

Technical Study for Ecology Study in Relation to the 2nd Malta-Sicily Interconnector EIA

As per ERA requirements for EA/00018/21

Report



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I INTRODUCTION

This report describes Terrestrial Ecology impacts arising from the construction and operation of the proposed development (PA/04448/22). The development application proposes the "construction of the second cable link inter-connector project. The proposal includes trenching, laying, cable jointing and installation between the Enemalta 132kV Maghtab Terminal Station and the near shore approach, construction of underground joint bays, a trench-less transition from onshore to offshore and the laying and protection of the submarine cable up to the median line between Maghtab, Naxxar and Ragusa, Sicily".

The project, hereinafter referred to as the "Scheme", aims to secure the electrical supply to the Maltese Islands.

This technical study identifies the terrestrial ecological features in the area and assesses the impacts caused in relation to the EIA for the proposed development, in line with the requirements issued by the ERA under EA 00018/21.

1.1 PROJECT DESCRIPTION

The proposed cable shall connect Malta to the TERNA 220kV substation located in Sicily. The primary aim of the project is to transmit electricity via a second electrical interconnector (IC2) between Maghtab, Naxxar (Malta) and Contrada Cimillà, Ragusa (Sicily).

The length of the submarine cable is estimated to be 99.6km, while the onshore cable is estimated to be around 1.8km in Malta and between 20.6km in Sicily. The transmission voltage to Malta shall be at 220kV with transformation to match the local 132kV network in Malta. To maximize the project's benefits, the proposed interconnector shall operate in parallel with the existing link in an unrestricted manner.

Malta has been connected to the European electricity grid through a submarine cable interconnection (IC1) to Sicily since 2015. Once the project is implemented, it is expected to not only assist Malta with the ever-increasing electrical demand attributed primarily to economic growth and an influx in population number but will also be an enabler of further renewable energy generation as it can allow for RES intermittency. The need for such a project also stems from the European Green Deal and other policy documents which oblige member states to prioritise carbon emission neutrality by 2050. In fact, the proposed cable is expected to reduce the dependency on fossil fuel power generation at Delimara Power Station and increase the security of supply with the potential for increased energy input from renewables.

In order to minimise the environmental impact of the project, the applicant is proposing to make use of the existing transmission station just outside the Ecohive complex, Maghtab, Naxxar. On shore, the cable shall be installed in underground trenches passing through or in close proximity to the Ecohive complex which is operated by WasteServ Malta. The onshore and nearshore approaches will be connected via trenchless drilling techniques passing underneath the Coast Road. The offshore cable shall be buried beneath the seafloor to a nominal depth of circa 1.5m on the most optimal route and



where it will not be possible to cover the submarine cable, it will be protected by means of rock protection/placement.





FIGURE 1: PROPOSED INTERCONNECTOR ROUTE IN THE MALTESE EXCLUSIVE ECONOMIC ZONE (EEZ)



2 TERMS OF REFERENCE

The ERA issued the Terms of Reference related to the study on ecology (including terrestrial ecology, avifauna and marine ecology) for the EIA in July 2022. They are replicated hereunder.

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (I.E. ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects elaborated further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;

2. The relevant sensitive receptors vis-à-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);

3. The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points (including depth of multiple sampling points at a single sampling point in the case of water media and sediment, where applicable) to be used in the study; and

4. Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).

Note: It is recommended that these details are discussed in advance with the ERA prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by Section 4 below. The discussion should cover the following aspects, in the appropriate level of detail:

• Supra-national (e.g. European Union; United Nations; or other international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;

• National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and

• Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).

Note: In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting



legal/policy instruments (e.g. Water Framework Directive and Marine Strategy Framework Directive) may need to be factored into more than one aspect of the discussion.

3.4 Ecology (including terrestrial ecology, avifauna and marine ecology) The assessment should include:

1. A full bathymetric survey of the existing environment on and around the area likely to be affected, include:

- a. Offshore bathymetric maps;
- b. Aerial imagery of the area;
- c. Details and maps of any services / utilities; and
- d. Description of the sea-bed morphology and of the sediment characteristics of the site.

2. An investigation of the ecology of the site and its surroundings (including, as relevant: flora, fauna, avifauna, fish and other aquatic organisms, benthic, burrowing and pelagic organisms, and their habitats and ecosystems), duly covering the relevant seasons (e.g. wet and dry seasons, in the case of terrestrial ecology) to ensure adequate coverage of all relevant species and ecosystem components;

3. A reporting of the conservation status and ecological condition of the area and the state of health of its habitats, species and ecological features;

4. A reporting of all protected, endangered, rare, unique, endemic, high-quality, keystone, invasive/deleterious, or otherwise important species, habitats, ecological assemblages, and ecological conditions found in the area under study;

5. A prediction of the potential impacts of the proposed project on the ecology of the site and its surroundings, including loss, damage or alteration of habitats and species populations (including potential increases in ambient noise levels in the marine environment) including alteration in the habitats and species' condition/state of health as measured through indicators used/specified for assessment of status in relevant EU policy;

6. Identification of all relevant species and assemblages (e.g. protected species or habitats, key species relevant to habitat characterisation, and monitoring indicators), and assess their abundance and distribution 8 patterns as well as the species' ecological niches. The findings should be supported by adequate maps and photographs. Classification of habitat types and species should be conducted in accordance with recognised classification systems (e.g. EUNIS and Palaearctic), to ERA satisfaction;

7. A noise and vibration study providing sufficient detailed information on any impacts on sensitive receptors (fauna and avifauna, natural ecosystems) due to increase in pressure in the area, and the cumulation with other existing sources including maritime vessel traffic and with other predicted sources such as new developments;

8. The nature of the changes (whether temporary or permanent) and effects of such changes on the ecological features; and

9. Other relevant environmental features.

In particular, the study should identify all relevant species and assemblages (e.g. protected species or habitats, key species relevant to habitat characterisation, and monitoring indicators), and assess their abundance and distribution patterns as well as the species' ecological niches. The findings should be supported by adequate maps and photographs. Classification of habitat types and species should be conducted in accordance with recognised classification systems (e.g. EUNIS and Palaearctic), to ERA's satisfaction.

Note 1: Separate Terms of Reference are being referred by ERA for the Appropriate Assessment required in terms of the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44).



Note 2: Where the area of influence encompasses both marine and terrestrial environments, one or more of the sections indicated in these specimen TORs may need to be restructured accordingly to reflect the specific circumstances (e.g. separate reports for marine and terrestrial ecology).

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND ENVIRONMENTAL RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/

demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (i.e. if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

1. An exhaustive identification and description of the envisaged impacts;

2. The magnitude, severity and significance of the impacts;

3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (i.e. impacts affecting other countries);

4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);

5. Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);

6. A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:

• interactions (e.g. summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;

• interactions or interference with natural or anthropogenic processes and dynamics;

• cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and

• wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased pressures on the environment in the surroundings of the project, including pressures which may be exacerbated by the proposal but of which effects may go beyond the area of influence; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);

7. Whether the impacts are adverse, neutral or beneficial;

8. The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;

9. Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;

10. The probability of the impacts occurring; and

11. The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.

The impacts that need to be addressed are detailed further in the sub-sections below.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMMES



5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see Section 1.2.3 above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see Section 5.4 below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and ERA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [i.e. impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (i.e. measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

1. Details regarding type and frequency of monitoring and reporting, including spot checks;

2. The parameters that will be monitored, their units of measurement, the monitoring indicators to be used; and standard analytical methods in line with relevant EU policy; 3. An effective indication of the required action to address any exceedances, risks, mitigation failures or noncompliances for each monitoring parameter;

4. An evaluation of forecasts, predictions and measures identified in the EIA; and



5. An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.

The programme should address all relevant stages, as follows:

(a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);. [Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by ERA (e.g. where monitoring would be more appropriately integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in Appendix 3 – attached to Method Statement as Appendix 1.



3 METHODOLOGY

3.1 AREA OF INFLUENCE

The Area of Influence (AOI) for the terrestrial component of the study comprised of a 100m buffer zone around the proposed onshore route of the interconnector cable.

The AOI is mapped in Figure 2.





FIGURE 2: AREA OF INFLUENCE FOR THE TERRESTRIAL AND MARINE ECOLOGY STUDY



3.2 TERRESTRIAL STUDY

This study describes the existing ecology present with the project footprint and surrounding area and outlined any proposed interventions. This information was then used to assess the impact of the proposed project on the area's ecology. The Consultant first carried out a thorough literature review of readily available data and previous studies in the AOI. This involved a review of readily available data and previous studies will be carried out for the AOI and includes:

- » Central Malta Local Plan
- » SPED (Strategic Plan for the Environment and Development)
- » Previous environmental studies carried out in the same area

Following on from the desktop study, the Consultant conducted a broad-brush terrestrial survey within the AOI in February 2023. The Consultant recorded the vegetation assemblages and any faunal species encountered during the survey. The baseline survey also included a survey of all species present within the site and buffer zone, including their scientific and vernacular name to identify species protected in line with the TREES AND WOODLANDS PROTECTION REGULATIONS (S.L.549.123) and the Flora, Fauna, and Natural Habitats Protection Regulations (S.L.549.44). Photographic evidence was collected during the field survey, including aerial drone shots.

The report details the conservation status and ecological condition of the area and the state of health of its habitats, species and ecological features. All protected, endangered, rare, unique, endemic, high-quality, keystone, invasive/deleterious, or otherwise important species, habitats, ecological assemblages, and ecological conditions found in the area under study were also studied.

3.3 IMPACT ASSESSMENT

The Consultant evaluated the potential impacts arising from the construction and operation of the proposed Scheme on the local terrestrial ecology. The potential impacts also provided a basis for comparison between the existing conditions and the new conditions established during the operation of the Scheme.

The following information have been provided for each of the identified impacts:

- Project phase (construction or operational phase)
- Policy importance
- Extent of effect (local, national or international)
- Duration (temporary or permanent)
- Type (beneficial or adverse)
- Reversibility (reversible or irreversible)
- Sensitivity of receptors (high, medium or low)
- Probability of occurrence (certain, likely, uncertain, unlikely or remote)
- Scope for mitigation or enhancement (very good, good or none)

Based on the above criteria, the Consultants assessed the significance level of each of the identified impacts. Different criteria were used for the different components of the study, as summarised in Table 1 to Table 9.



TABLE 1: DURATION OF IMPACT CRITERION DESCRIPTION

DURATION OF IMPACT

Permanent	Impact would still be detectable following decommissioning of project
Temporary	Impact would persist throughout the phase of project under consideration only

TABLE 2: EXTENT OF IMPACT CRITERION DESCRIPTION

EXTENT OF IMPACT

Widespread	Impact is expected to affect in the entire area of study and/or may extend beyond the boundaries of direct intervention into adjacent areas
Localised	Impact is expected to affect receptors in the immediate vicinity of its source

TABLE 3: CONSEQUENCES OF IMPACT CRITERION DESCRIPTION

CONSEQUENCES OF IMPACT

Direct	Changes that result from the cause-effect consequences of interactions between the environment and project activities
Indirect	Changes that result from cause-effect consequences of interactions between the environment and direct impacts
Cumulative	The cumulative consequences of ecological impact refer to the gradual and long-term effects that result from the combined impact of various ecological disturbances or stressors on an ecosystem over time.

TABLE 4: EFFECT OF IMPACT CRITERION DESCRIPTION

EFFECT OF IMPACT

Adverse	A negative effect on the sustainability of the resource under consideration, which are distinguishable from background fluctuations
Beneficial	A positive effect on the sustainability of the resource under consideration, which are distinguishable from background fluctuations



TABLE 5: REVERSIBILITY OF IMPACT CRITERION DESCRIPTION

REVERSIBILITY OF IMPACT

Reversible	The state of the resource is expected to return to baseline state following cessation of the source of impact
Irreversible	The state of the resource is not expected to return to baseline state following cessation of the source of impact

TABLE 6: SENSITIVITY OF RESOURCES TO IMPACT CRITERION DESCRIPTION

SENSITIVITY AND RESILIENCE OF RESOURCES TO IMPACT

High	The resource under consideration is highly susceptible to a detectable deviation from the background state and its general dynamics
Moderate	The resource under consideration is vulnerable but able to tolerate a degree of detectable deviation from the background state and its general dynamics
Low	The resource under consideration is highly tolerant to a detectable deviation from the background state and its general dynamics

TABLE 7: PROBABILITY OF IMPACT OCCURRING CRITERION DESCRIPTION

PROBABILITY OF IMPACT OCCURRING

Inveitable	Impact will occur irrespective of any mitigation measures taken
Likely	Impact may occur despite the implementation of mitigation measures
Unlikely	Impact would only occur in cases of major mitigation failure
Remote	Impact would only occur in exceptional circumstances
Uncertain	Probability of impact cannot be predicted reliably due to missing information or unknown factors

TABLE 8: IMPACT SIGNIFICANCE CRITERION DESCRIPTION

IMPACT SIGNIFICANCE

Major	The effect on the existing state of the feature under consideration will lead to a high or large-scale change in its resilience
Moderate	The effect of the existing state of the feature under consideration will lead to an observable but contextually restricted change, which is sufficiently important for its long-term resilience



IMPACT SIGNIFICANCE

Minor

The effect on the existing state of the feature under consideration will lead to no, low or small-scale change that will not alter its resilience

TABLE 9: RESIDUAL IMPACT SIGNIFICANCE CRITERION DESCRIPTION

RESIDUAL IMPACT SIGNIFICANCE

Major	The effect on the existing state of the feature under consideration will lead to a high or large-scale change in its resilience after application of mitigation measures (if any) and impact cessation
Moderate	The effect of the existing state of the feature under consideration will lead to an observable but contextually restricted change, which is sufficiently important for its long-term resilience after application of mitigation measures (if any) and impact cessation
Minor	The effect on the existing state of the feature under consideration will lead to low or small-scale change that will not alter its resilience after application of mitigation measures (if any) and impact cessation
Negligilbe	The effect on the existing state of the feature under consideration will lead to no significant change that will alter its resilience after application of mitigation measures (if any) and impact cessation

The technical report includes:

- A comprehensive list of mitigation measures to prevent, minimise and offset significant adverse effects of the proposed development;
- A description and quantification of any residual impacts remaining after the implementation of the recommended mitigation measures; and
- A monitoring plan for all phases of the project (before, construction, operational and decommissioning), if deemed appropriate.



4 BASELINE STUDY

The terrestrial component of the proposed IC2 project spans about 2km. The cable runs from the existing interconnector terminal station, through the ECOHIVE waste management complex operated by Wasteserv, traverses the Ten-T road network known as Triq il-Kosta via a trenchless tunnel and ends up at the bottom of the sea just outside the Qalet Marku area in an areas known as I-Ghallis.

The site is mostly rural in character, dominated primarily by the engineered landfills and waste management operations conducted by Wasteserv. The onshore route also abuts parcels of agricultural land, some afforested areas, coastal garigue and other natural communities reminiscent of garigue, steppe and degraded areas.

The offshore to nearshore transition joint Bay and temporary HDD working areas are proposed to be positioned just outside ECOHIVE's northern vehicular access road. This temporary laydown area lies specifically in a garigue area which abuts the heavily frequented Triq il-Kosta. The scheme site is also surrounded by various terrestrial, avian and marine Natura 2000 sites. L-Għadira s-Safra u l-Iskolla tal-Għallis (MT 000008) is considered specifically in this report since it is located in close proximity to the proposed trenchless drilling and is designated as a Special Area of Conservation (SAC) via GN No. 1373 of 2016, in accordance with the FLORA, FAUNA AND NATURAL HABITATS PROTECTION REGULATIONS, 2016 (S.L. 549.44).

4.1 DESKTOP REVIEW

4.1.1 Local Plans

The area of influence and its surroundings were assessed through a desktop review of the relevant local plans, legislations and any applicable policy documents. This exercise revealed that the scheme site is not located on any areas of ecological and/or legislative importance. Nevertheless, other sites of ecological and environmental importance have been identified in the immediate surroundings.

Searches on the Planning Authority Geoserver (2023) revealed that the existing Terminal Station is located on a listed Ecological Area (CG22) as indicated in Figure 3**Error! Reference source not found.**. The agricultural use of the surrounding areas is further substantiated by the Local Plan of 2006 which designates most of the adjacent parcels as an Agricultural Area (CG24) awaiting classification of agricultural value.

The onshore trench proposed within the ECOHIVE complex passes through an area which is also listed as a Site of Scientific Importance (CG22), marked in a purple outline in Figure 3. This area lies in close proximity to the new engineered landfill that is currently being excavated just in front of the Malta North Facility and the main ECOHIVE offices.

The entire coastal stretch of Qalet San Marku is also protected through the provisions of the Central Malta Local Plan as this part of the coast is designated as a "Protected Natural Coast with public access" (NA04).





FIGURE 3: NAXXAR COASTAL AND RURAL ENVIRONMENTAL CONSTRAINTS MAP (CENTRAL MALTA LOCAL PLAN, 2006)

In Figure 4, there are seven Areas of Ecological Importance (AEI) marked as A to G that intersect with both the AOI and the scheme site at various points. These AEIs were identified through the NHLP survey in 1996 and have been used to designate protection areas in the Local Plans of 2006.

Site A is partially situated within the existing terminal station site and is granted a level 4 degree of environmental protection due to its dense vegetation of maquis-like shrubs and trees intermingled with agricultural land.

Site B encompasses most of the engineered landfills and waste management activities within the ECOHIVE complex and has the largest ecological protection area within the AOI, designated as a level 3 degree of environmental protection. This site includes sections of the Ghallis engineered landfill and a rocky garigue/steppe community dominated by Agave spp. plants, which were introduced in the mid-20th century and have rapidly propagated in this area. The coastal stretch leading to the Ghallis Tower is lined with mature tamarisk trees and prickly pear shrubs, hindering access to the area. Other garigue and steppe species and communities may be found in areas that are not invaded by Agave spp. as anthropogenic impacts in this zone are infrequent.

Site C acts as a buffer for Site D, which is a coastal wetland known as I-Għadira is-Safra u I-Iskolla tal-Għallis and is recognized as a Natura 2000 site (MT0000008). Site D has a level 1 degree of protection, while Site C has a level 3 degree of protection. Further information on the coastal wetland is provided in later sections of the report.

Site E is a large tract of coastal garigue with a level 4 degree of protection. Site G is adjacent to Site E and also includes the same coastal garigue habitat, therefore granted the same level of protection.



These sites led to the designation of NA04 "Protection of the Natural Coast with public access" as described earlier.

Site F, located further inland, comprises a typical garigue habitat that is considerably less exposed to invasion from Agave spp. and other anthropogenic impacts compared to other garigue AEIs mentioned in this section. Sites F and G are situated outside of the AOI considered in this report.



FIGURE 4: AREAS OF ECOLOGICAL IMPORTANCE (A-G) AROUND THE SITE ARE MARKED WITH A GREEN OUTLINE (PA GEOSERVER)

4.1.2 The Strategic Plan for the Environment and Development (SPED)

The SPED issued by the Planning Authority in 2015, describes Malta's strategic vision on planning, environmental, economic and social matters to address overarching concepts of sustainable management of land and sea resources as well as the protection of the environment. A number of thematic objectives are directly applicable to the project and its effect on the biodiversity:

- Environment Thematic Objective 6: To safeguard environmental health from air and noise pollution and risks associated with use and management of chemicals by:
 - Controlling the location, design and operation of development
 - Protecting vulnerable areas from sources of pollution
- Environment Thematic Objective 7: to promote the efficient use of resources including local stone, water and soil, and manage waste in a manner that safeguard natural processes, and minimises impacts on cultural heritage, landscape and human health by:



- Protecting natural hydro-morphological and hydrological processes
- Controlling the location of development to prevent soil sealing and erosion
- Protecting agricultural land and gardens to prevent loss of soil and soil sealing
- Supporting the implementation of the National Waste Management Plan and setting out site selection criteria for the location of waste to energy facilities
- Controlling demolition of buildings and structures and excavation of sites
- Thematic Objective 8: To safeguard and enhance biodiversity, cultural heritage, geology and geomorphology by:
 - Safeguarding protected areas including SACs, SPAs and MPAs whilst enabling activities aimed at enhancing their management objectives
 - Facilitating restoration of damaged ecosystems
 - Controlling activities which might have an impact on areas, buildings, structures, sites, spaces and species with a general presumption against the demolition of scheduled and vernacular buildings
 - Controlling sources of light pollution which negatively affect the rural area
- <u>Coastal Objective 1</u>: To prioritise uses that necessitate a location on the coastal zone and marine area in a manner which minimises user conflicts, does not accelerate coastal erosion, protects biodiversity, cultural heritage, landscapes and visual access to them, public access and use and increases resilience to climate change impacts by;
 - Designating a. a predominantly terrestrial urban coast to promote compatible urban coastal uses, safeguard legitimate coastal uses and visual access from promenades, and enhance public use of bathing areas; and b. a predominantly terrestrial rural coast to encourage the continuation of traditional agricultural use where predominant and public access for informal recreation, to restrain mineral extraction from extending towards the coastline and improve small scale beach facilities. The rural coast may also accommodate legitimate coastal uses of strategic importance which may be incompatible with urban coastal uses and where no alternative locations on the designated urban coast exist;
- <u>Coastal Objective 3</u>: To ensure that existing coastal recreational resources are protected, enhanced and accessible and to facilitate the provision of new recreational facilities which do not restrict or interfere with physical and visual public access of the coast and in a manner which does not have an unacceptable adverse impact on protected areas, species and areas of high landscape sensitivity by:
 - Protecting and encouraging informal recreational facilities on the terrestrial rural coast;
 - Protecting designated beaches and swimming zones and identified diving sites from conflicting uses and

4.1.3 S.L. 549.44 (repealing the Flora, Fauna and Natural Habitats Protection Regulations, 2006 [LN 311 of 2006])

This legislation establishes a National Ecological Network of special areas of conservation having National or International Importance. The Legal Notice transposes the obligations of the HABITATS DIRECTIVE which call for the establishment of a European Network of Special Areas of Conservation (Natura 2000) composed of sites having the natural habitat types and species listed in Annexes I and II to the Directive (listed under Schedule I and II of the same Legal Notice). Schedule III lists animal and plant species of community importance whose conservation requires the designation of Special Areas of Conservation, whilst Schedule IV lists the criteria for selecting sites eligible for identification as Sites of National Importance and of International Importance and Designation as Special Areas of



Conservation. Schedule V lists animal and plant species of community interest in need of strict protection, whilst Schedule VI lists animal and plant species of national interest in need of strict protection.

Schedule VII lists animal and plant species of community interest whose taking in the wild and exploitation may be subject to management measures, whilst Schedule VIII lists animal and plant species of national interest whose taking in the wild and exploitation may be subject to management measures. Schedule IX includes provisions for identification and monitoring, whilst Schedule X lists endemic species not covered by Regulation 26 of the same Legal Notice.



FIGURE 5: L-GHADIRA S-SAFRA U L-ISKOLL TAL-GHALLIS TERRESTRIAL NATURA 2000 SITE

4.1.4 S.L.549.123 (Trees and Woodlands Protection Regulations)

This legislation protects trees and woodlands in the Maltese islands to safeguard them from anthropogenic activity and to regulate the activities that may have an effect theron. The legislation identifies the areas and the species of trees which merit protection, subdividing them into distinct Schedules based on their level of protection.

The first Schedule Part A Table 1, lists the trees which are protected in all locations in Malta, Table 2 lists species which are protected within protected areas, in ODZ, green areas, in natural or rural/green enclaves in an urban area or in urban public open spaces only. The Second Schedule lists down the invasive, alien or environmentally incompatible species, whilst the Third Schedule lists down the fees to be paid for registration and permit applications. The Fourth Schedule lists down the penalties to be paid by offending contraveners against these regulations.



4.1.5 L-Għadira s-Safra u l-Iskolla tal-Għallis

L-Għadira s-Safra u l-Iskolla tal-Għallis is a wetland covering 2.82 hectares of land and is designated as a Special Area of Conservation according to G.N. 1379 of 2016 in accordance with the FLORA, FAUNA AND NATURAL HABITATS PROTECTION REGULATIONS, 2016.

This site is unique in the Maltese islands as it is a transitional wetland that consists of brackish water, which is neither fresh nor saltwater. It has rock pools that are filled with rainwater during rainy seasons and seawater during wave actions. During the summer, excessive heat causes most of the freshwater to evaporate, leaving behind puddles of saline water. As a result, the ecosystem supports biotic assemblages that are typical of freshwater habitats in the winter and species that can tolerate saline conditions in the summer.

The site was initially proposed as a Site of Community Importance in 1995 and was confirmed in 2008. It comprises of two Annex I habitat types, namely Mediterranean and thermo-Atlantic halophilous scrubs (Habitat 1420) and Mediterranean temporary ponds (Habitat 3170).

L-Għadira s-Safra u I-Iskolla tal-Għallis (see Figure 6) is home to a variety of rare species, including the endangered Prickle Grass, the rare tadpole shrimp, and the Fairy Shrimp (*Branchipus schaefferi*), along with other rare inhabitants such as the Morning Glory (*Cressa cretica*), the Sea knotgrass (*Polygonum maritimum*), and the endangered woodlouse (*ylos latrellei sardous*). The site also accommodates *Riella helicophylla*, a liverwort listed as an Annex II species in the HABITATS DIRECTIVE. The vegetation in the area includes *Plantago* spp., the Sea Fennel (*Crithmum maritimum*), and the Golden Samphire (*Limbarda crithmoides*), which are typical of coastal garigue areas. Some areas of the site have also been planted with *Tamarix* spp. trees through afforestation projects (Figure 7).





FIGURE 6: PHOTOGRAPH OF THE DRY ROCKPOOLS AT L-GHADIRA S-SAFRA U L-ISKOLLA TAL-GHALLIS TAKEN IN FEBRUARY 2023





FIGURE 7: TAMARISK TREES PLANTED AT THE SITE'S BOUNDARY

The conservation objectives of the site are to minimise and restrict public access to the protected brackish rockpools and increase the natural buffer of the site through the maintenance and improvement of the scheduled Annex I habitats. Other measures targeting the improved educational awareness of the site's importance, effective monitoring strategies and enforcement of existing legislations are also proposed in the government notice. Furthermore, it is envisaged that the site will expand in size through inland relocation and the rehabilitation of the carriageway to increase the buffer area.

G.N. 1373 of 2016 also recognises various anthropogenic impacts which remain mostly unmitigated, including: "littering, trampling, presence of ruderal and invasive alien species and the permanent destruction of the clay layer". It also recognises the fact that due to its small size, the presence of the adjacent arterial road network and recreational activities are direct threats to the habitats present within the site.





FIGURE 8: L-GHADIRA S-SAFRA U L-ISKOLLA TAL-GHALLIS SITE BOUNDARY

4.2 SITE SURVEY

A broad-brush terrestrial survey was conducted within the AOI in February 2023. Since the onshore component of the project is about 2km and the AOI is 100m wide, the ecological characteristics are rather heterogenous. In the vicinity of the Terminal Station towards the south of the AOI, the ecological characteristics mainly consist of agricultural elements, along with ruderal and opportunistic species that are commonly found at the edges of cultivated fields. These species are particularly prevalent in small rural paths that are lined with traditional rubble walls, as well as in abandoned and deteriorated fields (refer to Figure 9 to Figure 11). Some of the most prevalent species encountered in this area include: *Glebionis coronaria* (Crown Daisy), *Malva arborea* (Tree mallow), *Nicotiana glauca* (Tree tabocco), *Opuntia ficus indica* (Prickly pear), *Borago officinalis* (Borage) and *Ricinus communis* (Caster oil plant).

In such rural areas, human-made disruptions appear sporadically, including abandoned sheds, walls made of rubble, seldom-used paths, and locations where people dump trash. These disturbances can be observed scattered throughout the agricultural landscape.





FIGURE 9: RUDERAL VEGETATION AT THE PERIPHERY OF CROP PRODUCING FIELDS



FIGURE 10: ANTHROPOGENIC PRESENCE WITHIN THE AOI (LITTERING, BUILDING INFRASTRUCTURE & UTILITIES)





FIGURE 11: AGRICULTURAL FIELDS BORDERED BY RUBBLE WALLS AND LARGE TUART TREES

The eastern border of the Terminal Station is surrounded by an Area of Ecological Importance (AEI) Level 4 as shown in Figure 4. The site is characterized by low-lying trees and large shrubs coupled with ruderal species that are symbolic of a disturbed Mediterranean maquis habitat. Some of the most commonly encountered species in the area include: *Olea europaea* (Olive tree), *Acacia* spp. (Wattle),



Ceratonia siliqua (Carob tree), *Foeniculum vulgare* (Fennel) and *Diplotaxis tenuifolia* (Perennial wall-rocket). As seen in Figure 12, unvegetated (barren) parcels are occasionally encountered in this area. These barren areas are wrapped around by hardy vegetated plants that thrive in disturbed areas. These are normally situated in lower elevations and amidst the maquis-like trees. This observation could suggest that the land is still recovering from the effects of construction activities at the Terminal Station, such as trampling that may have taken place outside the confinements of the site less than ten years ago.



FIGURE 12: REMNANTS OF THE MAQUIS-LIKE COMMUNITY LOCATED TO THE EAST OF THE TERMINAL STATION

The Terminal Station and the southern entrance of the ECOHIVE complex are bounded by soft landscaping areas comprising primarily of horticultural trees. The species makeup in these areas comprises of *Yucca gloriosa* (Spanish dagger), *Cuppressus sempervirens* (Cypress trees), *Pistacia lentiscus* (Lentisk tree), *Ficus elastica* (Rubber fig), *Nerium oleander* (Oleander), *Phoenix dactylifera* (Date palm), *Rosmarinus officinalis* (Rosemary), *Atriplex halimus* (Shrubby orache), *Tamarix africana* (Tamarisk) and *Ceratonia siliqua* (Carob tree).





Figure 13: Soft landscaping at the maghtab civic amenity site



FIGURE 14: SOFT LANDSCAPING AT THE SOUTHERN ENTRANCE OF THE ECOHIVE COMPLEX



As the route moves northwards and into the ECOHIVE complex, the ecological landscape dynamics gradually become more influenced by the ongoing waste management operations. Terraced fields that are used for cereal production offering lower cultivation value are still encountered in the outskirts of the AOI. Due to the intensification of anthropogenic activities, opportunistic species become more prevalent along this stretch. Dense populations of *Glebionis coronaria* (White wall-rocket), *Avena sterilis* (Sterile oat), *Arundo donax* (Greater reed), *Diplotaxis tenuifolia* (Perennial wall-rocket), *Borago officinalis* (Borage), *Foeniculum vulgare* (Common fennel) and *Ricinus communis* (Caster oil plant) amongst other species cover the large heaps of the rehabilitated Zwejra landfill on the east. Likewise, these groups also cover the edges of freshly added debris on the western side of the AOI, which are likely a result of the new landfill's excavation in the ECOHIVE complex. The recommended path for digging the cable trench in this region is also distinguished by comparable groups of plants that hold little ecological and preservation importance.



FIGURE 15: OPPORTUNISTIC SPECIES COVERING THE EASTERN HEAPS OF THE REHABILITATED ZWEJRA LANDFILL





FIGURE 16: OPPORTUNISTIC SPECIES COVERING THE WESTERN HEAPS OF INERT MATERIAL AS WELL AS THE PROPOSED TRENCH PATHWAY

The farmland located on the eastern side of the trench path is comparable in terms of ecological makeup and performance to the ones outlined on the southern part of the Scheme location. However, it is less disjointed and supports a smaller area of rural buildings. The agricultural land within the AOI is encircled by rubble walls. These human-made countryside structures are abundant in flora and fauna species that tend to flourish in the protection and foundation they provide. Vegetation species encountered along rubble walls include *Ficus carica* (Fig tree), *Ferula communis* (Common fennel), *Arundo donax* (Greater reed), *Sonchus oleraceus* (Crown daisy), *Asparagus aphyllus* (Mediterranean Asparagus), as well as a number of monocot grasses such as *Bromus* spp., *Polygonum aviculare* (Knotgrass) and *Piptatherum miliaceum* (Smilograss). The abundance and biodiversity of such species reduces considerably on concreted rubble-walls which are periodically encountered along the onshore trench route.





FIGURE 17: AGRICULTURAL LAND WEST TO WASTESERV MALTA AREA, LOOKING WEST



FIGURE 18: TYPICAL VEGETATION ON BOUNDARY RUBBLE WALLS





FIGURE 19: VEGETATION ASSEMBLAGES ON RUBBLE WALL STRUCTURES

Further north, at the proposed location of the Joint bays and HDD temporary laydown area, the topography slopes gently downwards towards the coast. The ecological features shift and become more synonymous with the typical Mediterranean garigue and steppe habitats. This area is not easily accessible as it is surrounded by fences on the southern periphery, and an almost impenetrable layer of spiny *Agave americana* (Agave) and *Opuntia ficus indica* (Prickly pear) at the north that delineates Triq il-Kosta.

The area features a high occurrence of *Agave americana*, a type of plant that stores water and has unusually large clusters of flowers that generate both flowers and small plants through sexual and asexual reproduction. This species is highly invasive and can quickly overtake land, causing harm to the indigenous plants and/or ecosystems. The area which forms part of a Level 3 AEI, also comprises of similar ruderal and opportunistic species, but the community is generally more mature in terms of ecological succession. This is particularly evident in the lower sections of the site, with occasional shrubs of *Thymbra capitata* (Mediterranean Thyme) and *Pistacia lentiscus* (Lentisk tree) being observed.

This zone also comprises of distinct bands of *Pinus halepensis* (Pine trees) and *Tamarix africana* (Tamarisk) at the higher elevation levels closest to the ECOHIVE complex. The species makeup gradually transitions into low-lying shrubs of *Atriplex halimus* (Shrubby orache), *Teucrium fruticans* (Olive-leaved germander), *Asphodelus aestivus* (Branched asphodel), *Urginea pancration* (Sea squill), *Thymbra capitata* (Mediterranean thyme), *Phagnalon rupestre* subsp. *graceum* (Eastern phagnalon), and *Oxalis pes-carpae* (Bermuda buttercup).





Figure 20: Garigue area located beyond the fence



FIGURE 21: AERIAL DRONE VIEW OF THE GARIGUE AREA





FIGURE 22: A DENSE LAYER OF SPINY SUCCULENTS SEPARATING THE GARIGUE AREA FROM TRIQ IL-KOSTA



FIGURE 23: GARIGUE HABITAT DOMINATED BY AGAVE SPP.





FIGURE 24: MEDITERRANEAN THYME, LENTISK AND AGAVE SPECIMENS INTERTWINED IN THE GARIGUE AREA

The coastal garigue at the shoreline comprises another ecosystem that is mostly barren from vegetation due to the continuous exposure from wind and waves. Nevertheless, occasional shallow soil pockets accommodating coastal shrubs such as *Limbarda crithmoides* (Golden samphire) and other opportunistic species were encountered throughout this coastal stretch.





FIGURE 25: COASTAL GARIGUE MOSTLY BARREN FROM VEGETATION

A list of species encountered during the broad-brush survey within the AoI (including fauna) is provided in Table 10. Other potential fauna species which were not observed during the survey are likely to be encountered in this area. These include: the Algerian Hedgehog (*Atelerix algirus*), the Western whip snake (*Coluber viridflaviorus*), the Leopard snake (*Elaphe situla*), the Moorish wall gecko (*Tarentola mauritanica*) and the Oscillated skink (*Chalcides ocellatus*). The presence of bats cannot be excluded from this area, as old dilapidated farmland buildings can provide attractive roosting sites which are unknown or undocumented.

Species Name	English Name	PROTECTION	TYPICAL HABITAT IN AOI
Acacia saligna	Blue-leafed wattle	Schedule II (invasive) S.L. 549.123	Agricultural land, maquis & disturbed areas
Agave americana	Century plant	None	Steppe & garigue areas
Antirrhinum tortuosum	Greater snapdragon	None	Agricultural land & disturbed areas

TABLE 10: LIST OF VEGETATIVE SPECIES ENCOUNTERED ON SITE



Species Name	English Name	PROTECTION	TYPICAL HABITAT IN AOI		
Armadillum schmalfussi	Maltese woodlouse	None	Disturbed areas		
Arthrocnemum macrostachyum	Glaucous glasswort	None	Coastal garigue & nearby wetland		
Arundo donax	Greater reed	None	Agricultural land & disturbed areas		
Asparagus aphyllus	Mediterranean asparagus	None	Agricultural land, disturbed areas & steppe		
Asphodelus aestivus	Summer asphodel	None	Steppe & garigue areas		
Atriplex halimus	Shrubby orache	None	Soft landscaping areas & outskirts of garigue areas		
Avena sterilis	Sterile oat	None	Steppe & disturbed areas		
Bituminaria bituminosa	Pitch trefoil	None	Agricultural land, disturbed areas & steppe		
Borago officinalis	Borage	None	Disturbed areas & agricultural land		
Bromus spp.	Brome grass	None	Agricultural land, disturbed areas & steppe		
Ceratonia siliqua	Carob tree	Schedule I Part A Table 2 S.L.549.123	Agricultural land & maquis		
Convolvolus arvensis	Field bindweed	None	Agricultural land & disturbed areas		
Crithmum maritimum	Rock samphire	None	Coastal garigue		



Species Name	English Name	PROTECTION	Typical habitat in Aol				
Cupressus sempervirens	Italian cypress	Schedule I Part A Table 2 S.L. 549.123	Sott landscaping areas				
Diplotaxis tenuifolia	Perennial wall rocket	None	Agricultural land & disturbed areas				
Dittrichia viscosa	False yellowhead	None	Agricultural land & disturbed areas				
Ecbalium elaterium	Squirting cucumber	None	Agricultural land & disturbed areas				
Eucalyptus gomphocephala	Tuart tree	None (not located in public urban space)	Agricultural land				
Euphorbia pinea	Pine spurge	None	Steppe				
Ficus carica	Fig tree	None	Agricultural land				
Foeniculum vulgare	Common fennel	None	Disturbed areas, agricultural land & steppe				
Galactites tomentosa	Mediterranean thistle	None	Garigue & steppe				
Glebionis coronaria	Crown daisy	None	Agricultural land & disturbed areas				
Lavatera arborea	Mallow tree	None	Disturbed areas, garigue areas & agricultural land				
Limbarda crithmoides	Golden samphire	None	Coastal garigue & disturbed areas				
Mercurialis annua	Annual mercury	None	Soft landscaping area & disturbed areas				



Species Name	English Name	Protection	TYPICAL HABITAT IN AOI
Nicotiana glauca	l ree tobacco	Schedule II (invasive) S.L. 549.123	Disturbed area & agricultural land
Olea europaea	Olive tree	Schedule I Part A Table 2 S.L. 549.123	Agricultural land & soft landscaping areas
Opuntia ficus indica	Prickly pear	None	Agricultural land & garigue area
Oxalis pes-caprae	Bermuda buttercup	None	Disturbed areas, steppe & garigue
Podarcis filfolensis maltensis	Maltese wall lizard	Schedule V of S.L. 549.44	Disturbed area & steppe
Phagnalon	Eastern	None	Steppe &
graecum subsp. hinzbergi	phagnalon		garigue areas
graecum subsp. hinzbergi Phoenix dactylifera	phagnalon Date palm	Schedule I Part A Table 2 S.L. 549.123	garigue areas Soft landscaped areas
graecum subsp. hinzbergi Phoenix dactylifera Pinus halepensis	phagnalon Date palm Aleppo pine tree	Schedule I Part A Table 2 S.L. 549.123 Schedule I Part A Table 2 S.L.549.123	garigue areas Soft landscaped areas Soft landscaped areas
graecum subsp. hinzbergi Phoenix dactylifera Pinus halepensis Piptatherum miliaceum	phagnalon Date palm Aleppo pine tree Smilograss	Schedule I Part A Table 2 S.L. 549.123 Schedule I Part A Table 2 S.L.549.123 None	garigue areas Soft landscaped areas Soft landscaped areas Steppe
graecum subsp. hinzbergi Phoenix dactylifera Pinus halepensis Piptatherum miliaceum Pistacia lentiscus	phagnalon Date palm Aleppo pine tree Smilograss Lentisk tree	Schedule I Part A Table 2 S.L. 549.123 Schedule I Part A Table 2 S.L.549.123 None Schedule I Part A Table 2 S.L. 549.123	garigue areas Soft landscaped areas Soft landscaped areas Steppe Garigue & soft landscaped areas
graecum subsp. hinzbergi Phoenix dactylifera Pinus halepensis Piptatherum miliaceum Pistacia lentiscus Plantago spp.	phagnalon Date palm Aleppo pine tree Smilograss Lentisk tree Plantain	Schedule I Part A Table 2 S.L. 549.123 Schedule I Part A Table 2 S.L.549.123 None Schedule I Part A Table 2 S.L. 549.123	garigue areas Soft landscaped areas Soft landscaped areas Steppe Garigue & soft landscaped areas Disturbed areas & steppe



Species Name	English Name	PROTECTION	Typical habitat in Aol
Ricinus communis	Castor oil tree	Schedule II (invasive) S.L. 549.123	Disturbed area & agricultural land
Rosmarinus officinalis	Rosemary	None	Soft landscaped areas
Sulla coronaria	Sulla	None	Agricultural land
Sonchus oleraceus	Sow thistle	None	Disturbed areas & garigue
Tamarix africana	African tamarisk	Schedule I Part A Table 2 of S.L.549.123	Afforested areas & garigue
Teucrium fruticans	Olive leaved germander	None	Garigue
Urginea pancration	Sea squill	Schedule VIII of S.L.549.44	Garigue & steppe
Washingtonia filifera	California fan palm	None	Soft landscaped areas
Yucca spp.	Spanish dagger	None	Soft landscaped areas





FIGURE 26: TERRESTRIAL ECOLOGY MAP SHOWING HABITATS AND LAND USES WITHIN THE SCHEME'S ONSHORE AOI



5 IMPACT ASSESSMENT

5.1 CONSTRUCTION PHASE

Figure 26 and Figure 27 show that the proposed area for trenching and HDD laydown will pose an adverse impact on the different ecosystems present along the entire route, including tree plantations, garigue, disturbed ground, and the internal road network in the ECOHIVE complex.

The partial take-up of agricultural land, garigue and partial disassembly of rubble walls will cause the destruction of all ecological features which are associated with the habitat types present within the AOI. The impact is particularly relevant on life forms associated with the soil and rubble walls, particular soil infauna and sessile species.

Additionally, the Scheme is proposing the deposition of inert infill material on the northern garigue area near Triq il-Kosta to allow access for heavy machinery during the HDD drilling process and for the storage of raw material and waste. The area contains ecologically important species some of which are also protected in S.L.549.44 and S.L.549.123.

The construction of the temporary HDD lay down area involves clearing vegetation, flattening the ground, and compacting soil. This process is likely to result in the destruction of habitats and the loss of biodiversity in the area. The removal of vegetation can result in the loss of food and shelter for animals, and the destruction of the soil can disrupt the balance of nutrients in the ecosystem.

One of the most important impacts of the construction of the temporary lay down area is the loss of habitat for wildlife. The destruction of vegetation can lead to a decrease in food sources for herbivores, fauna shying away from the area, and a decrease in shelter for local biodiversity. The construction of the temporary lay down area can also cause physical harm to animals that inhabit the area, resulting in injury or death.

Another significant impact of the construction of the temporary lay down area is soil compaction. The heavy machinery used during the construction process can compact the soil, making it difficult for plant roots to grow and access nutrients, particularly because garigue and karst habitats are characterised by shallow soil pockets. This can result in the loss of vegetation and a decrease in soil stability, leading to erosion and sedimentation in nearby waterways. Soil compaction can also decrease the permeability of the soil, reducing the amount of water that can be absorbed, which can negatively impact water quality in a relatively xeric habitat.

The construction of the temporary lay down area can also result in the release of pollutants into the environment. The use of heavy machinery and construction materials can result in the release of pollutants such as nitrogen oxides, sulfur dioxide, and particulate matter into the air. These pollutants can harm both terrestrial and aquatic ecosystems, leading to health issues for both humans and wildlife. Since the duration of works in this area is temporary, the effects are unlikely to be long-lasting and significant.

The construction of a temporary lay down area to accommodate machinery for works on Horizontal Directional Drilling in an ecologically sensitive area can have severe ecological impacts. The destruction



of habitats, soil compaction, and the release of pollutants can disrupt the balance of the terrestrial ecosystem and have long-lasting effects on the environment.

In conclusion, the laydown activity will result in the permanent destruction of the ecological communities in the area, which is considered a major adverse impact since it's located in an Area of Ecological Importance Level 3. Despite a major adverse impact on the ecological features present in the site (including rubble walls, infauna and surface habitats), it is pertinent to note that the construction works will not be carried out within the confinements of any terrestrial Natura 2000 sites mentioned in the previous sections of this report. Therefore, no loss of habitats, species and ecosystems are expected from Natura 2000 sites through the excavation process, as these activities are confined to the AOI.



FIGURE 27: TEMPORARY HDD LAYDOWN AREA

During excavation and construction, fine particles are produced that can be carried away from the site by wind and water. Windblown dust can harm nearby trees and vegetation by blocking and damaging their respiratory and photosynthetic surfaces, which can cause a decrease in their health and potentially alter the community structure. This suggests that windblown particles can have a significant and temporary negative impact on the local vegetation, particularly in ecologically sensitive areas.

Since the closest Natura 2000 site is about 300 meters away from the HDD laydown area and the prevailing wind direction is north-westerly, the nearby Natura 2000 sites are not expected to be affected by the dispersal of windborne dust. Conversely, the northern garigue area and the southern



maquis areas denoted as Zone A and Zone B in Figure 4 may be adversely impacted by trenching and HDD preparation works.

Additionally, particulate matter can settle on the ground and be carried away by rainwater runoff, which can affect the quality of the surrounding substrate and harm low-lying species while burying propagules of important colonizing species. This may result in the proliferation of non-native species that could outcompete indigenous species if not properly managed. Despite these potential impacts, the generation of particulates during the construction phase is not considered to have significant or lasting effects, especially since these sites are already subjected to such impacts from the nearby landfilling operations. Furthermore, the likelihood of the impact decreases with distance, is influenced by the site's topography, and is also affected by the prevailing wind direction.

Noise, vibration and light emissions are likely to be produced during the construction phase of the Scheme. Noise and light pollution impacts are known to deter wildlife and to influence their behavioural patterns.

The assessment of construction noise has shown that the daytime and night-time threshold levels are not expected to be exceeded at the closest receptors. In addition, construction activities would be temporary and noise levels have been predicted for a worst-case scenario, resulting in no significant effects, particularly on Natura 2000 sites.

Excavation works will not be carried out at night, to minimise the disturbance towards local flora, fauna and nearby residential districts. Nevertheless, non-intensive construction works, including site maintenance, site upkeep and/or transportation of materials to the site may be carried out at night.

Subsequently, site illumination will be necessary if night-time activities are carried out, and impacts from light pollution on the biodiversity contained with the AOI are expected. Illumination is one of the most contentious issues with regards to nocturnal species especially avifauna, reptiles and mammals.

5.2 OPERATIONAL PHASE

Since the Terminal Station is already being operated at the site, the impacts are limited to noise and light emissions which are currently being emitted by the facility. No additional impacts are envisaged despite the intensification of an additional interconnector cable.

5.3 DECOMMISSIONING PHASE

The decommissioning of the cable refers to the process of ending its use and ceasing its operation. When a cable is decommissioned, it is typically disconnected from the power source or network it was connected to, and then either removed or left in place. In the case of the cable in question, it is unlikely to be de-buried and removed due to several factors.

Firstly, the cable is oil-free, which means it does not contain any hazardous materials that could cause long-term harm to the environment. Oil-free cables are a more environmentally friendly option compared to cables that contain oil, which can leak and cause damage to the ecosystem. Therefore, there is no immediate risk or danger to the environment if the cable remains in place.

Secondly, removing the cable would involve significant costs, both in terms of financial and environmental impact. The process of removing a cable requires a significant number of resources,



including specialized equipment and personnel. Additionally, removing the cable would require disturbing the surrounding soil and seabed, which could potentially release harmful pollutants into the environment.

Lastly, leaving the cable in place does not pose any significant risk to human health or the environment, and the impact of the cable on the local ecosystem is minimal. Therefore, there is little incentive or justification for the cable to be removed, given the high cost and potential negative environmental impact that would result from doing so. Overall, the decision to leave the cable in place after its decommissioning is a practical and environmentally responsible choice.



6 MITIGATION MEASURES

Since the proposed development is not located on any terrestrial Natura 2000 sites and there are no direct and/or indirect impacts on such Natura 2000 sites, no mitigation measures are being proposed within the confinements of the Natura 2000 site. Nevertheless, there are various ecologically important areas within the AOI which require the implementation of diligent working practices and mitigation measures to reduce some of the identified impacts.

The ENVIRONMENTAL MANAGEMENT CONSTRUCTION SITE REGULATIONS (S.L. 522.09) should be enforced to avoid the impacts from being generated in the first place and to ensure that environmental degradation is kept as low as possible. These regulations provide details on the containment and transportation measures for loose construction material on site and in transit, and other measures to prevent carrying out and/or depositing particulate matter.

Some of the proposed mitigation measures are highlighted below:

- Heavy machinery should not trample on natural areas located outside of the scheme site boundary
- Chemical spillages from machinery should be avoided by storing wastes and chemicals in bunded areas within the construction site
- All construction debris and soil should not be stockpiled near the base of trees and/or natural areas, but should be hauled away for proper disposal or in designated waste management areas
- Replacement/compensatory planting in the northern garigue area is necessary, some of the species to be considered include: *Thymbra capitata, Teucrium fruticans* and *Tamarix africana*. Compensatory planting should be avoided during the summer period.
- The necessary environmental permits to carry out interventions on protected species are obtained from the ERA
- Uprooting of invasive alien species should follow the recommendations in the ERA Guidelines on Works Involving Trees (2019) on managing non-native plant invaders and restoring native plant communities in terrestrial settings in the Maltese islands.
- Transplantation measures:
 - Should transplanting of trees be necessary, they should be pruned (not more than 25% of overall crown) to stimulate growth and reduce water loss. The trees should be watered for two consecutive days before removal, and the branches should be tied together during the transplantation phase.
 - An excavator or hand-held tools are necessary to dig a 60cm deep trench around the tree; the excavator should also dig a new pit which is around twice the original size of the root ball
 - Transplanting should take place between October to March, and the tree should be regularly monitored for growth. Follow-ups are required for at least 3 years after the specimen has been transplanted
- Negligence during construction activities can be mitigated through regular and effective environmental monitoring to ensure that the construction impacts are not spilling over into the adjacent habitats.
- Hoarding should be set up (in line with the ENVIRONMENTAL MANAGEMENT CONSTRUCTION SITE REGULATIONS, 2007) along the construction site to minimise dispersion of particulates. This



should be covered with suitable mesh or material that precludes dispersion of particulate matter.

- Pre-soaking, dust suppressors and covered stockpiles are considered good practices to minimise dust emissions.
- Works should be avoided during the night-time as much as possible
- Although rodent control is encouraged when setting up a construction site, care must be taken not to negatively influence any resident fauna in the immediate surroundings
- Construction vehicles and machinery should be well-maintained and serviced such that they can be operated at the best of their environmental performance.
- If lighting is required, downward facing luminaires should be installed within the facility to reduce light pollution during the operational phase



7 RESIDUAL IMPACTS

Residual impacts are those impacts which are bound to remain after taking into consideration the proposed mitigation measures. Despite the comprehensive adoption of the recommended mitigation measures, a number of unavoidable residual impacts are still expected to arise, namely:

- Impact on ecologically sensitive terrestrial ecosystems and assemblages falling directly within the footprint of the site interventions.
- Accumulation of dust, vibration and noise impacts within the immediate terrestrial ecosystems abutting the construction site boundary



8 MONITORING PROGRAMME

8.1 TERRESTRIAL ECOLOGY

Should the Scheme be permitted to be developed, a monitoring programme should be set up and implemented during the construction phases of development. The construction management plan prepared at project planning phase will be updated by the chosen contractor in order to ascertain that the best practicable environmental options available are followed through.

During the construction phase, periodic monitoring is being recommended to ensure that mitigation measures are in place and working as they should. This would ensure that no unwarranted impacts arise due to deviations from proposed working practices. Such deviations could have additional impacts over and above those originally predicted. All monitoring data should be presented to the relevant authorities at pre-agreed frequencies.

A terrestrial ecological monitoring approach is proposed in the northern garigue area where the HDD temporary laydown area shall be located. This is important to ensure that the site is restored back into its original condition following the implementation of construction works in this area. This approach can also be applied to other ecological important areas along the entire stretch of the onshore cable route, as deemed relevant by the competent authorities.

9 SUMMARY OF IMPACTS TABLE

ΙΜΡΑ	ct Type and Sour	CE	Impact R	ECEPTOR			I	Effect and Scal	E		PROBABILITY OF IMPACT OCCURRING (INEVITABLE/ LIKELY/ UNLIKELY/ REMOTE/ UNCERTAIN)	Overall impact significance	Proposed MITIGATION MEASURES	Residual impact significance	Other requirements	
IMPACT TYPE	Specific INTERVENTION LEADING TO IMPACT	Project phase	RECEPTOR TVPE	Sensitivity & resilience towards impact	Direct/ INDIRECT/ CUMULATIVE	BENEFICIAL/ ADVERSE	Severity	Physical/ geographic extent of impact	SHORT/ MEDIUM/ LONG TERM	Temporary/ permanent	Reversible/ irreversible					
Destruction of habitats and species in ecologically sensitive areas	Trenching and Temporary HDD laydown area	Constru ction	Vegetation & Faunal species	High	Direct	Adverse	High	Localised	Long-term	Permanent	Reversible	Inevitable	Major	Rehabilitating the impacted areas through compensatory planting and monitoring construction activities to minimise spill over effects	Moderate	N/A
Dust and silting	Trenching and Temporary HDD laydown area	Constru ction	Vegetation & faunal species	Moderate	Direct	Adverse	Moderate	Localised	Short- term	Temporary	Reversible	Likely	Minor	Implementation of effective dust suppression and water run-off harvesting techniques, particularly at the HDD laydown area.	Negligible	N/A
Illumination & Noise	Trenching and Temporary HDD laydown area	Constru ction	Faunal species	High	Direct	Adverse	Moderate	Widespread	Short- term	Temporary	Reversible	Likely	Minor	Onshore works should not be carried out at night. Use of lighting for safety reasons should be limited to downward facing, shielded and low-	Negligible	N/A



ΙΜΡΑΟ	ct Type and Sour	CE	Impact Ri	ECEPTOR		EFFECT AND SCALE					PROBABILITY OF IMPACT OCCURRING (INEVITABLE/ LIKELY/ UNLIKELY/ REMOTE/ UNCERTAIN)	Overall Impact Significance	Proposed Mitigation Measures	Residual impact significance	Other requirements	
Garigue soil compaction	Machinery used at temporary HDD laydown area	Constru ction	Vegetation and soil infauna	High	Direct	Adverse	High	Localised	Short- term	Permanent	Irreversible	Unlikely	Moderate	frequency luminaires. Contractor's machinery, storage areas and personnel must be confined to the scheme site boundary to limit overspill trampling impacts on ecologically sensitive areas.	Minor	N/A
Noise & lighting from the Terminal Station	Operation of the Terminal Station	Operati on	Fauna	High	Direct	Adverse	Moderate	Widespread	Long-term	Permanent	Irreversible	Unlikely	Negligible	N/A	Negligible	N/A

