



FLOTATION ENERGY



vårgrønn

Green Volt Offshore Wind Farm Nearshore Geotechnical Survey

Supporting Environmental Information

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Document History

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1 Introduction

1.1 Background

The Green Volt Offshore Windfarm is being developed by Flotation Energy Ltd and Vårgrønn AS through a dedicated company Green Volt Offshore Windfarm Limited (herein referred to as GVOWL).

Consent to construct and operate the Green Volt Offshore Windfarm and associated offshore transmission infrastructure (the Project) was granted on 19th April 2024 under Section 36 (S36) of the Electricity Act 1989, Part 4 of both the Marine (Scotland) Act 2010 and the Marine and Coastal Act 2009 from Scottish Ministers. These consents were varied on 25 March 2026 (Scottish Government, 2026). This consists of the following consents/licences (collectively referred to as the 'offshore consents'):

- S36 consent for the Offshore Energy Generating Station;
- Marine Licence for the Offshore Energy Generating Station (MS-00010230);
- Marine Licence for the Offshore Transmission Infrastructure (OfTI) to landfall (including the Offshore Substation Platform (OSP)) (MS-00010232);
- Marine Licence for the OfTI to Buzzard Platform Complex (MS-00010231) and
- S36 and Marine Licences consent variations (MD-00011497 and MD-00011498, for the Offshore Energy Generating Station and OfTI to landfall, respectively) (Scottish Government, March 2026).

For clarity, the Project refers to the offshore elements of the Green Volt Offshore Windfarm only, up to Mean High Water Springs (MHWS)).

1.2 Document purpose

This document has been prepared to inform consultation associated with geotechnical survey works that GVOWL intends to carry out in the nearshore area at the St Fergus South landfall site for the Green Volt Offshore Windfarm (hereon referred to as Nearshore Geotechnical Survey Area). This document informs on the potential environmental effects of the geotechnical survey, commencing at the earliest on **01 June 2026** and finishing no later than **01 October 2026**. It is anticipated that, in total, **seven working days** (not accounting for any delays due to adverse weather) will be required to conduct the required survey activities.

Specifically, this document:

- Describes the planned survey works (**Section 2**);
- Set out an assessment of potential environmental effects (**Section 3**);
- Describes the mitigation measures committed to by GVOWL (**Section 4**); and
- Describes the planned consultation associated with the proposed survey (**Section 5**).

2 Site Investigations

The Project's offshore export cable (OEC) route will bring electricity to shore, reaching landfall at approximately 80 km west of the Windfarm Site at St Fergus South near Peterhead, on the Aberdeenshire coast, which was chosen because of favourable topography, geological conditions, and attainable horizontal directional drilling (HDD) drill length.

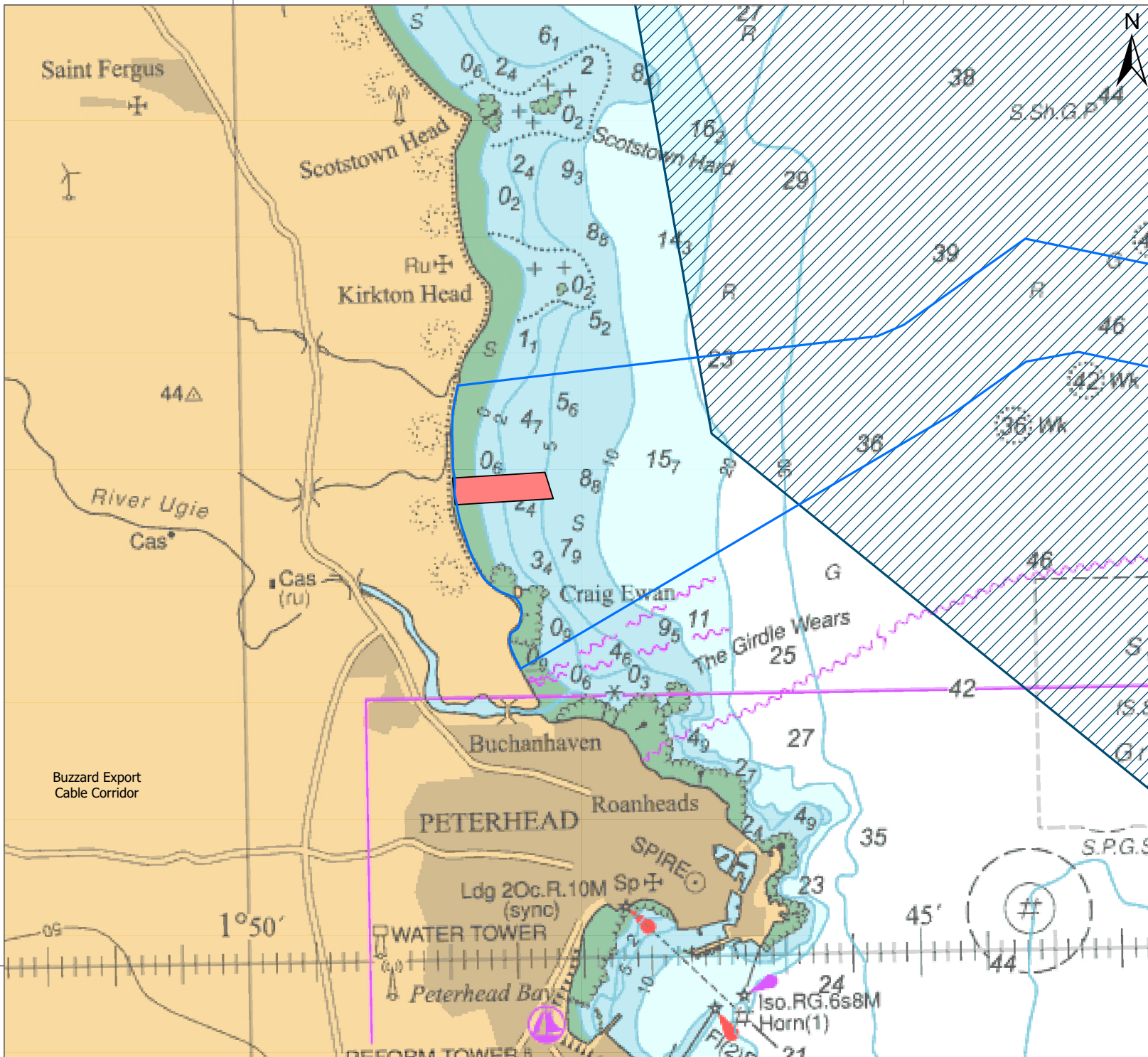
The geotechnical survey work is required to inform the final decision on the landfall point and subsequent HDD activity. The work will consist of drilling boreholes in the nearshore area to inform

the HDD work required to connect the OEC to the terrestrial cable route. The aim is to investigate the distribution, thickness, and geotechnical properties of the upper 25 m of the seabed.

The Nearshore Geotechnical Survey Area covers 0.14 km² and is located, at a minimum, 5-20 m from the coastline (**Figure 1**).

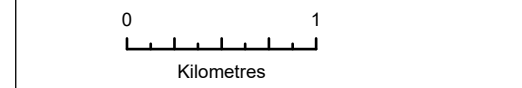
1°50'W

1°45'W



LEGEND

- Offshore Export Cable Corridor
- Green Volt Nearshore Geotechnical Survey Area
- Southern Trench Nature Conservation Marine Protected Area



Data: NatureScot 2026
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PROJECT: GREEN VOLT

TITLE: Figure 1: Green Volt Nearshore Geotechnical Survey Area

VER	DATE	COMMENTS	DRAWN	CHECKED
001	08/04/2026		GC	EB

LAYOUT: PC2483-RHD-GP-OF-D-GS-0009

SCALE: 1:40,000	PAGE SIZE: A4	COORDINATE SYSTEM: WGS 1984 UTM Zone 30N
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57°30'N

1°50'

45'

57°30'N

1°50'W

1°45'W

2.1 Landfall Area Geology

The British Geological Survey (BGS) Quaternary Geology (Sheet 57°N-02°W) identifies a relict shoreline feature at the ECC landfall, corresponding with a shore-parallel topographic depression between the coastal dune system and farmland to the west. Within the nearshore area (out to 2 km) outcrops of Wee Bankie Formation (High to Extremely High Strength Clay or Fine to Coarse Sand) and engineering bedrock are expected to be present at shallow depth below seabed.

The BGS 1:250,000 Scale, Peterhead, Quaternary Geology (Sheet 57°N-02°W) also indicates that the nearshore area is underlain by the Forth Formation, which generally consists of either fine to coarse sand or beach sands over glaciomarine muds (expected to be encountered as silt or clay). The BGS 1:250,000 Scale, Peterhead, Seabed Sediments (Sheet 57°N-02°W) indicates that the seabed in the nearshore area comprises sand.

The BGS Offshore Geindex viewer indicates that the Quaternary deposits are between 5 m and 20 m thick and that the nearshore solid geology consists of Igneous bedrock with no faulting. This is considered to represent the Peterhead Granite Pluton.

2.2 Geotechnical Survey Scope of Works

The primary aims of the geotechnical survey are to:

- Provide sufficient geotechnical data to inform the design and installation of the landfall HDD;
- Provide data to inform the development of a robust integrated geophysical and geotechnical ground model, and geological profile along the HDD alignment, characterising all engineering geological units of relevance to cable installation; and
- Address geotechnical data gaps and areas of uncertainty arising from analysis of existing geophysical and geotechnical datasets.

The geotechnical survey will consist of boreholes only. It is expected that as a worst-case scenario, a maximum of three boreholes will be drilled to a maximum depth of 25 m below the seafloor.

The top 10 m of the sample is anticipated to be clay and sand, which will be collected in tube or bag samples. The 10-25 m (for two boreholes) and 10-15 m (for one borehole) sections of the boreholes are anticipated to be rock, which will be collected as core samples and boxed.

It is expected that two of the three boreholes will sample down to 25 m depth, and the third will sample down to 15 m. All three boreholes are expected to have a maximum diameter of 182 mm. The total footprint of the three boreholes on the seafloor is expected to be 0.08 m².

For the two deeper boreholes (25 m), the total volume of sediment removed is expected to be 0.65 m³ each. For the shallower borehole (15 m), the total volume of sediment removed is expected to be 0.39 m³. Therefore, the total volume of sediment expected to be removed for all three boreholes is 1.69 m³. No borehole will remove a volume greater than 1 m³ and, therefore, it is assumed that this activity would be exempt from Marine Licencing requirements.

The proposed vertical borehole drilling method will involve the use of a jack-up vessel (with an approximate length of 19 m and an approximate draught of 1 m), which will be supported by four vessel legs, each with a footprint area of 0.46 m², creating a total footprint of 1.82 m² at each survey location. Across the three survey locations, this equates to a total footprint of 5.47 m².

All three boreholes will be backfilled using a mixture of either sand and bentonite or cement and bentonite, which form an inert grout material with a minimum strength of 30 N/mm². The grout mix is a mixture of naturally occurring inorganic mineral raw materials which are not subject to labelling, and are exempt from REACH requirements (Drilling Supplies UK, 2018; Kentish Minerals, 2024;

Marion Geotechnical Services Ltd, 2020). The grout is made up in a mixing pan on the deck of the jack-up vessel and then pumped down the borehole to a depth of approximately 1 m below the rockhead level, which is estimated to be between 5 m and 10 m depth below seafloor. The remaining upper section of the borehole will be left to backfill naturally with surrounding seafloor sediment (i.e. sand). This is in accordance with best practice for UK Specification for Ground Investigation (3rd Edition, ICE Publishing / AGS, 2022) ISBN: 978-0-7277-6523-9.

The surrounding environment is relatively shallow (<10 m depth), tidal, and high-energy, which suggests that the boreholes will naturally backfill with sediment quickly after the proposed survey work has completed. It is predicted that the seafloor will quickly return to baseline conditions prior to commencement of the survey work.

3 Environmental considerations

3.1 Bathymetry and seabed conditions

3.1.1 Summary of baseline

Information on the seabed sediments for the route of the St. Fergus South ECC is limited but the BGS Offshore GeoIndex suggests the corridor is likely to comprise of sand at the shoreline and nearshore seabed (with local areas of outcropping bedrock), with slightly gravelly sand, gravelly sand, and sand further offshore to deeper water (**Plate 1**).

The coastline consists of areas of occasional hard substrate located in the nearshore environment with sediment particle sizes gradually decreasing from gravelly sand to fine sand along the offshore ECC. This is considered to reflect increased tidal current velocities closer to the Aberdeenshire coastline.

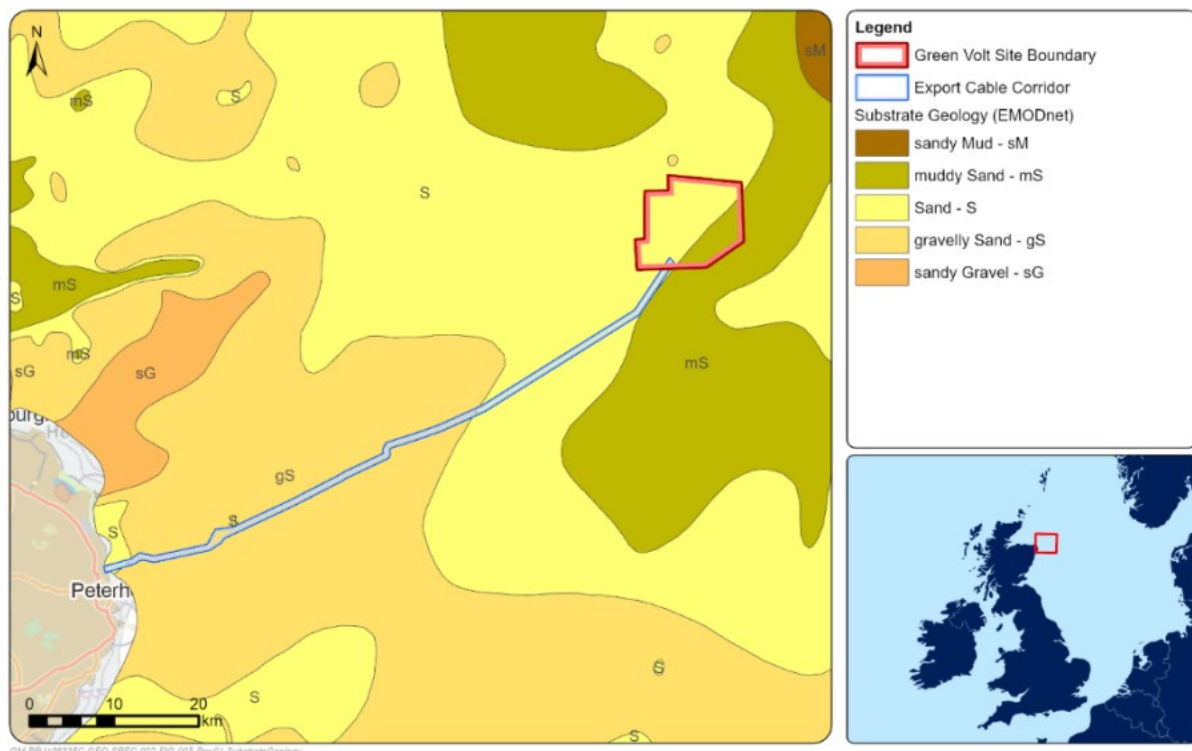


Plate 1 Seabed substrate type in the ECC, based on EMODnet data

3.1.2 Assessment of potential effects

The potential effects of the proposed nearshore geotechnical survey work could result from direct physical disturbance to the seafloor, resulting in habitat loss or alteration. As stated in **Section 2**, the proposed works involve the drilling of three boreholes and the placing of four vessel legs on the seafloor.

It is expected that the three boreholes will collectively result in the extraction of a total of 1.69 m³ of subsurface material, with a seafloor surface footprint of 0.08 m². The seafloor footprint of the vessel legs is expected to be 5.47 m².

Backfilling the boreholes with grout up to the rockhead and leaving the remaining upper sections of the boreholes to naturally backfill with sand from the surrounding seafloor is expected to return the seabed to baseline conditions relatively quickly, and not result in any lasting impacts.

The majority of sediments in the proposed Nearshore Geotechnical Survey Area have a high potential to recover from physical disturbance, particularly as the proposed works are short-term and temporary. It is therefore considered that the physical disturbance of the proposed survey activity on seafloor sediments will be negligible.

3.2 Benthic ecology

3.2.1 Summary of baseline

Previous sidescan sonar imagery collected by GVOWL, as well as video and still photographic ground truthing from 33 camera transects completed within the consented ECC were used to assign benthic habitats (GVOWL, 2023a). For the nearshore area of the offshore ECC, two habitat types were identified:

- Moderate Energy Circalittoral Rock (CR.MCR/MC121); and
- Infralittoral Fine Sand (SS.SSa.CFiSa/MC521).

The Moderate Energy Circalittoral Rock habitat is associated with the 'outcrop' seabed features towards the nearshore and western sections of the ECC at depths between 10 m and 42 m below LAT. Fauna observed in this habitat mainly consisted of hydrozoan/bryozoan turf, as well as hornwrack *F. foliacea*, Antenna hydroid *Nemertesia antenna*. Echinodermata seen in the habitat type included the common urchin *Echinus esculentus*, sun star *Crossaster papposus*, common sea star *Asterias rubens*. Other species were also present including anemone (Actinaria) species and dead man's finger *Alcyonium digitatum*. Various Arthropoda were present including velvet swimming crabs *Necora puber*, squat lobsters *Munida rugosa*, European lobster *Homarus gammarus*, and the edible crab *Cancer pagurus*. Fish species in the vicinity of bed rock outcrops included flatfish (Pleuronectiformes), grey gurnard *Eutrigla gurnardus*, European flounder *Platichthys flesus*, and poor cod *Trisopterus minutus*.

The Infralittoral Fine Sand habitat was identified at the two shallowest stations within the nearshore portion of the consented offshore ECC and equate to a 'sand' seabed feature. Fauna in these regions was sparse, with no fauna identified.

3.2.2 Assessment of potential effects

The potential effects on benthic ecology during the proposed nearshore survey activity may result from direct physical disturbance and habitat loss or alteration. However, due to the small number of boreholes (three), localised impacts of the borehole drilling and vessel legs (as stated in **Section 2**), and the mobile nature of the surrounding sediment, it is anticipated that these effects will be short-term (taking place over seven days) and have a temporary impact.

The depositing of the grout will occur within the boreholes up to 1 m below the seafloor and, therefore, no additional impacts are predicted.

Some more disturbed areas may be slower to recover than others, but it is anticipated that all areas will recover over time. It is therefore considered that the impact of direct physical disturbance of benthic species and habitats during the proposed nearshore geotechnical survey will be of negligible significance. Those habitats and species that are likely to be affected are expected to recover quickly and not be impacted at the population level.

3.3 Fish and Shellfish

3.3.1 Summary of baseline

The St Fergus South landfall site is within ICES rectangle 44E8. Commercial fisheries catch in this area is dominated by edible/brown crab *Cancer pagurus*, haddock *Melanogrammus aeglefinus*, mackerel *Scomber scombrus*, and scallops *Pecten maximus*, accounting for 18.88%, 22.45%, 13.49% and 14.35% of all landings in this ICES rectangle between 2016-2020, respectively.

Species likely to be spawning in the vicinity of the landfall ECC include sprat *Sprattus sprattus*, herring *Clupea harengus*, plaice *Pleuronectes platessa*, lemon sole *Microstomus kitt*, cod *Gadus morhua*, whiting *Merlangius merlangus*, sandeel *Ammodytes spp*, Norway pout *Trisopterus esmarkii* and Nephrops *Nephrops norvegicus*. Spawning grounds are classified as low or undetermined intensity for all species except Norway pout and sandeels, which are classified as higher intensity (Coull *et al.*, 1998; Ellis *et al.*, 2012).

Predicted nursery areas of a wide range of fish overlap the landfall ECC, however none are predicted to be of high intensity (Coull *et al.*, 1998; Ellis *et al.*, 2012).

Consideration of the more contemporary and detailed information provided by the ICES IHLS data, and interpreted by Marine Scotland, suggests that herring spawning activity is predominantly centred in coastal areas to the north and south of the St Fergus landfall site. There is an expected aggregation of herring larvae 35 km north-west of the St Fergus South landfall site, which corresponds to the eastern extent of the herring spawning ground defined by Coull *et al.*, 1998. There is an additional expected aggregation of larvae in the inshore (within 5 km of shore) region extending 50 km between Cruden Bay and Stonehaven to the south (GVOWL, 2023a). For context, Cruden Bay is approximately 15 km to the south of the Nearshore Geotechnical Survey Area.

Modelled data on the probability of buried sandeel presence and predicted density in the North Sea (produced by Marine Scotland and available on the National Marine Plan Interactive NMPi) show that sandeel habitat is predominantly found across small areas of the inshore section of the offshore ECC, but not within the proposed Nearshore Geotechnical Survey Area, which is located too close to shore to comprise sandeel habitat (located <1 km).

3.3.2 Assessment of potential effects

The proposed nearshore geotechnical survey has the potential to affect fish and shellfish ecology through direct disturbance to the seabed and habitat loss along with sediment deposition and drilling and vessel noise. The subsequent effect could impact spawning, nursery, feeding habits and migration.

As highlighted in **Section 3.1**, the Nearshore Geotechnical Survey Area habitat is predominantly sand, which can provide spawning grounds for several fish species, such as herring, cod, and plaice. However, significant spawning activity would not be expected in the nearshore environment. Surveys of the St Fergus South landfall area identified its use as a spawning ground was low or undetermined for all species except Norway pout and sandeels. Further, although the Nearshore Geotechnical

Survey Area overlaps with a wide range of species nursery grounds, none are predicted to be of high intensity.

Although the proposed activity has the potential to disturb and/or caused mortality of individuals, the impact on fish species at a population level are not expected due to the localised nature of the drilling activity, the small number of boreholes, and the small, temporary footprint of disturbance from the boreholes and the jack-up vessel.

The depositing of grout to backfill the boreholes will take place inside the boreholes up to 1 m below the rockhead and, therefore, unlikely to have any additional impact on fish and shellfish ecology.

All affected habitats in the Nearshore Geotechnical Survey Area are predicted to recover quickly, due to the surrounding mobile sand habitat, and not impact fish and shellfish species at the population level.

3.4 Marine mammals

3.4.1 Summary of baseline

3.4.1.1 Cetaceans

Volunteer based sightings data from around Scotland are collected by various organisations through shore watches, distance sampling surveys on ferry routes and collection of casual observations. ORCA dedicated vessel-based marine mammal watches following various routes within Scottish waters (Hague *et al.*, 2020). ORCA has been collecting survey data from Aberdeen to Lerwick since 2016 and have recorded sightings of harbour porpoise *Phocoena phocoena*, bottlenose dolphin *Tursiops truncatus*, white-beaked dolphin *Lagenorhynchus albirostris*, common dolphin *Delphinus delphis*, orca *Orcinus orca*, and minke whale *Balaenoptera acutorostrata* within the region of the project, including the ECC and St Fergus South landfall area (ORCA, 2022).

In addition to ORCA survey work, the East Coast Marine Mammal Acoustic Study (ECOMMAS) monitoring sites detected harbour porpoise daily at most sites along the east coast of Scotland in all survey years between 2013 and 2019 (Scottish Government's Marine Directorate, 2019). Detection rates were generally lower at the most coastal sites, and where there is overlap with known bottlenose dolphin ranges (Hague *et al.*, 2020).

The bottlenose dolphin present in the vicinity of the St Fergus South landfall area are expected to be part of the Coastal East Scotland (CES) management unit (MU) (Arso *et al.*, 2021). The CES MU population has an abundance estimate of 226 individuals. Bottlenose dolphin close to shore and in the landfall ECC are likely to be from the CES MU and Moray Firth population.

For minke whale, the north-east Atlantic distribution maps show a clear pattern of higher density in the northern North Sea, and around the coasts of Scotland, Ireland and within the Celtic and Irish Seas, with decreasing densities southwards of Scotland along the east coast of England. There is a clear seasonal difference in the densities of minke whale, with higher densities in July, which is particularly evident in the north of their range. SCANS IV data suggests a density of 0.0419/km² in Survey Block NS-D; Gilles *et al.*, 2023).

3.4.1.2 Seals

Two species of seal are found in the UK, namely grey seal *Halichoerus grypus* and harbour seal *Phoca vitulina*. Grey seal is found on both sides of the North Atlantic Ocean although the greatest proportion of the population is found in UK waters. The UK population of harbour seal has, in recent years, been in decline but is now increasing and is close to the level it was before the decline occurred. The decline in population levels varies between colonies, with some in Scotland experiencing high levels of declines, while others were stable or increasing.

The Scottish Government's National Marine Plan Interactive (NMPi) indicates that the coastal area around Peterhead is used by both grey and harbour seals, with a mean percentage at-sea population (per 25 km) of:

- >0 to <=0.001% for harbour seal; and
- >0.05 to <=1% for grey seal.

Grey and harbour seals feed in inshore and offshore waters depending on the distribution of their prey, which changes both seasonally and yearly. Both species of seal tend to concentrate in the nearshore, particularly during the pupping and moulting season. Seal tracking studies from the Moray Firth have indicated that the foraging movements of harbour seals are generally restricted to within a 40–50 km range of their haul-out sites (Special Committee on Seals, 2020). Grey seals can move over larger distances, with tracking data showing that most foraging most likely occurs within 100 km of a haul-out site, although feeding can take place up to several hundred kilometres offshore (Special Committee on Seals, 2020).

There are haul-out sites for grey and harbour seal in the Moray Firth and along the north-east coast of Scotland (Special Committee on Seals, 2020). Therefore, there is potential for foraging seals to be in or near to the Nearshore Geotechnical Survey Area. The nearest major (and protected) haul-out site for grey seal is located approximately 20 km south of the St Fergus South landfall area at the Ythan River mouth. The nearest major (and protected) haul-out site for harbour seal is located approximately 120 km west at the Findhorn site on the south coast of the Moray Firth (information from the NMPi, accessed in March 2026).

3.4.2 Assessment of potential effects

Marine mammals in the Nearshore Geotechnical Survey Area are unlikely to be affected by the sampling works directly, with only the possibility of indirect disturbance from the presence of the jack-up vessel when transiting between the three survey locations.

The closest seal haul-out site is approximately 20 km away from the Nearshore Geotechnical Survey Area, suggesting that the survey site may be used temporarily by both grey and harbour seals in transit or for feeding.

It is most likely that any disturbance caused by presence of the jack-up vessel will result in a short-term, avoidance behavioural response, akin to that produced by any operating vessel, but will return to the site on completion of the survey works. It is expected that any potential disturbance is anticipated to be negligible due to the low densities of marine mammals in the area surrounding the Nearshore Geotechnical Survey Area, the short-term duration of the works (seven days), and extensive alternative habitat available for marine mammals to use.

3.5 Seabirds

3.5.1 Summary of baseline

The St Fergus South landfall site is located in an area where there are no designated sites or noted breeding sites. Desk based literature reviews identified low densities of nine key species with potential utilisation of the nearshore area (GVOWL, 2023a):

- Kittiwake *Rissa tridactyla*;
- Black-headed gull *Chroicocephalus ridibundus*;
- Common gull *Larus canus*;
- Great black-backed gull *Larus marinus*;
- Razorbill *Alca torda*;

- Guillemot *Uria aalge*;
- Herring gull *Larus argentatus*;
- Lesser black-backed gull *Larus fuscus*; and
- Sandwich tern *Thalasseus sandvicensis*.

Vantage point surveys were conducted between February 2016 and January 2017 to inform the Green Volt Ornithological Baseline Technical Report (GVOWL, 2023b). These revealed that 13 seabird species were present in the area, with the largest combined month counts being from May to July. Eight key species were identified including:

- Fulmar *Fulmarus glacialis*;
- Shag *Gulosus aristotelis*;
- Herring gull;
- Kittiwake;
- Guillemot;
- Razorbill;
- Puffin *Puffinus puffinus*; and
- Great black-backed gull.

A small number of other species were recorded using the cliffs or sea within the area surveyed out to 500 m (GVOWL, 2023b), including cormorant *Phalacrocorax carbo*, eider *Somateria mollissima*, red-throated diver *Gavia stellata*, northern gannet *Morus bassanus*, puffin, lesser black-backed gull and great black-backed gull.

The survey conducted as part of the Green Volt Ornithological Baseline Technical Report (GVOWL, 2023b) revealed birds were utilising waters up to 500 m from the seabird cliffs off the Buchan Ness to Collieston Coast SPA (this SPA being approximately 5 km south of the St Fergus South landfall area). It is worth noting that the proposed Nearshore Geotechnical Survey Area lies next to a large beach coastline and, therefore, away from the cliff habitats used by seabirds.

3.5.2 Assessment of potential effects

The number of seabirds utilising the St Fergus South nearshore area are low, with the highest numbers observed during June. Although the proposed activity is planned to take place in the summer months, when seabird numbers are expected to be highest, it is anticipated that impacts of the survey work on seabirds will be negligible due to the highly localised nature of the activity (0.14 km² site area) and short-term activity period (seven days). Furthermore, given that Buchan Ness to Collieston Coast SPA is located approximately 5 km from the Nearshore Geotechnical Survey Area, no impact pathway is anticipated.

The impact on seabird prey species (i.e. sandeels) is expected to be negligible at the population level due to the low numbers of sandeels predicted to be found in the Nearshore Geotechnical Survey Area and the small footprint of seafloor disturbance of the three boreholes and the four legs of the jack-up vessel.

Therefore, it is expected that the impact on seabird populations from the proposed geotechnical survey activity will be negligible.

3.6 Protected areas

3.6.1 Summary of protected areas

The Southern Trench nature conservation Marine Protected Area (MPA), located on the east coast of Scotland in the outer Moray Firth, is designated to protect marine mammals (minke whales),

burrowed mud, fronts and shelf deeps. The Southern Trench is 58 km long, 9 km wide, and 250 m deep and runs parallel to the Aberdeenshire coastline. The MPA features a dynamic mixing zone of warm and cold waters that attracts shoals of herring, mackerel and cod to the area, with the soft sands providing abundant habitat for sandeels. These, in turn, provide food for migratory mammals, such as minke whales, to the area (NatureScot, 2020). **Plate 2** provides the location of the Southern Trench MPA and the distribution of minke whale, which demonstrates that minke whale are found in association with the southern trench geological feature, and not with the Nearshore Geotechnical Survey Area.

The MPA's burrowed mud feature is in favourable condition but is listed as 'Threatened and/or Declining' under OSPAR (2008). Burrowed mud habitats are highly sensitive to physical disturbance, including abrasion/removal of seabed, as well as disturbances leading to water flow, wave exposure, and siltation alterations. The burrowing megafauna characteristic of burrowed mud communities are important bioturbators of the sediment they inhabit. This activity creates a three-dimensional structure of burrows which increases the structural complexity and depth of oxygen penetration into the sediments. This enhances the survival of smaller species which can live in the burrows and increases biodiversity in what would otherwise be a generally low diversity habitat (NatureScot, 2025).

The conservation objectives of the Southern Trench MPA are that the protected features:

- So far as already in favourable condition, remain in such condition
- So far as not already in favourable condition, be brought into such condition, and remain in such condition.

All of the biodiversity and geodiversity features are in favourable condition at the Southern Trench MPA and, therefore, the conservation objectives seek to conserve this condition (NatureScot, 2025).

Although the offshore ECC passes through the southern end of the Southern Trench MPA, the Nearshore Geotechnical Survey Area is not located within the MPA, lying approximately 1.27 km to the west of the southern boundary of the MPA (**Figure 2**).

In addition to the Southern Trench MPA, there are three Special Protection Areas (SPAs) in the vicinity of the St Fergus South landfall area: Loch of Strathbeg SPA (approximately 12 km north); Buchan Ness and Collieston Coast SPA (approximately 5 km south); and Ythan Estuary, Sands of Forvie and Meikle Loch SPA (approximately 15 km south). There is also one Special Area of Conservation (SAC): Buchan Ness to Collieston SAC (approximately 7 km south) (**Figure 2**). Considering the distance of the SPAs and SAC from the proposed Nearshore Geotechnical Survey Area, it is not predicted that the survey activity will impact these sites.

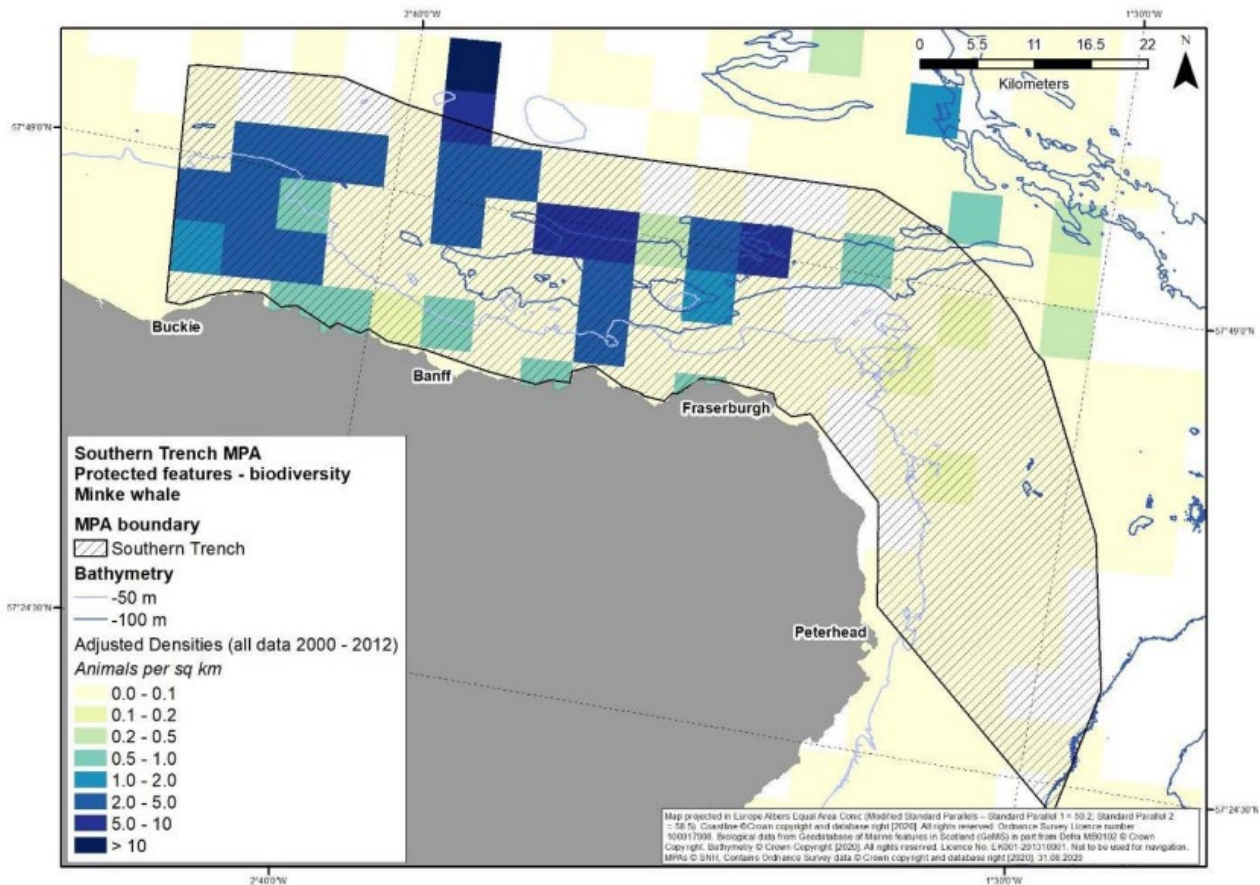
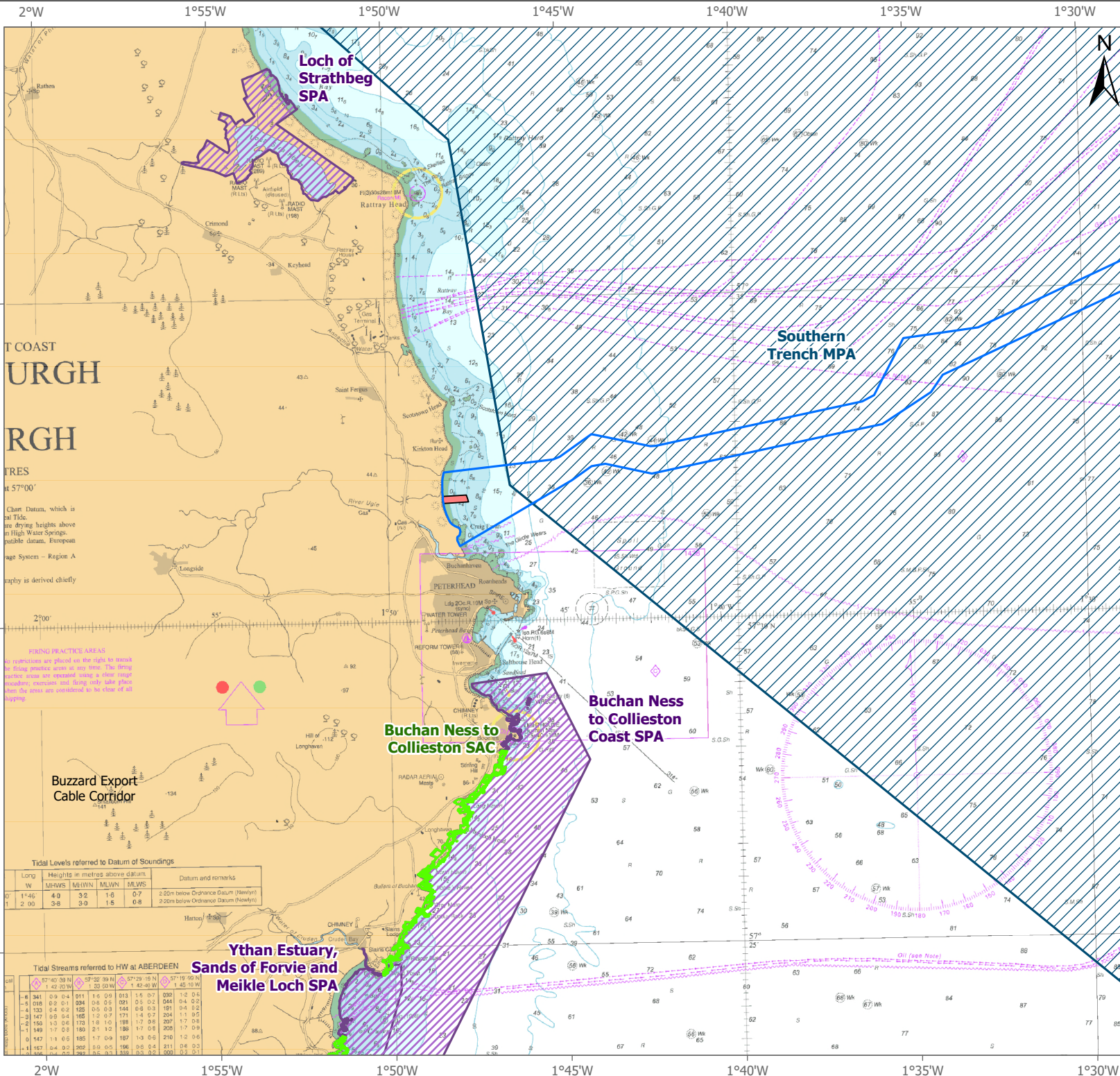


Plate 2 Distribution of Minke whale in the Southern Trench MPA (taken from NatureScot, 2020)

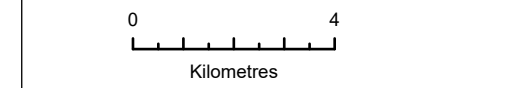
3.6.2 Assessment of potential effects

The Nearshore Geotechnical Survey Area is located outside of the Southern Trench MPA, 1.27 km to the west of the southern boundary of the MPA. Considering the low number of boreholes and the localised design of the proposed survey activity, is not expected to have an impact on the protected habitats of the MPA (i.e., burrowed mud).

The jack-up vessel and the borehole drilling are both expected to produce underwater noise, but the volume of the noise (dB) is expected to be below the disturbance threshold for marine mammals and only produce noise in **2 to 5-minute intervals** over a period of seven days. Further, minke whale are predominantly distributed within the northern part of the MPA and away from the Nearshore Geotechnical Survey Area, indicating that the impact of the proposed activity is predicted to be negligible.



- LEGEND**
- Offshore Export Cable Corridor
 - Green Volt Nearshore Geotechnical Survey Area
 - Special Area of Conservation (SAC)
 - Special Protection Area (SPA)
 - Marine Protected Area (MPA)



Data: NatureScot 2026
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PROJECT: GREEN VOLT

TITLE: Figure 2: Green Volt Nearshore Geotechnical Survey Area and Designated Sites

VER	DATE	COMMENTS	DRAWN	CHECKED
001	08/04/2026		GC	EB

LAYOUT: PC2483-RHD-GP-OF-D-GS-0011

SCALE: 1:150,000	PAGE SIZE: A4	COORDINATE SYSTEM: WGS 1984 UTM Zone 30N
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Tidal Levels referred to Datum of Soundings

Long	Heights in metres above datum				Datum and remarks
W	MHWs	MHW	MLWN	MLWS	
0	1.46	4.0	3.2	1.6	2.0m below Ordnance Datum (Newlyn)
1	2.00	3.8	3.0	1.5	2.0m below Ordnance Datum (Newlyn)

Tidal Streams referred to HW at ABERDEEN

DR	47°40'39"N 1°42'20"W	57°02'39"N 1°42'46"W	57°19'59"N 1°45'10"W
-8	341 0.9 0.4	211 1.6 0.9	013 1.5 0.7
-5	318 0.9 0.1	204 0.6 0.5	021 0.5 0.2
-4	133 0.4 0.2	125 0.5 0.3	144 0.4 0.3
-3	147 0.5 0.4	155 1.2 0.7	171 1.4 0.7
-2	150 1.3 0.4	172 1.0 1.0	198 1.7 0.6
-1	149 1.7 0.8	180 2.1 1.2	188 1.7 0.6
0	147 1.1 0.5	185 1.7 0.9	187 1.3 0.6
+1	157 2.4 3.0	202 0.9 0.5	186 0.6 0.4
+4	384 0.4 0.3	282 0.5 0.3	438 0.5 0.2

3.7 Other users of the sea

3.7.1 Summary of baseline

3.7.1.1 Mining

There are two open marine disposal sites near to the Nearshore Geotechnical Survey Area: Peterhead (CR071) and North Buchan Ness (CR080). Peterhead (CR071) is located 2.12 km to the south of the St Fergus South landfall site. North Buchan Ness (CR080) is located 2.4 km to the south of the St Fergus South landfall site. Both these identified sites are used for the depositing of dredged spoil material, including dredged harbour material from Peterhead and/or Boddam Harbour.

There are three closed marine disposal sites situated to the south of the St Fergus South landfall site: Middle Buchan Ness (CR090), Middle Buchan Ness B (CR095), and a disused marine disposal site Peterhead (CR070).

3.7.1.2 Telecommunications

There are no active telecommunication cables located within the offshore ECC.

3.7.1.3 Offshore wind export cables

The export cable for Hywind has a landfall location at Peterhead, a distance of 0.74 km south of the St Fergus South landfall site.

3.7.1.4 Oil and Gas

There are no existing oil and gas platforms present in the offshore ECC.

There are currently two oil and gas pipelines that make landfall close to the St Fergus South landfall site. These two pipelines are the closed Miller to St Fergus pipeline operated by BP (uncrossed by the Project) and the active Fulmar A to St Fergus gas pipeline operated by Shell UK Limited. Although the Fulmar A to St Fergus gas pipeline crosses the ECC, it is not located within the proposed Nearshore Geotechnical Survey Area.

3.7.1.5 Commercial Fishing

Data from a creel fishing activity study (Marine Scotland, 2017), shows moderate to high levels of activity by creelers under 15 m in length in the inshore area (within 6 nm), in areas overlapping with the St Fergus South landfall area. Historic data for lobster and creel fishing in the inshore show a similar trend (Kafas *et al.*, 2014).

Creeling activity, for lobster and crab, is concentrated inshore within 6 nm in ICES rectangles 44E8 and 43E8 and undertaken by vessels principally under 10 m in length (no activity offshore). The lobster fishery is most active around August/September, while crab are targeted year-round, with the peak occurring in December/January (GVOWL, 2023a).

The inshore mackerel fishery consists of vessels under 10 m. Jigs or handlines are used to target mackerel in the summer, with landings peaking in July. The fishery takes place only in the nearshore of ICES rectangle 44E8 and 43E8, with limited activity recorded offshore (GVOWL, 2023a).

3.7.1.6 Navigation

The key areas of navigational risk are likely to be areas where water depths are shallow, i.e. the coastal/nearshore areas where only smaller vessels would be expected to transit.

3.7.2 Assessment of potential effects

The proposed Nearshore Geotechnical Survey Area is located far from other marine infrastructure and is not considered to present a risk. The small-scale and localised nature of the proposed survey work suggests that all potential impacts will be contained within the survey site.

The proposed geotechnical survey may prevent commercial fishing taking place within the immediate vicinity of the survey site, but due to the short-term and small size of the survey site, it is considered that the proposed survey activity will have a negligible impact on the surrounding fishing activity. GVOWL will utilise a Fisheries Liaison Officer (FLO) to ensure best practice measures for fisheries communications, notifications, and mitigations are implemented for these works.

The proposed Nearshore Geotechnical Survey Area is located to the north of Peterhead harbour but due to its proximity to the coastline, the small area of the survey site, and the short-term nature of the proposed work (seven days), it is considered that there will be no safety concerns with accessing Peterhead harbour. To mitigate any potential risks for smaller vessels utilising the nearshore, appropriate measures will be taken to disseminate information on the proposed activity and associated jack-up vessel, as well as ensure all navigational safety measures are in place (as described in **Table 1** in **Section 4**).

4 Mitigation measures

The mitigation measures committed to by GVOWL in relation to the proposed 2026 nearshore geotechnical works described in this document are set out in **Table 1**.

Table 1 Mitigation measures associated with the planned Green Volt nearshore geotechnical survey

Measure	Detail
Project personnel are appropriately qualified	All Project personnel will be trained and informed of their responsibilities in order to implement the applicable environmental and ecological mitigations. This will include talks, inductions, and awareness notices to disseminate information to relevant personnel.
Environmental planning	All borehole locations will be determined to limit the level of impact on sensitive environmental features.
Minimise disturbance to marine mammals	All vessels will adhere to the Scottish Marine Wildlife Watching Code (SMWWC) throughout the proposed survey activities to ensure any impacts on marine mammals are kept to a minimum.
Minimise lighting during operations	On-board lighting on the jack-up vessel will be kept to the minimum level required to ensure safe operations and minimise impacts on seabird species.
Reduced vessel speed	All vessels used during the geotechnical survey will travel at slow speeds to minimise the risk of disturbance and injury impacts to marine species.
Implementation of standard practice management procedures in the event of an accidental oil spill	Control measures and Shipboard Oil Pollution Emergency Plans (SOPEP) will be in place and adhered to under the

Measure	Detail
	<p>International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I requirements for all vessels.</p> <p>As per MARPOL 73/78 requirement under Annex I, all ships with a 400 gross tonnage and above must carry an Oil Prevention Plan as per the International Maritime Organisation under the Marine Environmental Protection Committee (MEPC) Act.</p> <p>The implementation of the Oil Prevention Plan will ensure that the potential for releasing pollutants during survey activities is kept to a minimum.</p>
Waste disposal management	<p>Vessels will be equipped with waste disposal facilities (sewage treatment or waste storage) to International Maritime Organisation MARPOL Annex IV Prevention of Pollution from Ships standards.</p>
Waste Management Strategy Plan	<p>The Water Framework Directive (WFD) provides the legislative framework for the collection, transport, recovery and disposal of waste.</p> <p>A Waste Management Strategy Plan will be developed – documenting and mapping each step in the process and defining roles and responsibilities – and implemented to ensure the waste hierarchy is followed and all waste is either recycled or disposed via a licenced waste route.</p>
Ballast water management	<p>Ballast water discharges from vessels will be managed under International Convention for the Control and Management of Ships’ Ballast Water and Sediments, 2004 (Ballast Water Management (BWM) Convention).</p> <p>The BWM Convention aims to prevent the spread of harmful aquatic organisms from one region to another by establishing standards and procedures for the management and control of ship ballast water and sediments.</p> <p>By adopting these measures, the risks associated with the introduction and spread of non-native marine species will be minimised.</p>
Ensure navigational safety and minimise risk of equipment snagging	<p>In advance of the proposed survey activity, information detailing the activities will be disseminated other marine users via the following routes: Notice to Mariners (including local), Kingfisher bulletins, Radio Navigational Warnings, and/or broadcast warnings.</p> <p>Information will include the time and location of any survey work being carried out, as well as emergency event procedures.</p>
Safe navigation of vessels at sea	<p>All survey activities will be conducted in compliance with the International Regulations for the Prevention of Collision at Sea (IRPCS) (IMO, 1972) and International Regulations for the Safety of Life at Sea (SOLAS).</p> <p>The IRPCS are the international standards designed to ensure safe navigation of vessels at sea. The survey vessel</p>

Measure	Detail
	<p>will adhere to these rules, including displaying appropriate lights and shapes.</p> <p>SOLAS sets the minimum safety standards in the construction, equipment and operation of merchant ships. The convention requires signatory flags to ensure that ships flagged by them comply with these standards, ensuring navigational safety.</p>
Fisheries Liaison	<p>GVOWL will utilise a FLO to ensure best practice measures for fisheries communications, notifications, and mitigations are implemented for these works.</p>

5 Consultation

5.1 Licence and permit requirements

5.1.1 Marine Licence

Under The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011 (as amended) and The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011 (as amended), sediment sampling (i.e. the removal of sediment from the seabed for scientific or investigative purposes) and scientific instrument deployment (i.e. the deposit of any scientific instrument or associated equipment, reagent or chemical or particle tracer for scientific or investigative purposes) are exempt from the requirement for a marine licence subject to certain conditions¹.

The exemption for sediment sampling applies to an activity where:

- The volume of sediment removed is less than 1 m³ (per grab);
- It is not likely to cause a danger or obstruction to navigation;
- It is a plan or project not likely (either alone or in combination with other plans or projects) to have a significant effect on a European site; a Ramsar site; the protected features of an MPA; or any process on which the conservation of any protected feature of a MPA is dependent.

Under The Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011 (as amended) and The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011 (as amended) the deposits of material (in this instance **grout**) and/or use of any chemical (in this instance **bentonite**), the article applies to the deposit of a 'Marine Chemical Treatment Substance' with conditions set out as per below:

- **Condition 1** is that the substance must be one the use of which is for the time being approved for the purposes of this Order by the Scottish Ministers;
- **Condition 2** is that the substance must be used in accordance with any conditions to which the approval is subject;
- **Condition 3** is that no deposit must be made in an area of the sea of a depth of < 20 m or within one nautical mile of any such area except with the approval of the Scottish Ministers; and
- **Condition 4** is that no deposit of any substance may be made below the surface of the sea except with the approval of the Scottish Ministers.

¹ [Marine licensing - exempted activities: guidance - gov.scot](https://www.gov.scot/publications/marine-licensing-exempted-activities-guidance/pages/10.aspx)

With regards to the proposed geotechnical survey, detailed in **Section 2.2**, it is understood that the activity will be exempt according to Marine Directorate – Licensing Operations Team (MD-LOT) licensing guidance (MD-LOT, 2026) in relation to sediment sampling. However, the proposed depositing of the grout material to backfill the three boreholes (as discussed in **Section 2.2**) would require a Marine Licence.

5.1.2 EPS Licence

Due to the short-term duration, low-level noise, and highly localised nature of the proposed geotechnical survey activity, the potential to disturb marine mammals is low and, therefore, it is assumed that a European Protected Species (EPS) Licence is not required.

5.1.3 Other Licence and Permit Requirements

With regards to other required permits/permissions, the following is assumed:

- No statutory sanction is required from the Northern Lighthouse Board (NLB); and
- A Crown Estate Scotland (CES) General Marine Works licence will be required and is being sought in parallel to the Marine Licence application.

5.2 Stakeholder consultation

Consultation will be undertaken with the organisations listed in **Table 2**, whereby a draft of this document will be distributed.

Table 2 Proposed consultees for the 2026 Green Volt Nearshore Geotechnical Survey

Organisation	Consultation Details/Responses
MD-LOT	Sharing of this document to: <ul style="list-style-type: none"> • Confirm the Marine Licence exemption for sediment sampling; • Confirm the requirement and subsequent approval of a Marine Licence regarding the use of grout material; and • Confirm an EPS Licence is not required.
NatureScot	Sharing of this document to: <ul style="list-style-type: none"> • Confirm the proposed geotechnical survey will not have a likely significant effect on a SAC, SPA, proposed SPA (pSPA), Ramsar site, and the activity is not capable of affecting (other than insignificantly) a MPA or proposed MPA (pMPA). • Confirm that an EPS Licence is not required.
Marine Coastguard Agency (MCA)	Share this document to confirm the proposed geotechnical survey will not cause an obstruction or danger to navigation.
NLB	Share this document to confirm the proposed geotechnical survey will not cause an obstruction or danger to navigation. Confirm no statutory sanction is required ahead of the proposed geotechnical survey.
CES	Share this document to confirm any CES Licence requirements.

Organisation	Consultation Details/Responses
Scottish Environment Protection Agency (SEPA)	Share this document to confirm that the grouting within the boreholes represent 'good practice' and confirm that activities are in-keeping with the WFD.
Wider Stakeholders	
Local fisheries	The FLO will notify local fisheries representatives of the works to ensure awareness of proposed survey, and will continue communications when required.
Peterhead Harbour	Peterhead Harbour will be notified of the works to confirm the proposed geotechnical survey will not cause an obstruction or danger to navigation.

6 Conclusion

The proposed activities are due to commence on 01 June 2026 at the earliest and complete by 01 October 2026 at the latest. The duration of the proposed survey work is expected to be seven days (not accounting for any delays due to adverse weather).

The potential sensitivities considered for the proposed survey activities include:

- Direct physical disturbance to the seafloor;
- Disturbance to benthic ecology;
- Disturbance to fish and shellfish in the area;
- Disturbance to seabirds;
- Impacts on protected areas, including features of the nearby Southern Trench MPA;
- Noise disturbance to marine mammals; and
- Impact on marine infrastructure and other users.

It is predicted that the proposed geotechnical survey will have minimal impact on the surrounding habitats due to the small number of boreholes proposed (three) and the mobile, sand habitat found within the survey site. Direct disturbance to the seafloor caused by the jack-up vessel legs is expected to be minimal, impacting a small area (1.82 m²) at each survey location consisting of mobile sand.

In addition to the small area of disturbance, the proposed geotechnical survey activity is expected to be short-term and temporary (seven days). The short and limited period of activity, coupled with the high rate of habitat recovery post activity (high energy, tidal environment and mobile sand habitat), suggest that any long-lasting impact on the seafloor will be negligible.

Following the drilling of the three boreholes, it is proposed that they are backfilled using grout (sand or cement mixed with bentonite) up to 1 m below the rockhead, with the remaining upper section of the borehole left to backfill with sand from the surrounding environment through natural processes. The natural backfilling of the upper sections of the boreholes is expected to take place over the days following the survey activity, leaving the seafloor in a similar condition to before the survey activity.

The noise from the jack-up vessel is predicted to be low and expected to have a negligible impact on marine mammals in the area. Similarly, the proposed drilling method(s) produce low levels of

noise during drilling activity (below the disturbance thresholds for marine mammals) and, therefore, the impact on marine mammals is expected to be negligible.

The Nearshore Geotechnical Survey Area is not in close proximity to any of the surrounding marine infrastructure (e.g. cables, pipelines, or harbours) and not expected to have an impact on any of the features of any designated site. With regard to other marine users, the proposed geotechnical survey is not expected to have a significant impact due to the small area of the survey site and the short-term nature of the proposed work. Where there is a potential risk of other activities overlapping with the Nearshore Geotechnical Survey Area (e.g. commercial fishing, recreational boating), mitigation measures will be put in place (see Table 1) to minimise the risk.

Considering the short-term and localised design of the proposed geotechnical survey activity, the small number of boreholes, the low noise levels associated with the jack-up vessel and drilling activity, and the potential for rapid recovery of the sand habitat in the survey site, it is considered that the impact from the proposed geotechnical survey will not be significant.

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A Appendix A Survey Area Coordinates

WGS 84 DDM	
Latitude	Longitude
57°31.925'N	1°48.425'W
57°31.941'N	1°47.736'W
57°31.835'N	1°47.677'W
57°31.818'N	1°48.402'W



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