MWP

Schedule of Works

Foreshore Licence Application for Marine Site Investigation Surveys at Dognose, Corkbeg, Whitegate, Co. Cork

May 2023

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Marine site investigations at Dognose, Corkbeg, Whitegate, Cork.

1. Geophysical Survey

The investigation is proposed to consist of sub bottom profiler single channel seismic reflection, underwater multichannel analysis of surface waves (UMASW) and seismic refraction surveys. The surveys are likely to take 3 weeks to complete, subject to tidal and weather conditions.

The objectives of the geophysical survey are to:

- Map type and thickness of sediments;
- Establish sediment stiffness;
- Map the depth to bedrock across the survey area;
- Map variation in bedrock type and rock quality; and
- Determine engineering parameters.

To meet these objectives, the geophysical survey will undertake the following tasks:

- Identify the distribution and thickness of superficial sediments and rock head where possible (sub bottom profiling and seismic refraction);
- Identify the distribution of subsea geological features such as areas of exposed bedrock (sub bottom profiling and seismic refraction);
- Identify the location, extent and nature of any impediments such as wrecks, debris on seafloor, rock outcrop, other cables, pipelines etc.; and
- Identify the seabed and sub-seabed conditions within the survey area (UMASW, seismic refraction).

The interpretation of the geophysical survey will better inform the scope of work for the subsequent intrusive geotechnical surveys. The geophysical survey is non-invasive.

2. Geotechnical and Environmental Sampling

- 20 boreholes (cable percussive with rotary follow-on); and
- 20 Cone Penetration Tests (CPTs)
- Surface grab samples (as necessary)

The purpose of the geotechnical survey is to evaluate the nature and mechanical and chemical properties of the superficial seabed sediments along the survey corridor.

The exact location and spacing of the geotechnical sampling, within the survey corridor will be determined following interpretation of the geophysical data.

Depending upon the requirement identified from interpretation of the geophysical data, approximately 20 boreholes (cable percussive with rotary follow-on) and 20 Cone Penetration Tests

(CPTs) will be required in total, along with associated sampling and laboratory testing. The intrusive investigation works are likely to take 12 weeks to complete, subject to tidal and weather conditions.

Boreholes will be drilled using cable percussion rig and a rotary coring rig. Each borehole will have a seabed footprint of approximately 0.5m^2 and risings of approximately 11m^3 (assuming a borehole depth of up to 25m) will be dispersed around the drill site as a cuttings pile. The borehole will be left to collapse naturally following completion of drilling where the cuttings are likely to fall back down the hole.

Boreholes will likely be drilled from a jack-up platform as described previously. The number of legs used for the operations is dependent on seabed conditions, current strength and wave action. For the application area, four legs are the most likely scenario; however, this may be variable with weather conditions.

The Piezocone penetrometer for CPT shall have a minimum 10 tonne capability and a maximum depth penetration of 6m below seabed. The CPT is undertaken by pushing an instrumented cone into the ground at a constant speed, with continuous measurement of the cone end resistance, the friction along the sleeve of the cone, and the pore water pressure.

Surface grab samples (using Van Veen grab sampler or equivalent) will be taken for laboratory testing. The objective of the testing is to provide results to be used for contaminant assessment and classification for disposal at sea or on land.

3. Environmental Surveys

The following section details the list of environmental surveys required. The exact scope of works will be refined following the desktop review, preliminary site investigation and consultation.

Sub-tidal Benthic Survey

Grab samplers are used to sample for marine habitats and fauna. There are various grab sampler types to include but not limited to Van Veen Van-Veen grab taken for benthic faunal analysis. From this, a small amount of sediment can be retained for Particle Size Analysis and Loss on Ignition Analysis.

Survey period

- Benthic habitats - Year round survey period
- Epifauna (animals living on the surface of the seabed or a riverbed, or attached to submerged objects or aquatic animals or plants) - survey period April to the end of September.
- If required algal species surveyed – May to August

Subtidal Video survey

This survey provides footage to aid in the classification of submerged habitats and is a non-invasive survey for habitats and fauna.

- Benthic habitats - Year round survey period
- Epifauna (animals living on the surface of the seabed or a riverbed, or attached to submerged objects or aquatic animals or plants) - survey period April to the end of September.

4. Intertidal Benthic Survey

This survey involves a series of cores taken during in the soft sediment intertidal sections of the survey area. At each site typically

1) a single stove-pipe core (19cm Ø) is taken for macrofaunal analysis.

2) A single sediment scrape is taken from the sediment surface for Particle Size Analysis (PSA) and Loss on Ignition (LOI).

3) A photographic record was taken. Notes of sediment type and obvious epibenthos are recorded.

Survey period

Intertidal habitats – survey period April to the end of September

5. Marine mammals

Marine mammals are typically surveyed for the shoreline via vantage point surveys. The surveyor uses a telescope and binoculars to scan the study area. This survey will be supplemented by an underwater acoustic survey i.e. a submerged microphone attached to specialised recorder device. Both surveys are non-invasive.

- *Survey period*

The survey for marine mammals may occur year-round taking account of species specific movements.

6. Survey Vessels

Dedicated survey vessels will be used which are appropriate to the water depth of the survey area; a vessel with a shallow draft will be utilised for the shallow water survey area. The exact equipment to be used will be confirmed following a tender process to procure the survey contractor.

A jack-up platform will likely be used to acquire geotechnical boreholes in the application area. Exact details of the vessel/platform to be used will not be confirmed until the ground investigation contractor can be confirmed. Positioning at the site will require the use of a tug vessel.