1

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Table 4. Pressure reference - Key of pressures use in in-combination assessment

Pressure	Ref
Underwater noise (impulsive: conductor driving-based)	1
Underwater noise (non-impulsive: vessel-based)	2
Seabed disturbance and water-based muds cuttings	3

Dogger Bank SAC:

The following projects (Table 5) have been evaluated to ascertain if they ***could*** exert a pressure on the Dogger Bank SAC's feature ("*1110 Sandbanks which are slightly covered by seawater all the time*"), which when considered in-combination with those of the proposed well operations could result in a significant effect on the site's conservation objectives (Table 5). The discharge of WBM cuttings will take place within the 500 m zone. The total impact on the Dogger Bank SAC considering other projects is estimated at 0.41% of the site, however the contribution made by the proposed well operations is such a small proportion (0.00274%) of this total area that it would be unlikely to have any material effect on the site's condition. Furthermore, the seabed disturbance will be contained within the 500 m zone of the Cygnus AWHP, which is already impacted to some extent by the oil and gas activity taking place within it. Therefore, there is no expected likely significant effect on the site.

The operation may also lead to very minor localised and temporary re-suspension of sediments into the water column. The re-settlement of this sediment could result in the smothering of benthic species with the impact related to their ability to clear particles from their feeding and respiratory surfaces. Infaunal communities will gradually become re-established through re-adjustment to the new sediment surface and by migration and/or reproduction and settlement from nearby undisturbed areas. With regard to the settlement of re-suspended sediments, the infaunal communities that dominate within the sedimentary environment present are by their nature less susceptible to temporary variations in sedimentation rates. In addition, the benthic environment is dynamic and subject to natural disturbance from wave and tidal action and there is good potential for immediate or rapid recovery from temporary and localised sedimentation effects.

Table 5. Likelihood of plans acting in-combination to cause a likely significant effect for the Dogger Bank SAC. Blue highlighted entry denotes the proposed operations.

Project	Temporary Total Project Seabed Disturbance (km2)	Permanent Total Project Seabed Disturbance (km2)	% Dogger Bank SAC (Temporary / Permanent)	Significant In-combination effect likely?	What pressures may act in-combination? * See Table 4 for reference
Dogger Bank A Windfarm	35.76	35.76	0.29 / 0.29	No	3

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Project	Temporary Total Project Seabed Disturbance (km2)	Permanent Total Project Seabed Disturbance (km2)	% Dogger Bank SAC (Temporary / Permanent)	Significant In-combination effect likely?	What pressures may act in-combination? * See Table 4 for reference
Dogger Bank B Windfarm					3
Dogger Bank C Windfarm	21.72	7.509	0.18 / 0.0610	No	3
Sofia Windfarm	20.83	7.239	0.17 / 0.059	No	3
Proposed cumulative drilling operations at Cygnus	**0.00193**	**0.3377**	**0.0000156 / 0.00274**	**No**	**3**
Total	**78.31**	**50.85**	**0.64 / 0.41**		

LSE Conclusion: In-combination

It cannot be concluded that the activity is unlikely to cause a significant effect in-combination with other plans or projects on the conservation objectives of the following site:

Site	Feature
Southern North Sea SAC	Harbour porpoise (*Phocoena phocoena*)

It can be concluded that the activity is unlikely to cause a significant effect in-combination with other plans or projects on the conservation objectives of the following site:

Site	Feature
Dogger Bank SAC	1110 Sandbanks which are slightly covered by seawater all the time)

Stage 2: Appropriate Assessment

Could the activity adversely affect the integrity of a site?

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Following the LSE assessment (Stage 1) the SoS must undertake an AA to determine whether the proposed activities, when considered in combination with other plans and projects, could have an adverse effect on:

Site: Southern North Sea SAC

Features: Harbour porpoise (*Phocoena phocoena*)

Pressures: Underwater noise (impulsive: conductor driving-based)

To ensure that the integrity of the SNS SAC is maintained and that it makes the best possible contribution to maintaining Favourable Conservation Status (FCS) for Harbour Porpoise in UK waters, in the context of natural change, this will be achieved by ensuring that:

1. Harbour porpoise is a viable component of the site;
2. There is no significant disturbance of the species; and
3. The condition of supporting habitats and processes, and the availability of prey is maintained.

The '*integrity of the site*' is not defined in the Conservation Objectives. However, EU and UK Government guidance defines the integrity of a site as "*the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified*' (EC 2000, Defra 2012). Therefore, the integrity of the site applies to the whole of the site and it is the potential impacts across the whole of the site that are required to be appropriately assessed. Pressures that would affect site integrity include:

- killing or injuring harbour porpoise (directly or indirectly);
- preventing their use of significant parts of the site (disturbance/displacement);
- significantly damaging relevant habitats; or
- significantly reducing the availability of prey.

The JNCC and Natural England advice is that '*noise disturbance within the site should not exclude harbour porpoise from more than 20% of the site on any given day. Over a season, the advice is that an average loss of access to more than 10% of the SAC should be considered significant, recognising that within the SAC the abundance of harbour porpoise per unit habitat is generally higher than the equivalent sized habitat in the rest of the relevant Management Unit. Management of temporary habitat 'loss' to below defined area/time thresholds is therefore designed to ensure that it continues to contribute in the best possible way to the maintenance of the species at FCS.*' (JNCC, 2020).

Appropriate Assessment: Harbour porpoise (*Phocoena phocoena*)

At the LSE assessment stage it was concluded that no significant impact on the designated features of any site will occur when considering the project alone.

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In-combination Assessment: Harbour porpoise (*Phocoena phocoena*)

Projects Considered In-combination

The projects listed in Table 3 have the potential to have cumulative effects on harbour porpoise with regards to preventing their use of significant parts of the site (disturbance/displacement).

Without mitigation there could be adverse effects on harbour porpoise in the SNS SAC. However, the SNS SAC Development Co-ordination Forum (DCF) provides a coordinated approach whereby the permits and consents issued to operators include conditions where the developers are committed to working together to not exceed the daily and seasonal thresholds. If it is estimated that the thresholds are to be exceeded, then no work can be undertaken. Ithaca are part of this forum and have committed to participating and coordinating with other operators to meet the forum's goal.

Appropriate Assessment

Pressures scoped into the In-combination Assessment

A further assessment has been undertaken to understand whether the impacts from other plans or projects could act in-combination with those of the proposed operations and cause an adverse effect on the site integrity.

Site: Southern North Sea SAC

Features: Harbour porpoise (*Phocoena phocoena*)

Pressures: Underwater noise (impulsive: conductor driving-based)

Given the scale of the operation and its location (within the 500 m zone of the Cygnus Alpha Wellhead platform) and the distance to the onset of permanent threshold shift (33 m) it is considered that the risk of killing or injuring harbour porpoise (directly or indirectly) is very low and the applicant has sufficient control measures are in place to prevent it. Therefore, it is not considered further in the appropriate assessment.

There is no impact pathway to significantly damaging relevant habitats or significantly reducing the availability of prey from impulsive underwater noise arising from conductor driving and it is therefore not considered further in this appropriate assessment.

The risk of other projects preventing the use of significant parts of the site (disturbance/displacement) by harbour porpoise have been summarised in Table 3.

The seasonal contributions to prevent breaching the 10% threshold will be managed by the 2025 DCF SIMOPS meetings such that the threshold is not exceeded at the end of the season.

There is some uncertainty regarding what the average seasonal disturbance will be. However, there is confidence that this figure will be below 10%, because even using the worst-case scenarios for seasonal disturbance shown in Table 6 below, the average would be 8.6%. To provide extra security the seasonal average disturbance figure will be calculated and monitored as part of the live cross-sector SIMOPS coordination process designed to ensure operations remain within the recommended disturbance thresholds.

Table 6. Estimated disturbance to harbour porpoises within the SNS SAC from various activities in isolation using JNCC (2020) EDRs. Blue highlighted entry denotes the proposed operations.

Activity	Maximum Daily Disturbance to the SNS SAC		Duration of Impact (days)	Average Seasonal Disturbance to the SNS SAC (%)
	km²	%		
NEP EPCI 2 SBP Survey	152	0.562	23	0.071
Sofia OWF Survey	133	0.493	N/A	0
Sofia OWF Monopiling (Unabated)	1,661	6.147	25	0.840
East Anglia Three Monopiling (Unabated)	2,122	7.850	7	5.405
East Anglia Three Monopiling (Abated)	1,19	5.620	176	0.300
East Anglia Three Pin Piling	705	2.610	21	0.300
Hornsea Three April Low Order UXO Clearance (1 per day)	78	0.290	8	0.013
Hornsea Three April Low Order UXO Clearance (2 per day)	157	0.580	8	0.025
Hornsea Three April High Order UXO Clearance (1 per day)	708	2.620	3	0.043
Hornsea Three August Low Order UXO Clearance (1 per day)	9	0.035	25	0.005

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Activity	Maximum Daily Disturbance to the SNS SAC		Duration of Impact (days)	Average Seasonal Disturbance to the SNS SAC (%)
	km²	%		
Hornsea Three August Low Order UXO Clearance (2 per day)	11	0.039	5	0.001
Hornsea Three August High Order UXO Clearance (1 per day)	132	0.490	20	0.054
Dogger Bank B Monopiling (Unabated)	2,865	10.600	1	0.058
Dogger Bank C Monopiling (Unabated)	6	0.024	4	0.001
NEP Phase 1 Seismic Survey	526	1.946	20	0.213
NEP Expansion Seismic Survey CS025	1,473	5.450	18	0.536
NEP Expansion Seismic Survey CS007	744	2.753	33	0.496
NEP EPCI 1 Survey	121	0.448	10	0.024
NEP EPCI 3 Survey	121	0.448	19	0.046
INEOS Pegasus West	471	1.75	12	0.11
Ithaca Cygnus Conductor driving	**706**	**2.62**	**1**	**0.01**
Total				**8.551**

In terms of daily disturbance, it is clear that other impulsive noise-generating operations may take place concurrently with the proposed operations. Currently, daily contributions (which may not necessarily occur in the same day in the SNS SAC) are as follows:

Table 7. Worst case daily disturbance scenario. Blue highlighted entry denotes the proposed operations.

Activity	Daily Disturbance Percentage (%)
Sofia Offshore Windfarm Monopiling (Unabated)*	7.13

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Activity	Daily Disturbance Percentage (%)
East Anglia 3 Monopiling (Unabated)*	7.85
Hornsea Three UXO Low Order (x1 pd)	0.29
Hornsea Three UXO Low Order (x2 pd)	0.58
Hornsea Three UXO High Order (x1 pd)	2.62
Doggerbank B Monopiling (Unabated)*	10.61
NEP Phase 1 2DHR GS/1853	1.95
NEP EPCI 3 Geophysical - Offshore Cable GS/1871	0.64
NEP EPCI 2 Geophysical - Infield GS/1866	0.57
Pegasus West Site & Pipeline Survey	1.75
Proposed Driving Operations	**2.62**
*only unabated piling sources have been assessed here in order to cover the worst-case scenario	

To prevent breaching the 20% threshold, the daily contributions will be managed by the 2025 DCF SIMOPS meetings, such that the threshold will not be exceeded at any given day of the summer season. Ithaca will have a condition on their screening directions such that this threshold is not exceeded.

Conclusion: Impact In-combination		
Pressure	**Feature**	**Is an adverse effect possible**
Underwater noise (impulsive: conductor driving-based)	Harbour porpoise (*Phocoena phocoena*)	No, provided the mitigation measures outlined are employed.

Conclusion of Habitats Regulations Assessment

An assessment has been undertaken to determine whether the conductor driving and drilling operations at Cygnus could significantly impact the conservation objectives of any site within the UK National Site Network. The likelihood of a significant effect on the conservation objectives of the following site and features could not be ruled out:

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Southern North Sea SAC – Harbour porpoise (*Phocoena phocoena*)

An appropriate assessment was undertaken to ascertain whether the project could adversely affect the site's integrity considering its conservation objectives:

Conservation Objectives:

1. Harbour porpoise is a viable component of the site;
2. There is no significant disturbance of the species; and
3. The condition of supporting habitats and processes, and the availability of prey is maintained.

The appropriate assessment has determined that the project will have some effect on the SAC. However, it has been concluded that any effects will not be significant provided the appropriate mitigation measures are taken. These will be conditions in the screening directions to be issued to Ithaca.

The Secretary of State, therefore, concludes that the proposed project will not adversely affect the integrity of the SAC, either alone or in-combination with other plans and projects.

Annex

Application documents

- DR/2500/3
- DR/2528/1
- DR/2532/1
- DR/2533/1

Statutory Nature Conservation Body (SNCB) Consultation

SNCB	Comments	Response
JNCC	No further information required	No objection

References

JNCC (2010). Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise.

JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs.