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Second Ordinance on the Implementation of the Offshore Wind Energy Act

(Second Offshore Wind Energy Ordinance - 2. WindSeeV)

From the 18 January 2022

The Federal Maritime and Hydrographic Agency decrees on the basis of Section 15 of the Renewable Energies Ordinance of 17 February 2015 (BGBl. I p. 146), which was inserted by Article 3 No. 2 of the Act of 25 May 2020 (BGBl. I p. 1070), in conjunction with Section 11 (2) of the Offshore Wind Energy Act of 13 October 2016 (BGBl. I pp. 2258, 2310) in agreement with the Directorate-General for Waterways and Shipping:

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Section 1

Scope of application

For sites N-3.5, N-3.6 and N-7.2 in the German Exclusive Economic Zone of the North Sea as defined in the Site Development Plan of 18 December 2020¹⁾, this Ordinance shall determine the

1. suitability in accordance with Section 12 (5) sentence 1 of the Offshore Wind Energy Act of 13 October 2016 (BGBl. I pp. 2258, 2310), as last amended by Article 12a of the Act of 16 July 2021 (BGBl. I p. 3026), specifications for the subsequent
2. project in accordance with Section 12 (5) sentences 2 and 3 of the Offshore Wind Energy Act, and
3. the capacity to be installed on the sites in accordance with Section 12 (5) sentence 1 in conjunction with Section 10 (3) of the Offshore Wind Energy Act.

Section 2

Definitions

For the purposes of this Ordinance

1. "Waste" means waste as defined in Section 3 (1) of the Closed Substance Cycle and Waste Management Act of 24 February 2012 (BGBl. I p. 212), as last amended by Article 20 of the Act of 10 August 2021 (BGBl. I p. 3436),
2. "Installation" means a facility within the meaning of Section 44 (1) of the Offshore Wind Energy Act with the exception of converter platforms and offshore connection lines,
3. baseline surveys the studies underlying the environmental impact study for the planning approval procedure for the construction and operation of an offshore wind farm in accordance with the "Standard Investigation of the Impacts of Offshore Wind Turbine Installations on the Marine Environment"²⁾,
4. "Emissions" means substances or energy, such as heat, noise, vibration, light, electrical or electromagnetic radiation, directly or indirectly supplied to the marine environment,
5. "FATO" means the designated final approach and take-off surface over which the final approach procedure for hovering or landing an aircraft is terminated and from which the take-off procedure of an aircraft is commenced,
6. "Flight corridor" means the area of airspace used for the approach to and departure from offshore platforms by helicopters,

¹⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

²⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in a secure archive.

7. "Found munitions" Found munitions within the meaning of Section 3 (1) no. 16 of the Explosives Act in the version promulgated on 10 September 2002 (BGBl. I p. 3518), as last amended by Article 232 of the Ordinance of 19 June 2020 (BGBl. I p. 1328),
8. "MARPOL" means the International Convention for the Prevention of Pollution from Ships with its six annexes (BGBl. 1977 II, P. 1492),
9. "Offshore platform" means a facility as defined in point 2 which is an artificial standing area in the sea with all the necessary infrastructure components and safety equipment, irrespective of its design form and the way in which it is used, but which is not a wind turbine installation,
10. "TLOF" means the designated touchdown and take-off surface on which a helicopter may touch down or from which a helicopter may take off; provided that, on a helicopter landing deck, FATO and TLOF shall be coincident,
11. "Project developer" without prejudice to the provision of Section 56 of the Offshore Wind Energy Act
 - a) the natural or legal person who is awarded the contract in the invitation to tender issued by the Federal Network Agency pursuant to Section 23 of the Offshore Wind Energy Act and thus, pursuant to Section 24 of the Offshore Wind Energy Act, the right to conduct a planning approval procedure on the respective site,
 - b) the addressee of the planning approval decision or planning permission within the meaning of Section 56 (1) no. 1 of the Offshore Wind Energy Act, or
 - c) the legal successor of the natural or legal person referred to in point (a) or (b).

Part 2

Determination of suitability

Chapter 1

Suitability determination

Section 3

Determination of suitability

Sites N-3.5, N-3.6 and N-7.2 in the German Exclusive Economic Zone of the North Sea identified in the Site Development Plan of 18 December 2020 are, according to the result of the preliminary investigation of these sites under Part 2 Section 2 of the Offshore Wind Energy Act, suitable for tender for pre-investigated sites under Part 3 Section 2 of the Offshore Wind Energy Act.

Chapter 2

Specifications for the subsequent project

Section 1

General

Subsection

Effects of the project on the marine environment

Section 4

Monitoring

(1) During the construction phase and at least during the first three years of operation of the turbines, the Project Developer shall carry out monitoring of the construction and operation-related impacts of the turbines as a basis for any measures to be ordered by the plan approval authority or the Federal Maritime and Hydrographic Agency as the competent supervisory authority to protect the marine environment pursuant to Section 48 (4) sentence 1 no. 1 of the Offshore Wind Energy Act or Section 57 (2), (3) or (5) of the Offshore Wind Energy Act.

(2) As a basis for monitoring, the result of the baseline survey shall be updated on the basis of the results of a third survey year to be performed before the start of construction, if there are no more than five years between the end of the baseline survey and the start of construction. If there are more than five years between the end of the baseline survey and the start of construction, the baseline survey must be repeated in full before construction begins. The possibility to apply for a shortening of the investigations according to Section 10.1 of the "Standard Investigation of the Impacts of Offshore Wind Turbine Installations on the Marine Environment" remains unaffected.

(3) Investigations of the marine environment shall be performed in accordance with the state of the art in science and technology. Compliance with the state of the art in science and technology is presumed if the investigations are performed in compliance with the "Standard Investigation of the Impact of Offshore Wind Turbines on the Marine Environment"³.

Section 5

Laying and parametrisation of farm-internal submarine cable systems

(1) The Project Developer shall observe the planning principle of the site development plan for sediment warming when parametrising and laying the farm-internal submarine cable systems.

(2) The method of laying the in-farm submarine cable systems shall be chosen in such a way that the overlap required to comply with the maximum sediment heating requirement in paragraph 1 is achieved with the least possible environmental impact.

³⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in a secure archive.

Section 6

Avoidance or reduction of emissions

(1) The Project Developer shall avoid emissions or, insofar as they are unavoidable, reduce them.

(2) For this purpose, the Project Developer shall in particular

1. plan and implement the installations in such a way that neither during their construction nor during their operation, avoidable emissions are caused in accordance with the state of the art or, insofar as the causing of emissions is unavoidable as a result of the actions imperatively required to fulfil the safety requirements of shipping and air traffic, the least possible adverse effects on the marine environment are caused,
2. use environmentally compatible operating materials as far as possible for the operation of the installation and to give preference to biodegradable operating materials where available,
3. secure all technical installations used on the installation by means of structural safety systems and measures in accordance with the state of the art and monitor them in such a way that pollutant accidents and environmental discharges are avoided and that, in the event of damage, it is ensured that the Project Developer can intervene immediately at any time, as well as
4. take organisational and technical precautions for fuel changes and refuelling measures in order to avoid pollutant accidents and environmental discharges.

Section 7

Avoidance of noise emissions during the foundation, installation and operation of installations

(1) When founding and installing a facility, the Project Developer shall use the state of the art working method that is as quiet as possible under the circumstances found.

(2) Noise emissions caused by pile driving shall not exceed 160 decibels for sound pressure⁴⁾⁾ and 190 decibels for peak sound pressure level⁵⁾⁾ at a distance of 750 metres.

(3) In the case of pile driving, the duration of the pile driving operation, including the entanglement, shall be kept to a minimum.

(4) The Project Developer shall select the installation design that is as low in operating noise as possible according to the state of the art.

(5) Blasting is not permitted. Section 38 (2) sentences 3 and 4 shall remain unaffected.

Section 8

Timing coordination of pile driving

(1) The Project Developer shall coordinate the timing of pile driving work with the project developers of offshore wind farms and offshore platforms to be completed in parallel in the German Exclusive Economic Zone of the North Sea.

⁴⁾ Physical unit of sound pressure in water: (dB re 1 $\mu\text{Pa}^2 \text{ s}$); db = decibel; re = in reference to; 1 μPa = 1 microPascal; 1 $\mu\text{Pa}^2 \text{ s}$ = 1 microPascal squared per second; The reference level for water is 1 μPa , for air it is 20 μPa .

⁵⁾ Physical unit of the peak sound pressure level in water: (dB re 1 μPa); db = decibel; re = in reference to; 1 μPa = 1 microPascal; 1 $\mu\text{Pa}^2 \text{ s}$ = 1 microPascal squared per second; The reference level for water is 1 μPa , for air it is 20 μPa .

(2) The planning approval authority may impose time limits on the Project Developer for the execution of pile-driving work if this is necessary to comply with the limit values of the noise protection concept despite prior coordination.

Section 9

Waste

The dumping and discharge of waste into the marine environment shall be prohibited except as permitted under the provisions of this Regulation.

Section 10

Corrosion protection

(1) The corrosion protection used by the Project Developer for the installation must be as free of pollutants and low in emissions as possible.

(2) Wherever possible, external current systems shall be used as cathodic corrosion protection on foundation structures.

(3) If the use of galvanic anodes is unavoidable, this is only permissible in combination with coatings on the foundation structures. The content of minor components of the anode alloys, in particular cadmium, lead, copper and mercury, shall be reduced as far as possible. The use of zinc anodes is prohibited.

(4) The use of biocides to protect the technical surfaces from the undesired settlement of organisms is prohibited.

(5) The Project Developer shall provide the installation with an oil-repellent coating in the area of the splash water zone.

Section 11

Systems cooling

A closed cooling system shall be used for installation cooling, with no discharges of cooling water or other substances into the marine environment.

Section 12

Waste water

(1) Subject to paragraph 3, the Project Developer shall properly collect wastewater from sanitary facilities, sanitation facilities, kitchens and laundries, transport it ashore and dispose of it there in accordance with the applicable waste management regulations.

(2) The installation and operation of a wastewater treatment system for the treatment of wastewater within the meaning of paragraph 1 on an offshore platform shall not be permitted.

(3) On a permanently manned offshore platform, a wastewater treatment system shall be permitted contrary to paragraph 2 on a case-by-case basis, in particular where the negative impact on the marine environment associated with bringing the wastewater ashore exceeds the impact associated with discharging the treated wastewater. Proof that an individual case pursuant to sentence 1 exists shall be provided by the Project Developer within the framework of the planning approval procedure. The wastewater treatment system must correspond to the state of the art.

(4) In the case of wastewater treatment systems permitted under paragraph 3, the Project Developer shall

1. treat all wastewater from sanitary facilities, sanitation facilities, kitchens and laundries,
2. provide suitable sampling points at the inlet and outlet, and
3. regularly sample and analyse the wastewater.

The chlorination of wastewater is not permitted.

Section 13

Oil content of the drainage water

(1) If a light fluid separator is used, any drainage water produced must not exceed an oil content of 5 milligrams per litre.

(2) The Project Developer shall continuously monitor the oil content of the drainage water in the effluent by means of sensors. The current values measured with the sensors must be readable remotely.

(3) The Project Developer shall ensure by means of automatic valves that, if the limit value referred to in paragraph 1 is exceeded, the drainage water is not discharged into the marine environment.

Section 14

Extinguishing foam on helicopter landing decks

(1) On helicopter landing decks, foam agents for firefighting foam production shall not contain perfluorinated and polyfluorinated chemicals.

(2) Drainage systems connected to helicopter landing decks shall have bypass systems to ensure that the resulting firefighting foam is automatically discharged to a collection tank bypassing the light fluid separators. The extinguishing foam must not be discharged into the marine environment via the drainage system.

(3) Firefighting exercises are to be performed with water only.

Section 15

Diesel generators

(1) Diesel generators used on offshore platforms shall be certified to the emission limits of MARPOL Annex VI, Regulation 13, paragraph 5.1.1, Stage III or to emission standards equivalent to those defined in MARPOL Annex VI, Regulation 13, paragraph 5.1.

(2) For wind turbine installations, the use of diesel generators for emergency power supply is to be avoided.

(3) If possible, use low-sulphur fuel for the operation of diesel generators.

Section 16

Scour and cable protection

(1) In the case of scour and cable protection measures, the Project Developer shall limit the introduction of hard substrate to the minimum necessary to establish the protection of the respective installation.

(2) Only fill made of natural stones or inert and natural materials are to be used as scour protection. The use of plastic or plastic-like materials is not permitted.

(3) As a rule, fillings made of natural stones or inert and natural materials are to be used as cable protection. The use of cable protection systems containing plastic is only permitted in exceptional cases and must be kept to a minimum.

Subsection 2

General provisions for the safety and ease of shipping and air traffic

Section 17

Marking

(1) The Project Developer shall equip the installations with facilities that ensure the safety of shipping and air traffic in accordance with the applicable regulations of the Federal Waterways and Shipping Administration and the state of the art until they are removed from the maritime area. Compliance with the state of the art shall be presumed if the following regulations are complied with during the planning, implementation and normal operation of the visual and radio identification of the facilities of the offshore wind farm:

1. "Directive Offshore Installations to Ensure the Safety and Ease of Shipping Traffic"⁶⁾,
2. "WSV framework specifications marking offshore installations"⁷⁾ and
3. Recommendation O-139 „The Marking of Man-Made Offshore Structures“ and Recommendation A-126 „The Use of the Automatic Identification System (AIS) in Marine Aids to Navigation Services“ of the International Association of Marine Aids to Navigation and Lighthouse Authorities⁸⁾.

(2) In the event of the construction of further offshore wind farms immediately adjacent to the site, the Project Developer shall adjust the marking to safeguard shipping and air traffic in accordance with paragraph 1 in consultation with the developers of the adjacent projects in line with the overall development situation in the traffic area.

Subsection 3

Special provisions for the safety and ease of shipping traffic

Section 18

Maritime surveillance

The Project Developer shall carry out a state-of-the-art marine spatial monitoring for the area and take the necessary measures to avoid collisions. Compliance with the state of the art is presumed if the requirements of the implementation guideline "Maritime Observation of Offshore Wind Farms" of the Federal Ministry of Transport and Digital Infrastructure⁹⁾ are met.

⁶⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am Propsthof 51, 53121 Bonn, Germany.

⁷⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am Propsthof 51, 53121 Bonn, Germany.

⁸⁾ Official notice: Published by and available from: International Association of Marine Aids to Navigation and Lighthouse Authorities, IALA-AISM HEADQUARTERS, 10 rue des Gaudines, 78100, St Germain en Laye, France.

⁹⁾ Official notice: Published by and available from the Federal Ministry of Digital Affairs and Transport, Invalidenstrasse 44, 10115 Berlin, Germany.

Section 19

Construction method

(1) The Project Developer shall design and construct the installation in accordance with the state of the art in such a way that, in the event of a ship collision, the hull is damaged as little as possible. Compliance with the state of the art is presumed if the requirements of the "Standard Construction - Minimum Requirements for the Construction of Offshore Structures in the Exclusive Economic Zone (EEZ)"¹⁰⁾ are met.

(2) The development of the site is to take place contiguously. The facilities to be erected should be integrated into the development situation of the area in which the site is located.

Section 20

Traffic safety during the construction phase

(1) In order to secure the vicinity of the construction site and to avoid collisions with ships, the Project Developer shall deploy a traffic safety vehicle in the vicinity of the construction site from the start of installation and, as far as necessary for traffic safety purposes, from the start of any required preparatory construction measures and during the entire construction phase, in order to be able to take traffic safety measures if required. The traffic safety vehicle shall be used exclusively for this purpose. The traffic safety vehicle and its use shall correspond to the state of the art. Compliance with the state of the art is presumed if the requirements for traffic control vessels of the "Guideline Offshore Installations to Ensure the Safety and Ease of Shipping Traffic"¹¹⁾ are met.

(2) Until the regular marking is put into operation, the Project Developer shall mark the installations visually and by radio using the state of the art. Compliance with the state of the art is presumed if the requirements for temporary visual marking and Automatic Identification System (AIS) marking of the "Guideline Offshore Installations to Ensure Safety and Ease of Shipping Traffic"¹²⁾ are met.

(3) The Project Developer shall mark the construction site as a general danger zone by laying out fired cardinal barrels in accordance with the state of the art. Compliance with the state of the art is presumed if the requirements for the design of floating navigation signs of the "Guideline Offshore Installations to Ensure the Safety and Ease of Shipping Traffic"¹³⁾ are met.

Section 21

Requirements for vehicles and implements

All implements and vehicles used, including the traffic control vehicle, must be

1. with regard to their marking and traffic behaviour, the Ordinance on the International Regulations for Preventing Collisions at Sea of 13 June 1977 (BGBl. I p. 813), as last amended by Article 22 of the Act of 13 October 2016 (BGBl. I p. 2258), shall be complied with,

¹⁰⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in a secure archive.

¹¹⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am PropsthoF 51, 53121 Bonn, Germany.

¹²⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am PropsthoF 51, 53121 Bonn, Germany.

¹³⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am PropsthoF 51, 53121 Bonn, Germany.

2. in terms of equipment and manning, meet the safety standard required for the federal flag or a demonstrably equivalent standard.

Section 22

Risk-reducing measures to ensure the safety and ease of shipping traffic

(1) In order to ensure the safety and ease of shipping traffic, the planning approval authority may order measures, in particular the provision of additional towing capacity by the Project Developer, to reduce the risk to the safety and ease of shipping traffic.

(2) As a basis for the approval decision, the Project Developer shall submit to the planning approval authority, together with the planning documents, an expert opinion updating the site-related quantitative risk analysis on which the suitability determination pursuant to this Ordinance is based on current figures on the volume of shipping traffic and, if applicable, other current framework conditions essential for the risk assessment. On the basis of this expert opinion, the planning approval authority shall order the risk-reducing measures necessary to ensure the safety and ease of shipping traffic. Other obligations to extend, update or deepen investigations pursuant to Section 45 (3) in conjunction with Section 48 (2) sentence 3 and (4) sentence 1 no. 2 or Section 57 (2), (3) and (5) of the Offshore Wind Energy Act or pursuant to Section 57 (2) and (3) of the Offshore Wind Energy Act shall remain unaffected.

Subsection 4

Special provisions for the safety and ease of air traffic

Section 23

Helicopter winch operation and winch operation areas

(1) On a wind turbine installation, the wind farm site shall be designed, marked and operated by the Project Developer in accordance with the following regulations:

1. until the entry into force of the "Standard Offshore for the German Exclusive Economic Zone"¹⁴⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with the regulations of the "Joint Principles of the Federal Government and the Länder on Wind Farm Sites for Wind Turbine Installations" of 18 January 2012 (BAnz. No. 16, p. 338),
2. after the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone"¹⁵⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with its provisions.

(2) A winch operating area can be set up on an offshore platform as a rescue area in case of emergency. Their use is basically limited to the prevention of danger to life and limb of persons (emergency) or to necessary sovereign measures.

(3) Use of the wind farm site as a rescue area on an offshore platform beyond paragraph 2 shall be permissible by way of exception if in the event of a technical incident

1. the hazard potential must be reduced within a short period of time to prevent the occurrence of an emergency,
2. it is not possible to exert an influence from shore or countermeasures initiated have remained unsuccessful, and

¹⁴⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

¹⁵⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

3. more suitable means of access to the offshore platform are not temporarily available.
 - (4) Regular access of persons to the offshore platform by means of helicopter winch operation is not permitted.
 - (5) A winch operating area for emergency use as a rescue area of an offshore platform shall be designed and marked by the Project Developer in accordance with the following regulations:
 1. until the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone" ¹⁶⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with Chapter 7 of ICAO Document 9261 Guidelines for Heliports, as amended 2021, to Annex 14 Volume II to the Convention on International Civil Aviation of 7 December 1944 (BGBl. 1956 II pp. 411, 412), as last amended by the Protocols of 6 October 2016 (BGBl. 2018 II p. 306, 307),
 2. after the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone" ¹⁷⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with its provisions.

Section 24

Helicopter landing deck

(1) If a helicopter landing deck is established on an offshore platform of the offshore wind farm, the following regulations shall be complied with for its establishment and operation:

1. until the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone" ¹⁸⁾ of the Federal Ministry of Digital Affairs and Transport, the regulations of Annex 14 Volume II to the Convention on International Civil Aviation, as amended from time to time,
2. after the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone" ¹⁹⁾ of the Federal Ministry of Digital Affairs and Transport its provisions.

(2) The Project Developer shall ensure the safe operation of the helicopter landing deck through structural and operational measures.

Section 25

Flight corridors

(1) The Project Developer shall provide flight corridors in accordance with paragraph 2 and paragraphs 5 to 11 for a helicopter landing deck in accordance with 0 in the respective area if the obstacle clearance required in each case in accordance with Chapter 4, Annex 14, Volume II to the Convention on International Civil Aviation cannot be ensured in the area.

(2) Flight corridors are to be planned in such a way that neighbouring sites identified in the site development plan are affected as little as possible. The number of flight corridors shall be such that safe operation of the helicopter landing deck is ensured in each case.

¹⁶⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

¹⁷⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

¹⁸⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

¹⁹⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

(3) The Project Developer shall ensure that the third party is able to establish flight corridors on the site in accordance with paragraph 1, if the obstacles created by the Project Developer's offshore wind farm may impair

1. obstacle boundary areas of a third-party's helicopter landing deck of a converter or transformer platform specified in the site development plan or
2. may impair obstacle boundary areas of a third-party's helicopter landing deck specified in the planning documents of a plan approval procedure on the status of the local announcement of the plan interpretation pursuant to Section 73 (5) sentence 1 of the Administrative Procedure Act.

The Project Developer shall consult with the third party with regard to the alignment and parametrisation of the flight corridors.

(4) If flight corridors of a third-party's helicopter landing deck are already located on the respective site or if corresponding projects have already received planning approval, the Project Developer shall ensure freedom from obstacles for the areas concerned in accordance with paragraph 5 and paragraphs 8 to 11.

(5) The following regulations shall be observed for the establishment of the flight corridors:

1. until the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone"²⁰⁾⁾ of the Federal Ministry of Digital Affairs and Transport, the provisions of sentences 2 to 5 and paragraphs 6 to 11,
2. after the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone"²¹⁾⁾ of the Federal Ministry of Digital Affairs and Transport its provisions.

The flight corridors must always be kept free of any buildings above the water surface. As a matter of principle, no portions of structures may project into the flight corridors. In justified exceptional cases, the construction of obstacles in the flight corridor or the establishment of a flight corridor despite existing obstacles may be permitted by the Federal Maritime and Hydrographic Agency with the consent of the Federal Ministry of Digital Affairs and Transport. Flight corridors may not be established beyond the borders of the German Exclusive Economic Zone.

(6) The corridor axis of a flight corridor to or from an offshore platform shall be aligned in such a way that approaches and departures with tailwinds can be avoided and crosswind conditions minimised, and safe take-off can be achieved. A flight corridor shall be planned in a straight line along its entire length; in principle, overlaps with neighbouring flight corridors are not permitted. The respective corridor axis starts at the centre of the FATO.

(7) The approach and departure baselines correspond to the course of the respective corridor axis.

(8) The length of the flight corridor shall be determined along the respective corridor axis at the altitude of the FATO. This route shall begin at the inner edge as defined in paragraph 10 (1) and end at the point where a straight line also beginning at this point and rising at a constant gradient of 4.5 per cent has one of the following vertical distances from the corridor axis, the greater of the two cant values being decisive:

1. a cant of 152 metres or
2. a cant equal to the sum of the highest obstacle in the area relevant to the approach or departure and a safety margin of at least 61 metres.

²⁰⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

²¹⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

(9) Flight corridors each consist of an inner corridor and two outer corridors flanking it.

(10) The boundaries of the inner corridor consist of

1. a horizontal inner edge the width of the FATO, starting at the outer edge of the FATO and running at right angles to the corridor axis,
2. two side edges that diverge with a divergence of 15 percent up to a width of 200 metres,
3. a horizontal outer edge that is perpendicular to the corridor axis at a fixed altitude relative to the FATO.

(11) The width of each external corridor is at least 200 metres. If the obstacle back-drop along the flight corridors consists of wind turbine installations, the width of each of the two outer corridors shall be three rotor radii of the largest wind turbine installation adjacent to the flight corridor, regardless of which flank of the flight corridor it is located on.

Section 26

Tower illumination

(1) If the helicopter landing deck is to be operated at night, the Project Developer shall provide its own wind turbine installations along the flight corridors with tower illumination in accordance with the "WSV Framework Specifications Marking Offshore Installations"²²⁾). Arrangements shall be made to ensure the activation and deactivation of the tower illumination together with the other aeronautical lighting of the helicopter landing deck.

(2) Insofar as third-party flight corridors are located in the area or are directly adjacent to it, the Project Developer shall tolerate the installation of tower illumination on the wind turbine installations concerned and allow remote access for the purpose of controlling the tower illumination. As the operator of the tower illumination, the third party shall be granted access to the wind turbine installations concerned for the purpose of regulated operation, for maintenance during normal operating and business hours and for troubleshooting, insofar as no other agreements have been made regarding maintenance and operation, including troubleshooting.

Section 27

Marking of aviation obstacles

The Project Developer shall identify the installations as aviation obstacles and other obstructions in the vicinity of the helicopter landing deck in accordance with the following requirements:

1. until the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone"²³⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with the "Standard Offshore Aviation, Part 5: Marking of Aviation Obstacles in the EEZ"²⁴⁾ of 17 August 2020,

²²⁾ Official notice: Published by and available from the General Directorate for Waterways and Shipping, Am PropsthoF 51, 53121 Bonn, Germany.

²³⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

²⁴⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in a secure archive.

2. after the entry into force of the "Standard Offshore Aviation for the German Exclusive Economic Zone"²⁵⁾ of the Federal Ministry of Digital Affairs and Transport in accordance with its provisions.

Subsection 5

Security of national and NATO defence

Section 28

Requirements to ensure the security of national and NATO defence

(1) The Project Developer shall mark the erected installations with sonar transponders at suitable corner positions. 0 (2) shall apply accordingly.

(2) The Project Developer shall limit the use of acoustic, optical, optronic, magnetic, electrical, electronic, electromagnetic or seismic sensors in measuring devices on unmanned underwater vehicles or on stationary underwater measuring equipment to the extent necessary and notify the Navy Command in good time, but at least 20 working days in advance.

Subsection 6

Safety and health protection

Section 29

Principle

During the planning, construction, operation and dismantling of each installation, the Project Developer must ensure that the German regulations on occupational health and safety can be complied with.

Section 30

Evacuation, rescue and emergency medical care as well as fire and explosion protection

(1) The Project Developer shall prepare, regularly update and implement a project-specific escape and rescue concept as well as a structural, installation-related and organisational fire and explosion protection concept. The concepts and their implementation are to be coordinated in such a way that timely evacuation and rescue are ensured.

(2) The Project Developer shall provide evidence that it is receiving expert advice on the preparation and implementation of the concepts pursuant to paragraph 1. The requirements of Section 3 (2) and (3) of the Workplace Ordinance of 12 August 2004 (BGBl. I p. 2179), as last amended by Article 4 of the Act of 22 December 2020 (BGBl. I p. 3334) shall be applied accordingly.

(3) The Project Developer shall ensure that emergency medical measures can be implemented immediately after the occurrence of an emergency. The Project Developer shall ensure the rescue chain to the nearest suitable hospital if the rescue chain is not otherwise ensured.

²⁵⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

(4) At least two independent means of access and egress suitable for the purpose of escape and rescue shall be provided for an installation, which shall use different transport systems.

Section 31

Encroachment on the subsoil

Before carrying out work that requires encroachment on the subsoil, the Project Developer must ensure that possible hazards to employees from found munitions are identified and, if necessary, that the necessary occupational health and safety measures are taken. Sentence 1 shall also apply if previously unknown munitions are found during the planning or construction of the wind turbine installations, the offshore platforms or the cabling within the farm.

Section 32

Monitoring of compliance with health and safety regulations

(1) For the purpose of monitoring the obligations under 0 up to 31, the Project Developer shall provide the competent authority and its agents with the information and submit the documents required for monitoring.

(2) In order to carry out the monitoring tasks, premises and installations may be entered by the authorised agents of the competent authorities during normal operating and business hours.

(3) The Project Developer shall transport the agents of the competent authorities to the installations at sea or bear the costs of the transport.

Section 33

Other obligations

The obligations of the Project Developer to ensure occupational safety and health in its capacity as employer shall remain unaffected.

Subsection 7

Compatibility with existing and planned cables, pipelines and facilities

Section 34

Compatibility with existing and planned submarine cables and pipelines and facilities

(1) When planning and performing work in the vicinity of existing and planned submarine cables or pipelines and other third-party facilities, the Project Developer shall consider the safety of these submarine cables, pipelines and facilities. Crossings of the farm's internal submarine cables with submarine cables or pipelines of third parties are to be avoided if possible.

(2) In a protected area of 500 metres on either side of submarine cables and pipelines belonging to third parties, no impact whatsoever may be made on the seabed. Deviations can be agreed with the owner of the submarine cable or pipeline.

(3) The Project Developer shall keep the routes defined in the site development plan for the connection of converter platforms as well as a protected area of 500 metres on both sides of these routes free from development. No farm-internal submarine cable

systems may be laid within the protected area. The Project Developer shall ensure that the submarine cable systems within the farm do not cross the route of the connection line of the transmission system operator that connects the respective site.

(4) As a matter of principle, no wind turbine installations may be erected in a protected area of 1,000 metres around the location of the grid operator's converter platform as defined in the site development plan. Exceptions to this are possible in an area of 500 to 1,000 metres around the site in agreement with the grid operator. Work within the entire 1,000 metre protected area may only be performed in agreement with the grid operator.

Section 35

Distance to wind turbine installations in neighbouring sites

The wind turbine installations to be erected on the site must maintain a distance of at least five times the respective larger rotor diameter from wind turbines of any neighbouring site. The planning approval authority may allow a smaller distance at the request of the Project Developer of the respective site if the project developer of the neighbouring site agrees and the stability of the installations is guaranteed.

Section 36

Feed-in at the grid connection point

Pursuant to section 24 (1) no. 3 of the Offshore Wind Energy Act, there is an entitlement to connection of the offshore wind turbine installations and the allocated grid connection capacity on the offshore connection line specified in the site development plan to the extent of the bid quantity awarded.

Subsection 8

Other obligations of the Project Developer

Section 37

Construction

(1) The planning, construction, operation and dismantling as well as the design and equipment of the installations shall correspond to the state of the art or, alternatively, to the state of the art in science and technology. Compliance with the state of the art or the state of the art in science and technology is presumed for the areas regulated therein if the following standards are met:

1. "Standard Construction - Minimum Requirements for the Structural Design of Offshore Structures in the Exclusive Economic Zone (EEZ)"²⁶⁾,
2. "Standard Subsoil Investigation - Minimum requirements for subsoil exploration and investigation for offshore wind turbine installations, offshore stations and power cables"²⁷⁾.

(2) The Project Developer shall, as a minimum, design the systems whose failure or malfunction may jeopardise the integrity of the installations, the safety of traffic or the

²⁶⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in an archive.

²⁷⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in an archive.

marine environment in such a way that, in the event of failure or malfunction, both monitoring and full access are also possible from shore.

Section 38

Identification, documentation and reporting of objects and constructed installations

(1) Prior to the start of planning and realisation of the facilities, the Project Developer shall identify existing cables, pipelines, wrecks, found munitions, cultural and material assets as well as other objects on the site and take any resulting protective measures. The discovery of objects is to be documented immediately and reported to the planning approval authority. Any sites where objects have been found must be considered when selecting a site or route.

(2) If munitions are found during the planning or construction of the facilities, the Project Developer must take appropriate protective measures. Within this framework, the Project Developer is also responsible for any necessary salvage or removal of found munitions. Blasting is not permitted unless it is unavoidable for the removal of munitions that cannot be transported. In this case, the Project Developer must submit a noise protection concept to the planning approval authority in good time in advance. The Project Developer must notify the Maritime Safety Centre Cuxhaven of any munitions found and any further handling of the munitions found.

(3) At the request of the planning approval authority, the Project Developer shall submit an evaluation of the data obtained in the preliminary investigation on suspected cases of cultural property in the respective area with the planning documents as a basis for the approval decision.

(4) The Project Developer shall measure the exact positions of all installations actually built within six months of completion of construction and transmit them to the Federal Maritime and Hydrographic Agency.

Section 2

Specific requirements for site N-7.2

Section 39

Special provisions on compatibility with cultural property

(1) An exclusion zone with a radius of 50 metres around the wreck centre shall be maintained around the shipwreck with the wreck centre 54°16.2354'N; 006°18.5607'E; WGS84.

(2) Around the shipwreck with the wreck centre 54°16.9768'N; 006°15.8848'E; WGS84 an exclusion zone with a radius of 30 metres around the wreck centre shall be maintained until a closer classification of the wreck site is possible.

(3) The planning approval authority may order the Project Developer to ensure, through appropriate measures and with the involvement of monument protection and heritage authorities, that further scientific investigations and documentation of the cultural assets and archaeological cultural assets can be performed and that the associated objects can be preserved and conserved either in situ or by salvage.

Part 3

Determining the capacity to be installed

Section 40

Determination of the capacity to be installed

- (1) The capacity to be installed on site N-3.5 is 420 megawatts.
- (2) The capacity to be installed on site N-3.6 is 480 megawatts.
- (3) The capacity to be installed on site N-7.2 is 980 megawatts.

Part 4

Final provisions

Section 41

Entry into force

This Ordinance shall enter into force on the day following its promulgation.

Justification

Regarding Part 1 (General Provisions)

Regarding Section 1 (Scope of application)

The paragraph defines the scope of the Regulation. This Ordinance shall apply to sites N-3.5, N-3.6 and N-7.2 in the German Exclusive Economic Zone (hereinafter EEZ) of the North Sea as defined in the Site Development Plan (hereinafter SDP) of 18 December 2020. For these sites, suitability is determined, specifications are set and the capacity to be installed is established.

Regarding Section 2 (Definitions)

Section 2 contains definitions for this statutory instrument. Unless otherwise provided herein, the definitions of the WindSeeG shall apply.

Regarding Part 2 (Determination of suitability)

Regarding Chapter 1 (Suitability Determination)

Regarding Section 3 (Determination of suitability)

The legal basis for this suitability determination is Section 12 (5) WindSeeG. Accordingly, the suitability of the sites is determined if the suitability assessment pursuant to Section 12 (4) WindSeeG shows that the sites are suitable for tendering pursuant to Part 3 section 2 WindSeeG. The suitability assessment was completed positively on the date of 16.12.2021.

Pursuant to Section 12 (4) WindSeeG, the body responsible for the preliminary investigation shall examine the suitability in accordance with Section 10 (2) WindSeeG. The competent body for the preliminary investigation is the Federal Network Agency. In individual cases or - as in the present case - in similar cases, it commissions the BSH to carry out the preliminary investigation in accordance with an administrative agreement for sites in the EEZ, Section 11 (1) no. 1 WindSeeG. Based on corresponding agreements, the Federal Maritime and Hydrographic Agency (hereinafter BSH) has assessed the suitability of sites N-3.5, N-3.6 and N-7.2 in the German EEZ of the North Sea as defined in the SDP of 18 December 2020. This suitability assessment has shown that they are suitable for the erection and operation of offshore wind turbine installations.

Reference is made to the findings in the expert opinion on the suitability assessment and this assessment is not repeated within the framework of this ordinance due to the fundamentally different responsibilities under the WindSeeG - the Federal Ministry for Economic Affairs and Energy is fundamentally responsible for determining suitability.

The draft Suitability Assessment Report, together with the draft Environmental Reports on the Strategic Environmental Assessments for the sites and the draft Suitability Determination, were made publicly available from 15 March 2021 to 15 April 2021, and public notice was given on 12 March 2021. In connection with the Strategic Environmental Assessment, further reports and documents were published with the opportunity to comment. This was indicated by public notices dated 12 March 2021 and 16 April 2021.

Regarding Chapter 2 (Requirements for the subsequent project)

Under Chapter 2, specifications for subsequent projects on the land are regulated. These were included in order to counteract impairments of the criteria and concerns according to Section 10 (2) WindSeeG. The specifications in Section 1 are to be applied to the subsequent projects on all three sites. In Section 2, specifications are regulated for the specific site N-7.2, which additionally apply to the site.

Regarding Section 1 (General)

Regarding Subsection 1 (Effects of the project on the marine environment)

Regarding Section 4 (Monitoring)

Regarding paragraph 1

Section 4 (1) contains the obligation to carry out monitoring.

A site is only suitable if the development and operation of an offshore wind farm on the site will not endanger the marine environment. The decision on suitability is to be made by way of a prognosis based on the current state of facts and knowledge. The prognosis must refer to the entire period of construction and operation, i.e. the usual operating time of an offshore wind farm of 25 years from commissioning.

The prognosis on which the suitability assessment is based is naturally subject to scientific uncertainties, which are to be countered by the ordered effect monitoring. The Federal Administrative Court has ruled that monitoring as part of risk management is appropriate, inter alia, in cases of scientific uncertainty about the effectiveness of protection and compensation measures, in order to gain further knowledge about the impairments and to control the implementation of the project accordingly (cf. BVerwG, judgement of 17.01.2007, case no. 9 A 20.05 - cited in Juris).

The purpose of the ordered effect monitoring is to monitor the effectiveness of the requirements of Part 2, Chapter 2, Section 1, Subsection 1, ordered during construction or operation for the protection of the marine environment, in order to be able to take corrective action if necessary. Thus, on the basis of the monitoring results, the plan approval authority may, if necessary, order supplementary or updating regulations on these requirements in the plan approval decision as a result of an examination pursuant to Section 48 (4) sentence 3 WindSeeG or issue subsequent orders pursuant to Section 57 WindSeeG after completion of the plan approval procedure.

Regarding paragraph 2

The two-year baseline survey as a basis for construction and operation monitoring shall be updated by a further survey year, the so-called third survey year, in accordance with the "Standard Untersuchung der Auswirkungen von Offshore-Windenergieanlagen auf die Meeresumwelt" (Standard Survey of the Impacts of Offshore Wind Turbine Installations on the Marine Environment) published by the BSH, or - if five years or more elapse between the end of the baseline survey and the start of construction - by two further survey years.

If, after more than five years, the results of the investigations show that no significant change in site conditions has occurred, the "Standard Investigation of the Impacts of Offshore Wind Turbine Installations on the Marine Environment" provides for the possibility of applying to shorten the investigations to one year after six months by submitting an interim report. This means that, despite the application to shorten the baseline survey, the second survey year from the repetition of the baseline survey for the respective protected property only has to be performed if the review of the results from the first survey year has shown that a significant change in characteristics relevant for the assessment of the protected property has occurred. Depending on the protected property, these include species spectrum, abundance, distribution, dominance ratios.

Only on the basis of current studies can changes in the natural environment that have occurred in the meantime, such as changes in species composition and any resulting need to update or specify the regulations for the protection of the marine environment, be determined. The timeliness of the baseline survey is necessary as a basis for the effect monitoring ordered to compensate for scientific uncertainties during construction and operation, and is thus a mandatory suitability requirement.

For sites N-3.5 and N-3.6, the surveys for the protected properties benthos and fish ran until October 2020 and those for the protected properties avifauna and marine mammals (ship- and aircraft-based) until December 2019. For site N-7.2, the investigations for the protected

properties benthos and fish ran until October 2020 and those for the protected properties avifauna and marine mammals until July 2020.

Regarding paragraph 3

This paragraph regulates how the investigations for repeating the baseline survey and for effect monitoring are to be performed and at the same time establishes the presumption that the investigations correspond to the state of the art in science and technology if they are performed according to the specifications of the "Standard Investigation of the Impacts of Offshore Wind Turbine Installations on the Marine Environment" (Standard Investigation Concept - StUK).

The StUK, published by the BSH, specifies the scope, appropriate structure, implementation and timing/period of investigations for baseline surveys and effects monitoring for the individual protected species. It was compiled by a working group consisting of staff from research institutes, experts from the environmental field, other technical experts for the individual marine protected resources and staff from the authorities involved (in particular BfN, UBA and BSH) and published after consultation and is regularly updated on the basis of new findings and experience.

Regarding Section 5 (Laying and parametrisation of farm-internal submarine cable systems)

Regarding paragraph 1

The SDP establishes a planning principle (Planning Principle 4.4.4.8 of the SDP 2020) according to which potential adverse effects on the marine environment due to cable-induced sediment heating should be reduced as far as possible when laying submarine cable systems. The "2 K criterion", which defines a maximum tolerable temperature increase of the sediment by 2 degrees (Kelvin) at a sediment depth of 20 cm, is accordingly to be observed as a precautionary value for nature conservation.

The standard clarifies that this principle must also be observed with regard to the cabling within the farm and in its parametrisation and planning. Compliance was assumed in the Strategic Environmental Assessment. Proof of the expected maximum sediment warming or compliance with the 2 K criterion must be provided as part of the planning approval.

With regard to shipping concerns, other submarine cable systems are subject to more extensive regulations than those set out in this Ordinance.

Regarding paragraph 2

The requirement to choose the most environmentally sound installation method to achieve the overlap required under paragraph 1 is necessary to reduce the impact on the marine environment. This was assumed in the Strategic Environmental Assessment. The installation procedure should also be chosen with a view to the consequences of Section 15 of the Federal Nature Conservation Act (BNatSchG) in such a way that environmental impacts such as turbidity plumes and the encroachment width of the installation equipment are minimised as far as possible.

Regarding Section 6 (Avoidance or reduction of emissions)

Regarding paragraph 1

The avoidance and mitigation requirement imposed by paragraph 1 shall ensure that the construction and operation of wind turbine installations on the sites does not lead to pollution of the marine environment within the meaning of Article 1 (1) no. 4 of the Convention on the Law of the Sea and thus to a threat to the marine environment pursuant to Section 48 (4), sentence 1, no. 1 (a) of the WindSeeG. It is thus a mandatory prerequisite for the suitability of the site.

Regarding paragraph 2

Paragraph 2 specifies the avoidance and reduction requirement of paragraph 1:

In order to prevent pollution and hazards to the marine environment, no substances may therefore be discharged into the sea during construction, operation, maintenance and dismantling of the facilities.

If the generation of such installation-specific emissions into the marine environment is unavoidable for technical reasons, e.g. due to safety-relevant requirements of shipping or air traffic, this shall be presented and justified to the planning approval authority within the framework of the planning approval procedure, together with an environmental assessment. Installation-specific alternative tests must be performed and documented.

The minimisation requirement for material discharges applies. This also applies to the vehicles used during construction, operation and dismantling. The requirements of the Ordinance on Environmentally Sound Practices in Maritime Shipping shall be complied with.

During the operation of the facilities, lighting that is as compatible with nature as possible shall be provided to reduce attraction effects as far as possible, considering the requirements of safe shipping and air traffic and occupational safety. This includes, for example, switching obstacle lighting on and off as needed, selecting suitable light intensities and spectra or lighting intervals.

The obligation to choose the most environmentally compatible operating materials possible is based on the avoidance and reduction principle and obliges the Project Developer to use the most environmentally compatible material in each case, the use of which at the same time continues to guarantee the proper functioning of the operating part or ensures the proper functioning of the operating material itself. The Project Developer must prove this through comprehensive alternative assessments.

In order to prevent pollutant accidents and environmental discharges, all technical installations used on the facilities must be safeguarded by state-of-the-art structural safety systems and measures such as enclosures, double walls, room/door envelopes, catch basins, drainage systems, collection tanks, leakage and remote monitoring and must be monitored by the Project Developer. This applies in particular to installations that contain or carry larger quantities of operating materials and/or substances hazardous to water, such as diesel tanks and pipelines. In the event of damage, it must be ensured that immediate intervention is also possible from shore in accordance with Section 6 (2) no. 3.

In the offshore sector, fuel changes and refuelling operations have an increased potential for polluting the marine environment. Therefore, special organisational and technical precautions, such as the preparation of so-called "method statements", the implementation of precautionary measures during crane work as well as the use of self-sealing breakaway couplings (emergency disconnecting couplings), dry couplings, double-walled hoses, catch basins, overfill protection devices and so-called "spill kits", must be taken for these activities in order to avoid pollutant accidents and environmental discharges.

Regarding Section 7 (Avoidance of noise emissions during the foundation, installation and operation of installations)

Regarding paragraph 1

The requirements serve to avoid hazards to the marine environment from noise emissions.

The Project Developer shall choose the working method with the lowest noise level or which is otherwise the most environmentally compatible according to the circumstances found, on the basis of the ambient conditions.

If necessary, this requirement will be further specified within the framework of the specific planning approval procedure. Thus, the following noise-reducing and environmental protection measures are ordered regularly within the framework of the planning approval procedures:

- Preparation of a noise prognosis considering the site- and installation-specific properties (basic design) before the start of construction,

- Selection of the construction method producing the lowest noise level according to the state of the art and the existing conditions,
- Preparation of a specific noise prevention concept, adapted to the selected foundation structures and construction processes, for implementation of pile driving, in principle two years before the start of construction, and in any case before the conclusion of contracts concerning components affected by noise,
- Use of noise-reducing accompanying measures, individually or in combination, noise-reducing systems remote from the piles (bubble curtain system) and, if necessary, noise-reducing systems close to the piles in accordance with the state of the art in science and technology,
- Consideration of hammer characteristics and the options for controlling the pile driving process in the noise prevention concept,
- Concept for scaring animals away from the hazard area (within a radius of at least 750 m around the pile driving site),
- Concept for verifying the effectiveness of the deterrent and noise-reducing measures,
- State of the art installation design to reduce operational noise.

Regarding paragraph 2

Should pile driving or any other noise-intensive erection method have to be chosen, the stated sound limits of 160 decibels (dB re 1 $\mu\text{Pa}^2 \text{ s}$) for sound pressure (SEL05) and 190 decibels (dB re 1 μPa) for peak sound pressure level at a distance of 750 m must not be exceeded. These requirements are necessary for compliance with the prohibition of killing and injuring species and the prohibition of disturbance under species protection law, Section 44 (1) nos. 1 and 2 BNatSchG. Reference is made to the statements under 7.2 of the BMU noise protection concept for the North Sea EEZ, BMU 2013.

Regarding paragraph 3

Limiting the duration of individual pile driving operations is intended to minimise the impact and serves to avoid a violation of the species protection prohibition of disturbance, Section 44 (1) no. 2 BNatSchG. The Strategic Environmental Assessment has shown that, in addition to the absolute volume, the duration of the noise emissions also determines the disturbance effect on marine mammals. It has been shown that the longer the pile driving lasts, the longer the animals stay away from the pile driving site. The loss of habitat due to avoidance behaviour can therefore have a considerable effect due to long-lasting noise emissions even at reduced volume. This is to be prevented by limiting the duration, whereby the effectiveness can be monitored via the monitoring according to Section 4.

For the various foundation types (monopile, jacket, etc.) and parametrisations, there are certain maximum required pile-driving periods that must be specified specifically for each project based on the subsoil found in each case and the foundation used. The guideline values for a maximum pile driving duration are 180 minutes for monopiles and 140 minutes for jacket piles. A specification will be made by the planning approval authority on the basis of this requirement to effectively avert a threat to the marine environment.

Regarding paragraph 4

According to current knowledge, the noise emissions of wind turbine installations in operation are very low and hardly stand out from the ambient noise even at a short distance. In order to ensure with the necessary certainty that the state of disturbance pursuant to Section 44 (1) no. 2 of the Federal Nature Conservation Act will not occur in the future, an operational noise-reducing system design in accordance with the state of the art shall be selected.

Regarding paragraph 5

Blasting shall be avoided due to harmful effects on the marine environment (especially harmful sound pressures). Section 38 (2) sentences 3 and 4 on the exceptional detonation of munitions that cannot be transported remain unaffected.

Regarding Section 8 (Timing coordination of pile driving)

Regarding paragraph 1

In order to avoid disturbing the harbour porpoise as a protected species within the meaning of Section 44 (1) no. 2 BNatSchG, the pile-driving work must be coordinated with the projects to be completed in parallel. This shall be done in accordance with the concept for the protection of harbour porpoises from noise pollution during the construction of offshore wind farms in the German North Sea (Noise Protection Concept, BMU, 2013). In the noise protection concept, the BMU states that, according to current knowledge, noise-induced disturbance of harbour porpoises in the form of escape and avoidance behaviour can occur even if the noise protection values are complied with.

Chapter 7.3.1 of the noise protection concept states: "In order to exclude significant population-relevant disturbances in the German North Sea now and in the future, sufficient areas must be available for harbour porpoises that are not exposed to pile driving noise. It is assumed that these are always sufficiently available if no more than 10 per cent of the area of the EEZ of the German North Sea is located within the disturbance radii of the OWPs under construction and the limit value from the prohibition of killing and injury for impulsive noise (broadband sound event level (SEL) of 160 dB re 1 $\mu\text{Pa}^2 \text{ s}$ or peak sound pressure level (SPL_{peak-peak}) of 190 dB re 1 μPa) is complied with at a distance of 750 m from the point of noise generation. The position of the individual noise sources is not considered. In this case, a significant disturbance of the local harbour porpoise population can be excluded."

In addition, a significant impairment within the meaning of Section 34 (1) BNatSchG exists if at least 10 percent of the area of the nearest nature conservation area "Borkum Riffgrund" is affected by disturbance-triggering noise inputs.

The obligation to coordinate time is intended to counteract this.

Regarding paragraph 2

The requirement is also based on Section 12 (5) sentences 2 and 3 WindSeeG and is necessary, as otherwise the construction of the offshore wind farm may have adverse effects on the marine environment.

In order to comply with the requirements of the BMU's noise protection concept, coordination is required between the projects with regard to the construction phases, the pile driving of which may overlap even if the specified deadlines of the WindSeeG are adhered to. Insofar as this is necessary to comply with the values of the noise protection concept despite prior coordination, the planning approval authority must be able to issue orders for the coordination of construction activities.

Regarding Section 9 (Waste)

The prohibition of discharging or introducing waste into the marine environment shall ensure that the construction and operation of wind turbine installations on the land does not lead to pollution of the marine environment within the meaning of Article 1 (1) no. 4 of the Convention on the Law of the Sea and thus to a threat to the marine environment pursuant to Section 48 (4) sentence 1 no. 1 (a) WindSeeG. It is thus a mandatory prerequisite for the suitability of the site.

Exceptions to this prohibition under this Ordinance may be, for example, a discharge of treated wastewater permitted on a case-by-case basis according to 0 (3) or the discharge of drainage water with a maximum oil content of 5 milligrams per litre according to 0 (1).

Regarding Section 10 (Corrosion protection)

Regarding paragraph 1

The protection of structural installations from corrosion is associated with permanent emissions into the marine environment. At the same time, corrosion protection is essential for the structural integrity of the installations. In order to exclude any risk to the marine environment from pollution as far as possible during the suitability determination, specifications for corrosion protection are required for the subsequent project. For example, the corrosion protection of the installations must be as pollutant-free and low-emission as possible. At the same time, it must be ensured that the corrosion protection meets the technical requirements for the protection of the installation. Reference is also made to 0 (1).

Regarding paragraph 2

When galvanic anodes ("sacrificial anodes") are used as cathodic corrosion protection, for example made of aluminium-zinc-indium alloys in the underwater area of the installations, their components are released into the marine environment. In contrast, external power systems are inert in their design and thus associated with very low emissions into the marine environment. Consequently, external power systems are to be preferred.

If necessary, external power systems should also be used as cathodic corrosion protection in the interior areas of the foundation structures.

Regarding paragraph 3

If the use of galvanic anodes is mandatory, it is only permissible in combination with a coating suitable for use with cathodic corrosion protection in order to minimise emissions from the anodes. The cathodic corrosion protection systems must be dimensioned in the design phase in such a way that the use of galvanic anodes is limited to a necessary minimum.

When selecting galvanic anodes, only alloys may be used whose production-related contents of particularly environmentally critical minor components are reduced to a minimum. The zinc content of the anodes, which are usually based on aluminium, required for functionality must also be limited to a technically necessary minimum.

The use of zinc anodes in the sense of zinc as the main component of the anodes is prohibited.

Regarding paragraph 4

Due to their ecotoxicological effects, the use of biocides to protect technical surfaces from the undesirable settlement of organisms (antifouling agents) is prohibited. The use of biocides to prevent fouling of the foundation structures is not necessary according to the state of the art, for example with regard to the stability of the installations.

Regarding paragraph 5

The use of oil-repellent coatings in the area accessible by seawater ensures that oil drifting into the area of the project does not adhere to the components and subsequently cannot be absorbed in the course of pollution spill response and is then continuously washed into the water body over a longer period of time.

Regarding Section 11 (Systems cooling)

The purpose of the requirement is to prevent the discharge of substances during regular operation, which would be associated with open seawater cooling systems, for example through biocides. The cooling capacity that may be required on any offshore platforms of offshore wind farms can be achieved with closed cooling systems according to the experience from offshore wind farms already realised with regard to transformer platforms. Therefore, closed cooling systems must be used to avoid emissions.

Exceptions are only permitted in atypical individual cases, for example if the cooling capacity cannot be demonstrably achieved with closed systems or system variants and no suitable alternative systems are available. A variance must be applied for with the planning approval of the project.

Regarding Section 12 (Waste water)

Regarding paragraph 1

The wastewater referred to in paragraph 1 shall not be discharged untreated into the sea. The designated effluents to be treated comply with MARPOL Annex IV Regulation 1.3 and for grey water MEPC.227(64) no. 2.7. Since the discharge of treated wastewater is still associated with material discharges to a certain extent, the wastewater must always be collected professionally, transported to land and disposed of there in accordance with the applicable waste management regulations.

Regarding paragraph 2

The use of wastewater treatment systems on offshore platforms is generally not permitted.

On unmanned offshore platforms or those manned only during maintenance work, wastewater is generated only for a limited period of time. However, wastewater treatment systems are only effective to a limited extent in discontinuous operation, so that inadequately treated wastewater can lead to emissions into the marine environment that exceed avoidable levels. On unmanned platforms or platforms that are only manned during maintenance work, it is therefore necessary to resort to solutions that do not lead to an introduction. For example, appropriately dimensioned collection tanks must be provided for the professional collection of waste-water and the limited quantities of wastewater produced must be transported ashore or other solutions used (e.g. "incineration toilets").

Regarding paragraph 3

Even on permanently manned offshore platforms, wastewater treatment systems are only permitted in exceptional cases. Proof that the operation of a wastewater treatment system on a permanently manned platform may be necessary must be provided by the Project Developer as part of the planning approval procedure. This could be justified in particular by the fact that the negative impacts on the marine environment associated with the transfer of the volume of wastewater produced - for example, through the required number of ship transports - exceed the impacts associated with the discharge of the treated wastewater.

If a state-of-the-art wastewater treatment system including a reduction of nitrogen and phosphorus compounds (at least according to MARPOL MEPC.227 (64)) is available for the respective quantity of wastewater expected to be generated, only this shall be permitted.

Regarding paragraph 4

Paragraph 4 sets out requirements for wastewater treatment systems permitted under paragraph 3. These shall treat all the wastewater referred to in paragraph 1 arising on the offshore platform.

Chlorination of wastewater is not permitted, as chlorination processes produce halogenated secondary compounds that are harmful to the environment. Therefore, other techniques must be used that are demonstrably more environmentally friendly (such as UV systems).

To ensure proper operation and to check the purification performance and the discharge values in the operating phase, the wastewater must be sampled regularly. At wastewater treatment systems, suitable sampling points shall be provided at the inlet and outlet for this purpose. This is to enable sampling and subsequent analysis of the wastewater.

Regarding Section 13 (Oil content of the drainage water)

Regarding paragraph 1

The purpose of the requirement is to prevent pollution of the marine environment and to mitigate the discharge of oil contained in drainage water into the marine environment. Insofar as a light fluid separator is used instead of a closed system for collecting the drainage water and subsequent disposal on land, the maximum oil content shall not exceed 5 milligrams per litre. The setting of the maximum oil content at 5 milligrams per litre is based on the current state of implementation in existing offshore wind farms and the technical availability of these systems (DIN EN 858-1).

Regarding paragraph 2

In order to monitor compliance with the maximum oil content in the discharge into the marine environment as prescribed in paragraph 1 and to be able to initiate measures in the event that it is exceeded, the oil content in the drainage water shall be continuously monitored by means of sensors after it has passed the light fluid separator in the discharge.

Regarding paragraph 3

If the maximum value prescribed in paragraph 1 is exceeded, the use of appropriate valves shall automatically ensure that the drainage water is not discharged into the marine environment, e.g. via collection tanks or recirculation.

Regarding Section 14 (Extinguishing foam on helicopter landing decks)

Regarding paragraph 1

The purpose of the requirement is to prevent the introduction of perfluorinated and polyfluorinated chemicals (PFAS) into the marine environment at all costs in the event of activation of the fire-fighting system. PFASs are of ecotoxicological concern and have been shown to have negative impacts on the marine environment. Therefore, foam agents that do not contain PFAS should be chosen. Reference is made to Section 6 (2) no. 2.

At the same time, it must be ensured that the foam concentrate is resistant to alcohol and frost and that the other requirements of fire protection and aviation are met. Reference is also made to 0.

Regarding paragraph 2

According to Section 6 (2) no. 1, emissions are to be avoided. When activating the fire-fighting system on the helicopter landing deck, it must therefore be ensured that the extinguishing foam does not enter the marine environment via the drainage system. For this purpose, drainage systems connected to helicopter landing decks shall be equipped with bypass systems and valve circuits. This must ensure that the extinguishing foam produced is automatically drained into a collection tank via the drainage system.

Regarding paragraph 3

In order to reduce the risk of pollution of the marine environment by the use of fire-fighting foam as much as possible, only water shall be used during fire-fighting exercises.

Regarding Section 15 (Diesel generators)

Regarding paragraph 1

Emissions of nitrogen oxides must be reduced to a minimum. If diesel generators are used on offshore platforms, e.g. to ensure the supply of emergency power, they must be certified with regard to emission values at least in accordance with MARPOL Annex VI, Stage III. Diesel generators certified to alternative emission standards may be used if these standards comply with the emission standards defined in MARPOL Annex VI, Regulation 13 (5.1). This must be proven accordingly. The regulation on certification according to appropriate emission standards ensures that the level of protection remains the same, but that the choice of suitable certifications increases, e.g. EU standard 97/68/EC and its amendments, there: Stage III/IV .

Regarding paragraph 2

The use of diesel generators should be avoided in the emergency power supply of wind turbine installations. The use of diesel generators leads to air emissions. These are to be avoided according to Section 6 (2) no. 1. In addition, the operation of diesel generators requires extensive refuelling and fuel storage, which can result in risks of environmental hazards from oil spills. Therefore, alternative systems are to be used for the temporary supply of the wind turbine installations within the framework of ensuring general operational safety, if possible.

Regarding paragraph 3

In order to reduce sulphur dioxide emissions to a minimum, the lowest possible sulphur fuel must be used (such as low-sulphur heating oil according to DIN 51603-1 or diesel according to DIN EN 590 (so-called "land diesel")), considering the storage capacity of the respective product. The suitability of the intended diesel generators for the use of corresponding fuel types shall be ensured.

Regarding Section 16 (Scour and cable protection)

Regarding paragraph 1

For the permanent stability or positional safety of structures on the seabed, measures to prevent scour are required in certain areas. Crossing structures that may become necessary - e.g. when crossing third-party cables - also usually require the use of hard substrate to protect cables. In all cases, the placement of hard substrate shall be limited to the minimum necessary to establish the protection of the respective site in order to limit the impact on the marine environment caused by the placement of off-site hard substrate.

Regarding paragraph 2

Scour protection can be suitably constructed using fills of natural stones or inert and natural materials. Therefore, only these are to be used. The use of plastic or plastic-like materials, for example in the form of geotextile sand containers, nets filled with natural stones made of (recycled) plastic or concrete mats covered with plastic, is not permitted due to the inputs of plastic into the marine environment caused by these through material abrasion.

Regarding paragraph 3

Also, for the protection of cables, fill made of natural stones or inert and natural materials should be used as a priority. In individual cases, however, it may be necessary to protect cables with other materials, e.g. when pulling in cables or crossing structures. The use is to be limited to these areas and also in scope as far as possible.

Regarding Subsection 2 (General provisions for the safety and ease of shipping and air traffic)

Regarding Section 17 (Marking)

Regarding paragraph 1

The marking of an offshore wind farm serves to visualise it and thus to avoid collisions. The marking obligation serves the safety of both shipping and air traffic. At the same time, marking to avoid hazards to air traffic must avoid hazards to shipping traffic from the marking itself and vice versa.

The referenced regulations represent the state of the art for the marking of offshore structures for safe navigation and in doing so also partially address aviation marking. These regulations must therefore also be observed when implementing aviation marking (subsection 4). Insofar as the standards are updated, the planning approval authority shall examine whether the more up-to-date standards are to be ordered in accordance with section 48 (4) sentence 3 WindSeeG and shall order them if necessary. Within the framework of the implementation of the planning approval decision, an identification concept for the construction phase and normal operation at the nautical-functional level will have to be submitted in order to determine all markings of the offshore wind farm required for the project.

Regarding paragraph 2

The adaptation of the marking is necessary in the case of subsequent development of neighbouring sites, as the original marking could otherwise pose a danger to navigation, for example because it suggests a possibility of passage that then no longer exists due to additionally constructed facilities. The adaptation must be performed in coordination with the neighbouring projects in the sense of an overall concept.

Regarding Subsection 3 (Special provisions for the safety and ease of shipping traffic)

The specifications ensure the suitability of the sites in question with regard to the safety and ease of shipping traffic.

As part of the preliminary investigation, the BSH commissioned an expert opinion on the suitability of sites in the EEZ of the North Sea and the Baltic Sea for the purposes of traffic and shipping policy (expert opinion on shipping) to determine whether the safety and ease of shipping traffic is significantly impaired in this sense.

According to the expert opinion on shipping, the decisive criteria for assessing the suitability of a site with regard to the safety of shipping traffic are, on the one hand, the statistically expected time between two collisions, which must lie within the framework of the acceptance values of the "Approval-relevant reference values" working group. Secondly, the calculated risk is classified in the risk matrix of the BSH standard "Constructive design of offshore wind turbine installations" and additionally a qualitative risk analysis is performed. The result of the expert opinion on shipping is that the sites can generally be regarded as suitable for the erection of wind turbine installations if the requirements laid down in subsection 3 for avoiding a hazard to the safety and ease of shipping traffic are complied with.

Reference is made to the explanations in the suitability assessment.

Regarding Section 18 (Maritime surveillance)

The expert opinion on shipping concludes that maritime surveillance must be performed in order to reduce the risks posed by the installations to shipping and to protect the installations themselves. All sites are only suitable if maritime surveillance is specified. Only if this mitigation measure is implemented is the collision risk within the time periods set by the "AG Genehmigungsrelevante Richtwerte" [AG Certification-relevant recommended values].

In the expert opinion on shipping, the risk of a collision between a wind turbine installation and a ship was considered with and without considering additional measures to reduce the risk of collision. In the quantitative part of the study, the following risk-reducing measures were considered:

- Equipping the ships with AIS (Automatic Identification System)
- Traffic monitoring and maritime surveillance
- Emergency towing capacity.

Traffic monitoring and maritime surveillance can affect both manoeuvrable and unmanoeuvrable vessels. Vessels that are unable to manoeuvre can be detected, identified and directly addressed by traffic monitoring or maritime surveillance. In addition, necessary rescue measures can be initiated.

The implementation guideline of the Federal Ministry of Transport and Digital Infrastructure specifies on a location-specific basis how and by whom maritime surveillance must be performed in order to achieve sufficient effectiveness.

Regarding Section 19 (Construction method)

Regarding paragraph 1

The specification is a prerequisite for confirming the suitability of the site.

The decisive criterion in the expert opinion on shipping for assessing the suitability of a site with regard to the safety of shipping traffic is, in addition to the statistically expected time between two collisions and the qualitative risk analysis, the classification of the calculated risk in the risk matrix of the BSH standard "Standard Construction - Minimum requirements for the structural design of offshore structures in the exclusive economic zone (EEZ)" (Standard Construction). According to this, risk priority numbers (RPN) are determined from the combination of collision frequency and expected escaping pollutant quantity, which may not exceed a certain level in order to represent a still-permissible risk.

In the risk matrix according to Standard Construction, the collision consequences between the ship and the wind turbine installation and the consequences for personal safety are considered in addition to the environmental risk. Due to a lack of knowledge of the later concrete project parameters, the classification in the risk matrix according to Standard Construction assumed that the foundations of the wind turbine installations would be planned and realised in such a way that they would cause as little damage as possible to a ship in the event of a collision (so-called collision-friendly foundations). Thus, the use of collision-friendly foundations is a prerequisite for determining suitability and has been included as a requirement. In the subsequent planning approval procedure, this will have to be proven within the framework of the so-called collision analysis in relation to the concrete foundation type used and its concrete design for the wind turbine installations and the transformer platform, and the classification will have to be updated if necessary.

The further requirements for the foundation types and for the collision analysis to be submitted result from the Standard Construction (there Annex 1).

Regarding paragraph 2

When assessing the collision risk in the context of the above-mentioned risk analysis, a homogeneous and coherent development of the sites - without large gaps and without exposed installations - was assumed.

It can be assumed that the risk to navigation may be increased by individually placed installations or gaps in the development suggesting an entrance. This risk can be countered by setting up a closed safety zone, which restricts the permissible traffic on the site. Pursuant to Section 53 WindSeeG, the planning approval authority may establish safety zones insofar as this is necessary to ensure the safety of shipping or facilities. Since the sites are located in the direct vicinity of highly frequented shipping routes, it can be assumed that a safety zone will have to be established, which was also the assumption of the experts of the expert opinion on shipping. The width of the safety zones is generally 500 metres around the peripheral turbines of an offshore wind farm. A safety zone only contributes to ensuring the safety of shipping traffic if it can be established in a coherent manner and with as uniform a navigation regime as possible, gaps suggesting a possibility of entry or opposing the establishment of a safety zone closed across all projects must be avoided as far as possible and sufficient distances to the priority and reserved areas for shipping according to the AWZROV must be able to be maintained. The requirement is to ensure that these aspects are included in the planning of the project.

Regarding Section 20 (Traffic safety during the construction phase)

Regarding paragraph 1

By using the traffic safety vehicle, the construction site and the surrounding shipping traffic are secured in a mobile manner by constantly monitoring the traffic in the vicinity of the construction site and taking traffic safety measures if necessary. The special requirements for a traffic safety vehicle are named in the "Guideline Offshore Installations to Ensure the Safety and Ease of Shipping Traffic" of the GDWS and result from the peculiarity and complexity of the safety tasks at sea. This includes, in particular, the large-scale monitoring of shipping traffic around the construction site, the timely identification of dangerous approaches and the implementation of effective hazard avoidance measures. The proximity to the highly frequented shipping lanes in the vicinity of the project area requires short reaction times in order to be able to react as quickly and concisely as possible to possible hazardous traffic, to counteract or follow it if necessary, or to otherwise direct the immediate attention of the ship lines to the construction site. The nautical-technical requirements for a traffic safety vessel depend in this respect on the traffic and general conditions in the maritime area as well as on the type and scope of the safety tasks.

Regarding paragraphs 2 and 3

The traffic protection of construction sites at sea by means of hazard buoys and temporary markings is the usual international standard and has proved its worth for decades in protecting shipping, the marine environment, construction vehicles and the people working on

the construction site. Buoyage and temporary markings serve in particular to ensure that a danger area or construction site is recognised in good time by shipping and to indicate to the skipper the necessary traffic behaviour.

Regarding Section 21 (Requirements for vehicles and implements)

The specifications prevent impairments of the criteria to be examined (here, among others, the safety of shipping, the marine environment and occupational health and safety) by the shipping traffic induced by the construction by abandoning compliance with the applicable regulations.

Regarding Section 22 (Mitigation measures)

The requirement is based on Section 12 (5) sentences 2 and 3 WindSeeG and is necessary, as otherwise the construction and operation of the offshore wind farm on the site may have an adverse effect on the safety and ease of shipping traffic.

This suitability determination is based on an expert opinion which determined the collision repetition rate for the areas by means of quantitative risk analysis on the basis of current traffic figures (DNV GL, Expert Opinion pursuant to Section 12 (3) WindSeeG, Preliminary Investigation into the Suitability of Sites for Shipping Police Purposes in the EEZ of the North Sea and Baltic Sea, 2019).

For site N-3.5, the statistical collision frequency is 92 years, considering the risk-reducing effect of government traffic monitoring, operator-side maritime surveillance and government emergency towing capacity. This falls just short of the guideline value of 100 years when the named assumptions and mitigation measures are considered, which makes additional risk-reducing measures necessary that are suitable for reducing the risk to an acceptable level.

For site N-3.6, the statistical collision frequency is 84 years, considering the risk-reducing effect of government traffic monitoring, operator-side maritime surveillance and government emergency towing capacity. This falls short of the guideline value of 100 years when the named assumptions and mitigation measures are considered, which makes additional risk-reducing measures necessary that are suitable for reducing the risk to an acceptable level.

For site N-7.2, the statistical collision frequency is 93 years, considering the risk-reducing effect of government traffic monitoring, operator-side maritime surveillance and government emergency towing capacity. This falls just short of the guideline value of 100 years when the named assumptions and mitigation measures are considered, which makes additional risk-reducing measures necessary that are suitable for reducing the risk to an acceptable level.

The expert opinion points out that the results may change in the event of increased or decreased traffic volumes or in the event of changes in other framework conditions relevant to the risk assessment. This can result in an increased or decreased collision repetition rate. In principle, the suitability determination should cover the period from the start of construction to the end of operation of an offshore wind farm. However, since the result of the risk analysis for sites N-3.5, N-3.6 and N-7.2 is only slightly below the acceptance value of 100 years respectively and the development of shipping traffic in the EEZ can only be predicted to a limited extent according to the experts, the requirement in Section 22 to ensure suitability in these cases is necessary and sufficient.

As a basis for ordering corresponding measures in the approval decision, the planning approval authority requires a current statement on compliance with the social acceptance limits of the working group "Approval-relevant guide values" and on the mitigation measures required for this, in order to be able to order them if necessary. This is the purpose of updating the risk analysis.

Whether and in what form additional risk-reducing measures are ordered is decided by the planning approval authority in agreement with the GDWS on the basis of the results of the updated expert opinion. If the provision of an additional private emergency tugboat comes

into consideration, the Project Developer may, in addition to providing its own towing capacity, also participate in other towing capacity that is sufficient for the purposes of the risk analysis.

In addition, an update of the expert statement may be necessary at any time at a later point in time or due to other changes in the situation, which may be required by the planning approval authority or later during enforcement pursuant to Section 57 WindSeeG by the authority responsible for monitoring enforcement.

Regarding Subsection 4 (Special provisions for the safety and ease of air traffic)

The regulations serve to avoid hazards that arise for air traffic during the construction of an offshore wind farm or that result from the additional air traffic caused by this.

Regarding Section 23 (Helicopter winch operation)

Regarding paragraphs 1 to 3

Helicopter winch operations should only be used in exceptional cases for the transport or conveyance of persons on offshore platforms due to the potential hazards involved, when alternatives are not available. Since adequate access facilities, such as ship moorings and helicopter landing decks, must be set up on offshore platforms as a matter of principle and, in addition, corresponding technical precautions must be taken to maintain a safe operating condition during unmanned operation, access by means of helicopter winch operation is only envisaged there within the framework of the prevention of danger to life and limb of persons and for the performance of sovereign tasks. For this reason, the use of a rescue area or any other helicopter winch operation is also not permitted during normal operation; this also includes technical incidents, except for the specified exception. Thus, the use of the rescue area in the context of a technical incident is only possible if the incident may develop into an emergency in the further course, i.e. may lead to a danger to life and limb, this is likely to happen in the foreseeable future, an influence of land is not possible in the specific case and the alternative access options are not available.

Regarding paragraphs 4 and 5

The design and marking of a rescue area shall be in accordance with Chapter 7 of the ICAO Helipad Guide (Document 9261 as amended 2021) to Annex 14 Volume II to the Convention on International Civil Aviation of 7 December 1944, as last amended by the Protocols of 6 October 2016 (BGBl. 2018 II p. 306, 307) (Chicago Convention). According to Article 58 (1) in conjunction with Article 87 of the 1982 Convention on the Law of the Sea, some of the freedoms of the high seas apply in principle in the EEZ. Pursuant to Article 58 (1) in conjunction with Article 87 (1) (b) of the Convention on the Law of the Sea, this also includes freedom of overflight. The Chicago Convention of 1944 distinguishes in Article 12 between national territory and the high seas with regard to applicable law. Pursuant to Article 12 sentence 3 of the Chicago Convention, the rules adopted pursuant to the Chicago Convention apply over the high seas. For the German EEZ, the regulations will in future be integrated into a standard offshore aviation of the Federal Ministry of Transport and Digital Infrastructure, which will have to be observed.

The rule-compliant setup and marking of wind turbine operating sites on wind turbine installations as well as their proper operation are essential for safe helicopter winch operation.

Regarding Section 24 (Helicopter landing deck)

Regarding paragraph 1

Annex 14 Volume II Chicago Convention describes the requirements for the design and operation of a helicopter aerodrome. The Chicago Convention applies in the EEZ. According to Article 58 (1) in conjunction with Article 87 of the 1982 Convention on the Law of the Sea, some of the freedoms of the high seas apply in principle in the EEZ. Pursuant to Article 58 (1) in conjunction with Article 87 (1) (b) of the Convention on the Law of the Sea, this also includes freedom of overflight. The Chicago Convention of 1944 distinguishes in Article

12 between national territory and the high seas with regard to applicable law. Pursuant to Article 12 sentence 3 of the Chicago Convention, the rules adopted pursuant to the Chicago Convention apply over the high seas. The requirement is inclusive of the documents referenced in Annex 14 Volume II Chicago Convention, in particular in relation to Document 9261 as amended in 2021. For the German EEZ, the regulations will in future be integrated into a standard offshore aviation of the Federal Ministry of Transport and Digital Infrastructure, which will have to be observed.

Regarding paragraph 2

The regulation is based on the operator obligations from Section 53 (1) in conjunction with Section 45 (1) of the Air Traffic Licensing Regulations (LuftVZO) of 19 June 1964 (BGBl. I p. 370), as last amended by Article 3 of the Act of 14 June 2021 (BGBl. I p. 1766) (Among other things, obligation of maintenance and upkeep). Safe operation can only be ensured - especially with regard to the obstacle backdrop represented by the wind turbine installations - if there are at least obstacle-restricted, or better obstacle-free, approach and departure areas to and from the offshore platform and this condition is maintained over the entire operating time of the platform. The Project Developer is obliged to maintain the helicopter landing deck in such a way that flight operations can be performed safely at all times (Section 45 LuftVZO in Frankfurter Kommentar zum Luftverkehrsrecht Volume 2 Air Traffic Regulations, Luchterhand, 09/2018). For this purpose, the aerodrome operator shall take appropriate operational measures, i.e. organisational measures (e.g. periodic inspections; regular foreign object checks on the helicopter landing deck; measures to remove contamination such as bird droppings; ensuring fire protection, which also includes the training and practice of appropriate personnel). This includes communicating with neighbouring projects to maintain flight safety so that, if necessary (especially at night), planned flights can be coordinated with the other landing site holders so that any collision risks can be minimised.

Regarding Section 25 (Flight corridors)

Regarding paragraphs 1 to 4

In accordance with Chapter 4 of Annex 14, Volume II, Chicago Convention, an airspace free from obstructions shall be established around a helicopter aerodrome. This measure is intended to prevent it from becoming unusable due to the erection and/or increase of obstacles in its vicinity. For this purpose, obstacle limitation areas are to be set up, among other things, which mark the heights up to which objects may project into the airspace. Also, in the case of an offshore wind farm, certain areas, so-called flight corridors, must be kept free of obstacles if helicopter landing decks are to be set up and operated in its area of influence. This is the case if, due to the wind turbine installations of this offshore wind farm, the horizontal extension of the obstacle-free sector to be provided for helicopter landing decks (cf. Nos. 4.1.22 to 4.1.24 and 4.2.12 to 4.2.14, Annex 14, Volume II, Chicago Convention) cannot be fully complied with.

The creation of these flight corridors requires an overall consideration, i.e. a consideration that encompasses the entire area within the meaning of Section 3 (3) of the WindSeeG. Only in this way can it be ensured that the obstacle protection concerns of all helicopter landing decks erected or to be erected in an area are sufficiently considered. The primary objective here is that the erection of obstacles, such as wind turbine installations, must not result in one of the helicopter landing decks located in the area becoming unusable or in a planned one not being erected there.

In this respect, it is a matter of specifications for the subsequent project on the sites that are necessary to achieve the overall suitability of the sites in question due to the interactions with subsequent projects on the other sites of the SDP. This is because the spatial proximity of the offshore wind farms in an area to each other on the one hand and the manoeuvring requirements of a helicopter on the other hand require a cross-area consideration in the area in order to thus avoid restrictions on the suitability of sites to be examined in the future. It cannot be ruled out that third party corridor areas may also extend into or be completely within the offshore wind farm itself. Insofar as third-party helicopter landing decks on con-

verter or transformer platforms already determined by the site development plan are concerned, or the neighbouring landing deck has already been specified and publicly announced in the planning approval procedure, corresponding flight corridors must be made possible when the farm's own layout is drawn up and the Project Developer must coordinate with the third party. If flight corridors already exist or are subject to planning approval, their freedom from obstacles must be ensured.

The number of flight corridors depends on whether the approach and take-off paths lead entirely or partially through an obstacle backdrop.

The approach and departure corridor of the NOR-3-2 converter platform located between sites N-3.5 and N-3.6 is expected to pass between these sites due to the other existing corridors in the vicinity in site N-3. For site N-3.5, the future approach and departure corridor of the N-3.8 transformer platform and flight corridors of the platform of the existing Nordsee One wind farm must also be considered.

In any case, the approach and departure corridors of the NOR-6-3 platform and the NOR-7-2 converter platform located in the largest sub-area shall be considered in the planning of site N-7.2.

Regarding paragraph 5

Along the main approach/departure directions of a helicopter landing deck with an obstacle-free sector restricted by the surrounding wind turbine installations, appropriately dimensioned and obstacle-free flight corridors are additionally required. The offshore platform on which the helicopter landing deck is located and other platforms connected to it by appropriate systems (e.g. bridges) are excluded from this. This is possible because the resulting obstacle backdrop is to be considered in the context of determining the obstacle-free sector for the helicopter landing deck.

Further obstacles in flight corridors above the water surface are basically excluded. The BSH may, with the consent of the Federal Ministry of Transport and Digital Infrastructure, permit further obstacles by way of exception. The granting of this power to issue administrative acts, as a requirement within the meaning of Section 12 (5) sentence 2 of the Wind-SeeG, represents a lesser encroachment in relation to a comprehensive prohibition. In exceptional cases, the erection of obstacles - depending on their distance from the helicopter landing deck as well as their number, total height and hazard potential - is only permissible upon presentation of a hazard assessment by an aviation expert if they are harmless to the approaching and departing air traffic. In particular, the approach/departure surface to be used with a slope of 4.5 per cent shall ensure a safe elevation above the obstacles even in the event of an emergency; the obstacles shall be adequately marked for the intended flight operations (day and night, if applicable); the distance of the obstacles from the helicopter landing deck shall be such that 4.1.24 Annex 14 Volume II Chicago Convention is fully ensured within the corridor concerned for all helicopter types regularly operating there.

For wind turbine installations, the most unfavourable positioning of the rotor blade tips with the rotor rotating, i.e. with the longitudinal axis of the nacelle aligned parallel to the flight corridor axis, shall be considered to determine the obstacle effect on the flight corridors.

As part of the operational measures, it shall be ensured that the wind farm's own shipping traffic does not enter the 180-degree sector during flight operations on the helicopter landing deck (cf. also 4.2.14 Annex 14 Volume II Chicago Convention).

Regarding paragraph 6

The alignment of the corridors, preferably along the expected main wind direction, is intended to ensure that approaching and departing helicopters are predominantly faced with favourable inflow conditions and that larger, detrimental crosswind components are avoided. A safe take-off is only guaranteed if the direction of approach and departure do not deviate from each other as far as possible, as in this way changes of direction during the manoeuvre are minimised or prevented. The distance should not be less than 150 degrees.

Straight-line planning is necessary for night operations of a helicopter landing deck as well as with regard to an emergency situation with a helicopter taking off, in order to avoid turning within an obstacle backdrop during take-off.

The avoidance of intersections is necessary because along the corridors the flight path is predetermined according to their alignment and for the most part there are only limited possibilities for adequate airspace observation.

Here, the circumstances that the flights are performed according to visual flight rules (principle: "see and avoid") and that the traffic density is in part lower than comparable landing sites on land, are of secondary importance. The mere fact that two or more corridors cross represents a potential collision risk per se, which can usually be avoided entirely through preventive planning.

Regarding paragraph 7

The respective approach or departure baseline in a corridor must be identical to its axis alignment in order to ensure the greatest possible obstacle clearance along its entire length.

Regarding paragraph 8

To determine the corridor length, the slope profile category "A" from Table 4-1 of Annex 14 Volume II Chicago Convention shall be used for the slope of the approach or departure surface. In this way, on the one hand, a safe, i.e. sufficiently long, obstacle-free departure is also made possible for less powerful helicopters, e.g. in the event of a one-sided engine failure, since there is sufficient elevation for turning after leaving the obstacle backdrop or the respective corridor (cf. CAT.POL.H.210 EU Regulation number 965/2012). In addition, on the other hand, a shallow approach angle can be selected, which is particularly advantageous at night in an area with difficult weather conditions and little contrast. Furthermore, such an approach is also necessary because the height above the FATO level of 152 metres considered in Table 4-1 of Annex 14 Volume II Chicago Convention is usually inadequate in relation to the actual realised heights of the wind turbine installations.

Regarding paragraph 10

The boundary of the inner corridor shall be based on the parameters for night operations as specified in Nos. 4.1.1 to 4.1.3 and 4.1.13 to 4.1.15 in conjunction with Figures 4-1 and 4-2 of Annex 14, Volume II, Chicago Convention. This is to consider the fact that the corridors are essential for safe operation, especially at night. It is also intended to consider the specific environmental conditions.

A safety area within the meaning of the regulations of Annex 14 Volume II Chicago Convention is not ordered, as such areas are not intended for helicopter landing decks.

The specifications for the width of the inner corridor are based on ten times the main rotor diameter of the largest SAR helicopter currently in use in the German EEZ (Sikorsky Mk.41 "Sea King"), whereby the main rotor diameter was rounded up to 20 metres in order to also consider future, possibly larger models.

Regarding paragraph 11

The outer corridors serve as an additional safety distance to the wind turbine installations flanking the respective flight corridor. On the one hand, this is necessary because it is more difficult to correctly estimate the distance to the turbines when the rotors are turning. On the other hand, this measure is intended to minimise the influence of any wake vortices. The parametrisation of the outer corridors is designed in such a way that the symmetry of the overall corridor with regard to its respective axis is maintained - even if there are obstacles of different heights on its flanks, as with outer corridors of different widths there is a risk of misinterpreting the position of the inner corridor.

Regarding Section 26 (Tower illumination)

Regarding paragraph 1

The tower illumination is necessary to increase the visibility of the wind turbine installations along a flight corridor at night, so that the approach to the obstacles, i.e. the wind turbine installations, can be better assessed by the helicopter crew and facilitate their orientation or give them a better spatial impression of the surroundings.

Regarding paragraph 2

It cannot be ruled out that third-party flight corridors can also reach into one's own offshore wind farm. With regard to flight corridors, reference is made to the specification of 0. The marking of wind turbine installations themselves with tower illuminations along this corridor shall be permitted in order to avoid hazards to aviation.

In order to ensure proper operation of the tower illumination, the third party as operator of the tower illumination must have access to the facilities of the Project Developer in order to be able to carry out necessary maintenance or repairs. For work that can be planned, access is only required during normal operating and business hours. In the event of malfunctions, however, immediate access to the tower illumination by the third party is necessary in order to avoid or at least reduce threats to the safety of air traffic. The parties are free to make other arrangements, provided that this ensures the proper operation of the tower illumination. The costs incurred for the installation, operation and troubleshooting as well as the maintenance of the tower illumination shall be borne exclusively by the third party as operator of these systems.

Regarding Section 27 (Marking of aviation obstacles)

Wind turbine installations are obstacles for air traffic. In order to reduce the danger they pose, they must be adequately marked. Other turbines or superstructures on these turbines may also pose a hazard to air traffic taking place in the offshore wind farm and shall be marked. The obligation to mark obstacles in the vicinity of a helicopter landing deck results, inter alia, from No. 5.3.14 of Annex 14 to the Chicago Convention. Obstructions include, in particular, exposed substructures (e.g. masts, cranes, lightning rods or other structures) if they are located on surfaces in the immediate vicinity of or at a distance from the helicopter landing deck relevant to flight operations and/or they can be swung into the area of the helicopter landing deck and/or they can pose a hazard to air traffic due to their shape and height.

The regulations on the marking of aviation obstacles for the area of the German EEZ were transferred from the General Administrative Regulation on the Marking of Aviation Obstacles into a Standard Offshore Aviation and this will be published in an appropriate manner after the conclusion of a consultation phase. However, Part 5 of this standard is to be applied in the context of licensing and planning approval procedures from 17 August 2020, as directed by the Federal Ministry of Transport and Digital Infrastructure to the planning approval authority, and was published on the BSH website on 31 August 2020.

For all offshore wind farms in Zone 1 of the EEZ of the North Sea as designated in the Offshore Grid Development Plan 2017-2030 confirmed by the Federal Network Agency pursuant to Sections 17b and 17c of the Energy Industry Act (Energiewirtschaftsgesetz), pursuant to Section 9 (8) sentence 2 no. 2 of the Renewable Energy Sources Expansion Act (EEG 2021) of 21 July 2014 (BGBl. I p. 1066), as last amended by Article 1 of the Act of 21 December 2020 (BGBl. I p. 3138) to provide for a demand-controlled night marking. Accordingly, the offshore wind farms on sites N-3.5 and N-3.6 shall also be equipped with a demand-controlled night marking in accordance with Annex 6 of the "Standard Offshore Aviation, Part 5: Marking of Aviation Obstacles in the EEZ"²⁸⁾ or after the entry into force of

²⁸⁾ Official notice: Published by and available from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany, and deposited in the German National Library in a secure archive.

the "Standard Offshore Aviation for the German Exclusive Economic Zone"²⁹⁾ of the Federal Ministry of Transport and Digital Infrastructure in accordance with its provisions.

Regarding Subsection 5 (Security of National and NATO defence)

Regarding Section 28 (Security of national and NATO defence)

Regarding paragraph 1

The installations erected on the site shall be marked at suitable locations with sonar transponders for the emergency navigation of marine vessels. During exercises for the purpose of national and allied defence, the installation of the sonar transponders is intended to avoid dangers from collisions of submarines with structural installations by means of acoustic signals.

The arrangement in the planning approval procedure as well as the determination of the deployment sites and the technical specification of the sonar transponders are performed in accordance with the requirements of the Federal Office for Infrastructure, Environmental Protection and Services of the German Armed Forces (BAIUDBw)/Naval Command.

If further projects are built directly adjacent to the site in question, the marking may also have to be adapted to the new development situation after the realisation of the project on the site.

Regarding paragraph 2

The use of the measuring devices referred to in paragraph 2 may result in the collection of information, some of which is classified as secret. In order to avoid this in the interests of the security of national and alliance defence, the use of such equipment is to be limited to what is necessary and the Naval Command, currently Kopernikusstrasse 1, 18057 Rostock, Germany, is to be notified in good time.

Regarding Subsection 6 (Safety and Health Protection)

Regarding Section 29 (Principle)

The safety and health protection of all persons working in the future offshore wind farm is another overriding public interest within the meaning of Section 10 (2) no. 1 in conjunction with Section 5 (3) sentence 1 WindSeeG, the regulations on safety and health at work are other provisions of public law within the meaning of Section 10 (2) no. 2a in conjunction with Section 48 (4) sentence 1 no. 8 WindSeeG. For the implementation of the project, it must therefore be ensured that the health and safety requirements can be met.

The regulation ensures that the regulations on the protection of safety and health at work are considered at an early stage by the Project Developer in the planning and implementation phase. For employers, the Occupational Health and Safety Act (ArbSchG) is also applicable in the EEZ, see Section 1 (1) sentence 2 ArbSchG. However, the Project Developer is not always the employer at the same time. Independent obligations are therefore created for the Project Developer; for his obligations as an employer, see Section 3 ArbSchG.

In addition to the Occupational Health and Safety Act and the ordinances based on it, the regulations for the protection of safety and health at work include the accident prevention regulations of the accident insurance institutions and the Act on Installations Requiring Surveillance. Technical and occupational health rules specify the occupational health and safety regulations. DGUV Information contains notes and recommendations to facilitate the practical application of occupational health and safety law.

In view of the special environmental conditions of offshore installations during planning, construction, operation and dismantling, the following points of the German occupational safety and health regulations in particular must be considered to protect the persons working there:

²⁹⁾ Official notice: To be obtained after publication from the Federal Maritime and Hydrographic Agency, Bernhard-Nocht-Strasse 78, 20359 Hamburg, Germany.

1. Fire and explosion protection,
2. Emergency communication and evacuation,
3. Primary first aid,
4. The technical rescue of injured or sick persons from all areas of the wind farm; and
5. Immediate emergency medical care during rescue and further treatment.

DGUV Information FBHM-098 "Offshore Platforms - Recommendations for the Implementation of the Workplace Ordinance", for example, contains information for platforms which, if considered, will contribute to safer working conditions. DGUV Information 204-041 "Extended first aid on wind turbine installations" contains recommendations for ensuring first aid in wind energy farms or wind turbine installations.

The environmental conditions of the facilities place special demands on the protection of the safety and health of persons on site in emergency and rescue situations. This includes, in particular, fire and explosion protection and the organisation of the rescue chain. It must be ensured that injured and ill persons can be rescued and given medical care immediately in the event of an accident or emergency. The distance from the coast, other infrastructural features (long pre-hospital times, long doctor-free intervals), weather-related difficulties (storms, fog, snow, strong swell), the vastness of the offshore wind farms and the interaction of all links in the rescue chain must be considered. To achieve this, it must be ensured that an emergency call can be made at any time from any location on the wind farm and turbines and that a safe evacuation can take place. In addition, primary first aid must be provided immediately by colleagues and further technical rescue from heights and depths, as well as emergency medical care during rescue and further treatment. Recommendations on the first links of the rescue chain after an emergency are published in DGUV Information 204-041 "Extended first aid in wind turbine installations and wind farms". The times to be observed in the context of rescue should be based on the "Eckpunktepapier 2016 zur notfallmedizinischen Versorgung der Bevölkerung in der Prehospitalphase und in der Klinik" (M. Fischer et al., Cornerstone paper 2016 on emergency medical care for the population in the pre-hospital phase and in the clinic, Notfall Rettungsmedizin (5) 2016).

Regarding Section 30 (Evacuation, rescue and emergency medical care as well as fire and explosion protection)

Regarding paragraph 1

For offshore wind farms, a specific concept for escape and rescue is elementary in the context of health and safety protection due to the infrastructural peculiarities, the weather-related difficulties and the vastness of the wind farms. Preventive fire and explosion protection offshore is also essential for preventive health protection. The relevant regulations affect the possible construction methods of the wind turbine installations and platforms and can thus have a financial impact. DGUV Information FBHM-098 "Offshore Platforms - Recommendations for the Implementation of the Workplace Ordinance" contains information on how to implement the requirements of the ArbStättV on the subject of fire protection. In this context, escape and rescue routes must be planned within the framework of the fire and explosion protection concept to be drawn up in such a way that safe evacuation is possible in time before a system fails in the event of a fire. The specific time period available for evacuation depends, among other things, on the fire protection classes of the components used and the safety systems, which must also be selected on this premise. In order to ensure that the concepts are up to date, they must be updated.

Regarding paragraph 2

In principle, it is at the discretion of the competent authorities whether to obtain evidence of the consultation. Since the workplace at sea also differs from other workplaces in terms of accessibility and preventive fire protection as well as escape and rescue are of great importance, the Project Developer is required to submit evidence of consultation in this case. Also, because the requirements according to paragraph 1 often already have an influence on the construction of the building, which can no longer be adapted in operation or only at

considerable financial expense, such subsequent changes can be excluded by expert advice. Section 2 (13) of the Workplace Ordinance defines who is competent.

Regarding paragraph 3

In an emergency, rescue and medical care must be provided as quickly as possible. For the safety and health protection of the persons working there, this requirement is all the more urgent in offshore wind farms due to the infrastructural peculiarities (long pre-hospital times, long doctor-free intervals), weather-related difficulties (storms, fog, snow, strong swell) and the vastness of the wind farm. The Project Developer must therefore ensure that emergency medical measures can be implemented without delay. The safety and health of people working in offshore wind farms with the special challenges must be ensured. The regulation assigns the responsibility for organising a functioning rescue chain to the wind farm Developer in the event of medical emergencies at the workplace and occupational accidents. Corresponding regulations, especially regarding the aspect of the rescue chain to the nearest suitable hospital, can be made in the planning approval procedure.

Regarding paragraph 4

Due to the requirement of Section 4 (4) of the Workplace Ordinance, at least two regular access points must be provided for the facilities depending on the escape and rescue concept. Each installation should be equipped with a facility (e.g. boat landing) which, in the event of an emergency, enables rescue workers mooring at the installation in a vessel without wave-compensated access systems to ascend and enable persons who have gone overboard to ascend to the transition piece. On platforms, a helicopter landing deck is regularly set up in addition to the regular access by boat landing. It should be possible to use two different transport systems so that, for example, if access by ship is restricted due to weather conditions, the helicopter landing deck is available as an alternative access option. When setting up the helicopter landing deck, Section 4 (4) of the Workplace Ordinance must also be observed and sufficient access and exit routes must be provided. A winch operation area shall be established on wind turbine installations in addition to a regular access by means of boat landing. Reference is made to the requirement under Section 23 (2). A winch operation area is necessary for the quick supply of medical personnel (emergency doctor) as well as for the transport of an injured person. On a platform, the installation of a winch operation area can only be considered as a rescue area for emergencies. In this regard, reference is made to the specifications in Section 23 (1).

Regarding Section 31 (Encroachment on the subsoil)

The preliminary investigation does not include a targeted inspection of the site for any found munitions. This task remains with the subsequent offshore wind farm operator as a duty to avert danger within the framework of the general duty of care. Section 31 specifies the duty of the Project Developer under Section 29. Guidance on measures that the Project Developer must consider to protect occupational safety and health are described, among other things, in the Quality Guide Offshore Explosive Ordnance Disposal of June 2019 and DGUV Information 201-027 "Guidance on risk assessment and definition of protective measures for explosive ordnance disposal".

Regarding Section 32 (Monitoring of compliance with health and safety regulations)

The scheme grants the competent authorities the right to enter the project's facilities for announced and, to a proportionate extent, unannounced inspections during normal operating and business hours. The regulation is necessary to ensure the aforementioned requirements. In the course of the implementation of offshore wind farm projects, it has become apparent that the above-mentioned requirements have not been adequately implemented in some cases - among other things due to the regulation of individual areas (e.g. fire protection, but also the equipment of accommodation, etc.) in various sets of rules and regulations and the resulting uncertainties with regard to the applicable requirements. However, adequate implementation is particularly important because of the special requirements at sea, such as workers working offshore for up to 21 days and the extended rescue periods.

The regulation covers inspections of the systems, which can already take place in the shipyard, as well as inspections after installation and commissioning of all systems (e.g. safety-related systems) offshore. The staff of the competent authorities should be allowed to travel to and from the plants. At the choice of the Project Developer, this can be ensured by providing the transport of persons, but also by assuming the costs for the transport of persons.

Regarding Section 33 (Other obligations)

Sections 29 to 32 contain special obligations for the Project Developer to protect safety and health at work. The Project Developer can also be an employer. Against this background, Section 33 clarifies by way of declaration that the employer's obligations under the provisions on the protection of safety and health at work apply to the Project Developer in its capacity as employer; see also Section 1 (1) sentence 2 of the Occupational Health and Safety Act.

Subsection 7 (Compatibility with existing and planned cables, pipelines and wind turbine installations)

Regarding Section 34 (Compatibility with existing and planned cables and pipelines)

Regarding paragraph 1

The purpose of this requirement is to prevent damage to submarine cables and pipelines as well as other third-party facilities that have already been laid, defined by the SDP or approved or plan-approved. Crossings of submarine cables should be avoided as far as possible. When building crossings, hard substrate is usually placed in the soil. From the point of view of mitigating the impact on the marine environment, crossings should be avoided as far as possible. Crossings are to be limited to the technically necessary minimum.

For crossings, reference is made to planning principle 4.4.4.5 of the SDP 2020. Recommendations for the construction of crossing structures are also laid down, for example, in the recommendations of the European Subsea Cable Association (ESCA) and the International Cable Protection Committee (ICPC). With regard to the requirements of environmental protection, reference is made in particular to the requirement of the 0.

For the routes defined in the SDP 2020 for connecting converter platforms, reference is made to the requirement in paragraph 3.

Regarding paragraph 2

In accordance with planning principle 4.4.1.6 of the SDP 2020 ("Consideration of all existing, approved and established uses"), 500 metres must regularly be kept free of development on both sides of these facilities to protect third-party cables and pipelines, unless the subsoil conditions require greater distances.

For the routes defined in the SDP 2020 for connecting converter platforms, reference is made to the requirement in paragraph 3.

The course of the numerous submarine cables and pipelines located in the area of the German continental shelf can be seen in the latest official nautical charts of the BSH. The actual cable positions may differ from the information on the nautical charts.

The site N-3.5 defined in the SDP 2020 is bounded to the north-east by the DC connection lines "BorWin1" and "BorWin2". To the west and south, the site is bounded by the connection instruction "NOR-3-2" (see the requirement of Section 34 (3)). Parallel to the southern projection of the area, the SDP 2020 defines the route for the three-phase connection system of site N-3.8 to the east of the site. The three-phase connection system "Innogy Nordsee 3" is approved within site N-3.5. According to current knowledge, the "Innogy Nordsee 3" connection will probably not be used.

Parallel to the eastern edge of site N-3.6, the SDP 2020 establishes the connection line "NOR-3-2" (see the requirement of Section 34 (3)). The connection lines "BorWin1" and "BorWin2", which are in operation, run parallel to the north-eastern edge of the site.

The site N-7.2 is cut from west to east by the route for the connection line "NOR-6-3" defined by the SDP 2020 (see the requirement of Section 34 (3)) as well as by the connection lines "BorWin 1" and "BorWin 2" above it, which are in operation, into northern and southern areas. In addition, the active data cable "Atlantic Crossing 2" cuts through the site from the south west to the north-east. In the eastern part, the site is cut from north to south by the operating "NorNed" direct current submarine cable system. Within the southernmost part of site N-7.2, the SDP 2020 establishes a route for the direct current submarine cable system to connect the converter platform located in the site (see the requirement of Section 34 (3)). The active natural gas pipeline "Norpipe" lies largely parallel to the north-eastern edge of site N-7.2.

There is no further information on operational, approved or SDP 2020 designated submarine cables or pipelines within or immediately adjacent to the subject land. However, it cannot be completely ruled out that other active submarine cables or pipelines run within the sites.

Regarding paragraph 3

Among other things, the SDP 2020 defines routes for the transmission system operator's connection lines that connect the respective converter platform. An area of 500 m on both sides of the respective route is to be kept free of development. This also applies to the installation of the farm's internal cabling.

The cabling within the farm must also not cross the route of the connection line of the transmission system operator that connects the respective site. Such a route runs within most of site N-7.2. Such a route also runs between sites N-3.5 and N-3.6.

The requirement serves to ensure the compatibility of the construction and operation of wind turbine installations on the site with the existing or planned offshore connection lines of the transmission system operator. It ensures the safe laying and, if necessary, repair of these cable systems and thus also serves the reliable grid connection of the offshore wind farm on the site in question.

For the construction of a cable crossing, regularly at least rock fills are necessary to protect the overhead (crossing) cable. The prohibition of crossing the route of the transmission grid operator's connection lines defined in the SDP, which connect the respective site, with the cabling within the farm, therefore also excludes a corresponding encroachment on the marine environment through the introduction of hard substrate.

With regard to crossings with further connection lines of neighbouring projects, reference is made to paragraph 1 as well as the requirement of Section 16. In site N-7.2, crossings of the route for the direct current submarine cable system of "NOR-6-3" defined in the SDP 2020 will be required to connect the three northern parts of the site to the location of the converter platform of the connection line "NOR-7-2" defined by the SDP 2020 in the largest, southern part of the site.

Regarding paragraph 4

The SDP 2020 specifies, among other things, a location for the transmission system operator's converter platform with the 66 kV direct connection concept between sites N-3.6 and N-3.5. For site N-7.2, the SDP 2020 specifies a location for the converter platform of the transmission system operator with the 66 kV direct connection concept within the largest sub-area.

In order to ensure the safe erection and reliable operation of the converter platform, the wind turbine installations to be erected on the site must always maintain a distance of 1,000 metres from the location of the respective converter platform. Keeping this clearance around

the site ensures that there is sufficient space next to the converter platform during construction or repair for jack-up or other construction vessels and that the in-farm cabling can be brought up to the converter platform.

In individual cases, the distance between wind turbine installations and the converter platform may be less than 1,000 m, provided that a minimum distance of 500 m is maintained. Such a reduction of the distance is only possible in agreement with the responsible transmission system operator. Due to the spatial proximity between the wind turbine installations of a site and the connection lines including the converter platforms, there is a high need for coordination between the Project Developer of the respective site and the responsible transmission system operator.

Regarding Section 35 (Distance to wind turbine installations in neighbouring sites)

In order to limit shading effects and to ensure stability, a minimum distance of five times the rotor diameter of the wind turbine installations from wind turbine installations on neighbouring sites must be maintained in accordance with planning principle 4.4.2.3 of the SDP 2020. The minimum distance applies between the centres of the respective turbines, whereby the larger rotor diameter is to be taken as a basis. The planning approval authority may allow a smaller distance at the request of the Project Developer of the respective site if the project developer of the neighbouring site agrees and the stability of the installations is guaranteed. The wind turbine installations may not exceed the boundaries of the respective (sub)sites.

The minimum distance requirements only apply to turbines on neighbouring sites, not between turbines on the same offshore wind farm.

If two adjacent sites are put out to tender by the Federal Network Agency in the same year, so that the planning of the offshore wind farms takes place in parallel, close coordination between the project developers with regard to the turbine locations and distances, considering the rotor diameters, is necessary at an early stage in good neighbourly cooperation. Existing installations or projects in the planning approval procedure shall be considered.

Regarding Section 36 (Feed-in at the grid connection point)

According to Section 24 (1) no. 3 WindSeeG, the entitlement to connection and grid connection capacity is limited to the bid quantity awarded. The SDP 2020 additionally establishes a planning principle (4.4.2.4) for the deviation of the actual installed capacity from the allocated grid connection capacity. According to this planning principle, an increase in installed generation capacity is possible to the extent and under the conditions described there, but not an increase in feed-in.

The most efficient utilisation of the grid connection system is basically possible through so-called "Overplanting": According to the explanatory memorandum to Section 24 (1) no. 2 WindSeeG as well as the planning principle (4.4.2.4) on the deviation of the actual installed capacity of the SDP 2020, the Project Developer has the possibility to install additional turbines beyond the allocated grid connection capacity, provided this is permitted by the planning approval decision. This enables efficient utilisation of the connection line or compensation for repair cases. The determination of the number of wind turbine installations to be installed on the site and, if applicable, of a generation capacity exceeding the allocated grid connection capacity shall be performed within the framework of the planning approval procedure.

Regarding Subsection 8 (Other obligations of the Project Developer)

Regarding Section 37 (Construction)

Regarding paragraph 1

The requirement stipulates that the planning, construction, operation and dismantling as well as the design and equipment of offshore installations must correspond to the state of the art or, alternatively, the state of the art in science and technology. This is presumed to be the case if the above standards are met for the areas covered therein.

The specification of compliance with the quality standard, the state of the art in accordance with the standards of subsoil investigation and construction ensures the structural plant safety. The type of documents and evidence to be submitted - including the requirements regarding testing and certification - and the time of submission (submission for 1st, 2nd, 3rd or operational approval or for cable approval or dismantling approval as well as applications for approvals in individual cases) result in detail from the Standard Subsoil Investigation and the Standard Construction.

The requirement that offshore installations must comply with the state of the art is necessary because the state of the art is the relevant minimum standard (cf. Section 47 (1) no. 5 WindSeeG). Insofar as no state of the art is available to enable offshore installations to be realised, the latest state of the art, the state of science and technology that has not yet found its way into the state of the art, can be used as an alternative.

Regarding paragraph 2

During operation, technical faults in the systems cannot be ruled out. At the same time, platforms are also often not permanently manned. Permanent access (24/7) to a facility at sea cannot be assumed, for example due to the weather. Moreover, the facility can only ever be reached from land with a delay due to the journey. Therefore, the control and monitoring capabilities of the installations must be adapted to these circumstances at sea. The Project Developer must ensure that it is also possible to respond to relevant incidents at the offshore installations via remote access. Full access must therefore be possible from the control room to such systems whose failure or malfunction could jeopardise the integrity of the offshore platform, the safety of traffic or the marine environment.

Regarding Section 38 (Identification, documentation and reporting of objects and constructed installations)

Regarding paragraph 1

The preliminary investigation performed as part of the preliminary investigation, the documents of which will be made available as part of the announcement of the call for tenders, can be evaluated with regard to existing cables, lines, obstacles, wrecks, found munitions, cultural and material assets and other objects, and may provide initial indications. Sites of the above-mentioned objects should be considered when planning the locations and routes of the facilities.

During the preliminary investigations, hydrographic surveys identified an anthropogenic object on site N-3.6. Objects were detected on site N-3.5 that could not be specified in more detail.

A legally protected biotope could not be identified. If, contrary to the results of previous investigations, marine erratic boulders or stone fields are found, they shall be dealt with as biotopes protected by law according to Section 30 BNatSchG in accordance with the specifications of the BfN mapping instructions for "reefs" in the German EEZ.

The seabed may contain cultural assets of archaeological value, such as soil monuments, settlement remains or historic shipwrecks. According to Article 149 of the Convention on the Law of the Sea, found objects of an archaeological or historical nature are to be preserved or used for the benefit of all mankind. In the event of the discovery of any cultural and material assets, the planning approval authority shall regularly order the Project Developer to take appropriate measures, with the involvement of monument protection and heritage authorities, to ensure that scientific investigations and documentation of the assets can be performed before the start of construction work and that objects of an archaeological or historical nature can be preserved and conserved either on site, which is the priority, or by salvage. The procedure is to be agreed in detail with the planning approval authority (with the involvement of monument protection and monument specialist authorities). The preservation of cultural heritage, in particular underwater archaeological heritage, is in the public interest within the meaning of Section 48 (4) sentence 1 no. 8 WindSeeG.

By querying the BSH's database of underwater obstacles and integrating the German Maritime Museum's database of cultural objects in the EEZ, known information can be retrieved from these bodies.

A known shipwreck is located within the southernmost, largest part of site N-7.2, as well as to the south of each site. Reference is made to the specification of the 0.

Regarding paragraph 2

In 2011, a Federal-state working group published a basic report on munitions contamination in German marine waters, which is updated annually. According to current knowledge, the contamination of the German Baltic Sea is estimated at up to 0.3 million tonnes and the German North Sea at up to 1.3 million tonnes of found munitions. The overall data situation is insufficient, so that it can be assumed that found munitions are also to be expected in the area of the German EEZ (e.g. remnants of mine barriers and combat operations). The location of the known munitions dumping areas can be found on the official nautical charts as well as in the above-mentioned 2011 report (which also includes suspected areas for munitions-contaminated areas). The reports of the Federal-state Working Group are available at www.munition-im-meer.de.

During the preliminary investigation of the site, no finds of munitions were identified. The results of the subsoil investigations were also not evaluated in this respect. Accordingly, the suitability determination does not include an assessment with regard to the possible presence of found munitions in the site.

The explicit mention of explosive ordnance follows from DIN 4020, according to which the client is responsible for ensuring that the building is free of explosive ordnance. This task remains with the subsequent offshore wind farm operator as a duty to avert danger within the framework of the general duty of care. The latter shall take measures to protect its employees.

The respective Project Developer is responsible both for the identification and investigation of found munitions and for all resulting protective measures. Within this framework, the Project Developer is also responsible for salvage or removal. The responsibility of the Project Developer also includes its duty to bear the costs of identification, exploration, the resulting protective measures and the salvage or removal of unexploded ordnance. If found munitions are found, this must be documented immediately and reported to the planning approval authority. Findings of munitions and the further handling thereof must also be reported to the Maritime Safety Centre Cuxhaven (Joint Control Centre of the Water Police of the Coastal States, Central Reporting Centre for Ammunition in the Sea).

Blasting of found munitions is generally not permitted. If blasting for the removal of munitions (munitions that cannot be transported) is unavoidable, a noise protection concept must be submitted to the planning approval authority in good time beforehand. The specification of a noise abatement concept is necessary in order to avoid endangering the marine environment through noise emissions even in the exceptional case of the blasting of munitions that cannot be transported. In particular, this also serves to avoid injury and killing of the harbour porpoise as a specially protected species within the meaning of Section 44 (1) no. 1 BNatSchG and to avoid or reduce disturbance of the harbour porpoise as a strictly protected species within the meaning of Section 44 (1) no. 2 BNatSchG.

Transportable munitions found must not be dumped again after recovery, but must be disposed of properly on land in consultation with the responsible explosive ordnance disposal services of the States. The corresponding details of any protective measures that may become necessary will be regulated in the planning approval procedure.

It is recommended that detailed historical research on the possible presence of found munitions be performed as part of the concrete planning of the project.

Regarding paragraph 3

The seabed may contain cultural assets of archaeological value, such as soil monuments, settlement remains or historic shipwrecks.

Within the scope of the suitability assessment and determination, in particular the underlying preliminary site investigations of the bathymetry as well as the side scan sonar and the magnetometer are compared and, if necessary, verified by means of Remotely Operated Vehicles (ROV). These results will be evaluated within the framework of the preliminary investigation with regard to soil as an object of protection. Cultural assets identified in this evaluation process, such as shipwrecks, are included in the suitability assessment. No separate examination of the site for cultural assets is performed as part of the preliminary investigation.

The preliminary investigation and, if necessary, further information from the evaluation of literature or relevant databases should form the basis for the evaluation for the presence of cultural property. Thus, the specification serves as a basis for measures to protect cultural property within the framework of the suitability determination.

With regard to the shipwrecks known in and adjacent to site N-7.2, reference is also made to Section 39. Thereafter, an exclusion zone shall be maintained for each of these as a precautionary measure and the planning approval authority may issue orders regarding further scientific investigations and documentation of the properties as well as their preservation and conservation. According to Section 39 (1), the shipwreck immediately to the south of the site is outside the pre-survey area.

Regarding paragraph 4

The requirement is based on Section 48 (9) WindSeeG. It ensures that the exact positions of the constructed facilities can be surveyed in a timely manner and that these can also be made known and accessible via the BSH nautical charts and the CONTIS specialist information service. The requirement serves the safety and ease of traffic within the framework of the suitability determination.

The requirements for the positional accuracy to be measured as well as the documentation shall be determined by the competent authority in the planning approval procedure.

Regarding Section 2 (Special requirements for site N-7.2)

Regarding Section 39 (Special provisions on compatibility with cultural property)

According to Article 149 of the Convention on the Law of the Sea, found objects of an archaeological or historical nature are to be preserved or used for the benefit of all mankind. The preservation of cultural heritage, in particular underwater archaeological heritage, is in the public interest within the meaning of Section 48 (4) sentence 1 no. 8 WindSeeG. With regard to the general requirement for dealing with cultural and material assets, reference is made to 0. There are two known shipwrecks in and adjacent to site N-7.2 that require a special stipulation.

Regarding paragraph 1

Immediately south of site N-7.2 is the shipwreck centred at 54°16.2354'N; 006°18.5607'E; WGS84.

According to information from the Mecklenburg-Western Pomerania State Office for Culture and Monument Preservation, the Lower Saxony State Office for Monument Preservation and the Schleswig-Holstein State Archaeological Office dated 18 August 2021, the shipwreck can be dated to the period from the middle of the 19th century to 1945. According to the cited notice, it is an archaeological ground monument. The wreck must therefore be protected. The specification of the exclusion zone corresponds to the recommendation of the state offices.

No impact of any kind on the seabed or the shipwreck shall take place in the exclusion zone.

Regarding paragraph 2

In the largest part of site N-7.2 lies the shipwreck with centre 54°16.9768'N; 006°15.8848'E; WGS84. The wreckage is not in the site. However, due to the short distance to the site, it

cannot be ruled out that the site may be affected in the course of the construction and operation of the wind farm.

According to the Mecklenburg-Western Pomerania State Office for Culture and Monument Preservation, the Lower Saxony State Office for Monument Preservation and the Schleswig-Holstein State Archaeological Office on 11 February 2021, the shipwreck can probably be dated to the period from the mid-19th century to 1945. However, no characteristic features could be identified that would allow a clear classification of the wreck. Until the wreck is further classified, its location must be protected. The specification of the precautionary exclusion zone corresponds to the recommendation of the state offices.

No impact of any kind on the seabed or the shipwreck shall take place in the exclusion zone.

Regarding paragraph 3

As the shipwrecks could not be conclusively classified, there may be a need for further investigations. From the results of these investigations it can be deduced whether and which protective measures are necessary. The involvement of the heritage and monument authorities is essential in assessing whether each is a cultural heritage site and how it should be protected.

The planning approval authority may issue appropriate orders to the Project Developer.

Regarding Part 3 (Determination of the capacity to be installed)

Regarding Section 40 (Determination of the capacity to be installed)

The legal basis for the determination of the capacity to be installed is Section 12 (5) sentence 1 in conjunction with Section 10 (3) WindSeeG.

Regarding paragraph 1

A capacity of 420 megawatts (MW) to be installed is determined for site N-3.5. This corresponds to the expected capacity to be installed as defined in the SDP 2020.

As part of the update of the SDP 2020, a power potential of around 420 MW was determined for site N-3.5. Within the scope of the suitability assessment, no changes have arisen for site N-3.5 compared to the SDP 2020 that require or enable an adjustment of the capacity to be installed.

Regarding paragraph 2

A capacity of 480 MW to be installed is determined for site N-3.6. This corresponds to the expected capacity to be installed as defined in the SDP 2020.

Within the scope of the suitability assessment, no changes have arisen for site N-3.6 compared to the SDP 2020 that require or enable an adjustment of the capacity to be installed.

Regarding paragraph 3

A capacity of 980 MW to be installed is determined for site N-7.2. This capacity to be installed is 50 MW higher than the expected capacity to be installed specified in the SDP 2020. Nevertheless, the SDP informatively indicates a capacity of up to 1050 MW.

Current feedback from the transmission system operators (TSOs) at the time of preparing the draft of this legal ordinance on the connection system showed a connection capacity 50 MW higher than still anticipated in the SDP 2020. The determination of the capacity to be installed must be adjusted for this higher connection capacity. As already stated in the SDP 2020 and confirmed with the suitability assessment, the site provides this capacity.

The limiting framework condition, both according to the current suitability assessment and already according to the justification of the SDP 2020, is the transmission capacity of the NOR-7-2 DC connection line and the currently available connection capacity at the Büttel grid interconnection point. The availability of an alternative grid connection point is not given.

The TSOs' statement on the SDP 2020 of 20 July 2020 states that an increase in the transmission capacity of the corresponding grid connection system NOR-7-2 could possibly be technically guaranteed, but that the necessary adjustments would probably jeopardise the timely completion of the grid connection system in 2027. However, with the current findings of the transmission system operator, no threat to the timely completion and grid connection has been identified to the extent of the 50 MW increase that is now to be determined.

According to the statement of the TSOs on the SDP 2020 as well as current findings from the suitability assessment, a further increase in the capacity to be installed beyond 980 MW would probably violate the so-called UCTE criterion (Entso-E policy 1 rules and regulations) for the total generation capacity connected at the Büttel grid interconnection point of more than 3 GW. Connecting more than 3 GW of generation capacity would require structural measures to separate the grid connections, which cannot be implemented at the Büttel site due to the space currently available.

In view of the measures required, timely completion of the NOR-7-2 connection line to connect site N-7.2 can only be guaranteed at the present time with a maximum capacity of 980 MW.

The most efficient utilisation of the grid connection system is basically possible through so-called "Overplanting": According to the explanatory memorandum to Section 24 (1) no. 2 WindSeeG as well as the planning principle (4.4.2.4) on the deviation of the actual installed capacity of the SDP 2020, the Project Developer has the possibility to install additional turbines beyond the allocated grid connection capacity, provided this is permitted by the planning approval decision. This enables efficient utilisation of the connection line or compensation for repair cases. The determination of the number of wind turbine installations to be installed on the site and, if applicable, of a generation capacity exceeding the allocated grid connection capacity shall be performed within the framework of the planning approval procedure.

The wreckage located in site N-7.2 does not require any further reduction in the capacity to be installed. Due to the required distances between the individual wind turbine installations and the determination of the capacity to be installed at 980 MW due to the limited capacity of the grid connection, sufficient space is available for the installation of the wind turbine installations, so that a reduction of the capacity to be installed is not necessary.

Within the framework of the suitability assessment, there were therefore no changes for site N-7.2 in the overall view beyond the increase from 930 MW to 980 MW compared to the SDP 2020.