Annex I

Environmental Impact Assessment

Schedule III

(Screening according to S.L. 549.46)

ERA Reference no.:	EA/00001/19
PA Reference no.:	PA/01921/19
Project Title:	Beach nourishment at Għar l-Aħmar, Marsaxlokk
Location:	Għar l-Aħmar, Marsaxlokk
Screening date:	May 2019

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1. Outline of proposal

1.1 The proposal involves the dredging of sand from the il-Magħluq ta' Marsaxlokk (Figure 1) and the nourishment of an existing beach at il-Bajja ta' Għar l-Aħmar in Marsaxlokk using around 1,500m^3 of sand to extend the shoreline seaward by approximately 15m. A berm will be constructed at the outer tip of the promontory in order for the beach to be stable (Figure 2).

Figure 1: Location for dredging of marine sand for beach replenishment
(Source: Explanatory Note submitted in conjunction with the PDS)

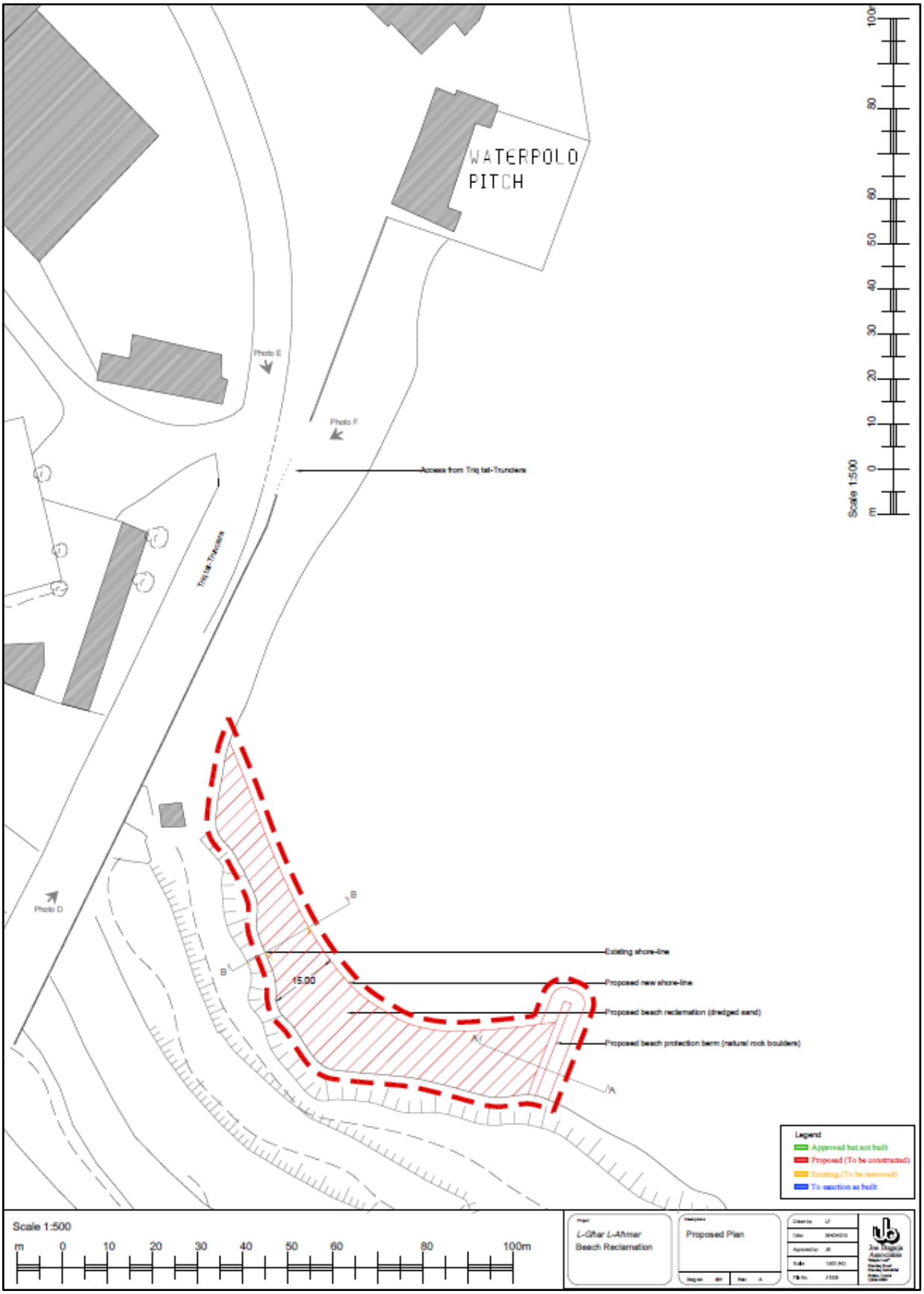

Figure 2: Location of proposed development
(Source: PDS)

2. Site context

2.1 The present beach is located at Marsaxlokk and is composed of three distinct stretches:

- the stretch closest to the man-made water polo pitch consists of boulders, cobbles and pebbles on a matrix of granules and very coarse sand. This material consists of dumped Globigerina Limestone that has been there for a sufficiently long period to become rounded and smoothened due to wave action. Additionally, anthropogenic litter is also present on site;
- moving eastwards, the terrestrial, infralittoral and mediolittoral zones consist of sparse shingle patches, coarse sand with shells and other biogenic inclusions which extends also into the sublittoral zone, which is characterised by sand and muddy sands. The shallow infralittoral part in this zone is characterised by coarse sand with patches of shingle and accumulations of deposited seagrass debris; and
- the inner portion is composed of coarse to medium sand backed by a rocky escarpment, consisting of quaternary deposits (Figure 3).

2.2 An ecological survey was carried out in May 2019 and identified several species, including *Posidonia oceanic, Cystoseria compressa* and *Gibbula* spp., amongst others. Figure 4 below illustrates the marine benthic assemblages occurring in the different marine zones at l-Għar l-Aħmar.

Figure 3: Quaternary deposits along the inner portion of the bay
(Source: ERA during site visit)

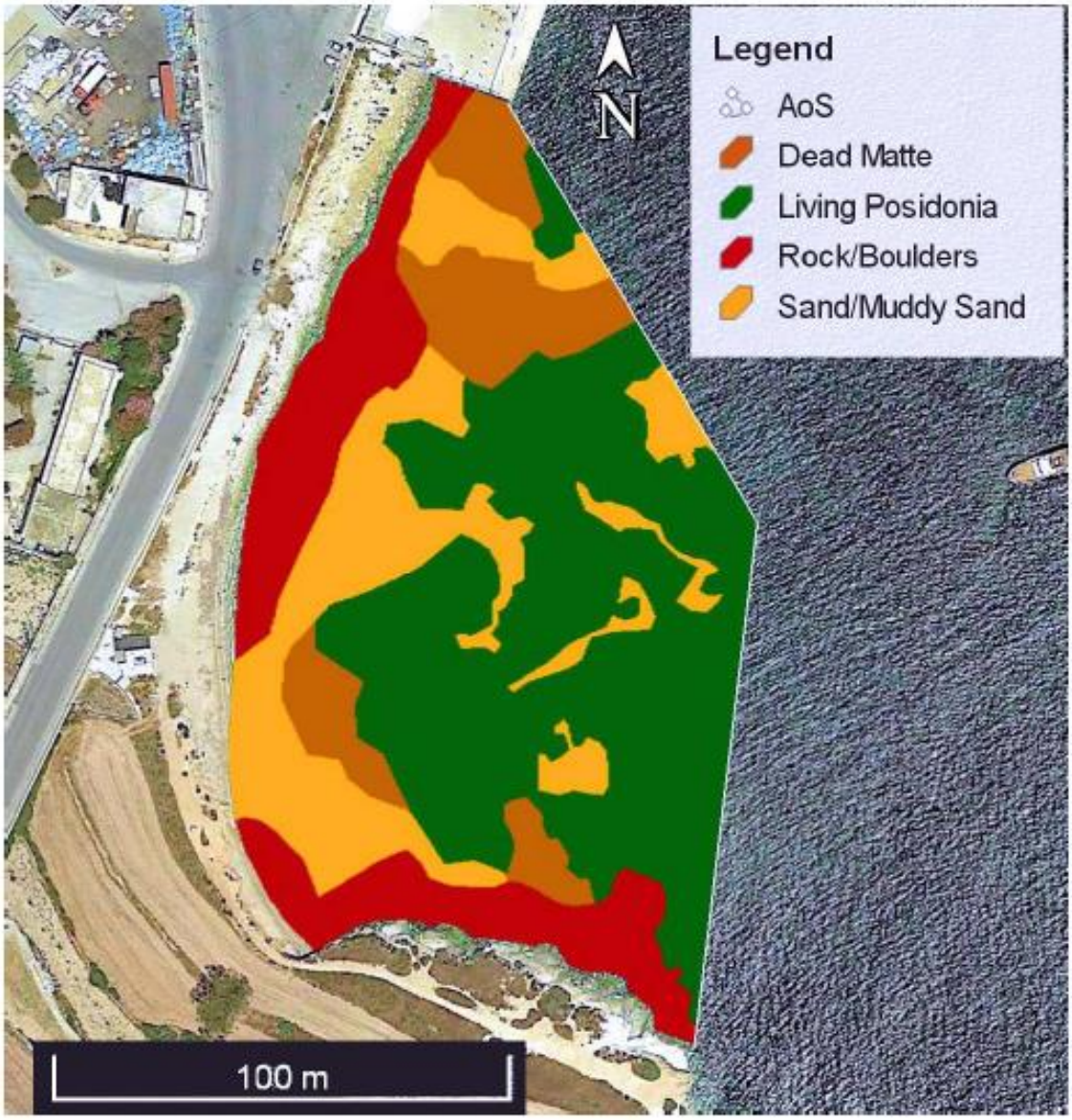

Figure 4: Indicative map of the marine benthic assemblages
(Source: Ecological survey report, May 2019)

3. Site History

3.1 A direct action is pending from the Planning Authority (EC/00951/6), due to deposition and levelling of inert material along the coastline without permit.

4. Overall Assessment

4.1 The proposed development falls within the scope of Schedule I, Category II, Sections 6.2.2.3 (Coastal works to combat erosion, and works capable of altering the coast (through the construction of, for example, breakwater, dykes, moles, jetties, groynes, sea-walls, wave-breakers, underwater berms, and other sea defence works) not covered by Category I, excliding the maintenance and repair of such works), 6.2.2.4 (enlargement, modification or replenishement of an existing shore or beach) and 6.3.2.3 (development on the coast or in the sea, not covered by Category I, with a footprint of 500m^2 or more) of the Environmental Impact Assessment Regulations (S.L. 549.46). In this regard a Project Description Statement (PDS) was required.

4.2 The following documents were used for the assessment:

- 1st Draft Project Description Statement dated November 2018, referred to ERA in December 2018;
- Project Description Statement dated April 2019, available on e-apps;
- Explanatory note and appendices submitted to ERA on 29th April 2019 that include a report on:
  i. a general ecological survey of the beach and adjacent shallow seabed at l-Għar l-Aħmar, Marsaxlokk, in connection proposed bach rehabilitation and extension works in the area, dated November 2018;
  ii. Particle Size analysis, dated February 2019; and
  iii. A sediment transport assessment, dated January 2019
- Svasek Hydraulics letter, dated May 2019 and referred to ERA on 24th May 2019;
- Clarification letter from architect, referred to ERA on 24th May 2019;
- Statement concerning the suitability of soft sediment dredged from a site within Marsaxlokk Bay for use as a source of sand for beach nourishement at Għar l-Aħmar (located in the same bay), by Joseph A. Borg, referred to ERA on 27th May 2019;
- Report on a second marine ecological survey of the seabed at l-Għar l-Aħmar, Marsaxlokk, and an ecological appraisal of the proposed beach rehabilitation and extension works in the area, referred to ERA on 28th May 2019; and
- Construction Management Plan, referred to ERA on 29th May 2019.

4.3 The following are potential impacts envisaged on the surrounding environment.

Physical alterations to the beach and seabed profile

According to the Construction Management Plan, dredging of sand from il-Magħluq ta' Marsaxlokk (Figure 1) will be carried out by a crane fitted with a grab dredger and a mechanical shovel. The sand will be transported to l-Għar l-Aħmar via trucks with a capacity of 15m^3. The dredged sand will be deposited on site at l-Għar l-Aħmar and mechanically levelled.

The berm will be approximately 40m in length and is estimated to have a volume of c. 750m^3. A Method Statement for the construction of the berm is to be submitted to ERA for approval prior to the commencement of works of such berm.

Furthermore, the methodology used in the deposition of the sand may lead to different environmental impacts during the construction phase, such as turbidity levels and potential damage to the seabed. However, such impacts can be mitigated through the following:

- Limiting the interventions to stretches of seabed consisting of bare sand during the nourishment; and
- Using a silt curtain when depositing sand on the beach to allow the suspended sediment to settle on the seabed.

Material requirements and proposed works

The suitability of the dredged sediment from il-Magħluq ta' Marsaxlokk was assessed in terms of the chemical quality and the granulometric characteristics of the sediment based on previous reports carried out in 2018 and 2019 respectively for the purpose of the beach replenishment at Għar l-Aħmar.

For the chemical analysis, sampling was carried out at three stations (Figure 5), while for the granulometricc analysis sampling was carried out at two sites, one of which was il-Magħluq ta' Marsaxlokk, for which five stations were sampled (Figure 6).

Results collected from station 2 of the chemical composition analysis, and station 1 of the granulometric analysis identified the area marked in Figure 1 (above) to be suitable. The results from these stations determined that the sediment appears to have levels of chemicals that allow dumping at sea or on the shore at an appropriate site, as well as sediment grain size characteristics that are close to those of sediments found on local natural soft sediment beaches, hence making the sediment suitable for beach nourishment.

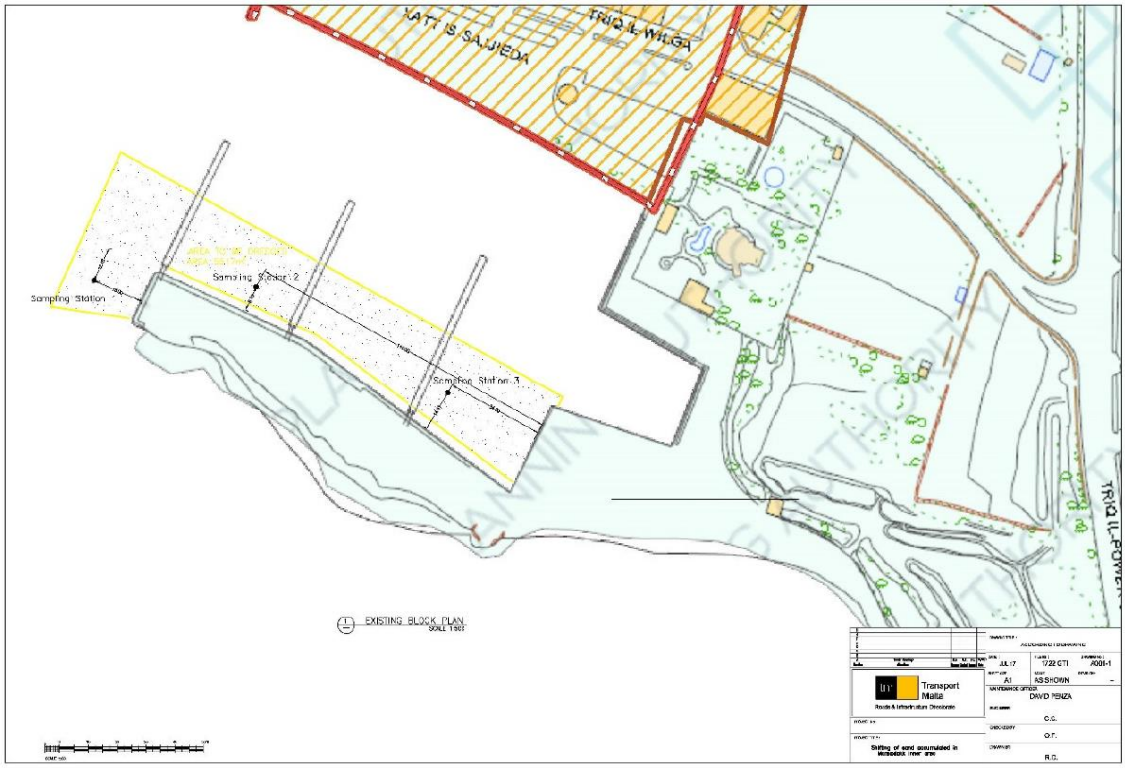

Figure 5: Chemical analysis sampling station points
(Source: Ecoserve report May 2019)

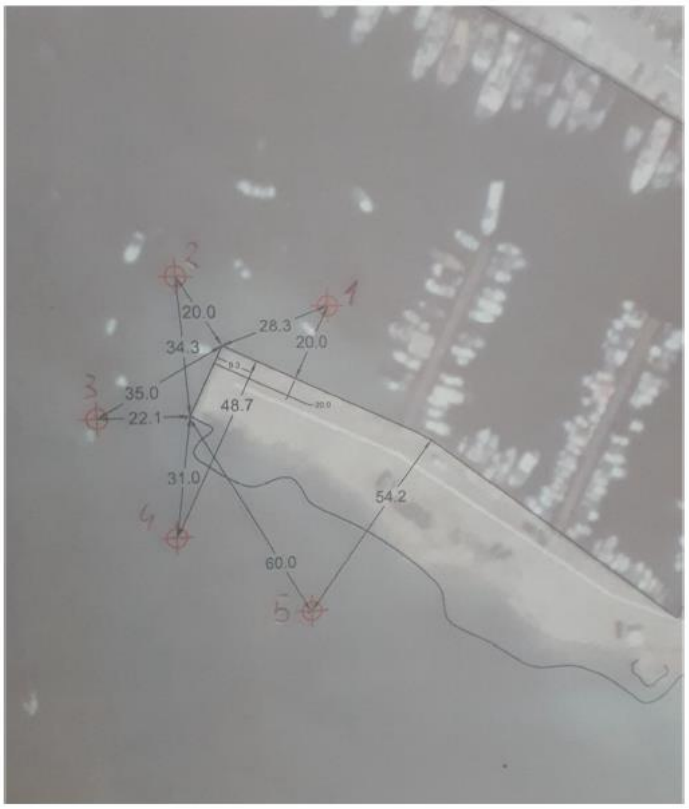

Figure 6: Sampling stations carried out for granulometric analysis
(Source: Ecoserve report May 2019)

Hydrodynamic conditions

A sediment transport assessment report was drafted by Svasek Hydraulics (January 2019). Such report assessed several layouts of how the nourishment should take place in order to achieve a stable beach. The sediment transport assessment determined that as proposed (Figure 2), the beach would be stable.

The project will be phases, such that the nourishment will take place in June, while the berm will be constructed in September. The period between the nourishment and the construction of the berm is considered as a 'good weather window', thus it is considered as the best period of the year to have a sand nourishment without the protective berm, as minimal shifting of sand is expected during this period.

Assuming that the proposal will result in small and confined changes to the hydrodynamics, these are expected to be negligible on the wider area of influence. Changes in the hydrodynamic regime of the southern part of the area of influence during the construction phase can occur, however these will be temporary and are expected to recover once construction is over, without the need for any restoration measures.

When complete, the project is unlikely to influence any evolution or change of the inshore seabed within the area of influence. The boulders composing the berm will act as energy absorbers, thus will not affect the wave and current patterns. Due to the porosity of the berm, no material changes in the hydrodynamic regime of the area outside the berm and the new beach are envisaged.

Marine Ecology

The proposed works may obliterate the present sand habitat and its benthic communities (e.g. infauna) within the area of influence of the proposed project.

The sand will cover part of the rock platform below the shore, the sandy bottom adjacent to the shore, and part of the existing sandy beach. No sand will be deposited on any live *Posidonia* bed. Additionally a silt curtain should be installed to allow the sediment to settle to the seabed during the levelling.

As stated above, the berm will be constructed in September, however unless there are exceptional hydrodynamic conditions, and given that the location of the beach (i.e located in a west-facing indentation on an inlet within Marsaxlokk Harbour), no to minimal transport of sand from the area of deposition is expected. In this regard, there will not be any disturbance or obliteration of habitats and/or species away from the footprints of the berm and the new beach.

Furthermore, the presence of *Posidonia* beds in the immediate surroundings of the berm is of concern, in view of potential direct construction-phase impacts. A works method statement, including also mitigation measures, shall be submitted to ERA for the construction of the berm prior to the commencement of works.

Quality of the water body

In view that no material changes in the hydrodynamic regime of the area outside the berm and the new beach are envisaged, no significant effect on any biota outside the berm/new beach area is envisaged. This includes the dead *Posidonia* matte and the live seagrass meadow and stands, algal assemblages on bedrock and/or stones and boulders, and fish and benthic assemblages associated with these habitats. Fish fauna, benthic invertebrate fauna, macrophytes and phytobenthos, and phytoplankton are the Biological Quality Elements (BQEs) established by the EU's Water Framework Directive (WFD) to assess ecological quality of coastal waters. No information on phytoplankton of the area of influence exists, however extrapolating from what is known on the biology of this functional class of organisms, no significant effect on phytoplankton is envisaged.

5. ERA Conclusion (including screening outcome in terms of the Environmental Impact Assessment Regulations – S.L. 549.46)

The ERA Assessment did not identify any upfront objections to the proposal, however it has identified certain aspects which are of environmental concern as per above section 4.3 above. Following the communication of ERA comments to the developers and consultant, and the subsequent submission of additional information and clarifications by the consultant, screening has concluded that no EIA is required. This is as long as the measures identified in the PDS, the additional clarification note, and the below requirements are duly adhered to:

- A works method statement, including also mitigation measures, shall be submitted to ERA for the construction of the berm prior to the commencement of works.
- To avoid smothering of the Posidonia meadows in the vicinity of the proposed beach, a silt curtain should be installed when depositing sand on the beach (by means of direct pumping) to allow the suspended sediment to settle on the seabed; and
- Monitoring shall be carried out during both construction and post-construction phase, to address the evolution of the beach and seabed, the present protected species and habitats, all Biological Quality Elements (in terms of the WFD), water and sediment quality, and any other aspects which are considered relevant by the monitor and

specialist consultants, as per attached conditions. Details on the beach profile (including transects) to be created are to be provided to ERA on a regular basis and throughout the works.

Disclaimer

The above screening results, the ensuing conclusions and recommendations are without prejudice to any required changes or updates should the development proposal be eventually modified or should the information/assumptions provided turn out to be incorrect. Any deviations of the proposal from this submission would need to be re-assessed and the merits of this screening would need to be re-opened.