Infrastructure and Utilities in Relation to an Environmental Impact Assessment (EIA)

As per ERA requirements for PA/04448/22

Report

AIS ENVIRONMENT

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1 SCOPE

This report describes the infrastructure & utility 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 infrastructure and utilities 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.

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 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.

Malta is already connected to the European electricity grid through a submarine cable interconnection (IC1) to Sicily since 2015. Once the new project is implemented, Malta will be better equipped to address the ever-increasing electrical demand attributed primarily to economic growth and increasing population. Furthermore, the project will also be an enabler of further renewable energy generation as it can allow for Renewable Energy Sources (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, in 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, which forms part of the Ten-T network. The offshore cable shall be buried beneath the seafloor to a nominal depth of circa 1.5m on the most optimal route. The cable shall also be protected by means of rock protection/placement in certain areas which do not facilitate cable burying.

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

The Terms of Reference (ToR) related to the study on infrastructure and utilities for the EIA were issued by the ERA in July 2022.

Appendix 1 of this report contains a copy of the ToR for ease of reference.

2 METHODOLOGY

2.1 AREA OF INFLUENCE

The Area of Influence (AOI) for the terrestrial component of the study comprised a 100m buffer zone around the proposed onshore route of the interconnector cable. An on-site survey of the public access conditions of the onshore AOI was carried out on the 21st of February 2023. The nearshore and offshore AOI follow the proposed interconnector corridor's centre line, extending 300m from each side of this proposed centre line. Research into the existing infrastructure present within the nearshore and offshore AOI was done through a desk study within the same period.

The AOI is mapped in Figure 2.

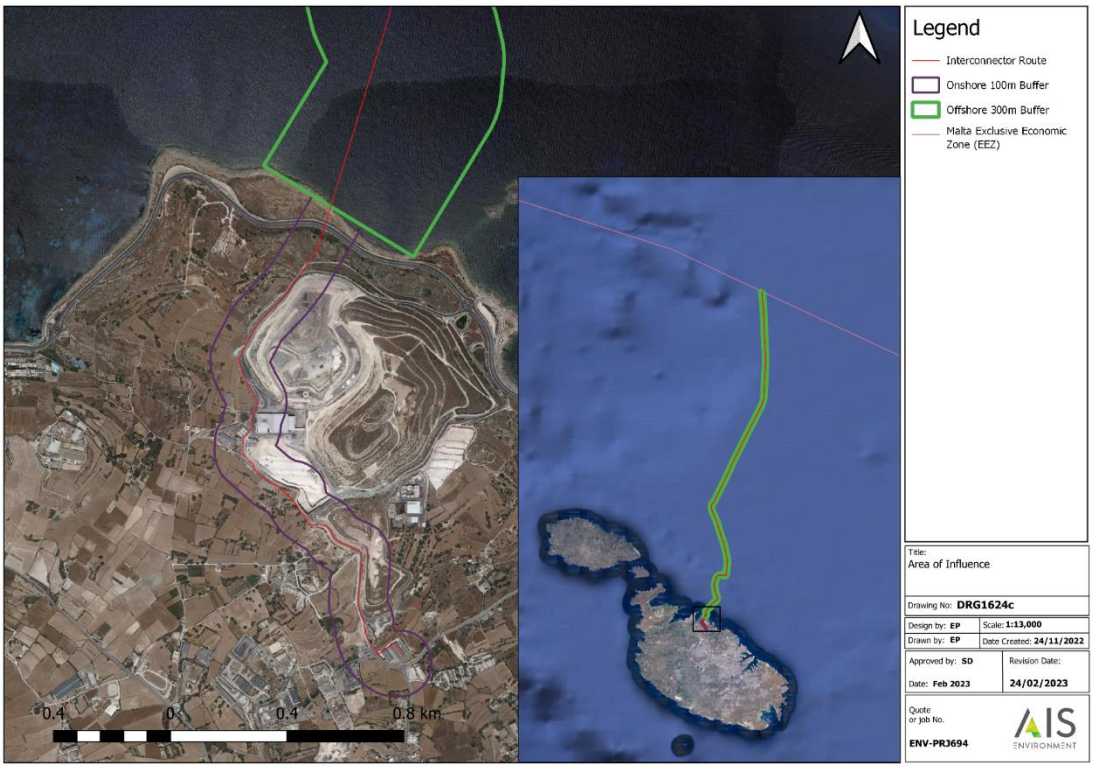

FIGURE 2: AREA OF INFLUENCE FOR THE INFRASTRUCTURE AND UTILITIES STUDY

2.2 STUDY METHODOLOGY

This study describes the existing infrastructures and utilities present within the project footprint and surrounding area and outline any proposed changes. The baseline research for the Infrastructure and Utilities Study was divided into two main components.

The first part of the study involved a thorough literature review to identify the existing infrastructure and utilities within the Scheme site and surrounding area. The information was gathered from third party utility providers and review of satellite images from sources such as Landsat/Copernicus (Google Earth). The findings from

the desktop study were then verified through a field survey carried out on the 21st of February 2023, which also included the gathering of photographic evidence.

Once the Consultant had completed both aforementioned components, they mapped the existing infrastructure and utilities as well as any proposed changes (if applicable) using Geographic Information Systems Software (GIS).

3 EXISTING INFRASTRUCTURE AND UTILITIES

Table 1 and Table 2, Figure 11 to Figure 15 below provide an outline of the existing infrastructure and utilities present within the AoI. Large-scale drawings are also provided in the Appendix.

TABLE 1: EXISTING INFRASTRUCTURES AND UTILITIES – ONSHORE

FEATURE NAME	FEATURE TYPE	OWNER	AOI REGION
1st Interconnector (IC1)	Underground cable	Enemalta	South
Street lighting	Underground cables, street lamps	Enemalta	All
Street infrastructure	Crash barriers, traffic signs, pavement	Infrastructure Malta	North
Stormwater management	Stormwater culverts	Infrastructure Malta	North
ECOHIVE stormwater management	Stormwater culverts leading to underground reservoir	Wasteserv Malta	Both
Enemalta Magħtab Terminal Station	Electrical substation	Enemalta	South
N/A	Underground cables	Enemalta	Primarily at South
N/A	Aerial cables	Enemalta	South
N/A	Water mains pipes	Water Services Corporation	North
N/A	Telecommunications cable	GO Mobile Malta	Both

TABLE 2: EXISTING INFRASTRUCTURE AND UTILITIES - OFFSHORE

FEATURE NAME	FEATURE TYPE	AOI REGION
TG Palermo - Malta	Submarine cable	North
SEA ME-WE 4	Submarine fibre optic cable	North
SEA ME-WE 2	Submarine fibre optic cable	North
Gibraltar - Malta 2	Submarine telegraph cable	North
France - Greece 2	Submarine cable	North
MENA	Submarine cable	North
GO-1 Mediterranean Cable System	Submarine telecommunications cable	North
Alexandria - Sicily	Submarine cable	North

Figure 3 to Figure 10 provide photographic evidence of the infrastructures observed during the site survey held on the 21st of February 2023.

FIGURE 3: PAVEMENT AND STREET LIGHTS ALONG TRIQ IR-RAMLA, NAXXAR (21ST FEBRUARY 2023)

FIGURE 4: ENEMALTA MAGĦTAB TERMINAL STATION (21ST FEBRUARY 2023)

FIGURE 5: STORMWATER CULVERTS WITHIN THE ECOHIVE FACILITY (21ST FEBRUARY 2023)

FIGURE 6: STORMWATER CULVERTS WITHIN THE ECOHIVE FACILITY (21ST FEBRUARY 2023)

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FIGURE 9: STORMWATER CULVERTS ALONG THE COASTROAD (21ST FEBRUARY 2023)

FIGURE 10: PAVEMENT, CRASH BARRIER AND STREET LIGHTS ALONG THE COAST ROAD (21ST FEBRUARY 2023)

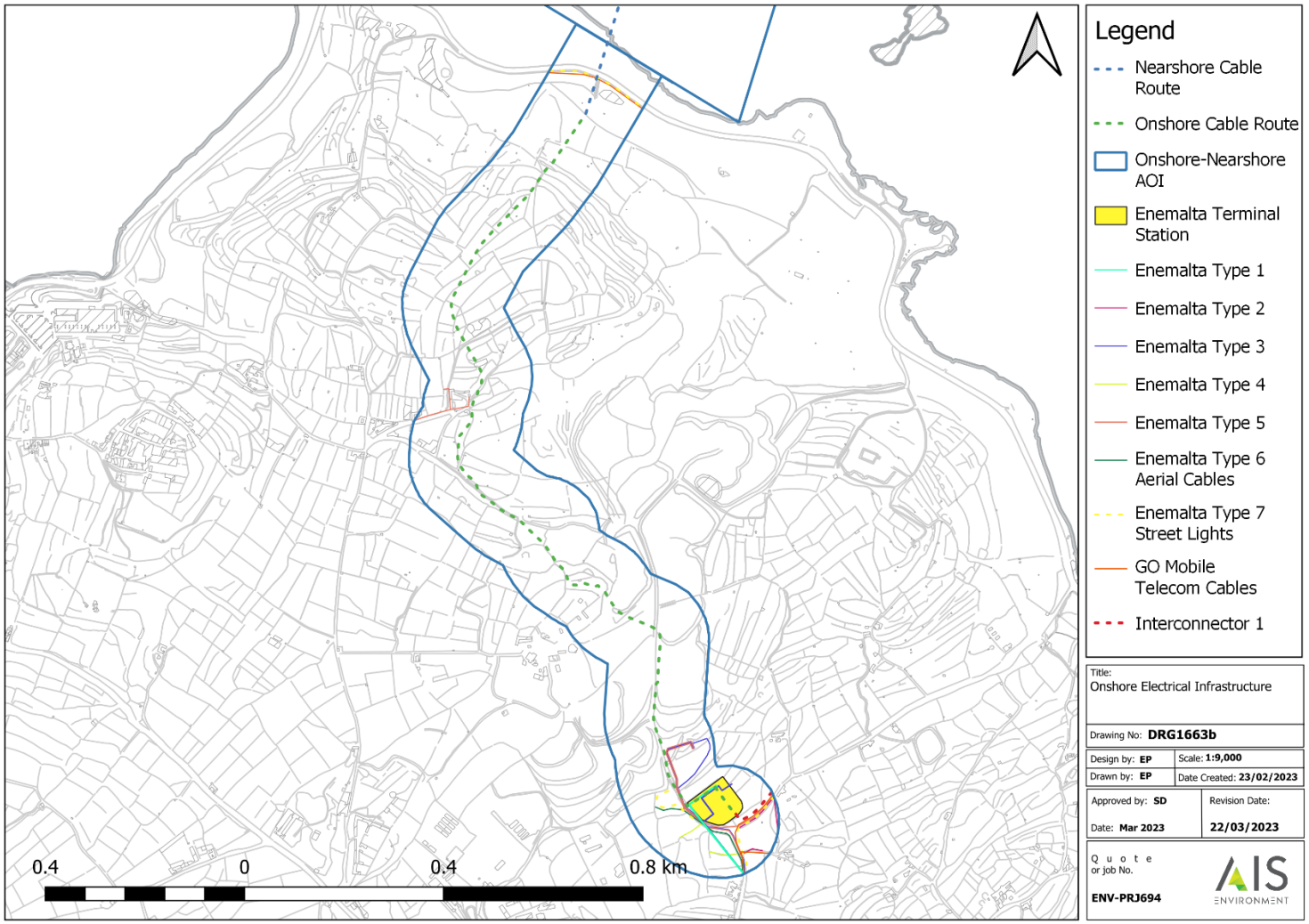

FIGURE 11: BROAD OVERVIEW OF THE EXISTING ELECTRICAL INFRASTRUCTURE WITHIN THE ONSHORE AOI

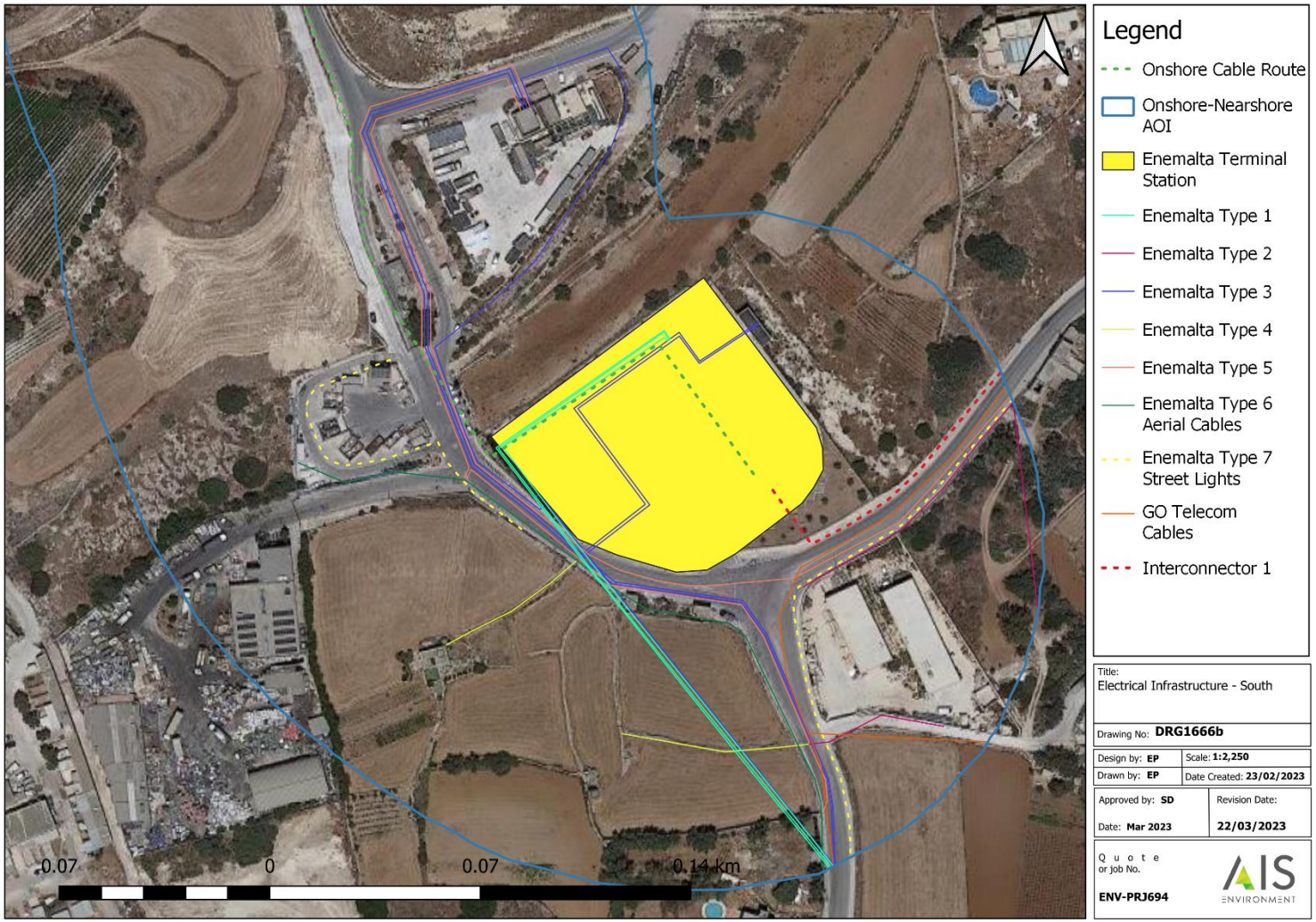

FIGURE 12: EXISTING ELECTRICAL INFRASTRUCTURE IN THE SOUTH AREA OF THE ONSHORE AOI

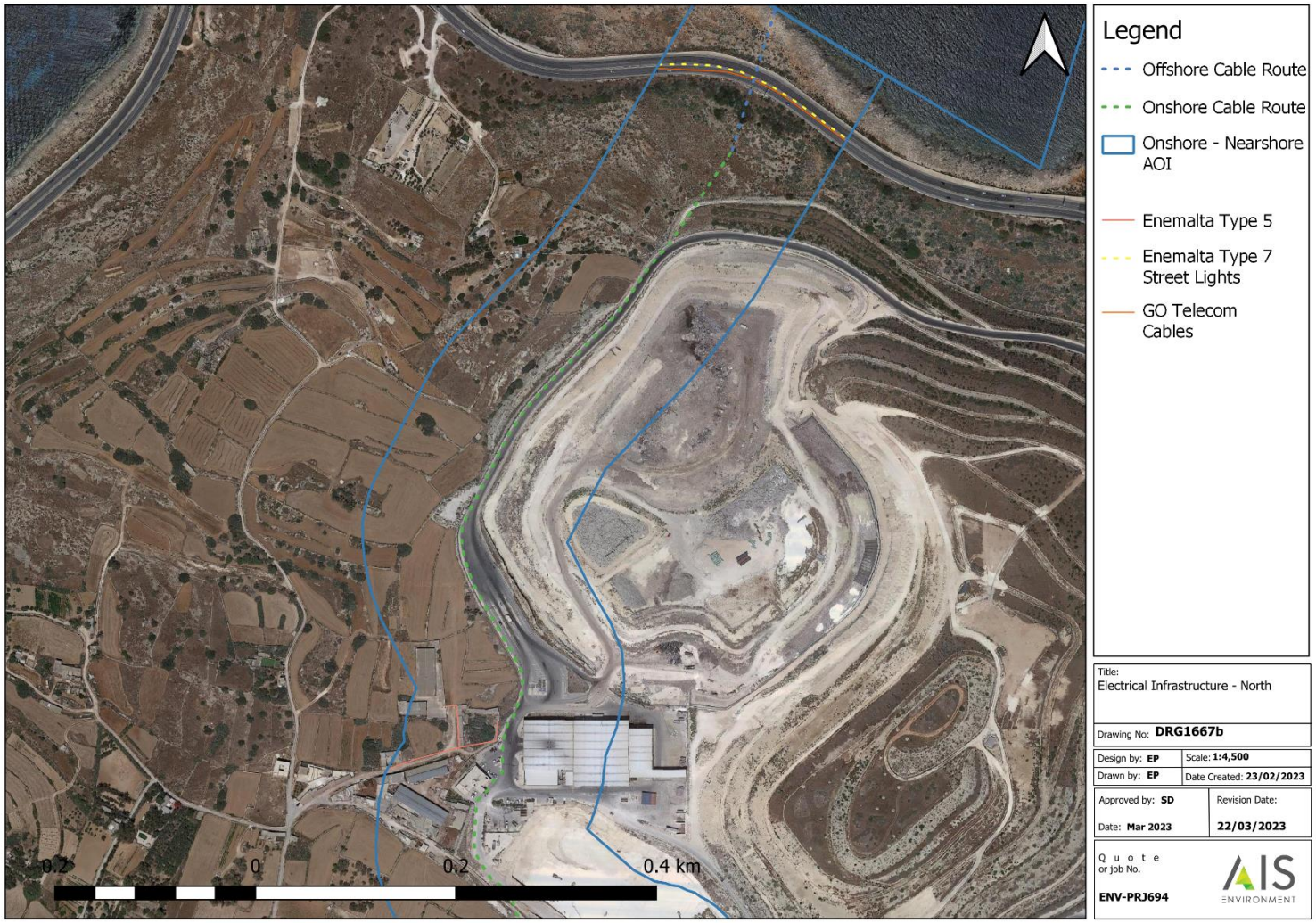

FIGURE 13: EXISTING ELECTRICAL INFRASTRUCTURE IN THE NORTH AREA OF THE ONSHORE AOI

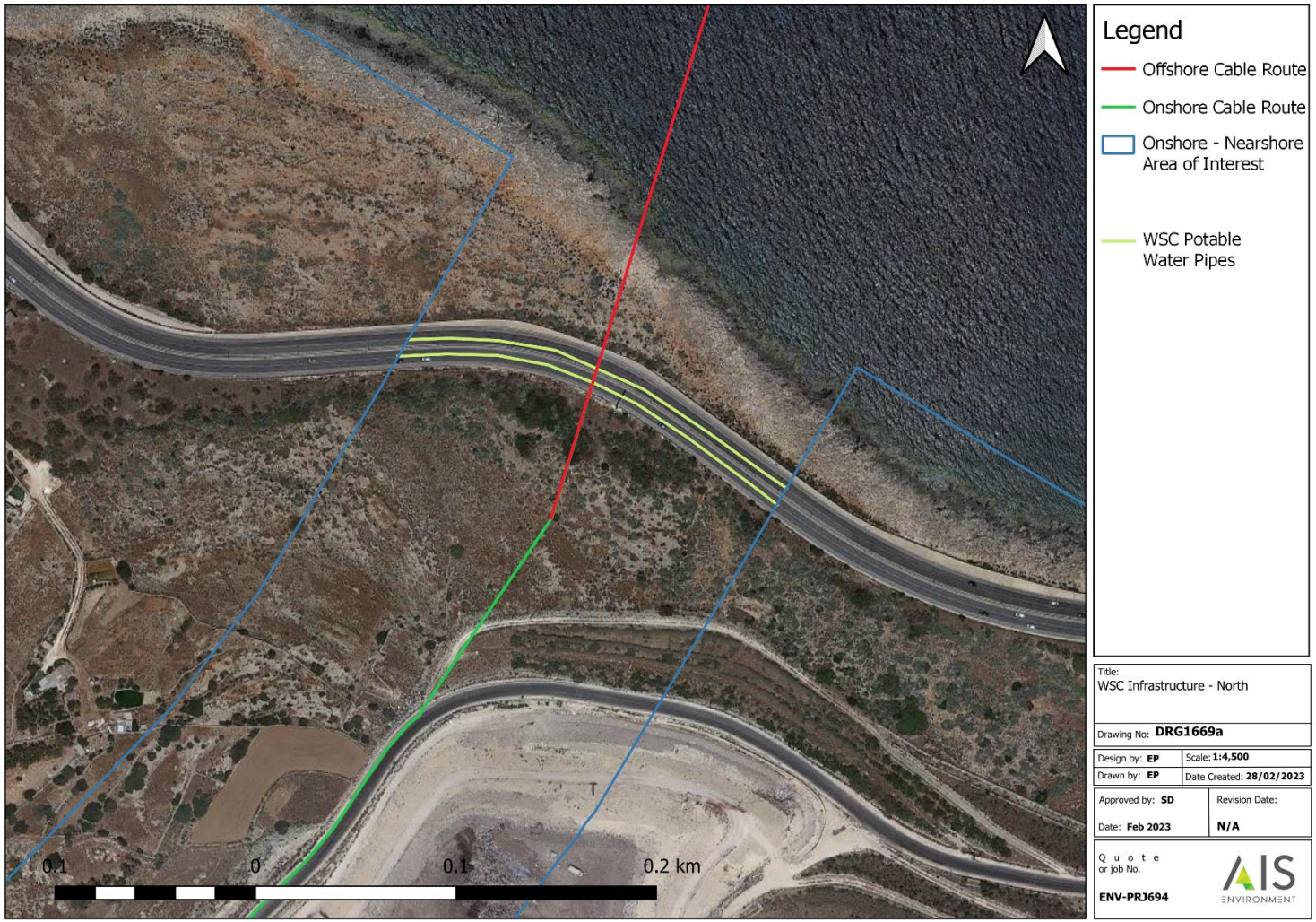

FIGURE 14: WATER SERVICE CORPORATION POTABLE WATER PIPES WITHIN THE AOI (NORTH)

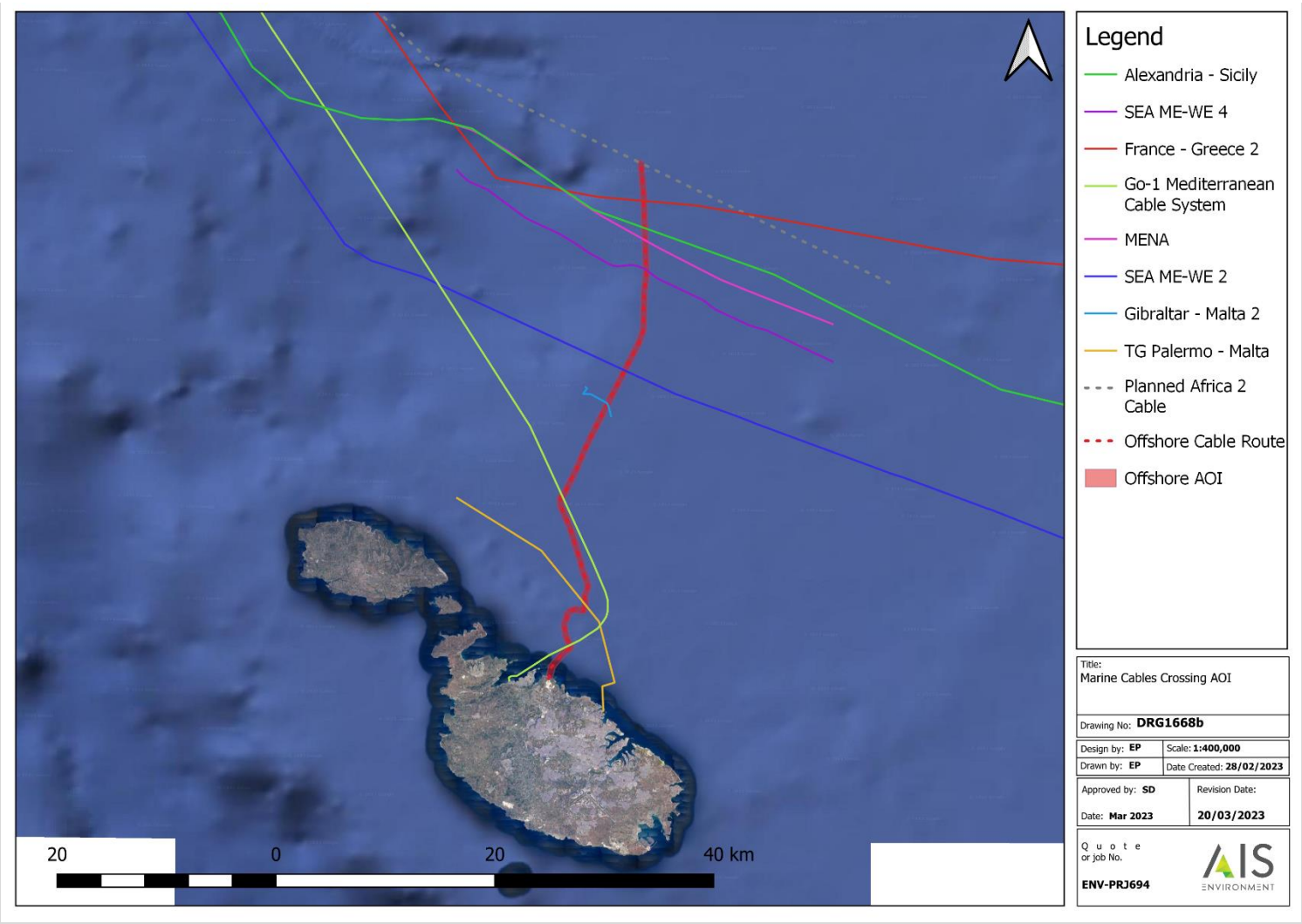

FIGURE 15: SUBMARINE CABLES CROSSING THE OFFSHORE AOI (SOURCE: PSA REPORT "DETERMINATION OF POSITIONS OF UXOS, WRECKS, CABLES AND PIPELINES" REV 21 FEB)

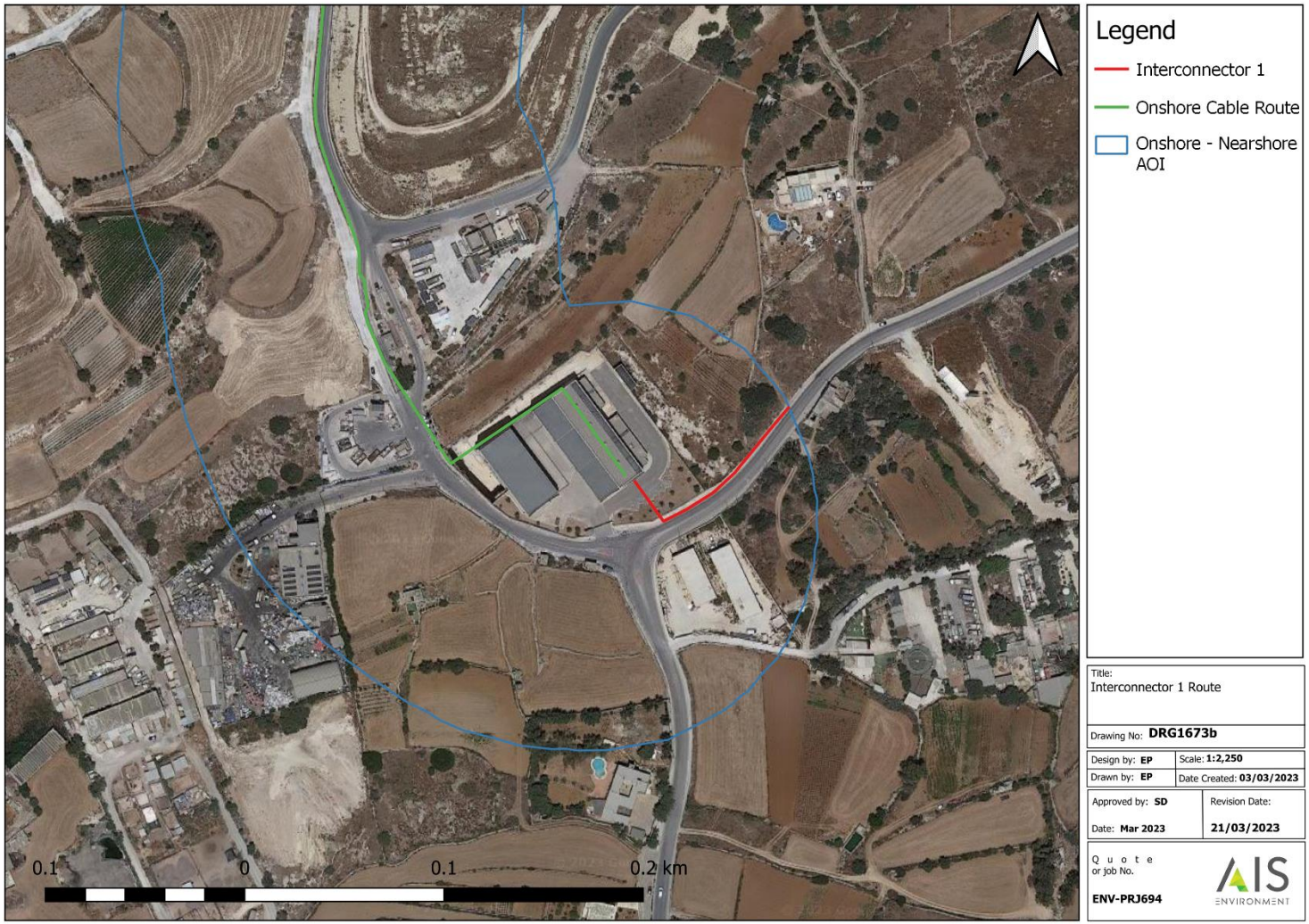

FIGURE 16: 1ST INTERCONNECTOR ROUTE WITHIN THE ONSHORE AOI (SOUTH)

4 IMPACT ASSESSMENT

The following is a description of the potential impacts on the infrastructure and utilities of the AoI.

4.1 IMPACT SIGNIFICANCE CRITERIA

The qualitative assessment determines the potential impacts on public access arising from the proposed second interconnector cable between Malta and Sicily. The potential impacts that may arise from the Scheme are limited to the potential physical damage on the existing infrastructure and utilities during the proposed works. The tables below (Table 3 to Table 11) provide a definition for each of the criteria used in Table 12, which summarises the assessment of impacts on infrastructure and utilities.

TABLE 3: CRITERIA FOR THE SENSITIVITY OF RESOURCES TO IMPACT

SENSITIVITY OF RECEPTORS TO IMPACT

LEVEL	DEFINITION
High	The receptors which will be highly sensitive to the impact and consequently impacted to a major degree.
Medium	The receptors which will be moderately sensitive to the impact and consequently impacted to a moderate degree.
Low	The receptors which will be minimally sensitive to the impact and consequently impacted to a minor degree.

TABLE 4: CRITERIA FOR THE CONSEQUENCES OF IMPACT

CONSEQUENCES OF IMPACT

LEVEL	DEFINITION
Direct	Changes that result from direct cause-effect consequences of interactions between the result of action under consideration and the proposed project.
Indirect	Result from cause-effect consequences of interactions between the action under consideration and indirect impacts.
Cumulative	Result from cause-effect consequences of interactions between the action under consideration and other related projects.

TABLE 5: CRITERIA FOR THE EFFECT OF IMPACT

EFFECT OF IMPACT

LEVEL	DEFINITION
Adverse	Infrastructure and utilities would suffer consequences as a direct result of the proposed development.
Beneficial	Infrastructure and utilities would benefit as a direct result of the proposed development.

TABLE 6: CRITERIA FOR THE SEVERITY OF IMPACT

SEVERITY OF IMPACT

LEVEL	DEFINITION
High	This action is a major contributor to the infrastructure and utilities in the area of influence.
Medium	This action is a moderate contributor to the infrastructure and utilities in the area of influence.
Low	This action is a minor contributor to the infrastructure and utilities in the area of influence.

TABLE 7: CRITERIA FOR THE PHYSICAL EXTENT OF THE IMPACT

PHYSICAL EXTENT OF IMPACT

LEVEL	DEFINITION
Local	Impact would affect the areas in the nearby surroundings.
National	Impact would affect Malta on a national scale.
International	Impact would affect Malta and/or other countries.

TABLE 8: DURATION OF IMPACT

DURATION OF IMPACT

LEVEL	DEFINITION
Permanent	Impact would still be detectable after the concerned phase.
Temporary	Impact would not persist through the whole duration of the concerned phase.

TABLE 9: CRITERIA FOR THE REVERSIBILITY OF THE IMPACT

REVERSIBILITY OF IMPACT

LEVEL	DEFINITION
Reversible	State of the activity/action is potentially expected to return to baseline background level following cessation of the source of impact.
Irreversible	Impact is expected to cause partial or total destruction of the action under consideration and a return of the state of the resource to baseline levels should be considered highly improbable.

TABLE 10: CRITERIA FOR THE PROBABILITY OF IMPACT OCCURRING

PROBABILITY OF IMPACT OCCURRING

LEVEL	DEFINITION
Inevitable	Level of certainty that impact will occur is greater than 90%
Likely	Level of certainty that impact will occur ranges between 50-90%
Unlikely	Level of certainty that impact will occur ranges between 30-50%
Remote	Level of certainty that impact will occur is below 30%

TABLE 11: CRITERIA FOR THE OVERALL IMPACT SIGNIFICANCE

IMPACT SIGNIFICANCE

LEVEL	DEFINITION
Not significant	Negligible significance.
Minor significance	Low order impact and therefore likely to have little real effect on infrastructure and utilities. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both.
Moderate significance	Impact on infrastructure and utilities is real but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly easily possible.
Major significance	Of the highest order possible within the bounds of impacts on infrastructure and utilities that could occur. In the case of adverse impacts, there is little or no possible mitigation that could offset the impact.

4.2 CONSTRUCTION IMPACTS

During the construction phase of the proposed cable connection, accidental damage may occur to the existing cables which either directly cross the proposed route or are located in close proximity.

South Region

The risk is particularly high in the Southern area of the terrestrial route where it connects into the existing Terminal Station, due to the high density of cables. Enemalta has 6 types of cables, 1 being an aerial line and the rest being underground. There are also some other underground infrastructure which have been located by the FEED contractor but the owner is not known.

A telecommunications cable owned by GO Mobile has also been identified in this region of the AOI.

Additionally, Enemalta have plans to lay additional 33kV cables to supply/reinforce electrical supply to the new waste treatment plant being developed by Wastserv. Therefore, the Contractor will need to discuss the matter further with Enemalta to confirm their plans and the location and depth of the existing cables, to eliminate the possibility of accidental damage. Since the impact is known and can be mitigated through a series of measures, the envisaged impact is adverse and of moderate significance.

Additionally, the proposed second interconnector is connected to the national electricity grid system at the same terminal station as the first interconnector. While the routes do not cross within the AOI, the cables enter the terminal station in close proximity to one another. Since the impact is known and can be mitigated through a series of measures, the envisaged impact is adverse and of moderate significance.

ECOHIVE complex

The interconnector trench route is planned in very close proximity to streetlight infrastructure flanking the internal access road between the South Gate and the Future Landfill Site, and around the carpark to the West of the Malta North Facility. However, this infrastructure is currently in need of extensive repairs and/or replacement. The cable route passes in close proximity to and/or crosses a number of existing infrastructures within the complex, including street signage, crash barriers, pavements, fencing and stormwater culverts.

The Contractor will need to discuss the matter further with Wasteserv Malta to confirm the location and depth of these cables, to eliminate the possibility of accidental damage. Since the impact is known and can be mitigated through a series of discussions and consultations, the envisaged impact is adverse and of moderate significance.

North Region

At the North end of the site, the streetlights present in the Coast Road are connected through underground electric cables. Within the section cable route that crosses the Coast Road, HDD will be used. This will enable the contractor to pass beneath or above existing streetlight electric cables, avoiding these entirely. The Contractor will need to confirm the depth of the cables related to streetlights with Enemalta, and set the drilling depth accordingly. Since the impact is known and can be mitigated through a series of discussions and consultations, the envisaged impact is adverse and of moderate significance.

The IC2 cable will also cross two potable water pipes passing through the Coast Road owned by Water Services Corporation (WSC), telecom infrastructure placed in a culvert under the footpath. The HDD within this area will be directed to pass below the road foundations. This will avoid causing interruptions to the water supply service provided by these pipes, and/or accidental damages.

Additionally, an underground telecommunications cable owned by GO Mobile has been identified running along the Coast Road.

The Coast Road also contains existing street furniture such as streetlights, crash barriers, cycling lanes and the promenade, which are managed by Infrastructure Malta.

The applicant must liaise with WSC, GO and Infrastructure Malta (IM) to ensure that more detailed detection exercises are carried out to confirm the exact location, depth and size of these pipes once the offshore cable route is confirmed.

Offshore Route

Following the issuance of the post survey assessment by the PMRS contractor, it was determined that the offshore route will cross nine broadband cables from both local and international operators. The following are the cables: Go-1 Mediterranean Cable System (crossed twice), TG Palermo - Malta, Telegraph Cable Gibralatar - Malta 2, SEA – ME – WE 2, SEA – ME – WE 4, MENA, Alexandria - Sicily and France - Greece 2 (Artemis). The Contractor will need to discuss the matter further with the operators) to reduce the possibility of accidental damage. Since the impact is known and can be mitigated through a series of discussions and mitigation strategies, the envisaged impact is adverse and of moderate significance. **General Impacts**
The construction phase may also lead to accidental damage to existing infrastructures which lie in close proximity but do not directly intersect the proposed route. Should the Contractor accidentally damage such infrastructure, they must report any damage to the relevant entities and operators to coordinate a prompt repair operation at the Contractor's expense. The assessment considers this adverse impact to be of minor significance.

Connecting the new cable to the Terminal Station may also lead to disruptions to the existing electricity services. The Contractor should schedule meetings with the relevant competent authority (Enemalta) prior to and during the construction to coordinate the necessary works and prevent any significant supply interruptions. Effective communication between the Contractor and competent authorities will ensure that the severity of the adverse impact is kept at a minor level of significance.

4.3 OPERATIONAL IMPACTS

The operation of the Scheme will provide the national electricity grid with an additional source of imported electricity. This second cable will act as a redundancy system in the event of damage or malfunctions in the existing cable, in turn increasing the security and reliability of the national electricity supply. This constitutes a major beneficial impact.

During the operational phase, the interconnector cable may be subject to accidental damages by third parties. The applicant has proposed multiple mitigations to minimise the likelihood of this event occurring. The severity of this adverse impact is considered of major significance during the operational life of the interconnector since the electrical demand of the Maltese islands is expected to rise in such a way that this infrastructure will be critical. If damaged, the downtime of a submarine interconnector could easily reach 3-4 months with a high repair cost, and force the use of fossil fuel plant to provide energy to Malta. Such measures would negatively affect the economy and hamper achievement of environmental targets.

Any failures detected within the land cables during the operational phase will need to be addressed through re-excavation of the site at the faulty point and repair of the fault. The site will be restored to its pre-existing condition,. It is envisaged that repair works would cause a temporary interruption to the service lasting approximately 1-2 weeks. The severity of this adverse impact is considered of major significance, but can be repaired in a shorter time than that necessary for the installation of the submarine cable. Should the first interconnector suffer damages, any faults within the second interconnector would cause impacts of major adverse significance, with national-level implications, however the likelihood of this impact occurring has been lowered as a result of the applicant choosing a different route to the first interconnector to minimize as much as possible common mode failures.

5 MITIGATION MEASURES, RESIDUAL IMPACTS AND MONITORING

5.1 MITIGATION MEASURES

5.1.1 Construction Phase

During the construction phase, a range of mitigation measures should be implemented to reduce the likelihood of adverse impacts upon the existing local infrastructures and utilities. Recommended mitigation measures include:

- Informing the operators of the existing infrastructures and utilities of the proposed work to open up communication channels.
- The applicant is required to identify and confirm the exact placement and depth of existing infrastructure, and to fine-tune the cable route accordingly to minimise cross-overs
- Taking extra precautions when working in close proximity to existing infrastructures and utilities to avoid accidental damage.
- Informing the relevant entities of any accidental damage to existing infrastructures and utilities so that damages can be repaired at the expense of the Contractor.
- In the case of inevitable cross-overs, the contractor has devised multiple strategies to minimise accidental damages. All cross-overs have been identified within the marine surveys. Each concerned party will be contacted and a 'crossing agreement' made whenever necessary. Mechanical protection and an insulation layer will be installed over the existing cables at all crossing points, such as a polyurethane sleeves wrapped around the cable. Concrete mattresses and concrete bags will be used to provide separation and mechanical protection between the two sets of cables if necessary.

5.1.2 Operational Phase

The operational phase is not expected to give rise to significant impacts.

In exceptional instances, interventions are required to address cable faults. To address faults, the site at the faulty point requires re-excavation and reinstatement of the pre-existing conditions, including all cable protection measures. As in the construction phase, all relevant parties will be contacted beforehand and working methods which are sensitive to the existing infrastructure will be adhered to.

The applicant is proposing multiple mitigation measures to reduce the risk of accidental damages by third parties to the installed cable. Onshore, the cable will be covered with a layer of asphalt embedded with steel block markers every 100m, indicating the cable route. The trench will be backfilled with concrete grade material, and the base will be reinforced with hard stone spalls. The cable itself will be encased in a duct filled with cement mortar, which will be reinforced with concrete troughs on the sides and base. Multiple warning signs and a warning mesh will be placed on top of the duct so that any workers excavating within the route area would be forewarned before reaching the cable itself. A typical cross-section is shown in Figure 17.

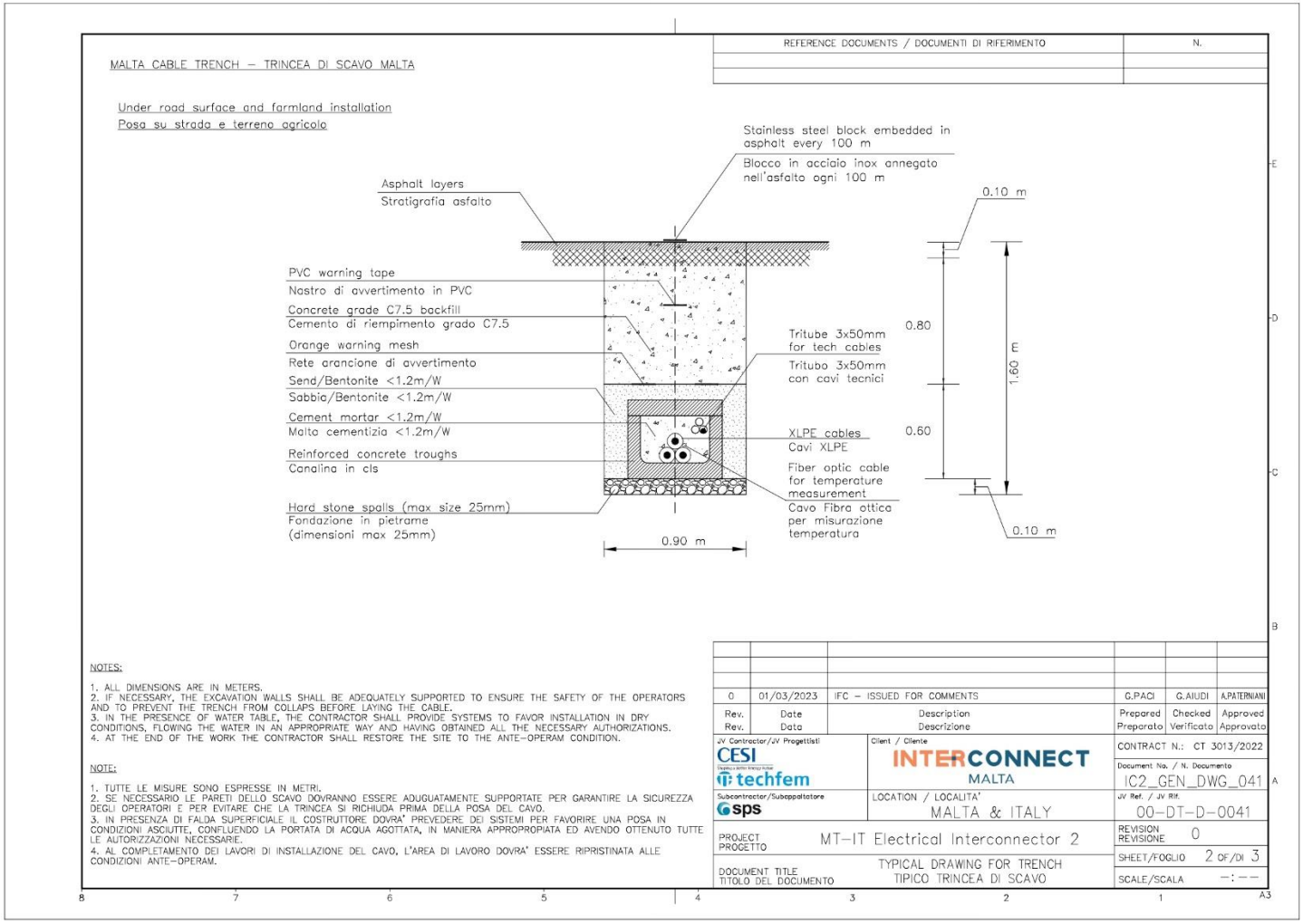

FIGURE 17: CABLE TRENCH CROSS-SECTION

Offshore, a cable trench will be dug into the seabed at a depth of between 1.5 to 3 m where possible, using either water jetting or plough systems. These systems can be used both during the laying of the cable or after the cable has been laid. They are passed through, open a trench and lay the cable inside. Additionally, there is the possibility to either leave the cable unburied in the trench or have the cable re-buried within the same process. When trenching is not possible, the cable will be protected by alternative methods such as burying under a layer of material. The material type and depth will be determined based on the site conditions and usage.

5.2 RESIDUAL IMPACTS

If the Contractor constructs appropriate protection around the existing cables and carries out any accidental repair work correctly (should the need arise) there should be no residual impacts from the Scheme.

5.3 MONITORING

If the Contractor does accidently damage the infrastructure and utilities during the construction phase, a technically competent person should oversee the repair work. This will ensure that the repair work is up to standard and restores the cable to its original state.

Monitoring of infrastructure and utilities is not required during the operational phase.

6 Summary of Impacts

Table 12: Summary of expected impacts on the proposed Scheme

Impact Type and Source			Impact Receptor		Effect and Scale											
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible	Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Damage to existing infrastructures/utilities	Trench excavation, HDD boring, Cable laying	Construction	Existing cables and pipes crossing the proposed route	Low	Direct	Adverse	Medium	Terrestrial: Local – Malta Marine: Potentially international (dependent on location and severity)	Short	Temporary	Reversible	Likely	Moderate	Confirm cable depth and location with owner. Mitigation at crossover points	Minor	N/A
Damage to existing infrastructures/utilities	Trench excavation, HDD boring, Cable laying	Construction	Existing cables in close proximity to the proposed route	Low	Direct	Adverse	Medium	Terrestrial: Local – Malta Marine: Potentially international (dependent on location and severity)	Short	Temporary	Reversible	Unlikely	Minor	Two-way communication between Contractor and competent authorities/ Operators	Negligible	N/A
Interference with existing infrastructures/utilities	Connection of the new cable	Construction	Existing electricity supply	Low	Direct	Adverse	Medium	Local – Malta	Short	Temporary	Reversible	Possible	Moderate	Two-way communication between Contractor and competent authorities	Negligible	N/A
Additional energy source	Operation of the new cable	Operation	National electricity supply	Low	Direct	Beneficial	High	Local - Malta	Long-term	Permanent	Reversible	Inevitable	Major	N/A	Major	N/A
Damage to existing infrastructures/utilities	Repairs to the cable	Operation	Existing cables and pipes crossing the proposed route	Low	Direct	Adverse	Medium	Terrestrial: Local – Malta Marine: Potentially international (dependent on location	Short	Temporary	Reversible	Likely	Moderate	Inform owners, Mitigation at crossover points	Minor	N/A

Impact Type and Source			Impact Receptor		Effect and Scale											
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity & resilience towards	Direct/ indirect/ cumulative	Beneficial/ adverse	Severity	Physical/ geographic extent of impact	Short/ medium/ long term	Temporary/ permanent	Reversible/ irreversible	Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
								and severity)								
Accidental damages to interconnector cable	Operation of the new cable	Operation	Interconnector Cable 2	Low	Direct	Adverse	Medium	Local - Malta	Short	Temporary	Reversible	Possible	Major	Protection measures in place, routine checks and upgrades	Moderate	N/A

APPENDIX 1

TERMS OF REFERENCE FOR EA/00018/21 ISSUED BY ERA IN JULY 2022

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.*

3.6 Infrastructure and Utilities

The assessment should investigate the currently available infrastructural services (including water supply, energy supply, sewerage, telecommunications infrastructure, access roads, parking, etc.), including details about their carrying capacity, physical condition and other relevant practical considerations. It should also compare this information to the infrastructural demands of the project as identified in Section 1 above, so as to clearly indicate:

1. whether the current utilities are adequate to meet the demand arising from the proposed development;
2. whether any significant loading, congestion or damaging of the infrastructural or transport network is envisaged; and
3. whether any new or upgraded services/arrangements will be rendered necessary, both in the short-term and in the longer-term. If any requirement for new infrastructure (or upgrading, alteration or extension of the existing infrastructure) is envisaged, the relevant details including associated works and their environmental implications should also be indicated.

The assessment should also identify any existing or projected infrastructural services located within the area of influence of the development (even if not related to the demands of the development) that might be affected by the development or which may need to be displaced or diverted as a consequence of the development or its ancillary operations and interventions.

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.

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.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and
2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious

default from critical mitigation measures, or other overriding situations that may emerge in future.

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination,
and methodological guidance on site reinstatement or appropriate after-use.

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.

Appendix 2

Electrical Infrastructure Maps

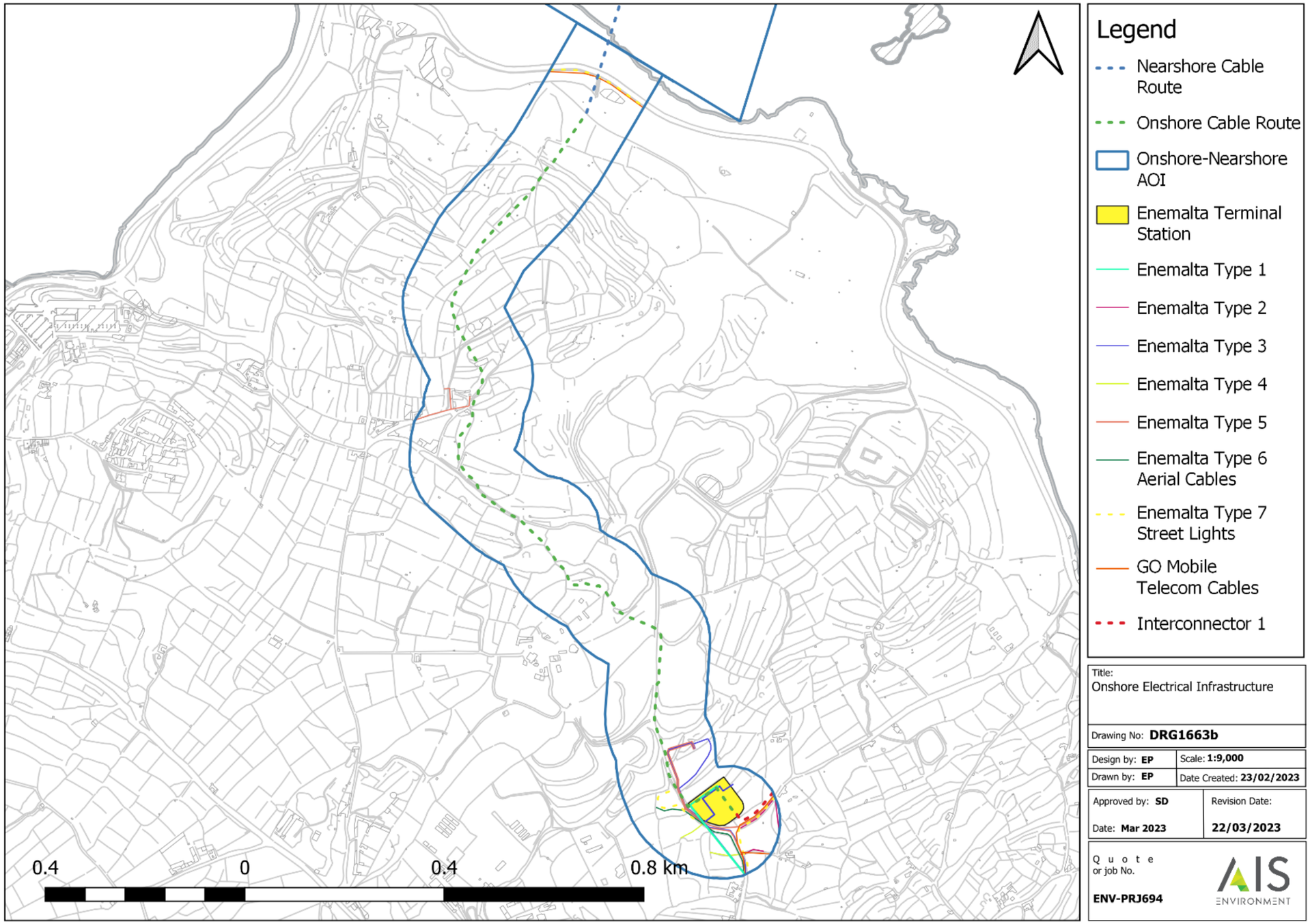

Figure 18: Broad overview of the existing electrical infrastructure within the Onshore AOI

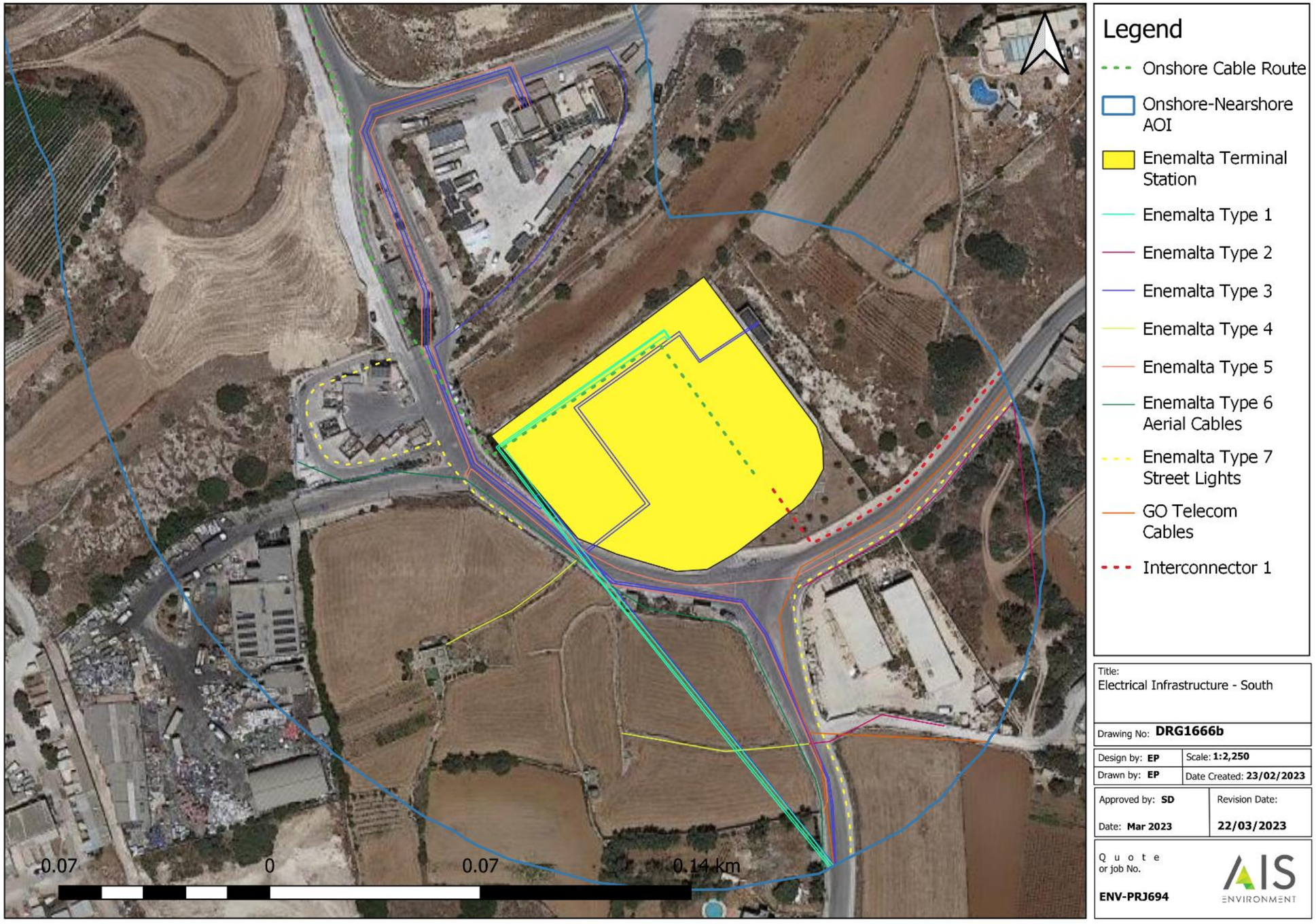

Figure 19: Existing electrical infrastructure in the South Area of the Onshore AOI

Figure 20: Existing electrical infrastructure in the North Area of the onshore AOI