NRW Band 2 Marine Licence Application
Deep Geotechnical Survey Technical Note

Version 1.0 – Issued January 2022

1. Introduction

bp and Energie Baden-Württemberg AG (EnBW) have been awarded preferred bidder status for two offshore wind leases in the Irish Sea as part of The Crown Estate Offshore Wind Leasing Round 4, named Mona and Morgan. To inform the development of the projects, bp and EnBW intend to carry out a survey campaign commencing in Spring 2022.

The survey proposed within this Welsh Marine Licence Application consists of deep geotechnical boreholes up to 80 m depth below seabed (bsb) and Piezo Cone Penetration Tests (PCPTs) up to 60 m depth bsb within the Mona bidding area, which is predominantly within Welsh waters. As PCPTs do not involve the removal of any seabed sediment, this is considered a non-licensable activity under the Marine and Coastal Access Act (see Section **Error! Reference source not found.**), although PCPT activities have been included in this technical note for completeness and for information only. Further information on the survey methodology is provided in Section 4. A Marine Licence for the survey within English waters is being sought from the Marine Management Organisation (MMO). MarineSpace is acting as the agent to obtain relevant consents for this deep geotechnical survey.

This technical note sets out the proposed scope of the survey, relevant legislative and policy context, associated potential impacts and mitigation measures to help inform the marine licensing decision-making process in Welsh waters.

2. Relevant Legislation and Policy

2.1. Marine and Coastal Access Act 2009

Under the Marine and Coastal Access Act 2009, a marine licence is required for carrying out a 'licensable marine activity', including construction works on the seabed, depositing of any object, certain removals from the seabed, dredging and aggregate extraction.

The Welsh Government is the licensing authority for the Welsh inshore and offshore region. The Marine Licensing Team (MLT) in Natural Resources Wales (NRW) administer marine licences on behalf of the Welsh Government.

Marine licensable activities, as defined under the Marine and Coastal Access Act 2009, can be summarised as:

- Deposit any substance or object, in the sea or on or under the seabed;
- Construct, alter or improve any works either in or over the sea or on or under the seabed;
- Use a vehicle, vessel, aircraft, marine structure or floating container to remove any substance or object from the seabed; and
- Carry out any form of dredging, whether or not involving the removal of any material from the sea or seabed.

The proposed survey works include the removal of seabed sediment using a vessel and constitute a marine licensable activity under the Marine and Coastal Access Act 2009. Therefore, a marine licence application is required from NRW MLT for the survey within Welsh waters.

2.2. Welsh National Marine Plan

The Welsh Government adopted the first Welsh National Marine Plan (WNMP) (Welsh Government, 2019) covering Welsh inshore and offshore waters in November 2019. The plan has been developed in accordance with the Marine and Coastal Access Act 2009, the UK Marine Policy Statement and the Marine Spatial Planning Directive.

Under the Marine and Coastal Access Act, all public authorities must consider relevant Marine Plans when making decisions regarding the marine area, in this case the WNMP. This ensures that marine resources are used in a sustainable way in line with high-level marine objectives.

A summary of the WNMP policies relevant to the proposed survey is outlined in Table 2.1. A full WNMP assessment accompanies the marine licence application as a supporting document.

Table 2.1: Summary of the Welsh National Marine Plan policies relevant to the proposed survey

Relevant Welsh National Marine Plan Policy	How the survey adheres to the Policy
ELC_01: Low carbon energy (supporting) wind **ELC_01 a**: Proposals for offshore wind energy generation will be supported where they contribute to the objectives of this plan. Proposals should comply with the relevant general policies and sector safeguarding policies of this plan and any other relevant considerations. Proposals for wind >350MW will be considered by UK Government in accordance with relevant national policy. In determining an NSIP for a wind proposal, the decision maker will have regard to this plan. Any determination in relation to energy developments of any scale will be taken in accordance with this plan alongside any other relevant considerations. **ELC_01 b**: In order to understand future opportunities for offshore wind development, including floating technologies, this plan supports strategic planning for the sector. Relevant public authorities and the sector are encouraged, in liaison with other interested parties, to collaborate to understand	The geotechnical survey will inform the development of the two Round 4 offshore wind farm sites, Morgan and Mona, which will contribute up to 3 GW of renewable energy to Wales and the rest of the UK. Conducting comprehensive offshore surveys and using the data to inform the design and environmental assessments of the projects can help ensure sustainable marine development, getting the right project in the right location and avoiding environmental and other sensitivities where possible.

Relevant Welsh National Marine Plan Policy	How the survey adheres to the Policy
opportunities for the sustainable use of wind energy resources including identification of: • natural resources that provide potential opportunity for future use; • evidence to de-risk consenting for the sector; and • opportunities to define and, once in place, further develop and refine Strategic Resource Areas for offshore wind energy resource safeguarding; in order to support the sustainable development of the sector through marine planning. Relevant public authorities should make appropriate evidence available to support planning and decision making in order to support the sustainable development of the sector through marine planning, where it is appropriate to do so.	
ENV_02: Marine Protected Areas Proposals should demonstrate how they: • avoid adverse impacts on individual Marine Protected Areas (MPAs) and the coherence of the network as a whole; • have regard to the measures to manage MPAs; and • avoid adverse impacts on designated sites that are not part of the MPA network.	The proposed survey will not take place within any protected area (see Figure 3.1 which shows Marine Protected Areas in the wider vicinity of the survey areas) and will not have an adverse negative impact on protected areas.
SOC_05: Historic assets Proposals should demonstrate how potential impacts on historic assets and their settings have been taken into consideration and should, in order of preference: a. avoid adverse impacts on historic assets and their settings; and/or b. minimise impacts where they cannot be avoided; and/or c. mitigate impacts where they cannot be minimised. If significant adverse impacts cannot be avoided, minimised or mitigated, proposals must present a clear and convincing case for proceeding. Opportunities to enhance historic assets are encouraged.	The survey works will not have a significant impact on marine historic assets. The positioning of the borehole and PCPT locations will be informed by geophysical survey data as well as avoiding known archaeological feature locations and as such will be designed to avoid heritage assets.
GOV_02: Cross-border and plan compatibility	The proposed survey is located within Welsh and English waters. Relevant

Relevant Welsh National Marine Plan Policy	How the survey adheres to the Policy
Relevant public authorities, in making their decisions, should have regard to: • any applicable policy in a relevant marine plan; • any applicable policy in relevant terrestrial development plans or related documents; • the Natural Resources Policy; • any relevant local well-being plan(s) (including the local well-being assessment); and • evidence in any relevant Area Statement(s) produced by Natural Resources Wales (NRW).	consents are being sought from the different authorities as required, including the Marine Management Organisation, Isle of Man Department of Environment, Food and Agriculture and a Seabed Survey Licence from The Crown Estate.

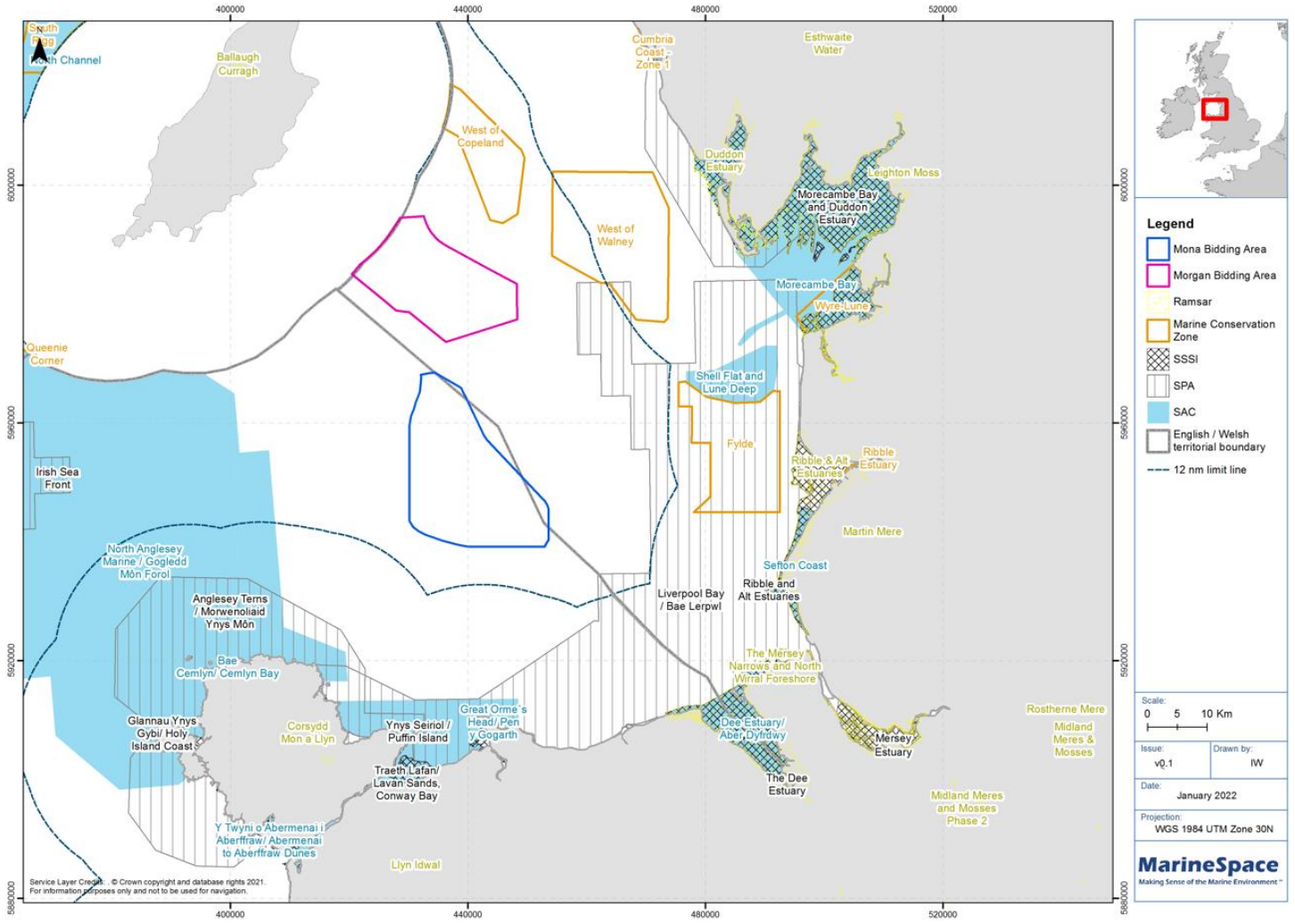
3. Survey Locations

The survey will be undertaken within the Morgan and Mona bidding areas, illustrated in Figure 3.1. The Morgan site is located in English offshore waters (approximately 35 km from the English coast), and the Mona site primarily within Welsh offshore waters with a small proportion within English waters (approximately 30 km from the Welsh Coast). This application includes boreholes and reference to deep PCPT activities located within Welsh waters at the Mona site only.

The specific borehole and PCPT locations are not yet determined. However, they will be spread across the bidding area so that the maximum variety of geological and geotechnical conditions can be identified. The determination of the locations will be based on the results of geophysical survey data acquired in 2021. The locations will also be screened by geophysical survey techniques prior to execution of geotechnical activities for identification of potential hazards such as obstacles, objects or potential unexploded ordnance (UXO). This will be undertaken by a separate geophysical survey vessel in April 2022 using Side Scan Sonar, Multibeam Echo Sounder and Magnetometer equipment.

The range of water depths is approximately 33 m LAT to 46 m LAT in Mona (LAT = Lowest Astronomical Tide).

Figure 3.1: Morgan and Mona Deep Geotechnical Survey Areas in relation to Designated Sites



Note: Bidding Areas shown are the areas being surveyed for the deep geotechnical survey

4. Survey Methods

To inform the development of the Morgan and Mona offshore wind farms bp and EnBW intend to carry out deep geotechnical offshore survey activities commencing in Spring 2022.

The deep geotechnical surveys will include:

- 16 boreholes within the Welsh waters of the Mona bidding area (up to an approximate depth of 80 m below seabed (bsb) and up to 229 mm diameter); and
- 80 deep PCPTs in the Mona bidding area (between 10 and 60 m deep).

The methods for the above survey are outlined in the sections below. In the event that the equipment described below is unavailable, alternative equipment with a similar specification and capability will be substituted.

The survey will be carried out by the Dynamically Positioned (DP) Fugro Synergy vessel, or a vessel with similar capability depending on availability.

4.1. Boreholes

Up to 16 boreholes in the Mona bidding area (within Welsh waters) will be undertaken. The borehole casing/ core diameter will be up to 229 mm and the core will be up to 80 m deep, as detailed in Table 4.1. Geotechnical samples via coring will be taken for laboratory analysis and testing. All samples will be utilised for testing and analysis. Following sample collection the boreholes will backfill naturally.

Drilling for the boreholes will primarily be undertaken using the Fugro SEADEVIL™ drilling equipment in American Petroleum Institute (API) drilling mode combined with the Fugro extended marine core barrel (FXMCB). The SEADEVIL™ combines both vessel-based and seafloor drilling and provides a vertical control system (VCS) at seabed to control seafloor penetration independent of vessel heave. The seabed frame used for the SEADEVIL™ has a footprint of 3 x 3 m. Figure 4.1 shows the SEADEVIL™ onboard a vessel. Where required, a bentonite based drilling fluid will be used.

Table 4.1: Borehole Drilling Options and Estimated Sediment Volumes

	Number of boreholes	Diameter (mm)	Maximum depth (m)	Total volume collected per sample (m^3)	Total volume collected (m^3)
Mona bidding area	16	229	80	3.3	52.8

Figure 4.1: Fugro SEADEVIL™ (Fugro, 2021)

Drilling is performed from a dynamically positioned vessel using soil boring equipment (the SEADEVIL™), which is lowered through a central moon pool on the vessel. At the start of a borehole the SEADEVIL™ is lowered onto the seabed and the drill string is lowered until the bit lands on the closed pipe clamp. Then the drill string is clamped by the chuck and the string is lowered by the feed system through the opened pipe clamp onto the seabed to start drilling operations. After drilling and performing the in situ logging tests (see below) the SEADEVIL™ will lift the drill string, including the downhole tools and be retrieved to the vessel. Geotechnical drilling (rotary) typically generates noise levels between 2Hz – 50kHz at 160 dB re 1µPa @ 1m.

The primary method of obtaining cores following drilling will be the American Petroleum Institute (API) drilling method described above, using the Fugro extended marine core barrel (FXMCB). However, the Geobor-S Piggyback coring system may be used as a secondary drilling and coring system in the final 4 weeks of the survey with the aim of targeting particular soil and rock units, if weather allows, or alternatively the Fugro SQ coring system may be used. Up to 8 of the boreholes are anticipated to be executed with the secondary coring solution.

The use of a dedicated Geobor-S coring string working through a riser in a 'piggyback' formation offers many advantages over conventional wireline drilling/coring when sampling in rock. This is achieved by installing a land coring rig into the heave-compensated platform of the main drill system, from which dedicated coring strings can be deployed. The main advantages of this system are:

- Much higher speeds (in terms of revolutions per minute) can be achieved using a land coring rig; Use of a dedicated coring string reduces the area drilled compared with conventional API drilling, increasing penetration while capturing a higher amount of core; and

- Working from the heave-compensated platform increases control and accuracy of depth and weight on bit (WOB) over the drilling operation, resulting in higher core quality and recovery as the coring rig is stationary with respect to the seabed.

To complement the Fugro SEADEVIL™, Fugro has developed a wireline coring system capable of taking SQ-sized core samples in competent rock formations. The system makes use of industry standard 1.5 m SQ core barrels with a Fugro designed bottom-hole assembly, drill bit and drill pipe.

Borehole geophysical logging (BGL) will be undertaken by a Caliper tool used to measure borehole diameter and provide information on borehole geometry, rugosity and general condition (e.g. borehole stability, swelling, caving). In addition, a P and S suspension logger (PSSL) will be used to measure acoustic waveforms for deriving discontinuous primary (P-) wave and shear (S-) wave interval velocities in the formation.

4.2. Piezo Cone Penetration Tests

PCPTs do not involve the removal of any seabed sediment and are therefore considered non-licensable under the Marine and Coastal Access Act. However, PCPTs have been included in this technical note for completeness and information only. Up to 80 deep seabed PCPTs in the Mona bidding area (within Welsh waters) will be undertaken. The PCPTs will be up to 60 m deep. The temporary hole left by the seabed PCPT in the seabed will backfill naturally.

The PCPTs will be deployed from the vessel. The SEACALF MKV system will be positioned directly on the seafloor (see Figure 4.2). This seabed PCPT system has deeper penetration capacity than usual systems and uses a coiled push rod and compact continuous thrust machine to increase efficiency, ease of handling and reliability. 10 cm^2 PCPT cones will be provided to allow testing of the soil conditions encountered. The unit would drive the cone into the seabed at the standard rate of 2 cm/ second. The CPTs will continue until target depth, maximum thrust of the equipment has been achieved or refusal occurs (e.g. due to reaching weathered or pure bedrock).

Seismic Cone Penetration Tests (SCPTs) may be undertaken by adding geophone sensors above a cone penetrometer. As such, wave velocities can be measured next to normal PCPT parameters such as cone resistance, sleeve friction, inclination and pore pressure. Figure 4.3 shows the typical set up for SCPT in downhole mode.

Figure 4.2: Fugro SEACALF System

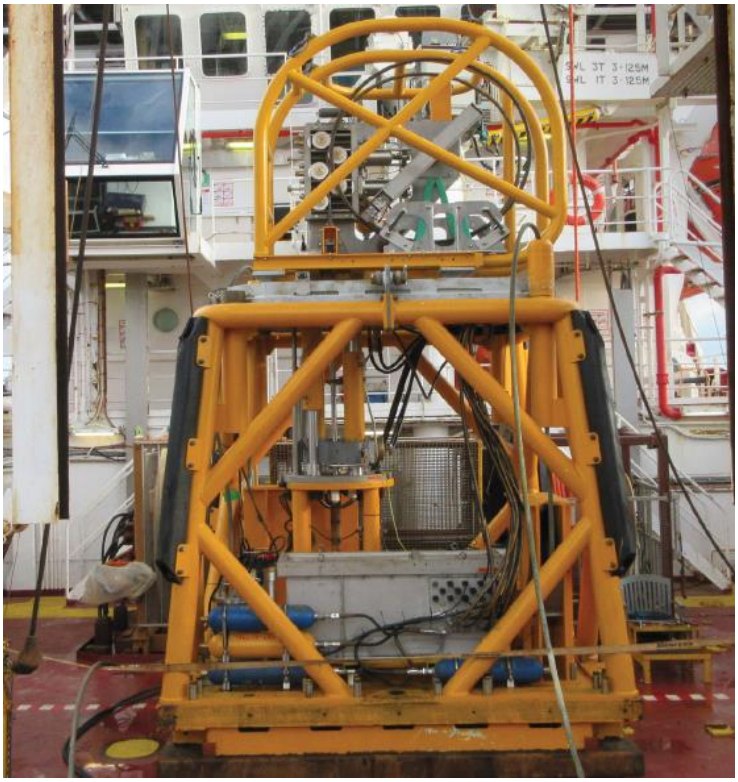
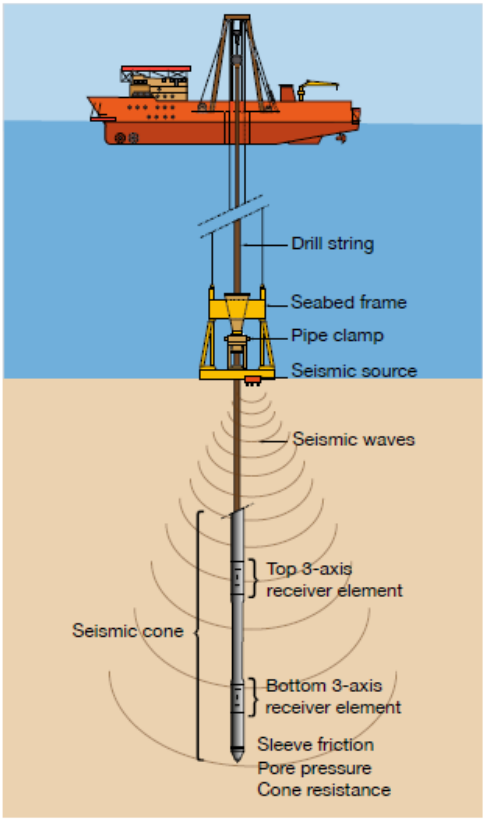


Figure 4.3: Typical Set Up for SCPT in Downhole Mode (source: Fugro)



4.3. Survey Programme

The boreholes and PCPTs are planned to be undertaken between May and October 2022. It is anticipated that within this window the boreholes will take approximately 129 days to complete and the CPTs will take approximately 20 days, depending on weather. Please note that the 129 days includes aspects of the survey in both Welsh and English waters. However, a licence is requested from 01 April 2022 extending until 31 March 2023 to allow contingency in the programme should the survey be delayed, for example, due to weather downtime.

5. Potential Environmental Impacts

This section outlines environmental receptors that could potentially be affected by the survey.

Table 5.1 Potential for Environmental Impacts

Environmental Receptor	Potential Activity Impact
Physical Processes	Some localised suspended sediment and resettlement may occur due to interaction of equipment with the seabed (footprint of 9 m^2 per borehole). However, these impacts will be localised and small in scale. Any depressions or marks left in the seafloor following the proposed survey will naturally backfill. It is anticipated given the scale of activities and the mobile nature of the marine environment there will be no impact on physical processes.
Benthic Ecology	Impacts on benthic ecology are expected to be limited and temporary within the footprint of the survey (footprint of 9 m^2 per borehole). Direct damage via crushing is likely to occur within the equipment footprint. Smothering as a result of sediment settlement following potential increases in suspended sediment concentration (SSC) is possible. However, this impact is likely to be localised and small in scale. The significance of these impacts will depend on the sensitivity of the benthic species to disturbance, however as the impacts are limited in scale, recolonisation from the surrounding seabed is likely to be rapid. The specific locations will further be informed by the 2021 geophysical survey data and benthic grab samples and drop-down video/ camera data used to avoid sensitive habitats, and therefore any impact of the survey on benthic ecology will be negligible.
Fish and Shellfish	Potential impacts on fish and shellfish may arise through presence of the survey vessel, noise from the survey and increased suspended sediments. Direct damage via crushing is likely to occur within the equipment footprint (9 m^2 per borehole), which may impact shellfish, or benthic fish species that may have limited mobility. Smothering as a result of sediment settlement following potential increases in SSC is possible. However, this impact is likely to be localised and small in scale. These species will likely recover rapidly following the survey via recolonisation from the surrounding seabed. Mobile species are unlikely to be affected, with short term avoidance behaviour likely to mitigate potential injury or mortality. Any impact from installation activities on fish and shellfish will be negligible given the general high mobility of the species in the area, the short duration of the survey and the small footprint of the survey.
Ornithology	Potential impacts of survey operations on marine and coastal birds are limited given their wide ranges, the limited duration of the survey and the use of only one vessel for the activities. Impact pathways including lighting, noise and disturbance have the potential to occur during the survey. It is unlikely that foraging activities will be impacted for ornithological receptors given their high mobility and therefore potential to relocate for the limited period of time during which the survey is undertaken. Additionally, given the existing marine traffic in

Environmental Receptor	Potential Activity Impact
	the Irish Sea, ornithological receptors will likely be habituated to vessel movements. It is therefore determined that any impacts on birds will be negligible.
Marine Mammals	Potential impacts on marine mammals may arise through presence of the survey vessel and noise generation from the survey. The geotechnical survey will result in low frequency sound and at level within the typical sound levels produced by general shipping. Therefore, it is considered that there is no potential for injury, and any possible temporary disturbance would likely result from vessel presence rather than borehole activities. There is the potential for foraging activities to be disrupted within a limited region as a result of suspended sediment and noise. However, this impact is likely to be both localised and temporary. Further, marine mammal receptors are highly mobile, and will likely relocate for the duration of the survey. Given the short-term nature of the survey activities, there is unlikely to be a significant impacts on marine mammals either in terms of collision or entanglement with equipment. In addition, marine mammals present in the installation area will be familiarised to vessel movements and noise given the level of existing activity. It is therefore determined that any impacts on marine mammals will be negligible.
Protected Sites	Potential impacts on protected sites, including Sites of Special Scientific Interest (SSSI), Special Protected Areas (SPAs) and Special Areas of Conservation (SACs) are considered further in Section 5.1 to 5.3 below.
Shipping and Navigation	The survey vessel will be in operation for only a short period, notice to mariners will be provided and the vessel will display the appropriate navigational signals. As such no impact to shipping and navigation is predicted.
Commercial Fisheries	The survey vessel will be in operation for only a short period, notice to mariners and kingfisher notifications will be provided and the vessel will display the appropriate navigational signals. As such no impacts to commercial fisheries are predicted.
Marine Archaeology and Cultural Heritage	The survey will not have a significant impact on marine historic assets. The positioning of the borehole and PCPT locations will be informed by geophysical survey data as well as known archaeological features and as such will be designed to avoid heritage assets.
Marine Infrastructure	The survey will not have a significant impact on other existing marine infrastructure. The positioning of the borehole and PCPT locations will be informed by geophysical survey data as well as known infrastructure locations and as such will be designed to avoid interactions with existing infrastructure.

5.1. Habitats Regulations Assessment Screening

No sites within the UK National Sites Network (including Natura 2000 sites) or Ramsar sites are located within the offshore bidding areas. **Error! Reference source not found.** presents the sites that are within the wider vicinity of the survey and the potential for interaction with the survey.

Table 5.2: Habitats Regulation Assessment Stage 1 Screening: Special Protection Areas (SPA) and Special Areas of Conservation (SAC) within the vicinity of the survey

SAC/SPA	Reason for Designation	Distance to Bidding Area	Potential for Interaction
Liverpool Bay SPA	Classified for the protection of red-throated diver (*Gavia stellata*), common scoter (*Melanitta nigra*), and little gull (*Hydrocoloeus minutus*) in the non-breeding season; common tern (*Sterna hirundo*) and little tern (*Sterna albifrons*) in the breeding season, and an internationally important waterbird assemblage.	10 km	The proposed activities may cause temporary acoustic disturbance to birds during activities or visual disturbance due to vessel presence. However, the level of noise associated with the survey will be low and is unlikely to be discernible above that associated with background vessel activity. Of the classified populations listed for this site, red-throated diver is considered the most sensitive to disturbance or displacement from vessel presence. SNCB advice[1] currently states that disturbance to this species may occur within a range of 10 km. As such, it is considered there is minimal risk of visual disturbance/displacement from activities as the survey will be undertaken at least 10km from Liverpool Bay SPA. In view of these points, it is determined that there is no potential for adverse effects on the classified bird populations of Liverpool Bay SPA.
Anglesey Tern / Morwenoliaid Ynys Môn SPA	Breeding Season - Roseate tern *Sterna dougallii* - Common tern *Sterna hirundo* - Arctic tern *Sterna paradisaea* Sandwich tern *Sterna sandvicencis*	21.2 km	The proposed survey may cause acoustic disturbance during survey activities or visual disturbance due to vessel presence. However, the level of noise associated with the survey will be low and is unlikely to be discernible above that associated with background vessel activity. Tern are not considered sensitive to disturbance due to the presence of vessels. Statutory Nature Conservation Bodies (SNCB) advice[2] currently

[1] https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/Joint-SNCB-Interim-Displacement-AdviceNote-2017-web.pdf.

[2] https://data.jncc.gov.uk/data/9aecb87c-80c5-4cfb-9102-39f0228dcc9a/Joint-SNCB-Interim-Displacement-AdviceNote-2017-web.pdf.

			states that disturbance may occur within a range of 10 km. As such, it is considered there is minimal risk of visual disturbance/displacement from survey activities. In view of these points, it is determined that there is no potential for adverse effects on the classified populations Anglesey Tern/ Morwenoliaid Ynys Môn SPA.
North Anglesey Marine / Gogledd Môn Forol SAC	Annex II species that are a primary reason for selection of this site: Harbour porpoise *Phocoena phocoena*	22.6 km	The proposed survey may cause acoustic disturbance during survey activities (drilled boreholes) and disturbance from the presence of vessels. The survey area is located within the Celtic and Irish Seas harbour porpoise Marine Mammal Management Unit (MMMU), and the closest SAC is North Anglesey Marine/ Gogledd Môn Forol SAC at a distance of 22.6 km. Harbour porpoise are sensitive to frequencies higher than 10 kHz (Dekeling et al. 2014) with an approximate effective deterrent range at 26 km. Geotechnical drilling (Rotary) is typically between 2Hz – 50kHz at 160 dB re 1µPa @ 1m. Higher frequencies do not travel as far as lower frequency noise underwater (JNCC *et. al*, 2020). Although the rotary drilling will be within the sensitivity range for harbour porpoise, the survey area is located at a reasonable distance from the SAC resulting in much reduced noise levels which will be below the 10 kHz sensitivity threshold. Therefore, no likely significant effect is anticipated from the survey on the classified population of the North Anglesey Marine/ Gogledd Môn Forol SAC.

5.2. Marine Conservation Zone Screening Stage Assessment

No Marine Conservation Zones (MCZ) are located within the survey areas. The nearest MCZ, West of Copeland, designated for subtidal coarse sediment, subtidal sand and subtidal mixed sediments, is located over 20 km to the north of the Mona bidding area.

Given the distance to the nearest MCZ, the reasons for designation and the small spatial extent and nature of the proposed survey, no interactions are anticipated with these sites.

5.3. Sites of Special Scientific Interest

The survey areas are located over 30 km offshore, at the closest point of the Mona bidding area. Therefore, there are no anticipated interactions between the survey and any SSSIs.

5.4. Water Framework Directive Compliance Assessment

Although the survey is located beyond 12 nautical miles from the shore, in line with NRW Marine Licensing Team guidance, a separate WFD compliance assessment has been undertaken. The WFD Screening Assessment concluded that the survey works do not present any potential implications to WFD objectives.

6. Best Practice and Proposed Mitigation Measures

The following mitigation measures and environmental best practice will be adhered to throughout the survey work to minimise risk to the marine environment:

- The locations of the boreholes will be informed by geophysical data and environmental benthic data collected during a 2021 survey of the area and will also be screened by geophysical survey techniques prior to execution of geotechnical activities. Therefore, geotechnical locations will be sited to avoid sensitive habitats (such as potential Annex I habitat), potential archaeological features and other potential hazards such as UXOs.
- Notice to mariners and kingfisher notifications will be provided and the vessel will display the appropriate navigational signals at all times.
- No discharge to sea of left-over drilling fluid will occur at the end of the drilling programme and only the use of bentonite based drilling fluid will be used, which is commonly used in the marine environment.
- All equipment associated with the works will be removed on completion of the works.
- Bunding, storage facilities and spill kits will be employed to contain and prevent the release of fuel, oils and chemicals associated with the equipment into the marine environment.
- Coatings and treatments will be suitable for use in the marine environment and are used in accordance with best environmental practice.
- All equipment, materials, machinery and PPE used will be in a clean condition prior to their arrival on site, and upon removal from site, to minimise risk of introducing non-native species into the marine environment.

7. Summary

Bp and EnBW have been awarded preferred bidder status for two sites in the Irish Sea, named Morgan and Mona. To inform the development of the projects, bp and EnBW propose to undertake a deep geotechnical survey within the bidding areas. The geotechnical survey includes deep boreholes and deep PCPTs using standard and well-known survey methodologies. The data acquired during the 2022 survey will inform foundation design and placement of the wind turbines within the bidding areas.

This document provides an overview of the survey activities as well as potential interactions with the environment and sensitive features. Key mitigation measures have also been listed. This document has been concluded that no significant impacts will result from the surveys on any of the receptors outlined in Table 5.1.

8. References

Dekeling, R.P.A., Tasker, M.L., Van der Graaf, A.J., Ainslie, M.A, Andersson, M.H., André, M., Borsani, J.F., Brensing, K., Castellote, M., Cronin, D., Dalen, J., Folegot, T., Leaper, R., Pajala, J., Redman, P., Robinson, S.P., Sigray, P., Sutton, G., Thomsen, F., Werner, S., Wittekind, D., Young, J.V., Monitoring Guidance for Underwater Noise in European Seas, Part II: Monitoring Guidance Specifications, JRC Scientific and Policy Report EUR 26555 EN, Publications Office of the European Union, Luxembourg, 2014, doi: 10.2788/27158.

JNCC (Joint Nature Conservation Committee), 2017. JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys. Available online: https://data.jncc.gov.uk/data/e2a46de5-43d4-43f0-b296-c62134397ce4/jncc-guidelines-seismicsurvey-aug2017-web.pdf [Accessed December 2021].

JNCC (Joint Nature Conservation Committee) DAERA (Department of Agriculture, Environment and Rural Affairs) and Natural England, 2020. Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs. Available online: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/889842/SACNoiseGuidanceJune2020.pdf [Accessed January 2022].

Welsh National Marine Plan 2019: https://gov.wales/welsh-national-marine-plan-document.

Fugro GB North Marine Limited (Fugro), 2021. Morgan & Mona Geotechnical Site Investigation – Proposal (Confidential).