

DEVICE-SPECIFIC EMP: MICRO TIDAL TURBINES WARRIOR WAY

Document Control

Revision	Description	Prepared	Reviewed	Approval
Version 1	19/10/2026	Original	Saul Young, META Operations Manager	Fishtek Marine
				[TBC by NRW]

Introduction

This document is being submitted under ORML1957v2 condition 3.20 to submit a device-specific EMP for approval at least 3 months prior to the commencement of works.

The approved META Project Environmental Management Plan (PEMP) and the META Project Environmental Mitigation and Monitoring Plan (PEMMP) form the minimum standard for all device developers to comply with. Developers must take account of the requirements contained within these plans when developing this device-specific EMP.

General Overview of Proposed Testing

Information required	Details		
Site	Warrior Way		
Type of device	3 micro tidal turbines designed to provide 24/7 power to environmental monitoring and subsea equipment. The aim of test is to confirm the turbines produce enough power for these applications.		
Proposed location	51° 42.2072'N 4° 55.6298'W		
Commencement of works	19 th January 2027		
Decommissioning	19 th July 2027		
Proposed parameters	Proposed	Consented	Source
	Minimum clearance between rotor blades & sea-surface: The blade tip will always be below the sea surface at a minimum of 2m depth	2m	ORML1957v2
	Length x Width: 1.33m x1.65m (x3 frames)	20m x 10m	ORML1957v2
	Rotor diameter: 1m (x3 rotors)	5m	ORML1957v2
	Number of rotors: 3	3	
	Swept area: 0.79m ² per rotor 2.37m ² total combined of 3 rotors	19.63m ²	ORML1957v2
	Height above surface: n/a seabed mounted device	5m	ORML1957v2
	No. of tests at a time: 1	1	ORML1957v2
	Sea surface area of device: n/a	200m ²	ORML1957v2
	Proportion of device touching the seabed: <15%	50%	ORML1957v2
	Seabed footprint: 2.19m ² (x3 frames) 6.57m ² total combined footprint of the 3 turbine bedframes	200 m ²	ORML1957v2
	Rotor tip speed: 4m/s (max)	10.5m/s	ORML1957v2

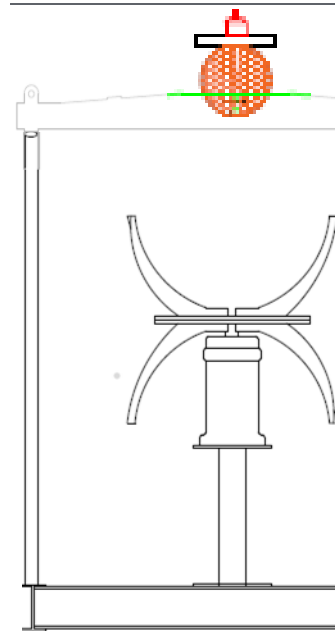


Figure 1 Micro tidal turbine design. Turbine diameter is 1m. The steel weight is 655kg. On top of the bed

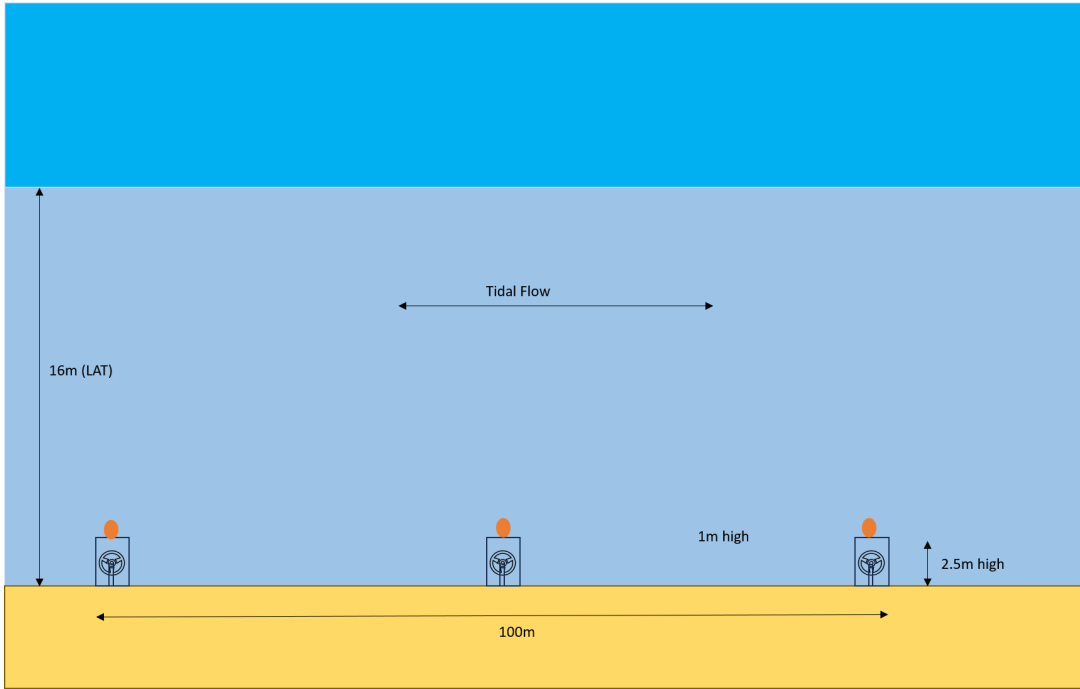


Figure 2 Three micro tidal turbine bedframes (as pictured in figure 1) will be deployed on the seabed at the META Warrior Way test site in a line parallel to the tidal flow / channel in approximately 16 – 20m water depth LAT. Drawing not to scale.



Figure 3 A data buoy like this one pictured will be moored nearby within the Warrior Way site on a single point mooring to remotely collect data from the turbines and mark the site.

Roles and Responsibilities

The key roles relevant to the deliverables are as follows:

Name	Role
Saul Young	META
Harry Thatcher	Site lead
Peter Kibel	Shore C
Gareth Reynolds	Vessel

Communications and Reporting

The lines of communication between the project team are as follows:

Name	Role
Gareth Reynolds	Vessel
Harry Thatcher	Fish
Saul Young	META

Device Specific Mitigation and Monitoring

This section translates the mitigation and monitoring measures (ES) into a format which can be deployed. The specific site and device are pre-identified and the specific site and device are pre-identified.

Receptor	Mitigation/ Survey / Monitoring
All birds	Mitigation
All birds	Mitigation
Diving birds	Mitigation
All marine mammals, basking shark and otter	Mitigation
All marine mammals, basking shark and otter	Mitigation
Otter	Device-specific survey

Otter	Monitoring	Monitoring of the first deployment (installation, operation and decommissioning phases) to determine any change in use due to device deployment	PEMP (Annex 7), Section 5.5
All fish and shellfish	Mitigation	Implementation of a MPCP to manage the risk of accidental pollution in the marine environment	PEMP (Annex 7), Section 6.2.1
Benthic habitats and species	Mitigation	Invasive Non-Native Species Management Plan	PEMP (Annex 7), Section 7.2.3
Sensitive habitat and species	Mitigation	Micro-siting of devices or components on the seabed	PEMP (Annex 7), Section 7.2.2
Benthic habitats and species	Mitigation	Implementation of a MPCP in order to manage the risk of accidental pollution in the marine environment	PEMP (Annex 7), Section 7.2.1
Archaeological receptors	Mitigation	Micro-siting to avoid impact on marine archaeology receptors	PEMP (Annex 7), Section 8.2

Seabed Habitat Risk Assessment

In 2023 Ocean Ecology Limited (OEL) designed and conducted benthic habitat mapping surveys at the META Warrior site using drop-down camera (DDC) and multibeam echosounder (MBES) methods, with the aim to identify and understand the habitat present. The habitat map produced for Warrior Way is presented below and includes the proposed position of the three micro tidal turbine bedframes and data buoy. The proposed positions are micro-sited on coarse sediment (Eunis Classification A5.1) away from sensitive habitats (e.g. Annex 1 reef).

Probability \ Severity	Very Low (1)	Low (2)	Medium (3)	High (4)
Major (4)	4	8	12	16
Significant (3)	3	6	9	12
Minor (2)	2	4	6	8
Very Minor (1)	1	2	3	4
Hazard	Possible impacts	Mitigation	Residual risk	
3 bedframes with a combined seabed footprint of 6.57m ²	Damage or disturbance to sensitive benthic habitat	Mooring blocks micro-sited on coarse sediment (Eunis Classification A5.1) away from sensitive habitats (e.g. Annex 1 reef)	Probability (1) x Severity (2) = Minor (2)	

