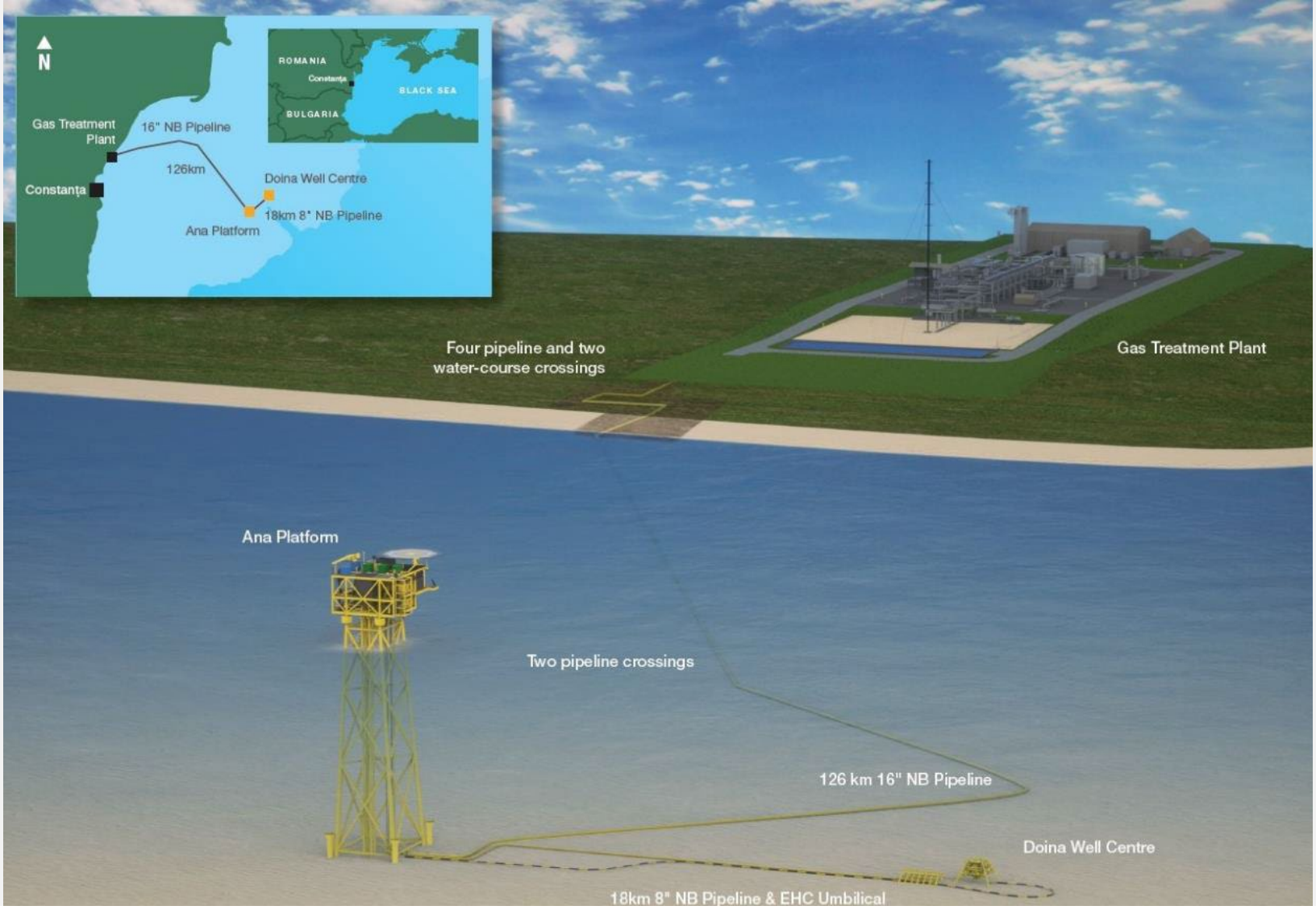

BlackSea oil & gas

Midia Gas Development

Update of the Assessment of Effects on Critical and Natural Habitat and Priority Biodiversity Features

March 2022

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Signature Page

31 March 2022

Midia Gas Development

Update of the Assessment of Effects on Critical and Natural Habitat and Priority Biodiversity Features

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1. BACKGROUND

Black Sea Oil & Gas SRL (BSOG) are the operators of petroleum exploration, development and exploitations of Block XV Midia, offshore Romania. The Ana and Doina fields are located in the western Black Sea, approximately 110 kilometres to the east of Constanta, Romania. BSOG intend to develop the Midia Gas Development Project (MGD, the Project) to produce and process natural gas from those reservoirs and route it to export to consumers within Romania and the European Union.

1.1 Purpose of the Report

This report presents and update of the findings of an assessment of the Midia Gas Development Project (referred to hereafter as the "Project") on critical and natural habitat and priority biodiversity features (PBF).

The report updates the CHA produced in 2019 built on the Environmental and Social Impact Assessment (ESIA) undertaken for the Project, which provided additional information and assessment of the Project impacts, with particular reference to the requirements and standards included in the European Bank for Reconstruction and Development (EBRD) Performance Requirement 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources (PR6) and the International Finance Corporation (IFC) Performance Standard 6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources (PS6). This update incorporates additional information on impacts based on the 'as built' project footprint as at January 2022, as well as additional information on the distribution of flora and fauna recorded during biodiversity monitoring and management activities undertaken before and during construction. As of January2022 the offshore and onshore pipe lay works have been completed.

The assessment presented in this report has informed the preparation of the Project Biodiversity Management Plan (BMP) and the updated of the Project Biodiversity Action Plan (BAP).

1.2 Report Structure

The remainder of this report is set out as follows:

Section 2: Assessment Approach

Section 3: Summary of Biodiversity Baseline

Section 4: Determination of Natural and Critical Habitats and Priority Biodiversity Features

Section 5: Assessment of Effects on Natural and Critical Habitats and Priority Biodiversity Features

Section 6: Summary

2. ASSESSMENT APPROACH

2.1 Overview

The general approach taken comprised the steps listed below.

- The Project site was defined (onshore and offshore) and Areas of Influence (AoI) of the Project identified.
- Areas of Assessment (AoA) were identified based on landscape / seascape features. The AoA included the AoI, but also extended beyond it. The boundaries of the AoA followed logical boundaries (eg coastlines, protected area boundaries, extent of natural habitat). Habitat was not considered further if it was within the AoA, but beyond the AoI and there was no pathway of effect between it and the project activities.
- Information on biodiversity features from the findings of a desk study, baseline surveys, consultations undertaken to inform the ESIA, and biodiversity monitoring and management

undertaken before and during construction were used to identify areas of natural and modified habitat in the AoI.

- Candidate biodiversity features within the AoA that could trigger critical habitat were identified, along with the habitat types supporting them that occurred in the AoI and where that habitat extended beyond it. The numbers of priority species / proportions of populations in those habitats were then estimated (based on percentage of total species range, baseline survey results and expert judgement), to confirm if critical habitat was triggered under IFC PS6 Criteria 1-3 and EBRD Criteria 2-4. Ecosystems, areas and underlying ecological processes that met IFC Criteria 4-5 and EBRD PR6 Criteria 1, 5 and 6 within the AoA were also identified.
- Based on the above, ecologically appropriate areas of analysis were identified (encompassing the AoI) with a definable habitat / management boundary, that contained critical habitat. Where possible, areas were drawn up to encompass several features rather than individual ones. This helped identify "hotspot" areas of critical habitat of importance for a wide range of features.
- In the case of wide-ranging species (eg marine mammals, migratory fish species), likely to spend a significant part of their lifecycle outside of the AoA, the potential for the project to affect the survivability of the species or population was assessed.
- In the AoAs, priority biodiversity features, were also identified based on the criteria in PR6.
- The impacts on natural and critical habitat, and priority biodiversity features and losses of each due to the Project, were identified.
- The approach to the assessment has been informed by the guidance included in the EBRD Guidance Note 6 (2014) and the 2012 edition of IFC GN 6 as the Project commenced prior to the updated guidance note for IFC PS6 published in February 2019.

2.2 Definitions and Criteria

2.2.1 Area of Influence (AoI) / Area of Assessment (AoA)

An AoI is the area within which Project effects on biodiversity may occur. AoIs were based on how far effects from the Project were considered to extend. They took account of the activities of the Project, their locations and the specific biodiversity features affected. Details of the AoIs and the bases on which they were defined, are presented in *Section 2.4* and in *Appendix A*.

An AoA is the area considered for the identification of critical habitat. AoAs were based on ecologically appropriate landscape (onshore) and seascape (offshore) scale units. The identification of AoAs were informed by the existing management boundaries of protected and internationally recognised sites, as well as ecologically definable boundaries. Details of the AoAs and the basis on which they were defined, are presented in *Section 2.4*

2.2.2 Natural Habitat

Natural habitat is a term used by IFC PS6, but not by EBRD PR6. PS6 defines natural habitats as *"…areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition"*.

2.2.3 Critical Habitat

IFC PS6 defines critical habitats as *"...areas with high biodiversity value, including:*

(i) habitat of significant importance to Critically Endangered and/or Endangered species;

(ii) habitat of significant importance to endemic and/or restricted-range species;

(iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species;

(iv) highly threatened and/or unique ecosystems; and/or

(v) areas associated with key evolutionary processes".

EBRD PR 6 defines critical habitats as:

(i) highly threatened or unique ecosystems;

(ii) habitats of significant importance to endangered or critically endangered species

(iii) habitats of significant importance to endemic or geographically restricted species;

(iv) habitats supporting globally significant migratory or congregatory species;

(v) areas associated with key evolutionary processes; or

(vi) ecological functions that are vital to maintaining the viability of biodiversity features described above.

There is a high degree of overlap between the different criteria used in PR6 and PS6. Wherever possible in the assessment, biodiversity features have been assed together under equivalent criteria (e.g. IFC criteria (i) and EBRD criterion (ii)). EBRD Guidance Note 6 IFC Guidance Note 6 provide additional guidance on various thresholds and definitions for each of the IFC criteria. The definitions provided in the 2012 edition of IFC Guidance Note 6 have been used for this assessment as the Project has been progressed largely prior to the release of the updated 2018 version.

2.2.4 Priority Biodiversity Features

Priority biodiversity features are specific to PR6. They are below critical habitat in terms of sensitivity, however, they still require careful consideration as part of the assessment and development of mitigation. They include threatened habitats; vulnerable species and significant biodiversity features identified by a broad set of stakeholders or governments such as Key Biodiversity Areas and the ecological structures and functions needed to maintain their viability. In line with the definition of critical habitat associated with endangered and critically endangered species set out below, 'vulnerable species' in relation to priority biodiversity features has been taken to mean habitats of significant importance to vulnerable species.

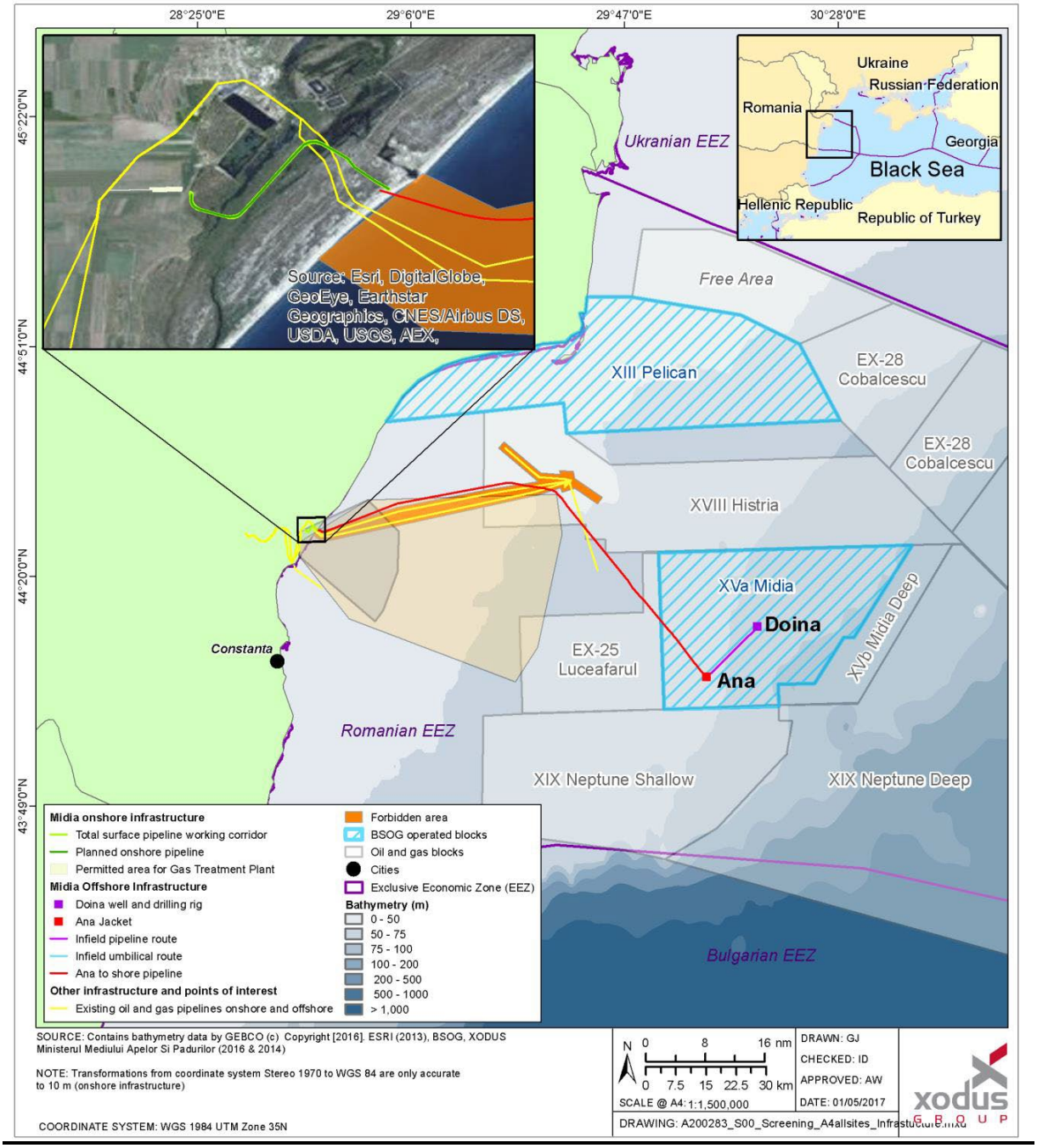
2.2.5 Modified Habitat

Modified habitats are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. They may include areas managed for agriculture, forest plantations, reclaimed coastal zones / wetlands.

2.3 Summary of the Project

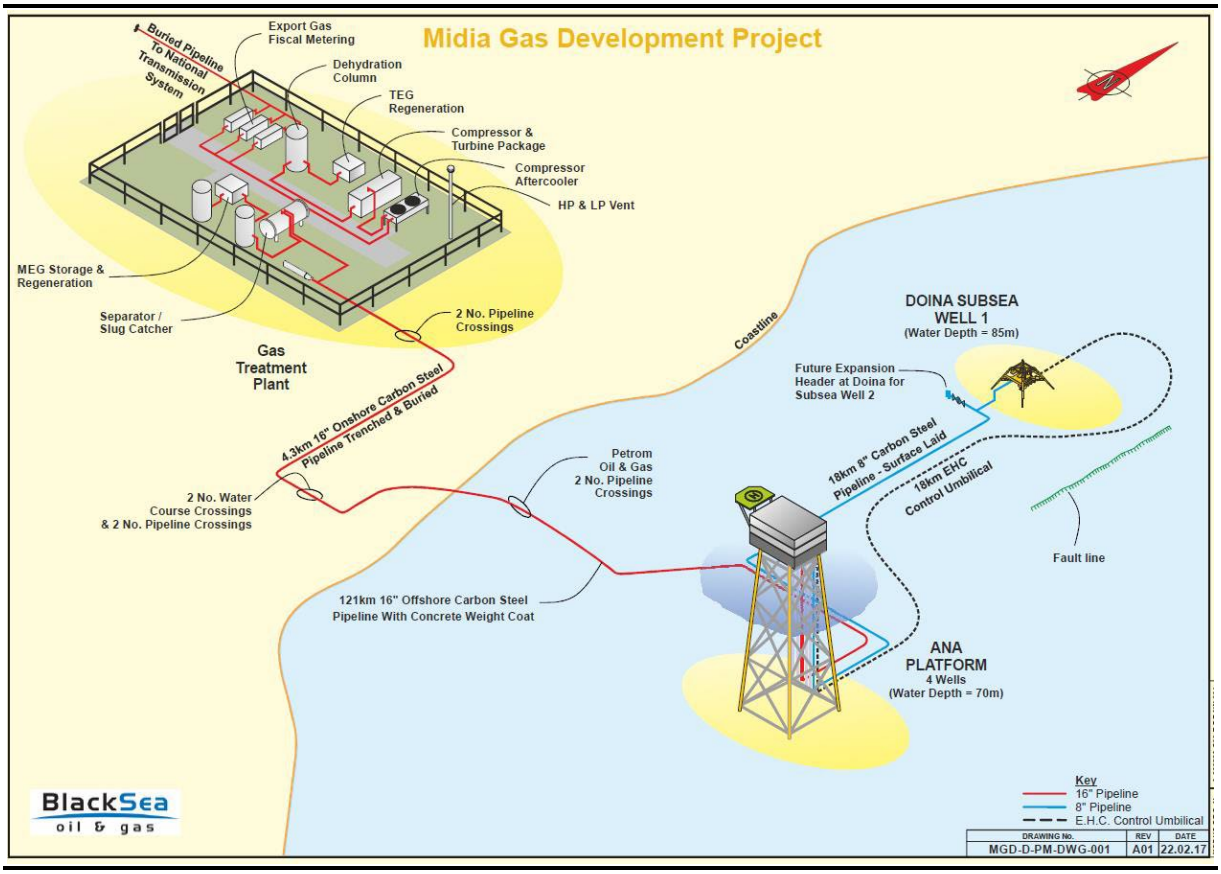
The Project will involve drilling four development wells at the Ana field and one at the Doina field (production wells). A small normally unmanned platform will house the wellheads and minimum facilities at the Ana field (Ana Platform). A subsea gas production system at the Doina field (Doina Subsea) will be joined to the Ana Platform via an 18 km 8" pipeline. A 16'' pipeline comprising a 121 km offshore segment and a 4.5 km, onshore segment will route the gas from the Anna Platform to the onshore gas treatment plant (GTP). The landfall of the offshore segment of the pipeline is located in the Vadu area, Corbu Commune, Constanta County. The Project location and overview are shown in Figure 2.1and Figure 2.2.

Figure 2.1 Project Location



Source: BSOG, 2019

Figure 2.2 Project Overview



Source: BSOG, 2019

The Project execution time schedule and duration according to planning at the time of this updated CHA is provided below.

Table 2.1 Project Construction Schedule

Construction Activity	Timeline
Onshore pipeline construction	■ September 2020 – March 2021 ■ September 2021 – October 2021 (Balta Mare HDD crossing attempted) ■ October 2021 - Onshore pipeline works completed
Onshore pipeline hydro testing and commissioning	■ November – December 2021
GTP Construction	■ January 2020 - December 2021
GTP hydrotesting and commissioning	■ October - November 2021
HDD shore approach (Pilot hole drill start – Pipeline head pulled on HDD site)	■ Completed in October 2020
Offshore drilling	■ September 2021 - March 2022 (Drill Ana x 4 wells) ■ March 2022 - May 2022 (Drill Doina x 1 well)

Construction Activity	Timeline
Offshore jacket and platform installation	■ March 2021 (Jacket & Piles completed) ■ September 2021 (Hook-up prior 1st Ana well drilling)
Offshore pipelines construction	■ October 2020 (HDD pipeline pull completed) ■ October 2020 – January 2021 (Nearshore to Ana pipelay completed) ■ January 2021 (Ana to Doina pipeline lay completed) ■ February 2022 (Ana-Doina umbilical installation, after Doina well drilled in the 2-1-2 drilling scheme) or May/June 2022 (after Doina drilled in the 4+1 scheme)
Offshore pipelines hydrotesting and commissioning	■ March 2021 (Offshore pipelines hydrotesting completed) ■ November 2021 (Nearshore to Ana pipeline commissioning, in the 2-1-2 drilling scheme with only 2 first Ana wells) ■ February 2022 (Ana to Doina pipeline commissioning, in the 2-1-2 drilling scheme) or May 2022 (in the 4-1 drilling scheme)
First gas	■ December 2021 (with 2 Ana Wells drilled, early production scenario)

Once operational, the predicted lifetime of the Project is 15-20 years.

2.4 Basis of Assessment and Data Used

2.4.1 Reports and Data

In order to inform the assessment of impacts on biodiversity receptors, a desk based review of available information on biodiversity receptors within the project AoI was undertaken. These sources included:

- Auditeco Ges (2016) Biodiversity Monitoring Report - Building an Underground Gas pipeline on Corbu Locality's Range, in Corbu Locality's Unincorporated Area, Constanta County - ZUP phase. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2016) Biodiversity Monitoring Report (July- September 2016) - The natural gas transportation pipeline on the territory of the Corbu commune, Vadu village, Constanţa county – the section under-crossing the beach, ensuring the connection between the submarine pipeline for natural gas transportation and the natural gas transportation pipeline - ZUP phase. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2016) Biodiversity Monitoring Report - The natural Gas Treatment Plant on the territory of the Corbu commune, Vadu village, Constanța County. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2017) Biodiversity Monitoring Report (October 2016 – June 2017) - The natural Gas Treatment Plant on the territory of the Corbu commune, Vadu village, Constanța county. Prepared for Black Sea Oil and Gas S.R.L.;

- Auditeco Ges (2017) Biodiversity Monitoring Report (October 2016 – June 2017) - The natural gas transportation pipeline on the territory of the Corbu commune, Vadu village, Constanţa County – the section under-crossing the beach, ensuring the connection between the submarine pipeline for natural gas transportation and the natural gas transportation pipeline. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2015) Appropriate Assessment Study - Building an underground gas pipeline on Corbu locality's range - Segment I, in Corbu locality's unincorporated area, Constanta county - ZUP phase. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2016) Appropriate Assessment Study - Gas Treatment Plant – Midia natural gas development project, Corbu commune, Constanța county – ZUP stage. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2017) Appropriate Assessment Study - Building of gas treatment plant – Midia natural gas development project, Corbu commune, Constanța County. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2017) Environmental Impact Assessment - Building of Gas Treatment Plant – Midia natural gas development project, Corbu commune, Constanța county. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2018) Consolidated Environmental Impact Assessment Onshore and Offshore Component. Prepared for Black Sea Oil and Gas S.R.L.;
- Auditeco Ges (2018) Environmental Impact Assessment – Onshore Components of Midia natural gas development project, Corbu commune, Constanța County. Prepared for Black Sea Oil and Gas S.R.L.;
- RSK, (2013a). SC Midia Resources SRL. Midia Gas Development. Flora and fauna survey report;
- RSK, (2013b). SC Midia Resources SRL. Midia Gas Development. Wintering Bird Report 2013;
- RSK, (2013c). SC Midia Resources SRL. Midia Gas Development. Spring Passage and Breeding Bird Report 2013;
- MG3 (2016a). Ana Site Field Report Seabed Mapping and Geophysical Survey Offshore Romania. September - October. RESULTS MG3 Document No. MG3-16028-BSO-ANAFLDRPT_REV.B;
- MG3 (2016b). Doina Site Field Report. Seabed mapping and geophysical survey offshore Romanian. September - October 2016. RESULTS. MG3 Document No. MG3-16028-BSO-DOINAFLDRPT_REV.B;
- MG3 (2016c). In-field pipeline field report. Seabed Mapping & Geophysical Survey Offshore Romania. September-October 2016. RESULTS. MG3 Document No. MG3-16028-BSO-INFPLFLDRPT_REV.A 21/11/2016;
- MG3 (2016d). Export Pipeline Field Report. Seabed Mapping & Geophysical Survey Offshore Romania. September-October 2016. RESULTS. MG3 Document No. MG3-16028-BSO-EXPPLFLDRPT;
- MG3 (2016e). Export Pipeline Field Report nearshore survey. Seabed Mapping & geophysical Survey Offshore Romania October - November 2016 MV Ocean Spirit. MG3 Document No. MG3-16028-BSO-FLD-EXP_NS_RevA;
- MG3 (2016f). Field Report, Ana Field, Environmental Baseline and Habitat Assessment. September-October 2016. MG3 Document No. MG3-16028-BSO_FLD_Ana Environmental Field Results Report_RevA;

- MG3 (2016g). Field Report, Doina Field, Environmental Baseline and Habitat Assessment. September-October 2016. MG3 Document No. MG3-16028-BSO_FLD_Doina Environmental Field Results Report_RevA;
- MG3 (2016h). Field Report, In-field pipeline route. Environmental Baseline and Habitat Assessment. September-October 2016. MG3 Document No. MG3-16028-BSO_FLD_Infield Route Environmental Field Results Report_RevA;
- MG3 (2016i). Field Report, Export pipeline route. Environmental Baseline and Habitat Assessment. September-October 2016. MG3 Document No. MG3-16028-BSO_FLD_Export Route Environmental Field Results Report_RevA;
- MG3 and RPS (2017a). Environmental Survey Report (Benthic Survey). Black Sea Oil & Gas Project Romania. Environmental Baseline Survey Report. REVA Final. RPS File Reference: EOR0701 BSOG 2016 Environmental Baseline Survey Report;
- MG3 and RPS (2017b). Habitat Assessment Report (Drop Down Video and Digital Photography). Pipeline Routes, Black Sea Oil & Gas Project. Romania. REV02. RPS File Reference: EOR0701 BSOG 2016 Pipeline Routes Site Habitat AssessmentREV02;
- Xodus (2018) Midia Gas Development FEED Study – Environmental and Social Impact Assessment Report.[1]
- S.E.O.P.M.M. Oceanic Club, 2020. Interim Report on the presence and ethology of seabirds and mammals during gas pipeline activities (September – October 2020);
- S.E.O.P.M.M. Oceanic Club, 2021. Final Report concerning the presence and behavior of birds and marine mammals for the period of September 2020 – 31 January 2021 (Ana and Doina platforms);
- Auditeco Ges, 2019. Biodiversity survey report (November and December 2019);
- Auditeco Ges, 2020. Pre-construction biodiversity survey reports (June and September 2020);
- RS Environmental Consultancy, 2021. Pre-construction biodiversity survey report (April 2021);
- RS Environmental Consultancy, 2021. Biodiversity monitoring report (May-December 2021);
- Daily and weekly biodiversity site supervision reports.

The desk based assessment included a review of published information from national Romanian and international data sources as well as published literature and grey literature. The approach to data collection was undertaken with reference to best practice guidance including EBRD PR6, IFC GN6, and the CBI Good Practices for Collection of Biodiversity Baseline Data[2].

Data used for mapping

- EEA. 2019. EUNIS Habitat Classification - Ecosystem types of Europe (Terrestrial and Marine). Available at: https://www.eea.europa.eu/data-and-maps/data/ecosystem-types-of-europe-1#tab-european-data
- Romanian Environmental Ministry. 2017. Natura 2000 GIS limits of Sites of Community Importance and Special Protected Areas. Available at: http://www.mmediu.ro/articol/date-gis/434
- Integrated Biodiversity Assessment Tool (IBAT) data. 2019. Generated under ERM's license on 5 March 2019 from https://www.ibat-alliance.org

[1] Xodus (2018) Midia Gas Development FEED Study – Environmental and Social Impact Assessment Report.

[2] Gullison, R.E., Hardner, J., Anstee,S. & Meyer, M. (2015) Good Practices for the Collection of Biodiversity Baseline Data. Prepared for the Multilateral Financing Institutions Biodiversity Working Group & Cross-Sector Biodiversity Initiative

- BSOG. 2019. Data provided by Black Sea Oil & Gas SRL regarding the project layout and associated facilities
- RSK. 2009. Landfall and Onshore Route Study Report
- ESRI. 2019. Background satellite images from Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
- RS Environmental Consultancy, 2021. The 'as built' footprint of the Project as digitized by the Ecological Clerk of Works (ECoW) and received from BSOG on 28 April 2021

2.4.2 Project 'As Built' Footprint

The project 'as built' footprint was mapped at the end of October 2021 by the ECoW for the areas where the construction activities were finalized. The mapping was performed using a Garmin GPS Montana 700 by walking along the limit of the constructed area. The mapping process had the following limitation:

- The project footprint could not be accurately determined in some areas due to interference with overlapping third parties operations (i.e., reed harvesting activities and maintenance of oil and gas infrastructure). Were this was the case, aerial photography and the professional judgement of the ECoW were used to map the project footprint.

2.5 The Project Area of Influence (AoI) and Area of Assessment (AoA)

2.5.1 AoI

In determining the Project AoI, it has been acknowledged that direct impacts will occur within the Project footprint. However, indirect impacts will extend beyond this, due to air quality, light, noise and vibration.

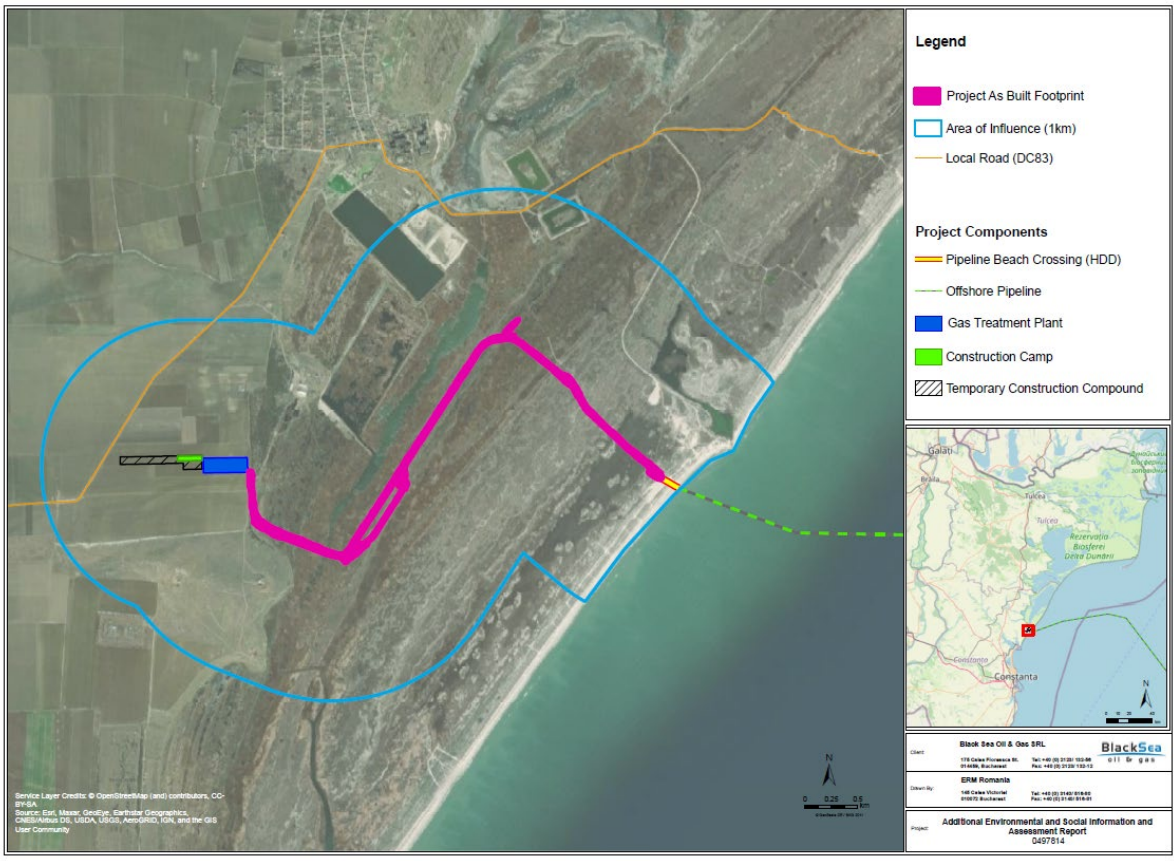
Receptor-specific AoIs were developed, drawing on the information presented in the baseline studies and ESIAs presented for the Project. Where receptor-specific AoIs were not readily available from the baseline studies/national EIAs, ERM's professional judgement was used to define the AoI. Separate AoIs were developed for the onshore and offshore areas.

2.5.1.1 Onshore

In the onshore environment, the furthest extent over which an impact is likely to occur relates to disturbance impacts to sensitive species such as raptors. As a precautionary approach, a 1 km disturbance distance was selected and applied for all fauna. In relation to habitat impacts, a worst case AoI of 200 m was selected, however habitat loss has been calculated based on the 'as built' footprint, including construction areas and access tracks where impacts on habitats where identified by the project ECoW. The 1 km area of impact has been taken as the maximum onshore AoI.

The onshore AoI is shown in Figure 2.3 below. Receptor specific AoIs are presented in Appendix A.

Figure 2.3 Area of Influence - Onshore



Source: ERM, 2021

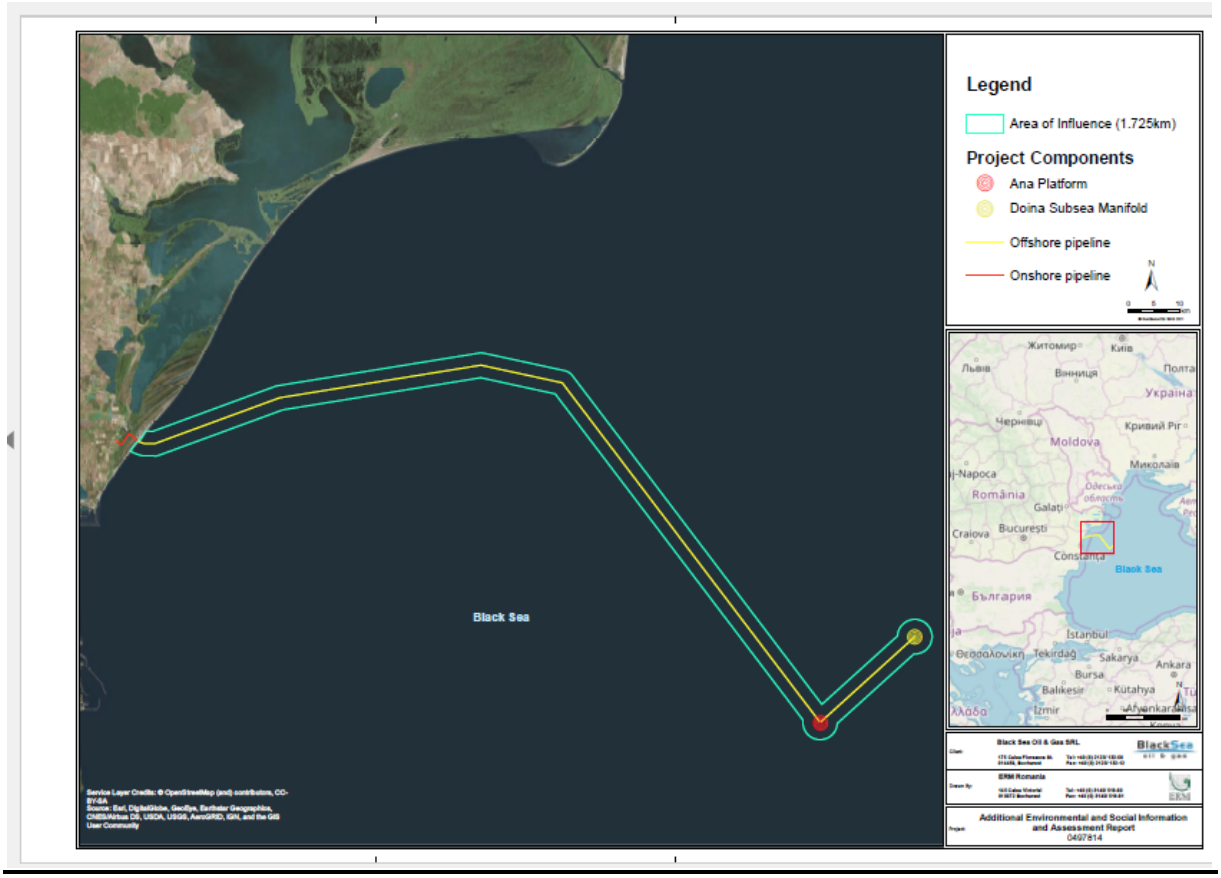
2.5.1.2 Offshore

In the offshore environment the furthest extent over which an impact is likely to occur relates to underwater noise and in particular its impact on fish and marine mammals. The ESIA Report for the Project[1] concluded that the worst case distance over which impacts could occur along the export and in-field pipeline was 1,725 m, the worst case area affect for noise disturbance on sensitive fish species from vessel operation. The worst case distance for effects around the Anna and Doina wells was 2,434 m, the worst case area affect for noise disturbance for marine mammals from piling operations. This maximum area of impact has been taken as the maximum offshore AoI.

The AoI is shown in Figure 2.4 Receptor specific AoIs are presented in Appendix A.

[1] Xodus (2018) Midia Gas Development FEED Study – Environmental and Social Impact Assessment Report.

Figure 2.4 Area of Influence - Offshore



Source: ERM, 2019

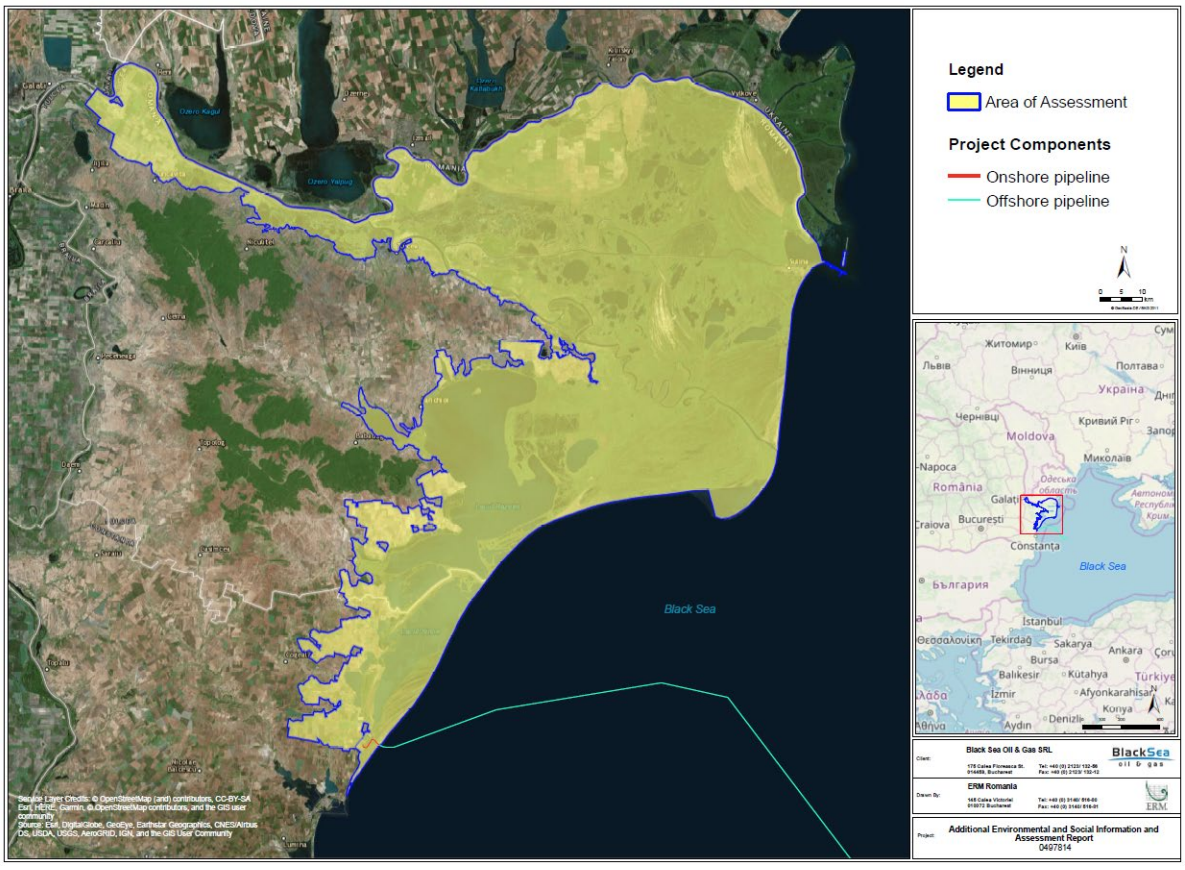
2.5.2 AoA

The scale at which a critical habitat determination takes places depends on underlying ecological processes for the habitat in question and is not limited to the footprint of the Project. The following onshore and offshore AoAs were identified.

2.5.2.1 Onshore

The pipeline landfall and the majority of the onshore pipeline falls within Danube Delta UNESCO Biosphere Reserve, World Heritage Site, Wetland of International Importance (Ramsar Site), Important Bird and Biodiversity Area (IBA)/Key Biodiversity Area (KBA), Site of Community Importance (SCI) and Danube Delta and Razim-Sinoie Complex Special Protection Area (SPA). The final approximately 200 m of the onshore pipeline and the GTP, and associated AoI, extend outside the designated site boundaries to the west. The AoA was therefore taken as the largest combined designated site boundary footprint (a combination of the Danube Delta IBA/KBA and Danube Delta and Razim-Sinoie Complex SPA) extended to encompass the complete AoI for the GTP and onshore pipeline. The onshore AoA is shown in Figure 2.5.

Figure 2.5 Area of Assessment - Onshore

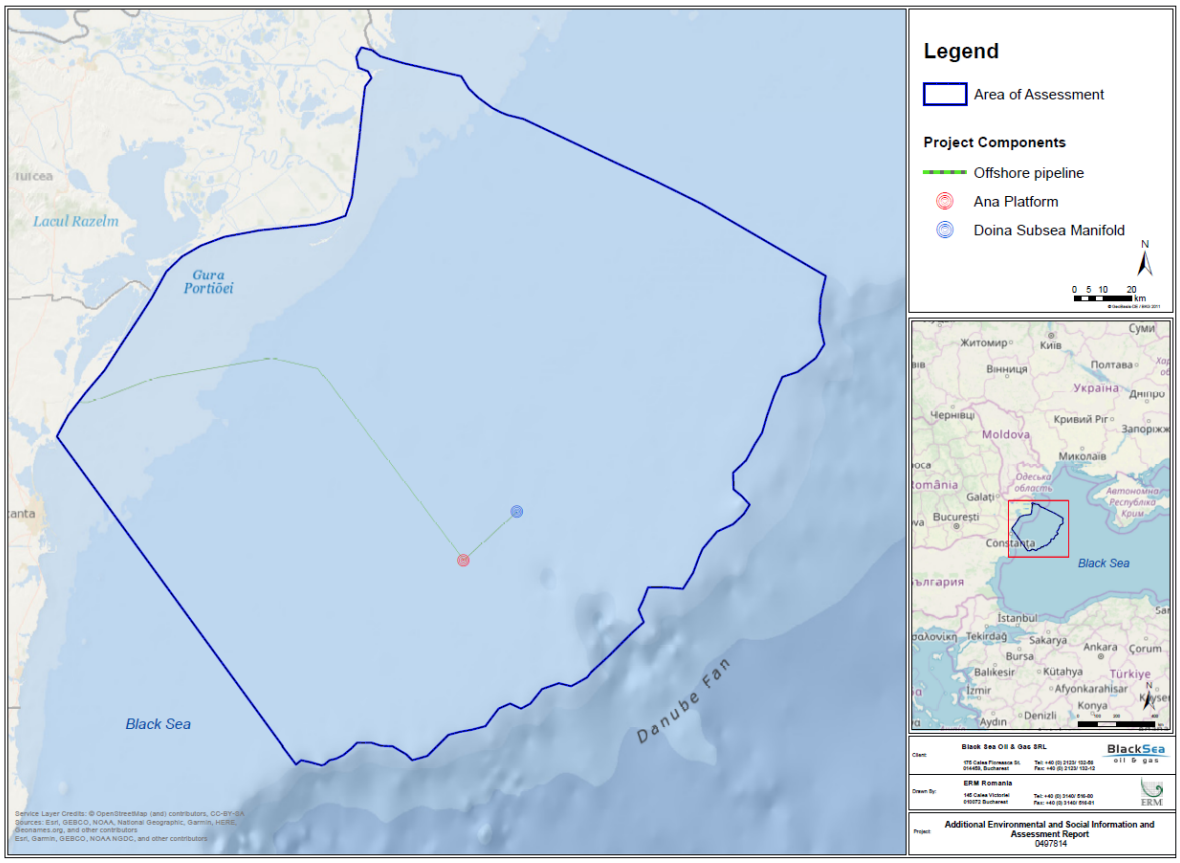


Source: ERM, 2019

2.5.2.2 Offshore

The Anna and Doina platforms and in-field pipeline are located on the outer part of the northwestern shelf of the Black Sea, the relatively shallow part of the coastal Black Sea up to the 100 m depth contour. The offshore pipeline crosses the northwestern shelf to the Romanian coastline, passing through the marine parts of the Danube Delta Biosphere Reserve and Ramsar Site, the Danube Delta – Marine Zone SCI, the Black Sea SPA and the Black Sea IBA/KBA. In order to select an appropriate offshore AoA, the part of the Black Sea that extends from the coastline associated with the designated sites, out to the edge of the northwestern shelf was included. At the shelf edge, the AoA has been extended to include the full extent of the Viteaz Canyon SCI. The offshore AoA is shown in Figure 2.6.

Figure 2.6 Area of Assessment - Offshore



Source: ERM, 2019

3. SUMMARY OF BIODIVERSITY BASELINE

The following sections present a summary of the key biodiversity receptors identified through desk based study and the field surveys undertaken to inform the Project development and ESIA, and updated where relevant with information from the construction biodiversity monitoring and management activities.

3.1 Legally Protected and Internationally Recognised Areas

The Project overlaps with a number of nationally protected and internationally recognised areas, as set out below:

- Danube Delta Site of Community Importance (ROSCI0065);
- Danube Delta Site of Community Importance – marine area (ROSCI0066)
- Danube Delta and Razim Sinoe Complex Special Protection Area (ROSPA0031);
- Black Sea Special Protection Area (ROSPA0075);
- Danube Delta Biosphere Reserve;
- Danube Delta UNESCO World Heritage Site;
- Danube Delta Wetland of International Importance (Ramsar Site);
- Danube Delta Important Bird and Biodiversity Area (IBA)/Key Biodiversity Area (KBA); and

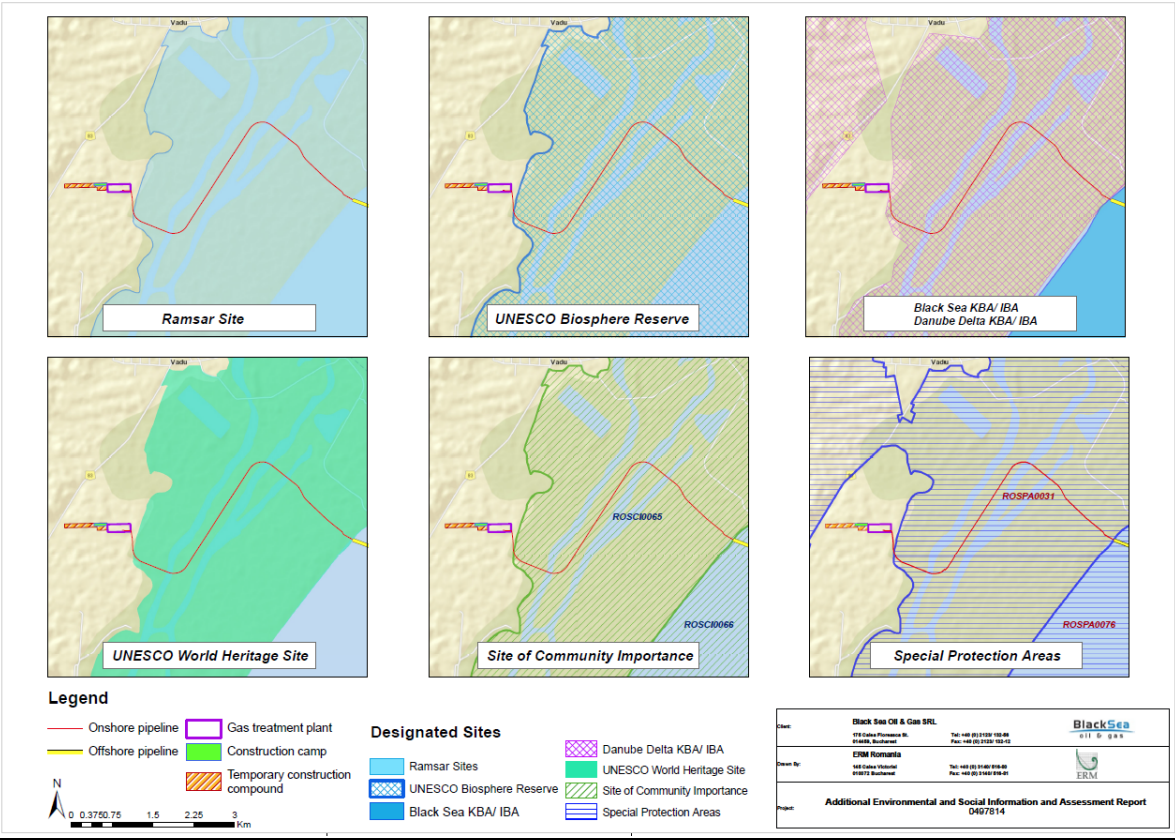
- Black Sea IBA/KBA.

The part of the Danube Delta Biosphere Reserve crossed by the onshore pipeline has been zoned as an economic zone.

Approximately 6.5 km southwest and 8.5 km north of the proposed onshore development site is the - Corbu – Nuntași – Histria natural reservation (RONPA0365) and approximately 10 km southwest Lacul Tașaul Special Protection Area (ROSPA0060) and 15 km west Cheile Dobrogei Special Protection Area (ROSPA0019). Further details, and maps of the protected sites in relation to the proposed project area, are presented in the ESIA.

Onshore protected and internationally recognised areas are shown in Figure 3.1 and offshore protected and internationally recognised areas are shown in Figure 3.2

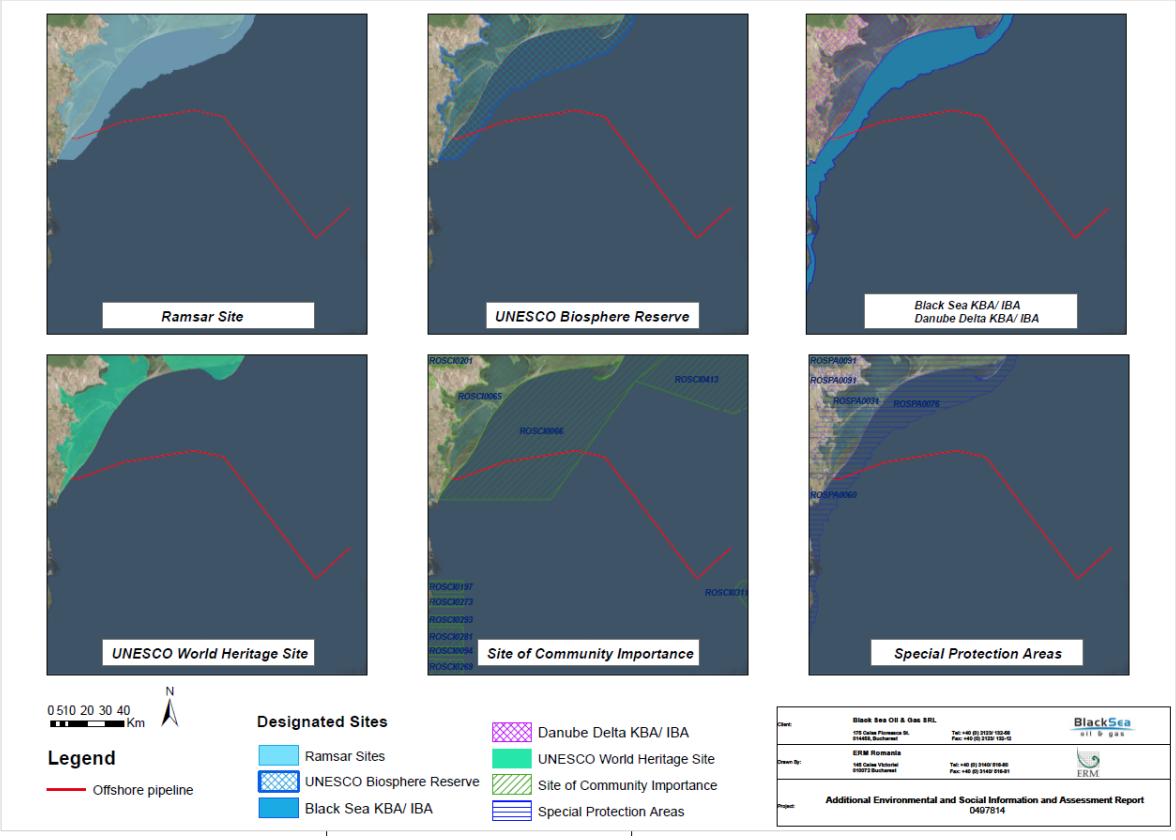
Figure 3.1 Onshore Nationally Protected and Internationally Recognised Areas [1]



Source: ERM, 2019

([1]) The Romanian National Agency for Environmental Protection and the International Ramsar Secretariat provide different sizes for the Danube Delta Ramsar site. The Romanian Law 82/1993 with subsequent amendments and completions and government Decision 230/2003, which provides the legal designation for the UNESCO Biosphere Reserve, World Heritage Site and Ramsar Site, and agree with the National Agency for Environmental Protection data on the size and boundary of the Ramsar site, and this boundary has been used in this assessment.

Figure 3.2 Offshore Nationally Protected and Internationally Recognised Areas



Source: ERM, 2019

3.2 Offshore

3.2.1 Plankton

Phytoplankton sampled in the Project area in 2015 comprised 55 species from six taxonomic groups. Among these, dinoflagellates followed by Bacillariophyta were the most abundant. The 0-10 m layer was the most important area for growth of phytoplankton with 20-80% of total biomass. Samples in 2016 recorded that zooplankton was represented by 14 species belonging to 10 taxonomic groups, and mostly consisted of juvenile life stages of bivalves, gastropods, polychaetes and decapods

3.2.2 Benthos

RPS and MG3 (2017b) identified three different EUNIS habitat types along the infield pipeline route from Doina to Ana:

- A5.37 ‘Deep circalittoral mud’;
- A5.71 ‘Seep and vents in sublittoral sediments’; and
- A5.379 ‘Pontic deep circalittoral muds with *Modiolula phaseolina’*.

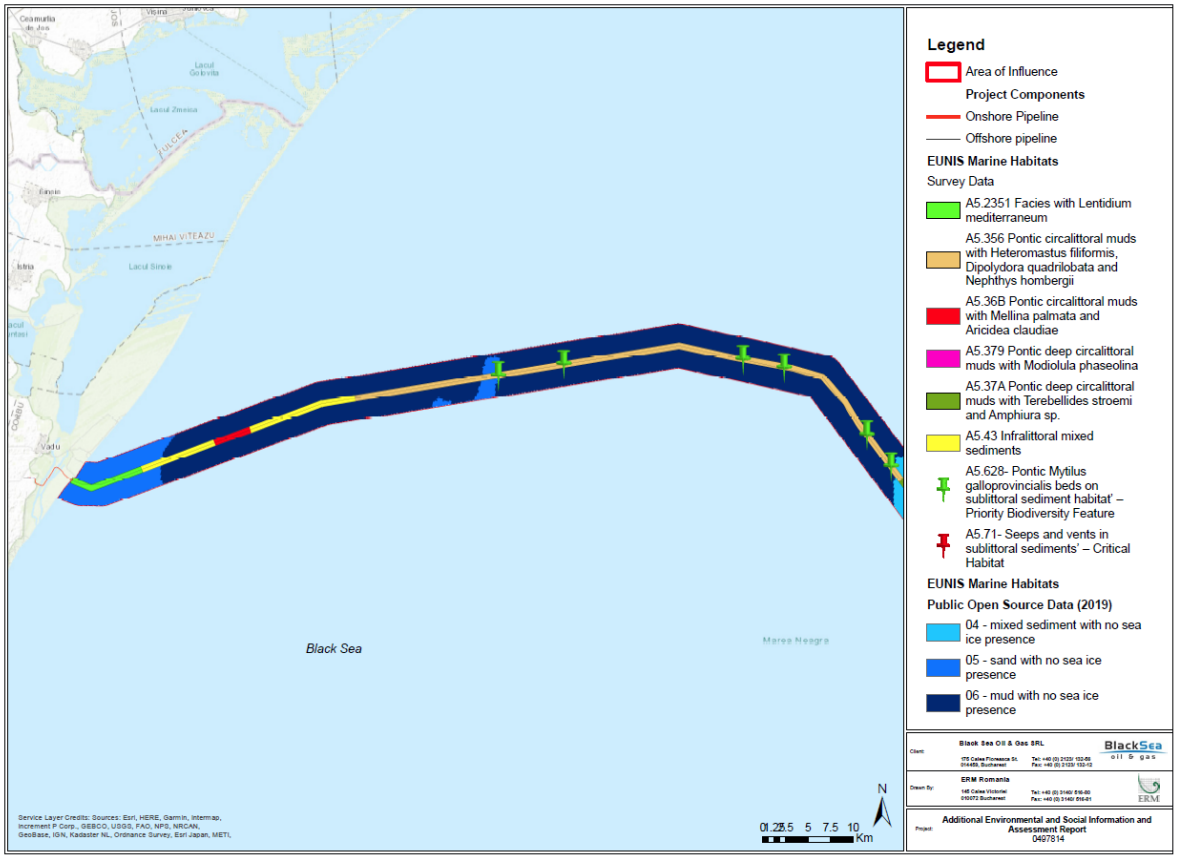
RPS and MG3 (2017b) identified seven different EUNIS habitat types within the pipeline corridor from Ana to shore:

- A5.36 ‘Circalittoral fine mud’’;

- A5.44 Circalittoral mixed sediment';
- A5.37 'Deep circalittoral mud';
- A5.37 'Deep circalittoral muds' with a dense M. *phaseolina* shell gravel component';
- A5.379 'Pontic deep circalittoral muds with *Modiolula phaseolina'*; and
- A5.628 'Pontic *Mytilus galloprovincialis* beds on sublittoral sediment'.

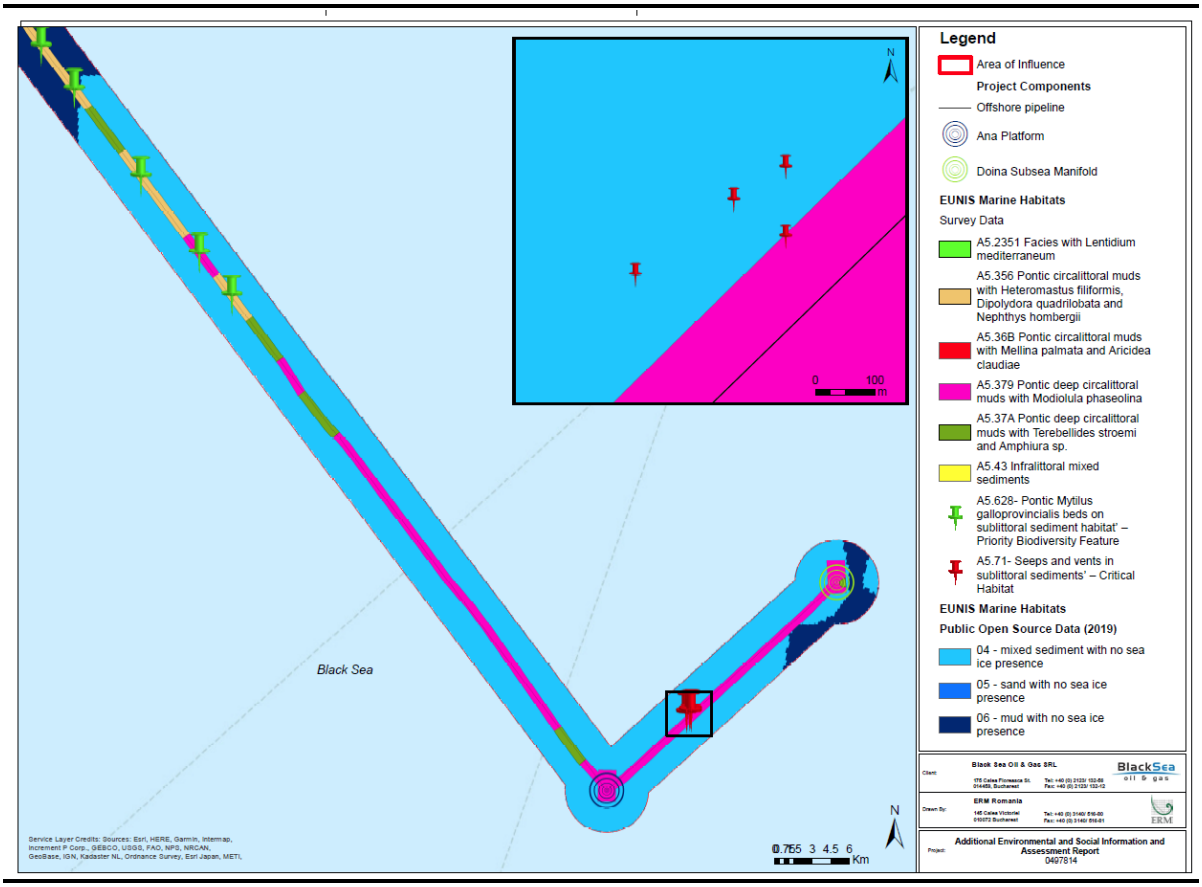
Of the identified habitats, A5.71 'Seep and vents in sublittoral sediments' and A5.628 'Pontic Mytilus galloprovincialis beds on sublittoral sediment' are both considered to be Annex I habitats listed in the Habitats Directive. Benthic habitats mapped within the Project AoI around the Anna and Doina wells and pipeline routes are shown in Figure 3.3 and Figure 3.4.

Figure 3.3 Nearshore Benthic Habitat Map



Source: ERM, 2019

Figure 3.4 Offshore Benthic Habitat Map



Source: ERM, 2019

The shallowest sections of the export route (i.e. water depth <30 m) were typically flat and muddy. Some areas consisted of bare, soft mud, sediments with patches covered by accumulations of large bivalve shells including the species *Lutraria* sp., *Mya* sp., *Spisula* sp. and *M. galloprovincialis*.

The seabed in water depths <30 m also included areas of muddy sand habitat, often rippled by the prevailing current. The main species present included *M. galloprovincialis*, recorded as single, semi-infaunal individuals, or arranged in small clumps of 1-5 specimens, the cockle *Cerastoderma* sp., and occasional burrowing anemones. The presence of burrows and tubes made by infaunal invertebrates was also noted.

The seabed >30 m also consisted predominantly of bare mud with occasional mussel shell with a visible fauna including burrowing Cerianthid anemones, hydroids and semi-infaunal *M. galloprovincialis* and mobile opportunistic scavengers (*e.g.* the crab *Liocarcinus* sp.) and infaunal polychaetes and amphipods. In some areas, *M. galloprovincialis* were relatively abundant especially compared to shallower transects. The mussels were usually recorded in scattered clumps of 5-20 individuals, together with dense aggregations of polychaete, or amphipod tubes. This mussel-dominated habitat was recorded at depths between 30 and 50 m. As *M. galloprovincialis* shell became less abundant with depth, it was substituted by shells of the small mussel *Modiolula phaseolina*, with shell fragments became increasingly abundant towards Ana, forming dense carpets. Some of these shell beds hosted live *M. phaseolina*.

3.2.3 Infauna

Polychaete worms, mollusc species (largely bivalves) and crustaceans (amphipods) were noted in the 2016 survey to dominate, in abundance, the infauna of the Ana and Doina fields and pipeline routes.

However, in terms of biomass, molluscs were dominant. Of all species recorded, five represented 45% of the total abundance. The most numerous species was the mussel *Modiolula phaseolina*, representing 16% of the total. As indicated in the summary account of benthic habitats and epifauna above, *M. phaseolina* was the characteristic, biotope-defining organism over the majority of the survey area. Another bivalve, *Lentidium mediterraneum* was also abundant, contributing to 12% of the total faunal abundance. However, this clam was recorded at just one location (the shallowest, sandiest and most inshore of the stations sampled), whereas *M. phaseolina* was relatively ubiquitous, recorded at 36 stations. The polychaetes *Melinna palmata* (5%), *Terebellides stroemi* (6%) and *Dipolydora quadrilobata* (5%) were also relatively abundant.

The total number of taxa found ranged from 9 to 46/0.2m^2 over the whole survey area. Although the mean number of taxa found did not vary significantly over most of MGD Project area, the numbers of taxa at stations in the relatively deep water of the Ana Field were slightly higher compared to other stations and showed a positive correlation with sediment gravel content.

3.2.4 Fish

The main fish species of interest from the Romanian waters of the Black Sea are:

- sprat (*Sprattus sprattus*);
- brill (*Psetta maeotica*);
- anchovy (*Engraulis encrasicolus*);
- aaurel (*Trachurus mediterraneus ponticus*);
- whiting or bluefish (*Merlangius melangus euxinus*);
- blue fish (*Pomatomus saltatrix*);
- common grey mullet (representatives of Mugilidae family); and
- spiny dogfish (*Squalus acanthias*)

Vulnerable or Endangered fish species, according to Romanian Red Books and IUCN Red List, likely to occur in the Project Area are listed in Table 3.1.

Table 3.1 Conservation Status of Marine Fish Recorded During Baseline Surveys

No.	Species Name	IUCN Red List	Redbook of Vertebrates from Romania	Black Sea Red Book	EU Habitats Directive
1	*Balistes capriscus*	Vulnerable	Not Included	Not Included	Not included
2	*Mullus barbatus ponticus*	Not Evaluated	Not Included	Endangered	Not Included
3	*Alosa immaculata*	Vulnerable	Not Included	Not Included	Annex II
4	*Alosa tanaica*	Least Concern	Not Included	Not Included	Annex II
5	*Dentex dentex*	Vulnerable	Not Included	Not Included	Not Included
6	*Gobius cobitis*	Least Concern	Not Included	Endangered	Not Included
7	*Pomatomus saltatrix*	Vulnerable	Not Included	Not Included	Not Included
8	*Trachurus trachurus*	Vulnerable	Not Included	Not Included	Not Included

3.2.5 Cetaceans

Romanian sea waters are host to all three of the cetacean species known to live in the Black Sea: these being the bottlenose dolphin (*Tursiops truncatus ponticus*), the common dolphin (*Delphinus delphis ponticus*) and the harbour porpoise (*Phocoena phocoena relicta*) all of which are endemic subspecies of the species found elsewhere in Europe. Opportunistic visual sightings and passive acoustic monitoring data were obtained during a seismic campaign over Block XV Midia between 13th May - 23rd June 2016 when daily sightings of common and bottlenose and occasional harbour porpoise were recorded. Sightings included mixed pods containing adults and juveniles and adult only pods, and cetaceans that were actively feeding/hunting.

Opportunistic visual sightings and passive acoustic monitoring data were also obtained during geophysical survey activities around the Ana platform location between October 27th and November 12th 2016. During this period one single recording of a cetacean was made, on November 10th, when five common dolphins were observed (two adults and three juveniles) hunting pelagic fish.

Marine mammal observers (MMOs) were deployed on the pipeline laying vessel during pipeline installation. Observations were made during the 15th-20th July 2020 in the nearshore section of the pipeline and during 29th September – 31st January 2021 in the offshore section of the pipeline during pipe laying activities.

Harbour porpoise was the least frequently recorded species, with two records along the coastal section of the pipeline route and two along the offshore section. Bottlenose dolphin records were restricted to coastal areas, with five records in the vicinity of coastal section of the pipeline. Common dolphin were recorded along the offshore section of the pipeline, with the vast majority of sightings recorded in deep water (>70 m) along the final 20 km of the pipeline route.

The conservation status of the three marine mammal species, according to Romanian Red Books and IUCN Red List, likely to occur in the Project AoI are listed in Table 3.2.

Table 3.2 Conservation Status of Marine Mammals Recorded During Baseline Surveys and by Construction Marine Mammal Observers

No.	Species Name	IUCN Red List	Redbook of Vertebrates from Romania	Black Sea Red Book	EU Habitats Directive
1	*Delphinus delphis ponticus*	Not Evaluated	Endangered	Data Deficient	ANNEX II and IV
2	*Phocoena phocoena relicta*	Not Evaluated	Endangered	Data Deficient	ANNEX II and IV
3	*Tursiops truncatus ponticus*	Not Evaluated	Endangered	Data Deficient	ANNEX II and IV

3.2.6 Birds

Due to the location of the Black Sea within large areas of continental land mass, a large majority of species migrate across the Black Sea on north-south / south – north migrations and some on their east – west / west – east migrations. Therefore, a considerable number of birds are present over the Black Sea during migrations periods (autumn and spring).

Baseline surveys in the Project Area recorded a total of 52 species of birds during the observation period. The most abundant of these were the Caspian gull (*Larus cachinnans)* and great cormorant (*Phalacrocorax carbo)* where 212 and 164 individuals were observed over the 11 day observation period, respectively. During the 2020-2021 construction monitoring, high diversity of species and a number of terrestrial species crossing the sea were recorded, but no additional species of conservation concern were identified.

The marine and onshore environment surrounding the Project is identified to be of conservation importance for a variety of birds, including waterfowl and seabirds. In particular the nearshore section of the Ana to shore pipeline route passes through the Black Sea SPA which is designated for over 37 bird species due to its importance site for breeding and wintering species.

Vulnerable or Endangered marine bird species, according to Romanian Red Books, the IUCN Red List or Annex I of the EU Birds Directive, recorded from the offshore Project Area are listed in Table 3.3. During the offshore construction activities a number of land birds including passerines and raptors were recorded on migration flying over the Black Sea. A number of coastal and marine birds recorded during onshore coastal surveys are presented in Table 3.8.

Table 3.3 Conservation Status of Marine Birds Recorded During Baseline Surveys and by Construction Marine Fauna Observers

No.	Species Name	IUCN Red List	Redbook of Vertebrates of Romania	Black Sea Red Book	Europe	Europe 27	EU Birds Directive
1	*Gavia arctica*	Least Concern	Not included	Not included	Least Concern	Least Concern	ANNEX I
2	*Larus genei*	Least Concern	Not included	Critical Endangered	Least Concern	Least Concern	ANNEX I
3	*Larus melanocephalus*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
4	*Sterna sandvicensis*	Least Concern	Not included	Critical Endangered	Least Concern	Least Concern	ANNEX I
5	*Puffinus yelkouan*	Vulnerable	Not included	Not included	Least Concern	Least Concern	ANNEX I

3.3 Onshore

3.3.1 Habitats and Flora

The Danube Delta SCI includes 29 Annex I[1] habitats as designating features. The following of these habitats were identified during baseline surveys and subsequent monitoring by the Project ECoW:

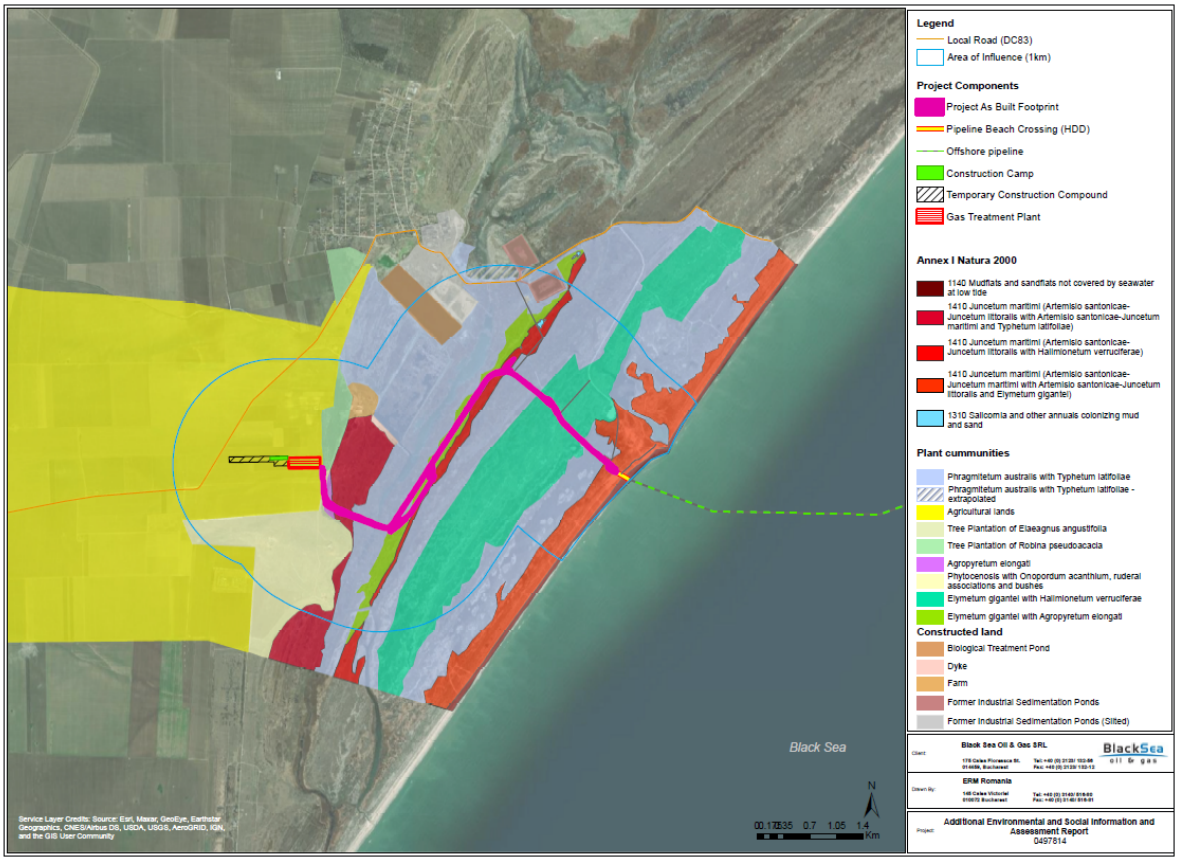
- 1410 Mediterranean salt meadows (*Juncetalia maritimi*) and
- 1310 Salicornia and other annuals colonizing mud and sand

The Annex I habitat 1140 Mudflats and sandflats not covered by seawater at low tide which will be crossed via HDD at the pipeline landfall is also within the Project AoI. However, this habitat is not a designated feature of the Danube Delta SCI. During the construction biodiversity monitoring, three additional areas within the Project AoI were identified as the Annex I habitat 1310 Salicornia and other annuals colonizing mud and sand. However, none of the areas were affected during the Project construction. The nearest area of the habitat was identified approx. 60 m from the 'as built' footprint, previously classified as *Phragmitetum australis* with *Typhetum latifoliae*, comprising an area of 0.007 ha. The other two areas of 1310 Salicornia habitat were identified 300 m and 680 m from the 'as built'

[1] Annex I of the Council Directive 92/43/EEC on the conservation of natural habitat and of wild fauna and flora

footprint, comprising 0.012 ha and 0.33 ha (previously classified as 1410 Mediterranean salt meadows). Other non Annex I habitats identified in the onshore area include reed beds, sand dunes, agricultural areas, ruderal areas and plantation woodlands. The onshore habitats mapped are presented in Figure 3.5.

Figure 3.5 Onshore Habitats within the Project AoI



Source: ERM, 2021

No Annex II[1] plant species were identified in the Project AoI during baseline surveys. Other species of conservation concern, i.e. those species classed as Vulnerable, Endangered or Critically Endangered plant species, according to Romanian Red Books, identified in the Project AoI are listed in Table 3.4.

Table 3.4 Conservation Status of Vascular Plants Recorded During Baseline Surveys and by Construction ECoW

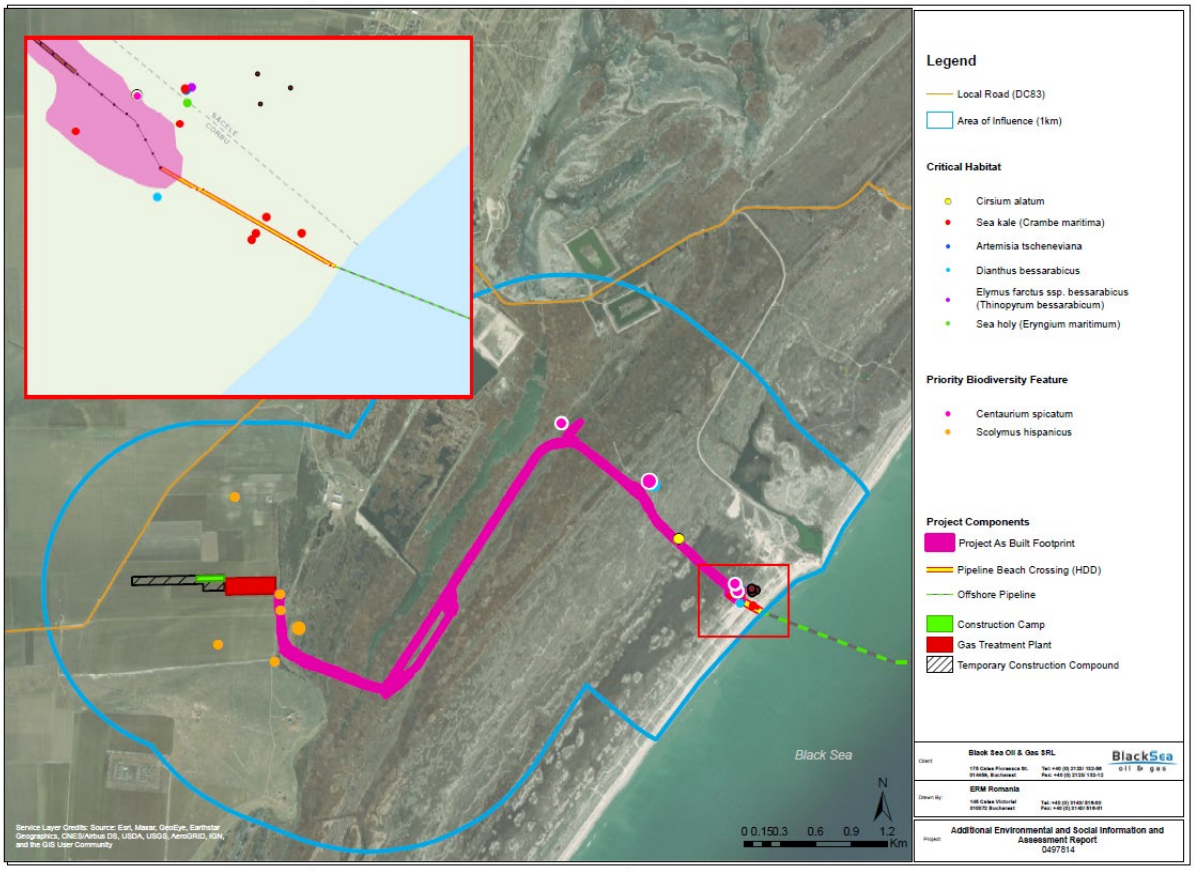
No.	Species Name	IUCN Red List	Redbook of Vascular Plants of Romania	Black Sea Red Book	EU Habitats Directive
1	*Artemisia tschernieviana*	Data Deficient	Endangered	Not included	Not included
2	*Centaurium spicatum*	Least Concern	Vulnerable	Not included	Not included
3	*Cirsium alatum*	Least Concern	Critically Endangered	Not included	Not included
4	*Crambe maritima*	Least Concern	Endangered	Not included	Not included

[1] Annex II of Council Directive 92/43/EEC on the conservation of natural habitat and of wild fauna and flora

No.	Species Name	IUCN Red List	Redbook of Vascular Plants of Romania	Black Sea Red Book	EU Habitats Directive
5	*Dianthus bessarabicus*	Least Concern	Endangered	Not included	Not included
6	*Elymus farctus ssp. bessarabicus*	Data Deficient	Critically Endangered	Not included	Not included
7	*Eryngium maritimum*	Least Concern	Vulnerable	Endangered	Not included
8	*Scolymus hispanicus*	Data Deficient	Vulnerable	Not included	Not included

The location of plant species of conservation concern recorded in the Project AoI are shown in Figure 3.6.

Figure 3.6 Plant Species of Conservation Concern Recorded During Baseline Surveys and by Construction ECoW



Source: ERM, 2021

3.3.2 Mammals

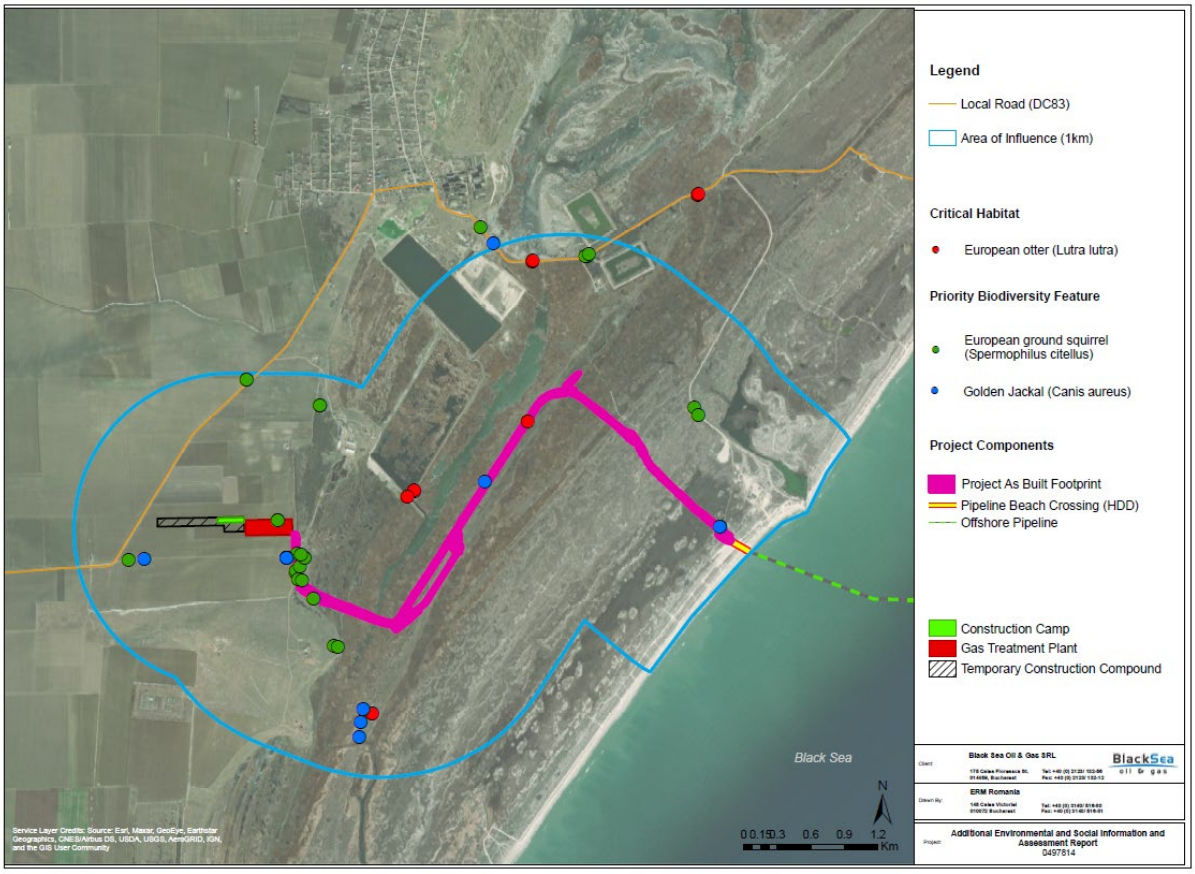
European otter (*Lutra lutra)* and European ground squirrel (*Spermophilus citellus)* were identified within the Project AoI during baseline surveys and during construction by the Project ECoW, both species are designating features of the Danube Delta SCI.

One other species of conservation concern, i.e. those classed as Vulnerable or Endangered according to Romanian Red Books and IUCN Red List or listed on Annex II or IV of the EU Habitats Directive, was identified in the Project Area, golden jackal (*Canis aureus*). The species recorded are listed in Table 3.5. The distribution of these species is shown in Figure 3.7.

Table 3.5 Conservation Status of Mammals Recorded During Baseline Surveys and by Construction ECoW

No.	Species Name	IUCN Red List	Redbook of Vertebrates from Romania	Black Sea Red Book	EU Habitats Directive
1	*Canis aureus*	Least Concern	Vulnerable	Not included	Not included
2	*Lutra lutra*	Near Threatened	Vulnerable	Endangered	ANNEX II
3	*Spermophilus citellus*	Vulnerable	Vulnerable	Not included	ANNEX II

Figure 3.7 Mammals of Conservation Concern Recorded During Baseline Surveys and by Construction ECoW



Source: ERM, 2021

3.3.3 Amphibians and Reptiles

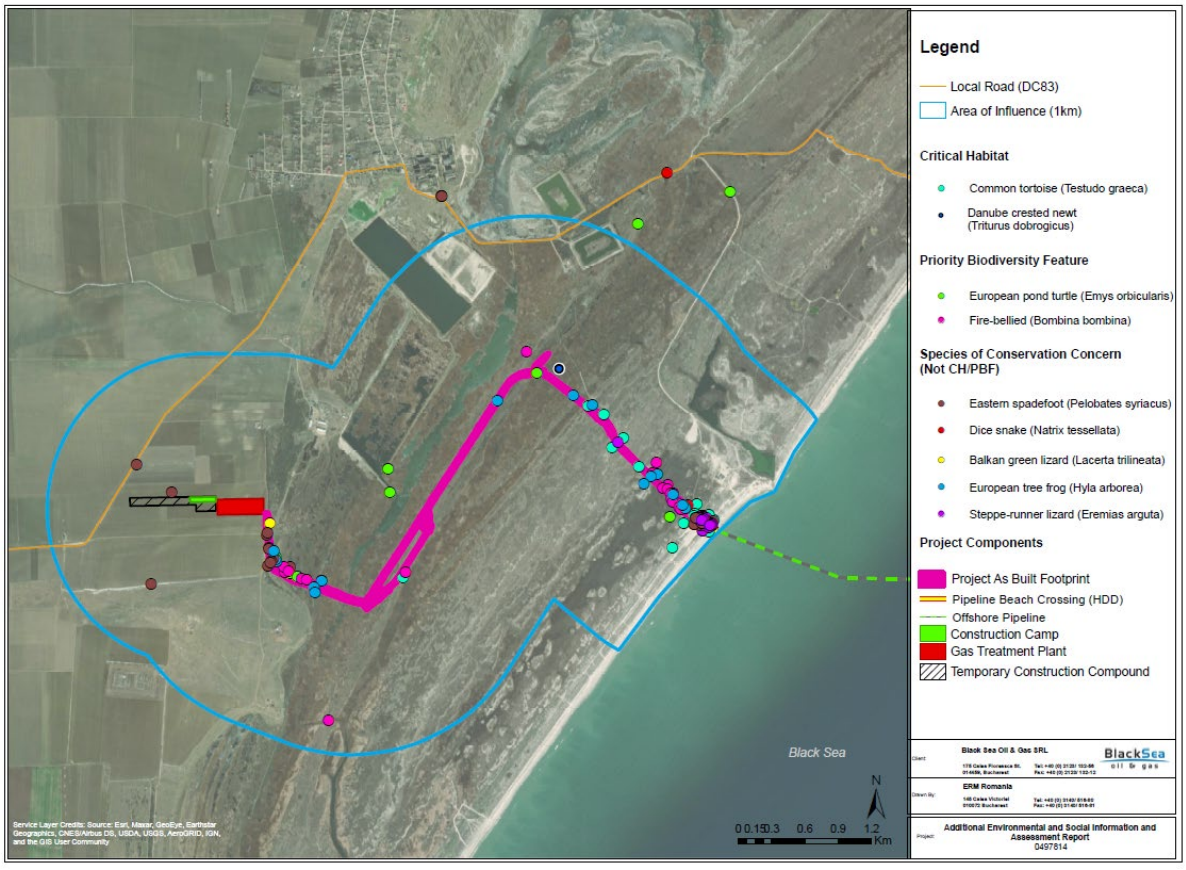
European pond turtle *(Emys orbicularis)* and the common tortoise *(Testudo graeca)* were identified within the Project AoI during baseline surveys and during construction by the Project ECoW, both are Annex II species and designating features of the Danube Delta SCI.

Other species of conservation concern, i.e. those classed as Vulnerable or Endangered according to Romanian Red Book and IUCN Red List or listed on Annex II or IV of the EU Habitats Directive, identified in the Project AoI are listed in Table 3.6. The distribution of these species is shown in Figure 3.7.

Table 3.6 Conservation Status of Amphibians and Reptiles Recorded During Baseline Surveys and by Construction ECoW

No.	Species Name	IUCN Red List	Redbook of Vertebrates from Romania	EU Habitats Directive
1	*Bombina bombina*	Least Concern	Near Threatened	ANNEX II
2	*Emys orbicularis*	Least Concern	Vulnerable	ANNEX II
3	*Eremias arguta*	Near Threatened	Endangered	Not included
4	*Hyla arborea*	Least Concern	Vulnerable	ANNEX IV
5	*Lacerta trilineata*	Least Concern	Endangered	Not included
6	*Natrix tesellata*	Least Concern	Near Threatened	ANNEX IV
7	*Pelobates syriacus*	Least Concern	Endangered	ANNEX III
8	*Testudo graeca*	Vulnerable	Endangered	ANNEX II
9	*Triturus dobrogicus*	Near Threatened	Endangered	Not included

Figure 3.8 Amphibian and Reptile Species of Conservation Concern Recorded During Baseline Surveys and by Construction ECoW



Source: ERM, 2021

3.3.4 Invertebrates

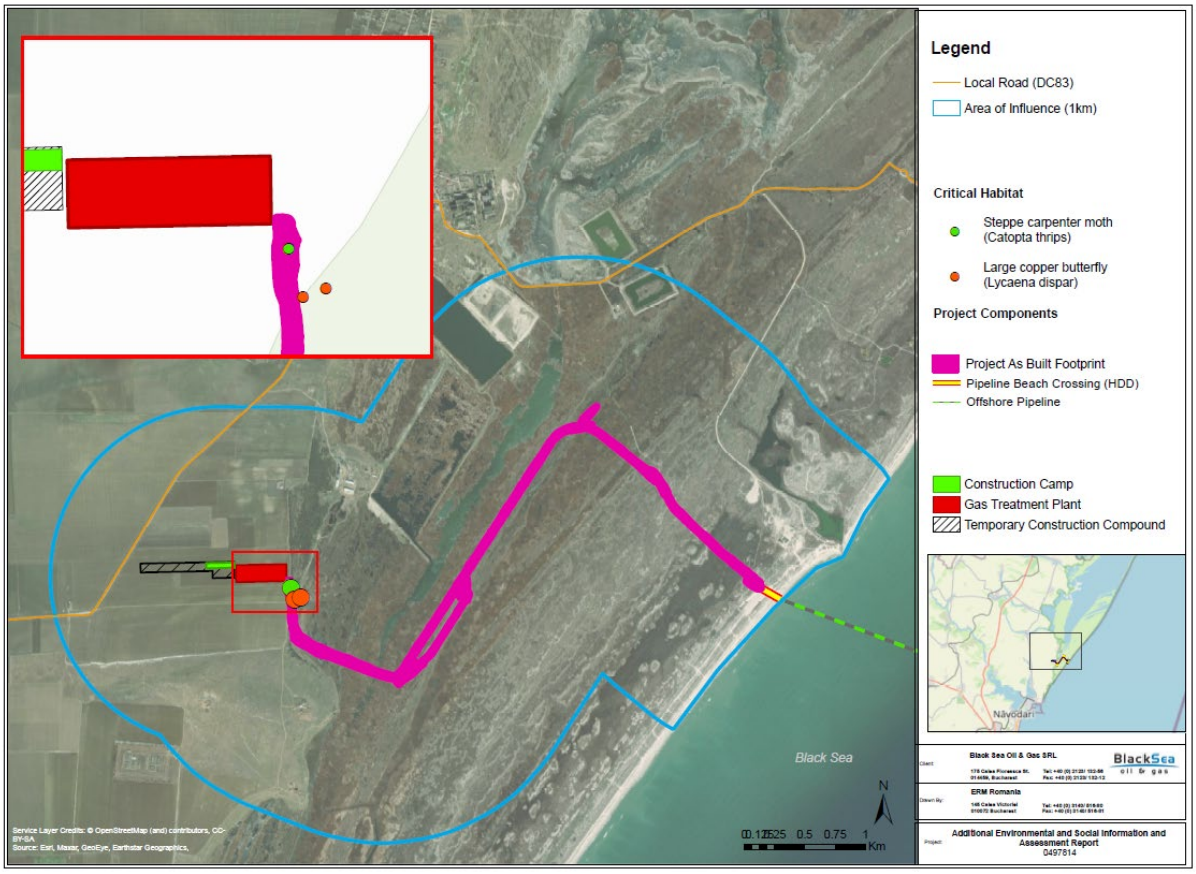
Large copper butterfly (*Lycaena dispar)* and steppe carpenter moth (*Catopta thrips)* were identified in the Project AoI during baseline surveys and large copper butterfly was recorded during construction by the Project ECoW. Both are designating features of the Danube Delta SCI.

Other species of conservation concern, i.e. those classed as Vulnerable or Endangered, according to Romanian Red Book and IUCN Red List, or listed on Annex II or IV of the EU Habitats Directive identified in the Project Area are listed in Table 3.7. The distribution of these species is shown in Figure 3.9.

Table 3.7 Conservation Status of Invertebrates Recorded During Baseline Surveys and by Construction ECoW

No.	Species Name	IUCN Red List	European red List	EU Habitats Directive
1	*Catopta thrips*	Not Evaluated	Not included	ANNEX II and IV
2	*Lycaena dispar*	Near Threatened	Least Concern	ANNEX II and IV

Figure 3.9 Invertebrate Species of Conservation Concern Recorded During Baseline Surveys and by Construction ECoW



Source: ERM, 2021

3.3.5 Birds

The species of birds of conservation concern recorded during baseline and during construction by the Project ECoW surveys are listed in Table 3.8. Their distribution within the AoI is shown in Figure 3.10. These species are considered of conservation concern because they fulfil one or more of the following criteria:

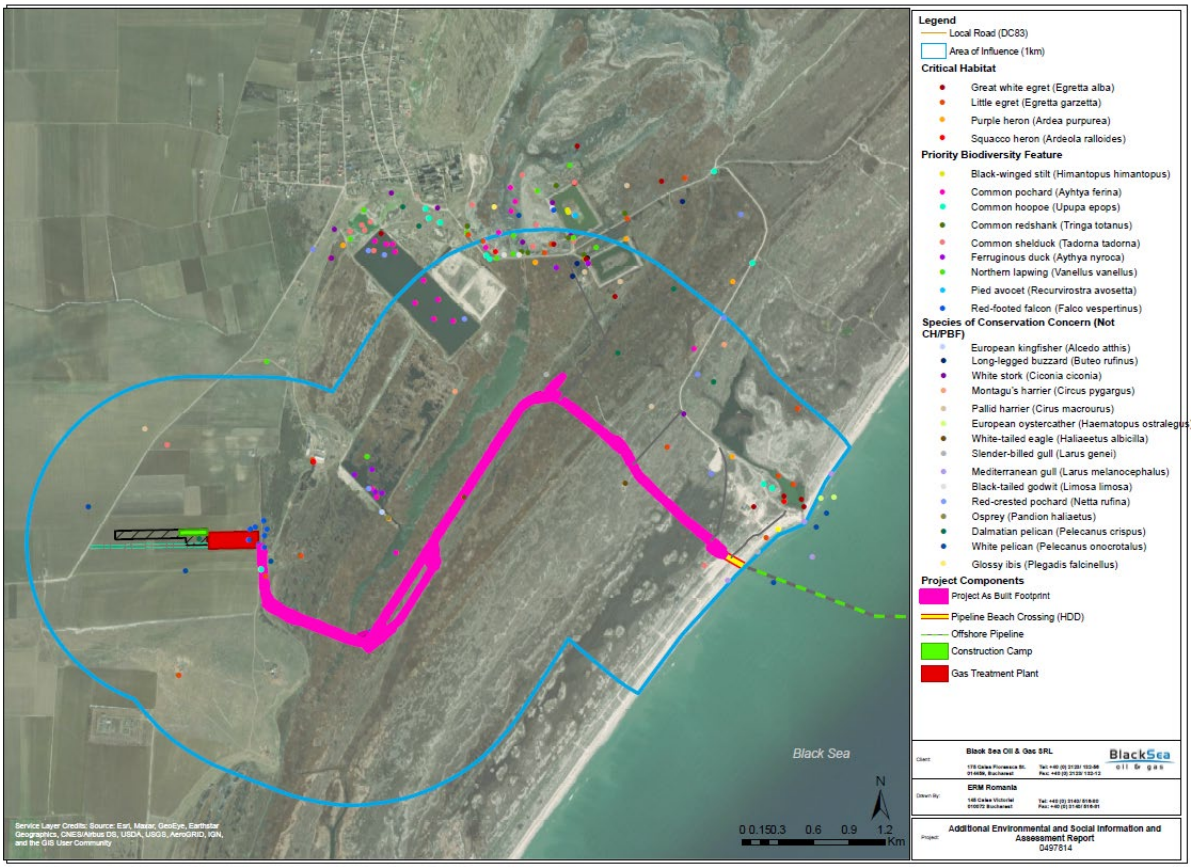
- listed on Annex I of the Birds Directive;
- are designating features of one of the designated sites listed in Section 3.1
- classified as Vulnerable, Endangered or Critically Endangered on a Global, Regional or National Red List; and/or
- the Project AoI supports >1% of the global population at any one time of an annual cycle.

Table 3.8 Conservation Status of Bird Species of Conservation Concern Recorded During Baseline Surveys and by Construction ECoW

No.	Species Name	IUCN Red List	Redbook of vertebrates of Romania	Black Sea Red Book	Europe	Europe 27	EU Birds Directive
1	*Alcedo atthis*	Least Concern	Not included	Not included	Vulnerable	Vulnerable	ANNEX I
2	*Ardea purpurea*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
3	*Ardeola ralloides*	Least Concern	Endangered	Vulnerable	Least Concern	Least Concern	ANNEX I
4	*Aythya ferina*	Vulnerable	Not included	Not included	Vulnerable	Vulnerable	ANNEX II
5	*Aythya nyroca*	Near Threatened	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
6	*Buteo lagopus*	Least Concern	Not included	Not included	Least Concern	Endangered	Not included
7	*Buteo rufinus*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
8	*Ciconia ciconia*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
9	*Circus macrouros*	Near Threatened	Not included	Endangered	Near Threatened	Endangered	ANNEX I
10	*Circus pygargus*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
11	*Egretta alba*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
12	*Egretta garzetta*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
13	*Falco peregrinus*	Least Concern	Endangered	Endangered	Least Concern	Least Concern	ANNEX I
14	*Falco vespertinus*	Near Threatened	Not included	Vulnerable	Near Threatened	Vulnerable	ANNEX I
15	*Glareola pratincola*	Least Concern	Endangered	Vulnerable	Least Concern	Least Concern	ANNEX I
16	*Haematopus ostralegus*	Near Threatened	Vulnerable	Vulnerable	Vulnerable	Vulnerable	ANNEX II

No.	Species Name	IUCN Red List	Redbook of vertebrates of Romania	Black Sea Red Book	Europe	Europe 27	EU Birds Directive
17	*Haliaeetus albicilla*	Least Concern	Endangered	Not included	Least Concern	Least Concern	ANNEX I
18	*Himantopus himantopus*	Least Concern	Vulnerable	Not included	Least Concern	Least Concern	ANNEX I
19	*Larus genei*	Least Concern	Not included	Critical Endangered	Least Concern	Least Concern	ANNEX I
20	*Larus melanocephalus*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
21	*Limosa limosa*	Near Threatened	Not included	Not included	Vulnerable	Endangered	ANNEX II
22	*Netta rufina*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX II
23	*Nycticorax nycticorax*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
24	*Pandion haliaetus*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
25	*Pelecanus crispus*	Least Concern	Vulnerable	Critically endangered	Least Concern	Least Concern	ANNEX I
26	*Pelecanus onocrotalus*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
27	*Platalea leucorodia*	Least Concern	Endangered	Endangered	Least Concern	Least Concern	ANNEX I
28	*Plegadis falcinellus*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
29	*Recurvirostra avosetta*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	ANNEX I
30	*Sterna albifrons*	Least Concern	Not included	Endangered	Least Concern	Least Concern	ANNEX I
31	*Sterna sandvicensis*	Least Concern	Not included	Critical Endangered	Least Concern	Least Concern	ANNEX I
33	*Tadorna tadorna*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	Not included
34	*Tringa stagnatilis*	Least Concern	Not included	Not included	Least Concern	Endangered	Not included
35	*Tringa totanus*	Least Concern	Not included	Not included	Least Concern	Vulnerable	ANNEX II
36	*Turdus pilaris*	Least Concern	Not included	Not included	Least Concern	Vulnerable	ANNEX II
37	*Upupa epops*	Least Concern	Not included	Vulnerable	Least Concern	Least Concern	Not included
38	*Vanellus vanellus*	Near Threatened	Not included	Not included	Vulnerable	Vulnerable	ANNEX II

Figure 3.10 Bird Species of Conservation Concern Recorded During Onshore Baseline Surveys and by Construction ECoW



Source: ERM, 2021

4. DETERMINATION OF NATURAL AND CRITICAL HABITATS AND PRIORITY BIODIVERSITY FEATURES

4.1 Onshore AoI

4.1.1 Natural and Modified Habitat

Based on the habitat mapping and baseline biodiversity surveys undertaken for the ESIA, and updated by the Project ECoW during construction, the distribution of natural and modified habitat has been determined for the onshore AoI. The majority of the onshore pipeline route lies within natural habitat. This habitat is comprised of:

- mudflats and sandflats;
- salt meadows and salt marshes;
- sand dunes;
- reed beds; and
- ruderal associations and bushes.

Natural habitats are confined to within the boundaries of the Danube Delta designated sites.

Modified habitats identified in the onshore AoI include:

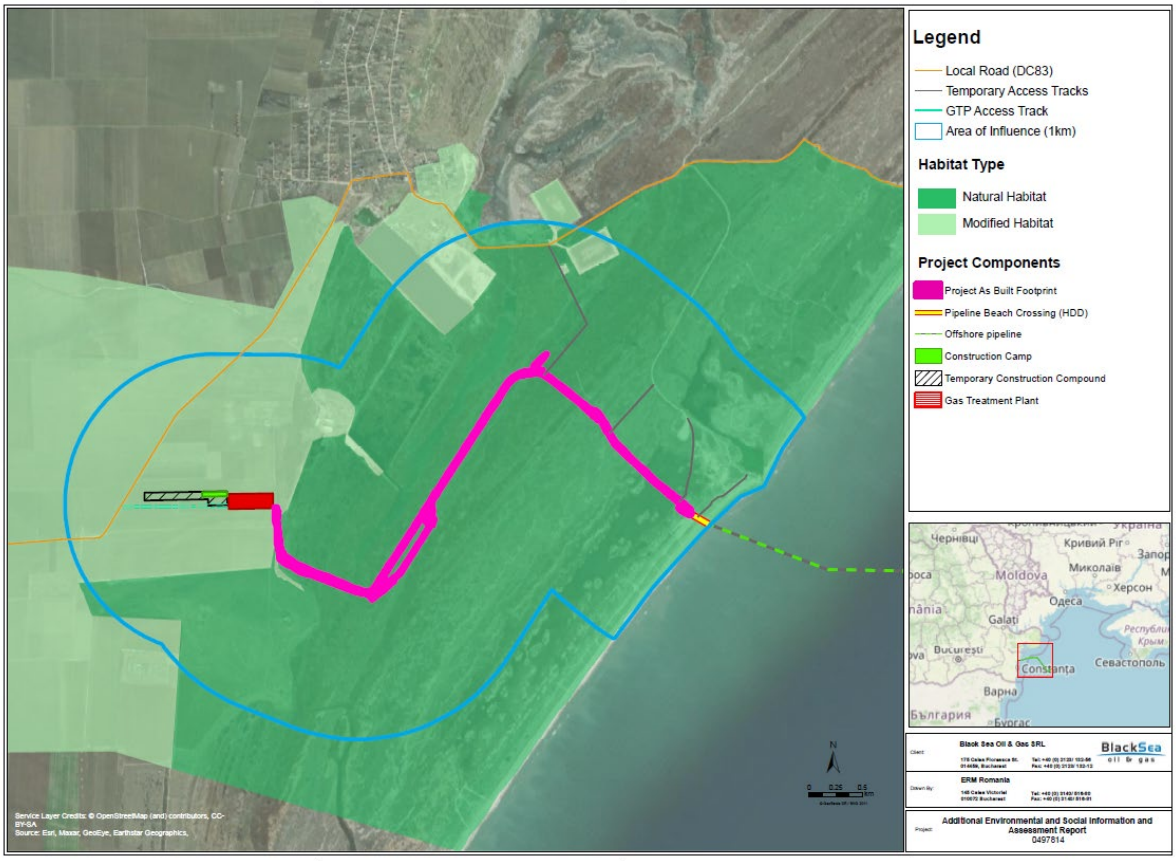
- agricultural lands;

- plantation woodland dominated by non-native species; and
- developed areas.

The mapped natural and modified habitats within the Project AoI are shown in Figure 4.1.

The majority of the onshore pipeline falls within natural habitat, with the GTP and final 200 m of the onshore pipeline located in modified habitat. As all of the natural habitat affected by the project lies within designated sites associated with the Danube Delta, these habitats are discussed in more detail in Section 4.1.2 Onshore Critical Habitat and Section 4.1.3 Onshore Priority Biodiversity Features and in Appendix B and C.

Figure 4.1 Natural and Modified Habitat - Onshore



Source: ERM, 2021

4.1.2 Critical Habitat

The determination of the presence of critical habitat within the Project AoI is set out in Table 4.1. Tables setting out the detailed assessment are presented in Appendix B. A landscape level approach has been used to undertake an initial assessment of the protected and recognised areas, habitats and species that occur in the AoA and may meet the criteria for critical habitat.

This assessment has then been refined based on the results of the baseline surveys which have been undertaken for the Project over the last 6 years to identify those species which occur within the Project AoI, and ground truthed and confirmed during the construction phase by the Project ECoW. For mobile fauna, as the protected and recognised areas associated with the Danube Delta support a very large number of qualifying interest features, only those that have been recorded within the AoI have been presented in the summary assessment tables. It is assumed that, given the number and

duration of surveys undertaken over the last 6 years, other features of the Danube Delta designated sites do not occur within the Project AoI.

Table 4.1 Onshore Critical Habitat Summary

Critical Habitat Feature	Feature Taken Forward for Assessment[1]
Designated Sites	
Black Sea SPA	Y
Black Sea IBA / KBA	Y
Danube Delta SCI	Y
Danube Delta SPA	Y
Danube Delta Ramsar	Y
Danube Delta UNESCO Biosphere Reserve	Y
Danube Delta Natural World Heritage Site	Y
Habitats	
Mediterranean salt meadow (1410 Mediterranean salt meadows (*Juncetalia maritimi*))	Y
Salicornia salt marsh (1310 Salicornia and other annuals colonizing mud and sand)	Y
Flora	
Artemisia tschernieviana	Y
Dianthus bessarabicus	Y
Elymus farctus ssp. bessarabicus (Thinopyrum bessarabicum)	Y
Sea holly *Eryngium maritimum*	Y
Sea kale *Crambe maritima*	Y
Cirsium alatum	
Mammals	
European otter *Lutra lutra*	Y
Birds	
Black-tailed godwit *Limosa limosa*	N
Collared pratincole *Glareola pratincola*	N
Dalmatian pelican *Pelecanus crispus*	N
Great white egret *Egretta alba*	Y
Little egret *Egretta garzetta*	Y
Little tern *Sterna albifrons*	N
Marsh Sandpiper *Tringa stagnatilis*	N
Mediterranean gull *Larus melanocephalus*	N
Montagu's harrier *Circus pygargus*	N
Pallid harrier *Circus macrourus*	N

[1] All critical habitat features are considered Tier 2 under the IFC PS6 requirements

Critical Habitat Feature	Feature Taken Forward for Assessment[1]
Peregrine *Falco peregrinus*	N
Purple heron *Ardea purpurea*	Y
Red-crested pochard *Netta rufina*	N
Rough-legged buzzard *Buteo lagopus*	N
Sandwich tern *Sterna sandvicensis*	N
Slender-billed gull *Larus genei*	N
Spoonbill *Platalea leucorodia*	N
Squacco heron *Ardeola ralloides*	Y
White-tailed eagle *Haliaeetus albicilla*	N
Reptiles and Amphibians	
Balkan green lizard *Lacerta trilineata*	N
Common tortoise *Testudo graeca*	Y
Dice snake *Natrix tessellata*	N
Eastern spadefoot *Pelobates syriacus*	N
European tree frog *Hyla arborea*	N
Steppe-runner lizard *Eremias arguta*	N
Danube crested newt *Triturus dobrogicus*	Y
Invertebrates	
Large copper butterfly *Lycaena dispar*	Y
Steppe carpenter moth *Catopta thrips*	Y

4.1.3 Priority Biodiversity Features (PBF)

The determination of the presence of PBF is set out in Table 4.2. Tables setting out the detailed assessment are presented in Appendix C. The identification of PBF follows the same approach as set out above for critical habitat

Table 4.2 Onshore Priority Biodiversity Feature Summary

Priority Biodiversity Feature	Feature Taken Forward for Assessment
Flora	
Scolymus hispanicus	Y
Mammals	
European ground squirrel *Spermophilus citellus*	Y
Golden Jackal *Canis aureus*	N
Reptiles and Amphibians	
European pond turtle *Emys orbicularis*	Y

Priority Biodiversity Feature	Feature Taken Forward for Assessment
Fire-bellied toad *Bombina bombina*	Y
Birds	
Black-crowned night heron *Nycticorax nycticorax*	N
Black-winged stilt *Himantopus himantopus*	Y
Common hoopoe *Upupa epops*	Y
Common pochard *Aythya ferina*	Y
Common redshank *Tringa totanus*	Y
Common shelduck *Tadorna tadorna*	Y
European oystercatcher *Haematopus ostralegus*	N
European kingfisher *Alcedo atthis*	N
Ferruginous duck *Aythya nyroca*	Y
Fieldfare *Turdus pilaris*	N
Glossy ibis *Plegadis falcinellus*	N
Long-legged buzzard *Buteo rufinus*	N
Northern lapwing *Vanellus vanellus*	Y
Osprey *Pandion haliaetus*	N
Pied avocet *Recurvirostra avosetta*	Y
Red-footed falcon *Falco vespertinus*	Y
White pelican *Pelecanus onocrotalus*	N
White stork *Ciconia ciconia*	N

4.2 Offshore AoA

4.2.1 Natural and Modified Habitat

The distribution of natural and modified habitat has been determined for the offshore AoI, based on regional habitat mapping and the habitat mapping and baseline biodiversity surveys undertaken for the ESIA. Although the Black Sea has suffered from a range of environmental issues including eutrophication, overfishing and the introduction of alien invasive species[1], the marine habitats are still considered to support viable assemblages of native habitats and species. No significant man-made structures, or modified habitats, have been identified in the offshore AoI. As a result, all of the marine AoI is considered to comprise natural habitat.

4.2.2 Critical Habitat

Tables setting out the detailed critical habitat assessment are presented in Appendix B. A seascape level approach has been used to undertake an initial assessment of the protected and recognised areas, habitats and species that occur in the offshore AoA and may meet the criteria for critical habitat. This assessment has then been refined based on the results of the baseline surveys which have been undertaken for the Project and the observations from construction phase MMOs to identify

([1]) EEA (2015) Black Sea region briefing – The European Environment – State and Outlook 2015.

those species which occur within the Project AoI. For mobile fauna, as the protected and recognised areas associated with the coastline and marine area of the Danube Delta supports a very large number of qualifying interest features, only those that have been recorded within the AoI, or based on their known distribution and population are expected to regularly occur within the AoI have been presented in the assessment tables.

Critical habitat features identified within the AoA are presented in Table 4.3. The table also identifies those features which, based on the results of desk based assessment and survey work undertaken to date have been taken forward for assessment.

Table 4.3 Offshore Critical Habitat Summary

Critical Habitat Feature	Feature Taken Forward for Assessment[1]
Designated Sites	
Black Sea SPA	Y
Black Sea IBA / KBA	Y
Danube Delta marine zone SCI	Y
The Southern Lobe of Zernov's Phyllophora Field SCI	N
Viteaz Canyon SCI	N
Danube Delta Ramsar site	Y
Danube Delta UNESCO Biosphere Reserve	Y
Benthic Habitats	
Seep/vent habitats with structures made by leaking gases: A5.71 'Seep and vents in sublittoral sediments'	Y
Fish	
Russian sturgeon, *Acipenser gueldenstaedtii*	N
Ship sturgeon, *Acipenser nudiventris*	N
Stellate sturgeon, *Acipenser stellatus*	N
Atlantic sturgeon, *Acipenser sturio*	N
European eel, *Anguilla anguilla*	N
Beluga, *Huso huso*	N
Pontic shad, *Alosa immaculata*	Y
Black Sea shad, *Alosa tanaica*	Y
Marine Mammals	
Black Sea common dolphin, *Delphinus delphis ponticus*	Y
Black Sea harbour porpoise, *Phocoena phocoena relicta*	Y
Black Sea bottlenose dolphin, *Tursiops truncatus ponticus*	Y
Birds	
Yelkouan shearwater, *Puffinus yelkouan*	Y

[1] All critical habitat features are considered Tier 2 under the IFC PS6 requirements

4.2.3 Priority Biodiversity Features

Tables setting out the detailed assessment for PBF are presented in Appendix C. The identification of PBF follows the same approach as set out above for critical habitat. PBF features identified within the AoA are presented in Table 4.4. The table also identifies those features which, based on the results of desk based assessment and survey work undertaken to date, have been taken forward for assessment.

Table 4.4 Offshore Priority Biodiversity Feature Summary

Priority Biodiversity Feature	Feature Taken Forward for Assessment
Benthic Habitats	
Habitats dominated by mussel species: A5.628 'Pontic *Mytilus galloprovincialis* beds on sublittoral sediment'	Y
Habitats dominated by mussel species: A5.379 Pontic deep circalittoral muds with *Modiolula phaseolina*	N
Fish	
Gray triggerfish, *Balistes capriscus*	N
Common dentex, *Dentex dentex*	N
Bucchich's goby, *Gobius bucchichi*	N
Giant goby, *Gobius cobitis*	N
Green wrasse, *Labrus viridis*	N
Bluefish, *Pomatomus saltatrix*	N
Atlantic horse mackerel, *Trachurus trachurus*	N
Birds	
Black-throated loon, *Gavia arctica*	N
Slender-billed gull, *Larus genei*	N
Mediterranean gull, *Larus melanocephalus*	N
Sandwich tern, *Sterna sandvicensis*	N

5. ASSESSMENT OF EFFECTS ON NATURAL AND CRITICAL HABITAT AND PRIORITY BIODIVERSITY FEATURES

5.1 Introduction

The assessment of impacts presented here builds on the impact assessment of biodiversity receptors presented in the Project ESIA. This assessment has been updated with additional quantification of impacts where possible, and focusses specifically on the Critical Habitat, Natural Habitat PBF receptors identified in Section 4.

Mitigation already identified and committed to in the Project ESIA has been taken into account when identifying the residual impacts. Where there is a need for additional avoidance, reduction or mitigation measures, these have been identified.

Summaries of the results of impact assessments are presented below, with the full impact assessment tables presented in Appendix D.

The consolidated suite of mitigation measures, including those identified in the ESIA and additional measures identified as a result of this assessment is presented in the Project BMP.

Where residual impacts have been identified, measures to deliver a net biodiversity gain for these receptors (for Critical Habitat features) or no net loss (for natural habitats and PBF) will be set out in the Project BAP.

5.2 Onshore

5.2.1 Summary of Effects on Critical Habitat

A summary of the effects on onshore critical habitat is presented in Table 5.1. The detailed assessment of impacts is presented in Appendix D.

The proposed HDD technical solution for crossing Balta Mare flooded area was attempted in in September 2021. However the HDD approach was not successful due to technical challenges, and the watercourse crossing was completed using an open cut approach. The residual habitat loss has been updated taking with the final footprint of the completed construction works, taking into account the impact from both the HDD works area and the open cut working width. The total area of temporary habitat loss is 12.09 ha in the Danube Delta SPA, SCI, Ramsar site, UNESCO Biosphere Reserve and Natural World Heritage Site.:

Table 5.1 Summary of the effects on onshore critical habitat

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Black Sea SPA	Construction	Pollution and changes to air quality	Temporary	No
	Operation	Loss of Site Integrity/Functionality	No Impact	No
Black Sea IBA / KBA	Construction	Pollution and changes to air quality	Temporary	No
	Operation	Loss of Site Integrity/Functionality	No Impact	No

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Danube Delta SPA	Construction	Loss of habitat	Temporary	Yes – temporary loss of 12.09 ha of habitat.
	Operation	Loss of Site Integrity/Functionality	No Impact	No
Danube Delta SCI	Construction	Loss of habitat	Temporary	Yes – temporary loss of 12.09 ha of habitat.
	Operation	Loss of Site Integrity/Functionality	No Impact	No
Danube Delta Ramsar	Construction	Loss of habitat	Temporary	Yes – temporary loss of 12.09 ha of habitat.
	Operation	Loss of Site Integrity/Functionality	No Impact	No
Danube Delta UNESCO Natural World Heritage Site	Construction	Loss of habitat	Temporary	Yes – temporary loss of 12.09 ha of habitat within a part of the site zoned for economic use.
	Operation	Loss of Site Integrity/Functionality	No Impact	No
Danube Delta UNESCO Biosphere Reserve	Construction	Loss of habitat	Temporary	Yes – temporary loss of 12.09 ha of habitat within a part of the site zoned for economic use.
	Operation	Loss of Site Integrity/Functionality	No Impact	No
1410 Mediterranean salt meadows (*Juncetalia maritimi*)	Construction	Loss of Habitat	Temporary	Yes Temporary loss of 2.3 ha habitat
	Operation	Loss of Habitat	No Impact	No
	Construction	Changes in Air Quality (Dust)	Temporary	No

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
	Operation	Changes in Air Quality (Dust)	No Impact	No
1310 Salicornia salt marsh (*Salicornia* and other annuals colonizing mud and sand)	Construction	Loss of Habitat	No Impact	No
	Operation	Loss of Habitat	No Impact	No
	Construction	Changes in Air Quality (Dust)	No Impact	No
	Operation	Changes in Air Quality (Dust)	No Impact	No
Artemisia tschernieviana *Crambe maritima* (sea kale) *Dianthus bessarabicus* *Eryngium maritimum* (sea holly) *Elymus farctus ssp. Bessarabicus* *Cirsium alatum*	Construction	Loss of Individuals	Temporary	Yes – Residual risk of loss of individuals
	Construction	Loss of Supporting Habitat	Temporary	Yes – Temporary loss of up to 2.3 ha of habitat
	Operation	Loss of habitat	No Impact	No
European otter (*Lutra lutra*)	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat.
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Common tortoise *(Testudo graeca)*	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat.
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Danube crested newt *(Triturus dobrogicus)*	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Squacco heron (*Ardeola ralloides*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Purple heron (*Ardea purpurea*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Great white egret (*Egretta alba*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Little egret (*Egretta garzetta*).	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No

5.2.2 Summary of Effects on PBF

A summary of the effects on onshore PBFs is presented in Table 5.2. The detailed assessment of impacts is presented in Appendix E.

Table 5.2 Summary of the effects on onshore PBFs

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Centaurium spicatumScolymus hispanicus	Construction	Loss of Individuals	Temporary	Yes – Residual risk of loss of individuals
	Construction	Loss of Supporting Habitat	Temporary	Yes – Temporary loss of 2.3 ha of habitat
	Operation	Loss of habitat	No Impact	No
European ground squirrel (*Spermophilus citellus*)	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary and permanent	Yes temporary loss of up to 12.09 ha and permanent loss of 3 ha of agriculture land
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
		Loss of Supporting Habitat	Permanent	No
European pond turtle *(Emys orbicularis)*	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Fire-bellied toad (*Bombina bombina*)	Construction	Mortality of Individuals	Temporary	Yes Residual risk of mortality to individuals
		Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Mortality of Individuals	No Impact	No
		Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
	Construction	Disturbance to Individuals	Temporary	Yes

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Common pochard (*Aythya farina*)				Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Ferruginous duck (*Aythya nyroca*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Black-winged stilt (*Himantopus himantopus*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Pied avocet (*Recurvirostra avosetta*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Red-footed falcon (*Falco vespertinus*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	Long-term	Yes Nest sites within the acacia plantation closest to the GTP may no longer be used by this species
		Loss of Supporting Habitat	No Impact	No
Common shelduck (*Tadorna tadorna*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
	Construction	Disturbance to Individuals	Temporary	Yes

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Common redshank (*Tringa totanus*)				Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Common hoopoe (*Upupa epops*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Northern lapwing (*Vanellus vanellus*)	Construction	Disturbance to Individuals	Temporary	Yes Residual risk of disturbance to individuals
		Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat
	Operation	Disturbance to Individuals	No Impact	No
		Loss of Supporting Habitat	No Impact	No
Steppe carpenter moth (*Catopta thrips)*	Construction	Loss of Supporting Habitat	Temporary	Yes Temporary loss of up to 12.09 ha habitat

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impacts?
Large copper butterfly (*Lycaena dispar)*	Operation	Loss of Supporting Habitat	No Impact	No

5.2.3 Summary of Effects on Natural Habitat

There will be no permanent loss of natural habitat as a result of the Project. The Project will result in the temporary loss of 12.09 ha of natural habitat onshore. This habitat will be reinstated following the completion of construction. All of this habitat lies within the Danube Delta designated sites and qualifies as critical habitat. Additional detail on the area of different natural habitats that will be temporarily lost and the potential for reinstating this habitat is provided in Appendix D.

The requirement to deliver net gain for onshore critical habitats mean that no net loss of onshore natural habitat will be exceeded.

5.3 Summary of Assessment of Invasive Species

Potential impacts on habitat, flora and fauna have been identified from the spread of invasive species into sensitive natural and critical habitats within the Danube Delta designated sites. The main invasive species identified in baseline surveys was black locust tree (*Robinia pseudoacacia*) which was recorded as a plantation woodland species on the edge of the Danube Delta designated sites. Measures to control the spread of invasive species as a result of the Project have been identified in the Project BMP. During construction, the ECoW recorded a number of individuals of the alien invasive species *Eleagnus angustifolia* (oleaster) within the onshore easement, which were removed during construction activities.

5.4 Offshore

5.4.1 Summary of Effects on Critical Habitat

A summary of the effects on onshore critical habitat is presented in Table 5.3. The detailed assessment of impacts is presented in Appendix D.

Table 5.3 Summary of the effects on onshore critical habitat

Critical Habitat Feature	Project Phase	Impact Type	Impact Duration	Residual Impact
Black Sea SPA	Construction	Loss of supporting habitat	Permanent loss of soft sediment habitat	Yes – loss of 0.5 ha of existing benthic habitat. Replaced by hard substrate (pipeline) habitat which will be colonised by benthic species.
	Operation	Loss of Site Integrity/Functionality	Permanent	No

Black Sea IBA / KBA	Construction	Loss of supporting habitat	Permanent loss of soft sediment habitat	Yes – loss of 0.5 ha benthic habitat. Replaced by hard substrate (pipeline) habitat which will be colonised by benthic species.
	Operation	Loss of Site Integrity/Functionality	Permanent	No
Danube Delta marine zone SCI	Construction	Loss of supporting habitat	Permanent loss of soft sediment habitat	Yes – loss of 2.4 ha benthic habitat. Replaced by hard substrate (pipeline) habitat which will be colonised by benthic species.
	Operation	Loss of Site Integrity/Functionality	Permanent	No
Danube Delta Ramsar site	Construction	Loss of supporting habitat	Permanent loss of soft sediment habitat	Yes – loss of 0.4 ha benthic habitat. Replaced by hard substrate (pipeline) habitat which will be colonised by benthic species.
	Operation	Loss of Site Integrity/Functionality	Permanent	No
Danube Delta UNESCO Biosphere Reserve	Construction	Loss of supporting habitat	Permanent loss of soft sediment habitat	Yes – loss of 0.4 ha benthic habitat. Replaced by hard substrate (pipeline) habitat which will be colonised by benthic species.
	Operation	Loss of Site Integrity/Functionality	Permanent	No
Seep/vent habitats with structures made by	Construction	Loss of Seabed Habitat	Permanent	No
		Introduction of Invasive Species	Permanent	No

leaking gases: A5.71 'Seep and vents in sublittoral sediments'	Operation	Introduction of Invasive Species	Permanent	No
Black Sea common dolphin *Delphinus delphis ponticus*	Construction	Underwater Noise	Temporary during piling and pipe laying	Yes – temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations
		Physical Presence of Vessels	Temporary	No
	Operation	Underwater Noise	Intermittent, long term from occasional vessel traffic during operation	No
		Physical Presence of Vessels	Intermittent, long term from occasional vessel traffic during operation	No
Black Sea harbour porpoise *Phocoena phocoena relicta*	Construction	Underwater Noise	Temporary during piling and pipe laying	Yes –temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations
		Physical Presence of Vessels	Temporary	No
	Operation	Underwater Noise	Intermittent, long term from occasional vessel traffic during operation	No
		Physical Presence of Vessels	Intermittent, long term from occasional vessel traffic during operation	No

Black Sea bottlenose dolphin *Tursiops truncatus ponticus*	Construction	Underwater Noise	Temporary during piling and pipe laying	Yes –temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations
		Physical Presence of Vessels	Temporary	No
	Operation	Underwater Noise	Intermittent, long term from occasional vessel traffic during operation	No
		Physical Presence of Vessels	Intermittent, long term from occasional vessel traffic during operation	No
Pontic shad *Alosa immaculata*	Construction	Underwater Noise	Temporary during piling and pipe laying	Yes – temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations.
		Loss of Fish Spawning and Nursery Habitats from Habitat Loss	Long term	No
		Physical Presence of Vessels	Temporary	No
	Operation	Underwater Noise	Intermittent, long term from occasional vessel traffic during operation	No
		Physical Presence of Vessels	Intermittent, long term from occasional vessel traffic during operation	No

Black Sea shad *Alosa tanaica*	Construction	Underwater Noise	Temporary during piling and pipe laying	Yes – temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations.
		Loss of Fish Spawning and Nursery Habitats from Habitat Loss	Long term	No
		Physical Presence of Vessels	Temporary	No
	Operation	Underwater Noise	Intermittent, long term from occasional vessel traffic during operation	No
		Physical Presence of Vessels	Intermittent, long term from occasional vessel traffic during operation	No
Yelkouan shearwater *Puffinus yelkouan*	Construction	Physical Presence of Vessels	Temporary	No
		Offshore Lighting from Vessels	Temporary	No
	Operation	Physical Presence of Vessels	Intermittent, long term	No
		Offshore Lighting from Platform	Long term	No

5.4.2 Summary of Effects on PBF

A summary of the effects on offshore PBFs is presented in Table 5.4. The detailed assessment of impacts is presented in Appendix E.

Table 5.4 Summary of the effects on onshore PBFs

Priority Biodiversity Feature	Project Phase	Impact Type	Impact Duration	Residual Impact
Habitats dominated by mussel species:	Construction	Loss of Seabed Habitat	Long term / permanent	No

A5.628 'Pontic Mytilus galloprovincialis beds on sublittoral sediment'		Introduction of Invasive Species	Long term / permanent	No
	Operation	Introduction of Invasive Species that May Affect Habitats	Long term / permanent	No

5.4.3 Summary of Effects on Natural Habitat

There will be a permanent loss of approximately 6.8 ha (68,366 m^2) of offshore natural habitat under the footprint of the Anna platform, subsea in field infrastructure and export pipeline, and deposition of drill cuttings as a result of the Project. The vast majority of the benthic habitat lost comprises soft sediments. In place of the lost benthic habitat, the Project will introduce a similar area of hard substrate (in the form of the subsea infrastructure) which will provide a greater diversity of benthic habitat than currently occurs in the Project AoI. This hard substrate will be colonised by marine species throughout the lifetime of the Project.

Given the relatively small area of offshore natural habitat affected, and the extensive areas of similar natural habitats on the northwestern shelf of the Black Sea, the Project is not predicted to significantly convert or degrade offshore natural habitats.

Additional detail on the area of individual offshore habitats that will be affected is presented in Appendix C.

5.5 Summary of Assessment of Invasive Species

Potential impacts on marine biodiversity have been identified from the spread of invasive species through vessel movements associated with the Project. Measures to control the spread of invasive species as a result of the Project have been identified in the Project BMP. These include a requirement for international / regional project vessels to comply with IMO Ballast Water Management and biofouling requirements and Romanian Environmental Permit requirements to avoid the introduction of invasive species. No residual effects are therefore predicted with the mitigation set out in the Project BMP.

5.6 Cumulative Impacts with Associated Facilities

The potential for cumulative impacts have been identified from the Project together with the Associated Facility pipeline linking the GTP to the national gas transmission system (also referred to herein as the "connection pipeline"). The Associated Facility (officially titled "Extension of the Romanian transmission system for taking over gas from the Black Sea shore") will be constructed and operated by the National Gas Transmission Company Transgaz S.A. (Transgaz). Transgaz is the sole operator of the Romanian national gas transmission system. The connection pipeline consists of the construction and operation of a 24.37 km-long, 20" diameter (Dn 500) gas pipeline from the GTP to Vadu in Gradina. An overview of the connection pipeline and information on its interface with the project are provided in Section 6 of the Additional Environmental and Social Information and Assessment Report.

5.6.1 Biodiversity Impacts

The Transgaz connection was subject to Environmental Impact Assessment (EIA) in 2017 ([1]). The findings of the EIA have been reviewed, and additional desk-based assessment undertaken, to

([1]) Transgaz. 2017. Presentation memorandum for the Extension of National System of Gas Transport through the pipeline from Black Sea (area of Vadu locality) to pipeline Tranzit 1 (are of Grădina locality).

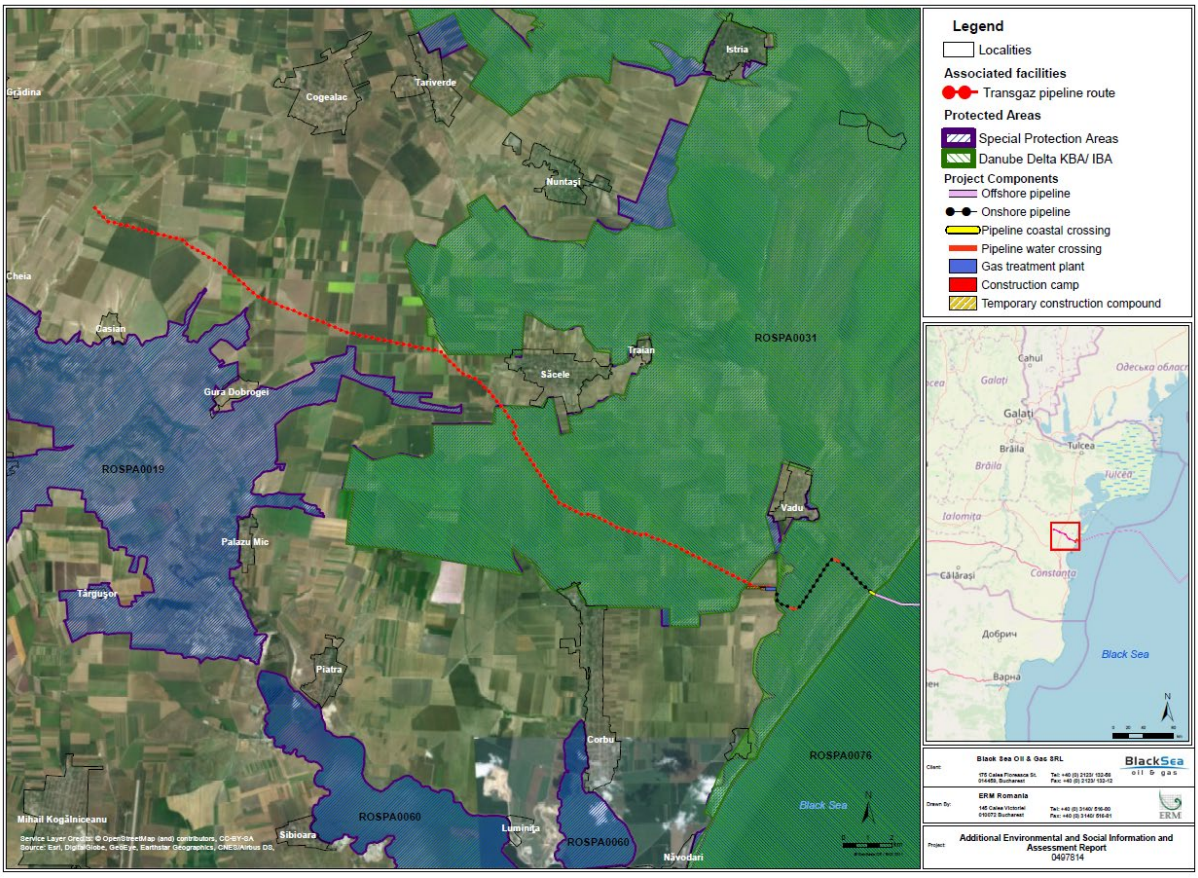
determine potential cumulative impacts with the Project. Key findings of the assessment are set out below.

- The pipeline is located in agricultural land combined with ruderal vegetation and in some areas invasive species – no species of conservation concern are predicted to be impacted.
- The pipeline crosses an inland section of the Danube Delta and Razim-Sonoie complex SPA for approximately 9.54 km and in the same location crosses the Danube Delta IBA/KBA for approximately 9.55 km (as the SPA and IBA/KBA have very similar boundaries). This habitat comprises agricultural land. No Likely Significant Effects on the SPA were predicted.
- The pipeline will result in the temporary loss of 15,28 ha within the designated sites during construction, which will be fully reinstated prior to operation (approximately 0.003% of the SPA). No permanent habitat loss is predicted.
- No bird species of community importance were recorded feeding, roosting or nesting in the Project area during baseline surveys, only in flight passing over the Project.
- European ground squirrel was recorded in the grasslands near the Project however no impacts on local populations were predicted.
- No impacts on other mammals, reptiles or amphibians were predicted from the Project.
- The EIA recommended that construction works in the SPA avoid April – July to minimise impacts on breeding birds.

Construction for the Transgaz pipeline is due to start in Q4 2019 and will last for 11 months. It will therefore overlap with the construction of both the GTP and Project onshore pipeline. The route of the Transgaz Pipeline in relation to the Danube Delta designated sites is shown in Figure 5.1.

Greenviro. 2017. Environmental Impact Assessment for the Extension of National System of Gas Transport through the pipeline from Black Sea (area of Vadu locality) to pipeline Tranzit 1 (are of Grădina locality).

Figure 5.1 Transgaz Pipeline



5.6.2 Cumulative Impacts

The Transgaz pipeline will result in temporary habitat impacts to modified agricultural habitats within the Danube Delta and Razim-Sonoie complex SPA and Danube Delta IBA/KBA. However the habitats represent a very small percentage of the total area within these designated sites, and comprise relatively low value agricultural habitat, which is abundant in the surrounding area. The habitats affected are arable agricultural areas which are ploughed and disturbed annually. Temporary habitat loss from the Transgaz pipeline is not predicted to be significant, and significant cumulative impacts on habitat with the Project are not predicted.

Any SPA or IBA/KBA qualifying interest feature bird species that are temporarily displaced by construction activity associate with the Transgaz pipeline will move to the abundant alternative habitat nearby. There may be some cumulative disturbance of different parts of the SPA as the project construction schedule overlaps with that of the Transgaz pipeline. Disturbance impacts from the Transgaz pipeline will predominantly affect different habitats to those affected by the Project, meaning cumulate effects on birds using the habitats in the Project area (coastal sand habitats, reedbeds and saltmarsh) will be minimal. Measure to avoid, reduce and mitigate impacts on birds from the BSOG Project have been identified and presented in the Project BMP. As a result, cumulative impacts are not predicted to be significant.

No impacts from the Transgaz pipeline on European ground squirrel are predicted, and measures to avoid, reduce and mitigate impacts on the species from the BSOG Project have been identified and presented in the Project BMP. Although there may be some cumulative temporary impacts, no long-term cumulative impacts following construction are predicted.

No cumulative impacts on other flora or fauna receptors are predicted as a result of the low value of the modified agricultural land for these receptors.

5.7 Alternatives to Critical Habitat

To align with PS6 and PR6 development within critical habitat, developers must meet the requirements of Paragraphs 17 (PS6) and 13 (PR6) respectively. A key requirement is that no viable (*eg* technical, economical) alternatives exist.

5.7.1 Introduction

As described in *Section 5.2* above, the pipeline route will pass through 12.09 ha of critical habitat onshore and 2.4 ha of critical habitat offshore. The offshore platform and well are not located within critical habitat.

To align with PS6 and PR6, development within critical habitat must meet the requirements of Paragraphs 17 (PS6) and 13 (PR6) respectively. A key requirement is that no viable (*eg* technical, economical) alternatives exist in the region, in habitats that are not critical.

This section focuses on the assessment of alternatives for the Project with respect to the areas of critical habitat. It has taken account of information from the following sources:

- Final Scoping Report for the Environmental and Social Impact Assessment (RSK, 2008);
- Landfall and Onshore Route Study (RSK, 2009);
- Scoping Report for the Environmental and Social Impact Assessment (RSK and Sterling Resources, 2012);
- Appropriate Assessment Study (Auditeco, 2017);
- HDD Shore Crossing Study, Grup Servicii Petroliere (GSP, 2018); and
- Environmental Consent No. 1 of 14.01.2019 issued by the National Protection Agency for the offshore pipeline, Anna platform and associated offshore infrastructure.
- Environmental Consent No. 3 of 22.01.2019 issued by the National Protection Agency for the onshore pipeline.
- Environmental Consent No. 2 of 05.03.2019 issued by the National Protection Agency for the project GTP.

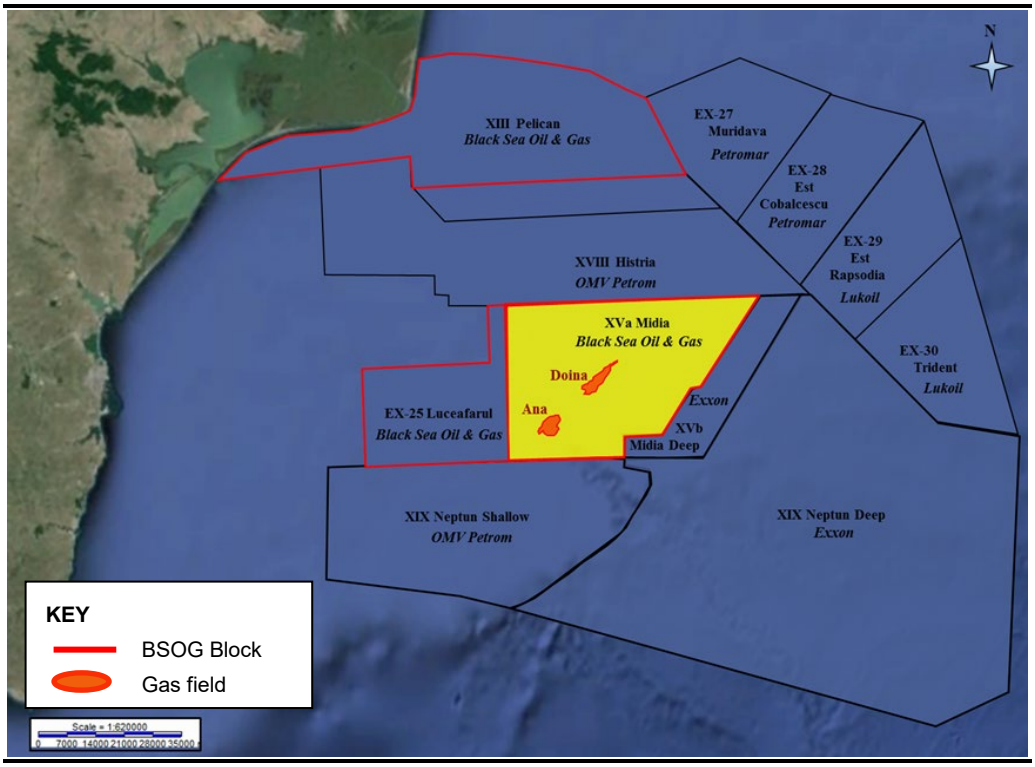
A detailed account of the Project alternatives considered as part of the Project development since 2008 is contained in *Section 4.1* of the *Additional Environmental and Social Information and Assessment Report*.

5.7.2 General Project Location in the Region

The location of the whole development is dependent on the specific locations of the offshore gas reserves. The locations of the gas reserves were determined by exploration and appraisal wells that were drilled in 2008 (*ie* the Doina 4 and Ana 2 wells). The locations of these facilities are within areas of critical habitat, based on the presence of marine mammals that occur in the waters throughout the Black Sea. Hence, it is not possible to avoid critical habitat, however, no adverse effects on the conservation status of these species from the proposed project are predicted (see *Section 5.4*).

The Doina Field is approximately 110 km offshore in Romanian Block XV in the Western Black Sea and is one of the first offshore gas reservoirs discovered in the Black Sea that has economically viable, proven reserves (See *Figure 5.2*). Development of Block XV (comprising the Doina field, Ana/Doina sister field and Clara/Doina north field) represents the beginning of offshore gas production from the Romanian sector of the Black Sea. It will increase national gas production by up to 10%, supplying clean energy to benefit the people of Romania.

Figure 5.2 Ana and Doina Gas Reserves



The contract for the Midia XV block was awarded by the National Agency for Mineral Resources, for the exploitation and exploration of the hydrocarbon potential of the block (according to Governmental Decision no. 570/22.09.1992, regarding the approval of the exploration contracts for hydrocarbons in Romania).

Given the fixed location of the offshore gas reserves, the key alternatives considered for the offshore platforms were focused on technology. The Ana Platform will be connected to the Doina Subsea Well by an electro-hydraulic-chemical (EHC) *"umbilical cable"* to reduce the need for more intrusive facilities offshore. The umbilical linking the Ana Platform to the subsea Doina well provides electrical power, control, hydraulic power and MEG (mixed with corrosion inhibitor) to the Doina well and avoids the need for constructing an additional platform offshore.

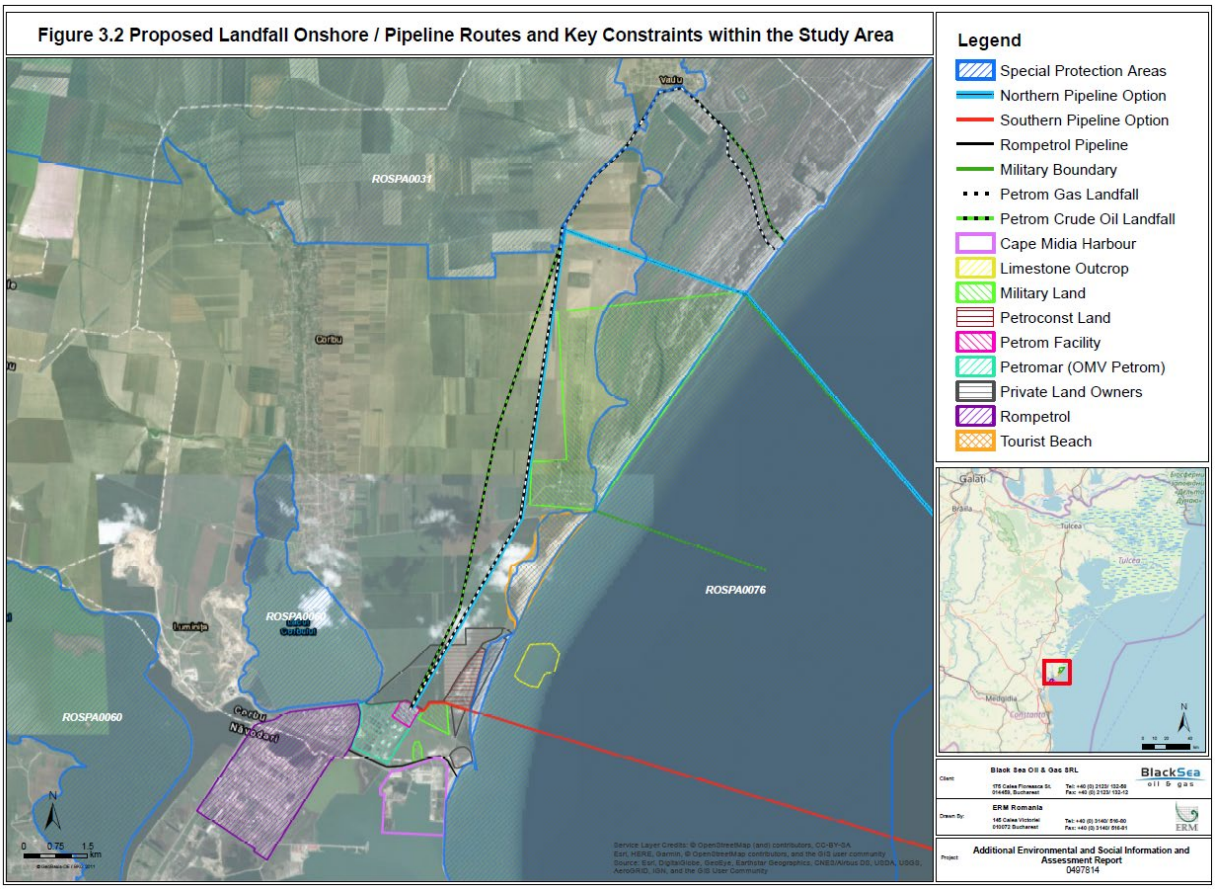
5.7.3 Landfall and Offshore Pipeline

There are a number of constraints to locating the landfall along the western coastline in this part of the Black Sea (see Figure 5.3, and Landfall and Onshore Route Study RSK, 2009) including:

- sites of importance for nature conservation (eg those associated with the Danube Delta);
- areas used by the Romanian Military;
- areas of importance for tourism (*eg* Năvodari Commune);
- existing development (*eg* Capu Midia Harbour, Petromidia and Rafinare refineries, existing Rompetrol pipelines); and
- rocky outcrops that provided engineering challenges.

Other constraints including engineering, economic, social and land availability were also taken into account.

Figure 5.3 Proposed Landfall Onshore / Pipeline Routes and Key Constraints within the Study Area



Source: RSK Romania SRL, 2009

Note: To maintain clarity of the figure, *Figure* 5.3 only shows the designation for the Danube Delta with the greatest extent (i.e. Special Protection Area), for a full illustration of the nature conservation areas that occur in the Project area, please see Figure 3.1 and 3.2.

An initial Landfall and Onshore Route study performed in 2009 identified the following two potential landfall locations and associated offshore pipeline routes (see *Figure 3.1*):

- *Northern Option* - landfall in the Vadu area about 15 km north-east of the proposed gas reception terminal; and
- *Southern Option* - landfall in the Petrom terminal area at Navodari about 2 km east of the proposed gas reception terminal, with a 2 km onshore section.

It is noted that the above-indicated route study was based on the assumption that the project Gas Treatment Station (GTP) will be located in the area of an existing OMV Petrom oil and gas terminal at Midia Harbour area. Thus, the northern landfall option (Vadu area) was associated with an approximately 15 km-long onshore pipeline route (following the route of two existing Petrom gas and oil pipelines to the Petrom terminal area) while the southern option was associated with an approximately 2 km-long onshore section.

Given the above, the initial Landfall and Onshore Route study performed in 2009 indicated the Southern Landfall Option as preferable. One of the main reasons for this was that it avoided the onshore designated areas of the Danube Delta, that the Northern Option could not avoid. However, in 2012 the Southern Option was rejected by the military because of the location of their offshore firing range. They asked for the pipeline to be re-routed to the north, around the firing range and hence the Northern Option at Vadu beach was chosen.

5.7.4 Gas Treatment Plant (GTP) and Onshore Pipelines

The location for the GTP had to meet some specific requirements (*eg* flat land area, sufficient height above sea level, > 1km from military areas (military firing range), outside areas protected for nature conservation / other forested areas, away from the watercourses, and could be acquired by BSOG).

The GTP location selected meets all of these requirements. Its position in an agricultural field (modified habitat), avoided impacts on sites of importance for nature conservation associated with the Danube Delta (*eg* SCI, SPA, Ramsar site, Biosphere Reserve and IBA/KBA) (see Figure 3.1 and 3.2) and did not support flora / fauna species that triggered critical habitat (see *Consolidated Environmental Impact Assessment Report* (Auditeco, 2018)).

The routing of the onshore pipeline proved more challenging e.g. finding a continuous string of land plots with updated, valid and unchallenged ownership documentation whose owners were willing to sell / grant easements. Restrictions on land purchase meant that it was not possible to horizontal directional drill (HDD) the pipeline directly from the landfall to the GTP site. The initial construction plan for the onshore pipeline route included three short sections of HDD, two under watercourses and a section under the beach (approximately 150 m) that continued into the Black Sea for approximately 1.3 km. Technical challenges meant that only the beach crossing was completed using HDD. The rest of the onshore pipeline route was constructed using anopen trench approach through accessible land.

Given the extent of the Danube Delta designated areas in this location, and the constraints on BSOG regarding the landfall location and land availability onshore, it was not possible to avoid all areas of critical habitat onshore. Conclusions from the impact assessment can be found in Section 5.2.

The Project design was developed from offshore to onshore. The logic sequence of decisions which depict why there were no alternatives to the Project within critical habitat is as follows:

- offshore starting point (Ana platform) is a given/ fixed (based on the location of gas reserves);
- two potential landfall landings for the offshore pipeline, the southern and the northern options and various offshore pipeline routes investigated;
- analysis of the two landfall options. Initially both landfall landings for the offshore pipeline were analysed under the assumption that the GTP will be located at the Petrom terminal at Midia Harbour area – hence the southern option was initially the preferred option. Several potential landfall landings were further analysed between the northern and southern options;
- the GTP location at Petrom terminal – Midia Harbour area proved unfeasible due to physical constraints and existing infrastructure triggering limitations on available GTP location and technical challenges. The decision was then made to search for alternative GTP locations towards the north;
- selection of GTP location (current design location) was based on placement outside of the designated Danube Delta areas (GTP could not be located further to the south due to the existing onshore military firing range); and
- onshore pipeline routing to the selected GTP location determined by land availability constraints – BSOG key criteria was to purchase the land accommodating the project facilities.

6. SUMMARY

This report presents additional information and assessment of the Project impacts, with particular reference to the requirements and standards included in EBRD PR6 and IFC PS6.

The assessment has considered Project impacts on Critical and Natural habitat and PBF, as well as impacts from the introduction and spread of invasive alien species.

The assessment has identified a number of additional avoidance, reduction and mitigation measures for impacts, where have been included in the Project BMP.

Residual impacts on the following Critical Habitat Features are shown in Table 6.1 have been identified.

Table 6.1 Critical Habitat Summary

Feature	Impact Summary
EBRD PR 6 Criteria (i) and IFC PS6 Criteria (iv) - Presence of Highly Threatened or Unique Ecosystems (eg Ramsar Site or Biosphere Reserve)	
Black Sea SPA	Loss of 0.5 ha benthic habitat
Black Sea IBA/KBA	Loss of 0.5 ha benthic habitat
Danube Delta SPA	Temporary loss of 12.09 ha of onshore habitat.
Danube Delta SCI	Temporary loss of 12.09 ha of habitat.
Danube Delta marine zone SCI	Loss of 2.4 ha benthic habitat
Danube Delta Ramsar Site	Temporary loss of 12.09 ha of onshore habitat. Loss of 0.4 ha benthic habitat
Danube Delta UNESCO Natural World Heritage Site	Temporary loss of 12.09 ha of onshore habitat.

Feature	Impact Summary
Danube Delta UNESCO Biosphere Reserve	Temporary loss of 12.09 ha of habitat. Loss of 0.4 ha benthic habitat
1410 Mediterranean salt meadows (*Juncetalia maritimi*)	Temporary loss of 2.3 ha habitat

EBRD PR 6 Criteria (ii) and IFC PS6 Criteria (i) - Presence of Habitat of Significant Importance to Endangered or Critically Endangered Species (IUCN EN or CR or National Red List Endangered or Critically Endangered or equivalent)

Plant Species ■ *Artemisia tschernieviana* ■ *Crambe maritima* (sea kale) ■ *Dianthus bessarabicus* ■ *Eryngium maritimum* (sea holly) ■ *Elymus farctus ssp. bessarabicus* ■ *Cirsium alatum*	Residual risk of loss of individuals Temporary loss of up to12.09 ha of supporting onshore habitat
European otter (*Lutra lutra*)	Residual risk of mortality to individuals Temporary loss of 12.09 ha of supporting onshore habitat
Common tortoise (*Testudo graeca*)	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 12.09 ha supporting onshore habitat
Danube crested newt *(Triturus dobrogicus)*	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 8.7 ha supporting onshore habitat
Bird Species ■ Squacco heron (*Ardeola ralloides*) ■ Purple heron (*Ardea purpurea*) ■ Great white egret (*Egretta alba)* ■ Little egret (*Egretta garzetta*)	Residual risk of disturbance to individuals Temporary loss of 12.09 ha supporting onshore habitat.
Marine mammals ■ Black Sea common dolphin (*Delphinus delphis ponticus*) ■ Black Sea harbour porpoise (*Phocoena phocoena relicta*) ■ Black Sea bottlenose dolphin (*Tursiops truncatus ponticus*)	Temporary displacement from 2.34 km around piling activities and 1.20 km from vessel operations.

EBRD PR 6 Criteria (iii) and IFC PS6 Criteria (ii) - Presence of Habitats of Significant Importance for Endemic or Geographically Restricted Species

No impacts

EBRD PR6 Criteria (iv) and IFC PS6 Criteria (iii) - Presence of Habitats Supporting Globally Significant Migratory or Congregatory Species

Feature	Impact Summary
Fish Species ■ Pontic shad (*Alosa immaculata*) ■ Black Sea shad (*Alosa tanaica*)	Temporary displacement from 1.73 km around piling activities and 380 m from vessel operations.
EBRD PR6 Criteria (v) and IFC PS6 Criteria (v) - Presence of Areas Associated with Key Evolutionary Processes	
No impacts	
EBRD PR6 Criteria (vi) - Presence of Ecological Structure or Functions needed to Maintain Viability of Critical Habitat (e.g., surface or ground water flows feeding a Ramsar Site)	
Dune and coastal wetland structure	Temporary loss of 12.09 ha of onshore habitat.

Residual impacts on the following PBF are shown in Table 6.2 have been identified.

Table 6.2 Summary of Impacts on PBF

Feature	Impact Summary
EBRD PR6 Criteria (ii) - Presence of Vulnerable Species (IUCN VU or National Red List Vulnerable or equivalent)	
Scolymus hispanicus	Residual risk of loss of individuals Temporary loss of up to 12.09 ha of supporting onshore habitat
European ground squirrel (*Spermophilus citellus*)	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 12.09 ha and permanent loss of 3 ha
European pond turtle (*Emys orbicularis*)	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 12.09 ha supporting onshore habitat
Fire-bellied toad (*Bombina bombina*)	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 12.09 ha supporting onshore habitat

Feature	Impact Summary
Birds ■ Common pochard (*Aythya farina*) ■ Ferruginous duck (*Aythya nyroca*) ■ Black-winged stilt (*Himantopus himantopus*), ■ Pied avocet (*Recurvirostra avosetta*) ■ Red-footed falcon (*Falco vespertinus*) ■ Common shelduck (*Tadorna tadorna*) ■ Common redshank (*Tringa totanus*) ■ Common hoopoe (*Upupa epops*) ■ Northern lapwing (*Vanellus vanellus)*	Residual risk of mortality to individuals Residual risk of disturbance to individuals Temporary loss of 12.09 ha supporting onshore habitat

EBRD PR6 Criteria (iii) - Presence of Significant Biodiversity Features Recognised by Stakeholders or Governments (IBA, KPA etc.)

Addressed under Critical Habitat

EBRD PR6 Criteria (iv) - Presence of Ecological Structure or Functions needed to Maintain Viability of Priority Features

Addressed under Critical Habitat

Temporary residual loss of natural habitat has also been identified both onshore and offshore.

No significant residual impacts from invasive alien species have been identified.

The consolidated suite of mitigation measures, including those identified in the ESIA and additional measures identified as a result of this assessment is presented in the Project BMP.

Where residual impacts have been identified, measures to deliver a net biodiversity gain for these receptors (for Critical Habitat features) or no net loss (for natural habitats and PBF) will be set out in the Project BAP.

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APPENDIX A PROJECT AREAS OF INFLUENCE

A1 ONSHORE AREA OF INFLUENCE FOR SPECIFIC RECEPTORS

Table A1 Onshore Area of Influence for Specific Receptors

Receptor	Area of Influence	Basis
Flora	Physical footprint of terrestrial construction works plus 200 m buffer	ERM defined – informed by maximum distance for habitat impacts from changes in air quality.
Fauna (excluding birds)	Physical footprint of terrestrial construction works plus 1 km buffer	ERM defined - informed by disturbance distances for most sensitive species – typically raptor species based on SNH Disturbance Distance Guidance (2009).
	1 km from compound	
Birds	Physical footprint of terrestrial construction works plus 1 km buffer	ERM defined - informed by disturbance distances for most sensitive species – typically raptor species based on SNH Disturbance Distance Guidance (2009).
	1 km from compounds	
Seabirds (nearshore)	Physical footprint of terrestrial construction works plus 1 km buffer	ERM defined - informed by disturbance distances for most sensitive species – typically shorebirds (IECS, 2009).
	1 km from compounds	
Protected sites	Physical footprint of terrestrial construction works where occurs within protected sites plus 1 km buffer	ERM defined - informed by disturbance distances for most sensitive species – typically raptor species based on SNH Disturbance Distance Guidance (2009).
	1 km from compounds	

A2 OFFSHORE AREA OF INFLUENCE FOR SPECIFIC RECEPTORS

Table A.1 Offshore Area of Influence for Specific Receptors

Receptor	Area of Influence	Basis
Pelagic environment (plankton)	Hydrotest water will affect an area of between 500 m and 1 km around the point of discharge.	Midia Gas Development FEED Study – ESIA Report
Benthic flora and fauna	Pipeline footprint of trenching, dredging and placement of concrete mattresses along the pipeline route plus 100 m buffer.	ERM defined
	Impacts of benthic communities from drill cuttings predicted to be limited to 208 m from well heads.	ERM defined through drill cuttings modelling.
Fish	Radius of potential injury zone from underwater noise - limited to 30 m. Radius of potential disturbance zone - limited to 1,725 m.	Midia Gas Development FEED Study – ESIA Report
	Pipeline footprint of trenching, dredging and placement of concrete mattresses along the pipeline route plus 100 m buffer.	ERM defined
Birds	500 m from vessels during pipeline laying and well drilling	ERM defined
Marine mammals	2,434 m estimated range for onset of disturbance during piling operations. 1,203 m estimated range for onset of disturbance during vessel operations during construction activities. 379 m estimated range of onset for disturbance during drilling operations.	Midia Gas Development FEED Study – ESIA Report

APPENDIX B CRITICAL HABITAT DETERMINATION TABLES

B1 ONSHORE CRITICAL HABITAT

To identify which critical habitat features are present, and which may be affected by the Project, three factors have been reviewed.

- Whether the status, population and distribution of the feature within the AoA meets the criteria for Critical Habitat (Critical Habitat Feature Y/N column).
- Whether the feature has been regularly recorded within the Project AoI during baseline surveys (and therefore could be affected by the Project)
- Whether a significant population occurs within the AoI (for individual species).

Table B1 EBRD Performance Requirement 6 and IFC Performance Standard 6 Critical Habitat Features

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
EBRD PR 6 Criteria (i) and IFC PS6 Criteria (iv) - Presence of Highly Threatened or Unique Ecosystems (eg Ramsar Site or Biosphere Reserve)				
Black Sea SPA	The onshore pipeline pipeline route is immediately adjacent to this site. Designated in 2006, the Black Sea SPA is a marine site designated for 37 species of wintering and migrating bird species listed on Annex I of the EU Birds Directive, including species listed as Endangered on the IUCN Red List. 29 of the 37 designated species were recorded within the Project AoI during field surveys conducted by Auditeco between 2015 – 2018.	Y	Y	N/A
Danube Delta SCI	The onshore pipeline route physically overlaps this site. Designated in 2006, the Danube Delta SCI is an internationally important wetland site designated for 29 habitats listed in Annex I of the EU Habitats Directive – two of these Annex I habitats have been confirmed present in the Project AoI:	Y	Y	N/A

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	■ 1410 Mediterranean salt meadows; and ■ 1310 Salicornia and other annuals colonizing mud and sand. The SCI is also designated for 43 species of amphibian, invertebrates, fish, mammal and plant species listed on Annex II of the EU Habitats Directive, including species listed as Endangered or Critically Endangered on the IUCN Red List. The following species were recorded within the Project AoI during field surveys conducted by Auditeco between 2015 – 2018 and several of them by the ECoW during construction and are designating features of the SCI: otter (*Lutra lutra*); European ground squirrel *(Spermophilus citellus);* common tortoise *(Testudo graeca);* European fire-bellied toad (*Bombina bombina*); European pond turtle *(Emys orbicularis);* Danube crested newt (*Triturus dobrogicus);* steppe carpenter moth *(Catopta thrips);* and large copper butterfly (*Lycaena dispar)*.			
Danube Delta SPA	The onshore pipeline route physically overlaps this site. Designated in 2006, the Danube Delta SPA is an internationally important wetland site for breeding, migrating and wintering bird species. Designated for 283 bird species including species listed as Endangered or Critically Endangered on the IUCN Red List and birds listed on Annex I of the EU Birds Directive. 134 of these 283 designated species were recorded within the Project AoI during field surveys conducted by Auditeco between 2015 – 2018 including the following species of	Y	Y	N/A

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	conservation concern[1]: European kingfisher (*Alcedo atthis*); common pochard (*Aythya farina*); ferruginous duck *(Aythya nyroca);* European oystercatcher (*Haematopus ostralegus);* white-tailed eagle (*Haliaeetus albicilla);* Dalmatian pelican *(Pelecanus crispus); w*hite pelican *(Pelecanus onocrotalus)* and northern lapwing *(Vanellus vanellus).*			
Danube Delta Ramsar site	The onshore pipeline route and physically overlaps this site. Designated in 1991, the Danube Delta Ramsar site is a wetland of international importance for breeding, migrating and wintering bird species, the site regularly supports up to 950,000 waterbirds during migration periods. The site is also important for other species of mammal, fish and flora.	Y	Y	N/A
Danube Delta IBA / KBA	The onshore pipeline route physically overlaps this site. Internationally important wetland site for breeding, migrating and wintering bird species. Designated for 92 bird species, including species listed as Endangered or Critically Endangered on the IUCN Red List. IBA Categories C1, C2, C3, C4 and C6	Y	Y	N/A
Black Sea IBA / KBA	The onshore pipeline route is immediately adjacent to this site. Coastline and marine IBA designated for 27 species of breeding, migrating and wintering birds, including species listed as Endangered on the IUCN Red List. IBA Categories C1, C2, C3, C4 and C6	Y	Y	N/A

[1] These species appear as Vulnerable, Endangered or Critically Endangered on the Black Sea Red Data Book, EU17 Red List or IUCN Red List Europe.

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
Danube Delta UNESCO Biosphere Reserve (transboundary)			The onshore pipeline route physically overlaps this site. Designated in 1979, the reserve is the largest continuous marshland and the second largest and best-preserved delta in Europe. Sand-dune barrier beach complexes, with brackish lagoons, separated from the sea by sandbars, dominate the area of the reserve within the Project AoI. A section of the sand-dune complex within the Project's AoI is considered a 'strictly protected area' of the Biosphere.	Y	Y	N/A
Danube Delta Natural World Heritage Site			The onshore pipeline route physically overlaps this site. Designated in 1991, the World Heritage Site is a relatively natural ecosystem with a rich diversity of wetland habitats, numerous lakes, ponds and marshes which attract over 300 species of birds and 45 species of freshwater fish. Sand-dune barrier beach complexes dominate the area of the World Heritage Site within the Project AoI with brackish lagoons separated from the sea by sandbars.	Y	Y	N/A
EBRD PR 6 Criteria (ii) and IFC PS6 Criteria (i) - Presence of Habitat of Significant Importance to Endangered or Critically Endangered Species (IUCN EN or CR or National Red List Endangered or Critically Endangered or equivalent)						
Eryngium maritimum Sea holly	Endangered Black Sea Red Data Book	Least Concern	Sea holly was recorded in the Project AoI during flora transect surveys conducted by Auditeco in 2016 and 2018 in the sand dune habitat. It is listed as Endangered on the Black Sea Red Data Book. Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant population, the Project AoI is not believed to support a nationally or regionally significant population as the AoI	Y	Y	N
	Least Concern IUCN Europe					

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			represents a small proportion of the coastal habitat that exists along the Romanian coast.			
Artemisia tschernieviana (Artemisia marschalliana)	Endangered Red Book of Vascular Plants of Romania	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted in 2016 and 2018 by Auditeco. It is listed as Endangered on the Red Book of Vascular Plants of Romania (2009). Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant population, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N
Crambe maritima Sea kale	Endangered Red Book of Vascular Plants of Romania Least Concern IUCN Europe	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted in 2015, 2016 and 2018 by Auditeco. Although it is widespread across Europe, it is listed as Endangered on the Red Book of Vascular Plants of Romania (2009) as it has experienced significant population declines in Romania. Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant population, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N
Dianthus bessarabicus	Endangered Red Book of Vascular Plants of Romania	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted in 2016 by Auditeco. It is listed as Endangered on the Red Book of Vascular Plants of Romania (2009). Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant populations, the Project AoI is not believed to support a significant population as the AoI	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			represents a small proportion of the coastal habitat that exists along the Romanian coast.			
Elymus farctus ssp. bessarabicus (Thinopyrum bessarabicum)	Critically Endangered Red Book of Vascular Plants of Romania	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted in 2016 by Auditeco. It is listed as Critically Endangered on the Red Book of Vascular Plants of Romania (2009). Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant populations, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N
Cirsium alatum	Critically Endangered Red Book of Vascular Plants of Romania	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted by Auditeco. It is listed as Critically Endangered on the Red Book of Vascular Plants of Romania (2009). Not a feature of the Danube Delta SCI. Although the AoA may support a nationally or regionally significant populations, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N
Steppe carpenter moth *Catopta thrips*	-	Data Deficient	Steppe carpenter moth was reported present in the Project AoI by Auditeco during their terrestrial invertebrate surveys in 2016. This species was recorded in the salt meadow habitat (Annex I EU Habitat Directive). It is a designating feature of the Danube Delta SCI and is included in Annex II and IV of the Habitats Directive.	Y	Y	Y

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			The Project AoI is considered to support a significant population of Steppe carpenter moth, given that the population within the Danube Delta SCI are of international importance.			
Large copper butterfly *Lycaena dispar*	Least Concern IUCN Europe	Near Threatened	Large copper was reported present in the Project AoI by Auditeco during their terrestrial invertebrate surveys in 2017 and 2016. This species was recorded in the salt meadow habitat (Annex I EU Habitat Directive). It is a designating feature of the Danube Delta SCI and is included in Annex II and IV of the Habitats Directive. The Project AoI is considered to support a significant population of large copper, given that the population within the Danube Delta SCI are of international importance.	Y	Y	Y
European otter *Lutra lutra*	Endangered Black Sea Red Data Book Vulnerable Red Book of Vertebrates from Romania Near Threatened IUCN Europe	Near Threatened	Field signs of otter were recorded within the Project AoI in 2015 and 2017 during mammal transect surveys conducted by Auditeco. Field signs were observed adjacent to the road that runs from Vadu to the Gura Buhazului beach and along the small brackish lagoon/marsh area south east of Tailings Lake 4 of the Rare Metals Enterprise. Otter is Listed as Endangered in the Black Sea Red Data Book and is listed in Annex II of the EU Habitats Directive. It is a designating feature of the Danube Delta SCI, the Danube Delta Ramsar site and is also a noteworthy species mentioned in the description of the UNESCO Natural World Heritage site as supporting significant populations.	Y	Y	Y

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			The Project AoI is considered to support a significant population of otter, given that the population within the Danube Delta Ramsar, Danube Delta Natural World Heritage Site and Danube Delta SCI are of international importance.			
Dice snake *Natrix tessellata*	Not listed Black Sea Red Data Book Near-Threatened Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Dice snake was recorded during baseline surveys approximately 1.2 km north of the Project site, outside of the Project AoI.. It is listed as Least Concern at global and European Levels, however is listed n Annex IV of the EU Habitats Directive. It is likely that the onshore AoA supports a significant population, however, the Project AoI is not considered to support a significant population of dice snake.	Y	N	N
Ardeola ralloides Squacco heron	Endangered Black Sea Red Data Book Vulnerable Red Book of Vertebrates from Romania	Least Concern	Squacco heron is listed on Annex I on the EU Birds Directive, is a designating feature of the Danube Delta SPA (population ≤4000) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Squacco heron was recorded nesting in four locations during Auditeco's bird surveys in 2015, 2016, 2017 and 2018. Each location had either a pair or single individual recorded, with no more than two individuals recorded in any one year.	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			Therefore, the population within the AoI represents ≤0.05% of the Danube Delta SPA population. Nesting locations recorded do not physically overlap the Project, but three are within the Project AoI. The closest nesting site is ~400 m from the onshore pipeline.			
Ardea purpurea Purple heron	Endangered Red Book of Vertebrates from Romania	Least Concern	Purple heron is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤400) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Purple heron was recorded nesting in seven locations by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. Each location had either a pair or single individual recorded, the highest number recorded in any one year was 4 pairs in 2018. Therefore, the population within the AoI represents ≤2.0% of the Danube Delta SPA population. Nesting locations recorded do not physically overlap the Project but five are within the Project AoI. The closest nesting site is ~300 m from the onshore pipeline.	Y	Y	Y
Haliaeetus albicilla White-tailed eagle	Endangered Black Sea Red Data Book Least Concern	Least Concern	White-tailed eagle is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤28) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. White-tailed eagle was recorded in transit over the Project AoI by Auditeco during their bird surveys. One individual was	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	IUCN Europe		recorded transiting in August 2016 and one individual was recorded transiting in September 2018. The low number of records, time of year and status (in transit) indicates that the Project AoI does not support a significant population of white-tailed eagle.			
Egretta alba Great white egret	Endangered Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Great white egret is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population - breeding ≤360, wintering ≤1200) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Great white egret was recorded nesting in five locations and wintering in seven locations within the Project AoI by Auditeco during their bird surveys in 2015, 2016 and 2018. The highest number of breeding pairs recorded in any one breeding season, was seven in 2015, representing ≤3.9% of the breeding population of the Danube Delta SPA. Up to six individuals were recorded in any one wintering period, representing ≤0.5% of the wintering population of the Danube Delta SPA.	Y	Y	Y – breeding N – wintering
Falco peregrinus Peregrine	Endangered Black Sea Red Data Book Endangered Red Book of Vertebrates	Least Concern	Peregrine is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤2). A single peregrine was recorded in March 2013 during surveys conducted by RSK. It was not recorded again during surveys in 2015, 2016, 2017 or 2018.	Y	N	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	from Romania		The low number of records and status of the one individual recorded (in transit) indicates that the Project AoI does not support a significant population of peregrine.			
	Least Concern IUCN Europe					
Egretta garzetta Little egret	Endangered Red Book of Vertebrates from Romania	Least Concern	Little egret is listed on Annex I on the EU Birds Directive, is a designating feature of the Danube Delta SPA (population ≤2500) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Little egret was recorded nesting in seven locations and wintering in eight locations in the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. The highest number of breeding pairs recorded in any one breeding season was 12 in 2015, representing ≤0.5% of the breeding population of the Danube Delta SPA. The highest number of wintering individuals recorded during any one wintering period was 14. None of the nesting locations physically overlap with the Project. However, they are all located within the Project AoI. The closest nesting site is ~300 m from the onshore pipeline.	Y	Y	N
	Least Concern IUCN Europe					
Glareola pratincola Collared pratincole	Endangered Black Sea Red Data Book	Least Concern	Collared pratincole is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤540). It was recorded in 2013 during surveys conducted by RSK.	Y	N	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	Vulnerable Red Book of Vertebrates from Romania		Surveys conducted by RSK covered a larger area than the Project AoI and surveys conducted by Auditeco between 2015 – 2018 did not record this species within the Project AoI. Therefore, it is very unlikely that the AoI supports a significant population of collared pratincole.			
Larus melanocephalus Mediterranean gull	Endangered Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Mediterranean gull is listed on Annex I on the EU Birds Directive, is a designating feature of the Danube Delta SPA (population ≤200), Black Sea SPA (population ≤15,000) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Mediterranean gull was recorded in transit over the Project AoI by Auditeco during their bird surveys, twice in 2016 and twice in 2017. The status (in transit) of this species when recorded in the AoI indicates that the Project AoI does not support a significant population of Mediterranean gull; they have only been recorded passing along the Black Sea coast.	Y	Y	N
Larus genei Slender-billed gull	Critically Endangered Red Book of Vertebrates from Romania Least Concern	Least Concern	Slender-billed gull is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤70) and Black Sea SPA (population ≤1500). Slender-billed gull was recorded in transit over the Project AoI by Auditeco during their bird surveys, once in 2015 and once 2018. The status (in transit) of this species when recorded in the Project AoI indicates that the Project AoI does not support a	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	IUCN Europe		significant population of slender-billed gull; they have only been recorded passing along the Black Sea coast.			
Circus pygargus Montagu's harrier	Endangered Red Book of Vertebrates from Romania	Least Concern	Montagu's harrier is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤800). Montagu's harrier was recorded in transit over the Project AoI by Auditeco during their bird surveys, one individual was recorded in 2015 and on individual in 2018. The low numbers recorded and status (in transit) of this species when recorded in the Project AoI indicates that the Project AoI does not support a significant population of Montagu's harrier; they have only been recorded passing along the Black Sea coast.	Y	Y	N
	Least Concern IUCN Europe					
Platalea leucorodia Spoonbill	Endangered Black Sea Red Data Book	Least Concern	Spoonbill is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤440). It was recorded in May 2013 during surveys conducted by RSK. It was not identified in the Project AoI during surveys in 2015, 2016, 2017 or 2018. Surveys conducted by RSK covered a larger area than the Project AoI and surveys conducted by Auditeco between 2015 – 2018 did not record this species within the Project AoI. Therefore, it is very unlikely that the AoI supports a significant population of spoonbill.	Y	N	N
	Endangered Red Book of Vertebrates from Romania					
Sterna sandvicensis	Critically Endangered	Least Concern	Sandwich tern is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population	Y	N	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
Sandwich tern	Red Book of Vertebrates from Romania Least Concern IUCN Europe		≤5000), Black Sea SPA (population ≤6000) and is also listed as an important species of the Danube Delta UNESCO Natural World Site. Sandwich tern was recorded in May 2013 during surveys conducted by RSK. Surveys conducted by RSK covered a larger area than the Project AoI and surveys conducted by Auditeco between 2015 – 2018 did not record this species within the Project AoI. Therefore, it is very unlikely that the AoI supports a significant population of sandwich tern.			
Sterna albifrons Little tern	Endangered Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Little tern is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤100), Black Sea SPA (population ≤500) Two individuals were recorded in transit over the Project AoI by Auditeco during their bird surveys in 2017. The status (in transit) of this species when recorded in the Project AoI indicates that the Project AoI does not support a significant population of little tern; they have only been recorded passing along the Black Sea coast.	Y	Y	N
Netta rufina Red-crested pochard	Endangered Red Book of Vertebrates from Romania	Least Concern	Red-crested pochard is a designating feature of the Danube Delta SPA (population, winter ≤2470) and is listed as an important wintering species of the Danube Delta UNESCO Natural World Heritage Site.	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	Least Concern IUCN Europe		It was recorded nesting in four locations within the Project AoI by Auditeco during their bird surveys in 2015. Three of the locations contained a single pair and one location contained two pairs. Nesting locations recorded do not physically overlap the Project but all four are within the Project AoI concentrated around the Tailings Lake of the Rare Metals Enterprise. The closest nesting site is ~500 m from the onshore pipeline. This species was only recorded during one breeding season in 2015, none were recorded during 2013, 2016 or 2017. Therefore, this species is considered only occasionally present in the Project AoI and therefore, the Project AoI is unlikely to support a significant population.			
Pelecanus crispus Dalmatian pelican	Critically Endangered Red Book of Vertebrates from Romania Vulnerable Black Sea Red Data Book Least Concern	Near Threatened	Dalmatian pelican is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤410), Black Sea SPA (population ≤120) and is also listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. It was recorded in transit over the Project AoI by Auditeco during their bird surveys, twice in 2015, 2016 and 2017 respectively. The largest number of individuals transiting recorded was 12 in 2016 and 2017. The status (in transit) of this species when recorded in the Project AoI indicates that the Project AoI does not support a significant population of Dalmatian pelican; they have only been recorded passing along the Black Sea coast.	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	IUCN Europe					
Tringa stagnatilis Marsh Sandpiper	Endangered EU27 Red List Least Concern IUCN Europe	Least Concern	Marsh sandpiper is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤700). A single Marsh sandpiper was recorded feeding in the settling ponds of the Rare Metals Enterprise in 2018 in the Project AoI by Auditeco during their bird surveys. Only a single individual recorded between 2013 and 2018 indicates that the Project AoI does not support a significant population of marsh sandpiper.	Y	Y	N
Limosa limosa Black-tailed godwit	Endangered EU27 Red List Vulnerable IUCN Europe	Near Threatened	Black-tailed godwit is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤15,000) and the Black Sea SPA (population ≤5000). It was recorded feeding in and around the settling ponds of the Rare Metals Enterprise at three locations by Auditeco during their bird surveys, twice in 2015 and once in 2018. The highest number of individuals recorded was 10 in 2015. The three recorded feeding locations recorded do not physically overlap the Project but two are within the Project AoI. The closest feeding area is ~800 m from the onshore pipeline.	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			This species was only recorded within the Project AoI in 2015, only one individual was recorded between 2016 – 2018 and it was outside the Project AoI. Therefore, it is reasonable to conclude that the Project AoI only contains occasional individuals feeding around the settling ponds and not a significant population.			
Circus macrourus Pallid harrier	Endangered Red Book of Vertebrates from Romania Endangered EU27 Red List Near Threatened IUCN Europe	Near Threatened	Pallid harrier is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤60). A single pallid harrier was recorded in 2015 transiting through the Project AoI during surveys conducted by Auditeco. The single record and status of the individual (in transit over the Project AoI) indicates that the Project AoI does not support a significant population of pallid harrier.	Y	Y	N
Buteo lagopus Rough-legged buzzard	Endangered EU27 Red List Least Concern IUCN Europe	Least Concern	Rough-legged buzzard was recorded in 2013 during surveys conducted by RSK. It is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population - winter unknown). Surveys conducted by RSK covered a larger area than the Project AoI and surveys conducted by Auditeco between 2015 – 2018 did not record this species within the Project AoI.	Y	N	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
			Therefore, it is very unlikely that the AoI supports a significant population of rough-legged buzzard.			
Testudo graeca Common tortoise	Endangered Red Book of Vertebrates from Romania Vulnerable IUCN Europe	Vulnerable	Common tortoise is listed in Annex II and IV of the EU Habitats Directive. It is also a designating feature of the Danube Delta SCI. Common tortoise was recorded in the Project AoI during herpetofauna surveys conducted by Auditeco in 2015, 2016, 2017 and 2018 associated with the vegetated sand-dune complex along the shore. The Project AoI is considered to support a significant population of common tortoise, given that the population within the Danube Delta SCI are of international importance.	Y	Y	Y
Pelobates syriacus Eastern spadefoot	Endangered Red Book of Vertebrates from Romania	Least Concern	Eastern spadefoot was recorded in the Project AoI during herpetofauna surveys conducted by Auditeco in 2015, 2016, 2017 and 2018 associated with the vegetated sand-dune complex along the shore, the salt meadows (an EU Habitats Directive Annex I habitat) and also the cultivated agricultural fields. Eastern spadefoot is listed in Annex IV of the EU Habitats Directive. It is not a feature of the Danube Delta SCI, and has been recorded from numerous sites in south and east Romania. The Project AoI is not believed to support a nationally or regionally significant population.	Y	Y	N
Lacerta trilineata Balkan green lizard	Endangered Red Book of Vertebrates from Romania	Least Concern	Balkan green lizard was recorded in the Project AoI during herpetofauna surveys conducted by Auditeco in 2015. The species was only recorded in the salt meadows (an EU Habitats Directive Annex I habitat). It is not a feature of the Danube Delta SCI and is found across southeastern	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
	Least Concern IUCN Europe		Romania. The Project AoI is not believed to support a nationally or regionally significant population.			
Eremias arguta Steppe-runner lizard	Endangered Red Book of Vertebrates from Romania	Not Assessed	Steppe-runner was recorded in the Project AoI during herpetofauna surveys conducted by Auditeco in 2015, 2016, 2017 and 2018 associated with the vegetated sand dune complex along the shore. It is not a feature of the Danube Delta SCI, but is mentioned as a noteworthy rare species of the Danube Delta UNESCO Natural World Heritage Site.	Y	Y	N
	Near Threatened IUCN Europe					
Hyla arborea European tree frog	Vulnerable Red Book of Vertebrates from Romania	Least Concern	European tree frog was reported present in the Project AoI by Auditeco during their herpetofauna surveys in 2015, 2016, 2017 and 2018. This species was recorded in the vegetated sand dune complex, the salt meadow habitat (Annex I EU Habitat Directive) and in the grasslands adjacent to the road from Vadu to the beach. It is listed on Annex IV of the EU Habitats Directive. It is not a feature of the Danube Delta SCI and the Project AoI is not believed to support a significant population.	Y	Y	N

Feature			Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
Triturus dobrogicus Danube crested newt	Endangered Red Book of Vertebrates from Romania	Near Threatened	Danube crested newt was recorded during pre-construction check surveys by the Project ECoW in reedbeds within the AoI (only one individual was recorded). It is listed on Annex II of the EU Habitats Directive and is a feature of the Danube Delta SCI. The Project AoI is not believed to support a significant population.	Y	N	N
EBRD PR 6 Criteria (iii) and IFC PS6 Criteria (ii) - Presence of Habitats of Significant Importance for Endemic or Geographically Restricted Species						
Species	**Endemic or Geographically Restricted**					
None recorded						
EBRD PR6 Criteria (iv) and IFC PS6 Criteria (iii) - Presence of Habitats Supporting Globally Significant Migratory or Congregatory Species						
Danube Delta Ramsar site			The onshore pipeline route physically overlaps this site. Designated in 1991, the Danube Delta Ramsar site is a wetland of international importance for breeding, migrating and wintering bird species, the site regularly supports up to 950,000 waterbirds during migration periods. The majority of the world population of pygmy cormorants (*Phalacrocorax pygmeus)* nest in the delta, most of the world's red-breasted geese (*Branta ruficollis)* winter around the margins of the wetlands and the Endangered slender-billed curlew (*Numenius tenuirostris)* occurs on migration. The site is also important for other species of mammal, fish and flora, including important populations of otter (*Lutra lutra)* and mink (*Lutreola lutreola)*.	Y	Y	N

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
Danube Delta SPA	The onshore pipeline route physically overlaps this site. Designated in 2006, the Danube Delta SPA is an internationally important wetland site for migrating and wintering bird species. Designated for 283 bird species including species listed as Endangered or Critically Endangered on the IUCN Red List and birds listed on Annex I of the EU Birds Directive.	Y	Y	N
Black Sea SPA	The onshore pipeline route is immediately adjacent to this site. Designated in 2006, the Black Sea SPA is a marine site designated for 37 species of wintering and migrating bird species listed on Annex I of the EU Birds Directive, including species listed as Endangered on the IUCN Red List.	Y	N	N
Danube Delta IBA / KBA	Internationally important wetland site for breeding, migrating and wintering bird species. Designated for 92 bird species, including species listed as Endangered or Critically Endangered on the IUCN Red List. During migration periods the site holds up to 950,000 species of waterbirds. IBA Criteria for Migratory Species C2, C3 and C4.	Y	N	N
Black Sea IBA / KBA	Coastline and marine IBA designated for 27 species of breeding, migrating and wintering birds. During migration periods the site holds up to 250,000 species of waterbirds. IBA Criteria for Migratory Species C2, C3 andC4	Y	N	N
EBRD PR6 Criteria (v) and IFC PS6 Criteria (v) - Presence of Areas Associated with Key Evolutionary Processes				
None recorded				

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
EBRD PR6 Criteria (vi) - Presence of Ecological Structure or Functions needed to Maintain Viability of Critical Habitat (eg surface or ground water flows feeding a Ramsar Site)				
Coastal habitats and wetland structure	The coastal habitats consist of a sand-barrier beach and vegetated sand and saltmarsh complex. Further inland, the coastal wetland structure consists of salt marshes, salt steppe and several brackish lagoons (separated from the sea by a sandbar) that have outlets into the Black Sea.	Y	Y	-

B2 OFFSHORE CRITICAL HABITAT

Table B2 EBRD Performance Requirement 6 and IFC Performance Standard 6 Critical Habitat Features

Feature	Description/Distribution	Critical Habitat Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
EBRD PR 6 Criteria (i) and IFC PS6 Criteria (iv) - Presence of Highly Threatened or Unique Ecosystems (eg Ramsar Site or Biosphere Reserve)				
Black Sea SPA	The offshore pipeline route physically overlaps with the marine component of this SPA designated for 37 species of wintering and migrating bird species listed on Annex I of the EU Birds Directive, including species listed as Endangered on the IUCN Red List. 2.70% of the site is within the Project AoI.	Y	Y	N/A
Black Sea IBA / KBA	The offshore pipeline route physically overlaps with the marine component of this IBA, which has been designated as an important site for 27 species of breeding, wintering and migratory birds, including species listed as Endangered on the IUCN Red List. The site has been designated for triggering IBA Categories C1, C2, C3 and C6. 2.81% of the site is within the Project AoI.	Y	Y	N/A
Danube Delta marine zone SCI	The offshore pipeline route physically overlaps with this SCI. Qualifying features of the site include Annex I habitats (Sandbanks which are slightly covered by sea water all the time; Estuaries; Mudflats and sandflats not covered by seawater at low tide; and Large shallow inlets and bays) and Annex II species (bottlenose dolphin; harbour porpoise; Black Sea shad; and Pontic shad) under the EU Habitats Directive. 5.49% of the site is within the Project's offshore AoI.	Y	Y	N/A
The Southern Lobe of Zernov's Phyllophora Field SCI	This SCI lies at the mouth off the Danube Delta, approximately 50 km north of the Project AoI. Qualifying	Y	N	N/A

	features of the site include Annex I habitats (Sandbanks which are slightly covered by sea water all the time and Submarine structures made by leaking gases) and Annex II species (bottlenose dolphin; harbour porpoise; and Pontic shad) under the EU Habitats Directive. Although it occurs within the Proejct AoA, it does not overlap with the Project AoI and no effects on it are predicted.			
Viteaz Canyon SCI	This SCI lies at the edge of the northwestern shelf of the Black Sea, approximately 18 km southeast of the Project AoI. Qualifying features of the site include Annex I habitats (Reefs and Submarine structures made by leaking gases) and Annex II species (bottlenose dolphin) under the EU Habitats Directive. Although it occurs within the Proejct AoA, it does not overlap with the Project AoI and no effects on it are predicted.	Y	N	N/A
Danube Delta Ramsar site	The offshore pipeline route physically overlaps with the marine component of this Ramsar site. Designated in 1991, the Danube Delta Ramsar site is a wetland of international importance for breeding, migrating and wintering bird species. The site regularly supports up to 950,000 waterbirds during migration periods, including seabirds and birds making use of marine areas. 0.48% of the total site is within the Project AoI, and 2.46% of the marine part of the site is within the Project AoI.	Y	Y	N/A
Danube Delta UNESCO Biosphere Reserve	The offshore pipeline route physically overlaps with the marine component of this site. Designated in 1979, the reserve is the second largest and best-preserved delta in Europe. The site includes fluvial, transitional and marine zones, of which the latter is characterised by sand-dune barrier complexes. Approximately 30 marine fish species have been recorded in the delta, as well as three marine mammal species (Black Sea bottlenose dolphin, common dolphin and harbour porpoise). 0.70% of the total site is within	Y	Y	N/A

			the Project AoI and 2.46% of the marine part of the site is within the Project AoI...		
Seep/vent habitats with structures (methane-derived authigenic carbonate or MDAC) made by leaking gases: A5.71 'Seep and vents in sublittoral sediments'			Carbonate concretions and benthic bacterial mats were recorded along the infield pipeline route between the Ana and Doina fields. The habitat was described as meeting EUNIS classification A5.71 'Seeps and vents in sublittoral sediments'. Seabed surveys in the project area identified a EUNIS habitat type characterised by seep or vent habitats. This EUNIS habitat meets the definition of Annex I (Submarine structures made by leaking gases) under the EU Habitats Directive[1]. The habitat is not listed in the European Red List of Threatened Habitats [2]. This habitat was recorded from four locations along the infield pipeline route within the Project AoI .	Y	Y	N/A
EBRD PR 6 Criteria (ii) and IFC PS6 Criteria (i) - Presence of Habitat of Significant Importance to Endangered or Critically Endangered Species (IUCN EN or CR or National Red List Endangered or Critically Endangered or equivalent)					
Species	**Romanian / Black Sea / European Status**	**IUCN Status**			
Russian sturgeon, *Acipenser gueldenstaedtii*	Critically Endangered IUCN Europe Vulnerable at subregional level	Critically Endangered	Russian sturgeon were identified as potentially being present within 50 km of the Project AoI. This species has been recorded in the Caspian Sea, Black Sea, and historically in the Sea of Azov although no native spawning population remains there. A small wild spawning population remains in	Y	N	N

(1)http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf

(2) http://ec.europa.eu/environment/nature/knowledge/pdf/Marine_EU_red_list_report.pdf

	Black Sea Red Data Book		the lower Danube River and Black Sea[1], alongside spawning populations in the Caspian. It inhabits shallow coastal waters from where it migrates to rivers to spawn. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.			
Ship sturgeon, *Acipenser nudiventris*	Critically Endangered IUCN Europe	Critically Endangered	Stellate sturgeon were identified as potentially being present within 50 km of the Project AoI. This species has been recorded from the Caspian Sea, Black Sea, Ural Sea and Sea of Azov, although it is now considered as "possibly extinct" in the Danube River Basin[2]. It is found in coastal and estuarine waters from which it migrates to rivers to spawn. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.	Y	N	N
Stellate sturgeon, *Acipenser stellatus*	Critically Endangered IUCN Europe Vulnerable at subregional level Black Sea Red Data Book	Critically Endangered	Stellate sturgeon were identified as potentially being present within 50 km of the Project AoI. This species inhabits the Caspian, Sea, Black Sea and Sea of Azov, with the majority of the population in the Caspian Sea. A small wild spawning population remains in the lower Danube River and Black Sea[3]. It is found on sandy-clay substrates in marine, coastal and estuarine waters from which it migrates to rivers to spawn. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.	Y	N	N

[1] Pan-European Action Plan for Sturgeons (2018). Document prepared by the World Sturgeon Conservation Society and WWF, available online at: https://rm.coe.int/pan-european-action-plan-for-sturgeons/16808e84f3

[2] Pan-European Action Plan for Sturgeons (2018)

[3] Pan-European Action Plan for Sturgeons (2018).

Atlantic sturgeon, *Acipenser sturio*	Critically Endangered IUCN Europe	Critically Endangered	Atlantic sturgeon were identified as potentially being present within 50 km of the Project AoI. Although their historic range extended from the North and Baltic Seas to the western and southern Black Sea, the only breeding population now known is in the Garonne River in France and the species is considered extinct within the western Black Sea and possibly the Black Sea as a whole[1].	N	-	-
Common thresher shark, *Alopias vulpinus*	EN for European population	VU	Common thresher shark were identified as potentially being present within 50 km of the Project AoI. This species is found globally, including in the Black Sea. It inhabits coastal and oceanic waters, and is most abundant up to 40-50 miles offshore. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.	N	-	-
European eel, *Anguilla anguilla*	Critically Endangered IUCN Europe	Critically Endangered	European eel were identified as potentially being present within 50 km of the Project AoI. This species has a wide distribution across the north-eastern Atlantic coasts of Europe and in the Mediterranean, and occurs at low abundance in the Black Sea. It inhabits a range of aquatic habitats including coastal waters, and migrates to pelagic marine waters to breed. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.	Y	N	N
Beluga, *Huso huso*	Critically Endangered IUCN Europe	Critically Endangered	Beluga were identified as potentially being present within 50 km of the Project AoI. This species has been recorded from the Caspian Sea, Black Sea, Adriatic Sea and Sea of Azov, but native wild populations are currently limited to the Black Sea and Caspian Sea. A small wild spawning population remains in the lower Danube River and Black Sea[2]. It is found in marine pelagic waters, from which it migrates to	Y	N	N

[1] Pan-European Action Plan for Sturgeons (2018)

[2] Pan-European Action Plan for Sturgeons (2018).

			rivers to spawn. Individuals may transit through the Project AoA, however it does not represent a discrete management unit which regularly supports at least a single individual.			
Red mullet, *Mullus barbatus ponticus*	Endangered at regional and subregional level Black Sea Red Data Book	Not evaluated	Red mullet were recorded in the vicinity of the Project AoI during seabed surveys. A Black Sea subspecies is listed in the Black Sea Red Data Book. Red mullet are distributed widely in the Eastern Atlantic, as well as in the Mediterranean and Black Sea. This species inhabits sandy, muddy and hard substrates along the coastal shelf down to 200 m. Individuals may be present within the Project AoA, but the area does not support a nationally or regionally important concentration of this species.	N	-	-
Black Sea common dolphin, *Delphinus delphis ponticus*	Endangered in Romania and Data Deficient at regional level Black Sea Red Data Book	Not evaluated	Common dolphin were recorded in the vicinity of the Project AoI during seismic surveys. They are a qualifying feature of designated sites in the area, as well as being listed in the Black Sea Red Data Book. The Black Sea population of common dolphin is thought to be an endemic subspecies that inhabits the Black Sea, and occasionally adjoining waters including the Kerch Strait and Turkish Straits system. The species is distributed predominantly offshore, visiting coastal waters to feed on seasonal aggregations of fish. It is likely that the AoA supports a nationally or regionally important concentration of this species.	Y	Y	Y
Black Sea harbour porpoise, *Phocoena phocoena relicta*	Endangered in Romania and Data Deficient at regional level Black Sea Red Data Book	Not evaluated	Harbour porpoise were recorded in the vicinity of the Project AoI during seismic surveys. They are a qualifying feature of the Danube Delta SCI, as well as being listed in the Black Sea Red Data Book and as an Annex II species under the EU Habitats Directive. The Black Sea population may represent an isolated subspecies, with the main breeding areas in the Sea of Azov and Sea of Marmora rather than the North-East Atlantic. In the Black Sea, this species is found mainly in coastal, relatively shallow waters. It is likely that the AoA	Y	Y	Y

			supports a nationally or regionally important concentration of this species.			
Black Sea bottlenose dolphin, *Tursiops truncatus ponticus*	Endangered in Romania and Data Deficient at regional level Black Sea Red Data Book	Not evaluated	Bottlenose dolphin were recorded in the vicinity of the Project AoI during seismic surveys. They are a qualifying feature of the Danube Delta SCI, as well as being listed in the Black Sea Red Data Book and as an Annex II species under the EU Habitats Directive. The Black Sea population of bottlenose dolphin is thought to be an endemic subspecies that inhabits the Black Sea, as well as adjoining waters including the Kerch Strait, Azov Sea and Turkish Straits system, showing limited gene flow with the Mediterranean population of bottlenose dolphins. The species is distributed across coastal shelf waters and may occur further offshore. It is likely that the AoA supports a nationally or regionally important concentration of this species.	Y	Y	Y
EBRD PR 6 Criteria (iii) and IFC PS6 Criteria (ii) - Presence of Habitats of Significant Importance for Endemic or Geographically Restricted Species						
Species	**Endemic or Geographically Restricted**					
None present						
EBRD PR6 Criteria (iv) and IFC PS6 Criteria (iii) - Presence of Habitats Supporting Globally Significant Migratory or Congregatory Species						
Black Sea KBA/IBA			The Project AoI overlaps with the marine component of this IBA, which is an important site for breeding, wintering and migratory bird species. The site has been designated for regularly holding at least 20,000 migratory waterbirds and/or 10,000 pairs of migratory seabirds of one or more species (IBA category C4). During migration periods the site holds up	Y	Y	N/A

	to 250,000 individuals comprising several species of waterbird. The site is also designated for triggering IBA Categories C1, C2, C3 and C6. The offshore pipeline crosses the IBA for approximately 11.6 km,.			
Danube Delta Ramsar site	The Project AoI overlaps with the marine component of this Ramsar site. Designated in 1991, the Danube Delta Ramsar site is a wetland of international importance for breeding, migrating and wintering bird species. The site regularly supports up to 950,000 waterbirds during migration periods. The offshore pipeline crosses the IBA for approximately 8.7 km.	Y	Y	N/A
Pontic shad, *Alosa immaculata*	Pontic shad is a qualifying feature of the Danube Delta SCI and was identified as potentially being present within 50 km of the Project AoI. The species is listed as Vulnerable on the IUCN Red List of Threatened Species and is an Annex II species under the EU Habitats Directive. The species is restricted to the Black Sea, the Sea of Azov and the Marmara Sea in Turkey, where it is pelagic and found in deep water. It migrates upriver to spawn from late March to May. Given the range of this species, it is possible that >1% of the global population could be present in the Project AoA during migration.	Y	Y	Y
Black Sea shad, *Alosa tanaica*	Black Sea shad is a qualifying feature of the Danube Delta SCI. The species is listed as an Annex II species under the EU Habitats Directive. The species is widespread within the Black Sea, the Sea of Azov and the Kerch Strait, where it is pelagic and found in deeper coastal waters. It migrates upriver to spawn from late April to May. As the species is restricted to the Black Sea, it is possible that >1% of the global population could be present in the Project AoA during migration.	Y	Y	Y

Yelkouan shearwater, *Puffinus yelkouan*	Yelkouan shearwater were recorded in the vicinity of the Project AoI during surveys identified as potentially being present within 50 km of the Project AoI. They are a qualifying feature of designated sites in the area, as well as being listed as an Annex I species under the EU Birds Directive. This species is endemic to the Mediterranean basin with some birds migrating to the Black Sea during the non-breeding season, where they often congregate in large flocks offshore. An upper estimate of 17,000 individuals present during passage at the Black Sea IBA indicates that >1% of the global population[1] could be present in the Project AoA during migration.	Y	Y	Y
EBRD Pr6 Criteria (v) and IFC PS6 Criteria (v) - Presence of Areas Associated with Key Evolutionary Processes				
None present				
EBRD PR6 Criteria (vi) - Presence of Ecological Structure or Functions needed to Maintain Viability of Critical Habitat (eg surface or ground water flows feeding a Ramsar Site)				
None present				

[1] Estimates range from 46,000-92,000 to upwards of 90,000 individuals. BirdLife International 2018. *Puffinus yelkouan.* The IUCN Red List of Threatened Species 2018: e.T22698230A132637221. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22698230A132637221.en. Downloaded on 26 March 2019.

APPENDIX C PRIORITY BIODIVERSITY FEATURE DETERMINATION TABLES

Date

C1 ONSHORE PBF

Table C1 EBRD Performance Requirement 6 Priority Biodiversity Features

Feature			Description/Distribution	Priority Biodiversity Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
EBRD PR 6 Criteria (i) - Presence of Threatened Habitats						
Sandflats			Habitat surveys conducted by Auditeco in 2018 recorded sandflats not covered by seawater at low tide along the length of the coast within the Project AoI. This habitat qualifies as EU Annex I habitat – 1140 – Mudflats and sandflats not covered by seawater at low tide.	Y	Y	-
EBRD PR6 Criteria (ii) - Presence of Vulnerable Species (IUCN VU or National Red List Vulnerable or equivalent)						
Centaurium spicatum Spiked centaury	Vulnerable Red Book of Vascular Plants of Romania	Least Concern	This species was recorded on the beach within the Project AoI during flora transect surveys conducted by Auditeco. It is listed as Vulnerable on the Red Book of Vascular Plants of Romania (2009). Not a designating feature of the Danube Delta SCI, but is listed as an important species. Although the AoA may support a nationally or regionally significant populations, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N
Scolymus hispanicus	Vulnerable Red Book of Vascular Plants of Romania	Not Assessed	This species was recorded on the beach within the Project AoI during flora transect surveys conducted by Auditeco. It is listed as Vulnerable on the Red Book of Vascular Plants of Romania (2009). Not a designating feature of the Danube Delta SCI, but is listed as an important species. Although the AoA may support a nationally or regionally significant populations, the Project AoI is not believed to support a significant population as the AoI represents a small proportion of the coastal habitat that exists along the Romanian coast.	Y	Y	N

Spermophilus citellus European ground squirrel	Vulnerable Red Book of Vertebrates from Romania Vulnerable IUCN Europe	Vulnerable	European ground squirrel was recorded in the Project AoI during mammal transect surveys conducted by Auditeco in 2015, 2016, 2017 and 2018. This species was recorded in the vegetated sand dune complex, the salt meadow habitat (Annex I EU Habitat Directive), adjacent to the road from Vadu to the beach and within the cultivated agricultural fields. European ground squirrel is listed in Annex II of the EU Habitats Directive and is a designating feature of the Danube Delta SCI. The Project AoA is considered to support a significant population of European ground squirrel, given that the population within the Danube Delta SCI is of international importance.	Y	Y	Y
Canis aureus Golden Jackal	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Golden jackal was reported present in the Project AoI by Auditeco during their mammal surveys in 2015, 2016 and 2017. This species was recorded, in the sand dune complex, the marsh/salt meadow habitat and within the cultivated agricultural fields. This species is not a feature of the Danube Delta SCI and is widely distributed across Romania. The Project AoA is not believed to support a significant population.	N	-	-
Emys orbicularis European pond turtle	Vulnerable Red Book of Vertebrates from Romania Near Threatened IUCN Europe	Near Threatened	European pond turtle was reported present in the Project AoI by Auditeco during their herpetofauna surveys in 2015, 2016, 2017 and 2018. This species was recorded in the vegetated sand dune complex, the salt meadow habitat (Annex I EU Habitat Directive) and in the grasslands adjacent to the road from Vadu to the beach. It is listed on Annex II on the EU Habitats Directive. The Project AoA is considered to support a significant population of European pond turtle, given that the population within the Danube Delta SCI is of international importance.	Y	Y	Y

Bombina bombina Fire-bellied toad	Least Concern IUCN Europe	Least Concern	Fire-bellied toad was recorded within the Project AoI during 2015. The species is listed on Annex II of the Habitats Directive and is a qualifying interest feature of the Danube Delta SCI. The Project AoI is considered to support a significant population of fire-bellied toad, given that the population within the Danube Delta SCI is of international importance.	Y	Y	Y
Alcedo atthis European kingfisher	Vulnerable EU27 Vulnerable IUCN Europe	Least Concern	European kingfisher is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤1700). Two European kingfishers were recorded in transit over the Project AoI by Auditeco during their bird surveys in 2018. The very low numbers of individuals, their status (in transit) and only being recorded once across surveys conducted between 2013 – 2018 indicates that the Project AoI does not support a significant population of European kingfisher.	Y	Y	N
Aythya ferina Common pochard	Vulnerable EU27 Vulnerable IUCN Europe	Vulnerable	Common pochard is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population winter ≤38,000) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Common pochard was recorded wintering in the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. Additionally, one or two individuals were recorded in 2017 and 2018 during June and September. Only one area recorded wintering common pochard within the physical footprint of the Project. The remaining areas are all within the Project AoI. Between 20 and up to 139 individuals were recorded with the majority of sightings focused around the Rare Metals Pond. The highest number of individuals recorded	Y	Y	Y

			wintering in any one winter period was 571 during 2015, representing 1.5% of the wintering population of the Danube Delta SPA.			
Aythya nyroca Ferruginous duck	Vulnerable Black Sea Red Data Book Vulnerable Red Book of Vertebrates from Romania	Near Threatened	Ferruginous duck is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤4200). It was recorded nesting in the Project AoI by Auditeco during their bird surveys in 2015 and 2018. None of the ferruginous ducks recorded were nesting within the physical footprint of the Project, but all are within the Project AoI, focused around the rare metal settling ponds and rare metal tailings lake. Up to 110 individuals were recorded with the majority of sightings focused around the Rare Metals tailings lake. The highest number of pairs recorded nesting in any one breeding period was 292 during 2015, representing 6.9% of the breeding population of the Danube Delta SPA.	Y	Y	Y
Haematopus ostralegus European oystercatcher	Vulnerable Black Sea Red Data Book Vulnerable Red Book of Vertebrates from Romania Vulnerable EU27	Near Threatened	Oystercatcher is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤20). It was recorded transiting through the Project AoI by Auditeco during their bird surveys in 2015 and 2017. The status of the records (in transit over the Project AoI) indicates that the Project AoI does not support a significant population of European oystercatcher.	Y	Y	N

	Vulnerable IUCN Europe					
Nycticorax nycticorax Black-crowned night heron	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Black-crowned night heron is listed on Annex I of the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤4000). This species was recorded by RSK in 2013. Surveys conducted by RSK covered a larger area than the Project AoI and surveys conducted by Auditeco between 2015 – 2018 did not record this species within the Project AoI.	Y	N	N
Pandion haliaetus Osprey	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Osprey is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population unknown) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. Two individuals were recorded in transit over the Project AoI by Auditeco during their bird surveys in 2018. The low numbers recorded and status of the record (in transit over the Project AoI) indicates that the Project AoI does not support a significant population of osprey.	Y	Y	N
Himantopus himantopus Black-winged stilt	Vulnerable Red Book of Vertebrates from Romania Least Concern	Least Concern	Black-winged stilt is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤2200). A nesting colony was recorded in the settling ponds in the Project AoI by Auditeco during their bird surveys in 2015. Up to 90 individuals were recorded representing 4.1% of the population in the Danube Delta SPA.	Y	Y	Y

	IUCN Europe					
Buteo rufinus Long-legged buzzard	Vulnerable Red Book of Vertebrates from Romania	Least Concern	Long-legged buzzard is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤5). One to two individuals were recording transiting through the Project AoI by Auditeco during their bird surveys in 2015, 2016 and 2017 respectively. The low numbers recorded and status of the record (in transit through the Project AoI) indicates that the Project AoI does not support a significant population of long-legged buzzard.	Y	Y	N
Recurvirostra avosetta Pied avocet	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Pied avocet is listed on Annex I on the EU Birds Directive and is a designating feature of the Danube Delta SPA (population ≤1200). It was reported present in the Project AoI by Auditeco during their bird surveys in 2015. A large nesting colony was identified at the settling ponds in the Project AoI ~1 km from the onshore pipeline with up to 270 individuals recorded. This represents 22.5% of the population of the Danube Delta SPA.	Y	Y	Y
Falco vespertinus Red-footed falcon	Vulnerable Red Book of Vertebrates from Romania Vulnerable EU27	Near Threatened	Red-footed falcon is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤3000) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. It was recorded nesting adjacent to the proposed GTP in the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. The highest number of individuals recorded was	Y	Y	Y

	Near Threatened IUCN Europe		36 in 2017, representing 1.2% of the Danube Delta SPA population.			
Ciconia ciconia White stork	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	White stork is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤60,000) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. It was recorded in eight locations transiting through the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. Up to seven individuals were recorded in any one year. It is known to nest in Corbu and Vadu villages. The species was not recorded nesting in the Project AoI, only transiting through and only recorded in low numbers. Therefore, the Project AoI does not support a significant population.	Y	Y	N
Pelecanus onocrotalus White pelican	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	White pelican is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤4160) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. It was recording transiting over the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. This species was only recorded transiting over the area, therefore, it is unlikely that the Project AoI supports a significant population.	Y	Y	N
	Vulnerable			Y	Y	N

Plegadis falcinellus Glossy ibis	Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Glossy ibis is listed on Annex I on the EU Birds Directive is a designating feature of the Danube Delta SPA (population ≤3200) and is listed as an important species of the Danube Delta UNESCO Natural World Heritage Site. It was recording transiting over the Project AoI by Auditeco during their bird surveys in 2015. Considering this species was only recorded transiting over the Project AoI and not recorded in 2016, 2017 or 2018. The Project AoI is not considered to support a significant population.			
Tadorna tadorna Common shelduck	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Common shelduck is a designating feature of the Danube Delta SPA (population wintering ≤1200). It was recorded nesting in the Project AoI by Auditeco during their bird surveys in 2015, 2016 and 2017. The highest number recorded was 47 pairs in 2015. It was recorded wintering in the Project AoI in 2015 and 2017, only two individuals were recorded in each year representing 0.2% of the wintering population of the Danube Delta SPA.	Y	Y	N
Tringa totanus Common redshank	Vulnerable EU27 Least Concern IUCN Europe	Least Concern	Common redshank is a designating feature of the Danube Delta SPA (population ≤12,000). It was recorded feeding in the Project AoI around the settling ponds by Auditeco during their bird surveys in 2015 and 2016. It was a common species in the Project AoI, the highest number of individuals recorded was 136 in 2015, representing 1.1% of the Danube Delta SPA population.	Y	Y	Y
Turdus pilaris Fieldfare	Vulnerable EU27 Least Concern	Least Concern	Fieldfare is a designating feature of the Danube Delta SPA (population unknown).	Y	Y	N

	IUCN Europe		It was recorded transiting through the Project AoI in winter by Auditeco during their bird surveys in 2015 and 2017. Considering this species was only recorded transiting over the Project AoI the Project AoI is not considered to support a significant population.			
Upupa epops Common hoopoe	Vulnerable Red Book of Vertebrates from Romania Least Concern IUCN Europe	Least Concern	Common hoopoe is a designating feature of the Danube Delta SPA (population unknown). It was recorded nesting in the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. It is common in the Project AoI and consistently breeds in the Project AoI every year. The highest number of breeding pairs recorded was 17 in 2015. One of the nesting locations is physically overlapped by onshore pipeline footprint, the remaining nine locations identified are within the Project AoI.	Y	Y	Y
Vanellus vanellus Northern lapwing	Vulnerable EU27 Vulnerable IUCN Europe	Near Threatened	Northern lapwing is a designating feature of the Danube Delta SPA (population breeding ≤600). It was recorded nesting in the Project AoI by Auditeco during their bird surveys in 2015, 2016, 2017 and 2018. It is common in the Project AoI and consistently breeds in the Project AoI every year. The highest number of pairs recorded was 37 in 2015. This represents 12.2% of the population of the Danube Delta SPA. None of the nesting locations physically overlap the onshore pipeline footprint or GTP but the nesting locations identified are within the Project AoI.	Y	Y	Y
EBRD PR6 Criteria (iii) - Presence of Significant Biodiversity Features Recognised by Stakeholders or Governments (IBA, KPA etc)						
Captured under Critical Habitat						
EBRD PR6 Criteria (iv) - Presence of Ecological Structure or Functions needed to Maintain Viability of Priority Features						

Captured under Critical Habitat				

C2 OFFSHORE PBF

Table C2 EBRD Performance Requirement 6 Priority Biodiversity Features

Feature	Description/Distribution	Priority Biodiversity Feature Y/N	Regularly Found in AoI?	Significant Population in AoI?
EBRD PR 6 Criteria (i) - Presence of Threatened Habitats				
Habitats dominated by mussel species: A5.628 'Pontic *Mytilus galloprovincialis* beds on sublittoral sediment'	Benthic habitats characterised by the presence of *Mytilus galloprovincialis* were identified during the baseline surveys along the export pipeline route. The habitat was described as meeting EUNIS classification A5.628 'Pontic *Mytilus galloprovincialis* beds on sublittoral sediment habitat'. This EUNIS habitat meets the definition of Annex I habitat (Reefs) under the EU Habitats Directive as being a subcategory of EUNIS habitat A5.6[10]. EUNIS code habitat A5.62 'Mussel beds on Pontic circalittoral terrigenous muds' is listed as Endangered in the European Red List of Threatened Habitats[11]. This habitat was recorded at nine locations along the export pipeline within the Project AoI.	Y	Y	N/A
Habitats dominated by mussel species: A5.379 Pontic deep circalittoral muds with *Modiolula phaseolina*	Benthic mud habitats with shells of *Modiolula phaseolina* and varying numbers of live *Modiolula phaseolina* were recorded from along the export pipeline route and from both the Ana and Doina fields. The habitat was described as meeting EUNIS classification A5.379 'Pontic deep circalittoral muds with Modiolula phaseolina'. There is some discussion in the baseline survey reports that this habitat may meet the definition of Annex I habitat under the EU Habitats Directive, however EUNIS code A5.3 is not listed as a relevant habitat type in the Interpretation Manual of European	N	Y	N/A

(10)http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf

(11) http://ec.europa.eu/environment/nature/knowledge/pdf/Marine_EU_red_list_report.pdf

			Union Habitats[12]. EUNIS code habitat A5.37 is listed as Data Deficient in the European Red List of Threatened Habitats[13].			
EBRD PR6 Criteria (ii) - Presence of Vulnerable Species (IUCN VU or National Red List Vulnerable or equivalent)						
Species	**Romanian / Black Sea / European Status**	**IUCN Status**				
Gray triggerfish, *Balistes capriscus*	Not evaluated	Vulnerable	Gray triggerfish was identified as potentially being present within 50 km of the Project AoI. This species is widespread in the Atlantic Ocean, extending into the Mediterranean Sea and Black Sea, and is found associated with hard bottoms, reefs and ledges down to around 55 m as an adult after a pelagic juvenile stage.	Y	N	N
Common dentex, *Dentex dentex*	Vulnerable IUCN Europe	Vulnerable	Common dentex was identified as potentially being present within 50 km of the Project AoI. This species is widely distributed in the eastern Atlantic off the West African coast and throughout the Mediterranean Sea, but is only occasionally present in parts of the Black Sea including offshore Romania. It may be found in coastal waters associated with rocky bottoms, seagrass meadows and some sandy habitats.	Y	N	N
Bucchich's goby, *Gobius bucchichi*	Endangered Black Sea Red Data Book	Least Concern	*Gobius* spp. were recorded during surveys of the pipeline route, but these were not identified to species level. Bucchich's goby is listed in the Black Sea Red Data Book but has not been recorded from Romanian waters. This species inhabits coastal waters in the Mediterranean Sea and in the Black Sea, where it is found inshore on sandy patches.	N	N	N
Giant goby, *Gobius cobitis*	Endangered	Least Concern	*Gobius* spp. were recorded during surveys of the pipeline route, but these were not identified to species level. Giant goby is listed	Y	N	N

(12) http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf

(13) http://ec.europa.eu/environment/nature/knowledge/pdf/Marine_EU_red_list_report.pdf

	Black Sea Red Data Book		in the Black Sea Red Data Book and has potential to be present in the Project AoI. This species inhabits marine and brackish waters of the eastern Atlantic Ocean, Mediterranean Sea and the Black Sea, where it is found mainly within rock pools in the intertidal zone.			
Green wrasse, *Labrus viridis*	Not evaluated	Vulnerable	Green wrasse was identified as potentially being present within 50 km of the Project AoI. This species inhabits the eastern Atlantic, Mediterranean Sea and western Black Sea, where it is found in seagrass beds and around rocky reefs down to around 50 m.	Y	N	N
Bluefish, *Pomatomus saltatrix*	Near Threatened IUCN Europe	Vulnerable	Bluefish was identified as potentially being present within 50 km of the Project AoI. The species is also considered to be a fish of commercial interest in the Romanian Black Sea[14]. Bluefish inhabits marine waters globally, and can be found in a variety of coastal habitats from which they periodically migrate to open waters. The eastern Atlantic subpopulation extends into the Mediterranean Sea and Black Sea.	Y	Y	N
Atlantic horse mackerel, *Trachurus trachurus*	Least Concern IUCN Europe	Vulnerable	Atlantic horse mackerel was identified as potentially being present within 50 km of the Project AoI. This species inhabits the north and eastern Atlantic, Mediterranean Sea and Black Sea, where it is found in large schools over sandy bottoms in deeper coastal waters (mainly between 100 - 200 m).	Y	Y	N
Black-throated loon, *Gavia arctica*	Least Concern IUCN Europe	Least Concern	Black-throated loon were recorded in the vicinity of the Project AoI during surveys. They are a qualifying feature of designated sites in the area, as well as being listed as an Annex I species under the EU Birds Directive. This species has a wide range across Europe and Asia, breeding in freshwater lakes in northern areas and wintering further south in sheltered coastal marine waters.	Y	Y	N
Slender-billed gull, *Larus genei*	Least Concern	Least Concern	Slender-billed gull were recorded in the vicinity of the Project AoI during surveys. They are a qualifying feature of the Black Sea IBA/KBA, and are listed as an Annex I species under the EU Birds	Y	Y	N

[14] Fisheries study undertaken in 2016 by NMRID and RMRI

	IUCN Europe		Directive. This species winters in much of the Mediterranean, Black Sea and Caspian Sea, at which time it is found principally in shallow inshore waters and salt-pans.			
Mediterranean gull, *Larus melanocephalus*	Least Concern IUCN Europe	Least Concern	Mediterranean gull were recorded in the vicinity of the Project AoI during surveys. They are a qualifying feature of the Black Sea IBA/KBA, and are listed as an Annex I species under the EU Birds Directive. This species winters in much of the Mediterranean, Black Sea north-west Europe and north-west Africa, at which time it is found in coastal areas including sheltered inshore waters.	Y	Y	N
Sandwich tern, *Sterna sandvicensis*	Least Concern IUCN Europe	Least Concern	Sandwich tern were recorded in the vicinity of the Project AoI during surveys. They are a qualifying feature of the Black Sea IBA/KBA, as well as being listed as an Annex I species under the EU Birds Directive. This species has a range covering Europe, Africa, western Asia and the southern Americas, including wintering in inshore areas of the western Black Sea.	Y	Y	N
Yelkouan shearwater, *Puffinus yelkouan*	Least Concern IUCN Europe	Vulnerable	Yelkouan shearwater were recorded in the vicinity of the Project AoI during surveys identified as potentially being present within 50 km of the Project AoI. They are a qualifying feature of designated sites in the area, as well as being listed as an Annex I species under the EU Birds Directive. This species is endemic to the Mediterranean basin with some birds migrating to the Black Sea during the non-breeding season, where they often congregate in large flocks offshore.	Y	Y	Y
EBRD PR 6 Criteria (iii) - Presence of Significant Biodiversity Features Recognised by Stakeholders or Governments (IBA, KPA etc)						
None present						
EBRD PR6 Criteria (iv) - Presence of Ecological Structure or Functions needed to Maintain Viability of Priority Features						
None present						

APPENDIX D DETAILED ASSESSMENT TABLES

Date

D1 ONSHORE

Construction

Designated Sites

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Impact on the Danube Delta due to Temporary Habitat Loss ***Designations: SCI, SPA, IBA, KBA, Ramsar site, UNESCO Natural World Heritage Site and UNESCO Biosphere Reserve*** The Project AoI physically overlaps these designations of the Danube Delta. Temporary loss of habitat and changes to the sand dune and wetland structure due to construction of the onshore pipeline could lead to changes in the site's hydrology and structure and therefore the site's integrity and/or functionality. The designations cover areas from approximately 300,000 ha up to 650,000 ha. The core area of the designations is the delta to the north of the Project. Although the UNESCO Biosphere Reserve does have some strictly protected areas of coastland sand dune and wetland habitat within the onshore Project AoI. The total area of temporary habitat loss within the designated sites during construction is 12.09 ha. This represents a temporary area of habitat loss of up to 0.0029%[15] of any one of the Danube Delta designated sites. The habitat types temporarily lost that are features of the Danube Delta SCI are as follows: ▪ 0.64 ha *Agropyretum elongati*	**CH** Danube Delta SCI / SPA / IBA / KBA / Ramsar UNESCO Natural World Heritage Site UNESCO Biosphere Reserve	HDD technology will be used to avoid direct impacts to two watercourses (sensitive features of the Danube Delta) Appoint a Biodiversity Specialist to oversee construction activity. Access tracks will be sited on existing dirt roads where ever possible. New tracks will be constructed as soon as possible and tracking of vehicles on site will be avoided outwith these roads, so that adjacent vegetation and sand dune structure is left undisturbed and uncompacted as far as possible Along sections of access tracks and the pipeline working strip which have fragile soil structure or have waterlogged or wet soils, ground protection will be installed to protect the	**Yes** – temporary loss of 12.09 ha of habitat

[15] Based on the smallest area designated 300,000 ha

	▪ 2.30 ha 1410 Mediterranean salt meadows (*Juncetum maritimi*) ▪ 4.00 ha *Elymetum gingantei* with *Agropyretum elongati* ▪ 1.59 ha *Elymetum gingante*i with *Halimionetum verruciferae* ▪ 3.56 ha *Phragmitetum australis* with *Typhetum latifoliae* The part of the Danube Delta Biosphere reserve that the onshore pipeline passes has been zoned as an economic zone. It lies outside of any strictly protected zone, habitat buffer zone or ecological restoration zones. Outside of the designated sites 3.4 ha agricultural land will be permanently lost. Impacts were assessed in the Xodus ESIA Report on habitat 1410 Mediterranean salt meadows (*Juncetalia maritimi*) recorded present in the Project AoI that is a feature of the Danube Delta SCI. With the mitigation and management measures outlined in the ESIA Report, impacts to this SCI habitat were concluded to be not significant (ESIA Report: Table 9.18, No. 1). With the additional mitigation and management measures this conclusion is considered valid for the SCI and all other designations of the Danube Delta. No impacts are predicted on the areas of 1310 - Salicornia and other annuals colonizing mud and sand recorded by the Project ECoW during construction. The temporary loss of <0.01% of habitat from the designated sites is not considered to impact the overall integrity of the features for which the sites are designated nor the functionality of the habitats for which the sites are designated. All habitat lost will be reinstated in-situ and is expected to recover within 5 – 10 years. As a result, and assuming all mitigation and management measures are implemented, there are no anticipated significant residual impacts on any of these		soil from damage by vehicle movement (measures may include choir matting, temporary plastic road surfaces or temporary log roads). Restoration of habitats temporarily lost will be progressive to minimize time habitat is lost Biodiversity Management Plan Soil, Waterbody Crossing and Reinstatement Management Plan Biodiversity Action Plan – to include biodiversity metrics to quantitatively define biodiversity liabilities and requirements for achieving no net loss and/or net gain of biodiversity[16] Conservation Actions for the Danube Delta	

[16] Biodiversity liabilities are outlined in Section **Error! Reference source not found.**

	site's integrity and / or functionality. However the project will result in a temporary loss of habitat from the Danube Delta designated sites.			
	Impacts on the Danube Delta due to Accidental Leaks/Spills ***Designations: SCI, SPA, IBA, KBA, Ramsar site, UNESCO Natural World Heritage Site and UNESCO Biosphere Reserve*** Construction onshore could lead to run-off from accidental spills into watercourses/wetland complexes also leading to impacts on the site's integrity and/or functionality. The chances of an accidental spill of polluting materials during construction is considered low, even in the absence of mitigation and management measures. With the addition of implementing a construction management plan, including an accidental spill response plan, in line with international standards[17] reduces the risk of the Danube Delta being significantly impacted to negligible.	**CH** Daube Delta SCI / SPA / IBA / KBA / Ramsar UNESCO Natural World Heritage Site UNESCO Biosphere Reserve	Construction Management Plan – including spill response	**No**
	Impacts on the Danube Delta due to Invasive Species ***Designations: SCI, SPA, IBA, KBA, Ramsar site, UNESCO Natural World Heritage Site and UNESCO Biosphere Reserve*** The movement of equipment and construction vehicles to site has the potential to introduce invasive alien species to the Project site and surrounds. With the additional mitigation and management measures included in a Biodiversity Management Plan to manage the risk of introducing invasive species and specific Conservation Actions being included in the Biodiversity Action Plan in relation to invasive species management, there are no anticipated significant residual impacts on any of these site's integrity and / or functionality due to invasive species	**CH** Daube Delta SCI / SPA / IBA / KBA / Ramsar UNESCO Natural World Heritage Site UNESCO Biosphere Reserve	Biodiversity Management Plan – including measures for managing invasive species risk Biodiversity Action Plan – to include Conservation Actions for managing invasive species	**No**

[17] World Bank Group. International Finance Corporation (IFC) Environmental, Health, and Safety (EHS) Guidelines 2012

	Impacts on the Black Sea due to Accidental Leaks/Spills ***Designations SPA, IBA and KBA*** Construction onshore could lead to run-off from accidental spills into the Black Sea. One of the watercourses that the onshore pipeline crosses will be crossed using HDD techniques. This reduces any direct impact and reduces working within watercourses that drain directly into the Black Sea. The chances of an accidental spill of polluting materials during construction is considered low, even in the absence of mitigation and management measures. With the addition of implementing a construction management plan, including an accidental spill response plan, in line with international standards reduces the risk of the Black Sea being significantly impacted to negligible.	**CH** Black Sea SPA / IBA / KBA	Construction Management Plan	**No**
	Impacts on the Black Sea due to Invasive Species ***Designations SPA, IBA and KBA*** The movement of equipment and construction vehicles to site has the potential to introduce invasive alien species to the Project site and surrounds. With the additional mitigation and management measures included in a Biodiversity Management Plan to manage the risk of introducing invasive species and specific Conservation Actions being included in the Biodiversity Action Plan in relation to invasive species management, there are no anticipated significant residual impacts on any of these site's integrity and / or functionality due to invasive species.	**CH** Black Sea SPA / IBA / KBA	Biodiversity Management Plan – including measures for managing invasive species risk Biodiversity Action Plan – to include Conservation Actions for managing invasive species	**No**

Habitats and Flora

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Temporary Loss of Habitat There will be temporary habitat loss of 12.09 ha during the construction of the onshore pipeline using open cut trench and HDD techniques and permanent habitat loss of 3.4 ha during the construction of the GTP. This includes temporary loss of one EU Habitats Directive Annex I habitats. This habitat qualifies as a Priority Biodiversity Features and also as Critical Habitat as designated features of the Danube Delta SCI. 1410 Mediterranean salt meadows (*Juncetalia maritimi*) – 2.30ha loss Impacts were assessed in the Xodus ESIA Report on habitat 1410, a feature of the Danube Delta SCI recorded present in the Project AoI. With the mitigation and management measures outlined in the Xodus ESIA Report, impacts to the SCI habitat were concluded to be not significant (Table 9.18, No. 1 – 2). Habitat 1140 Mudflats and sandflats not covered by seawater at low tide occurs in the intertidal area but is not a qualifying feature of the Danube Delta SCI. HDD will be used to tunnel under this habitat. With all mitigation and management measures implemented, there will still be a residual net loss of habitat due to the time it takes for habitats to reinstate and the risk that habitats may not recover to the same condition. The area quoted in the residual impact column is the additional area of compensatory habitat required to off set impacts to achieve no net loss.	**CH / PBF** 1410 Mediterranean salt meadows (*Juncetalia maritimi*)	HDD technology will be used to avoid direct impacts to the intertidal area Appoint a Biodiversity Specialist to oversee construction activity. Access tracks will be sited on existing dirt roads where ever possible. New access tracks will constructed as soon as possible and tracking of vehicles on site will be avoided outwith these roads, so that adjacent vegetation, wetland and sand dune structure is left undisturbed and uncompacted as far as possible. Along sections of access tracks and the pipeline working strip which have fragile soil structure or have waterlogged or wet soils, ground protection will be installed to protect the soil from damage by vehicle movement (measures may include choir matting, temporary plastic road surfaces or temporary log roads). Restoration of habitats temporarily lost will be progressive to minimize time habitat is lost	**Yes** Temporary loss of 15.49 ha Without adding compensatory habitat
		CH / PBF 1140 Mudflats and sandflats not covered by seawater at low tide.		**No**
		CH/PBF Dune and Coastal wetland structure (supporting CH/PBF)		**Yes** Temporary loss of 12.09 ha of habitat

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
			Biodiversity Management Plan Soil, Waterbody Crossing and Reinstatement Management Plan Biodiversity Action Plan - to include biodiversity metrics to quantitatively define biodiversity liabilities and requirements for achieving no net loss and/or net gain of biodiversity	
	Temporary Changes in Air Quality (Dust) Construction of the GTP, installation of the onshore pipeline where open-cut techniques are used and vehicles travelling on unpaved construction access roads have the ability to generate dust. Dust settles on leaf surfaces and reduces essential physiological processes such as photosynthesis and respiration. This can result in physical damage to plants such as blockage of stomata, decreased growth and leaf surface abrasion. This can eventually result in stunted growth and lead to changes in habitat flora assemblages and habitat structure.	**CH / PBF** 1410 Mediterranean salt meadows (*Juncetalia maritimi*)	Construction Management Plan – including measures to control dust	**No**

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	The potential impacts of construction on Critical Habitat and/or Priority Biodiversity Features through dust generation were not considered in the Xodus ESIA Report. With appropriate mitigation measures, dust is likely to only affect a small area of habitat and not threaten the overall viability/function of 1410 Mediterranean salt meadows (*Juncetalia maritimi*). These habitats qualify as Priority Biodiversity Features and also as Critical Habitat as designated features of the Danube Delta SCI. As a result, assuming all mitigation and management measures are implemented, including a Construction Management Plan, no significant residual effects are anticipated.			
	Degradation of Water Dependent Habitats The construction of the onshore pipeline has the potential to intercept and divert groundwater from their natural courses. This can lead to degradation of natural habitat due to loss of areas of ephemeral waterbodies or drainage of areas previously inundated with water such as the Annex I habitat 1410 Mediterranean salt meadows (*Juncetalia maritimi*). This habitat qualifies as a Priority Biodiversity Feature and also as Critical Habitat as a designated feature of the Danube Delta SCI. The dune and coastal wetland structure will be retained wherever practipipeline to avoid changes to water dependent habitats. All levelling activities will be limited, in order to preserve, as much as possible, the local topographic features that have an important role in maintaining the coastal wetland complex. Following construction, any area that was levelled will be reinstated to its original configuration to re-establish the micro-relief.	**CH / PBF** 1410 Mediterranean salt meadows (*Juncetalia maritimi*)	HDD technology will be used to avoid direct impacts to one watercourse Appoint a Biodiversity Specialist to oversee construction activity. Access tracks will be sited on existing dirt roads where ever possible. New access tracks will constructed as soon as possible and tracking of vehicles on site will be avoided outwith these roads, so that adjacent vegetation, wetland and sand dune structure is left undisturbed and uncompacted as far as possible.	**Yes** Temporary loss of 2.30 ha

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	With the mitigation and management measures identified, taking particular note of the inclusion of wetland restoration and management measures in the Biodiversity Action Plan, there may still be some degradation of water dependent habitats.		Along sections of access tracks and the pipeline working strip which have fragile soil structure or have waterlogged or wet soils, ground protection will be installed to protect the soil from damage by vehicle movement (measures may include choir matting, temporary plastic road surfaces or temporary log roads). Restoration of habitats temporarily lost will be progressive to minimize time habitat is lost Construction Management Plan Biodiversity Management Plan Soil, Waterbody Crossing and Reinstatement Management Plan Biodiversity Action Plan – wetland restoration and monitoring plan utilizing biodiversity metrics to quantitatively define biodiversity liabilities and requirements for achieving no net loss and/or net gain of biodiversity for wetlands	

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Loss of Individuals of Flora Species There will be temporary habitat loss of up to 12.09 ha supporting habitat during the construction of the onshore pipeline and permanent habitat loss of 3.4 ha during the construction of the GTP. Individual plant species that occur within the Project AoI that qualify as Critical Habitat or Priority Biodiversity Features could be lost due to construction activities. Supporting habitat for these species that could be affected is limited to 2.3 ha. Critical Habitat feature flora species that have been recorded within the AoI include: *Artemisia tschernieviana* *Crambe maritima* (sea kale) *Cirsium alatum* *Dianthus bessarabicus* *Eryngium maritimum* (sea holly)	**CH** *Artemisia tschernieviana* *Crambe maritima* (sea kale) *Cirsium alatum* *Dianthus bessarabicus* *Eryngium maritimum* (sea holly) *Elymus farctus ssp. bessarabicus*	Check surveys and translocation of individuals of CH flora species found within the Project footprint to suitable receptor sites prior to construction. Biodiversity Action Plan – habitat improvements.	**Yes** Residual loss of individuals

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Elymus farctus ssp. bessarabicus All these species are assessed as Endangered in the Red Book of Vascular Plants of Romania (2009), except *Elymus farctus* and *Cirsium alatum* which are assessed as Critically Endangered. Priority Biodiversity Feature flora species that have been recorded within the AoI include: *Centaurium spicatum* *Scolymus hispanicus* Both listed as Vulnerable in the Red Book of Vascular Plants of Romania (2009). With the mitigation and management measures implemented, individuals will be translocated prior to habitat removal and established in suitable adjacent habitat. The success of translocation of individuals is likely to be less than 100%. Residual impacts are therefore possible.	**PBF** *Centaurium spicatum* *Scolymus hispanicus*		

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Loss of Supporting Habitat for Flora Species There will be temporary habitat loss of 12.09 ha during the construction of the onshore pipeline and permanent habitat loss of 3.4 ha during the construction of the GTP. Supporting habitat for these species that could be affected is limited to temporary loss of 2.3 ha. This would lead to a reduction of habitat available for flora species that qualify as Critical Habitat features: *Artemisia tschernieviana* *Crambe maritima* (sea kale) *Cirsium alatum* *Dianthus bessarabicus* *Eryngium maritimum* (sea holly) *Elymus farctus ssp. bessarabicus* All these species are assessed as Endangered in the Red Book of Vascular Plants of Romania (2009), except *Elymus farctus* and *Cirsium alatum*	**CH** *Crambe maritima* (sea kale) *Cirsium alatum* *Dianthus bessarabicus* *Eryngium maritimum* (sea holly) *Elymus farctus ssp. bessarabicus*	HDD technology will be used to avoid direct impacts to one watercourse and to the shore crossing and reduce the overall area of construction. Appoint a Biodiversity Specialist to oversee construction activity. Access tracks will be sited on existing dirt roads where ever possible. New access tracks will constructed as soon as possible and tracking of vehicles on site will be avoided outwit these roads, so that adjacent vegetation, wetland and sand dune structure is left undisturbed and uncompacted as far as possible.	**Yes** Temporary loss of 12.09 ha supporting habitat

#	Potential Impact	Critical Habitat (CH) / Priority Biodiversity Features (PBF	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	which are assessed as Critically Endangered. Priority Biodiversity Feature flora species that have been recorded within the AoI include: *Centaurium spicatum* *Scolymus hispanicus* Both listed as Vulnerable in the Red Book of Vascular Plants of Romania (2009). With the additional mitigation and management measures, there will still be a period of temporary habitat loss. Therefore, there is potential for residual effects.	**PBF** *Centaurium spicatum* *Scolymus hispanicus*	Along sections of access tracks and the pipeline working strip which have fragile soil structure or have waterlogged or wet soils, ground protection will be installed to protect the soil from damage by vehicle movement (measures may include choir matting, temporary plastic road surfaces or temporary log roads). Restoration of habitats temporarily lost will be progressive to minimize time habitat is lost Biodiversity Action Plan – to include measures to compensate for any time lag to re-establish supporting habitats	

Species

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Loss of Individuals of Fauna Species - Mammals Construction activities such as vehicle movements on site and breaking ground for construction of the GTP foundations or installation of the onshore pipeline could result in individual mortality of mammal species that occur within the Project AoI that qualify as Priority Biodiversity and / or Critical Habitat features. Critical Habitat: European otter (*Lutra lutra*) Priority Biodiversity Feature: European ground squirrel (*Spermophilus citellus*) Impacts were assessed in the Xodus ESIA Report on changes in population density (including direct mortality) on otter and ground squirrel as species of community importance. With the mitigation and management measures outlined in the ESIA Report, loss of individuals was concluded to be not significant (Table 9.18: No. 4 and 6). With the additional mitigation and management measures there may still be some mortality of individuals. Therefore, there is potential for residual effects.	**CH** Tier 2 European otter	HDD technology will be used to avoid direct impacts to one watercourse Appoint a Biodiversity Specialist to oversee construction activity. Biodiversity Management Plan – to include Check Surveys for the presence of otter holts and ground squirrel colonies. If a breeding otter holt is identified, then no works should proceed within 150 m of the holt until the female and cub(s) have naturally vacated the holt All works within 20m of known ground squirrel colonies and otter holts should be supervised by the ECoW	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
		PBF European ground squirrel	All site personnel to undertake driver awareness training on the species present in the area that may be affected by vehicle collisions Implement a logging system requiring all personnel to report any sightings or collisions of otters or ground squirrels species and allow additional mitigation to be identified and implemented as necessary (e.g. use of speed bumps near areas identified as high risk, fencing, light reflectors) Sharp tools/machinery are not to be left out on site overnight Biodiversity Action Plan – to include measures to compensate for any residual loss of individuals	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Loss of Individuals of Fauna Species - Herpetofauna Construction activities such as vehicle movements on site and breaking ground for construction could result in individual mortality of herpetofauna species that occur within the Project AoI that qualify as Priority Biodiversity and / or Critical Habitat features. Critical Habitat: Common tortoise *(Testudo graeca) and* Danube crested newt *(Triturus dobrogicus)* Priority Biodiversity Feature: European pond turtle *(Emys orbicularis)* and fire-bellied toad *(Bombina bombina).* Impacts were assessed in the Xodus ESIA Report on changes in population density (including direct mortality) on these species. With the mitigation and management measures outlined in the ESIA Report, loss of individuals was concluded to be not significant (Table 9.18: No.5).	**CH** Tier 2 Common tortoise Danube crested newt	Appoint a Biodiversity Specialist to oversee construction activity. All site personnel to undertake driver awareness training on the species present in the area that may be affected by vehicle collisions Implement a logging system requiring all personnel to report any sightings or collisions of fauna species and allow additional mitigation to be identified and implemented as necessary (e.g. use of speed bumps near areas identified as high risk, fencing, light reflectors).	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	With the additional mitigation and management measures there may still be some mortality of individuals. Therefore, there is potential for residual effects.	**PBF** European pond turtle Fire-bellied toad	Biodiversity Management Plan – to include check surveys of construction areas each morning to check for any herpetofauna that may have entered construction areas, trenches etc. overnight Biodiversity Action Plan – to include measures to compensate for any residual loss of individuals	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Temporary Disturbance to Fauna Species – Mammals Construction activity will generate noise, vibration, light and an increase in human presence in the Project AoI that could disturb and/or displace mammal species that occur within the Project AoI that qualify as Priority Biodiversity and / or Critical Habitat features. Critical Habitat: European otter (*Lutra lutra*) Priority Biodiversity Feature: European ground squirrel (*Spermophilus citellus*) This was assessed in the Xodus ESIA Report for otter and ground squirrel. With the mitigation and management measures outlined in the ESIA Report, impacts to these species were concluded to be not significant (Table 9.18: No.4).	**CH** Tier 2 European otter	HDD compounds will be located at least 20 m from any active otter holt and 150 m from any active breeding holt Appoint a Biodiversity Specialist to oversee construction activity. All works within 20m of known ground squirrel colonies and otter holts should be supervised by the Biodiversity Specialist. Construction activity will be undertaken sequentially with access to other areas	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	With the additional mitigation and management measures, there is still potential for individuals to experience disturbance due to construction. Therefore, there is potential for residual effects.	**PBF** European ground squirrel	of the site controlled to reduce disturbance Access to parts of the site not required for construction will be controlled to reduce disturbance from movements of construction vehicles and workforce.	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Temporary Disturbance to Fauna Species – Herpetofauna Construction activity will generate noise, vibration, light and an increase in human presence in the Project AoI that could disturb and/or displace herpetofauna species that occur within the Project AoI that qualify as Priority Biodiversity and / or Critical Habitat features. Critical Habitat: Common tortoise *(Testudo graeca)* and Danube crested newt *(Triturus dobrogicus)* Priority Biodiversity Feature: European pond turtle *(Emys orbicularis)* and fire-bellied toad *(Bombina bombina).*	**CH** Tier 2 Common tortoise Danube crested newt	Appoint a Biodiversity Specialist to oversee construction activity. Construction activity will be undertaken sequentially with access to other areas of the site controlled to reduce disturbance. Access to parts of the site not required for construction will be controlled to reduce disturbance from movements of construction vehicles and workforce.	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	This was assessed in the Xodus ESIA Report for these species. With the mitigation and management measures outlined in the ESIA Report, impacts to these species were concluded to be not significant (Table 9.18: No.5). With the additional mitigation and management measures, there is still potential for individuals to experience disturbance due to construction. Therefore, there is potential for residual effects.	**PBF** European pond turtle Fire-bellied toad		**Yes**
	Temporary Disturbance to Fauna Species – Birds Construction activity will generate noise, vibration, light and an increase in human presence in the Project AoI. This could disturb and/or displace birds that occur within the Project AoI that qualify as Priority Biodiversity and / or Critical Habitat features. Critical Habitat: squacco heron (*Ardeola ralloides*), purple heron (*Ardea purpurea*), great white egret (*Egretta alba*) and little egret (*Egretta garzetta*). Priority Biodiversity Features: common pochard (*Aythya farina*), ferruginous duck (*Aythya nyroca*), black-winged stilt (*Himantopus himantopus*), pied avocet (*Recurvirostra avosetta*), red-footed falcon (*Falco vespertinus*), common	**CH** Tier 2 Squacco heron, purple heron, great white egret and little egret	Appoint a Biodiversity Specialist to oversee construction activity. Biodiversity Management Plan – to include Check Surveys for the presence of nesting birds or wintering flocks All works within 20 m of known nests or regularly used winter roosts should be supervised by the Biodiversity Specialist or appropriate buffer areas marked where no construction activity	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	shelduck (*Tadorna tadorna*), common redshank (*Tringa totanus*), common hoopoe (*Upupa epops*) and northern lapwing (*Vanellus vanellus*). This was assessed in the Xodus ESIA Report for those species recorded present in the Project AoI that are features of the Danube Delta SCI. With the mitigation and management measures outlined in the ESIA Report, impacts to these species were concluded to be not significant (Table 9.18: No.7). With the additional mitigation and management measures, there is still potential for individuals to experience disturbance due to construction. Therefore, there is potential for residual effects.	**PBF** Common pochard, ferruginous duck, black-winged stilt, pied avocet, red-footed falcon, common shelduck, common redshank, common hoopoe and northern lapwing	should occur on advice of the Biodiversity Specialist.	**Yes**
	Temporary Loss of Supporting Habitat for Fauna There will be temporary habitat loss of up to 12.09 ha during the construction of the onshore pipeline and permanent habitat loss of 3.4 ha during the construction of the GTP. This would lead to a reduction of habitat available for species that qualify as Priority Biodiversity Features and / or Critical Habitat features. However not all of this area will be used by all species. Critical Habitat: common tortoise, Danube crested newt, European otter, squacco heron, purple heron, great white egret, little egret, large copper and steppe carpenter moth.	**CH** Tier 2 Common tortoise, Danube crested newt, European otter, squacco heron, purple heron, great white egret, little egret, large copper and	HDD technology will be used to avoid direct impacts to two watercourses and reduce the overall area of construction Appoint a Biodiversity Specialist to oversee construction activity. Access tracks will be sited on existing dirt roads where ever possible. New access tracks will constructed as soon as possible and tracking of vehicles on site will be avoided outwith these	**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
	Priority Biodiversity Feature: European pond turtle, fire-bellied toad, European ground squirrel, common pochard, ferruginous duck, black-winged stilt, pied avocet, red-footed falcon, common shelduck, common redshank, common hoopoe and northern lapwing. This was assessed in the Xodus ESIA Report for those species recorded present in the Project AoI that are features of the Danube Delta SCI. With the mitigation and management measures outlined in the ESIA Report, impacts to these species were concluded to be not significant (Table 9.18: No.2). With the additional mitigation and management measures, there will still be a period of temporary habitat loss. Therefore, there is potential for residual effects.	steppe carpenter moth.	roads, so that adjacent vegetation, wetland and sand dune structure is left undisturbed and uncompacted as far as possible. Along sections of access tracks and the pipeline working strip which have fragile soil structure or have waterlogged or wet soils, ground protection will be installed to protect the soil from damage by vehicle movement (measures may include choir matting, temporary plastic road surfaces or temporary log roads). Restoration of habitats temporarily lost will be progressive to minimise time habitat is lost. Stands of dock the larval food plant of large copper and steppe carpenter moth will be preserved within the construction footprint where practicable. Biodiversity Action Plan – to include measures to compensate for any time lag to re-establish supporting habitats	
		PBF European pond turtle, fire-bellied toad, European ground squirrel, common pochard, ferruginous duck, black-winged stilt, pied avocet, red-footed falcon, common shelduck, common		**Yes**

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to those Committed to in Xodus ESIA Report	Residual Impacts?
		redshank, common hoopoe and northern lapwing		

D2 Operation

Designated Sites

No.	Potential Impact	Management and Mitigation Measures in Addition to Measures Committed to in ESIA	Residual Impacts?
No significant impacts are anticipated to designated sites considered Priority Biodiversity Features or Critical Habitat during operation (ESIA Report: Table 9.17 and Table 9.18).			**No**

Habitats and Flora

#.	Potential Impact	Management and Mitigation Measures in Addition to Measures Committed to in ESIA	Residual Impacts?
No significant impacts are anticipated to habitats and flora considered Priority Biodiversity Features or Critical Habitat during operation (ESIA Report: Table 9.17 and Table 9.18).			**No**

Species

#	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Addition to Measures Committed to in ESIA	Residual Impact?
	Permanent loss of 3.4 ha of Agricultural Habitat Supporting Fauna The onshore GTP will permanently occupy an area of 3.4 ha leading to the permanent loss of 3.4 ha of agricultural habitat. Some species that qualify as Priority Biodiversity Features or Critical Habitat utilize this habitat. Critical Habitat: No species considered features of Critical Habitat were recorded in the agricultural fields Priority Biodiversity Features: **:** European ground squirrel The effect of habitat loss on species it supports due to the operation of the GTP was assessed in the Xodus ESIA Report. With the mitigation and management measures outlined in the ESIA Report, impacts were concluded to be not significant (Table 9.18: No. 1, 2 and 3). This conclusion is considered valid and no additional measures are recommended. Agricultural habitat is common and widespread in the region. Species that utilise this habitat can use the remainder of the vast agricultural landscape for nesting, foraging, wintering etc. Therefore, no significant residual impacts are anticipated.	**PBF** European ground squirrel	No further mitigation required	**N o**

	Disturbance to Fauna due to Operation of Gas Treatment Plant The noise, light and vibrations from the operation of the GTP could displace fauna that qualify as Priority Biodiversity Features or Critical Habitat from the Project AoI and lead to the habitat within the Project AoI being unavailable for feeding, breeding or wintering (depending on time of year and species). Critical Habitat: common tortoise, European otter, squacco heron, purple heron, great white egret and little egret. Priority Biodiversity Feature: European pond turtle, fire-bellied toad, European ground squirrel, common pochard, ferruginous duck, black-winged stilt, pied avocet, red-footed falcon, common shelduck, common redshank, common hoopoe and northern lapwing. The effect of operational disturbance was assessed in the Xodus ESIA Report for those species recorded present in the Project AoI that are features of the Danube Delta SCI. With the mitigation and management measures outlined in the Xodus	**CH** Tier 2 Common tortoise, European otter, squacco heron, purple heron, great white egret and little egret	No further mitigation required	**No**

	ESIA Report, impacts to these species were concluded to be not significant (Table 9.18: No. 7 and 9). This conclusion is considered valid for all species considered Critical Habitat or Priority Biodiversity Features (except red-footed falcon) recorded present within the Project AoI and no additional measures are recommended. The GTP is located within agricultural fields, a habitat with an existing baseline of disturbance due to cultivation. Additionally, agricultural fields are extremely common and widespread in the region. Therefore, the potential displacement of species sensitive to disturbance within the GTP AoI is not considered to significantly reduce the habitat available for species that utilise agricultural fields. Red-footed falcon were recorded breeding communally in the acacia plantation immediately adjacent to the GTP. Assuming all mitigation and management measures are implemented, some individuals may still be sensitive the disturbance of the operational GTP and the habitat this species requires for nesting is not as widespread.	**PBF** European pond turtle, fire-bellied toad, European ground squirrel, common pochard, ferruginous duck, black-winged stilt, pied avocet, common shelduck, common redshank, common hoopoe and northern lapwing.		**No**
		PBF Red-footed falcon		**Yes**

Decommissioning

#	Potential Impact	Management and Mitigation Measures in Addition to Measures Committed to in ESIA	Residual Impact
Impacts during decommissioning are considered comparable to those during construction for Priority Biodiversity Features and Critical Habitat			

D3 OFFSHORE

Construction

Designated Sites

No.	Potential Impact	Critical Habitat (CH) IFC PS6 Tier 1 or 2 / Priority Biodiversity Features (PBF)	Management and Mitigation Measures in Additional to those Presented in the ESIA	Residual Impact
	Impacts on the Black Sea ***Designations SPA, IBA and KBA*** The marine components of the Black Sea SPA and IBA/KBA cover areas of 4,029 ha and 4,020 ha respectively. The offshore pipeline crosses each site for approximately 11.6 km, and the percentage of each site that falls within the offshore Project AoI is 2.70% and 2.81%. The predicted area of habitat under the direct footprint of the pipeline is approximately 5,408 m^2, approximately 0.04% of either site. The Black Sea SPA and IBA/KBA are designated for the presence of wintering and migrating birds listed on the EU Birds Directive and IUCN Red List. Given that the designated features of these sites are birds, the potential impacts are limited to injury/disturbance from the physical presence of vessels. The ESIA notes that the AoI already experiences high existing levels of shipping activity. The Project will require the presence of a relatively low number of vessels operating in the AoI. Within the portion of the AoI that overlaps with the SPA and IBA/KBA, the vessels operating will be limited to a pipe lay vessel and the supply vessels supporting it. Should migrating or wintering birds be present in the offshore area, any disturbance is expected to be small scale (limited to a number of individuals or small groups within tens of	**Critical Habitat** Black Sea Designations SPA, IBA and KBA	No further mitigation required	**Yes** The Project will result in the conversion of approximately 5,408 m^2 of habitat within the SPA and IBA/KBA.

	metres of the vessels) and temporary (reflecting the transitory nature of pipeline construction). In addition given the level of existing shipping intensity it is highly unlikely that birds will be sensitive to a small temporary increase in shipping. Given the expected slow speeds of the vessels, no significant impacts from vessel collisions on wintering and migrating birds are anticipated. Therefore, no significant impacts are predicted on the integrity or functionality of the Black Sea designations as a result of the physical presence of vessels during construction of the Project. However, the project will result in the permanent loss of benthic habitat from the designated sites.			
	Impact on the Danube Delta, Designations: SCI, Ramsar site and UNESCO Biosphere Reserve The marine components of the Danube Delta SCI, Ramsar site, UNESCO Natural World Heritage Site and UNESCO Biosphere Reserve cover areas of up to 18,452 ha (see Appendix B). The percentage of the SCI that falls within the offshore Project AoI is 5.49%, and the percentage of the Biosphere and Ramsar sites is 0.70%. The predicted area of habitat within the SCI under the direct footprint of the pipeline is approximately 24,564 m^2, and within the Ramsar site and Biosphere reserve approximately 4,002 m^2. This equates to approximately 0.07% of the SCI and 0.03% of the marine part of the Ramsar site and biosphere reserve. If the sites as a whole, including onshore areas, are considered, the portion of the AoI that falls in the sites is considerably smaller. The designated features within the SCI include Annex I habitat sandbanks which are slightly covered by sea all the time and Annex II species bottlenose dolphin, harbour porpoise, Black Sea shad and Pontic shad. There were no sandbank features identified in the geophysical and environmental surveys conducted along the pipeline route. Therefore no impacts on sandbanks are expected. Bottlenose dolphin and harbour porpoise may be disturbed by the	**Critical Habitat** Danube Delta, Designations: SCI, Ramsar site and UNESCO Biosphere Reserve	No further mitigation required	**Yes** The Project will result in the conversion of approximately 24,564 m^2 of habitat within the SCI and 4,002 m^2 within the Ramsar site and Biosphere reserve.

	presence of project vessels. However, as noted above, the area already experiences a high level of shipping and the Project's contribution to that is expected to be minimal (limited to a pipelay vessel and its support vessels within the SCI). Therefore impacts are not expected. The species of shad may be impacted by the loss of nursery habitat due to pipeline construction and injury/disturbance from the presence of vessels. Approximately 53.4 km of the pipeline route falls within the SCI, and as assessed under Habitats below, the loss of habitat along the pipeline route is not expected to have a significant impact on the breeding success of either shad species. As the impacts on the designated features of the SCI are assessed as Not Significant, no loss of integrity or functionality of the SCI is expected. The UNESCO designation also includes bottlenose dolphin and harbour porpoise in addition to common dolphin and 30 marine fish species and more broadly the marine zone. Similarly to the SCI, impacts on marine mammal species are not expected given the limited vessel activity that will take place within the UNESCO area. Likewise fish species are not expected to be impacted through the loss of breeding and nursery habitat within the site given the AoI overlaps with <1% of the site. No loss of integrity or functionality of the UNESCO Biosphere Reserve is expected. The Ramsar designation is attributable to the wetland. Any impact on this designation in the marine area will be limited to disturbance of the wintering and migrating bird species using the open water as described for the SPA and KPA/IBA. No loss of integrity or functionality of the Ramsar site is expected. However, the project will result in the permanent loss of benthic habitat from the designated sites.			

Habitats

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	Loss of Seabed Habitat There will be loss of existing habitats during construction within the footprint of the offshore pipeline, infield pipeline and platforms. This will result from direct disturbance due to installation of subsea infrastructure onto the seabed and indirect disturbance from suspension and re-settling of sediments during construction activities such as trenching. The diameter of the gas pipeline proposed from shore to the Ana platform is 16", which will be concreted covered, with an assumed outer width of 18". It will be buried using HDD from shore to 1.3 km offshore, after which it will be surface laid for a further 124.7 km to the Ana platform. An 8" concrete covered pipe with an assumed outer width of 10" will be surface laid for 18 km between the Ana and Doina platforms. Two pipeline crossings will require protection in the form of concrete mattresses (assumed to comprise two mattresses of 6m x 3m at each crossing). The footprint of the offshore pipelines and mattresses totals approximately 61,934 m^2. (6.19 ha). Habitat loss under the platforms and wells is approximately 676 m^2. Disturbance of areas of sandy sediments is expected to be short term, as sand will rapidly re-settle in the disturbed areas as a consequence of natural erosion, deposition and resuspension. Taking into account the mitigation listed in Section 8.3.3 of the ESIA, all residual impacts on seabed habitats and communities were assessed in the ESIA as Not Significant, due to the highly localized, although long term, nature of the impact.	**Priority Biodiversity Feature** Pontic *Mytilus galloprovincialis* beds on sublittoral sediment habitat	No further mitigation measures required.	**No** Area of PBF mussel bed habitat affected will be limited to discrete sections of the pipeline routes. The Project will not result in significant, adverse and irreversible impacts on PBF.

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	One Priority Biodiversity Features habitat and one Critical habitat were identified during baseline surveys: 1. 'Pontic *Mytilus galloprovincialis* beds on sublittoral sediment habitat' (EUNIS classification A5.628), recorded at nine locations along the export pipeline route (Priority Biodiversity Feature) ; and 2. 'Seeps and vents in sublittoral sediments' (EUNIS classification A5.71), recorded at four locations along the infield pipeline route (Critical Habitat). The area of A5.628 mussel bed habitat affected will be limited to discrete sections of the export pipeline route (nine locations were identified during drop down video surveys but were not sufficiently large to map). The closest recorded seep and vent habitat location was a number of carbonate concretions and bacterial mats approximately 115 m north of the infield pipeline route, and therefore outside of the 100 m AoI for benthic habitats. Neither habitat is present close to the platforms. After initial loss of soft sediment seabed habitat and mussel beds when the pipeline is laid during construction, there will not be further disturbance of the seabed within the pipeline route during operation. Movement of sediments within the coastal waters where the Project AoI is located will re-establish surface sediment patterns and mussels will be able to colonize many disturbed areas, re-forming beds over a period of approximately five years [(18)].	**Critical Habitat Feature** Seeps and vents in sublittoral sediments	During the detailed design phase the pipeline route will be micro sited to avoid all recorded seeps and vents in sublittoral sediments.	**No** The infield pipeline route will be microsited around critical habitat carbonite concretions and bacterial mats and will not affect them.

(18) http://jncc.defra.gov.uk/page-6011-theme=print

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	Based on the results of baseline surveys, no direct impacts on the carbonite concretions and mats are predicted during construction. Mobilized sediment may result in a small amount of deposition. Recovery of the carbonate concretions that characterize the seep/vent habitats will depend on the level of sedimentation and the characteristics of the individual feature (e.g. persistence of continuous gas flow) and the interaction with the project infrastructure, although longer term impacts are not predicted (19).			
	Deposition of Drill Cuttings	None	No further mitigation required.	**No**

(19) Tyler-Walters, H. 2018. Seeps and vents in sublittoral sediments. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 26-03-2019]. Available from: https://www.marlin.ac.uk/habitat/detail/1161

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	Drill cuttings discharged during drilling of the wells will be suspended in the water column and will then settle across the seabed in the vicinity of the wellheads. Seabed habitats in the footprint of deposition may be affected by smothering; changes to sediment composition; and the presence of harmful substances such as trace metals in the drilling fluids. Taking into account the mitigation listed in Section 8.33 of the ESIA, all residual impacts on seabed habitats and communities are considered Not Significant, due to the long term presence of the facilities and the highly localized nature of the impact. The total area of drill cutting deposition (>1cm thick) predicted around the Ana well is 7,800 m^2, of which 5,380 m^2 is predicted to experience drill cutting deposition of greater than 5 cm thickness. The total area of drill cutting deposition (>1cm thick) predicted around the Doina well is 5,756 m^2, of which 94 m^2 is predicted to experience drill cutting deposition of greater than 5 cm thickness. The furthest distance that drill cuttings are predicted to extend from either well is 208 m. For both wells, the only habitat type affected will be 'Pontic deep circalittoral muds with *Modiolula phaseolina*' (EUNIS classification A5.379). This habitat type has not been identified as Critical Habitat or as a Priority Biodiversity Feature. Similar habitat is distributed across the wider area, and the habitat lost will represent only a small proportion of the available habitat. It is anticipated that drilling muds will have a smaller particle size than the receiving environment, and it may be the case that the composition of the sediment remains altered after cessation of operations. This will also cause the faunal community composition to remain altered, with a shift in community structure. The new community type may remain for several years, and may never return to re-drillings deposition conditions. Thus, where sediment conditions change significantly and permanently, recovery to an original biological community may not be possible. However, if communities are able to reach a new 'equilibrium' of species adequate recovery may have taken place in terms of the ecological functions the community provides.			Impacts limited to habitats that are not Critical Habitat or Priority Biodiversity Features

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	It is not anticipated that there will be any significant impact on habitats that are Critical Habitat or Priority Biodiversity Features as a result of drill cutting deposition.			
	Discharges to Water – Reduced Water Quality Marine water quality may be affected during construction by discharges from drilling activities, from pre-commissioning and commissioning activities, and from the drilling rig and vessels. Prolonged reduction of water quality, resulting from increased levels of particulate or organic matter, or chemicals, could affect the water column community and seabed habitats. Taking into account the mitigation listed in Section 8.2 of the ESIA assessed all residual impacts on marine water quality as being Not Significant or Negligible, due to the short term and localized nature of the impacts. The Project will comply with applicable legislation and guidance regulating the introduction of contaminants to the marine environment. Small volumes of chemicals or other contaminants contained in discharges will be quickly dispersed and diluted following release, so that any effects on water quality will be very short term and localized to the point of discharge. As such, there will be only negligible effects on the water column itself and it is not anticipated that there will be any significant impact on seabed habitats that are Critical Habitat or Priority Biodiversity Features as a result of discharges to water from the Project.	None	No further mitigation required.	**No** Temporary and very small scale impacts, not affecting Critical Habitat or Priority Biodiversity Features

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	Introduction of Invasive Species Movement of vessels and subsea equipment into the Project AoI from outside the Black Sea during construction could result in the introduction of non-native species to the area through transport on the surface of vessels and equipment (biofouling) or through transfer via ballast water. Invasive species may cause harm to native species and communities by increasing competition for resources or predation, or by altering the local environment so that it is less favorable for native species. Potential impacts from invasive species could be exacerbated by introduction of hard substrate during the Project in the form of subsea infrastructure in an area otherwise characterized largely by muddy and mixed sediments. This hard substrate may provide favorable conditions for invasive bacterial, algal, invertebrate or fish species. The Black Sea has historically experienced serious impacts related to invasive species, including reductions in fish and marine mammal populations linked to the rapid spread of a North American species of comb jellyfish (*Mnemiopsis leidyi*) introduced through shipping in the 1980s.	**Priority Biodiversity Feature** Pontic *Mytilus galloprovincialis* beds on sublittoral sediment habitat	Any vessels that will discharge ballast will have a Ballast Water Management Plan and a Ballast Water Record Book, in line with the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention)[20]. If the vessels do not have a ballast water treatment system on-board, they will exchange ballast in mid-ocean (where	**No** Very low risk of introduction of invasive species

[20] Information available online at: http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships'-Ballast-Water-and-Sediments-(BWM).aspx

No.	Potential Impact	Critical Habitat/ PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impacts
	The Project will require the presence of a relatively low number of vessels operating in the AoI during construction, most of which are unlikely to require ballast water discharge, including one pipe lay vessel; one barge and crane for platform installation; one drilling rig; and several survey and support vessels. It is not known whether these vessels will come from outside of the Black Sea prior to the start of the Project; however, if they do, there is potential for introduction of invasive species to occur during construction with either biofouling or ballast water as a vector. As discussed above (under Habitats) one seabed habitat type has been identified as a Priority Biodiversity Feature, and one as Critical Habitat. Introduction of invasive species could disrupt the natural communities in these habitats, by competing with or predating on the characteristic species of these habitats (i.e. *Mytilus galloprovincialis*; and species of chemosynthetic bacteria and possibly mollusks). Considering the relatively small number of vessels associated with Project construction and the minimal requirement for ballast water discharge, there is a low risk of introduction of invasive species during construction. The implementation of standard ballast water management and vessel cleaning practices should be adequate to control this potential impact. Therefore, no significant impacts on habitats that are Critical Habitat or Priority Biodiversity Features are predicted as a result of construction of the Project.	**Critical Habitat Feature** Seeps and vents in sublittoral sediments	possible, at least 200 nm from shore and in water more than 200 m deep) prior to reaching the Project location.	

Species

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Discharges to Water – Reduced Water Quality As discussed above (Discharges to Water), marine water quality may be affected during construction by discharges from drilling activities, from pre-commissioning and commissioning activities, and from the drilling rig and vessels. Prolonged reduction of water quality, resulting from increased levels of particulate or organic matter, or chemicals, could affect marine species such as fish and cetaceans. This could occur through exposure to contaminants in the water, or through behavioral changes caused by increased water turbidity. Taking into account the mitigation listed in Section 8.3.3 of the ESIA assessed all residual impacts on marine water quality as being Not Significant or Negligible, due to the short term and localized nature of the impacts. Only short term and highly localized changes in water quality are expected as a result of the Project. None of the species identified as Critical Habitat or Priority Biodiversity Features will experience prolonged exposure to reduced water quality, and therefore no significant impacts as a result of discharges to water from the Project are anticipated.	None	No further mitigation required.	No Temporary and very small scale impacts, not affecting Critical Habitat or Priority Biodiversity Features
	Loss of Seabed Habitat – Loss of Fish Spawning and Nursery Habitats As discussed above, some seabed habitat will be lost during construction within the footprint of the offshore pipeline, infield pipeline and platforms. Some seabed habitats in the Project AoI may support fish breeding either as locations for spawning or by providing nursery habitats for juvenile fish. The ESIA noted that among the fish species known to inhabit the area, none were reliant on habitats within the Project AoI for their spawning. The ESIA assessed that there would be no residual impacts on fish from loss of seabed habitats, due to the highly localized nature of the impact and the lack of spawning habitat in the Project AoI.	**Critical Habitat** Pontic shad, *Alosa immaculata* Black Sea shad, *Alosa tanaica*	No further mitigation required.	**No** No spawning or significant nursery habitat is known to occur in the Project AoI.

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Only two fish species have been identified as potential Critical Habitat triggers: Pontic shad and Black Sea shad. Both of these species migrate up rivers to spawn in freshwater habitats. Juveniles migrate back to sea and may make use of habitats both within the Project AoI and the wider area, and no specific nursery habitat requirements are known for these fish. Loss of seabed habitats within the Project AoI is not expected to have a significant impact on the breeding success of either shad species.			The Project will not lead to any measurable adverse impacts of any CH species or a net reduction in the global and/or national/regional population of any CR or EN species.
	Physical Presence of Vessels – Injury/Disturbance of Fish, Marine Mammals and Birds The physical presence of vessels in the Project AoI during construction may cause behavioral disturbance of fish, marine mammals and birds, and there is also the potential for injuries to be caused by collisions between marine mammals and vessels. The ESIA notes that the Project AoI already experiences high levels of shipping activity, against which background the increase due to the Project is expected to be negligible. In addition, Project vessels within the AoI will not be travelling at great speed: support vessels may travel at 10 – 11 knots when in transit but will be slower when maneuvering, and the pipe lay vessel and drilling rig operate at slow speeds. Taking into account the embedded mitigation listed in Section 8.4.3.3 of the ESIA no residual impacts on marine species from physical presence of vessels are predicted. The Project will require the presence of a relatively low number of vessels operating in the AoI, including one pipe lay vessel; one barge and crane for platform installation; one drilling rig; and several survey and support vessels. Not	**Critical Habitat** Pontic shad, *Alosa immaculata* Black Sea shad, *Alosa tanaica* Black Sea common dolphin, *Delphinus delphis ponticus* Black Sea harbour porpoise, *Phocoena phocoena relicta* Black Sea bottlenose dolphin, *Tursiops truncatus ponticus*	No further mitigation required.	**No** Temporary and localised impacts, limited to immediate vicinity of vessels. The Project will not lead to any measurable adverse impacts of any CH species or a net reduction in the global and/or national/regional

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	all of these vessels will be present throughout the two year construction and commissioning period, and many will be mainly confined to the locations of the wells. Fish, marine mammal and bird species identified as Critical Habitat or Priority Biodiversity Features will be able to avoid the small number of locations where Project vessels are operating at any one time, and make use of similar habitats in the wider area. Given the expected slow speeds of the vessels, no significant impacts from vessel collisions are anticipated. Therefore, no significant impacts are predicted for species that are Critical Habitat or Priority Biodiversity Features as a result of physical presence of vessels during construction of the Project.	Yelkouan shearwater, *Puffinus yelkouan*		population of any CR or EN species.
	Underwater Noise – Injury/Disturbance of Fish and Marine Mammals Underwater noise generated during construction has the potential to cause both physical harm and behavioral disturbance to fish and marine mammals. Underwater noise will be generated by piling and drilling operations at the platforms and by vessels throughout the Project AoI. Underwater noise modelling undertaken for the ESIA was used to define maximum distances from noise sources within which fish and marine mammals may experience impacts. These potential areas of impact extend to a maximum of 2.34 km from piling activities and 1.20 km from vessel operations within which marine mammals may experience behavioral disturbance. Fish were assessed as potentially experiencing disturbance within 1.73 km of piling activities and 380 m of vessel operations.	**Critical Habitat** Pontic shad, *Alosa immaculata*	Piling operations not to be undertaken during the period when Pontic shad and Black Sea shad are migrating upriver to spawn (March – May)	**Yes** Temporary impact within 1.73 km of platform location, or 380 m of vessels
		Critical Habitat Black Sea shad, *Alosa tanaica*		**Yes** Temporary impact within 1.73 km of platform location, or 380 m of vessels

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Given the higher sound level threshold for injury (approximately 180 – 220 dB for fish[21] and 220 dB for marine mammals[22]) as compared to behavioral disturbance (given as 120 dB in the ESIA), it is expected that the area within which injury is possible will be very small, and limited to the immediate vicinity (within meters or tens of meters for vessel noise to a couple of hundred meters for piling) of these activities. Piling operations are planned to take place over a 10 day period, with the actual piling activity expected to occur for approximately 50% of this time. Vessels operations may occur continuously during the two year construction and commissioning phase, although operations will be confined to a limited number of locations within the Project AoI at any one time. The ESIA assessed residual impacts from underwater noise on fish and marine mammals as being Not Significant, due to the short term nature of the impact and its potential to be controlled through the implementation of the management and mitigation measures listed in Section 8.4.3. Two fish species (Pontic shad and Black Sea shad) and three marine mammal species (Black Sea common dolphin, Black Sea harbor porpoise and Black Sea bottlenose dolphin) have been identified as potential Critical Habitat triggers, and could be present within the range of impacts from piling, vessel or drilling noise generated by the Project during construction. Given the very small zone of potential injury and limited duration of the higher impact piling activity, and the implementation of control measures aimed at protecting marine mammals (presence of an MMO, use of PAM and implementation of soft start procedures), none of these species is expected to experience any injuries resulting from exposure to noise generated by Project activities. The three marine mammal species are highly mobile and able to avoid noise sources, and the area within	**Critical Habitat** Black Sea common dolphin, *Delphinus delphis ponticus*	JNCC approved MMOs are identified as mitigation within the ESIA. No further mitigation identified.	**Yes** Temporary impact within 2.34 km of platform location, or 1.20 km of vessels
		Critical Habitat Black Sea harbour porpoise, *Phocoena phocoena relicta*		**Yes** Temporary impact within 2.34 km of platform location, or 1.20 km of vessels
		Critical Habitat Black Sea bottlenose dolphin, *Tursiops truncatus ponticus*		**Yes** Temporary impact within 2.34 km of platform location, or 1.20 km of vessels

[21] Evans P G H and Nice H (1996). Review of the effects of underwater sound generated by seismic surveys on cetaceans. SeaWatch Foundation, Oxford. (Report commissioned by UKOOA.)

[22] McCauley RD (1994). Seismic surveys. pp 19-122 in Swann J M, Neff J M, Young, PC (eds). Environmental implications of offshore oil and gas development in Australia – the findings of an independent scientific review. APEA, Sydney, Australia, 695 p.

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	which they may experience behavioral disturbance represents a very small proportion of the habitat available to them. The impact is therefore assessed as having a minor significant impact. The two shad species are also mobile and able to avoid noise sources, and have a distribution across the Black Sea of which only a very small proportion will be affected by noise from the Project. However, in the lead up to spawning periods, a significant proportion (>1%) of their populations may be found within the Project AoI as they move through the area towards the mouth of the Danube River. The species may therefore be more sensitive to disturbance from underwater noise at these times.			The Project will not lead to any measurable adverse impacts of any other CH species or a net reduction in the global and/or national/regional population of any CR or EN species.
	Offshore Lighting – Disturbance of Birds The physical presence of the drilling rig, and specifically its lighting, during construction may cause behavioral disturbance of birds, by attracting them offshore, interrupting their normal migratory behavior and causing injury as a result of collisions. Impacts of offshore lighting have been estimated to extend up to approximately 5 km from the light source[23] [24].The ESIA notes that the Project AoI experiences high levels of shipping, against which background the increase in offshore lighting due to the Project is expected to be negligible. Taking into account the embedded mitigation listed in Section 8.5.3, the ESIA	**Critical Habitat** Yelkouan shearwater, *Puffinus yelkouan*	No further mitigation required.	**No** Short term impact, localised around the Ana platform

[23] Poot, H., B. J. Ens, H. de Vries, M. A. H. Donners, M. R. Wernand, and J. M. Marquenie 2008. Green light for nocturnally migrating birds. Ecology and Society 13(2): 47.

[24] Van de Laar 2007. Green light to birds; Investigation into the effect of bird-friendly lighting. Available online at: https://tethys.pnnl.gov/sites/default/files/publications/van-de-Laar-2007.pdf

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	assessed the significance of residual impacts on bird species from physical presence of the drilling rig to be Minor. One bird species (Yelkouan shearwater) in the Project AoI has been identified as a potential Critical Habitat trigger, as it congregates in large numbers within the Black Sea IBA during passage, in the non-breeding season (from late summer through winter). These birds are often found in large flocks offshore when wintering. Although light pollution from at sea structures has been identified as a threat for some breeding colonies[25], these birds will be less susceptible to impacts from lighting outside of the breeding season. Given the context of offshore lighting from vessel traffic in the area, and the small and temporary increase represented by the addition of a single drilling rig, no significant impacts are predicted for species that are Critical Habitat or Priority Biodiversity Features as a result of offshore lighting during construction of the Project.			

[25] BirdLife International 2018. Puffinus yelkouan. The IUCN Red List of Threatened Species 2018: e.T22698230A132637221. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22698230A132637221.en. Downloaded on 26 March 2019.

Operation

Designated Sites

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Loss of Site Integrity/Functionality of the Black Sea ***Designations SPA, IBA and KBA*** Impacts on the site integrity/functionality of the Black Sea SPA and IBA/KBA are not expected during operation. There will be no interaction between the Project and wintering and migrating birds with the exception of occasional passage of supply and maintenance vessels. The Exodus ESIA states that there is an existing high level of shipping in the area and the additional project-related vessel movements are not expected to cause a noticeable increase.	**Critical Habitat** Black Sea, Designations SPA, IBA and KBA	No further mitigation required	**No** No significant impacts on any species that are qualifying features of these sites
	Loss of Site Integrity/Functionality of the Danube Delta ***Designations: SCI, Ramsar site and UNESCO Biosphere Reserve*** Impacts on the site integrity/functionality of the Danube Delta SCI, Ramsar and UNESCO Biosphere Reserve are not expected during operation. The pipeline will be laid on the seabed from the HDD exit point 1.3 km from shore to the edge of the designated sites. Pipelines installed on the seabed have the potential to create a physical barrier to mobile benthic organisms and also provide solid relief features that can colonized over time. However, the Danube Delta sites are designed for the presence of sandbank features and mobile pelagic species including bottlenose dolphin, harbor porpoise, Black Sea shad and Pontic shad. The presence of the pipeline is not expected to have any impacts on these features or species (see Habitats and Species section below). Therefore, the integrity/functionality of the sites will be unaffected.	**Critical Habitat** Danube Delta, Designations: SCI, Ramsar site and UNESCO Biosphere Reserve	No further mitigation required	**No** No significant impacts on any habitats or species that are qualifying features of these sites

Habitats

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Operational Discharges to Water – Reduced Water Quality Marine water quality may be affected during operation by discharges from vessels. Prolonged reduction of water quality, resulting from increased levels of particulate or organic matter, or chemicals, could affect the water column community and seabed habitats. Taking into account the identified mitigation, the Project ESIA assessed all residual impacts on marine water quality as being Not Significant or Negligible, due to the short term and localized nature of the impacts. During operation, there will be very low levels of vessel activity within the Project AoI. The Project will comply with applipipeline legislation and guidance regulating the introduction of contaminants to the marine environment. Small volumes of chemicals or other contaminants contained in discharges will be quickly dispersed and diluted following release, so that any effects on water quality will be very short term and localized to the point of discharge. As such, there will be only negligible effects on the water column itself and it is not anticipated that there will be any significant impact on seabed habitats that are Critical Habitat or Priority Biodiversity Features as a result of discharges to water from the Project.	None	No further mitigation required	**No** Temporary and very small scale impacts, not affecting Critical Habitat or Priority Biodiversity Features
	Movement of Vessels During Operation and Presence of Subsea Infrastructure – Introduction of Invasive Species Movement of vessels into the Project AoI from outside the Black Sea during operation could result in the introduction of non-native species to the area through transport on the surface of vessels and equipment (biofouling) or through transfer via ballast water. Invasive species may cause harm to native species and communities by increasing competition for resources or predation,	None	Any vessels that will discharge ballast will have a Ballast Water Management Plan and a Ballast Water Record Book, in line with the requirements of the International Convention	**No** Very low risk of introduction of invasive species

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	or by altering the local environment so that it is less favorable for native species. Potential impacts from invasive species could be exacerbated by the presence of hard substrate introduced by the Project in the form of subsea infrastructure in an area otherwise characterized largely by muddy and mixed sediments. This hard substrate may provide favorable conditions for invasive bacterial, algal, invertebrate or fish species. The Black Sea has historically experienced serious impacts related to invasive species, including reductions in fish and marine mammal populations linked to the rapid spread of a North American species of comb jellyfish (*Mnemiopsis leidyi*) introduced through shipping in the 1980s. During operation, there will be very low levels of vessel activity within the Project AoI, and it is unlikely that the type of vessels involved (maintenance and repair vessels) will require ballast water discharge. It is not known whether these vessels will come from outside of the Black Sea prior to undertaking activities for the Project; however, if they do, there remains a low potential for introduction of invasive species to occur predominantly with biofouling as a vector. As discussed above two seabed habitat types have been identified as Priority Biodiversity Features. Introduction of invasive species could disrupt the natural communities in these habitats, by competing with or predating on the characteristic species of these habitats (i.e. *Mytilus galloprovincialis*; and species of chemosynthetic bacteria and possibly mollusks). Considering the small number of vessels associated with Project operation and the minimal/absence of requirement for ballast water discharge, but taking into account the longer duration of the operational phase, there is a low risk of introduction of invasive species during operation. The implementation of standard ballast water management and vessel cleaning practices should be adequate to control this potential impact. Therefore, no significant impacts on habitats that are Critical		for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention)[26]. If the vessels do not have a ballast water treatment system on-board, they will exchange ballast in mid-ocean (where possible, at least 200 nm from shore and in water more than 200 m deep) prior to reaching the Project location.	

[26] Information available online at: http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/International-Convention-for-the-Control-and-Management-of-Ships'-Ballast-Water-and-Sediments-(BWM).aspx

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Habitat or Priority Biodiversity Features are predicted as a result of operation of the Project.			

Species

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Operational Discharges to Water – Reduced Water Quality As discussed above, marine water quality may be affected during operation by discharges from vessels. Prolonged reduction of water quality, resulting from increased levels of particulate or organic matter, or chemicals, could affect marine species such as fish and cetaceans. This could occur through exposure to contaminants in the water, or through behavioral changes caused by increased water turbidity. Taking into account the mitigation identified, the Project ESIA assessed all residual impacts on marine water quality as being Not Significant or Negligible, due to the short term and localized nature of the impacts. As noted above, only occasional, short term and highly localized changes in water quality are expected as a result of the Project during operation. None of the species identified as Critical Habitat or Priority Biodiversity Features will experience prolonged exposure to reduced water quality, and therefore no significant impacts as a result of discharges to water from the Project are anticipated.	None	No further mitigation required	**No** Temporary and very small scale impacts, not affecting Critical Habitat or Priority Biodiversity Features

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Physical Presence of Vessels – Injury/Disturbance of Fish, Marine Mammals and Birds The physical presence of vessels in the Project AoI during operation may cause behavioral disturbance of fish, marine mammals and birds, and there is also the potential for injuries to be caused by collisions between marine mammals and vessels. The Project ESIA notes that the Project AoI already experiences high levels of shipping activity, against which background the very small increase due to the operation of the Project is expected to be negligible. Taking into account the identified mitigation, the Project ESIA assessed that there would be no residual impacts on marine species from physical presence of vessels. During operation, the Project may require occasional and limited presence of vessels to carry out maintenance and repair activities on the platforms and pipelines. As the platform will be unmanned, there will be no requirement for regular transport of crew. Given the very low number of vessels required during operation, this impact will be short term, occasional and highly localized. Within the context of the wider area which experiences high levels of shipping activity, no significant impacts are predicted for species that are Critical Habitat or Priority Biodiversity Features as a result of physical presence of vessels during operation of the Project.	**Critical Habitat** Pontic shad, *Alosa immaculata* Black Sea shad, *Alosa tanaica* Black Sea common dolphin, *Delphinus delphis ponticus* Black Sea harbour porpoise, *Phocoena phocoena relicta* Black Sea bottlenose dolphin, *Tursiops truncatus ponticus* Yelkouan shearwater, *Puffinus yelkouan*	No further mitigation required	**No** Occasional, temporary and localised impacts, limited to immediate vicinity of vessels
	Underwater Noise – Injury/Disturbance of Fish and Marine Mammals Underwater noise generated during operation has the potential to cause both physical harm and behavioral disturbance to fish and marine mammals. Underwater noise will be generated by vessels throughout the Project AoI. Underwater noise modelling undertaken for Project ESIA was used to define maximum distances from noise sources within which fish and marine mammals	**Critical Habitat** Pontic shad, *Alosa immaculata* Black Sea shad, *Alosa tanaica*	No further mitigation required	**No** Temporary impact within 1.20 km (for marine mammals) or

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	may experience impacts. These potential areas of impact extend to a maximum of 1.20 km from vessel operations within which marine mammals may experience behavioral disturbance. Fish were assessed as potentially experiencing disturbance within 380 m of vessel operations. Given the higher sound level threshold for injury (approximately 180 – 220 dB for fish[27] and 220 dB for marine mammals[28]) as compared to behavioral disturbance (given as 120 dB in Project ESIA), it is expected that the area within which injury is possible will be very small, and limited to the immediate vicinity (within meters or tens of meters for vessel noise) of these activities. Vessels operations may occur throughout the operational phase, although they will be confined to a limited number of locations within the Project AoI at any one time. Project ESIA assessed residual impacts from underwater noise on fish and marine mammals as being Not Significant, due to the short term nature of the impact and its potential to be controlled through the implementation of the identified mitigation. During operation, the Project may require occasional and limited presence of vessels to carry out maintenance and repair activities on the platforms and pipelines. As the platform will be unmanned, there will be no requirement for regular transport of crew. Given the very low number of vessels required during operation, this impact will be short term, occasional and highly localized. Within the context of the wider area which experiences high levels of shipping activity, no significant impacts are predicted for species that are Critical Habitat or Priority Biodiversity Features as a result of underwater noise from vessels during operation of the Project.	Black Sea common dolphin, *Delphinus delphis ponticus* Black Sea harbour porpoise, *Phocoena phocoena relicta* Black Sea bottlenose dolphin, *Tursiops truncatus ponticus*		380 m (fish) of vessels.

[27] Evans P G H and Nice H (1996). Review of the effects of underwater sound generated by seismic surveys on cetaceans. SeaWatch Foundation, Oxford. (Report commissioned by UKOOA.)
[28] McCauley RD (1994). Seismic surveys. pp 19-122 in Swann J M, Neff J M, Young, PC (eds). Environmental implications of offshore oil and gas development in Australia – the findings of an independent scientific review. APEA, Sydney, Australia, 695 p.

No.	Potential Impact	Critical Habitat / PBF	Management and Mitigation Measures in Addition to those Presented in the ESIA	Residual Impact
	Offshore Lighting – Disturbance of Birds The physical presence of the Ana platform, and specifically its lighting, during operation may cause behavioral disturbance of birds, by attracting them offshore, interrupting their normal migratory behavior and causing injury as a result of collisions. Impacts of offshore lighting have been estimated to extend up to approximately 5 km from the light source[29] [30]. The ESIA notes that the Project AoI experiences high levels of shipping, against which background the increase in offshore lighting due to the Project is expected to be negligible. Taking into account the identified mitigation, the ESIA assessed the significance of residual impacts on bird species from physical presence of the Ana platform to be Minor. One bird species (Yelkouan shearwater) in the Project AoI has been identified as a potential Critical Habitat trigger, as it congregates in large numbers within the Black Sea IBA during passage, in the non-breeding season (from late summer through winter). These birds are often found in large flocks offshore when wintering. Although light pollution from at sea structures has been identified as a threat for some breeding colonies[31], these birds will be less susceptible to impacts from lighting outside of the breeding season when they may be found in and around the AoI. Given the context of offshore lighting from vessel traffic in the area, and the small scale but long term increase represented by the addition of a single platform, there may be Minor impacts on Yelkouan shearwater.	**Critical Habitat** Yelkouan shearwater, *Puffinus yelkouan*	No further mitigation required	**No** Long term impact, localised around the Ana platform

[29] Poot, H., B. J. Ens, H. de Vries, M. A. H. Donners, M. R. Wernand, and J. M. Marquenie 2008. Green light for nocturnally migrating birds. Ecology and Society 13(2): 47.

[30] Van de Laar 2007. Green light to birds; Investigation into the effect of bird-friendly lighting. Available online at: https://tethys.pnnl.gov/sites/default/files/publications/van-de-Laar-2007.pdf

[31] BirdLife International 2018. Puffinus yelkouan. The IUCN Red List of Threatened Species 2018: e.T22698230A132637221. http://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T22698230A132637221.en. Downloaded on 26 March 2019.

Decommissioning

#	Potential Impact	Management and Mitigation Measures in Addition to Measures Committed to in ESIA	Residual Impact
Impacts during decommissioning are considered comparable to those during construction for Priority Biodiversity Features and Critical Habitat			

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