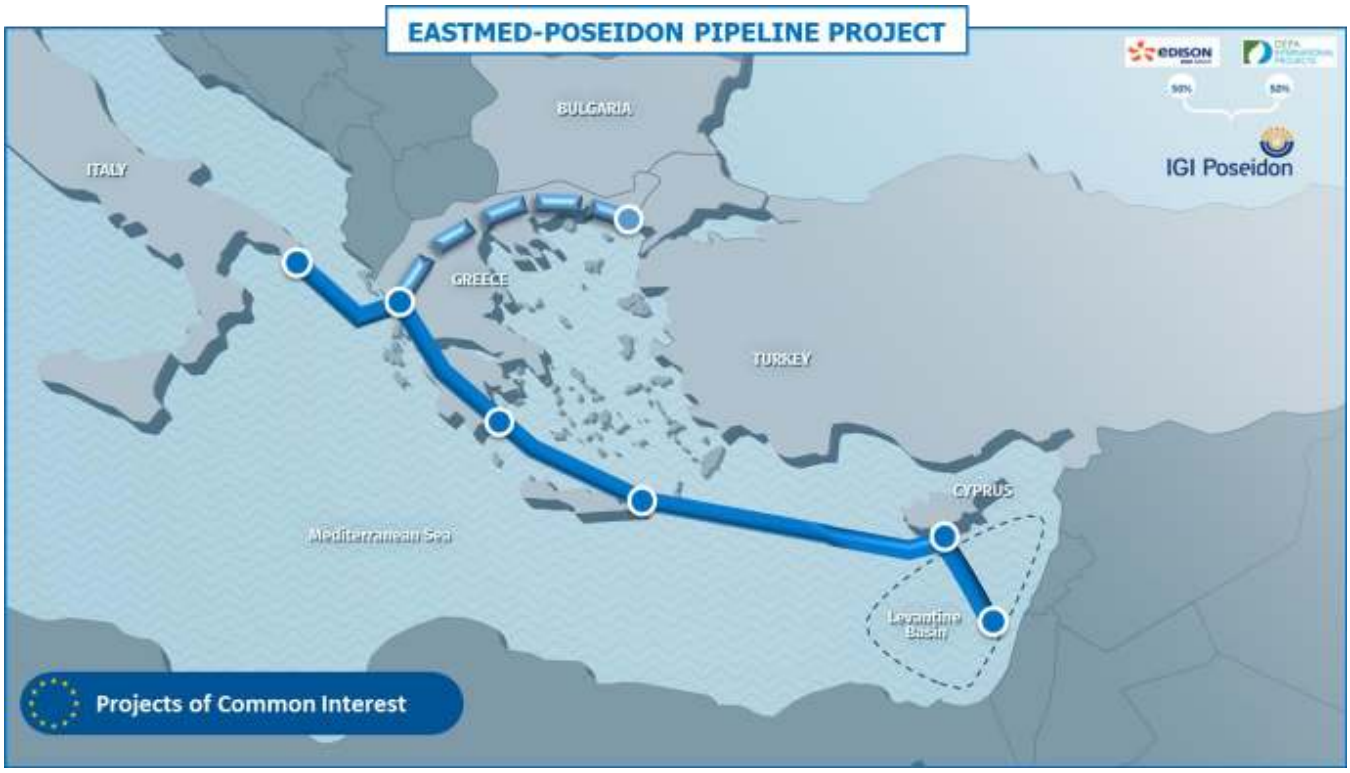
PROJECT:

EastMed Pipeline Project



Document Title:	EastMed Greek Section – Environmental and Social Impact Assessment
Document Subtitle	Annex 9E14- Appropriate Assessment of the Natura 2000 site SPA GR2120006
Project Document No:	PERM-GREE-ESIA-A09_0022_0_Annex9E14

Document details	
Document title	EastMed Greek Section – Environmental and Social Impact Assessment
Document subtitle	Annex 9E14 - Appropriate Assessment of the Natura 2000 site SPA GR2120006
Company	IGI Poseidon
Author	NCC
Project	EastMed Pipeline Project
Project Document No.	PERM-GREE-ESIA-A09_0022_0_Annex9E14
Date	03/06/2022
Version	00

Document history					
Revision	Author	Reviewed by	Approved by	Date	Status
00	NCC	ASPROFOS	IGI POSEIDON	03/06/2022	For submission to Authorities

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Abbreviations

Abbreviation	Description
AA	Appropriate Assessment
C/S	Compressor Station
C-M/S	Compressor and fiscal Metering Station
Contractor	The contractor to which the construction shall be awarded. Currently, it is not defined the manner of awarding or the number of engaged contractors.
EC	European Commission
ECP	EastMed Compression Platform
EIA	Environmental Impact Assessment
EKPAA	National Center for Environment and Sustainable Development
ESIA	Environmental and Social Impact Assessment
ETA	Environmental Terms Approval
EU	European Union
FSA	Field Survey Area
ha	Hectares
HDD	Horizontal Directional Drilling
Investigated project	The EastMed consisting of an Onshore and an Offshore section and associated onshore facilities
IP	Interconnection Point
ITA	Inline Tee Assembly
IUCN	International Union for Conservation of Nature
JMD	Joint Ministerial Decision
kHz	kilohertz
km	Kilometers
LFi	Landfall

Abbreviation	Description
m	meters
MD	Ministerial Decision
MEE	Ministry of Environment & Energy
NCC	Nature Conservation Consultants Ltd.
O&M	Dispatching and Operation & Maintenance Building
OFYPEKA	Organization of Natural Environment and Climate Change
Onshore Stations	• Compressor and Metering Stations at Crete, • Compressor Station at Achaia, • Metering/ Pressure Regulating and Heating Station at Megalopoli.
PGM	Permanent Ground Markers
PIER	Preliminary Environmental Identification Requirements
PPS	Pipeline Protection Strip and Safety Zone (PPS)
Project	Construction and Operation of the EastMed Project
Project Owner	IGI Poseidon: a Company equally owned (50-50%) by DEPA International Projects and Edison, incorporated under Greek law
RCM	Reliability Centered Maintenance
SAC	Special Area of Conservation
SDF	Standard Data Form
SPA	Special Protection Area
SPT	System Pressure Test
SSCO	Site Specific Conservation Objective
WS	Working Strip

1 INTRODUCTION

1.1 Legal framework for the conduction of an Appropriate Assessment for the SPA "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006

According to Greek national legislation Law 4014/2011 an Environmental Social Impact Assessment (ESIA) is required for technical projects belonging to category A1. In case they interfere with Natura 2000 sites a specialized Appropriate Assessment (AA) has to be conducted concerning the entire Natura 2000 site, which becomes an integral part of the projects' ESIA.

The EastMed Project Pipeline has offshore and onshore sections and is directly connecting East Mediterranean resources to mainland Greece via Cyprus and Crete. The project is being developed by IGI Poseidon (Project Owner), a company based in Athens and equally owned (50-50%) by the Greek company DEPA International Projects S.A. and the Italian company Edison S.p.A.

The ESIA has been prepared on behalf of the Project Owner by the company ERM Italia SpA and the engineering company ASPROFOS Engineering S.A. (member of the HELPE Group of Companies) and in collaboration with renowned, experienced and specialised consultants, in accordance with applicable environmental legislation. The AAs of the Project have been carried out by Nature Conservation Consultants Ltd (NCC), subcontractor of ASPROFOS Engineering S.A.

The present AA concerns the Special Protection Area "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006, focusing mainly on the portion directly crossed by the Onshore section of the pipeline (Figure 2-1).

In the framework of the present AA, NCC established an official communication with the Management Body of Kalama - Acherontas - Kerkyra, the responsible Body for the management and protection of the site and requested the most up to date information on avifauna monitoring in the site available from its data-bank.

The pipeline crosses also the SAC "Elos Kalodiki", GR2120002, for which a separate AA has been conducted.

Category of Appropriate Assessment Study for site, based on the Annexes of Ministerial Decision 170225/2014

The Greek MD 170225/2014 sets two possible categories of AA described in its Annexes 3.2.1. and Annex 3.2.2. In particular:

- An AA falls under the requirements of Annex 3.2.1, when existing biodiversity data for the Natura 2000 site, where the project or portion of the project is proposed to be implemented, are not recent and/or sufficient, and a detailed biodiversity field survey lasting at least 20 days (for projects of category A1) is required for the collection of biodiversity information.
- An AA falls under the requirements of Annex 3.2.2, when existing biodiversity data for the Natura 2000 site, where the project or portion of the project is proposed to be implemented, are recent, reliable and sufficient and are available from official/public sources, such as the Natura 2000 sites national biodiversity monitoring network and no field survey is required.

Taking under consideration the available detailed and recent biodiversity monitoring data for the Special Protection Area (SPA) "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006, the AA falls under category set in Annex 3.2.2 of the MD 170225/2014. As the Greek legislation sets the minimum requirements for AA based on Annex 3.2.2 and hence field surveys carried out in the framework of an AA are on top of them, the implementation of field surveys is aligned with the Greek legislation and exceeds minimum data requirements.

The study team carried out field surveys in the area where the pipeline will cross the Natura 2000 site. That was done in order to have an in-situ insight view of the habitats of the SPA to be crossed by the pipeline, and directly assess their present status and sensitivity. Although it was not expected to provide more detailed biodiversity data for the site, it is considered necessary in order to create a recent knowledge of the status before the initiation of the project, and outline, if existing, possible improvements in current planning to minimize impacts on the local biodiversity. Field surveys for avifauna took place during May-December 2021 for a total of 4 days. Field surveys results are presented alongside desktop data and clear reference is given for the data source throughout the AA.

1.2 Assumptions, limitations and exclusions

For the preparation of the AA a number of assumptions have been made:

- The assessment was based on Project design data available to date. Reliable assumptions on the following key elements have been made, on the base of existing bibliography on pipeline construction: (a) total duration, (b) specifications concerning the project within the Study Area.
- The AA is in alignment with the ESIA.
- The present AA focused solely on the normal operative conditions of the project. Consequently, emergency and non-routine events that could potentially affect biodiversity, were not taken into consideration in this AA and will be assessed in the ESIA.

- The decommissioning phase of the project was not taken into account in the present AA, since it is expected to take place in 3-5 decades from today, when all biodiversity parameters will have to be re-evaluated. Therefore, a new AA will be required for the decommissioning phase after the project end of life.

1.3 Analysis of Institutional / Legal Framework

1.3.1 Plans and projects within Natura 2000 sites

The Natura 2000 network is an EU network of protected areas, whose main objective is the protection of vulnerable and endangered species of animals, plants and habitat types in the EU, and it constitutes the widest biodiversity conservation network worldwide. Based on the Birds and Habitats Directives (2009/147/EC and 92/43/EEC, respectively), every member of the Union declares Special Protection Areas (SPA) and Special Areas of Conservation (SAC), in order to protect the endangered biodiversity of Europe.

The connection between human activities and the protection framework of Natura 2000 sites is clarified in Article 6 of the Habitats Directive. More specifically, for every project or plan that is expected to significantly affect an area, it is noted that:

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*".

"*If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted*".

The two Directives have been transposed into the Greek legislation with the following decrees: JMD 37338/1807/2010, JMD 8353/276/2012, JMD 33318/3028/1998, MD 14849/853/2008.

Concerning Article 6 of Directive 92/43/EEC, the L. 4014/2011 and the MD 170225/2014 are defining in detail the implementation of respective provisions. The national legislation includes also the Law 3937/11 "Conservation of biodiversity and other provisions".

Based on the above legal framework, the following are noted:

- The consequences of every project must be examined separately and in accordance with other existing projects or plans in the site,
- The criteria must be based on preserving the integrity of the site, along with keeping in mind the conservation objectives,
- In the case the construction of the project is necessary for overriding public interest, necessary compensatory measures will be taken.

1.3.2 Natura 2000 network in Greece

The national Natura 2000 network has been updated and extended with the JMD 50743/2017, while the Management Bodies for all the Natura 2000 sites are set by the Laws 4519/2018 and 4685/2020. According to Law 4685/2020 the Organization of Natural Environment and Climate Change (OFYPEKA) was established and operates as the successor of the National Center for Environment and Sustainable Development (EKPAA). Among other things, the purpose of OFYPEKA is the implementation of the policy set by the Ministry of Environment and Energy for the management of Natura 2000 protected areas in Greece.

1.3.3 Environmental authorization of activities and projects

According to Law 4014/2011, the environmental authorisation procedure of project and activities that may affect Natura 2000 sites, the preparation of an Appropriate Assessment is foreseen, constituting an integral part of the Environmental and Social Impact Assessment.

According to the Greek MD 1958/2012 and its subsequent amendments (Greek Decrees MD 20741/2012, MD 65150/1780, MD 173829/2014 and MD 37674/2016) the Projects are classified in two categories: Category A, when they potentially may cause very significant/significant environmental impacts, or in Category B, when they may cause only locally or of no significance environmental impacts.

The content of the Appropriate Assessment was specified by the MD 170225/2014, which includes

- detailed record of natural environment data with emphasis to the protected elements of the Natura 2000 sites and those likely to be affected by the project or activity,
- appropriate assessment and impact assessment,
- mitigation measures for the potential impacts,
- compensatory measures (if needed)
- monitoring program,
- conclusions summary,
- bibliography sources and
- study team.

1.3.4 Classification of the project based on National legislation

The project classification according to National legislation (as amended and in force) is provided in Table 1-1.

Table 1-1 Classification of EastMed according to MD 170225/2014

Legislation	Category	Project Categorization
MD 1958/2011	Group	11 - Transport of energy, fuels and chemical compounds
	No.	1 –Pipelines of national importance or included in European or international networks and associated/ supporting facilities
	Category	A1 – Project and activities that may have very significant impacts on the environment
	Comment	-
STAKOD 08/ NACE Rev.2*	Section	D – Electricity, Gas, Steam and Air Conditioning Supply
	Division	35 – Electricity, gas, steam and air conditioning supply
	Group	35.2 – Manufacture of gas; distribution of gaseous fuels through mains
	Class	35.23
	Description	Trade of gas through mains
JMD 3137/191/Φ.15/2012*	Group	n/a
	Sub-group	n/a
	No.	n/a
	Disturbance class	n/a
* The classification presents the activity most relevant to the Project. The applicable provisions concern also the compressor stations.*It is noted that the compressor stations, having a total capacity >50 MW, fall into the provisions of JMD*		

Legislation	Category	Project Categorization
36060/1155/E.103 regarding "Establishing a framework of rules, measures and procedures for the integrated prevention and control of environmental pollution from industrial activities, in compliance with the provisions of Directive 2010/75 / EU "On Industrial Emissions (Integrated Pollution Prevention and Control)" of the European Parliament and of the Council of 24 November 2010"		

Prepared by: (ASPROFOS, 2021)

2 STUDY AREA – FIELD SURVEY AREA

According to the AA specifications (MD 170225/2014) the whole Natura 2000 site, crossed or affected by the project should be defined as Study Area; hence the Study Area for the present AA is the SPA "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006. As shown in Figure 2-1 the routing of the Onshore pipeline crosses for 0.14km a small part of the Natura 2000 site at Kalodiki fen, while it crosses close to the site along its entire north-eastern boarder.

According to the National regulatory specifications (MD 170225/2014), the Field Survey Area (FSA) for linear projects (such as the pipeline) is defined as a buffer zone of at least 500m on either side of the linear infrastructure falling within the Study Area. Consequently, the FSA for the present AA is 0.14km in length within the Natura 2000 site, strictly considering the intersection between the pipeline and the site (at KP: 212,43 - 212,57 and IP: 2708-2709). However, given that:

- the routing of the pipeline extends also outside the Natura 2000 site and at its immediate vicinity; and
- the construction of the project outside the Natura 2000 site may affect the defined buffer zone within the site;

a larger FSA area was considered, that includes also an area outside the Natura 2000 site, of which 271.6ha overlaps with the Natura 2000 site (15.1% of the site's area) (Figure 2-3).

It should also be mentioned that the pipeline crosses other protected areas, which overlap with the Study Area as presented in Section 3.1.1, namely (a) the SAC GR2120002 at IP 2708-2709 and (b) the "Protected area of the rivers Acherontas, Kalamas estuaries and valleys, of Kalodiki fen, as well as their terrestrial, aquatic and marine areas" and one of its zones, namely Zone B5, "Tmima Elous Kalodikiou", at IP 2703-2709. Furthermore, it crosses in close proximity (500m) from the Wildlife Reserve "Valtos Kalodikiou" and the Zone A3 of the protected area mentioned above.

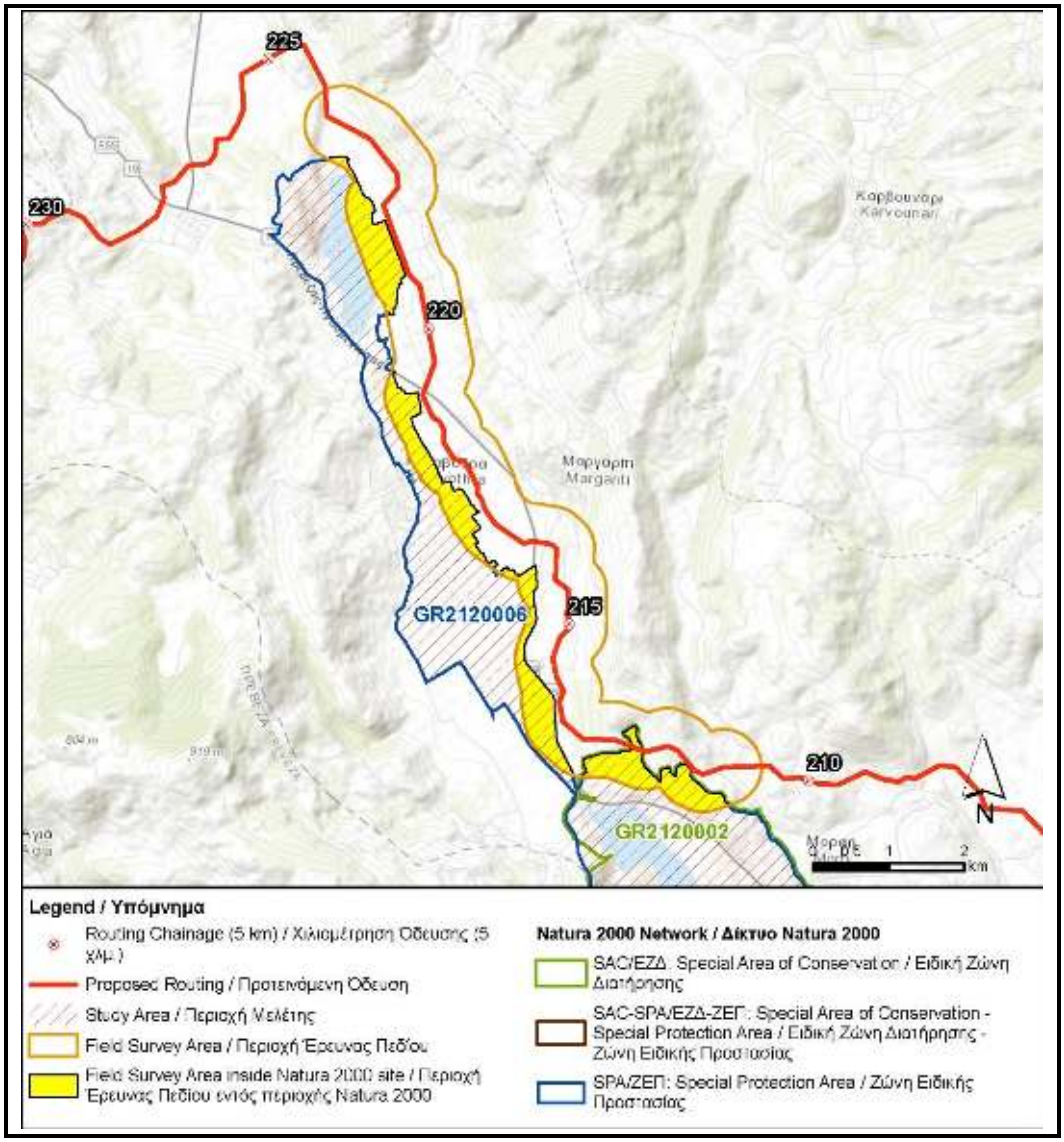
Maps of the Study Area and the Field Survey Area are provided in ANNEX A, in Maps 2 and 4 respectively.

Prepared by: (NCC, 2021)

Figure 2-1 Study Area (red hatch) and Field Survey Area (orange). Pipeline routing in red

Prepared by: (NCC, 2021)

Figure 2-2 Protected areas of the broader area, crossed by the pipeline. Pipeline routing in red



Prepared by: (NCC, 2021)

Figure 2-3 Field Survey Area (in yellow the FSA part within the SPA). Pipeline routing in red

3 CURRENT STATUS OF NATURAL ENVIRONMENT

According to the specifications of MD 170225/ 2014, the characterization of the current status of the natural environment should include the description, recording and analysis of elements of the natural environment of the Study Area, as well as its conservation status.

The present section focuses on the whole SPA ecosystem providing data on existing baseline conditions of the whole site. Data collected over the FSA (intersection between the pipeline and the SPA) are provided in the text including details on the portion of the Study area directly affected by the Project.

3.1 Description, Recording and Analysis of the Study Area Natural Environment

The analysis of the current status of the natural environment in the Study Area has been based on data derived from the literature.

In particular, for the purpose of the present document, a literature review of published references and a desktop review of data available from existing databases were carried out for the Study Area.

The main bibliographic sources of information used include:

- The Standard Data Form of SPA GR2120006 (2020).
- Results of the project "Monitoring of species and habitat types" (OIKOM, 2015)
- The Special Environmental Study of the delta and gorge of Kalama and Kalodiki wetland (Ministry of Environment, 2000
- The most recent reports on the implementation of Directives 92/43/EEC and 2009/147/EC.

In addition, the results of the following studies were considered:

- Determination of compatible activities in relation to the avifauna trigger species of the Special Protection Areas (Dimalexis et al., 2009).
- Action Plans for species at National and European level.
- The most recent Red Data Books (national, European, international).
- International Waterbird Census in Greece (1968-2006) (Handrinos et al., 2015).
- Important Bird Areas in Greece: Priority Areas for Biodiversity Conservation (Portolou et al., 2009)

A total of 4 fieldwork days were conducted for the AA during the period May-December 2021.

3.1.1 Short description of the Study Area

The Study Area is the Special Protection Area "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006, which is located within the administrative limits of the Region of Epirus covering an area of 1,798.30 hectares. The area is managed by the Management Body of Kalamas – Acherontas - Kerkyra. The Study Area overlaps partially with the Special Area of Conservation GR2120002 "Elos Kalodiki" and includes the Wildlife Reserve "Valtos Kalodikiou". Part of the Study Area is included in the "Protected area of the rivers Acherontas, Kalamas estuaries and valleys, of Kalodiki fen, as well as their terrestrial, aquatic and marine areas" and overlaps with its Zones A3 and B5.

The northern part of the SPA includes Lake Prontani, while at the southern part lay the marshes of Kalodiki, Margariti and Karteri, remains of the very extended wetland that covered the area in the past. The Kalodiki fen is an area of great importance in comparison with the other wetlands of Western Greece, and constitutes a unique peatland formation. A forested area is located on the islet of the Kalodiki marsh, while the slopes around the marsh are covered by maquis shrubs.

The site under consideration is important for breeding water birds and birds of prey with most important species *Aythya nyroca*.

The map of the Study Area is provided in ANNEX E, in Map 2.

3.1.2 Detailed description of the Study Area

3.1.2.1 Habitat types

According to the field survey and desktop study, both performed by habitats experts of the study team, the Natura 2000 site is considered important from a habitat perspective since, despite its large extent of dry-warm broadleaf scrublands, it has significant areas with wetland ecosystems. In particular, 4 habitat types listed in Annex I of the Directive 92/43/EEC and two habitat types of Greek interest have been identified within the Study Area. A large area within the Study Area is occupied by settlements, agricultural land, open water surfaces, etc.

Table 3-1 provides the spatial coverage of each habitat type identified in the Study Area, as well as their percentage with respect to the whole area of the site.

Table 3-1 Habitat types found at the site

Code	Description of habitat type	Area (ha)	Percentage (%)	Classification
5420	*Sarcopoterium spinosum* phryganas	232.14	12.91%	HD: Annex I

Code	Description of habitat type	Area (ha)	Percentage (%)	Classification
7210*	Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*	147.12	8.18%	HD: Annex I
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	69.31	3.85%	HD: Annex I
92A0	*Salix alba* and *Populus alba* galleries	7.18	0.40%	HD: Annex I
1050	Non-irrigated arable land - pure	847.88	47.15%	
934A	Greek kermes oak forests	253.30	14.09%	Of national importance
72A0	Reed beds	199.00	11.07%	Of national importance
1060	Vineyards - pure	21.81	1.21%	
1020	Industrial or commercial units	20.55	1.14%	

Note: HD: Habitats Directive
Prepared by: (NCC, 2021)

The FSA is characterized mainly by the presence of arable land and reedbeds, while it also crosses the habitat 5420, which is included in Annex I of the Habitats Directive (Table 3-2). At the part of the FSA outside the Study Area phrygana dominate as well as arable land. The WS and the PPS are crossing the habitat 5420 and the affected area is expected to be 0.39ha (0.17%) and 0.11ha (0.05%) respectively.

The main habitat types present within the FSA are presented briefly below.

Greek kermes oak forests (code 934A)

The Greek habitat type 934A includes tree formations dominated by kermes oak (*Quercus coccifera)*.

Sarcopoterium spinosum phryganas (code 5420)

Phrygana are dominated by low, thorny formations from hemispherical shrubs of the coastal thermo-Mediterranean zone, more widespread and varied than the formations of the Western Mediterranean.

Table 3-2 Area (in ha) and Percentage (%) of the habitat types per Area of Interest

Code	Habitat type	Study Area	FSA	FSA%	WS	WS%	PPS	PPS%
5420[1]	*Sarcopoterium spinosum* phryganas	232.14	55.40	23.86	0.39	0.17	0.11	0.05

Code	Habitat type	Study Area	FSA	FSA%	WS	WS%	PPS	PPS%
1050	Non-irrigated arable land - pure	847.88	157.36	18.56				
934A[2]	Greek kermes oak forests	253.30	15.08	5.95				
72A0[2]	Reed beds	199.00	40.54	20.37				
1020	Industrial or commercial units	20.55	3.21	15.62				

Notes: FSA: Field Survey Area, WS: the Working Strip as planned by the project, PPS: the Pipeline Protection Strip (4 m on each side of the pipeline axis). Percentages refer to cover compared to the total area of the habitat types in the Study Area. [1]: habitats listed in Annex I of Directive 92/43/EEC, [2]: habitats of national importance

Prepared by: (NCC, 2021)

Reference: (NCC, 2021)

Figure 3-1 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (7210) at Kalodiki Lake

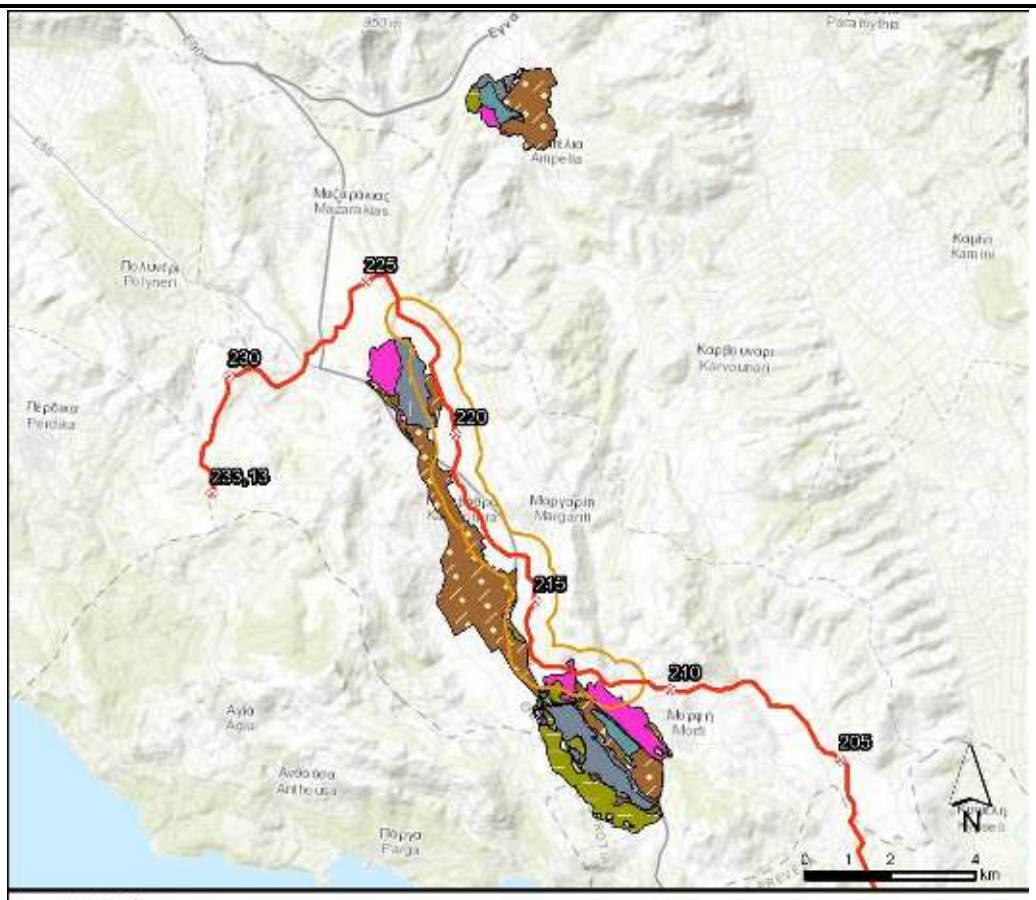
Reference: (NCC, 2021)

Figure 3-2 Panoramic view of flooded Non-irrigated arable land at Margariti

Reference: (NCC, 2021)

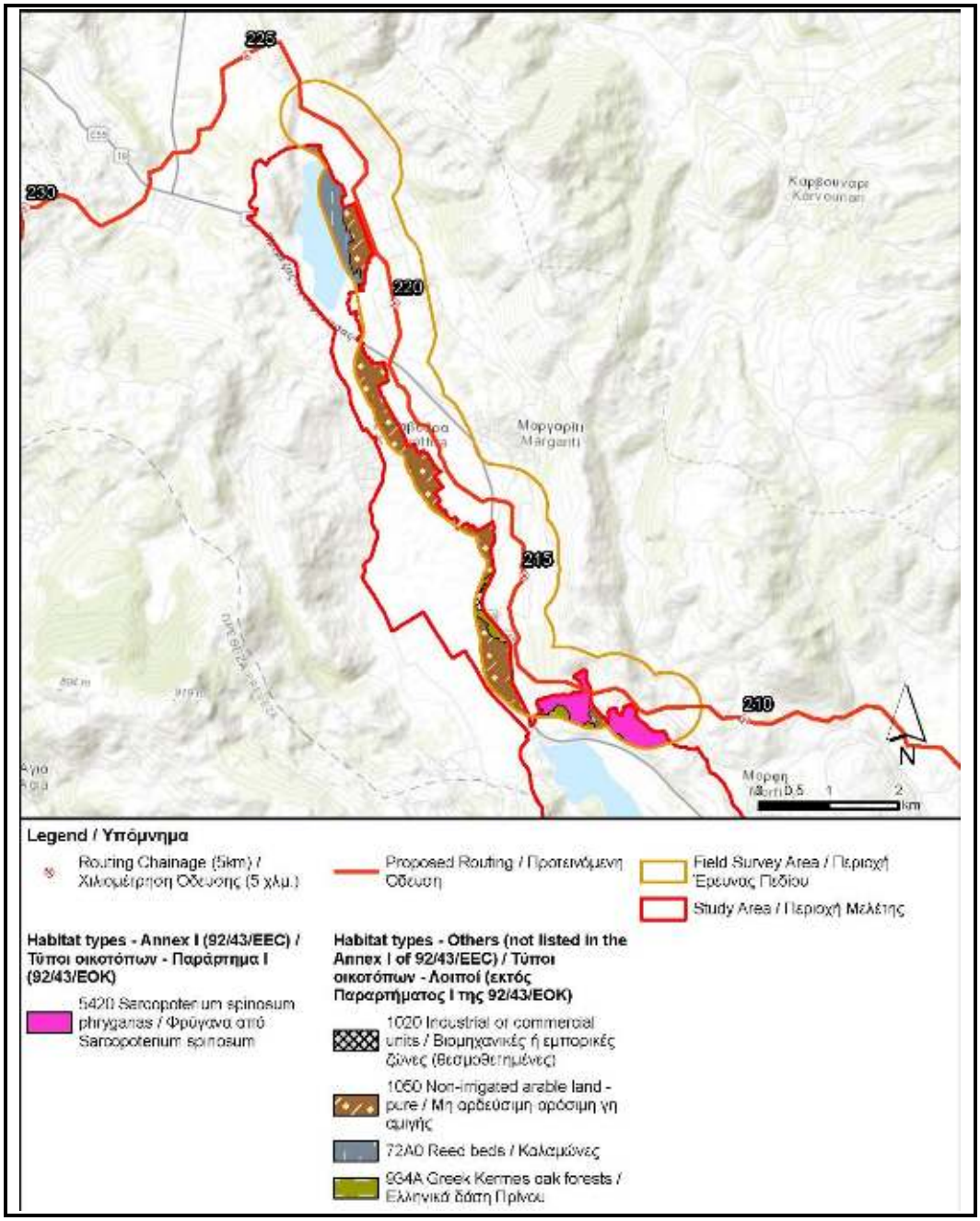
Figure 3-3 Panoramic view of *Sarcopoterium spinosum* phryganas (5420) and reedbeds (72A0)

The mapping of habitat types for the Study Area and the FSA has been carried out and is provided in ANNEX E.



Prepared by: (NCC, 2021)

Figure 3-4 Habitat type coverage at the Study Area



Prepared by: (NCC, 2021)

Figure 3-5 Habitat type coverage at the Field Survey Area.

3.1.2.2 Avifauna

The SPA is an important site for breeding waterbirds and raptors. The trigger species of the area is *Aythya nyroca*. 28 species have been recorded in the Study Area and included in its Standard Data Form (SDF), of which 14 species are listed in Annex I of the Birds Directive. ANNEX A of the present AA presents the trigger species, the Annex I species of the Birds Directive and the migratory species with regular presence, included in the SDF of the SPA. Their presence in the SPA, population and conservation assessment, are also presented in ANNEX A.

Of the species included in the SDF, 28 avifauna species 9 are breeding in the area, 11 overwinter in the area and 11 use it as a stopover site, during their annual migratory movements.

Three (3) species have been characterized as Near Threatened, namely *Aythya nyroca, Falco vespertinus, Vanellus vanellus* and one as Vulnerable worldwide (*Streptopelia turtur*) (IUCN), while at national level one species has been characterized as Endangered (*Clanga pomarina*), 2 as Near Threatened (*Circaetus gallicus, Nycticorax nycticorax*), 7 as Vulnerable (*Aythya nyroca, Ardeola ralloides, Buteo rufinus, Circus aeruginosus, Falco naumanni, Spatula querquedula, Vanellus vanellus*), one as Critically Endangered (*Plegadis falcinellus*). ANNEX B of the present AA provides information concerning the threat status of the species included in the SDF of the SPA, based on the most up to data bibliographic sources.

ANNEX A of the present AA provides also information concerning other species of interest included in the SDF.

Concerning the FSA, the information provided by OIKOM (2015) was utilized, as it was assessed as sufficient for this study. For almost all species included in the SDF, information is available on their distribution range, while information only for range is available for *Buteo buteo, Lanius senator and Hirundo rustica* and potential distribution range for *Falco vespertinus, Clanga pomarina, Streptopelia turtur*.

The FSA crosses mainly phrygana and agricultural areas and the species expected in those habitats and for which distribution, range or potential distribution is reported within the FSA include: *Circaetus gallicus* and *Circus cyaneus*, as well as *Falco vespertinus, Clanga pomarina, Streptopelia turtur* and *Buteo buteo, Lanius senator* and *Hirundo rustica*. Although the area hosts many waterbirds and herons, the FSA crosses wetland areas only at Kaneta lake, covered by reedbeds, which host several species of interest and also crosses the distribution range of *Alcedo atthis, Ardea cinerea, Fulica atra,* and *Circus aeruginosus* (at IP 2740-2743).

The species presence in the FSA as provided by the study of OIKOM (2015) is presented in Table 3-3.

Table 3-3 Species of interest at FSA (OIKOM, 2015).

IP	Species of interest		
	Distribution range	Range (grid 1X1km)	Potential distribution range
2702-2709		*Buteo buteo, Lanius senator, Hirundo rustica, Alcedo atthis*	*Streptopelia turtur*
2706-2709		*Buteo buteo, Lanius senator, Hirundo rustica, Alcedo atthis, Anas platyrhynchos, Ardea cinerea, Ardeola ralloides, Aythya nyroca, Circus aeruginosus, Cygnus olor, Fulica atra, Phalacrocorax carbo, Vanellus vanellus*	
2709-2710		*Buteo buteo*, Hirundo rustica*, Lanius senator**	
2710-2711		*Buteo buteo*, Hirundo rustica*, Lanius senator**	*Falco vespertinus, Clanga pomarina*
2711-2714		*Buteo buteo*, Hirundo rustica*, Lanius senator* Acrocephalus arundinaceus, Alcedo atthis*	*Falco vespertinus, Clanga pomarina*
2714-2721		*Buteo buteo, Hirundo rustica, Lanius senator Ardea cinerea*	*Falco vespertinus, Clanga pomarina*
2721-2722		*Buteo buteo, Hirundo rustica, Lanius senator*	*Falco vespertinus, Clanga pomarina*
2722-2723		*Buteo buteo*, Hirundo rustica*, Lanius senator**	*Falco vespertinus, Clanga pomarina*
2723-2725		*Buteo buteo*, Hirundo rustica*, Lanius senator**	
2725-2727		*Buteo buteo*, Hirundo rustica*, Lanius senator**	*Falco vespertinus*, Clanga pomarina* Streptopelia turtur **
2727-2729		*Buteo buteo*, Hirundo rustica*, Lanius senator* Ardea cinerea*	*Falco vespertinus*, Clanga pomarina* Streptopelia turtur **

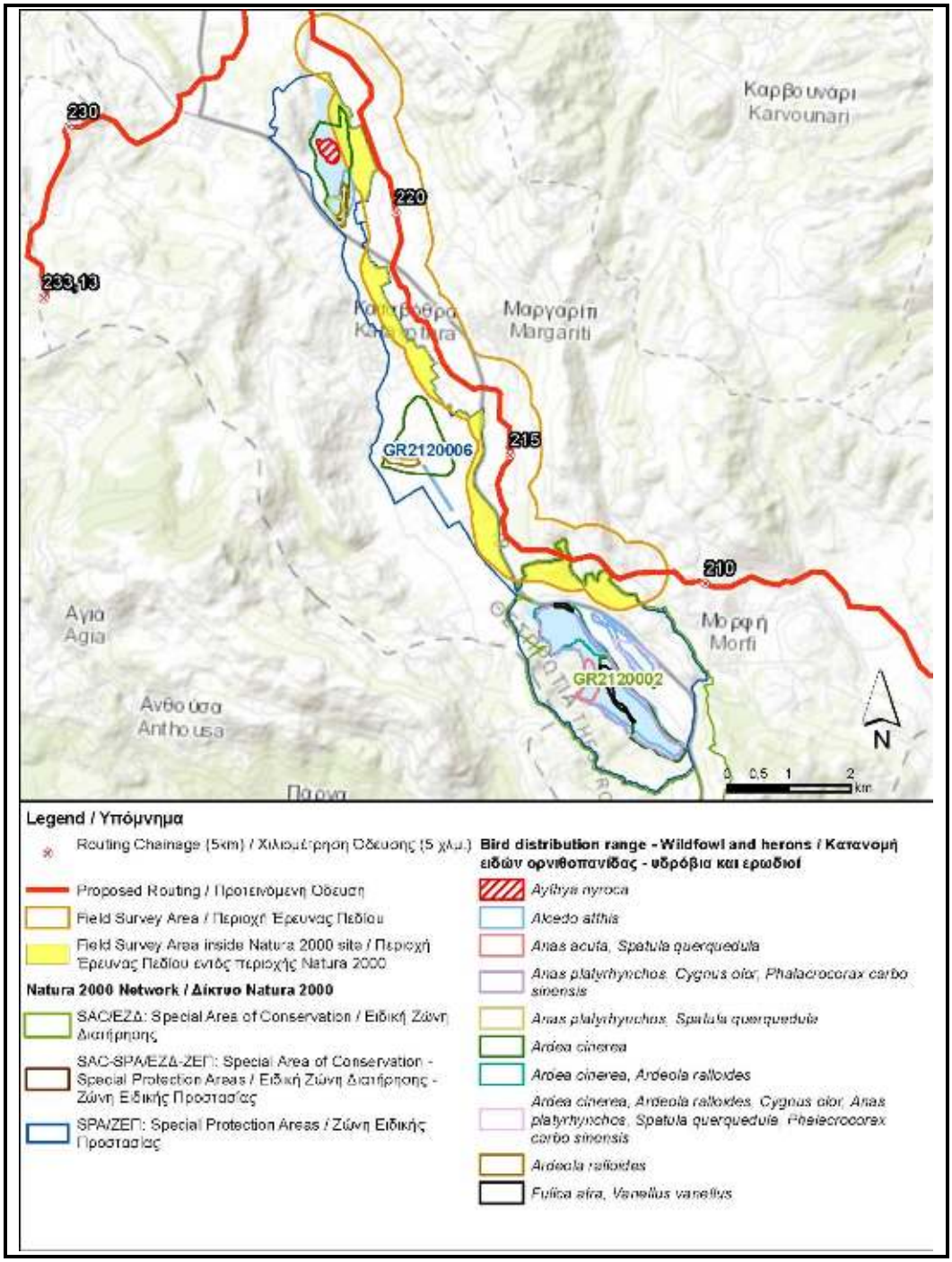
IP	Species of interest		
2729-2730		*Buteo buteo*, Hirundo rustica*, Lanius senator* Circaetus gallicus*, Circus cyaneus* Ardea cinerea*	*Falco vespertinus*, Clanga pomarina* Streptopelia turtur **
2730-2738	*Circaetus gallicus*, Circus cyaneus**	*Buteo buteo*, Hirundo rustica*, Lanius senator* Circaetus gallicus*, Circus cyaneus* Ardea cinerea*	*Falco vespertinus*, Clanga pomarina* Streptopelia turtur **
2738-2739		*Buteo buteo*, Hirundo rustica*, Lanius senator* Circaetus gallicus*, Circus cyaneus* Ardea cinerea*	*Falco vespertinus*, Clanga pomarina* Streptopelia turtur **
2739-2740		*Buteo buteo*, Hirundo rustica*, Lanius senator**	
2740-2741	*Alcedo atthis*	*Buteo buteo*, Hirundo rustica*, Lanius senator* Circaetus gallicus, Circus aeruginosus Alcedo atthis, Anas platyrhynchos, Spatula querquedula, Aythya nyroca,*	
2741-2742	*Ardea cinerea, Fulica atra, Circus aeruginosus*	*Buteo buteo*, Hirundo rustica*, Lanius senator* Alcedo atthis, Anas platyrhynchos, Spatula querquedula, Aythya nyroca, Circaetus gallicus, Circus aeruginosus Ardeola ralloides, Ardea cinerea, Fulica atra*	
2742-2743	*Ardea cinerea, Fulica atra, Circus aeruginosus*	*Buteo buteo*, Hirundo rustica*, Lanius senator* Ardea cinerea, Fulica atra Circaetus gallicus*, Circus cyaneus*, Circus aeruginosus**	

IP	Species of interest		
2743-2744	*Ardea cinerea*, *Fulica atra*	*Buteo buteo**, *Hirundo rustica**, *Lanius senator** *Ardea cinerea*, *Fulica atra*	
2745-2747	*Circaetus gallicus*, *Circus cyaneus*	*Buteo buteo**, *Hirundo rustica**, *Lanius senator** *Circaetus gallicus, Circus cyaneus*	
2747-2756		*Hirundo rustica, Buteo buteo, Lanius senator, Circaetus gallicus, Circus cyaneus* *Circaetus gallicus, Circus cyaneus*	

Note: *: crossed by pipeline routing

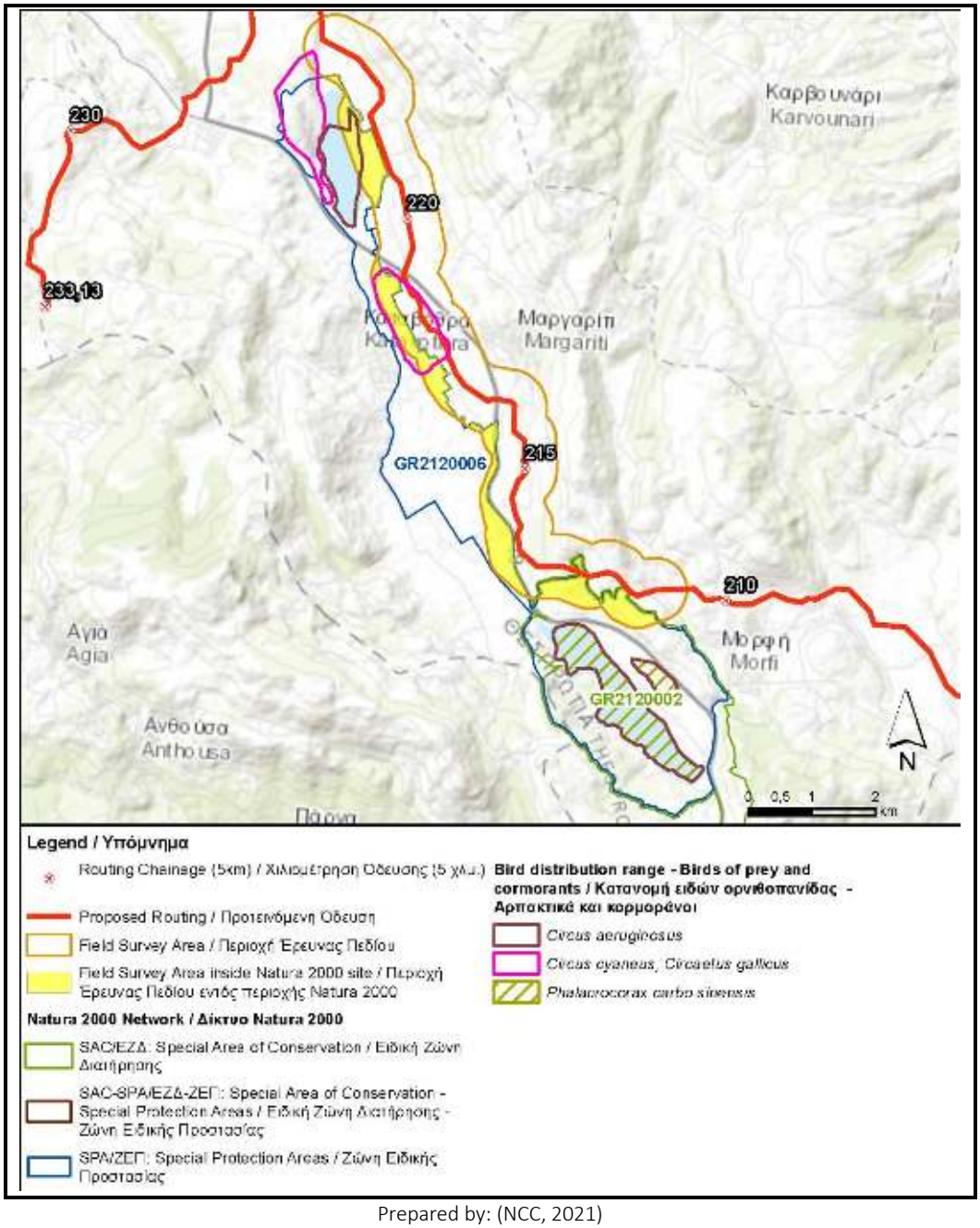
Prepared by: (NCC, 2021)

The map of the distribution of bird species of interest at the FSA is provided in Figure 3-6 and in ANNEX E.



Prepared by: (NCC, 2021)

Figure 3-6 Distribution of species of interest of avifauna of Article 6 (Directive 2009/147/EC) (OIKOM, 2015)



Prepared by: (NCC, 2021)

Figure 3-7 Distribution of species of interest of avifauna of Article 6 (Directive 2009/147/EC) (OIKOM, 2015)

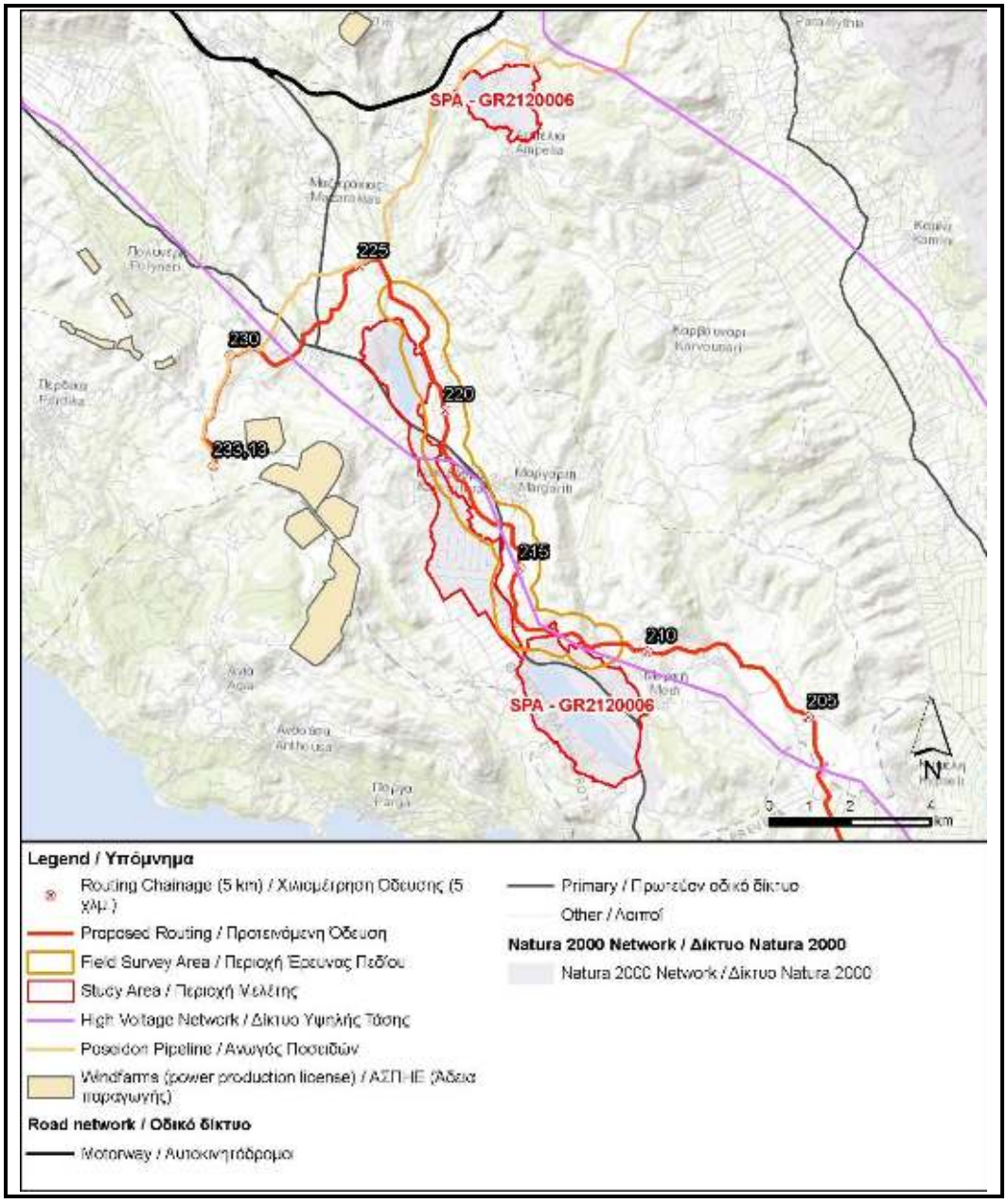
3.2 Other projects – potential cumulative impacts

The following broad categories of types of third-party projects that, if occurring, would be likely to have direct or indirect synergy with EastMed Pipeline Project include (a) other linear projects, namely pipelines, roads, power lines, (b) other energy projects and (c) other major projects.

The existence or planning of third-party projects that may act cumulatively with the current project was investigated within the Natura 2000 site.

To this context, at the westernmost edge of the sub-area of the SPA, Lake Prontani, the planned IGI Poseidon[1] is crossing the site, while in close proximity to the Lake passes also the Egnatia Motorway (approximately 500m), while at the sub-area of Marsh Kalodiki, Margariti and Karteri the European Route (E55) crosses the site as well as a high voltage power line. In addition, the site has a local road network with an extensive network of dirt roads at the cultivated land.

[1] Received ETA on 05/07/2019, number ΥΠΕΝ/ΔΙΠΑ/62780/3945.



Prepared by: (NCC, 2021)

Figure 3-8 Main other project at the Study Area

3.3 Status of natural environment

3.3.1 Conservation objectives of bird species

The Conservation objectives have been specified through the project "Assessment of the conservation status of species and habitat types in Greece" (Ministry of Environment, 2015). The overall Conservation objectives proposed for each trigger species are directly related to the assessment of the conservation status at the Natura 2000 site as reflected in the current version of the country's descriptive Natura 2000 database. Therefore:

- For each trigger species for which the Degree of Conservation has been rated as A the Conservation Objective is proposed to be the maintenance of Degree of Conservation A.
- For each trigger species for which the Degree of Conservation has been rated B, the Conservation Objective is proposed to be the achievement of the Degree of Conservation A.
- For each trigger species for which the Degree of Conservation has been assessed as C, the Conservation Objective is proposed to be the achievement of Degree of Conservation B in the short term (2 6-year periods) and the A Degree of Conservation in the long term (4 6-year periods, in accordance with EU standards for long-term/short-term national reference reports under Article 17 of the Habitats Directive).
- For species for which the Degree of Conservation has been identified as unknown, a prerequisite for setting up conservation targets is to collect more data through survey and monitoring programs.

The Site Specific Conservation Objective (SSCO) for the trigger species *Aythya nyroca* is to achievement of Degree of Conservation B in the short term and the A Degree of Conservation in the long term. Concerning it population the objective is the conservation of the minimum population size as defined in the SDF, namely 1 pair.

3.3.2 Conservation status of bird species

According to the SDF of the SPA site, the Study Area hosts significant percentage of the total national breeding populations of *Ardea cinerea, Aythya nyroca* and *Cygnus olor,* whereas the populations of other species present at the site are not significant at a national level. The degree of conservation of the important habitats for bird species and their restoration potential is good or average, while especially for the trigger species *Aythya nyroca* the degree is average. No species is on its margin of distribution. The overall value of the site for the conservation of the protected species is assessed as good or significant, more specifically is assessed as good for the species: *Ardea cinerea, Aythya*

nyroca, Buteo rufinus, Circaetus gallicus, Hirundo rustica, Plegadis falcinellus and Sylvia cantillans. Detailed information is provided in ANNEX A.

3.3.3 Threats/Pressures

No information on threats is provided in the SDF of the site. According to the information available from Portolou et al. (2009), for the broader area (Important Bird Area), the main threats include the partial drainage of wetlands and the resulting extension of agriculture to its detriment, water pollution, uncontrolled water pumping for irrigation, poaching and, in particular, the lack of active management of the wetland to preserve valuable biodiversity functions and values.

3.3.4 Ecological functions

The Natura 2000 site comprises one of the most important wetland ecosystems in Northwestern Greece, with high ornithological value.

The site, due to its geographical position (it is an integral part of the network of migratory bird stations in Western Greece), functions as wetland ecosystem which provides suitable habitats and conditions for many bird species for foraging, breeding and resting. To this mean the SPA holds habitats, with great importance for breeding waterbirds, especially *Aythya nyroca.*

3.3.5 Site development trends

Site development trends refer to the evolution trends of the site's natural environmental elements which are present and recorded within the Study Area under the assumption that no construction for the project would take place in the region. For the area of interest, ie the SPA GR2120006 human activities (e.g. land uses, human exploitation) have been gently merged and compounded in the site, while other natural elements of the biotic and abiotic environment (eg morphology, climate, topology, species, habitats, vegetation cover, etc.), have in combination formed the existing dynamics of the site. These natural environmental elements have shaped current development trends, which seem to be stable and unaffected to existing plans and projects.

4 PROJECT OVERVIEW

4.1 Introduction

This section provides an overview of the proposed project and its associated components, as well as it further outlines the project's constructional and operational requirements.

Apart from this general project description, Section 4.5 provides a more detailed description of the project interfaces with the specific Natura 2000 site.

The EastMed Pipeline Project aims to transport gas directly from the eastern Mediterranean fields to the European Natural Gas System via Greece.

EastMed consists of a Southern Line and a Northern Line to deliver gas from Israeli and Cypriot sources, respectively, through Peloponnese and Western Greece, to the Poseidon Pipeline Project in north-west Greece. Upstream of Crete these two lines are designed to work complementarily as well as independently, foreseeing infrastructure in Cyprus dedicated to each line. Thanks to this, the system is highly flexible, contributing to security of supply. The EastMed Pipeline Project comprises the following main components:

A. Southern Line of EastMed (Israel → Cyprus/Crete → SE Peloponnese):

- Transports gas from Israeli sources directly from the EastMed Compression Platform (ECP) in Israeli waters to a compression and metering station in Crete (CS2/MS2) and from there to the mainland Greece and the Poseidon Pipeline Project,
- Delivers gas to Cyprus for domestic consumption through a subsea Inline Tee Assembly (ITA) and a branch pipeline from the subsea ITA to Cyprus (OSS1 comes from Israeli platform to ITA, OSS1a from ITA to a Metering and Pressure Reduction Station (MS1a/PRS) in Cyprus and OSS2 from ITA to Crete);

B. Northern Line of EastMed (Cyprus → Crete → SE Peloponnese):

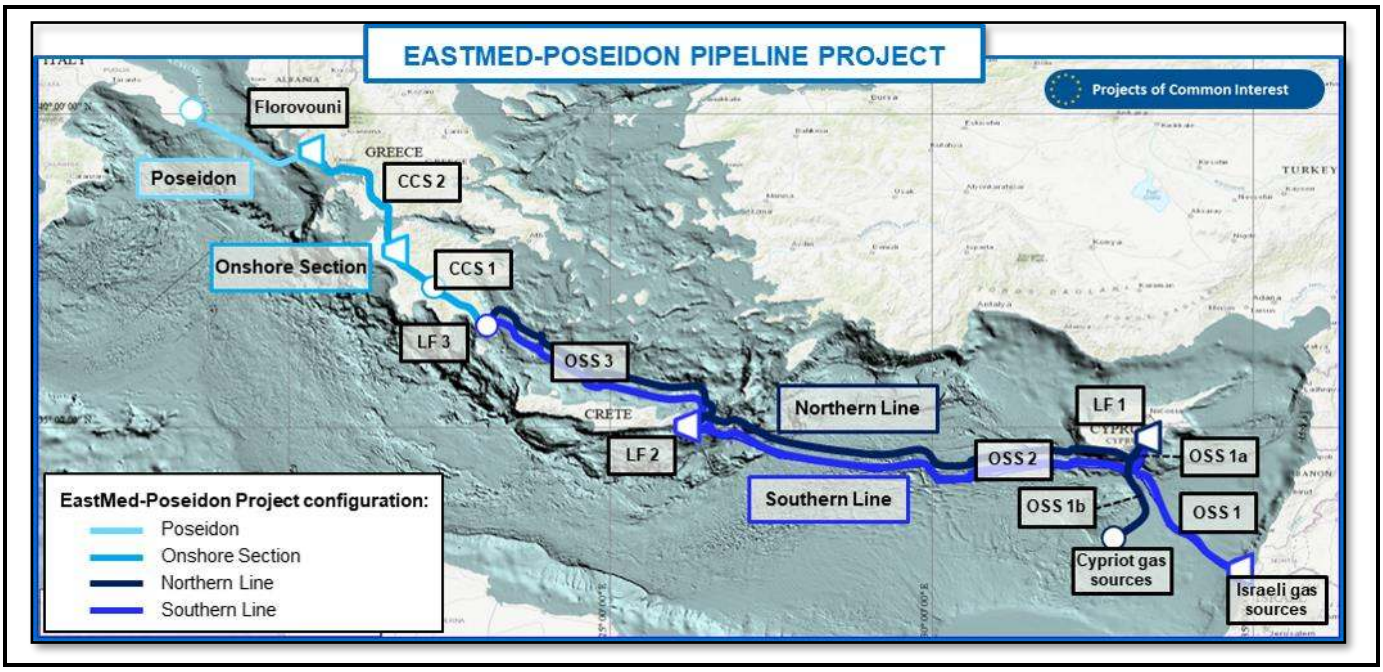
- Delivers dry gas originating from one or more of the Cypriot offshore gas discoveries to the compression and metering stations in Cyprus (CS1/MS1) first, through OSS1b and then in Crete (CS2/MS2N), through OSS2N and from there to the mainland Greece and Poseidon Pipeline Project, as referred in the next paragraph;

C. Combined System of EastMed (Crete & mainland Greece → Poseidon Pipeline Project):

- At LF3 the gas flow streams from two pipelines will be combined into a single large-diameter pipeline (CCS1-OSS4-CCS2) for transportation to the Poseidon Pipeline Project Compressor Station at Florovouni[2] in north-west Greece,
- Combination of the Southern and Northern flow streams will require additional compression along the CCS1 section in Peloponnese (CS3).

The 'Northern and Southern Lines' are shown in Figure 4-1 where the 'Southern Line' and 'Northern Line' are indicated in blue and dark blue, respectively. The onshore single large diameter pipeline of the 'Combined System' (i.e., CCS1 and CCS2) is shown in light blue[3].

A more comprehensive visualization of the crossing with the Natura 2000 sites is provided in Map 1 of ANNEX E.



Prepared by: (EastMed, 2020)

Figure 4-1 EastMed Onshore and Offshore sections - overview

[2]Compressor Station of the Poseidon Pipeline Project system at Florovouni in north-west Greece belongs to another project with the same owner and has received environmental permitting through a separate procedure (ETA: ΥΠΕΝ/ΔΙΠΑ/35872/2373/07-06-2019, ΑΔΑ: ΩΠΝ34653Π8-4Ι9)

[3] Light blue line also includes the small offshore section of the Combined System that crosses Patraikos Gulf, i.e., OSS4.

The **EastMed Onshore Section in Greece** includes the following:

- The Compressor and Metering Stations in Crete (CS2/MS2 and CS2/MS2N) together with the relevant small onshore sections to and from landfall site LF2;
- The onshore section of the 48" pipeline that crosses Peloponnese (CCS1) from landfall site LF3 (SE of R.U. Laconia) to landfall site LF4 (NW of R.U. Achaia on the south coast of the Patraikos Gulf);
- The Megalopoli's Branch line that is foreseen to connect CCS1 with the National System at Megalopoli's area (Perivolia area). The pipeline will have a diameter of 16";
- LF4 (Landfall site in the NW of R.U. of Achaia, close to Lakopetra beach, NW Peloponnese area)
- The offshore section of the 46'' pipeline that crosses the Patraikos Gulf (OSS4) from landfall site LF4 to landfall site LF5 (SW of R.U. Etoloakarnania);
- LF5 (Landfall site in the SW of R.U. of Elotoakarnania, close to Evinochori settlement, SW Sterea Ellada)
- The onshore section of the 48" pipeline that crosses Western Greece (CCS2) from landfall site LF5 (south-west of R.U. Etoloakarnania) to the installation site of the Poseidon Pipeline Project compressor station at Florovouni , in R.U. Thesprotia;
- The Metering and Pressure Reduction Station (MS4/PRS4) in Megalopoli (start of Megalopoli's Branch);
- The Heating Station in Megalopoli in the same plot as MS4/PRS4;
- The compressor station CS3 at R.U. Achaia in Peloponnese; and
- The Dispatching and Operation and Maintenance Centre (O&M) in the R.U. of Achaia.

Along the onshore section, Scraper Stations – SS (in total seven[4]) and Block Valve Stations - BVS (fifteen in total) will be installed as per the current Project design. BVSs will be placed at distances of approximately 30 km. A Landfall Station (LS) (four in total) will be installed near each landfall site.

For the section starting at landfall site LF3 in south-east Peloponnese to the Poseidon Pipeline Project's compressor station at Florovouni (sections CCS1, OSS4 and CCS2), the design pressure of

[4] It is clarified that 1 Scraper station will be located within the MS4/PRS4 and Heating Station at Megalopoli area, 1 Scraper station will be located within the future CS3, in the R.U. of Achaia, and 4 Scraper Stations will be located within the same plot as the Landfall Stations, bundling permanent facilities of the project as much as possible. The seventh SS concerns the Megalopoli's Branch.

the Project is 100 barg while the maximum operating pressure (MOP) is considered equal to 95 barg. For the Megalopoli's Branch line, the design pressure is 80 barg while the MOP is equal to 75 barg.

The **EastMed Offshore Section in Greece**, includes the following:

- OSS2 and OSS2N (the part of the Offshore Section from Cyprus to Crete under Greek jurisdiction): Subsea trunk lines from the start of the Greek Offshore Section to Crete;
- LF2 (Landfall site in Crete): the nearshore and coastal crossing section in the area of Crete;
- OSS3 and OSS3N (Crete to Peloponnese): Subsea trunk lines from Crete to Peloponnese; and
- LF3 (Landfall site in Peloponnese): the nearshore and coastal crossing section in the area of Peloponnese.

The Greek Offshore Section of the Project includes two (i.e., twin) pipelines at an average distance of approximately 100 m. Near the landfall site, the two pipelines approach each other to enter the same shore crossing cofferdam. Up to the landfall site, pipelines will be simply laid on the seabed with the pipelines gradually buried only near the coast.

In more detail:

- OSS2 (in Greece) will have an approximate length of 390 km, a diameter of 26''and a transfer capacity of 11 BSCM/yr;
- OSS2N (in Greece) will have an approximate length of 390 km, a diameter of 26'' and a transfer capacity of 10 BSCM/yr; and
- OSS3 and OSS3N will have a diameter of 28'' and transfer capacity of 10.5 BSCM/yr each, along an approximate length of 430 km.

Once both lines become operational, the EastMed project will transport a combined total flow rate of 21 BSCM/yr to the EastMed Onshore Section.

The design pressure of the OSS2 and OSS2N sections is 363 barg, while the MOP is considered equal to 345 barg. The design pressure of the OSS3 and OSS3N sections is 231 barg, while the MOP is equal to 220 barg. From a technical point of view, the two pipelines (Southern and Northern) are independent but also parts of a unique project system, and from an environmental point of view, they should be considered as one for most environmental and social parameters. Therefore, unless a clear distinction is necessary, the term "**Line OSS2/OSS2N**" is introduced to describe pipelines OSS2 and OSS2N as one integrated pipeline system across the south Cretan Sea (from the middle of the sea straits between Greece and Cyprus to the designated landfall in Crete); similarly, the term "**Line OSS3/OSS3N**" is used for the OSS3 and OSS3N pipelines across the South Aegean Sea from the landfall in Crete (LF2) to the designated landfall in SE Peloponnese (LF3).

4.2 Pipeline Construction and Pre-commissioning

4.2.1 Construction Overview

The basic method of constructing gas onshore pipelines is generally known as the spread technique, which is an "open cut" method and is widely used throughout the world. A typical sequence for onshore pipeline construction is illustrated in Figure 4-2.

Prepared by: (ASPROFOS, 2021)

Figure 4-2 Typical Pipeline Construction Sequence

This method can be broken down into several phases:

- Route survey and layout;
- Working strip preparation (clearing, grading, topsoil stripping);
- Trench excavation;
- Pipeline handling, Hauling and stringing;
- Pipeline bending;
- Pipeline welding and weld testing, applying field joint coating;
- Pipeline laying;
- Backfilling;
- Hydrotest and

- Reinstatement.

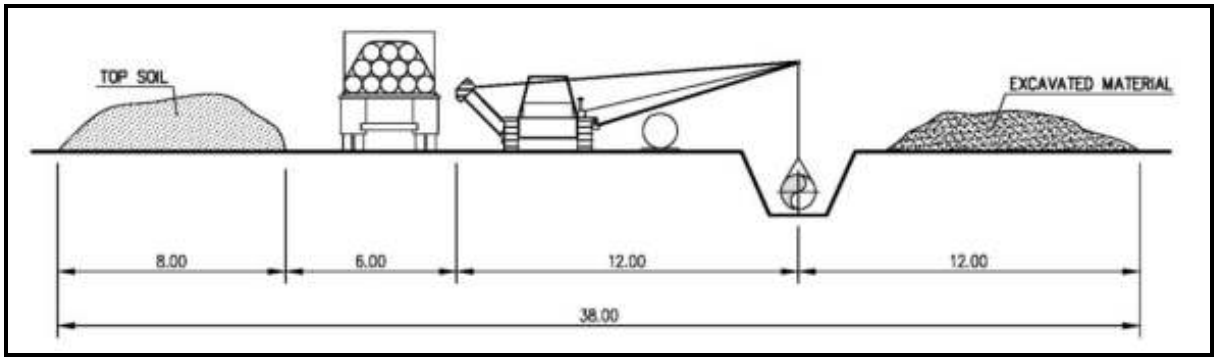
A survey control system in the form of permanent ground markers (PGM) will be installed. A subcontractor will tie all survey works into this control system and confirm the accuracy of the PGM control system.

The work includes removal of all trees, bushes, hedges and other obstacles from the construction working strip. A restricted working strip shall apply where there are physical constraints or where contractor chooses to reduce the working strip to benefit particular operations. A larger working strip may be necessary where a particular operation may benefit from additional space. The working strip should be set up before work commences.

4.2.2 Onshore Construction Methods

4.2.2.1 Marking and Clearance of Working Strip

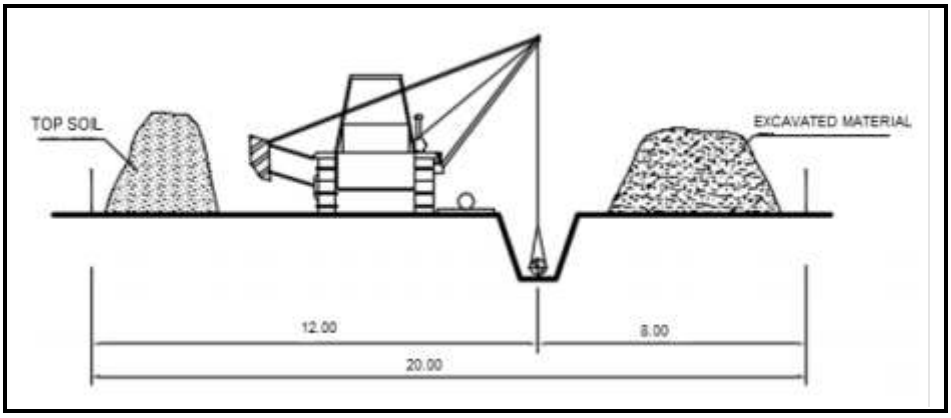
The working strip is the temporary corridor along the pipeline where construction takes place. It must be wide enough to allow all activities to be carried out safely whilst providing sufficient room to store topsoil and trench material separately and keeping crop loss to the farmer to a minimum. The width of the working strip is proportional to the diameter of the pipeline to be installed. It follows that the greater the pipe diameter, the greater the extracted trench material that has to be stored. The width of the working strip is also determined by the size of the heavy machinery needed to safely lift and lower pipe into the trench and dig the trench. The width of the working strip in open country for pipelines with nominal diameter (ND) 48'' and 46'' will be 38 m.



Source: (Design Basis Memorandum – Pipeline and Facilities)

Figure 4-3 Regular Working Strip in Open Country for Pipeline ND 48" and 46"

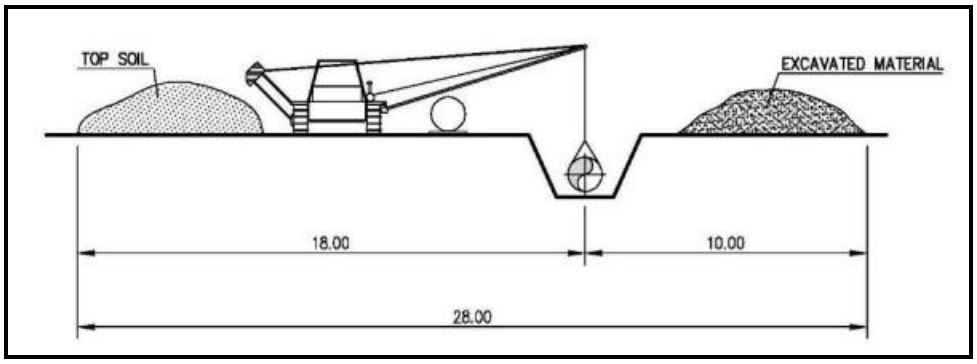
The width of the working strip in open country for pipeline of ND 16'' will be 20 m.



Source: (Design Basis Memorandum – Pipeline and Facilities)

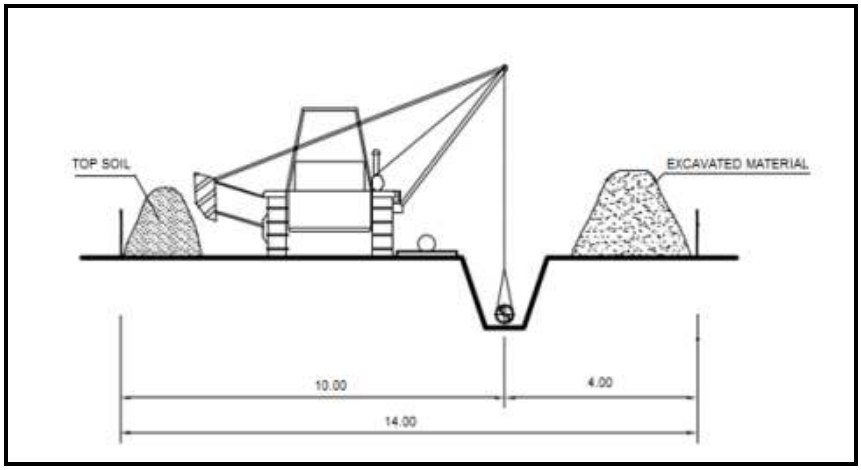
Figure 4-4 Regular Working Strip in Open Country for Pipeline ND 16”

The width of the spread zone along areas planted with permanent crops (e.g., vineyards, olive trees, etc.) for pipeline with ND 48’’ and 46’’ will be reduced to 28 m and for pipeline with ND 16’’ will be reduced to 14 m in order to minimise impacts on the plantations.



Source: (Design Basis Memorandum – Pipeline and Facilities)

Figure 4-5 Reduced Working Strip (with Topsoil Stripping) for Pipeline ND 48” and 46”

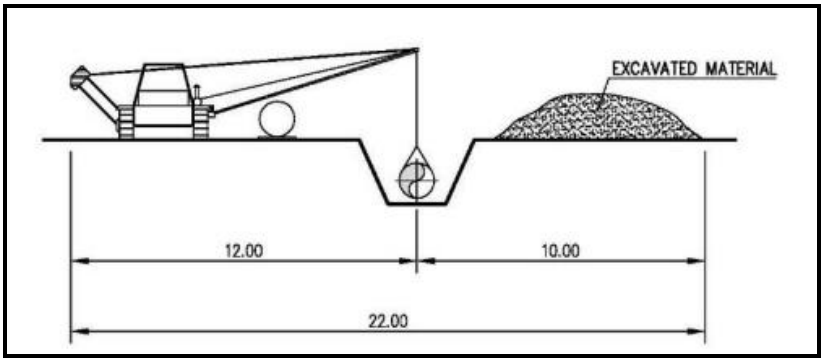


Source: (Design Basis Memorandum – Pipeline and Facilities)

Figure 4-6 Reduced Working Strip (with Topsoil Stripping) for Pipeline ND 16”

The width of the working strip for construction of pipelines with ND 48” and 46” inches can be reduced to 22 m in forest and mountainous areas where there is usually no need for top soil storage and to 28 m in areas with permanent plantations (with topsoil stripping).

For pipelines with ND 16’’ the regular working strip (in open country and agricultural areas planted with annual crops) is 20 m which is reduced to 14 m in areas planted by permanent plantations and without topsoil stripping (forest areas).



Source: (Design Basis Memorandum – Pipeline and Facilities)

Figure 4-7 Reduced Working Strip (without Topsoil Stripping) for Pipeline ND 48” and 46”

The areas where this reduced working strip will be applied will be carefully defined in order to reduce the impacts of the pipeline construction along these areas as much as possible, as well as to minimise impacts on the construction progress (e.g., delays) and to ensure that all activities along the reduced zone will be safely executed.

Furthermore, the width of the working strip will be increased when a trenchless construction method is applied at crossings of major infrastructure or rivers in order to accommodate relevant equipment for construction works (e.g., horizontal directional drilling (HDD), direct pipe, microtunnel, boring method).

Table 4.1 Summary of Working Strip width

Diameter of the pipelines (inches)	Regular Working Strip (m)	Reduced Working Strip (m)	Reduced Working Strip without Topsoil Stripping (m)	Boring methods (Area Required) (m^2)	HDD (Area Required) (m^2)
48 and 46	38	28	22	45 x 50 and 45 x 30 (each side)	100 x 100
16	20	14	14	40 x 40 and 40 x 20 (each side)	100 x 100

Source: IGI Poseidon, 2021

4.2.2.2 Topsoil Stripping

Topsoil will be removed by means of suitable earth moving equipment (such as excavators and loaders) from the entire surface of the area, with the only exception being the areas designated for topsoil storage. The average depth of the topsoil strip to be removed is 0.2 m but this will be adapted to local soil conditions. The topsoil removed will be stockpiled within the area for temporary storage until site reinstatement.

4.2.2.3 Grading

As described above the working strip must provide sufficient working space for pipeline fabrication and for simultaneous vehicle movements. Therefore, the delineated strip will be graded by specified equipment such as bulldozers and graders to the required width.

4.2.2.4 Trenching

The pipeline will be buried underground within a trench for its entire length and protected against corrosion by a cathodic protection system. The required trenching works will be mainly undertaken by excavators or jack-hammers. The standard soil covers of the buried onshore pipeline (measured from top of pipe) shall be at least 1 m.

4.2.2.5 Blasting

The use of explosives might be considered necessary at the following Natura 2000 areas. They could speed up the construction, decreasing construction duration and consequently nuisance to sensitive receptors.

Table 4-2 Indicative locations where explosives might be used during construction within protected areas

Pipeline Segment	From KP	To KP	Length (m)	Engaged Natura 2000 site
CCS1	21.348	21.845	497	SPA - GR2540007
CCS2	211.308	213.142	1,834	SPA – GR2120006 SAC – GR2120002

Prepared by: (ASPROFOS, 2021). Based on ESIA baseline soil classification

4.2.2.6 Backfill

The assembling of the pipeline will be carried out in a standard way with a construction spread that moves along the pipeline corridor. Most of the excavated soil will be used to backfill the pipeline trench. Excess soil will likely be spread out and contoured along the route in agreement with competent authorities and landowners/ users and according to further engineering studies.

4.2.2.7 Clean Up and Restoration

The clean up and restoration will be carried out in a specified way with a construction spread that moves along the pipeline corridor.

The removed topsoil will be placed back on the working strip so as the area to be restored as closely as possible to its original condition. Land will be stabilized where necessary and progressively restored with native vegetation, where possible. All machinery, equipment, tools, etc will be removed.

4.2.2.8 Indicative Schedule

The estimated total duration of the Onshore pipeline construction activities is 36 months.

On top of that, duration of the construction depends on the difficulties imposed by the baseline conditions, e.g., morphology, geotechnical issues, land uses, etc. Based on experience from other similar projects in dimensions constructed in Greece (i.e., with similar baseline conditions) the indicative construction rates (in terms of project progress, per construction activity) are:

- 400 m/day, in agricultural areas (in plain areas, 600 m/ day may be achieved)
- 200 m/day, in hilly or intense relief areas, of tree crops or natural vegetation
- 100 m/day, in mountainous areas, more often than not covered with natural vegetation (in rocky areas, 75 m/day or even smaller may be constructed).

4.2.3 Pressure Testing during Construction (Hydrotesting)

The condition of the pipeline at the start of pre-commissioning is determined by performing a system pressure test (SPT). SPT options include:

- Conventional SPT using water (e.g., hydrotesting); and
- Replacement of the SPT with other means that ensure that the overall safety level of the pipeline system for which the test is to be replaced is equal to or better than that of an equivalent system that implements the SPT- this option is applicable only to the offshore pipeline sections and under specific conditions.

The above ground facilities of the project (e.g., compressor, metering, pressure regulating, heating stations) are not subject to this procedure since these facilities include equipment that has been pre-tested during its manufacturing.

4.2.3.1 Hydrotest Concept

Hydrotesting (or hydrostatic testing) is the most common method for testing pipeline integrity and checking for any potential leaks prior to commissioning. The test involves placing water inside the pipeline at a certain pressure for a certain time to confirm pipeline strength and tightness.

The activities to be carried out before and after the hydrotest are repeated here:

- Before hydrotest:
  - Flooding and cleaning,
  - Gauging;
- During hydrotest:

- Leak detection;

- After hydrotest:
  - Dewatering,
  - Drying,
  - Purging.

Pressurisation is achieved during a hydrotest by pumping water into the pipeline section being tested. According to DNV-OS-F101, the system pressure test should be 1.15 times the design pressure with a hold period of 24 hrs. Pressurisation is then carried out with a high pressure pump.

After the pipeline has been filled and pressurised, and all the necessary parameters have been measured, the pipeline is dewatered and dried.

- Flooding, Cleaning and Gauging. After the pipeline is initially flooded, it will be cleaned and gauged. Typically, cleaning and gauging are performed as a single operation together with flooding. Cleaning involves sending a series of pigs through the pipe section to remove any debris (typically weld slag and pipe mill scale, where the latter is expected only in a very limited amount due to the internal coating) from inside the pipeline. One pig bounds the air and water, and another series of pigs can be used to clean the internal pipe-wall. Clean water is pumped in front of the pig train to moisten the debris. Pipeline internal gauging is used to ensure the inner diameter of the pipeline is free from obstructions and excessive ovality. A gauging pig is equipped with a device to determine its location in case it does not reach the pig receiver. If a gauging pig becomes stuck in the pipeline it is freed, the pipe defect is located and eliminated, and the gauging operation is repeated. An alternative gauging method could be used that will pinpoint any defect. Gauging can be performed with an electronic calliper tool for this purpose, optionally combined with a geometry pig to confirm the pipeline geometry as built. The gauging and geometry pigs may be run in the same train as the flooding and flushing pigs; pig speed for this operation should be between 0.3 m/s and 1 m/s. The pipeline system configuration should be designed to allow for pigging in forward or reverse direction. This is achieved by barred tees, lock-open check valves, eliminating non-piggable wye pieces, and designing the pig receivers so that they can also be used as launchers. This philosophy provides benefits during pre-commissioning and possible future repair scenarios;
- Dewatering. The recommended method for dewatering is to use compressed air. This method uses compressed air to drive a pig train through the pipeline while displacing the hydrotest water. The pig train consists of multiple compartments separated by pigs. Some are filled with fresh water to flush the salt from the pipe wall, and some are filled with air. The air is oil free and dry with a dewpoint of at least -65°C at atmospheric pressure and an oil content no greater than 0.01 ppmW;

- Drying and Purging. The dewatering pig train leaves a small film of water, approximately 0.05 mm thick, in the pipe. The absence of water in the pipeline is necessary in order to prevent the possible formation of methane hydrate. The drying method is air drying which usually employs swabbing pigs to help spread out the water so that it has a larger surface area in order to be more easily collected; and
- Discharge/Disposal Options. Following successful testing, the used water is discharged back into a receiving water body after having passed a sedimentation pool, through which the water will flow very slowly. These pools are sized to provide a retention time of 5 minutes, which is considered enough time to allow the solid particles to be cleaned out of the pipe, to settle and remain in the bottom of the pond. The discharge rate after finalisation of hydrotests will follow the same rules as applicable for abstraction. Hence the same water bodies will be taken into consideration for discharge. Environmental effects are expected to be minimal or negligible when discharge rates are under 10% of the receiving river flow. Discharged water will be free of any chemicals, or, if it is necessary to add any chemical substances (especially at the offshore sections), they will be from the PLONOR list. The contractor for hydrotesting will obtain written approvals from the local authorities and landowner(s) where the hydrotest water will be discharged; water will not be returned to any watercourse without permission of the appropriate local authorities.

4.2.3.2 Pre-Commissioning with SPT Replacement (only applicable to offshore sections under specific conditions)

The aim of the REPLACE methodology is to provide a robust basis for replacing the SPT with other means that ensure that the overall safety level of the pipeline system for which the test is to be replaced is equal to or better than that of an equivalent system that implements the SPT.

Consideration of SPT replacement starts early in the design timeline and continues through the offshore pipeline installation phase. The methodology describes the REPLACE activities to be undertaken in each phase of the project.

4.2.3.2.1 REPLACE plan

The REPLACE plan describes the actions required to ensure that all prerequisites, requisites and additional safeguards identified in the FMECA are implemented and documented to demonstrate compliance to stakeholders and authorities. The REPLACE plan is maintained throughout the Project lifecycle and is updated as the technical definition and execution plans develop.

Should the SPT be replaced (i.e., from REPLACE option), the pre-commissioning procedure changes. Certain steps can be omitted, and additional safeguards will be taken on board. In that case, the typical pre-commissioning procedure consists of the following (sequential) activities:

- Pressurising. The pipeline will be pressurised using dry air to create back pressure ahead of the cleaning and gauging pig train, which will be introduced in the system in the next step. Back pressure is necessary to ensure the pig-train speed can be controlled on steep slopes. The required back pressure will be assessed in detailed design. The size of the compressor spread determines the time needed for the pressurisation phase. Upon completion of the pressurising step, the pipeline is filled with dry air at elevated pressure;
- Cleaning and gauging. Cleaning and gauging activities are, ideally, conducted using a single pig run—a second run may be necessary if too much debris is found in the pig train's last slug after the first run. The pig train will consist of a series of pigs with clearing and gauging (CG) functionalities. The series of pigs will be separated by slugs of monoethylene glycol (MEG), not by slugs of water. MEG is hygroscopic and will absorb condensed water in the pipeline. For this reason, MEG inhibits against hydrates and is a so-called "hydrate-control fluid". The pig train will be propelled by a large slug of nitrogen (with a high purity of, for instance, 95%) of several tens of kilometres followed by ultra-dry air. Now the pipeline is chemically conditioned and a drying step is no longer needed. Upon completion of the pig run, the system is filled with dry air at elevated pressure;
- Depressurisation. After successful receipt of all pigs (see the above CG step), the pipeline system will be depressurised by venting to atmospheric pressure from both ends of the pipeline. Upon completion of the depressurisation, the system is filled with dry air at ambient pressure; and
- Nitrogen purging. Next, the system will be purged with a nitrogen-rich gas mixture of very high purity (e.g., 98%) to avoid an explosive gas–air interface. The mixture is pumped into the pipeline at low pressure to displace the air contents. Once the oxygen level measured at the outlet is sufficiently low, nitrogen purging is halted. Upon completion of nitrogen purging, the pipeline system is filled with inert gas, slightly above ambient pressure. This means that pre-commissioning has been completed and the system is ready to receive hydrocarbon gas.

This REPLACE Methodology was successfully used in TurkStream and Nord Stream 2 Pipeline projects, removes the need for seawater and the risk associated with lateral buckling concerning the conventional method. This procedure can be amended if necessary, depending on specific project requirements.

4.2.3.3 EastMed System Pressure Test Response

Each offshore pipeline, comprising the Greek section of the EastMed Pipeline Project has been assessed individually in accordance with the REPLACE methodology.

Based on the System Pressure Test Replacement Study (E780-00225-Ev32A-TDR-00055, Rev.02), it has been concluded that, for OSS2, OSS2N, OSS3 and OSS3N project components, it is beneficial not to pressure test the system applying the conventional hydrotesting SPT because of the risk associated with lateral buckling. For the remaining Project components, conventional SPT is applied.

Hydrotest sections will have a length up to 9 km each. It is estimated that approximately 50 hydrotests will be carried out for CCS1, 38 for CCS2 and 2 for Megalopoli Branch.

Each hydrotest will be completed in 7-10 days.

Pre-commissioning of the offshore OSS4 section is expected to require a total of 11 days. Similarly, the pre-commissioning of the other offshore project components is expected to require a total of 57 to 84 days. Pre-commissioning will be finished before commissioning activities.

4.2.3.4 Water Abstraction Sources for Conventional SPT

As far as the onshore pipeline segment, inland water sources with larger amounts of water flow have been considered for water abstraction and discharge. Water reservoirs will not be used as a source for testing water. For the offshore and nearshore segments, the most likely option is the use of sea water.

Table 4-3 shows the potential water sources identified along the pipeline route and the volumes required for hydrotesting for each main section.

The timing for hydrostatic testing activities will consider the seasonal changes of river flows and the reduced flows during the summer months.

The quantity of water used for hydrotest, considering the complete onshore section, is approximately 600,490 m^3. This volume of water is the maximum that could be used. However, it is best international practice to transfer water between hydraulic test sections and re-use it as much as possible so the final volume is expected to be much smaller.

The contractor for the hydrotest will obtain written approvals from local authorities and landowner(s) or users regarding hydrotest water abstraction and disposal.

Table 4-3 Water Requirements for Hydrotest Sections

Pipeline Spread		Water Source	Approx. Volume Required (m^3)	Pipeline Section
From KP	To KP			
				Short Onshore Section at Crete
0	50	Evrotas	54,900	CCS1
50	100	Evrotas	54,900	CCS1
100	130	Evrotas	32,940	CCS1
130	150	Alfeios	21,960	CCS1
150	200	Alfeios	54,900	CCS1
200	250	Pineiakos Ladonas	54,900	CCS1
250	300	Pineiakos Ladonas - Pineios	50,500	CCS1
			18,451	OSS4
0	35	Evinos	38,430	CCS2
35	55	Water Canal of Trichonida	21,960	CCS2
55	70	Acheloos	16,470	CCS2
70	135	Arachthos & Louros	71,370	CCS2
135	200	Louros	71,370	CCS2
200	233	Louros & Acherontas	36,234	CCS2
0	4	Alfeios	492	Megalopolis Branch
4	9.8	Alfeios	713.4	Megalopolis Branch

Source: (IGI Poseidon, 2021)

As the conventional SPT approach involves the use of water (either inland or sea), it should be noted that inland water providing the compliance of its physicochemical characteristics with what was described earlier does not pose any risk to pipeline integrity. The water used needs to be free of contaminants and not aggressive (pH between 5 and 8), and no additives, corrosion inhibitors or chemicals are envisaged to be used.

This is not the case with sea water due to its corrosive behavior. The following options exist regarding seawater composition for hydrotesting purposes:

Filtered seawater (50 micron) + UV sterilisation. Use of chemicals is not envisaged considering that the water residence time should be fewer than 30 days. If the use of chemicals or other additives is deemed unavoidable, these substances will be included in the PLONOR list. The PLONOR list is a list of substances that are deemed to pose little or NO risk (PLONOR) to the environment. The list has been developed by the OSPAR committee (known as Oslo – Paris committee) for protection of the marine environment. All chemicals or mixtures on the PLONOR list are allowed to be discharged into the sea in accordance with international industry standards.

4.2.3.4.1 Discharge and Disposal of SPT Mediums

Conventional SPT includes discharge and disposal of large quantities of hydrotesting water.

Water for the onshore sections will be discharged back into a receiving water body after having passed a sedimentation pool, through which the water will flow very slowly. These pools are sized to provide a retention time of 5 minutes, which is considered enough time to allow cleaning the solid particles out of the pipe to settle and remain in the bottom of the pond. The discharge rate after finalisation of hydrotests follow the same rules as applicable for abstraction. Hence the same water bodies will be taken into consideration for discharge. Environmental effects are expected to be minimal or negligible when discharge rates are under 10% of the receiving river flow. Discharged water will be free of any chemicals.

In any case:

- The discharge is performed in a controlled manner according to local environmental approvals. An assessment of the likely dispersion rate and extent should be evaluated as part of the pre-commissioning design activities during the EPIC stage of the project; and
- Prior to discharging the hydrotest fluids, samples are collected and analysed on-site to ensure compliance with permits and other regulations before being discharged to the open sea.
- The discharge point will be selected based on:
- Results of dispersion analysis;
- Application of diffuser; and
- Assurance of efficient dispersion into environment.

Continuous discharge is considered possible by developing a discharge plan taking into account the spread capacity of the entire discharge system.

4.3 Operation maintenance

Detailed operating procedures for the pipeline system will be developed. These procedures will precede the operation of the pipeline. A system for collecting information from third party activities will be operational.

The pipeline is monitored and controlled from the control room. The monitoring system is SCADA (System Control and Data Acquisition). During operation, leak detection is performed through continuous measurements of pressure and flow rate at the inlet and outlet of the stations and the pipeline. If a leak is detected, the deactivation system is activated. In order to be able to carry out an internal inspection, scrapper stations will be installed.

4.3.1 Maintenance

4.3.1.1 Pipeline Maintenance

The pipeline system will be monitored and maintained to ensure that it shall remain adequate and operational as designed, constructed and tested throughout its life-time and also in order to minimize environmental and human hazards. In general, pipeline monitoring, operational inspections and monitoring of operating conditions shall be performed in order to address any problems and to enable their repair in a short period of time. Maintenance planning shall be performed through a combination of modern management techniques, information systems and innovative technical analyzes in order to minimize any risk associated with the operation of the installation and equipment in the long run. The integration of scheduled maintenance will be a major component of the project development and will be implemented throughout the operation of the pipeline system.

Pipeline inspection and maintenance work during operation include the following parameters:

- Pipeline monitoring
- Supervision of the alignment possibly with road vehicles
- Inspections of special intersections
- Monitoring the population and activities of third parties adjacent to the pipeline
- Installation of the cathodic protection system
- Control and monitoring investigations
- Functional inspections and accreditation of the installation and equipment
- Maintenance of installation and equipment at predetermined intervals

The pipeline will be cleaned on a regular basis to confirm the geometry of the pipeline as well as after possible damage or after seismic phenomena.

4.3.1.2 Maintenance of Compressor Stations and Metering Stations

The maintenance strategy is based on the preventive maintenance, the program defined in the Maintenance Plan and the inspection / testing program. In the subsequent operation, the maintenance program follows the Reliability Centered Maintenance (RCM) principle where maintenance activities are based on the recorded reliability and fault database of the plant equipment.

No significant gas leaks occur during the maintenance of the metering stations.

4.4 Decommissioning of the Project

The expected service lifetime of the two pipeline systems is 50 years. It may be possible that life expectancy of the Project is increased as technology further develops during its operation. Nevertheless, it is expected that at some point the pipelines and the facilities will be decommissioned.

Any decommissioning activities will be subject to permitting requirements applicable at that time and subject to consultation with affected owners and stakeholders of affected properties and structures. A plan covering all relevant items will be prepared and approved before any decommissioning works. The plan will also include an assessment of the environmental impacts of the proposed decommissioning technique and proper mitigation measures.

The Project is designed for a lifetime up to 50 years. Project components may be modified and upgraded over the years, and various measures may be taken to increase the life expectancy of the Project. However, at some time in the future the maintenance of the project will become economically unfavourable and the technology obsolete; consequently, the Project will be demobilised.

The plant and equipment will be dismantled or cut into manageable sections, wiring and electronic boxes removed and handled in accordance with national legislation. Steel sections will be carted away for reuse or reprocessing. Building structures, including pits and culverts, and paved surfaces on the site are demolished, and the used building materials are transported to an approved waste disposal site if they cannot be recycled.

Finally, the area is reinstated by contouring the site to its original slope and undulation, and any scrub and vegetation are planted. The reinstatement will be planned and drafted in co-operation with the relevant authorities, whose approval shall be in hand prior to commencement of any fieldwork. A few

years thereafter, the site should appear to be mingling in with the general landscape, and any traces from Project operations would not be detectable.

More specifically, a detailed plan for the decommissioning phase will be submitted to competent authorities for approval in advance of the planned date of end of operation activities, providing details of all necessary activities, in compliance with international best available dismantling practices and technologies available at the time of the execution of the plan.

The current approach foresees that the decommissioning procedure will consist of removal of the pipeline. In specific sections where the removal operation would not be technically feasible or would cause a more adverse impact on the natural or socioeconomic environment than the abandonment underground, the pipeline will be left buried (e.g., OSS4 or other sections of the onshore components of the Project). Nevertheless, regarding the offshore sections, it is expected that at some point the offshore pipeline should be decommissioned. At that point activities will be undertaken in accordance with prevailing legislation, in liaison with the relevant regulatory authorities and taking into account international best practices. This can be expected, for instance, in trenchless crossing sections. In these cases, the section will be made inert by filling up the pipe with appropriate concrete conglomerates or mixtures (in order to prevent collapse of empty pipeline), provided that the section is welded with caps.

Pipeline decommissioning, like the commissioning of a new pipeline, will be performed through a number of sequential phases that will allow occupation of limited areas at a time, progressively forwarding through the route. The impacts are expected to be similar to the ones evaluated for the construction phase (in a reverse chronological order).

In line with the principles concerning the permanent above-ground facilities, the decommissioning procedure will consist of removal of the structures and reinstatement of the area in a reasonable time frame in order to the return to the previous conditions of the area where this is possible. Of course, the first priority is to reuse materials; some components, though, cannot be reused and they are recycled to the extent possible. Other components are managed as excavation, demolition, construction waste.

4.5 Description of the project interferences with the Natura 2000 site

The current Appropriate Assessment concerns the part of the project that overlaps with the Study Area (Natura 2000 site: GR2120006). The total length of the project crossing the Study Area is 0.14km at the section IP 2708-2709 (KP: 212.43 – 212.57). The Study Area is crossed in correspondence of an area with phrygana near Kalodiki wetland.

During construction

- The working strip inside the Study Area will be of 28m width, while outside and in close vicinity it will vary between 28-38m.
- It is estimated that a few weeks will be required for the completion of the work in the area.
- Blasting might be used at KP 211.308-213.142.
- It should be noted that no construction activities will take place during night.
- Regarding precommisioning activities, for the System Pressure Test, no water abstraction and discharge will take place in the specific Natura 2000 site.

During operation/maintenance

- An 8m wide pipeline protection strip will be maintained along the pipeline.

Table 4-4 Pipeline Working Strips

Project phase	Working Strip	Width (m)
Construction and pre-commissioning	General working strip	38
	Working strip with construction/environmental constraints	28
Operation and maintenance	Pipeline protection strip	8

Reference: (ESIA Project Description)

5 APPROPRIATE ASSESSMENT

According to the requirements of Article 6 of the Directive 92/43/EEC, the guidelines of the European Commission for the Appropriate Assessment and the MD 170225/2014 a series of procedural and substantive safeguards are set out, that must be applied to plans and projects that are likely to significantly affect a Natura 2000 site. In this framework the procedure of the AA is designed to:

- Fully assess the impacts of plans and projects that are likely to have a significant effect on a Natura 2000 site.
- Ascertain whether an adverse effect on the integrity of the site can be ruled out. If such is not the case, the plan or project can only be approved if mitigation measures or planning conditions can be introduced that remove or minimize the adverse effects on the site so that its integrity is not affected.
- Provide a mechanism for approving - in exceptional circumstances - plans or projects for which it cannot be ascertained that they will not adversely affect a Natura 2000 site even after the introduction of mitigation measures, when these plans of projects in the absence of alternative solutions are judged to be of overriding public interest.

5.1 Appropriate Assessment Methodology

This section describes the appropriate assessment methodology that will be applied so as to assess in an appropriate manner the potential significant impacts that may be determined by the project to the qualifying features and integrity of Natura 2000 sites. To this aim the methodology was based on the provisions and criteria of MD 170225/2014 with slight modifications so as to fullfill the purpose of the assessment and be in line with the directions derived from the methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

The significance of the potential impacts has been assessed considering the following characteristics:

- Duration,
- Spatial extent of the impact,
- Frequency of occurrence or timing with significant ecological periods,
- Intensity of the expected impact on ecological functions of habitats, species and ecosystems,
- Reversibility, either naturally or through implementation of measures to prevent and mitigate impacts.

Furthermore, the vulnerability/sensitivity of the habitat or species (receptor) to changes caused by the project and its capability to recover are taken into account, always considering how tolerant and

fragile the habitat or species is and the value, in terms of environmental conservation and ecology, of the receptor affected including species, populations, communities, habitats and ecosystems.

The significance of the impact was assessed in two steps: (a) taking into consideration the value and sensitivity of habitats and species, and the intensity of the impact on them; and (b) incorporating the frequency of occurrence or timing with important ecological periods.

In cases where a site supports habitats or species for which the potential impact differs, the scoring system uses a "weakest link" approach. This means that scores are based on the "worst" case.

Table 5-1 Assessment of impact Intensity towards the recipient of Habitats/Species of interest

Impact Intensity	Recipient: Habitats/Species of interest
High	• The project (either alone or in combination with other projects) may adversely affect the integrity of a habitat, by substantially changing in the long term its ecological features, structures and functions, across all or most of the area, that enable it to sustain the habitat, complex of habitats and/or the population levels of species that makes it important. • Affects an entire population or species in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural recruitment (reproduction, immigration from unaffected areas) will not return that population or species, or any other population or species depending on it, to its former level within several generations*. A large magnitude impact affecting the species may also adversely affect the integrity of the site, habitat or ecosystem. A secondary impact of large magnitude may also affect a subsistence or commercial resource use (e.g. fisheries) to the degree that the well-being of the user is affected over a long term.
Medium	• The habitat's integrity will not be adversely affected in the long term, but the effect is likely to be significant in the short or medium term to some, if not all, of its ecological features, structures and functions. The habitat may be able to recover, through natural regeneration and restoration, to its state at the time of the baseline study. • Affects a portion of a population and may bring about a change in abundance and / or distribution over one or more generations*, but does not threaten the integrity of that population or any population dependent on it. A medium magnitude impact may also affect the ecological functioning of a site, habitat or ecosystem but without adversely affecting its overall integrity. The size of the consequence is also important. A medium magnitude impact multiplied over a wide area will be regarded as large. A short term effect upon the well-being of resource users may also constitute a secondary medium impact.
Low	• Neither of the above applies, but some minor impacts of limited extent, or to some elements of the habitat, are predicted but the habitat will readily recover through natural regeneration. • Affects a specific group of localized individuals within a population over a short time period (one generation* or less), but does not affect other trophic levels or the population itself.

*Note: Generations of the animal/plant species under consideration.

Prepared by: (NCC, 2021)

Table 5-2 Assessment of impact Intensity towards value and sensitivity of resource/recipient, frequency of occurrence and reversibility.

Impact Intensity	Value and sensitivity of resource/recipient	Frequency	Reversibility
High	The receptor has little capacity to balance the changes without substantially altering its current state or is important at national or international level. For the classification the value of the species habitat affected is also taken into consideration.	The activity is continuous or/and takes place during critical life-stages or seasons for wildlife, e.g. bird nesting season.	The implementation of mitigation measures will reverse the effect by 100%.
Medium	The receptor has moderate ability to balance changes without significantly altering its current state or is of high importance. For the classification the value of the species habitat affected is also taken into consideration.	The activity is expected to be carried out for long periods of time during construction and will continue during operation or/and takes place during early or late breeding stages.	The implementation of mitigation measures will reverse the effect only partially and over 50%.
Low	The receptor is tolerant to change without harming its features, is of low or local importance. For the classification the value of the species habitat affected is also taken into consideration.	The activity will occur sporadically at irregular intervals or/and outside critical life-stages or seasons for wildlife.	The implementation of mitigation measures will reverse the effect only partially and up to 50%.
Negligible		The activity will occur once and outside critical life-stages or seasons for wildlife.	
Irreversible			There is no reasonable chance of action being taken to reverse it.

Prepared by: (NCC, 2021)

Table 5-3 Assessment of the impact's magnitude towards the value of the resource and the intensity of the impact

Magnitude of impact		Intensity		
		Low	Medium	High
Value/ sensitivity of receptor	Low	Negligible	Low	Medium
	Medium	Low	Medium	High
	High	Medium	High	High

Prepared by: (NCC, 2021)

Table 5-4 Assessment of the overall significance of the impact, with the frequency taken into account

Overall significance of impact		Impact's magnitude with regard to the value of the receptor and intensity			
		Negligible	Low	Medium	High
Frequency	Negligible	Negligible	Negligible	Negligible	Low
	Low	Negligible	Negligible	Low	Medium
	Medium	Low	Low	Medium	High
	High	Low	Low	High	High

Prepared by: (NCC, 2021)

An assessment of the residual impact (impact that can not be mitigated and thus irreversible) has also taken into account the reversibility that may arise from the implementation of measures to prevent or mitigate the impacts of the project on habitats and species.

Table 5-5 Assessment of the residual impact, with the reversibility of the impact taken into account

Residual impact		Overall significance of impact			
		Negligible	Low	Medium	High
Reversibility	High	Negligible	Negligible	Low	Low
	Medium	Negligible	Negligible	Low	Medium
	Low	Negligible	Low	Medium	High
	Irreversible	Negligible	Medium	High	Critical

Prepared by: (NCC, 2021)

Table 5-6 Impact significance definitions

Significance	Definition
Critical	Unacceptable. It is not subject to mitigation, alternatives should be identified.

Significance	Definition
High	Significant. Impacts with a "High" significance are likely to disrupt the function and value of the resource/receptor, and may have broader systemic consequences (e.g. ecosystem or social well-being). These impacts are a priority for mitigation in order to avoid or reduce the significance of the impact.
Medium	Significant. Impacts with a "Moderate" significance are likely to be noticeable and result in lasting changes to baseline conditions, which may cause hardship to or degradation of the resource or receptor, although the overall function and value of the resource or receptor is not disrupted. These impacts are a priority for mitigation in order to avoid or reduce the significance of the impact.
Low	Detectable but not significant. Impacts with a "Low" significance are expected to be noticeable changes to baseline conditions, beyond natural variation, but are not expected to cause hardship, degradation, or impair the function and value of the resource or receptor. However, these impacts warrant the attention of decision-makers, and should be avoided or mitigated where practicable.
Negligible	Not Significant. Any impacts are expected to be indistinguishable from the baseline or within the natural level of variation. These impacts do not require mitigation and are not a concern of the decision-making process.

Prepared by: (NCC, 2021)

5.2 Assessment of Impacts

The present impact assessment evaluated impacts, taking into consideration the implementation of adequate mitigation measures and environmental planning aimed at reducing and where possible preventing environmental impacts as presented in Section 6. Final residual impact is also estimated. A typical example is the selection of the trenchless underground passage of the pipeline at some Natura 2000 sites, in order to minimize impact on sensitive habitats and species. Mitigations measures are therefore presented alongside the assessment and presented in detail in Section 6.

In this framework, the potential impacts concerning the construction and operation of the project were assessed with regards to the technical characteristics, the special natural characteristics and the current environmental conditions of the Study Area, with emphasis on the protected elements, the ecological integrity of the Study Area and the overall consistency of the Natura 2000 network.

For the section of the project under assessment, given the characterization of the area of interest as SPA for the Natura 2000 network, the following evaluation indicators were used:

(a) loss and fragmentation of habitat areas of bird species,

(b) disturbance/displacement of species of interest, as well as

(c) direct loss of individuals of species of interest.

The examination of those indicators can provide information on the impact of the project and on whether it may:

- Cause delay or disrupt the progress in meeting the conservation objectives of the Natura area concerned;
- Reduce the size of the species population or affect the conservation status of their habitats or fragment them or affect the balance between species or affect their degree of isolation;
- Cause changes to vital parameters within the Natura 2000 site;
- Interact with anticipated or expected physical changes.

as required by the MD 170225/2014.

The chapter includes an initial screening of species and habitat types, followed by the estimation of the impacts of the project on the selected species related to (a) the pipeline construction and pre-commissioning, (b) the pipeline operation, (c) cumulative impacts, while possible impacts to other important species are also presented. Finally, the alternative scenarios are examined.

5.2.1 Species screening

A screening was carried out concerning the species included in Table 3.2. of the SDF that could be potentially affected by the project. The species for which the site has been designated as a Natura 2000 site and could potentially be affected by the project were selected. The main species for which the site has been designated as a Natura 2000 site (trigger species) and other species considered as important for the site and could potentially be affected by the project were selected based on experts' judgment. The rest of the species was decided to be grouped in wider ecological groups and assessed based on the ecological requirements of their group (see below).

The ecological requirements of the individual species and the groups are presented in ANNEX C, based on the studies of Dimalexis et al. (2009).

Table 5-7 Species of interest expected or observed within the FSA

Code	Species	Presence	Observed during field work	Annex of Birds Directive / IUCN / Greek Red List
Trigger species of the Study Area *Reported in chapter 3.2 of the site's SDF*				
A060	*Aythya nyroca*			I|NT|VU

Code	Species	Presence	Observed during field work	Annex of Birds Directive / IUCN / Greek Red List
Other species of the Study Area *Reported in chapter 3.2 of the site's SDF*				
A858	*Clanga pomarina*			I|LC|EN
A080	*Circaetus gallicus*	r		I|LC|NT
A081	*Circus aeruginosus*	w		I|LC|VU
A082	*Circus cyaneus*	w		I|LC|-
A097	*Falco vespertinus*	c		I|NT|DD
A087	*Buteo buteo*	w		-|LC|-
A341	*Lanius senator*	r		-|LC|-
A210	*Streptopelia turtur*	r		II/2|VU|-
Groups of bird species of the Study Area *Reported in chapter 3.2 of the site's SDF*				
Herons				
Passerines of agricultural areas & wetlands				
Cormorants				
Raptors				
Waders				
Waterfowl				

Note: p: permanent, r: reproducing, c: concentration, w: wintering (source: SDF), I, II: Annexes of Birds Directive, LC: Least Concern, VU: Vulnerable, NT: Near Threatened, EN: Endangered, DD: Data Deficient
Prepared by: (NCC, 2021)

Herons: *Nycticorax nycticorax, Ardeola ralloides, Ardea cinerea*

Passerines of agricultural areas: *Hirundo rustica, Sylvia cantillans*

Passerines of wetlands*: Acrocephalus arundinaceus, Alcedo atthis*

Cormorants: *Phalacrocorax carbo sinensis*

Raptors: *Buteo rufinus, Falco naumanni*

Waders: *Himantopus himantopus, Calidris pugnax, Plegadis falcinellus, Vanellus vanellus*

Watefowl: *Anas acuta, Anas platyrhynchos, Spatula querquedula, Cygnus olor, Fulica atra*

5.2.2 Pipeline Construction and Pre-commissioning

The project will cross the Study Area at its northeastern part and the adjacent mainly agricultural area with open trenching. The construction is expected not to exceed a few weeks at the Natura 2000 site and its adjacent area.

During the preliminary design phase special care was taken in order to minimize the overlap of the project with the Study Area in an attempt to minimize any potential impact of the project to the site and the Natura 2000 network in general. The potential impacts have been assessed taking into consideration measures adopted during preliminary design phase and the pre-condition that the construction works within and in the vicinity of the Study Area will take place outside the species main breeding period (March-July), following the provisions of the EU Habitats Directive and the national legislation.

Species habitat loss, deterioration, fragmentation: **Low**

Bird species of interest observed within the FSA are mainly passerines of agricultural habitats and raptors, while at the areas where the FSA is in close proximity to the fens and lakes the distribution of some herons and aquatic species observed at waterbody edges and reedbeds expands. The pipeline routing is not crossing any wetland areas.

The agricultural areas that the pipeline will cross will be temporarily disturbed and are expected to regain their former characteristics, as they will continue to be used as such. Some important features for the species of interest that will be removed are existing hedgerows. However, the intervention is small and linear and outside the Study Area.

The areas with phrygana that the pipeline will cross will also be disturbed, as the clearing of the working strip will be carried out and a deep root vegetation free zone will be maintained along the pipeline of 8m width.

No impact on the habitats on waders, herons, waterfowl and passerines of wetlands is expected.

It should also be pointed out that the habitats directly affected by the project are mainly outside the Study Area and only a very small area of phrygana inside the Study Area will be affected (~0.11ha) in the long-term.

Table 5-8 General impact characteristics for avifauna species habitat loss

Receptor	Nature	Extent	Duration
Clanga pomarina *Circaetus gallicus* *Circus cyaneus* *Falco vespertinus* *Buteo buteo* *Lanius senator* *Streptopelia turtur* *Other passerines of agricultural areas, raptors*	Negative. Destruction of hedgerows Clearance of working strip and maintencance of pipeline protection strip clear of deep root vegetation.	Local, exclusively the working strip.	Short-term. The impact is expected only during the construction period. Long-term for a small area of the pipeline protections strip at phrygana. (few weeks)

Prepared by: (NCC, 2021)

The value of the receptor is high. The intensity of the impact is medium, as it although could potentially affect only localized individuals within a population over a short time period. The frequency is negligible, as the construction period will last a few weeks outside the sensitive period. Based on the above the impact is estimated to be low.

For the species habitats' quality, the general Conservation Objectives apply for the species, as no SSCOs have been defined. Thus, the Conservation Objective is to maintain the Degree of Conservation B in the short term, for the species with Conservation Status B, or to achieve Degree of Conservation B in the short term, for the species with Conservation Status C. The Degree of Conservation is directly related to the conservation of the features of the habitat important for the species, as well as the restoration possibility of the species. Based on the above, as the important for the species features of the habitat are maintained the Conservation Status and the Conservation Objective for the species are not expected to be affected.

Loss of Individuals: **Negligible.**

Loss of individuals is envisaged only in the case of destruction of active nests, since the project does not entail any other perceivable causes of bird mortality (e.g. overhead wires). As construction works will take place outside the breeding season, roadkills of juveniles or nestlings are not expected.

Table 5-9 General impact characteristics for loss of individuals of avifauna

Receptor	Nature	Extent	Duration
Lanius senator *Streptopelia turtur* *All ground nesting species and passerines of agricultural areas*	Negative. Destruction of nests, loss of eggs/nestlings	Local, exclusively the working strip.	Short-term. The impact is expected only during the construction period. (few weeks)

Prepared by: (NCC, 2021)

The value of the receptor is high as it concerns many species of interest included in Annex I of Birds Directive. The intensity of the impact is low, as it could potentially affect only localized individuals within a population over a short time period and the frequency is also negligible, as the construction period will last a few weeks outside sensitive periods. As a result, the overall impact is low.

As appropriate mitigation measures will be applied in order to mitigate the extent and intensity of the impact (see Section 6), the reversibility of the impact is medium and the residual impact negligible. The main measure to achieve this mitigation is to avoid construction during the breeding season.

The SSCO of *Aythya nyroca* to conserve the minimum population size as defined in the SDF, namely 1 pair. The project is not expected to affect this objective. For the rest of the species no SSCO have been set concerning their population and no estimation on the impact of the project can be provided.

Disturbance: **Low.**

The project will traverse mainly agricultural areas. Main sources of disturbance are expected to be machinery operation, vehicle movements and workers physical presence. However, it should be mentioned that the area is regularly used by farmers and heavy machinery is used for the cultivation or harvesting of crops which indicates that a similar disturbance already exists and a relevant adaptation is expected by the species during day. The working strip is located at distances greater than 150m, from the wetland areas, while stripes of trees, high shrubs or reeds exist between the open water surfaces and the working strip.

At KP 211.3-213.1 blasting will take place. The area is close to Kalodiki wetland. The distribution range of several waterfowl species are close to that area, however the working strip is at a distance of 0.7km and no significant disturbance is expected due to the mitigation measures (see Section 6). Furthermore, for the species that use the area, the disturbance will be significant for a very limited time.

Light pollution at the working strip during night is expected to disturb bird species, especially during migration and bird movements between areas.

Table 5-10 General impact characteristics for disturbance of avifauna

Receptor	Nature	Extent	Duration
Clanga pomarina *Circaetus gallicus* *Circus aeruginosus* *Circus cyaneus* *Falco vespertinus*	Negative. Disturbance due to construction activities	Local, exclusively the working strip.	Short-term. The impact is expected only during the construction period. (few weeks)

Receptor	Nature	Extent	Duration
Buteo buteo *Lanius senator* *Streptopelia turtur* Passerines of agricultural areas, Raptors			
Aythya nyroca *Phalacrocorax carbo* *Ardea cinerea* *Ardeola ralloides* *Cygnus olor* *Anas platyrynchos* *Fulica atra* *Vanellus vanellus* *Circus aeruginosus* *Buteo buteo* *Lanius senator* *Streptopelia turtur*	Negative. Disturbance due to blasting.	Local, at a broader area of the working strip.	Short-term. The impact is expected only during the construction period at KP 211-213. (few weeks)
Migratory birds	Negative. Light pollution during night	Local, exclusively the working strip.	Short-term. The impact is expected only during the construction period.

Prepared by: (NCC, 2021)

The value of the receptor is high, as it concerns species included in Annex I of the Birds Directive. The intensity of the impact is medium, as it could potentially affect only localized individuals within a population over a short time period and the frequency is low, as the construction period will last a few weeks outside the sensitive breeding period. Based on the above the impact is estimated to be medium.

As appropriate mitigation measures will be applied in order to mitigate the extent and intensity of the impact and the reversibility of the impact is medium the residual impact is low. The main measure to achieve this mitigation is to avoid construction during the breeding season.

No Conservation Objectives exist for the disturbance of bird species for the site or their distribution.

Changes in the general ecosystem of the Study Area: **Not applicable**

The project is crossing the Study Area for a short length. The agricultural area the pipeline crosses is expected to regain its former form and use after the end of the construction. As a result, it is expected that the project will not cause changes to the vital defining aspects that determine how the site functions as a habitat or ecosystem.

The above in combination with the negligible impact to species and habitats leads to the estimation that no change to the dynamics of the relationships that define the structure and/or function of the site are expected. Furthermore, the project does not interfere with predicted or expected natural changes to the site. In any case special attention should be taken during the construction works to avoid any disruption of the rainwater runoff to the wetland by the working strip.

The project is not expected to change the balance between key species or reduce the diversity of the site.

5.2.3 Operation and Maintenance

During operation and maintenance phase of the pipeline no regular human or vehicle presence is anticipated, apart from what is necessary for the safe operation of the pipeline. As the site will be crossed underground, no impact is expected during operation and maintenance of the pipeline.

Species habitat loss, deterioration, fragmentation: **Not applicable**.

No loss, deterioration, fragmentation of species habitat is expected during operation.

Loss of Individuals: **Not applicable**.

No loss of individuals is expected during operation.

Disturbance: **Not applicable.**

No disturbance is expected during operation.

Table 5-11 Assessment of impacts

Phase	Threat	Receptor	Nature	Extent	Duration	Intensity	Value of the receptor	Frequency	Overall importance	Reversibility	Residual impact
Construction	Species habitat loss, deterioration, fragmentation.	Birds (see relevant table) & Cons.obj.	Negative	Local	Short term	Medium	High	Low	Medium	High	Low
	Loss of individuals	Birds (see relevant table) & Cons.obj.	Negative	Local	Short term	Low	High	Low	Low	Medium	Negligible
	Disturbance	Birds (see relevant table)	Negative	Local	Short term	Medium	High	Low	Medium	Medium	Low
	Aythya nyroca breeding population		Negative	Local	Short term	Low	High	Low	Low	Medium	Negligible
Operation	Species habitat loss, deterioration, fragmentation	Birds	Negative	*No impact expected*							
	Loss of individuals	Birds	Negative	*No impact expected*							
	Disturbance	Birds	Negative	*No impact expected*							

Prepared by: (NCC, 2021)

5.2.4 Cumulative impacts

It is well established that pipelines, power lines and roads can form a linear intrusion in natural areas leading to habitat loss, fragmentation, and to the creation of barriers to movement of terrestrial species. As mentioned above, the site is crossed also by the European Route (E55), the local road network and a high voltage power line.

The crossing of pipeline from the Natura 2000 site coincides with the crossing of the high voltage power line, minimizing the cumulative impact.

5.2.5 Alternative scenarios

Detailed description of alternative scenarios is given in the Chapter 7 of the ESIA. Concerning the assessment of alternative routings of the project, to avoid the specific SPA site, this cannot be a viable scenario due to technical reasons, as presented in Chapter 7 of the ESIA.

Scenario 1: Current routing.

The construction works for the current routing are estimated to have no impact on the avifauna of the SPA. By respecting the construction time-constraints and by taking appropriate mitigation measures the impact is expected to be low.

Scenario 2: Do-nothing Scenario.

In the case of the do-nothing scenario, there would be no pipeline construction, which would have the effect of negligible effects for all types of impacts. However, the implementation of the project would result in a number of significant positive impacts, namely: enhancement of competition in the energy market and of EU security of supply, broadening of the Southern Gas Corridor, developing of natural gas resources within the EU or close border sources, ensurance of supply of natural gas to areas of Greece that do not have access to the National Network, support of the transitory phase to renewable sources.

Scenario 3: Alternative routing.

The alternative scenario that has been examined by the ESIA is CCS2-Alt2, which includes an alternative route crossing the plain west to Paramythia following afterwards a similar to the IGI Poseidon route. This alternative route crosses the close to the same Natura 2000 site (GR2120006) at about 50m distance, as well as to the SCI GR2120003 at about 250m distance. The alternative scenario could cause impact to those sites, while its has been rejected due to sensitivities and technical difficulties at other areas of this routing, as presented in Chapter 7 of the ESIA.

5.3 Conclusions of Impact Assessment on conservation objectives and ecological integrity of the Natura 2000 site

Taking into consideration the above assessment, the current status of the ecological characteristics of the Study Area and the construction and functional requirements of the Project, it is concluded that the implementation of the proposed project is not expected to:

- Cause delay or disrupt the progress in meeting the conservation objectives of the Natura 2000 area concerned.
- Reduce the size of the population of protected species or affect the conservation status of their habitats or fragment or affect the balance between species or affect their degree of isolation.
- Cause changes to vital parameters (e.g. terrain, water surface network) that contribute to the function of the Natura 2000 site.
- Interact with anticipated or expected physical changes.

Given the above and considering the implementation of the aforementioned management and mitigation measures preventing/reducing potential impacts, it is concluded that the implementation and operation of the proposed project will address low impact on the protected species, on the ecological functions they perform regarding the ecological integrity of the Study Area and on its role towards the coherence of the Natura 2000 network.

6 MITIGATION MEASURES OF POTENTIAL IMPACTS

Mitigation measures are proposed as precaution for the avoidance or reduction of potential adverse impacts. In this context the aim is to prevent, minimize and neutralize any negative impacts of the project and they are an integral part of its implementation specifications.

In this context the most vulnerable points and sections of the pipeline routing were highlighted and the areas or specific locations where measures should be implemented to prevent/minimize impacts are presented in the following Table.

It is noted the impact assessment presented in the above section, assessed residual impacts after the implementation of the management and mitigation measures listed below.

Table 6-1 Impact, mitigation measures proposed and significance of residual impact

Mitigation Commitments to Address the Impact / Risk	Efficiency				IP	Significance of Residual Impact / Risk
	Prevention/ avoidance	Reduction of intensity	Reduction of extent	Restoration		
Construction Phase						
Implement time-constraints and undertake construction works outside the breeding period between 1st March and the 31st July.	X				2702-2746	Neglible
Habitat types loss / Species habitat loss, degradation or fragmentation						
Already foreseen by the project: The topsoil will be carefully stored and no construction materials will be taken from the surrounding environment unless approved by the responsible authority.	X				2702-2746	Neglible
Already foreseen by the project: Establishment and marking of working strip and use of existing infrastructure and roads.	X					
Decrease of working strip from 38m to 28m (or 18m).			X			
Loss of individuals						
Limiting of vehicle speed (limits will be established at the Traffic Management Plan)	X	X	X		2702-2746	Negligible
Collection of injured individuals and transfer to wildlife rehabilitation centres.		X				

Mitigation Commitments to Address the Impact / Risk	Efficiency				IP	Significance of Residual Impact / Risk
	Prevention/ avoidance	Reduction of intensity	Reduction of extent	Restoration		
Disturbance						
Avoidance of dusk-dawn work.		X			2702-2746	Low
In case of blasting, use of modern explosives and techniques to reduce noise		X				
Usage of lights to minimum, for safety reasons, and directional lighting.	X		X			
Access to the works area will only be allowed to site staff.	X		X			
All impacts						
Ecological awareness/behaviour training should be provided to all personnel.	X	X	X		2702-2746	Low
Establishment of a Fire Risk Prevention Plan.	X					
Construction work must be supervised by an ornithologist and monitoring of birds will take place immediately before and during construction period, to carry out preventive conservation measures by the pipeline environmental team, if required. The Management Body will be timely informed to supervise ecological work.	X					
A Biodiversity Action Plan (BAP) will be implemented for the Natura 2000 site. The BAP should foresee direct collaboration with the local Management Body of the protected site.	X	X	X			
Operation Phase						
A Biodiversity Action Plan (BAP) will be implemented for the Natura 2000 site for the operation phase should ensure a close collaboration of the ecological monitoring team with the management Body of the protected area.				X	2702-2746	

Prepared by: (NCC, 2021)

Information concerning monitoring of the efficiency of the mitigation measures is provided in Section 8.

7 COMPENSATORY MEASURES

Compensatory measures, as described in Article 6 (4) of the EU Habitats Directive and incorporated into the Greek Law 4014/2011, are the "last resort" and are only used when a decision has been taken to proceed with a project or plan that could have negative impacts on the integrity of Natura 2000, because there are no alternatives and the project has been judged to be of overriding public interest.

Based on the guidelines for the interpretation of the European Directive 92/43/EEC, compensatory measures have to be considered only when a significant negative impact on the integrity of a Natura 2000 site is found.

Since no significant negative impact on the integrity of the investigated Natura 2000 site is assessed in the present Appropriate Assessment, no compensatory measures are proposed.

8 MONITORING PROGRAM

The implementation of a monitoring program is considered particularly important, during both (a) the construction phase of the pipeline, as well as (b) the operation and maintenance phase. It consists of two parts (a) monitoring the state of the species and habitats of interest and (b) monitoring the implementation of the mitigation measures.

8.1 General Monitoring Criteria

During construction

During construction phase, a "pre-construction" team composed by specialized field experts-scientists will monitor/survey (walkover) the construction corridor before construction initiation. Main goal for the team is to survey potential presence of important species, features and parameters that may need specific handlings (e.g. breeding species, important species, injured individuals, young individuals, important sites, etc.). This will ensure that any site-specific issues will be highlighted before construction and appropriate measures will be taken before construction activities begin.

Post construction

After construction has been finalized, a monitoring program during the operation of the project must be conducted for at least 3 years. Given the scale of the project, it is necessary to implement such monitoring follow-up in order to establish the effectiveness of the applied mitigation measures and record any possible changes/impacts to the natural environment and its components due to the project function. During the operation phase, monitoring actually has an ancillary role to observe the follow-up situation, and record some meta-status that may need attention.

Main goal of monitoring activities

The main aim of these two monitoring stages, is to be able to record the actual stage and status of fauna species, in-situ, with a pre-construction preceding team, then in real-time during the construction process, and eventually once the construction is over to record the post-construction situation, impact and effect of mitigation measures, and natural environment elements' status in the recovery phase.

Basic axis for monitoring implementation

There are four basic axes upon which the monitoring will be designed and carried out: (a) Important species of concern that must be monitored as per the conservation objectives and integrity of the Natura 2000 site, (b) Period (season-month and time of the day) of the monitoring implementation,

(c) Guidelines for monitoring implementation depending on each biological group which is studied, and (d) Biological and environmental parameters recorded during monitoring process.

All four axes are analytically described in the paragraphs below.

8.2 Monitoring Program for the Study Area

The implementation and monitoring of the mitigation measures proposed will be foreseen and included in the Environmental Management System of the project and their details will be defined by the Environmental Management Plan. An Environmental Monitoring Plan has to be prepared, while a Biodiversity Management Plan will be included as an integral part of it. The Environmental Monitoring Plan shall be submitted to the competent authorities that will monitor its implementation by the contractor.

The monitoring will focus on (a) the presence of the species in the area and its use during construction in order to estimate the actual impact of the activities to the species in terms of loss of habitat, loss of individuals and disturbance and the efficiency of the mitigation measures in order to provide information for the assessment of the need for modifications in the construction timing or finetuning of mitigation measures etc. and (b) the presence of the species and the use of the area after the construction in order to estimate the long-term impacts of the project to the Natura 2000 site.

Furthermore, the monitoring will also focus on the collection of all necessary information on (a) the confirmation of the mitigation measures' implementation and (b) the effectiveness of the mitigation. A series of indicators representative of the effectiveness of the mitigation measures (Key Performance Indicators - KPIs) will be defined and monitored. The effectiveness of the one-off measures will be measured once, i.e. after their implementation.

All above information will feed the procedure of the periodic adjustment of the mitigation program, while annual reports of the monitoring program should be submitted to central, regional and local authorities responsible for environmental supervision.

Species for which monitoring should focus on, during construction and in post-construction surveys.

Based on the site's recorded avifauna, attention during monitoring should be given in trigger, migrating, Directive Annex I species, as well as rare and important avian species as they are demonstrated analytically within Annexes of the present AA.

Monitoring during construction period

In the case of eagles and falcons, Road-Foot-survey Line Transects will be used. Monitoring will be mainly performed with binoculars preferably 10x42, and an additional spotting scope 20x60. The team will be following specific line transects. Foot line transects can be realized in parallel by the

avian experts field crew, and recording may take place preferably early in the morning (1 hour after dawn) but may last even until late in the afternoon. Nonetheless, the best time of the day for monitoring is between 8.00-9.00 up to 14.00-15.00. Each member of the avian survey team, should have along a hand-gps loaded with the transect lines that will be followed, and the project routing. Before direct observation and monitoring will take place, the field team must have already complete basic parameters within specific protocols such as name of surveyor, temperature, date, local geographical names, percentage of cloud-cover, wind direction, wind power on Beaufort scale. Whenever eagle, vultures and falcon species are observed, or else raptors in general, the following parameters will be recorded: Latin name of the species, number of individuals, age of individuals, sex of individual, description of habitat at site of observation, direction flight, distance of flight from the project, and the following eight ethological parameters must also be recorded based on raptors' behavior: flying-gliding, roosting, prey foraging – feeding, territory marking & defending, courtship, nest construction, egg-laying and incubation, feeding nestlings.

In the case of passerines – songbirds - small birds, a group which actually includes Passeriformes, Coraciiformes, Piciformes, Apodiformes, Cuculiformes, Columbiformes, Road-Foot-survey Line Transects will be realized. Monitoring will be mainly realized with binoculars preferably 10x42, whereas the additional spotting scope 20x60 will be much less needed, since due to high activity of the species, quick reflexes require an easy spotting tool such as hand binoculars. The team will be following specific line transects. Foot line transects can be realized in parallel by the avian expert field crew, and recording may take place preferably very early in the morning (1 hour before dawn) and must not be realized after 11.00-12.00. Each member of the avian survey team, should have along a hand-gps loaded with the transect lines that will be followed, and the project routing. Before direct observation and monitoring will take place, the field team must have already complete basic parameters within specific protocols such as name of surveyor, temperature, date, local geographical names, percentage of cloud-cover, wind direction, wind power on Beaufort scale. Whenever representative species of the group will be located (it must be noted that more than half of this group's observations are realized through acoustic identification and not visual contact), the following parameters will be recorded: Latin name of the species, number of individuals, age of individuals, sex of individual, description of habitat at site of observation, direction flight, distance of flight from project, and the following eight ethological parameters must also be recorded based on species' behaviour: flying-gliding, roosting, prey foraging – feeding, territory marking & defending, courtship, nest construction, egg-laying and incubation, feeding nestlings. Furthermore, for this group we record mainly species which are within the vicinity of 100m around us, and in case the species fly above the site as passing by visitors, it is noted in the protocols as "fly over flight", which does not relate the individuals with the site.

In the case of aquatic bird species, a group which actually includes Charadriiformes, Rallidae, Gruiformes, Ciconiiformes, Ardeidae species, Threskiornithodae, Pelecaniformes, and at times it may include Sterorariidae, Laridae, Sternidae, Procellariiformes, as wel as Anseriformes, Podicipediformes, Phalacrocoracidae species and Suliformes, Direct Counts from specific observation points will be realized, which cover a wetland area that offers grounds to this category of birds. Monitoring will be mainly realized with the use of a spotting field scope 20x60 from static points of observation, due to the distance to which the species of this group are usually observed. Before reaching specific Direct Count stations, the team will be following specific line transects. Foot line transects can be realized in parallel by the avian experts field crew, and recording may take place preferably whenever an adequate static observation point is located, that may serve as a Direct Count Station, and observation must take place early in the morning (1 hour after dawn) and must not be realized after 12.00-13.00. Each member of the avian survey team, should have along a hand-gps loaded with the transect lines that will be followed, and the project routing. Before direct observation and monitoring will take place, the field team must have already complete basic parameters within specific protocols such as name of surveyor, temperature, date, local geographical names, percentage of cloud-cover, wind direction, wind power on Beaufort scale. Whenever aquatic bird species appear and are observed, the following parameters will be recorded: Latin name of the species, number of individuals, age of individuals, sex of individual, description of habitat at site of observation, direction flight, distance of flight from the project, and the following eight ethological parameters must also be recorded based on species' behaviour: flying-gliding, roosting, prey foraging – feeding, territory marking & defending, courtship, nest construction, egg-laying and incubation, feeding nestlings. Furthermore, for this group it is outlined that often hundreds or maybe thousands of birds may appear at a site, with a mixing of different species in the observed group-flock. Therefore, a hand-held counter tally is necessary for each surveyor. From each Direct Count Station, the observer must start "scanning" the area-section of interest from left to right, observing and recording at each scan, the number of each identified species. Repetitive scans must take place until all species and their numbers are recorded. Depending on the number of birds per flock, various categories of observation exist, such as "one species large flocks", "homogeneous species-groups and multi-species large flocks", "heterogeneous species-groups and multi-species large flocks". Estimations are different at each occasion, and the experience of the surveyor is of major importance in that case, for a quick and thorough recording.

In all cases and all possible observations of the above two general avian groups, and once all observations' recording is realized, the following main variables must be treated with high priority once recorded:

- Possible early initiation of courtship (early February)

- Possible early establishment of foraging and breeding territories (early February-March)
- Destruction of small-extent important habitats for roosting, nesting and breeding.
- After main breeding season, species with late breeding season, nestlings not fully fledged yet, active nests.
- After main breeding season, freshly fledged younglings, occupying new territories during dispersal and meta-population process.

Depending on the timing of construction, the appropriate variables have to be selected and monitored.

Monitoring during operation and maintenance phase

After the construction is finalized, the monitoring phase of the "post-construction" period will be conducted for a total of 3 years, except if during monitoring and assessment it is estimated that a shorter period is sufficient. The main axis of its implementation is the same as presented in the above section of construction monitoring phase.

9 CONCLUSIONS

The present Appropriate Assessment concerns the onshore section of the EastMed pipeline, which crosses the Special Protection Area (SPA) "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006. It has been prepared as a necessary and integral part of the Environmental and Social Impact Assessment of the project.

The present AA followed the specifications described in Annex 3.2.2 of the MD 170225/2014, concerning the AA of projects and activities located within Natura 2000 sites that are subject to specific conditions.

For the Study Area and the Field Survey Area of the project, detailed, sufficient and recent data are available from recent monitoring projects of the Management Body. The data have been assessed as sufficient, documented, reliable and exploitable, taking into consideration the size and the type of project. Moreover, they are recent and analytical, and they are derived from studies and surveys that have been carried out on behalf of the Management Body. In the frame of the present AA, 4 days of field work were performed.

The present AA provided a detailed ecological description of the Study Area with special emphasis in the Field Survey Area (a strip of 500 m either side of the proposed pipeline routing). In particular, the AA assessed the potential impacts of the project to the populations and distribution of protected species and the ecological functions of the site, and identified suitable mitigation measures to ensure that the proposed project will not harm the ecological integrity of the site and the connectivity of the Natura 2000 network.

The pipeline routing crosses the Study Area above the Kalodiki fen at an area covered by phrygana for 0.14km, while outside the Study Area it crosses mainly agricultural areas at the vicinity of Margariti marsh and Kateri lake. The area crossed by the pipeline is expected to be used by agricultural passerines species and raptors, while *Aythya nyroca*, which is the site's trigger species is not expected in those habitats. The expected residual impacts to species and their habitats of the Study Area are estimated as low for potential habitat loss for birds (i.e. passerines of agricultural areas and raptros) and disturbance due to construction works.

The present AA proposes a key measure for mitigation of the impacts on the local biodiversity, in order to minimize project impacts to the site. The main mitigation measure is the construction works within the site and its vicinity will take place outside the main breeding period, March-July, following the provisions of the EU Habitat Directive and of the national legislation. By applying this measure and other mitigation measures proposed in the relevant chapter of the AA, the impacts of the project on the ecological integrity of the SPA site are assessed to be low.

Concerning cumulative impacts, the site hosts also a high voltage power line and a national road, as well as a network of dirt roads; that are expected to act cumulatively but with negligible impact. The scenario of the current routing is estimated as the optimal one.

The present AA also provides guidelines on the monitoring program to be carried out during construction alongside the execution of construction works, and during the pipeline operation for at least three years.

Provided that the described above precautions are taken into consideration, it is well beyond doubt that the impacts of the crossing of the project on the ecological integrity of the Special Protection Area (SPA) "Eli Kalodiki, Margariti, Karteri kai Limni Prontani", GR2120006, of the Natura 2000 network, will be low.

10 STUDY TEAM

Name		Role
Tasos Dimalexis	Dr. Biologist	Project Coordinator Site assessment
Margarita Tzali	Environmental Engineer, MSc	Project Manager AA compilation
Alexandra Kontou	Environmentalist, MSc	AA compilation
Vassilis Goritsas	Environmentalist, MSc	Data management/Map production
Jakob Fric	Physicist	Development of databases/Data management Field worker: Avifauna field survey
Giorgos Fotiadis	Dr. Forester	Habitat expert Field survey, Preparation of texts, Mapping
Apostolos Christopoulos	Environmentalist MSc, Phd candidate in Biology	Avifauna expert Field survey, Preparation of texts

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ANNEX A SDF DATA

Table A-1 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Code	Species Name	Population						Assessment			
		Type	Min	Max	Unit	Abund.	Data Quality	Pop.	Cons.	Isol.	Global
Trigger species											
A060	*Aythya nyroca*	r	1	1	p	P	G	B	C	C	B
Bird Directive | Annex I species											
A229	*Alcedo atthis*	w	10	10	i	P	G	C	B	C	C
A858	*Clanga pomarina*										
A024	*Ardeola ralloides*	c	4		i	P	G	C	C	C	C
A403	*Buteo rufinus*	c	1		i	P	G	C	B	C	B
A080	*Circaetus gallicus*	r	2	2	p	P	G	C	B	C	B
A081	*Circus aeruginosus*	w	1	1	i	P	G	C	B	C	C
A082	*Circus cyaneus*	w	2	2	i	P	G	C	B	C	C
A095	*Falco naumanni*	c				P	G	C	B	C	C
A097	*Falco vespertinus*	c				P	G	C	B	C	C
A131	*Himantopus himantopus*	c	25		p	P	G	C	B	C	C
A023	*Nycticorax nycticorax*	c	2		i	P	G	C	C	C	C
A861	*Calidris pugnax*	c	20		i	P	G	C	C	C	C
A032	*Plegadis falcinellus*	c	60	60	i	P	G	C	C	C	B
Migratory species with regular presence											
A298	*Acrocephalus arundinaceus*	r	5		p	P	M	C	C	C	C
A054	*Anas acuta*	w	80	80	i	P	G	C	C	C	C
A053	*Anas platyrhynchos*	r	3	3	p	P	G	C	B	C	C
A053	*Anas platyrhynchos*	w	360	360	i	P	G	C	B	C	C
A856	*Spatula querquedula*	c	22		i	P	G	C	B	C	C
A028	*Ardea cinerea*	r	80	80	p	P	G	B	C	C	B
A028	*Ardea cinerea*	w	46	46	i	P	G	C	C	C	B
A087	*Buteo buteo*	w	10		i	P	G	C	B	C	C
A036	*Cygnus olor*	r	1	1	p	P	G	B	B	C	C
A036	*Cygnus olor*	w	4	4	i	P	G	C	B	C	C
A125	*Fulica atra*	r	71	71	p	P	G	C	C	C	C
A125	*Fulica atra*	w	150	150	i	P	G	C	C	C	C

Code	Species Name	Population						Assessment			
		Type	Min	Max	Unit	Abund.	Data Quality	Pop.	Cons.	Isol.	Global
A251	*Hirundo rustica*	c	1000		i	P	M	C	B	C	B
A341	*Lanius senator*	r	14		p	P	M	C	B	C	C
A391	*Phalacrocorax carbo sinensis*	w	99	99	i	P	G	C	B	C	C
A210	*Streptopelia turtur*	r	1		p	P	M	C	B	C	C
A304	*Sylvia cantillans*	c				P	M	C	B	C	B
A142	*Vanellus vanellus*	w	19	19	i	P	G	C	C	C	C

Prepared by: (NCC, 2021)

Definitions:

Type: p = permanent, r = reproducing, c = concentration, w = wintering

Unit: i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting

Abundance categories (Cat.): C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information

Data quality: G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor'

Size and density of the population of the species present on the site in relation to the populations present within national territory (Population): the ratio of the population in the site / population in the national territory: A: 15%-100%, B=2%-15%, C=0%-2%, D=non-significant population

Degree of conservation of the features of the habitat which are important for the species concerned and possibilities for restoration (Conservation). This criterion comprises two sub-criteria: i) degree of conservation of the features of the habitat important for the species, ii) restoration possibilities. A = conservation excellent (= elements in an excellent condition, independent of the grading of the possibility of restoration), B = good conservation (= elements well conserved independent of the grading of the possibility of restoration), C = average or reduced conservation (= all other combinations)

Degree of isolation of the population present on the site in relation to the natural range of the species (Isolation). A: population (almost) isolated, B: population not-isolated, but on margins of area of distribution, C: population not-isolated within extended distribution range

Global assessment of the value of the site for conservation of the species concerned. A: excellent value, B: good value, C: significant value.

Other species

There are also 2 other species of importance for the area included in the SDF, namely *Tachybaptus ruficollis* and *Accipiter nisus*, both included in the National Red Data list, International Conventions and listed for other reasons. There are no endemic species. For further detail please refer to the SDF.

ANNEX B THREAT STATUS

Table B-2 Threat and Protection status of Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC

Code	Species Name	IUCN (2020)	Greek Red Data Book (2008)	Birds Directive	Bern Convention	Bonn Convention	AEWA	CITES	Observed during field work
Trigger species									
A060	*Aythya nyroca*	NT	VU	I	III	I; II			
Bird Directive | Annex I species									
A229	*Alcedo atthis*	LC	DD	I	II				
A858	*Clanga pomarina*	LC	EN	I	II	II			
A024	*Ardeola ralloides*	LC	VU	I	II				
A403	*Buteo rufinus*	LC	VU	I	II	II			
A080	*Circaetus gallicus*	LC	NT	I	II	II			
A081	*Circus aeruginosus*	LC	VU	I	II	II			
A082	*Circus cyaneus*	LC		I	II	II			
A095	*Falco naumanni*	LC	VU	I	II	I; II			
A097	*Falco vespertinus*	NT	DD	I	II	II			
A131	*Himantopus himantopus*	LC		I	II	II			
A023	*Nycticorax nycticorax*	LC	NT	I	II				
A861	*Calidris pugnax*	LC		I; II/2	III	II			
A032	*Plegadis falcinellus*	LC	CR	I	II	II			
Migratory species with regular presence									
A298	*Acrocephalus arundinaceus*	LC			II	II			
A054	*Anas acuta*	LC		II/1; III/2	III	II			
A053	*Anas platyrhynchos*	LC		II/1; III/1	III	II			
A856	*Spatula querquedula*	LC	VU	II/1	III	II			
A028	*Ardea cinerea*	LC			III				
A087	*Buteo buteo*	LC			II	II			

Code	Species Name	IUCN (2020)	Greek Red Data Book (2008)	Birds Directive	Bern Convention	Bonn Convention	AEWA	CITES	Observed during field work
A036	*Cygnus olor*	LC		II/2	III	II			
A125	*Fulica atra*	LC		II/1; III/2	III	II			
A251	*Hirundo rustica*	LC			II				
A341	*Lanius senator*	LC			II				
A391	*Phalacrocorax carbo sinensis*	LC			III				
A210	*Streptopelia turtur*	VU		II/2	III	II			
A304	*Sylvia cantillans*	LC			II	II			
A142	*Vanellus vanellus*	NT	VU	II/2	III	II			

Prepared by: (NCC, 2021)

Definitions:

Threat categories according to IUCN's Red List of Threatened Species (2020) (http://www.iucnredlist.org/): CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: Near Threatened, LC: Least Concern, DD: Data Deficient, NE: Not Estimated

Threat categories according to the Red Data Book for Endangered Animals of Greece (2009): CR: Critically Endangered, EN: Endangered, VU: Vulnerable, NT: Near Threatened, LC: Least Concern, DD: Data Deficient, NE: Not Estimated

Birds Directive (2009/147/EC): I: Annex I - Species subject to special management measures for their biotope, II/1: Annex II/1 - Species that may be hunted in the geographical area where the Directive applies, II/2: Annex II/2 - Species that may be hunted only in the Member State in respect of which they are indicated, III/1: Annex III/1- Member States shall not prohibit their exploitation, III/ 2: Annex III/2 - Member States may prohibit the exploitation of these species

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention): II: Annex II - Strictly Protected Species - Vertebrates, III: Annex III - Protected Species - Vertebrates

Convention on the conservation of migratory species of wild animals (CMS, Bonn Convention). Appendix I: Endangered migratory species, Appendix II: Migratory species conserved through Agreements

Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA, CMS).

Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). I: Annex I - endangered species of animals and plants, which CITES generally prohibits international trade of their

specimens, II: Annex II - species of animals and plants which are not directly threatened with extinction, but may be listed in Annex I if their trade is not controlled.

ANNEX C ECOLOGICAL REQUIREMENTS

Table C-3 Ecological requirements, threats and state in Greece and the Study Area of Species assessed by the AA ([1]: Dimalexis et al., 2009, [2]: species population according to BirdLife International (2015), [3]: SDF)

Code	Species Name	Habitat[1]		Threats[1]	Presence Status in Greece[2]
		Reproduction	Foraging		
Trigger species					
A060	*Aythya nyroca*	Inland wetlands, but also at coastal wetlands with mosaic of reedbeds or other dense vegetation	Inland wetlands, but also at coastal wetlands with mosaic of reedbeds or other dense vegetation	Degradation of freshwater habitats (drainage, water management, pollution etc.)	Summer visitor, resident species (130-250 pairs) and winter visitor (86-665 individuals)
Other species of the Study Area reported in chapter 3.2 of the site's SDF					
A858	*Clanga pomarina*	low or medium altitude forest clusters of deciduous and coniferous species	rivers, streams, crops, wet meadows	destruction of aquatic vegetation, conversion of wet meadows to cultivated areas, use of agrochemicals, electrocution at power lines	summer visitor (70-100 pairs) and passage visitor
A080	*Circaetus gallicus*	mature trees in intact clusters of deciduous or coniferous forests	open areas with low vegetation, openings	afforestation of open areas, use of pesticides, poaching, collission at power lines	summer visitor (350-500 pairs) and passage visitor
A081	*Circus aeruginosus*	extended reedbeds	wetland ecosystems	burning / clearing reeds, destruction / shrinkage of wetlands, electrolution on electric power lines	Winter visitor, passage visitor and resident (50-100 pairs)
A082	*Circus cyaneus*	Alpine, sub-alpine and northern temperate meadows, grasslands, marshes with low vegetation	grasslands, marshes with low vegetation, open areas	destruction / shrinkage of wetlands, shrinking of open areas, electrocution at power lines	winter visitor and passage visitor

Code	Species Name	Habitat[1]		Threats[1]	Presence Status in Greece[2]
		Reproduction	Foraging		
A097	*Falco vespertinus*	open areas με crops, grasslands as well as mediterranean phrygana and maquis	open areas με crops, grasslands, phrygana and maquis	intensification of agriculture, use of agrochemicals, poaching, electrocution at power lines	passage visitor
A087	*Buteo buteo*	coniferous forests, deciduous broadleafed forests, forest marginal ecotones	scrubland, cultivated land, forest marginal ecotones	fire, logging, impropor forest management, intensification of agriculture	Resident (4,000-8,000 pairs) and winter visitor
A341	*Lanius senator*	multiannual crops, scrubland, forest marginal ecotones	herbaceous lands and scattered shrubs and trees, dry bushy pastures, cultivated areas, forest margins, orchards, olive groves	intensification of agriculture, reparcelling, pollution from agrochemicals	Resident species (60,000-70,000 pairs)
A210	*Streptopelia turtur*	areas with sparse forest cover, openings, extensive crops, hedgerows, tree clusters etc, often near settlements, scrubland	forest plantation, cultivated land, scrubland, forest marginal ecotones	abandonment of traditional agricultural practices, intensification of annual crops, pollution from agrocehmicals, reparcelling	summer visitor (30,000-80,000 pairs) and passage visitor
Groups of bird species of the Study Area					
Herons		Reedbeds, riparian vegetation, open areas without vegetation	inland and coastal wetlands, especially areas with shallow water depth (usually less than 30 cm), wet meadows and mudflats combined with areas with dense vegetation, such as reeds.	Degradation - destruction of wetlands (encroachment, expansion of settlements and leisure infrastructure, water and soil pollution, waste disposal, water management), poaching, disturbance from human activities	Resident species, summer visitors, winter visitors, passage visitors
Waders					
Passerines of wetlands					
Passerines of agricultural areas		open areas that combine low Mediterranean vegetation (mainly macchia and phrygana),	open areas that combine low Mediterranean vegetation (mainly macchia and phrygana),	Use of fertilizers, pesticides, residential and tourist development	Resident species, summer visitors,

Code	Species Name	Habitat[1]		Threats[1]	Presence Status in Greece[2]
		Reproduction	Foraging		
		crops with scattered trees, hedges, etc.	crops with scattered trees, hedges, etc.		winter visitors, passage visitors
Pelicans & cormorants		inland and coastal wetlands with a mosaic of wetland vegetation but also open areas without vegetation with deeper waters	inland and coastal wetlands with a mosaic of wetland vegetation	Degradation - destruction of wetlands (encroachment, expansion of settlements and leisure infrastructure, water and soil pollution, waste disposal, water management), poaching, disturbance from human activities	Resident species, summer visitors, winter visitors, passage visitors
Waterfowl					
Raptors		inland or coastal vertical cliffs and slopes, as well as deciduous and coniferous forests	open areas with low vegetation	Residential and tourist development, disturbance from human activities, operation of wind farms	Resident species, summer visitors, winter visitors, passage visitors

ANNEX D PHOTOGRAPHIC DOCUMENTATION

Study Area

Photographs	

Prepared by: (NCC, 2021)

Field Survey Area

IP	Photograph	Sampling Plot	Filename / Date
2704-2709		Panoramic	DJI_0351.JPG 19/12/2021
2714-2717		Panoramic	DJI_0368.JPG 19/12/2021
2719-2723		Panoramic	DJI_0366.JPG 19/12/2021

IP	Photograph	Sampling Plot	Filename / Date
2740-2742		Panoramic	DJI_0407.JPG 19/12/2021
2743-2748		Panoramic	DJI_0402.JPG 19/12/2021

Prepared by: (NCC, 2021)

ANNEX E MAPS

Map 1. EastMed pipeline and Natura 2000 sites it crosses

Map 2. Study Area

Map 3. Habitat types – Study Area

Map 4. Field Survey Area

Map 5. Habitat types – Field Survey Area

Map 6. Distribution of avifauna species – Field Survey Area

SPA - GR2120006
SAC - GR2120002
SPA - GR2110004
SAC - GR2110001
SAC - GR2310009
SPA - GR2310013
SAC - GR2310010
SPA - GR2310015
SAC - GR2310001
SAC/SPA - GR2330002
SPA - GR2540007
SPA - GR2540007
SAC - GR2540001
SPA - GR2540007
SAC - GR4320006

Ioannina
EPIRUS
Trikala
THESSALY
Larisa
Volos
Aegean Sea
NORTH AEGEAN
Mytilene
Preveza
Lamia
CENTRAL GREECE
Ethnikos Drymos Oitis
2489 m
Agrinio
Livadeia
Chalkida
Iliki Limni
Chios
Patra
Gulf of Corinth
Gulf of Patras
Argostoli
Ethnikos Drymos Parnithas
ATTICA
1381 m
Athens
995 m
2192 m
WESTERN GREECE
Zakynthos
Pyrgos
PELOPONNESE
Argos
Ermoupoli
Mirtoan Sea
Kalamata
2388 m
Sea of Crete
Chania
2122 m
Rethymno
Heraklion
2447 m
CRETE
Sitia
N
0 50 100 200 km

REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT / ΑΡ. ΕΓΓΡΑΦΟΥ	

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Proposed Routing / Προτεινόμενη Όδευση
- Proposed Routing (offshore) / Προτεινόμενη Όδευση (θαλάσσιο τμήμα)
- Study Area / Περιοχή Μελέτης

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	9/1/2022	ISSUED FOR REVIEW	NCC Ltd	PiM	Client

Contract No: / Αρ. Συμβολαίου: project code

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984
WKID: 3857 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/CONSULTANT ΜΗΧΑΝΙΚΟΣ/ ΜΕΛΕΤΗΤΗΣ: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA - GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "ΖΕΠ - GR2120006"

Map n°:	
M1-N11 S13	*STUDY AREA: NATURA 2000 SITES CROSSED BY ONSHORE EASTMED PIPELINE / ΠΕΡΙΟΧΗ ΜΕΛΕΤΗΣ: ΠΕΡΙΟΧΕΣ NATURA 2000 ΠΟΥ ΤΕΜΝΕΙ Ο ΑΓΩΓΟΣ EASTMED*

Scale/ Κλίμακα	Project DWG No./ Αρ. Σχ. Έργου:	Rev/ Αναθ
1:2.500.000		0A

Size/ Μέγεθος	Company's DWG No/ Αρ. Σχ. Εταιρείας:	Engineer's DWG No/ Αρ. Σχ. Μελετητή:	Sheet/ Φύλλο
A3	-	AUT-11727500-STU-XXX/ Section 11.1.1	

Document Name: Map1_PROJECT_ver3.1_2022.01.09

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REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT / ΑΡ. ΕΓΓΡΑΦΟΥ	DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ
M2-N19 S13A01	APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA GR2120006" FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "SPA GR2120006" ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Routing Chainage (5km) / Χιλιομέτρηση Όδευσης (5 χλμ.)
- Route IP / Κορυφή Όδευσης
- Proposed Routing / Προτεινόμενη Όδευση
- Study Area / Περιοχή Μελέτης
- Field Survey Area inside Natura 2000 site / Περιοχή Έρευνας Πεδίου εντός περιοχής Natura 2000
- Field Survey Area / Περιοχή Έρευνας Πεδίου

Natura 2000 Network / Δίκτυο Natura 2000

- SAC/ΕΖΔ: Special Area of Conservation / Ειδική Ζώνη Διατήρησης
- SAC-SPA/ΕΖΔ-ΖΕΠ: Special Area of Conservation - Special Protection Areas / Ειδική Ζώνη Διατήρησης - Ζώνη Ειδικής Προστασίας
- SPA/ΖΕΠ: Special Protection Areas / Ζώνη Ειδικής Προστασίας

NOTES/ ΣΗΜΕΙΩΣΕΙΣ

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	22/2/2022	ISSUED FOR REVIEW	NCC Ltd	PJM	Client

Contract No: Αρ. Συμβολαίου: project code

Coord. Syst.: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 2100 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/ CONSULTANT: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

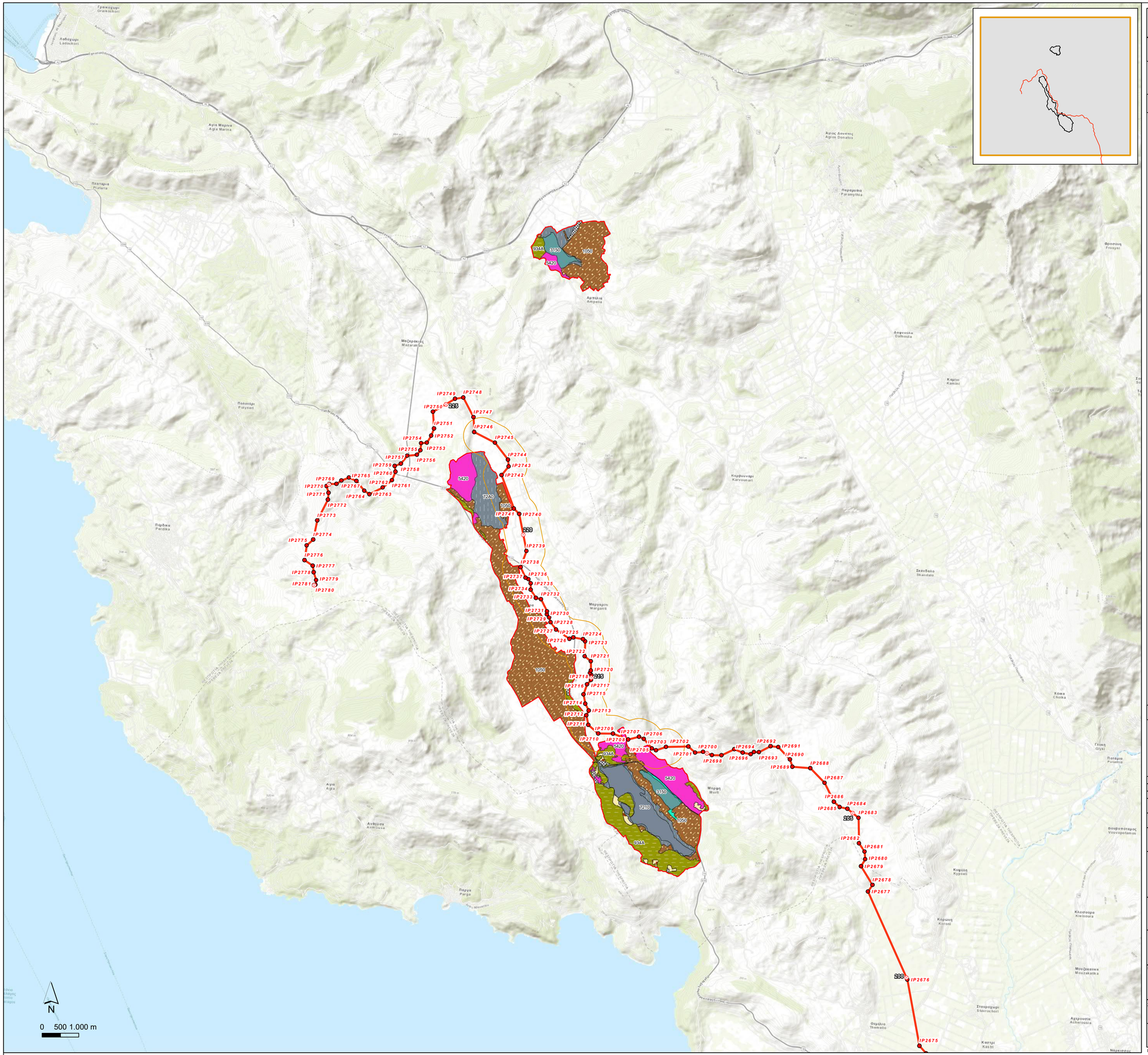
EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA - GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "ΖΕΠ - GR2120006"

Map n°:		
M2-N19 S13A01	*STUDY AREA / ΠΕΡΙΟΧΗ ΜΕΛΕΤΗΣ*	
Scale/Κλίμακα 1:500.000	Project DWG No./ Αρ. Σχ. Έργου:	Rev/Αναθ 0A
Size/Μέγεθος A1	Company's DWG No/Αρ. Σχ. Εταιρείας -	Engineer's DWG No/Αρ. Σχ. Μελετητή: AUT-11727500-STU-XXX/ Section 11.1.1
		Sheet/Φύλλο 1 of 1

Document Name: Map2_STUDY_AREA_ver3.1_2021.01.09_A1_onshore



REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT / ΑΡ. ΕΓΓΡΑΦΟΥ	DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ
M3-N19 S13A01	APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA GR2120006" FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "SPA GR2120006" ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Routing Chainage (5km) / Χιλιομέτρηση Όδευσης (5 χλμ.)
- Route IP / Κορυφή Όδευσης
- Proposed Routing / Προτεινόμενη Όδευση
- Field Survey Area / Περιοχή Έρευνας Πεδίου
- Study Area / Περιοχή Μελέτης

Habitat types - Annex I (92/43/EEC) / Τύποι οικοτόπων - Παράρτημα I (92/43/ΕΟΚ)

- 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation / Ευτροφικές φυσικές λίμνες με βλάστηση τύπου Magnopotamion ή Hydrocharition
- 5420 Sarcopoterium spinosum phryganas / Φρύγανα από Sarcopoterium spinosum
- 7210 Calcareous fens with Cladium mariscus and species of the Caricion davallianae / *Ασβεστούχοι βάλτοι με Cladium mariscus και είδη της Caricion davallianae
- 92A0 Salix alba and Populus alba galleries / Δάση-στοές με Salix alba και Populus alba

Habitat types - Others (not listed in the Annex I of 92/43/EEC) / Τύποι οικοτόπων - Λοιποί (εκτός Παραρτήματος Ι της 92/43/ΕΟΚ)

- 1020 Industrial or commercial units / Βιομηχανικές ή εμπορικές ζώνες (θεσμοθετημένες)
- 1050 Non-irrigated arable land - pure / Μη αρδεύσιμη-αρόσιμη γη αμιγής
- 1060 Vineyards - pure / Αμπελώνες αμιγείς
- 72A0 Reed beds / Καλαμώνες
- 934A Greek Kermes oak forests / Ελληνικά δάση Πρίνου

NOTES/ ΣΗΜΕΙΩΣΕΙΣ

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	28/2/2022	ISSUED FOR REVIEW	NCC Ltd	PjM	Client

Contract No:
Αρ. Συμβολαίου:

Coord. Syst.: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 2100 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

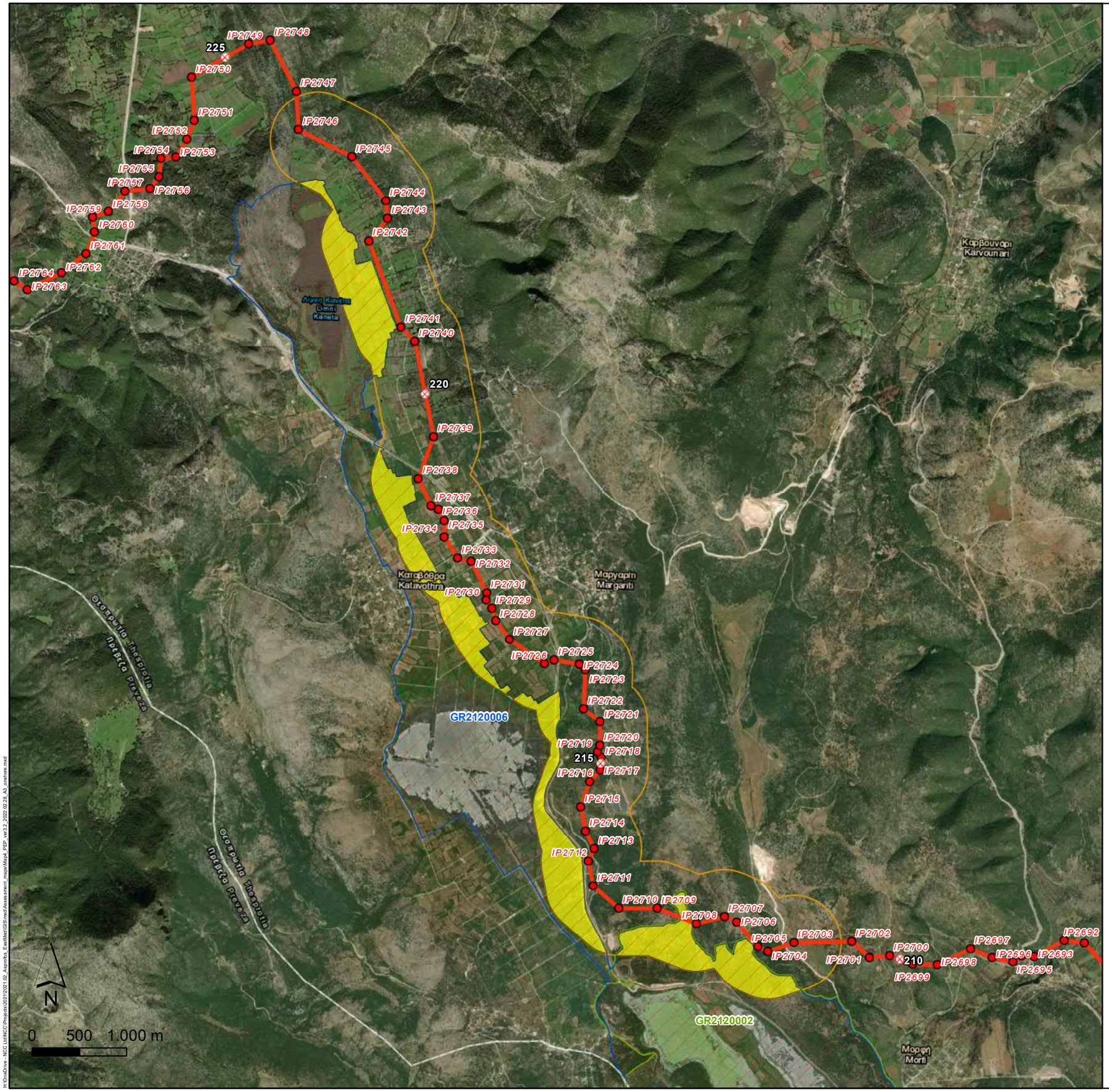
ENGINEER/ CONSULTANT: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ
EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ
APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA - GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 " - GR2120006"

Map n°:	*HABITAT TYPES - ECOLOGICAL SPATIAL UNITS INSIDE STUDY AREA / ΤΥΠΟΙ ΟΙΚΟΤΟΠΩΝ - ΟΙΚΟΛΟΓΙΚΕΣ ΧΩΡΙΚΕΣ ΕΝΟΤΗΤΕΣ ΣΤΗΝ ΠΕΡΙΟΧΗ ΜΕΛΕΤΗΣ*	
M3-N19 S13A01		
Scale/Κλίμακα 1:50.000	Project DWG No./ Αρ. Σχ. Έργου:	Rev/Αναθ 0A
Size/Μέγεθος A1	Company's DWG No/ Αρ. Σχ. Εταιρείας -	Engineer's DWG No/ Αρ. Σχ. Μελετητή: AUT-11727500-STU-XXX/ Section 11.1.1
		Sheet/Φύλλο 1 of 1

Document Name: Map3_HABITATS-OXE_ver3.1_2022.02.14_A1_onshore



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REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE " GR2120006"
FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 " GR2120006"
ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Routing Chainage (5km) / Χιλιομέτρηση Όδευσης (5 χλμ.)
- Route IP / Κορυφή Όδευσης
- Proposed Routing / Προτεινόμενη Όδευση
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- Field Survey Area inside Natura 2000 site / Περιοχή Έρευνας Πεδίου εντός περιοχής Natura 2000
- Field Survey Area / Περιοχή Έρευνας Πεδίου

Natura 2000 Network / Δίκτυο Natura 2000

- SAC/ΕΖΔ: Special Area of Conservation / Ειδική Ζώνη Διατήρησης
- SAC-SPA/ΕΖΔ-ΖΕΠ: Special Area of Conservation - Special Protection Area / Ειδική Ζώνη Διατήρησης - Ζώνη Ειδικής Προστασίας
- SPA/ΖΕΠ: Special Protection Area / Ζώνη Ειδικής Προστασίας

NOTES/ ΣΗΜΕΙΩΣΕΙΣ

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	28/2/2022	ISSUED FOR REVIEW	NCC Ltd	PiM	Client

Contract No:
Αρ. Συμβολαίου:

Coordinate System: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 3857 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/CONSULTANT ΜΗΧΑΝΙΚΟΣ/ ΜΕΛΕΤΗΤΗΣ: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE " - GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 " - GR2120006"

Map n°:	*FIELD SURVEY AREA / ΠΕΡΙΟΧΗ ΕΡΕΥΝΑΣ ΠΕΔΙΟΥ*	
M4-N12 S13A01		
Scale/ Κλίμακα: 1:40.000	Project DWG No./ Αρ. Σχ. Έργου:	Rev/ Αναθ: 0A
Size/ Μέγεθος: A3	Company's DWG No/ Αρ. Σχ. Εταιρείας: -	Engineer's DWG No/ Αρ. Σχ. Μελετητή: AUT-11727500-STU-XXX/ Section 11.1.1
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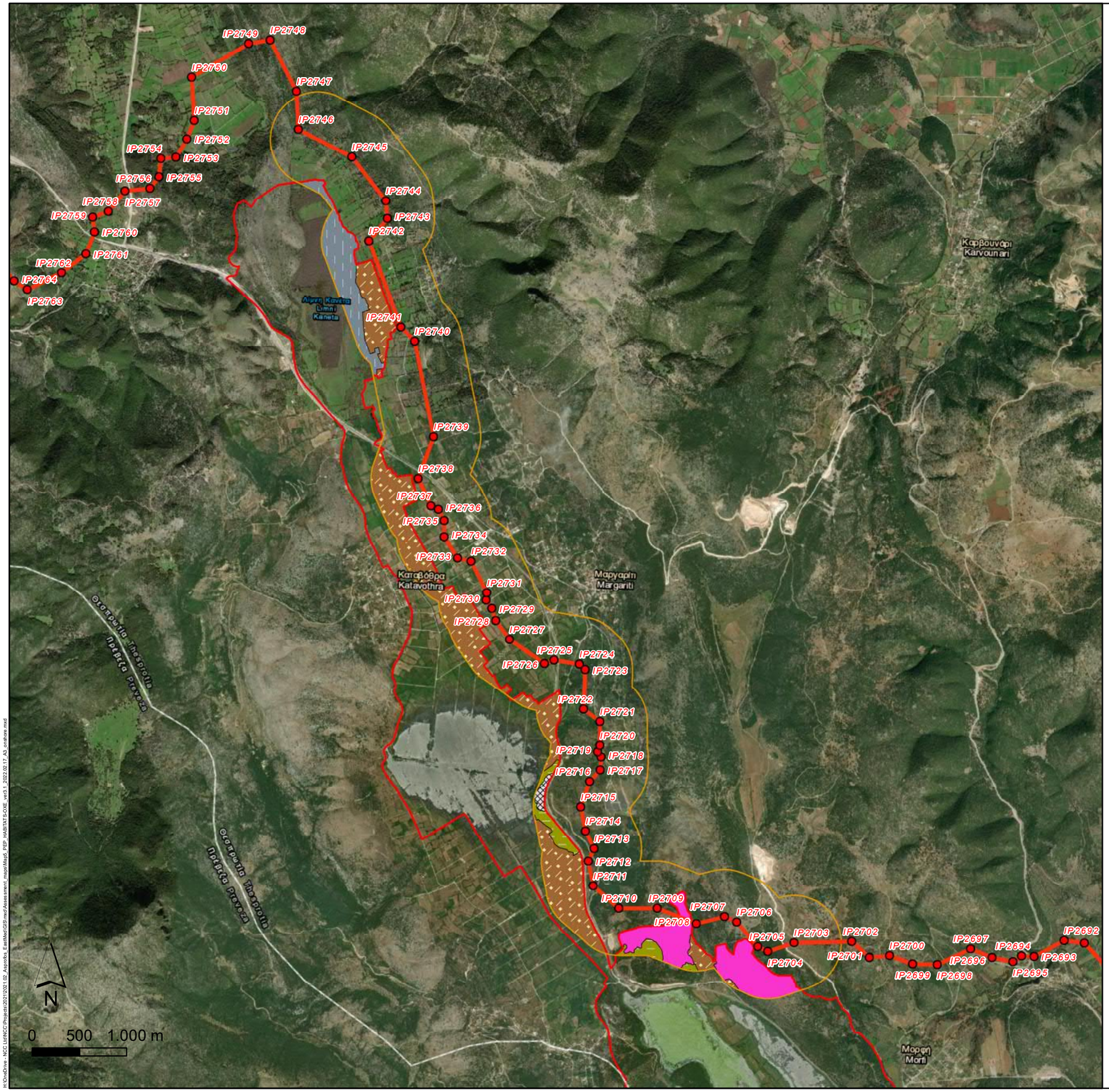
Document Name: Map4_PEP_ver3.2_2022.02.28_A3_onshore



REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA GR2120006"
FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "SPA GR2120006"
ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Route IP / Κορυφή Όδευσης
- Proposed Routing / Προτεινόμενη Όδευση
- Field Survey Area / Περιοχή Έρευνας Πεδίου
- Study Area / Περιοχή Μελέτης

Habitat types - Annex I (92/43/EEC) / Τύποι οικοτόπων - Παράρτημα I (92/43/ΕΟΚ)

- 5420 Sarcopoterium spinosum phryganas / Φρύγανα από Sarcopoterium spinosum

Habitat types - Others (not listed in the Annex I of 92/43/EEC) / Τύποι οικοτόπων - Λοιποί (εκτός Παραρτήματος I της 92/43/ΕΟΚ)

- 1020 Industrial or commercial units / Βιομηχανικές ή εμπορικές ζώνες (θεσμοθετημένες)
- 1050 Non-irrigated arable land - pure / Μη αρδεύσιμη-αρόσιμη γη αμιγής
- 72A0 Reed beds / Καλαμώνες
- 934A Greek Kermes oak forests / Ελληνικά δάση Πρίνου

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	28/2/2022	ISSUED FOR REVIEW	NCC Ltd	PiM	Client

Contract No:
Αρ. Συμβολαίου:

Coordinate System: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 3857 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/CONSULTANT ΜΗΧΑΝΙΚΟΣ/ ΜΕΛΕΤΗΤΗΣ: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "SPA - GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 " - GR2120006"

Map n°: M5-N12 S13A01

HABITAT TYPES - ECOLOGICAL SPATIAL UNITS INSIDE FIELD SURVEY AREA /ΤΥΠΟΙ ΟΙΚΟΤΟΠΩΝ - ΟΙΚΟΛΟΓΙΚΕΣ ΧΩΡΙΚΕΣ ΕΝΟΤΗΤΕΣ ΣΤΗΝ ΠΕΡΙΟΧΗ ΕΡΕΥΝΑΣ ΠΕΔΙΟΥ

Scale/ Κλίμακα	Project DWG No./ Αρ. Σχ. Έργου:		Rev/ Αναθ
1:40.000			0A
Size/ Μέγεθος: A3	Company's DWG No/ Αρ. Σχ. Εταιρείας: -	Engineer's DWG No/ Αρ. Σχ. Μελετητή: AUT-11727500-STU-XXX/ Section 11.1.1	Sheet/ Φύλλο 1 of 1

Document Name: Map5_PEP_HABITATS-OXE_ver3.1_2022.02.17_A3_onshore

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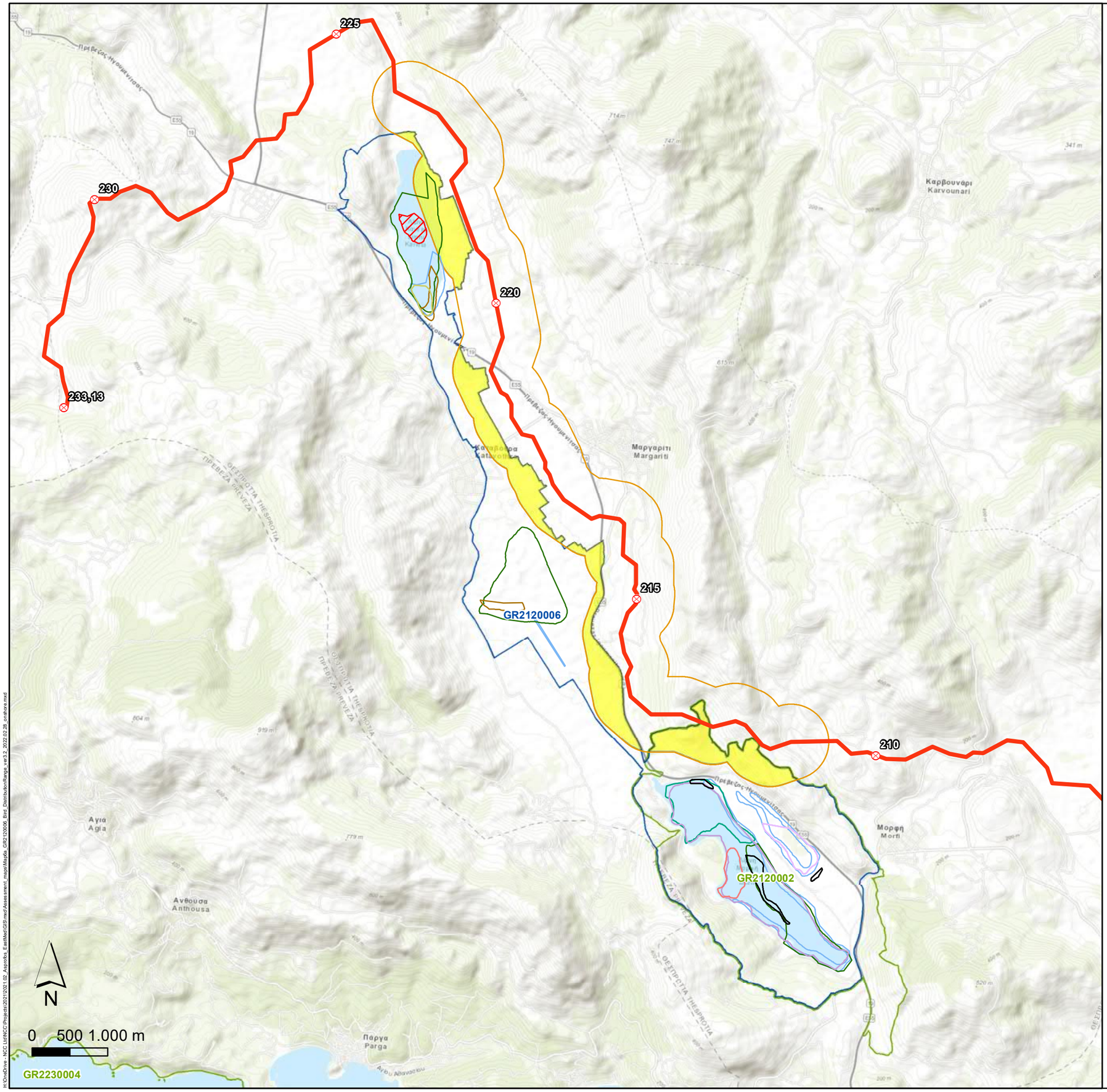

REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "GR2120006"
FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "GR2120006"
ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Routing Chainage (5km) / Χιλιομέτρηση Όδευσης (5 χλμ.)
- Proposed Routing / Προτεινόμενη Όδευση
- Field Survey Area / Περιοχή Έρευνας Πεδίου
- Field Survey Area inside Natura 2000 site / Περιοχή Έρευνας Πεδίου εντός περιοχής Natura 2000

Natura 2000 Network / Δίκτυο Natura 2000

- SAC/ΕΖΔ: Special Area of Conservation / Ειδική Ζώνη Διατήρησης
- SAC-SPA/ΕΖΔ-ΖΕΠ: Special Area of Conservation - Special Protection Area / Ειδική Ζώνη Διατήρησης - Ζώνη Ειδικής Προστασίας
- SPA/ΖΕΠ: Special Protection Area / Ζώνη Ειδικής Προστασίας

Bird distribution range - Wildfowl and herons / Κατανομή ειδών ορνιθοπανίδας - υδρόβια και ερωδιοί

- *Aythya nyroca*
- *Alcedo atthis*
- *Anas acuta, Spatula querquedula*
- *Anas platyrhynchos, Cygnus olor, Phalacrocorax carbo sinensis*
- *Anas platyrhynchos, Spatula querquedula*
- *Ardea cinerea*
- *Ardea cinerea, Ardeola ralloides*
- *Ardea cinerea, Ardeola ralloides, Cygnus olor, Anas platyrhynchos, Spatula querquedula, Phalacrocorax carbo sinensis*
- *Ardeola ralloides*
- *Fulica atra, Vanellus vanellus*

NOTES/ ΣΗΜΕΙΩΣΕΙΣ

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	28/2/2022	ISSUED FOR REVIEW	NCC Ltd	PiM	Client

Contract No:
Αρ. Συμβολαίου:

Coordinate System: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 3857 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/CONSULTANT ΜΗΧΑΝΙΚΟΣ/ ΜΕΛΕΤΗΤΗΣ: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "GR2120006"

Map n°:	
M6-N12 S13A01	*BIRD DISTRIBUTION RANGE - WILDFOWL AND HERONS / ΚΑΤΑΝΟΜΗ ΕΙΔΩΝ ΟΡΝΙΘΟΠΑΝΙΔΑΣ - ΥΔΡΟΒΙΑ ΚΑΙ ΕΡΩΔΙΟΙ*

Scale/ Κλίμακα	Project DWG No./ Αρ. Σχ. Έργου:	Rev/ Αναθ
1:50.000		0A

Size/ Μέγεθος	Company's DWG No/ Αρ. Σχ. Εταιρείας:	Engineer's DWG No/ Αρ. Σχ. Μελετητή:	Sheet/ Φύλλο
A3	-	AUT-11727500-STU-XXX/ Section 11.1.1	1 of 2

Document Name: Map6a_GR2120006_Bird_DistributionRange_ver3.2_2022.02.28_onshore

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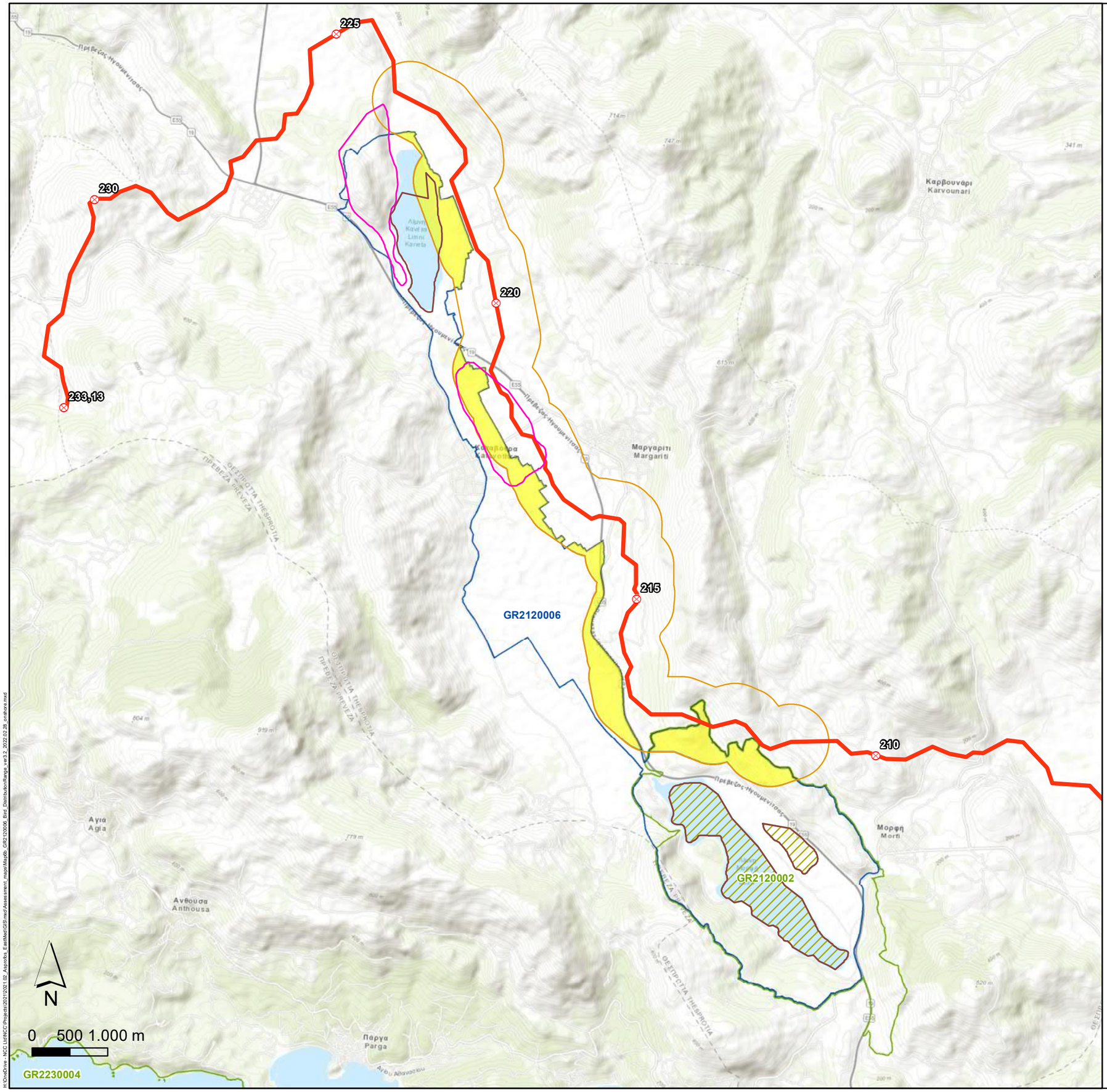

REFERENCE DOCUMENTS / DRAWINGS
ΣΧΕΤΙΚΑ ΕΓΓΡΑΦΑ / ΣΧΕΔΙΑ

DOCUMENT TITLE / ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "GR2120006"
FOR THE ONSHORE SECTION OF EASTMED PIPELINE PROJECT
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "GR2120006"
ΓΙΑ ΤΟ ΧΕΡΣΑΙΟ ΤΜΗΜΑ ΤΟΥ ΔΙΑΣΥΝΔΕΤΗΡΙΟΥ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED

LEGEND/ ΥΠΟΜΝΗΜΑ

Project Components / Στοιχεία του Έργου

- Routing Chainage (5km) / Χιλιομέτρηση Όδευσης (5 χλμ.)
- Proposed Routing / Προτεινόμενη Όδευση
- Field Survey Area / Περιοχή Έρευνας Πεδίου
- Field Survey Area inside Natura 2000 site / Περιοχή Έρευνας Πεδίου εντός περιοχής Natura 2000

Natura 2000 Network / Δίκτυο Natura 2000

- SAC/ΕΖΔ: Special Area of Conservation / Ειδική Ζώνη Διατήρησης
- SAC-SPA/ΕΖΔ-ΖΕΠ: Special Area of Conservation - Special Protection Area / Ειδική Ζώνη Διατήρησης - Ζώνη Ειδικής Προστασίας
- SPA/ΖΕΠ: Special Protection Area / Ζώνη Ειδικής Προστασίας

Bird distribution range - Birds of prey and cormorants / Κατανομή ειδών ορνιθοπανίδας - Αρπακτικά και κορμοράνοι

- *Circus aeruginosus*
- *Circus cyaneus, Circaetus gallicus*
- *Phalacrocorax carbo sinensis*

NOTES/ ΣΗΜΕΙΩΣΕΙΣ

Rev. Αναθ.	Date Ημερομ.	Description Περιγραφή	Drawn Σχεδίαση	Checked Έλεγχος	Approved Έγκριση
0A	28/2/2022	ISSUED FOR REVIEW	NCC Ltd	PiM	Client

Contract No:
Αρ. Συμβολαίου:

Coordinate System: Greek Grid
Projection: Transverse Mercator
Datum: GGRS 1987
WKID: 3857 Authority: EPSG

COMPANY / ΕΤΑΙΡΕΙΑ: IGI Poseidon

ENGINEER/CONSULTANT ΜΗΧΑΝΙΚΟΣ/ ΜΕΛΕΤΗΤΗΣ: Asprofos engineering, ERM

PROJECT TITLE - ΤΙΤΛΟΣ ΕΡΓΟΥ

EASTMED PIPELINE PROJECT - GREEK SECTION/
ΕΡΓΟ ΑΓΩΓΟΥ ΦΥΣΙΚΟΥ ΑΕΡΙΟΥ EASTMED - ΕΛΛΗΝΙΚΟ ΤΜΗΜΑ

DOCUMENT TITLE - ΤΙΤΛΟΣ ΕΓΓΡΑΦΟΥ

APPROPRIATE ASSESSMENT OF THE NATURA 2000 SITE "GR2120006" /
ΕΙΔΙΚΗ ΟΙΚΟΛΟΓΙΚΗ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΠΕΡΙΟΧΗΣ NATURA 2000 "GR2120006"

Map n°:	*BIRD DISTRIBUTION RANGE - BIRDS OF PREY AND CORMORANTS / ΚΑΤΑΝΟΜΗ ΕΙΔΩΝ ΟΡΝΙΘΟΠΑΝΙΔΑΣ - ΑΡΠΑΚΤΙΚΑ ΚΑΙ ΚΟΡΜΟΡΑΝΟΙ*	
M6-N12 S13A02		
Scale/ Κλίμακα: 1:50.000	Project DWG No./ Αρ. Σχ. Έργου:	Rev/ Αναθ: 0A
Size/ Μέγεθος: A3	Company's DWG No/ Αρ. Σχ. Εταιρείας: -	Engineer's DWG No/ Αρ. Σχ. Μελετητή: AUT-11727500-STU-XXX/ Section 11.1.1
		Sheet/ Φύλλο: 2 of 2

Document Name: Map6b_GR2120006_Bird_DistributionRange_ver3.2_2022.02.28_onshore

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