DAMA SOLAR PROJECT

Supplementary Lenders Information Package

FEBRUARY 2026

Prepared by Green Partners Ltd Romania

Green Partners

Document information

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Disclaimer

The current report includes information as made available by the client and its consultants, prior to the completion of the report. Any change in the technical design, or additional data available might change the results of the assessment included in this report.

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ABBREVIATIONS

Abbreviation	Definition (English)
AC	Alternating Current
ADI-SIGD Arad	Intercommunity Development Association for the Integrated Waste Management System Arad
AFM	Environmental Fund Administration
AoI	Area of Influence
ATR	Technical Connection Approval
BAP	Biodiversity Action Plan
BESS	Battery Energy Storage System
C&DW / CDW	Construction and Demolition Waste
CESMP	Construction Environmental and Social Management Plan
CfD	Contract for Difference
DC	Direct Current
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EHS Guidelines	Environmental, Health and Safety Guidelines
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
EP4	Equator Principles 4
EPR	Extended Producer Responsibility
ERM	Environmental Resources Management
ESAP	Environmental and Social Action Plan
ESDD	Environmental and Social Due Diligence
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy
ESRs	Environmental and Social Requirements
GHG	Greenhouse Gases
GIIP	Good International Industry Practice
GNM	National Environmental Guard
HV	High Voltage
ICS	Interconnection Substation
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
INHGA	National Institute of Hydrology and Water Management
LRP	Livelihood Restoration Plan
MSUS	Main Step-Up Substation
MV	Medium Voltage
NECP	National Energy and Climate Plan
NGO	Non-Governmental Organisation

NTP	Notice to Proceed
OESMP	Operational Environmental and Social Management Plan
OHL	Overhead Line
OHS	Occupational Health and Safety
OSPA	Office for Pedological and Agrochemical Studies
PJGD	County Waste Management Plan
PUZ	Zonal Urban Plan
PV	Photovoltaic
RLU	Local Urban Regulation
SCADA	Supervisory Control and Data Acquisition
SEA	Strategic Environmental Assessment
SEP	Stakeholder Engagement Plan
SLIP	Supplementary Lenders Information Package
SMID	Integrated Waste Management System
SPV	Special Purpose Vehicle
TSO	Transmission System Operator
UGTL	Underground Transmission Line
WEEE	Waste Electrical and Electronic Equipment
WPI	West Power Investments S.R.L.
WSP	WSP Global Inc.

1 INTRODUCTION

1.1 Document purpose and scope

This document (including its Annexes) provides supplementary environmental and social information to the Environmental and Social Impact Assessment (ESIA,2023) prepared for the DAMA Project and its associated infrastructure as a Supplementary Lenders Information Package (SLIP) following initial lender Environmental and Social due diligence undertaken by WSP acting as lenders Independent Environmental and Social Consultant (IESC). It should be read in conjunction with the ESIA and its annexes (2023), which it complements but does not duplicate.

The document has been specifically prepared to address a limited number of environmental and social issues that were identified as requiring update or further consideration, based on the Comments Registry provided by the Lenders' consultants (WSP) in January 2026. These issues are addressed in line with the International Finance Corporation (IFC) Performance Standards (2012)[1], the associated World Bank Group Environmental, Health and Safety (EHS) Guidelines[2], and the 2024 Environmental and Social Policy (ESP) and Environmental and Social Requirements (ESRs)[3] of the European Bank for Reconstruction and Development (EBRD).

1.2 Approach and limitations

This document has is based on a review of existing documentation supplemented by a series of desk studies and meetings and discussions with EBRD, IFC, and their E&S advisors Project Company representatives. The following limitations are also considered relevant:

- Whilst key technical design requirements have been agreed, detailed design works are yet to be developed as the EPC Contractor(s) selection is still ongoing. They will however have to meet the criteria laid out in the Environmental Agreement, and all other permits obtained for the project construction.
- The information reported here is based on existing information and no supplementary modelling has been undertaken.

In terms of scope, this document focuses on the environmental and social impacts associated with the construction of the Project, as the main risks for the project (and gaps identified in the assessment) are associated with this phase. Whilst material potential risks or impacts associated with other project stages are raised where they have been identified, these will be dealt with primarily through the Project Construction / Operation Management Plans.

1.3 Project overview

The DAMA Project is a large-scale photovoltaic (PV) power generation project located in Arad County, western Romania, within the administrative boundaries of the Grăniceri and Pilu communes. The Project is designed to generate renewable electricity from solar energy and export it to the national transmission system, thereby supporting Romania's energy transition objectives and security of supply. The grid capacity of the Project at the point of connection is 1043.7 MW of active power and approximately installed capacity with 1.25 GWp - 1.3 GW and expected to be among the largest PV facilities in Europe once operational. A Battery Energy Storage System (BESS) is envisioned for the future, but is not part of the current assignment.

The Project is being developed by Rezolv Energy, with West Power Investments S.R.L. acting as the Project Special Purpose Vehicle. Land required for the PV plant and associated infrastructure has been secured through voluntary lease, superficies, concession, and servitude agreements. The Project does not require physical displacement of people or residential structures and no involuntary resettlement or significant economic displacement is anticipated.

[1] https://www.ifc.org/en/insights-reports/2012/ifc-performance-standards

[2] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/157871484635724258/environmental-health-and-safety-general-guidelines/

[3] https://www.ebrd.com/home/news-and-events/publications/institutional-documents/environmental-and-social-policy-2024.html

The Project site overlaps with designated Natura 2000 protected areas, which has informed the scope and depth of environmental and social assessment and mitigation planning. The Project has also been designed to incorporate a dual-use land management approach, allowing continued pasture use during operation through controlled grazing, alongside measures aimed at enhancing local biodiversity and land use compatibility.

The Project Sponsor is seeking external financing to support Project implementation. Financing is currently being considered by the IFC and EBRD, alongside other lenders. The Project has been classified as Category A under international lender requirements and is supported by an ESIA completed in 2023. This supplementary lenders' information package provides updated and focused environmental and social information in support of lender due diligence, without duplicating the approved ESIA 2023 documentation.

Details on project description are provided in Section 2.

1.4 Project justification and history

The Project has been developed in response to the increasing need to expand renewable energy generation capacity in Romania, strengthen energy security, and support national and European climate objectives. As part of the transition towards a low-carbon energy system, Romania has committed to increasing the share of renewable energy in its electricity mix under the Integrated National Energy and Climate Plan (NECP) 2021–2030, while contributing to the European Union's broader decarbonisation targets established under the European Green Deal and EU Climate Law. The development of large-scale solar photovoltaic (PV) capacity is considered a key component in achieving these objectives, particularly in regions with favourable solar resource conditions and available land suitable

for energy infrastructure.

From a national policy perspective, the Project is consistent with Romania's Integrated National Energy and Climate Plan (NECP) 2021–2030[4], which sets a binding target for a 38.3 % share of energy from renewable sources in gross final energy consumption by 2030. The NECP reflects Romania's commitment to the EU's climate and energy framework for 2030, which emphasises increasing renewable energy deployment as a key contribution to decarbonisation and energy security.

The Project is also aligned with the National Energy Strategy 2025–2035, with outlook to 2050[5], which articulates Romania's long-term strategic objectives of expanding renewable energy capacity, reducing dependency on fossil fuels, and transitioning to a low-carbon energy system. Under strategic scenarios outlined in the Strategy, the share of renewables in gross final energy consumption is projected to reach approximately 41.1 % by 2035 and 86.1 % by 2050, underpinning the long-term relevance of large-scale PV investments such as the DAMA Project.

At the regional and local level, the Project supports strategic planning objectives reflected in Arad County Development Strategy (2021 – 2027)[6] development priorities and the relevant communal land-use plans, which incorporate national renewable energy and climate goals into regional spatial planning frameworks. The Project utilises predominantly low-quality agricultural land, avoids residential areas, and will be designed to integrate with existing land-use patterns through a dual-use (agrivoltaic) land management approach, allowing continued pasture use during operation, where / if applicable.

The Project is located in Arad County, an area identified as suitable for renewable energy investments due to its solar irradiation potential, existing grid infrastructure and compatibility with regional spatial planning frameworks. The Project contributes to diversification of the local and national energy mix, reduction of greenhouse gas emissions and increased resilience of the electricity system through the deployment of utility-scale renewable generation. From a socio-economic perspective, the Project is expected to generate

[4] https://energie.gov.ro/wp-content/uploads/2024/10/PLANUL-NATIONAL-INTEGRAT-IN-DOMENIUL-ENERGIEI-SI-SCHIMBARILOR-CLIMATICE-2021-2030-Actualizare-Octombrie-2024.pdf

[5] https://energie.gov.ro/strategiei-energetice-a-romaniei-2025-2035-cu-perspectiva-anului-2050/

[6] https://www.cjarad.ro/files-td/uploads-files-CINDY_-_Transparen%C8%9B%C4%83_decizional%C4%83-Strategii-DEZVOLTARE-Anexa%20Strategie%20Judet.pdf

temporary employment during construction, support local service providers, and contribute to municipal revenues without introducing significant long-term environmental pressures.

Project development history

The Dama project is being developed by WPI a project Company owned by Rezolv energy having been acquired from Monsoon the original project developer.

The figure below illustrates the iterative nature of the Project's environmental and social assessment process and the key milestones that led to the preparation of the SLIP as a supplement to the 2023 ESIA.

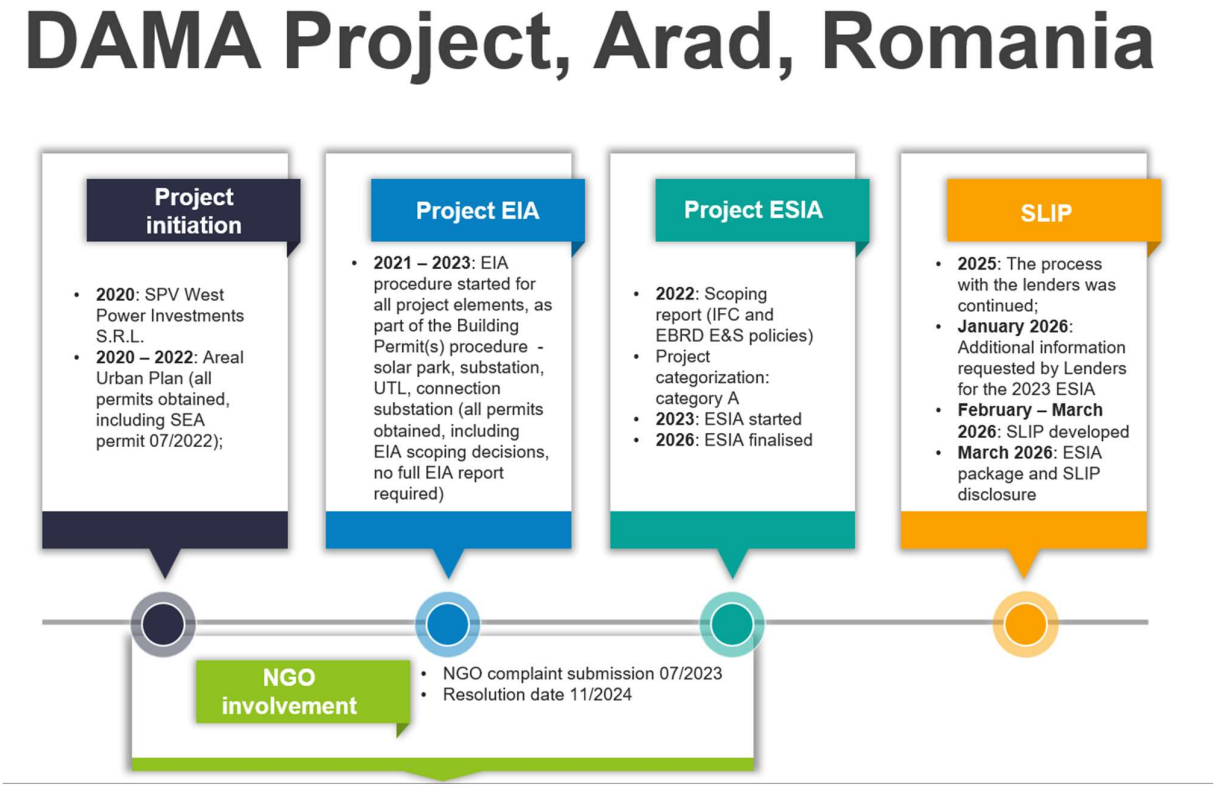


Figure 1 Environmental and Social Assessment timeline and key milestones

Following initial site identification and technical feasibility assessments, the Project entered a structured multi-stage permitting process consistent with Romanian regulatory requirements. In June 2021, WPI obtained the urbanism certificate issued by Graniceri City Hall allowing for the construction of a solar project on the Dama site. In June 2023, WPI also obtained Building Permits for the project under individual investment objectives numbered 5 to objective 30 with each objective having a separate Building permit. The Company also obtained from the EPA the Environmental Framing stage decision in May 2023.

Following completion of the planning stage and issuance of the environmental approval, a local non-governmental organisation (NGO) initiated legal proceedings challenging the permit, resulting in a temporary suspension of project development pending resolution. Subsequently, the Project developer and the NGO reached an agreement in 2025, including commitments to implement net-positive environmental measures in a set aside area of 82HA where solar panels will not be installed. Following this agreement, the NGO withdrew the complaint and the project development process resumed.

The Dama project participated in the Romania Contract for Difference (CfD) auction in 2025 and WPI was awarded a CfD contract in respect of phase A & B. The Project is currently seeking financing and is also in

the process of selecting contractors and key suppliers to implement the project with construction envisaged to commence in Q2 2026.

The table below summarises the key parties involved in the development of the DAMA Project to date.

Table 1 DAMA Project parties

Responsible Party	Role	Responsibilities
Monsson	Project initial developer	• Initial local project developer • Development of Project Initial Design • Permitting (planning stage and construction stage)
Rezolv Energy	Current project owner	• Procurement of Project components (partially) • Construction of the Project (through assigned EPC contractors) • Operation of the Project
West Power Investments SRL	Dama Project Company	• Project SPV

Details on the environmental permitting for each Project phase is provided in the Section below. Details on Project timeline and implementation are presented in Section 2. Project description. Stakeholder engagement activities performed during all stages are presented in Section 1.7.

1.5 Project regulatory framework and permitting

This Section completes and supplements the information presented in the 2023 ESIA with respect to the national and international legislative framework and good international practice requirements applicable to the Project. National laws deemed relevant for the successful implementation of all environmental and social components of the Project are summarised here, reflecting legislative developments and amendments applicable up to 2026.

Furthermore, this Section outlines the requirements of the EBRD Environmental and Social Policy (2024) and its associated Environmental and Social Requirements (ESRs). The IFC Performance Standards on Environmental and Social Sustainability (2012) and the associated World Bank Group General and Industry-Specific Environmental, Health and Safety (EHS) Guidelines are also referenced as benchmarks representing good international industry practice.

This Section does not replace or duplicate the detailed administrative and legislative analysis presented in the ESIA but has been prepared to support lender due diligence by confirming the continued applicability, adequacy, and currency of the Project's regulatory framework.

Regulatory framework

The applicable national regulatory framework has been reviewed through a desk-based legal screening and regulatory gap check, focusing on amendments and new legislative acts adopted between 2023 and 2026 that are relevant to renewable energy projects and their environmental and social aspects. The review covered primary legislation, government emergency ordinances, and ministerial orders governing environmental protection, permitting, land use, and social safeguards.

The review confirmed the continued applicability of the core legislative framework referenced in the ESIA and identified relevant updates, including in particular:

- amendments to Government Emergency Ordinance no. 195/2005 on Environmental Protection;

- Law no. 292/2018 on Environmental Impact Assessment, together with updated methodological guidance issued through Ministerial Order no. 269/2020;
- updates to the framework governing protected areas and Natura 2000 sites under Government Emergency Ordinance no. 57/2007, including revised methodological guidance for Appropriate Assessment adopted through Ministerial Orders no. 262/2020 and no. 1682/2023;
- the continued application of Law no. 107/1996 on Waters, Law no. 104/2011 on ambient air quality, and Law no. 121/2019 on environmental noise, without material changes affecting Project applicability;
- the entry into force and application of Government Emergency Ordinance no. 92/2021 on waste management, transposing the revised EU Waste Framework Directive;
- legislative amendments adopted through Law no. 254/2022, modifying Law no. 18/1991 on the Land Fund, facilitating renewable energy developments on lower-quality agricultural land;
- amendments introduced by Law no. 166/2023 to Law no. 50/1991 on construction permitting, simplifying urban planning requirements for renewable energy projects;
- the continued applicability of social and safety legislation, including Law no. 53/2003 (Labour Code), Law no. 319/2006 on occupational health and safety, Law no. 307/2006 on fire protection, and associated implementing regulations;
- the continued application of Law no. 123/2012 on electricity and natural gas, governing electricity generation, grid connection, and land access rights.

Based on this review, it was concluded that no legislative changes adopted up to 2026 invalidate or materially alter the conclusions of the 2023 ESIA, provided that the Project continues to be implemented in accordance with the obtained permits and compliance requirements.

Compliance with the national regulatory framework ensures alignment with applicable EU legislation, including climate neutrality, biodiversity protection, environmental assessment, water protection, waste management, and circular economy objectives, and supports conformity with the IFC PSs, EBRD E&S Policy (2024).

National environmental permitting framework

In Romania, environmental permitting for renewable energy projects is structured as a three-stage process, governed by national legislation transposing the EU Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA) Directives and coordinated by the national environmental authority, in accordance with Government Emergency Ordinance no. 195/2005 on environmental protection, as amended.

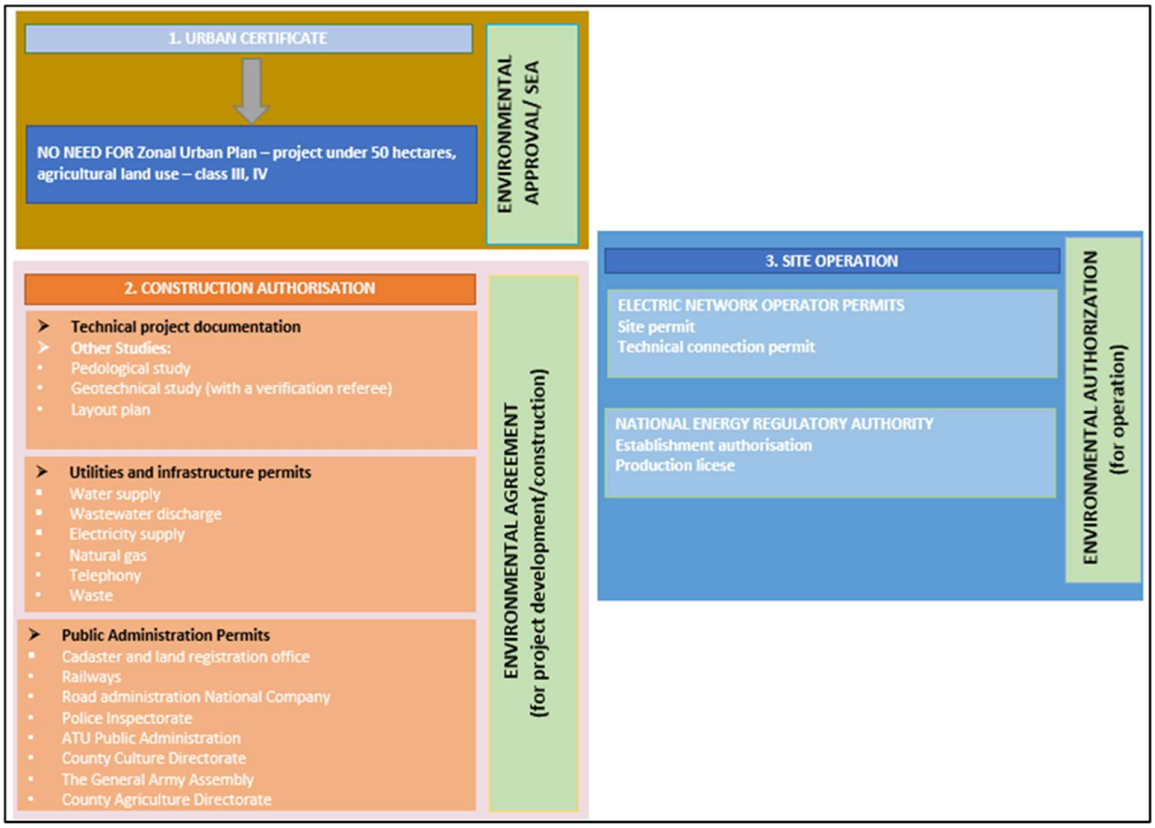


Figure 2 Permitting framework for renewables projects

Stage 1 – Planning-level environmental approval (SEA):

Environmental considerations are integrated into spatial and urban planning processes, including land-use designation, where applicable, in line with Government Decision no. 1076/2004 on the strategic environmental assessment of plans and programmes (transposing Directive 2001/42/EC). Screening determines whether a Strategic Environmental Assessment and/or an Appropriate Assessment under the Habitats Directive (transposed by Government Emergency Ordinance no. 57/2007, as amended) is required.

For DAMA Project, after selection of the site, the first development stage focused on spatial planning and land-use regulation. In 2021, a Zonal Urban Plan (PUZ – Plan Urbanistic Zonal) and associated Local Urban Regulation (RLU) were prepared to enable the change of land use from agricultural land to energy production infrastructure and related facilities (intra-muros, courtyards / constructions).

The PUZ planning process included environmental assessment under the Strategic Environmental Assessment (SEA) procedure in accordance with national legislation. Environmental documentation, biodiversity studies and stakeholder consultations were undertaken as part of this stage. Following completion of the SEA procedure, the competent authority issued the environmental approval allowing adoption of the PUZ and associated land-use changes for the photovoltaic park and grid connection infrastructure. The PUZ covers approximately 1,064 ha and defines the spatial layout of photovoltaic arrays, substations, access infrastructure and connection facilities.

Completion of this stage allowed the introduction of the land into the planning framework for renewable energy development and established the regulatory basis for subsequent construction permitting.

Stage 2 – Environmental agreement for construction (EIA):

Prior to construction, projects are subject to screening and, where required, scoping under the EIA procedure regulated by Law no. 292/2018 on the assessment of the impact of certain public and private projects on the environment (transposing Directive 2011/92/EU, as amended by Directive 2014/52/EU).

Public disclosure and consultation are mandatory elements of the process. An Environmental Agreement (Acord de mediu) is issued by the competent authority authorising construction, subject to environmental conditions.

For the DAMA Project, following approval of the planning documentation in 2023, the Project entered the second development phase focused on obtaining construction authorisations. This stage included the environmental permitting procedure at project level, undertaken in accordance with Romanian legislation transposing the EU Environmental Impact Assessment (EIA) Directive.

Environmental screening and scoping, technical studies and consultation with competent authorities were conducted to assess potential environmental and social impacts associated with construction and operation. Based on this process, EIA scoping decision and permits required for construction authorisation were obtained.

Stage 3 – Environmental permit for operation:

Before the start of operations, projects must obtain an environmental permit based on the activities to be carried out during operation, in accordance with Ministerial Order no. 1798/2007 on environmental permitting procedures. Where applicable, an integrated environmental permit may be required in line with Law no. 278/2013 on industrial emissions.

Permitting status and ongoing obligations

The environmental permitting framework described above has been applied to the Project. A detailed register of permits is provided in the annexes, subject to ongoing regulatory updates and Project phasing.

The SPV is responsible for ensuring continuous compliance with all applicable legal requirements, permit conditions throughout construction, operation, and decommissioning.

Environmental and social commitments arising from the ESIA and from updated regulatory requirements will be implemented through the Project's Construction and Operation Environmental and Social Management Plans and associated management plans, which will be contractually binding on contractors and operators.

1.6 Requirement for Supplementary Environmental and Social Impact Assessment

The 2023 ESIA determined that based on the Environmental and Social (E&S) Policy criteria as implemented by the major international finance institutions and international lenders in general (including but not limited to Equator Principle EP4[7] signatories), the Project qualifies as 'Category A', reflecting its scale and potential environmental and social risks and impacts. Consequently, a comprehensive Environmental and Social Impact Assessment (ESIA) was undertaken in 2023 by ERM.

Following the temporary suspension of project development pending resolution in 2023, the environmental and social due diligence process was temporarily suspended and subsequently reinitiated in 2025 to reflect updated lender requirements and project development status. The present Supplementary Lenders Information Package (SLIP) has therefore been prepared to provide additional information and clarifications in response to lender queries and to complement the existing ESIA documentation.

The SLIP will form part of the environmental and social disclosure package to be made available for public review and comment for a minimum period of 60 days prior to approval by the prospective lending institutions. .

During the updated due diligence process, several gaps were identified in relation to alignment with the EBRD Environmental and Social Policy (2024) and ESRs. This document also addresses these gaps and aims to demonstrate the Project's compliance with applicable international standards.

[7] The Equator Principles is a risk management framework adopted by financial institutions, for determining, assessing and managing environmental and social risk in project finance.

1.7 Stakeholder Engagement and further information

The Stakeholder Engagement Plan initially developed in August 2023 detailed the principles and objectives of stakeholder engagement, the applicable national and international regulatory framework, and provided a summary of stakeholder identification and previous engagements. It also described the engagement approach and planning for the main project phases (pre-construction, construction, operations, decommissioning), defined engagement tools, resources and responsibilities, grievance mechanism, and the monitoring procedure.

In view of progress in project preparations, a number of updates were undertaken to the SEP. These refer to: information on stakeholder engagement activities carried out since the first version of the SEP was developed (related to LRP, cultural heritage related consultations); updates to the Stakeholder dialogue log; additional activities to be undertaken in the pre-construction phase. The updated SEP is annexed as a stand-alone document to the SLIP.

Consultation information related to several topics are addressed in the specific sections below.

2 PROJECT DESCRIPTION

2.1 Overview

The DAMA Project is a large-scale photovoltaic (PV) power generation development promoted by Rezolv Energy and located in northern Arad County, Romania, within the administrative territories of Grăniceri and Pilu communes. The Project comprises the design, construction, operation and eventual decommissioning of a ground-mounted solar photovoltaic installation together with associated grid connection infrastructure required to export electricity into the Romanian transmission system.

The Project has an estimated installed DC capacity of approximately 1.25–1.3 GWp, corresponding to a maximum export capacity of approximately 1,044 MW at the transmission network connection point. Electricity generated by the PV plant will be evacuated through a dedicated high-voltage infrastructure connecting the facility to the existing Nadab–Békéscsaba 400 kV overhead transmission line operated by Transelectrica S.A., the Romanian Transmission System Operator.

The Project comprises the following principal components:

- Ground-mounted PV module arrays installed on fixed mounting structures (metallic fixed substructures1 m above the ground;
- Inverter stations converting direct current (DC) electricity into alternating current (AC);
- Internal medium-voltage electrical collection network;
- Internal access roads and drainage infrastructure;
- Main Step-Up Substation (MSUS);
- 400 kV Interconnection Substation (ICS) “Grăniceri”;
- Approximately 3.5 km underground high-voltage cable between substations;
- Control, telecommunication and SCADA systems.

The development is structured as a phased implementation enabling progressive construction and commissioning while ensuring compliance with grid requirements and environmental permitting conditions.

2.2 Project design

The Project is designed as a modular, phased development to optimise construction logistics, grid integration and financing arrangements. For tendering and execution purposes, the Project is divided into two main lots:

- Lot 1 – Grid connection facilities
    - Main Step-Up Substation (MSUS) “Arad”;
    - 400 kV Interconnection Substation (ICS) “Grăniceri”;
    - Underground high-voltage connection infrastructure;
    - Teleprotection, communication and grid control systems.

The MSUS will house MV switchgear buildings, control rooms, telecommunications facilities, internal service rooms and operational infrastructure necessary for plant management and grid control.

- Lot 2 – PV Plant

The Project will be implemented in three sequential development phases (Phase A, Phase B and Phase C), allowing progressive energisation and export capacity ramp-up. Each phase represents approximately one-third of the total installed capacity and is linked to one of the three main transformers within the main step-up substation. Indicative phase capacities include:

- Phase A: approximately 430 MWp installed capacity (objectives 12 – 19, 24 and 25 – see figure below); initial grid connection and energisation; installation of first transformer and associated PV arrays
- Phase B: approximately 430 MWp (objectives 18, 20-23 and 26-30– see figure below); expansion of PV capacity connected to second transformer;
- Phase C: approximately 390–430 MWp (objectives 01 – 08 – see figure below); final capacity addition and installation of third transformer.

Land plots 9,10, 11 will be excluded from the construction project design as it they are planned to be used to enhance local biodiversity.

This modular design allows construction activities to proceed in parallel while enabling staged commissioning aligned with grid readiness.

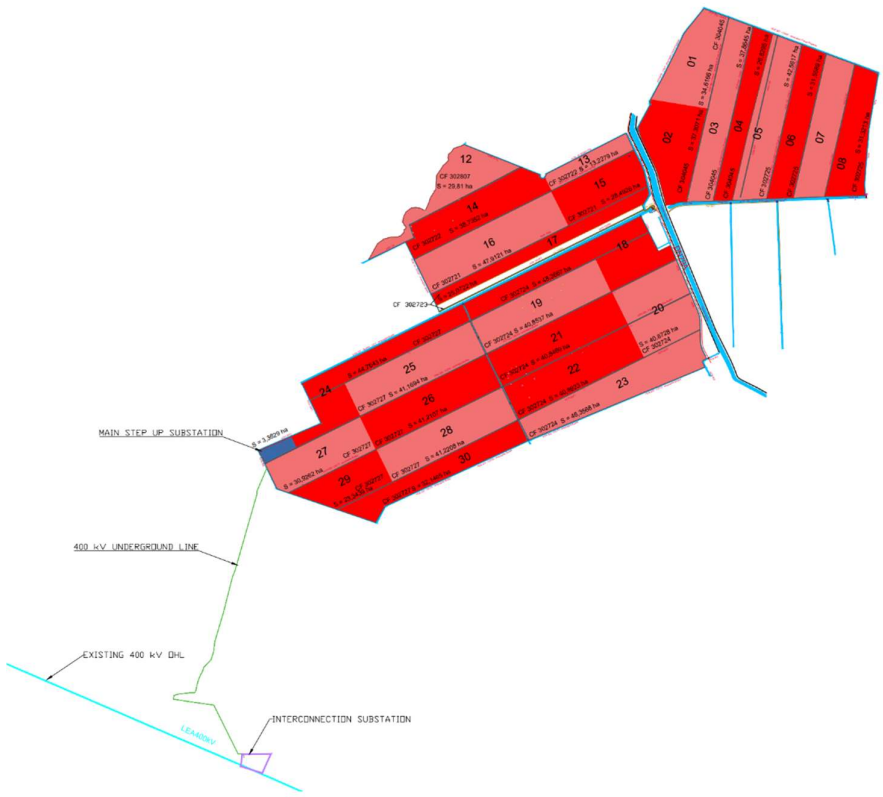


Figure 3 Indicative of objectives Dama project

Construction schedule

Pre-construction and construction stages timeline is presented below.

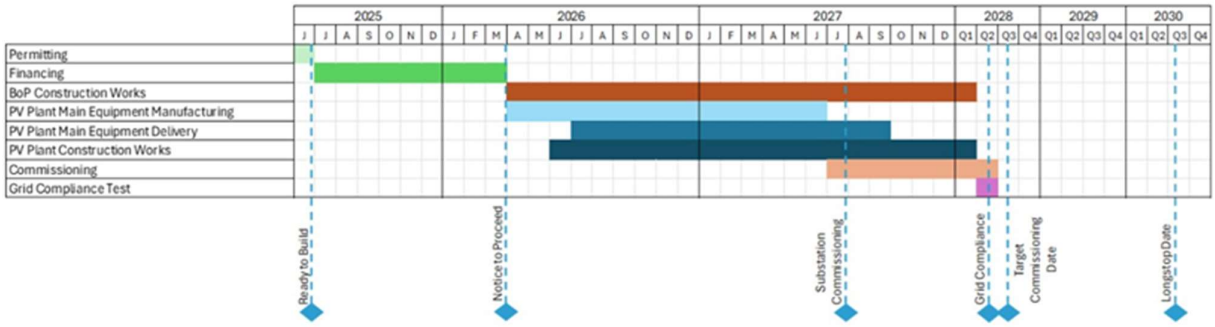


Figure 4 Indicative pre-construction and construction timeline

Project construction phase will take approximately 2.5 years and will be carried out in three stages. Annex 2 includes a detailed timechart for the construction stages.

- **Phase A and grid infrastructure initiation**

- Construction activities are expected to commence following EPC contract signing and Notice to Proceed (NTP), anticipated in early 2026. Initial activities include:
    - detailed engineering, including structural, civil and electrical design packages;

    - site investigations such as topography, geotechnical, hydrology and routing studies;
    - client design review and approval milestones running in parallel with engineering activities.
- Procurement activities begin shortly after NTP and extend over approximately 12–18 months, including staged delivery of:
    - PV modules, fixed-tilt mounting structures and piles, string inverters and LV/MV power stations, solar DC cables, LV and MV cables, grounding systems and SCADA equipment.
- Execution works for early phases commence around May 2026, including:
    - site mobilisation and preparation works;
    - internal road construction;
    - trenching and installation of grounding systems;
    - mounting structure installation and initial PV module deployment.

➢ **Phase B implementation**

Phase B follows a similar execution structure and is scheduled with overlapping engineering and procurement activities to optimise construction continuity. According to the detailed schedule:

- EPC contract signing is planned for late March 2026;
- NTP is scheduled for 1 April 2026;
- engineering design activities extend from April to September 2026;
- execution works (civil, mechanical and electrical) are planned between May 2026 and January 2028, covering mounting structure installation, cable installation, inverter installation and system integration activities.

Key construction milestones include:

- progressive installation of PV modules between November 2026 and January 2028;
- mechanical and electrical installation phases conducted in parallel;
- staged installation of grounding systems, LV/MV cabling and SCADA infrastructure.

➢ **Phase C implementation**

Phase C construction is intentionally staggered to align with transformer installation, grid readiness and commissioning capacity.

- NTP is scheduled for 1 October 2026;
- engineering activities extend from October 2026 to March 2027;
- procurement lead times extend until mid-2028;
- execution works are scheduled from October 2026 to July 2028.

Installation milestones include:

- phased delivery and installation of mounting structures, inverters and electrical equipment;
- staged installation of PV modules between June 2027 and June 2028;
- commissioning activities beginning from April 2028, including cold and hot commissioning tests.

2.3 Associated facilities

Rezolv Associated facilities are defined by IFC as ‘facilities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.’

Based on the above definition, the project has no associated facilities.

2.4 Analysis of alternatives

2.4.1 Zero – option (No project alternative

The “No Project” or zero-option assumes that the DAMA PV Project would not be developed and the site would remain under its current land use and management regime. Under this scenario, the temporary environmental and social impacts associated with construction and operation would not occur. However, the zero-option would also result in the loss of substantial environmental, climate and socio-economic benefits that are directly associated with the Project.

From an environmental and climate perspective, the Project represents a significant contribution to Romania’s energy transition objectives and the decarbonisation of the electricity sector. With an export capacity of approximately 1,044 MW, the Project is expected to generate renewable electricity sufficient to supply approximately 350,000 households and reduce reliance on fossil fuel-based generation. Under the zero-option, these benefits would not be realised, and electricity demand would continue to be met through existing generation sources, potentially resulting in higher greenhouse gas emissions and slower progress toward national and European climate targets.

In addition, the Project supports energy security and grid resilience by increasing renewable generation capacity within western Romania and strengthening cross-border transmission capability through integration with the 400 kV transmission network. The absence of the Project would represent a missed opportunity to diversify energy supply and reduce vulnerability to market fluctuations and energy imports.

From a land-use and biodiversity perspective, the Project introduces a managed dual-use approach combining renewable energy generation with enhanced vegetation management and agrivoltaic practices such as controlled sheep grazing. These measures are expected to improve habitat structure and ecological functionality compared to conventional intensive agricultural practices currently present on parts of the site. Under the zero-option, no such land management improvements or biodiversity enhancement measures would be implemented.

Socio-economically and environmentally, the Project is expected to generate local employment during construction, support local service providers and introduce educational and community-oriented initiatives associated with biodiversity restoration an renewable energy development. These benefits would not materialise under the zero-option scenario.

2.4.2 Alternative locations

2.4.2.1 Site selection

Alternative locations were considered at an early stage through screening of areas capable of accommodating a utility-scale solar PV project of approximately 1 GW capacity throughout Romania. The selected site in Arad County was identified as the preferred option based on a combination of environmental, technical and social criteria, including:

- proximity to existing high-voltage grid infrastructure, enabling connection to the 400 kV transmission network with minimal new linear infrastructure;
- availability of large, contiguous land parcels suitable for phased development without significant fragmentation or displacement risks;
- predominantly flat terrain supporting constructability and reduced earthworks;

During the planning phase, the Project design was refined to minimise ecological impacts, resulting in the exclusion of plots 9, 10 and 11 from the development layout and their allocation for biodiversity enhancement purposes, as presented in the figures below.

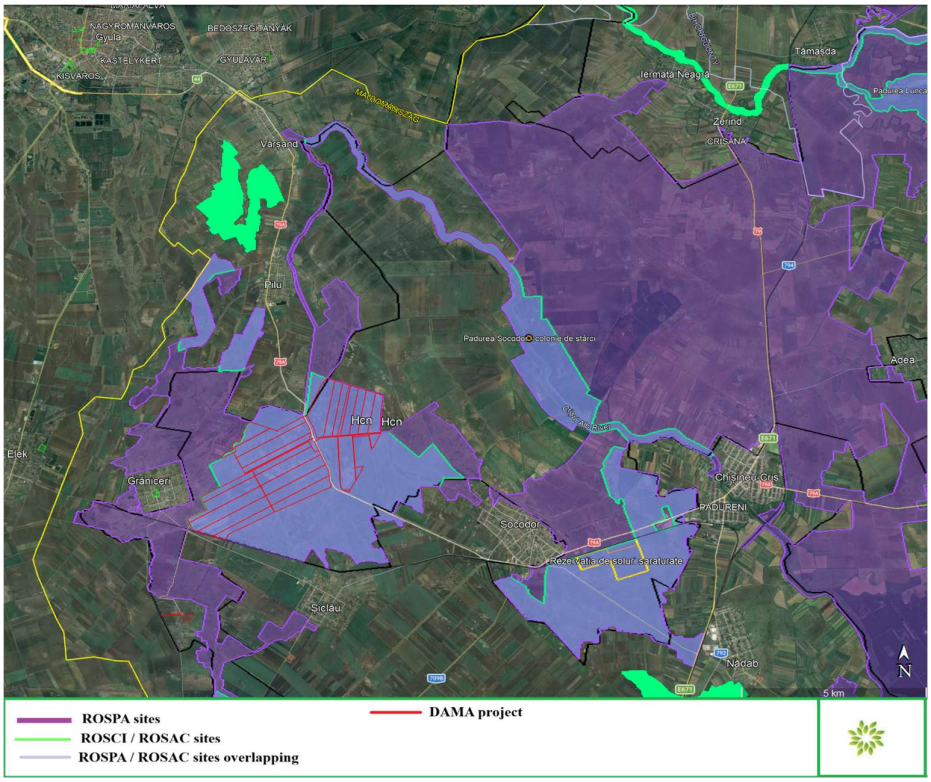


Figure 5 Initial project location and layout

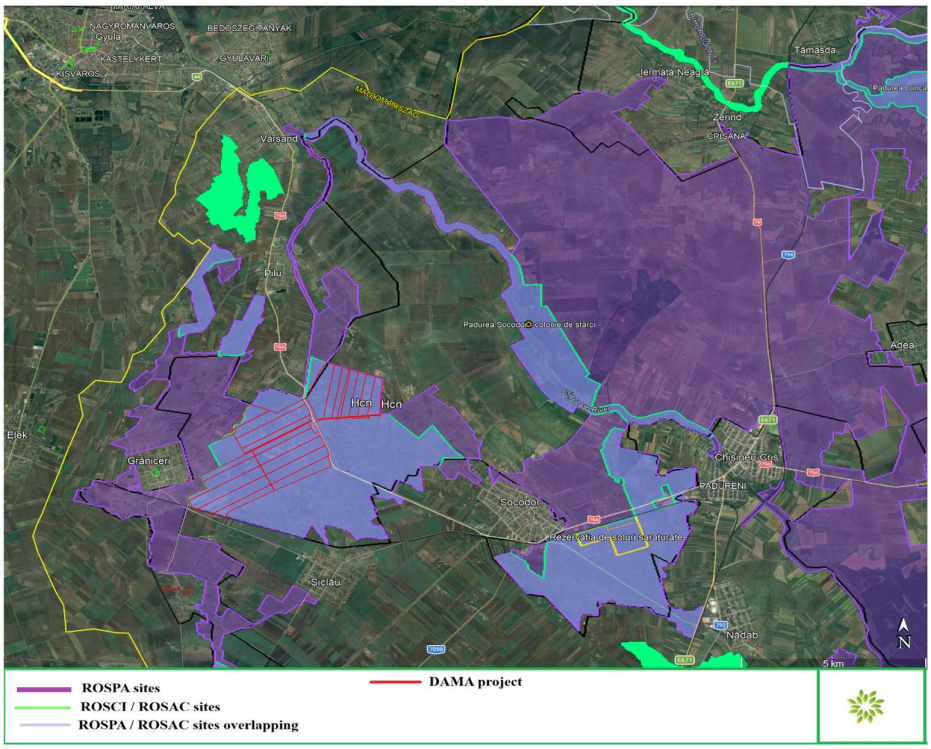


Figure 6 Adjusted layout - Exclusion of land plots 9, 10 11 from the project design

Within the selected site, layout optimisation will be undertaken to minimise environmental and social impacts in the Final Project design. This includes refinement of PV array positioning, optimisation of access routes and cable corridors, and establishment of buffers from sensitive receptors and ecological features identified during the ESIA process. The final layout will reflect avoidance and minimisation principles by concentrating infrastructure within a compact footprint while maintaining operational efficiency and enabling phased implementation.

2.4.2.2 Grid connection alternatives

The ESIA (2023) identified two primary 400 kV connection alternatives, as mentioned in the grid connection permit (ATR):

1. **Nadab–Békéscsaba 400 kV double-circuit overhead line**, located approximately 2.5 km from the Project boundary; and
2. **Nadab 400 kV connection station**, located approximately 15.5 km from the Project boundary.

A comparative evaluation is summarised below.

Table 2 Grid connection alternatives

Option	Key features	Comparative E&S implications
Connection to Nadab–Békéscsaba 400 kV OHL (≈2.5 km)	Shorter connection length; reduced land take	Lower construction footprint and traffic; reduced need for new linear corridors; lower permitting and biodiversity interaction risk
Connection to Nadab 400 kV station (≈15.5 km)	Longer connection length; more extensive connection works	Greater land disturbance; higher likelihood of intersecting sensitive receptors; increased cumulative and nuisance impacts; higher permitting complexity

The shorter-distance option is preferred from an environmental and social standpoint because it minimises new infrastructure, reduces potential interactions with sensitive habitats and communities, and reduces cumulative impact potential associated with a longer corridor.

2.4.3 Technology and configuration alternatives

2.4.3.1 PV mounting configuration: fixed-tilt vs single-axis tracking

Two main mounting configurations were considered: fixed-tilt structures and single-axis trackers. While tracker systems can increase energy yield and reduce land-use intensity per MWh, they introduce additional mechanical complexity, more intensive foundations and higher operational maintenance requirements.

Considering environmental and social aspects, constructability, resilience and the approved permitting envelope, fixed-tilt mounting structures were selected as the preferred baseline design due to:

- simpler construction and reduced mechanical risk;
- lower maintenance intensity and associated disturbance;
- improved operational robustness and resilience.

The design retains flexibility for EPC-level optimisation of module selection and electrical configuration within approved layout constraints.

2.4.3.2 Electrical architecture: string vs central inverters

Both string inverter and central inverter configurations were evaluated as technically feasible. String inverters provide a more distributed system with potentially smaller maintenance interventions, while central inverters offer simplified monitoring but higher consequence of individual equipment failure.

From an environmental and social perspective, both options present comparable performance when designed in accordance with Good International Industry Practice, including appropriate noise management, spill prevention and safe access. The final configuration will be determined during EPC optimisation, ensuring compliance with grid requirements and approved environmental constraints.

2.4.3.3 Vegetation management alternatives

The ESIA (2023) identified two main approaches, respectively:

- contracted maintenance (mechanical/manual, with limited and controlled herbicide use where necessary); and
- sheep grazing (agrivoltaics) via local farmers.

A comparative evaluation is provided below.

Table 3 Vegetation management alternatives

Option	Comparative E&S considerations	Conclusion
Mechanical/manual vegetation control	Predictable implementation; controllable H&S risks; potential fuel use and noise; can avoid herbicides if well-managed	Suitable as baseline method
Limited herbicide use	Potential soil/water risk if misused; requires strict controls and exclusion zones	Only as last resort under strict controls
Sheep grazing (agrivoltaics)	Reduces mechanical mowing; supports local livelihoods; can enhance habitat heterogeneity if managed; requires fencing/interface controls	Preferred as primary method where practicable, with mechanical/manual as backup

The preferred approach is a hybrid: maximise grazing where feasible, supplemented by mechanical/manual control in constrained areas, and avoid herbicides except under controlled, justified circumstances. The shared use of the PV Plant footprint allowing on-site sheep grazing will likely be favourably received by the local community. Sheep grazing at the area is not currently possible as the area is in agricultural/arable land use since 2005.

Sheep-based agrivoltaics are becoming an established practice in the industry.

3 SUPPLEMENTARY ENVIRONMENTAL AND SOCIAL IMPACT ASSESSSMENT

This section provides supplementary environmental and social information in support of the ESIA completed for the Project in 2023. It focuses on specific environmental and social aspects that require additional clarification or updating for lender due diligence purposes, particularly in relation to the requirements of the IFC PSs / EBRD ESRs 1, 3, 4, 6 and 8. It does not replace or duplicate the approved ESIA or the Romanian regulatory EIA process. Instead, it should be read in conjunction with the 2023 ESIA and its annexes, which provide detailed information on baseline conditions, impact assessment, and mitigation measures across all environmental and social topics. Where relevant, the Section also reflects updates arising from regulatory developments, stakeholder engagement outcomes, and lender comments since completion of the ESIA.

3.1 Overall approach to Environmental Protection

A structured, transparent, and precautionary approach to the identification, management, and mitigation of potential environmental and social impacts associated with pre-construction, construction, operation and decommissioning of the DAMA Solar PV Project has been adopted. This approach is documented in the 2023 ESIA, the associated regulatory approvals, and is further supplemented by the information provided in the current document.

All environmental and social obligations arising from the ESIA, regulatory permitting, and lender requirements are consolidated in a Project Commitments Register, which captures mitigation measures, monitoring requirements, responsibilities, and implementation timelines. The Commitments Register is treated as a live document and will be updated throughout the Project lifecycle to reflect design refinements, regulatory updates, and outcomes of stakeholder engagement.

To deliver these commitments, the Project will implement:

- Construction Environmental and Social Management Plans (CESMPs), to be implemented during construction and applied by the Engineering, Procurement and Construction (EPC) contractors, and monitored by Project Company; and
- Operational Environmental and Social Management Plans (OESMPs), to be implemented during the operational phase by the Project owner/operator and integrated into routine site management and maintenance procedures.

During construction, EPC contractors and subcontractors will be required to maintain their own CESMPs, which will be aligned with the Project Commitments Register. These plans will govern day-to-day site activities and will include controls related to, inter alia, soil and water protection, air emissions and dust management, noise, waste and hazardous materials management, biodiversity protection measures, traffic management, occupational health and safety, and community health and safety.

For the operational phase, the OESMPs will address routine and non-routine operational activities, including inspection and maintenance schedules, start-up and shut-down procedures, emergency response, waste handling, water management, and access control.

The management plans will include monitoring and reporting provisions covering both management performance and physical environmental parameters (e.g. emissions, waste streams, biodiversity monitoring where applicable). Monitoring results will be used to demonstrate compliance with Romanian legislation, environmental permits, and lender requirements, and to confirm that the Project does not result in unacceptable impacts on local environmental quality.

Where monitoring or site observations indicate that impacts differ from those predicted, the Project will apply an adaptive management approach, allowing additional or modified mitigation measures to be developed and implemented as necessary. This ensures that environmental protection measures remain effective throughout the Project lifecycle and responsive to site-specific conditions.

3.2 Geology and soil management

This supplementary assessment provides additional clarification and refinement of the geology, soils and natural hazard baseline presented in the ESIA. The objective is to further strengthen the linkage between baseline conditions, construction activities and potential environmental risks.

3.2.1 Baseline - geology

According to the Risk Analysis and Coverage Plan issued by the Arad County Emergency Situations Inspectorate (ISU Arad) (2023)[8], the administrative territories of Grăniceri and Pilu are not identified as areas prone to landslides, and landslide susceptibility is considered negligible due to the flat geomorphological

[8] https://www.cjarad.ro/files/hotarari.nsf-xsp-.ibmmodres-domino-OpenAttachment-hotarari.nsf-C422B2760E316482C22589B300467D25-anexa-Anexa.pdf

setting and absence of significant slope gradients. The Plan also indicates limited seismic risk at local level, with no records of locally generated earthquake events affecting the area.

The Project area is located approximately 450 km south of the Vrancea seismic zone and may be indirectly affected by intermediate-depth seismic events originating from this region. In accordance with the Romanian seismic design code P100-1/2025, the area falls within Seismic Zone VI, corresponding to a design peak ground acceleration (ag) of approximately 0.15 g.

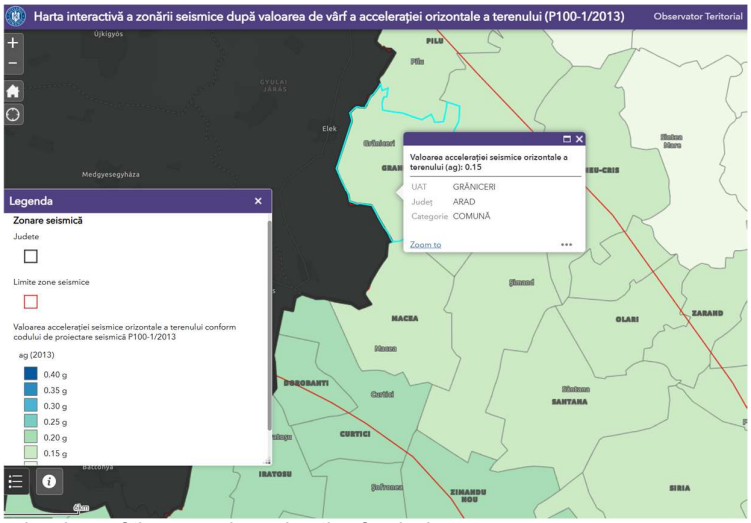


Figure 7 Zoning of the peak values of the ground acceleration for design, source

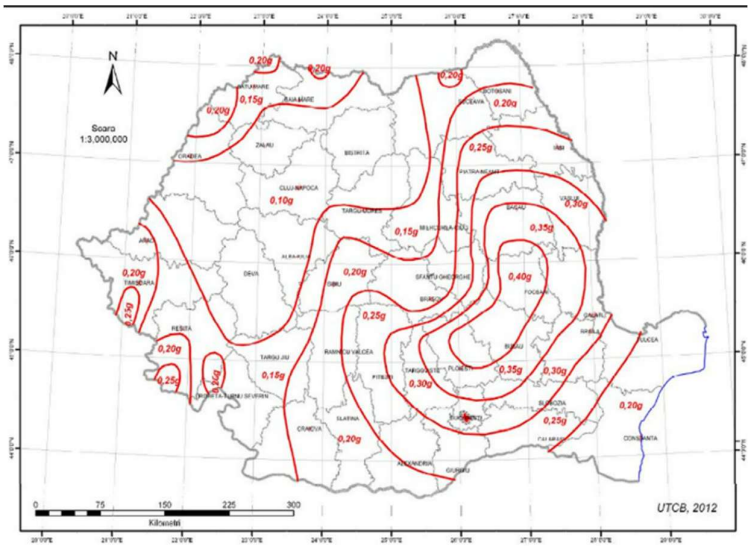


Figure 8 Zoning of the peak values of the ground acceleration for design with an average return interval of 225 years and a probability of exceeding 20% in 50 years (source: seismic code P100-1-2013)

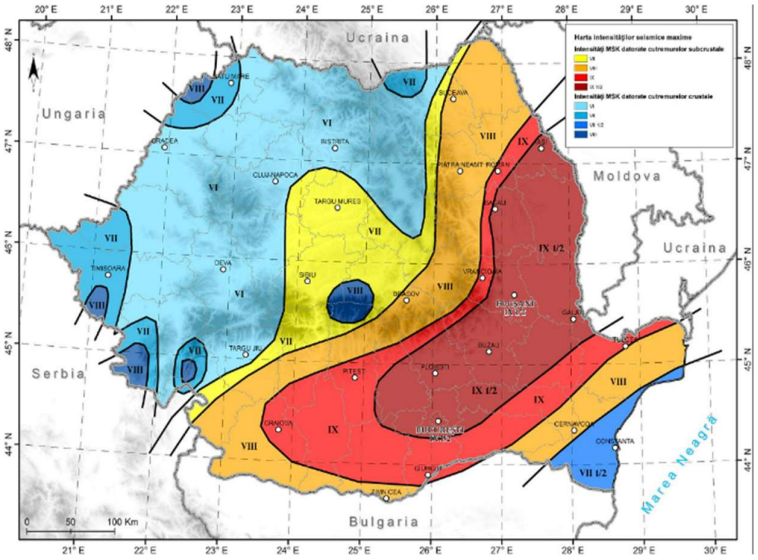


Figure 9 Maximum seismic intensity map, 2013

3.2.2 Baseline – soil

Pedological investigations classify the soils within the Project area predominantly as Cambisols, Vertisols, Pelosols, Stagnosols and Solonetz, with overall agricultural quality class IV. These soils are characterised by relatively low fertility, fine-grained textures, drainage limitations and susceptibility to temporary waterlogging.

Sensitivity of soil receptors varies and also the soil distribution within the Project footprint, respectively:

- Cambisols: medium sensitivity with high agricultural importance - approx. 10%;
- Vertisols and Pelosols: medium sensitivity and importance - approx. 55%;
- Stagnosols and Solonetz: lower importance due to salinity and drainage constraints - approx. 35%;
- underlying geological deposits: low sensitivity.

The Project area is primarily agricultural land, with the PV area located entirely on arable land, while the grid connection works are located on non-productive land.

3.2.2.1 Construction – topsoil management

Construction will be carried out in phases using a controlled approach. Topsoil will be removed only where needed for permanent infrastructure and temporary construction areas. The striped topsoil will be stored temporarily on site in clearly designated stockpile areas, kept separate from subsoil and away from drainage features and sensitive receptors. Where practicable, topsoil will be stored close to the areas being worked on to reduce handling, transport, and the overall construction footprint. Stockpiles will be managed to avoid erosion, compaction, contamination, and the spread of invasive species.

Once construction works are completed, the stored topsoil will be reused on site to reinstate all temporarily disturbed areas, including access roads, cable trenches, and laydown areas. These areas will be levelled, stabilised, and allowed to naturally re-vegetate or be reseeded where necessary.

Further details on topsoil stripping, storage, protection measures, and site reinstatement will be set out in the Topsoil Management and Site Reinstatement Plan to be implemented during construction. Final areas and volumes will be confirmed at detailed design stage by the EPC Contractor(s).

For the purpose of impact assessment, a conservative approach has been adopted, assuming that up to the full project footprint (approx. 1,066 ha) could be subject to topsoil disturbance. In practice, only a fraction of this area will be permanently affected, primarily:

- substation platform;
- inverter stations and equipment pads;
- internal access roads;
- cable trench corridors;
- temporary laydown and construction areas.

Topsoil management will follow GIIP principles.

3.2.2.2 Stakeholder engagement

Consultation with competent authorities relevant to land-use planning was undertaken during the statutory PUZ (Zonal Urban Plan) development phase of the Project. In accordance with applicable legal provisions governing land use change and agricultural land classification, the Arad Office for Pedological and Agrochemical Studies (OSPA) was formally notified regarding the proposed modification of land use associated with the Project.

Following submission of the required documentation and technical justification, OSPA reviewed the proposal and issued the necessary approval allowing the change of land use classification in accordance with national legislation. This consultation formed part of the formal planning procedure required to support the development of the PUZ and ensured that soil classification, agricultural land characteristics and land capability considerations were appropriately assessed prior to approval of the zoning documentation.

Documentation and approvals required for cadastral registration and land status verification were obtained from the Arad Office of the National Agency for Cadastre and Land Registration (OCPI) during both the PUZ planning phase and the construction authorisation process.

3.2.3 Impact assessment

Section 7.4 in the 2023 ESIA discusses the potential impacts that the construction, operation and decommissioning phases of the Project will have on geology and land/soil condition. Where required, appropriate mitigation measures have been set out to limit any identified significant impacts, and/or monitoring programs to inform on any mitigation needed to reduce potential residual impacts. Based on the additional baseline data presented in the current supplementary report in sections Geology and soil and Water and groundwater management the impact assessment was adjusted to include in the topsoil loss also aspects related to erosion susceptibility, compaction potential due to construction machinery, and geotechnical constraints for foundations and access roads.

The Project site is characterised by flat terrain with engineered drainage systems, including the Morilor Canal and associated drainage networks. Baseline studies indicate:

- limited natural slopes;
- fine-textured soils with reduced permeability;
- potential for temporary water accumulation following heavy rainfall events.

Construction activities may influence soil–water interaction through:

- compaction reducing infiltration capacity;
- local soil sealing at permanent infrastructure locations;
- modification of micro-topography through grading;
- temporary disruption of drainage pathways during trenching works.

Potential impacts include increased surface runoff, localised water accumulation and sediment mobilisation. However, hydrological modelling indicates low flood velocities and negligible scour risk across most of the Project area. Drainage design will maintain connectivity with existing canal systems to avoid waterlogging or flow obstruction.

Erosion risk has been evaluated considering soil characteristics, rainfall intensity, slope conditions and construction practices. Due to the flat topography and cohesive soil textures, baseline erosion susceptibility is low. Nevertheless, temporary increases in erosion risk may occur during vegetation clearance and earthworks. Areas identified with relatively higher erosion potential include:

- upgraded agricultural roads;
- UGTL trenching corridors;
- substation earthworks;
- topsoil stockpile locations.

Mitigation measures include phased construction, rapid stabilisation of disturbed areas, maintenance of vegetative cover where feasible, and implementation of erosion control measures around stockpiles and drainage lines.

Construction of the UGTL will temporarily affect approximately 2.5 km through excavation and trenching activities; the route will follow existing agricultural roads. Soil impacts associated with the UGTL include:

- stripping and storage of topsoil;
- excavation and stockpiling of subsoil;
- potential compaction during backfilling;
- temporary disturbance of drainage patterns;
- potential interaction with shallow groundwater.

Mitigation will include:

- segregation and protection of topsoil;
- controlled excavation and backfilling;
- restoration of pre-construction soil profiles;
- reinstatement of agricultural land following installation.

Operational phase impacts associated with the UGTL are expected to be negligible.

The residual impact on soil quality due to topsoil loss and contamination is anticipated to be of minor significance as shown in the table below, based on the additional data in the SLIP. Several mitigation measures, part of the 2023 ESIA and Commitment registry lead to the reduction and impact re-dimensioning post mitigation.

Table 4 Pre and Post Mitigation: Geology and soil impacts

Impact	Project Phase	Significance (Pre-mitigation)	Residual Impact Significance (Post-mitigation)
Topsoil disturbance and loss (stripping, stockpiling, reinstatement) including erosion susceptibility and compaction from construction traffic, earthworks, access roads and UGTL trenching	Construction	Major-Moderate	Minor
Topsoil loss (Soil structure alteration (local compaction/settlement risk) at permanent infrastructure areas (substation platforms, roads, equipment pads))	Operation	Major-Moderate	Minor

Soil contamination (from accidental spills/leaks of fuels, oils, hydraulic fluids and hazardous materials/waste)	Construction	Moderate	Negligible
Soil contamination (from minor spills during routine O&M activities and vehicle movements)	Operation	Minor	Negligible
Soil contamination (from spills/leaks during removal of infrastructure and temporary works)	Decommissioning	Minor	Negligible

An updated Biodiversity Impact Assessment is provided as a standalone Annex to this SLIP.

3.3 Groundwater and surface water management

3.3.1 Baseline

The Project site is located in western Romania, Arad County, near Grăniceri village, on both sides of the Morilor Canal, approximately 10 km upstream of its confluence with the Crișul Alb River. The site covers approximately 1,100 ha and is characterised by flat topography, with no significant natural slopes or incised drainage features. Surface hydrology is strongly influenced by an extensive network of man-made drainage canals, ditches, culverts, road embankments and railway embankments, which alter natural runoff pathways and local flow distribution.

There are no hydrogeological or sanitary protection areas within the area of the Project or in the surrounding areas included in Pilu and Grăniceri communes, according to Sanitary Protection and Hydrogeological Protection Areas map produced by the Arad County Council[9] in 2012.

Both Graniceri and Pilu ATUs are prone to waterlogging events and potentially flooding events based on the information within the Risk Analysis and Coverage Plan[8]. Also, the Water Management Plan of Crisuri Water Management Basin mentions in the annexes section, floodable assets in Arad County due to surface water courses; the ones of interest for DAMA Project area are presented in the table below.

[9] https://www.cjarad.ro/uploads/files/Serv_amen.ter.urbanism/postare%20site%20%202011/3.%20PERIMETRELE%20ZONELOR%20DE%20PROTECTIE%20HIDROGEOLOGICA/zone_pr_sanit_perim_hidrogeol_site_2012.pdf

Table 5 Floodable assets in the project area, source: Arad Water Administration, Water Management Plan[10]

Settlement	Watercourse / all watercourses within locality (permanent or temporary), torrential formations Flood risk sources: failures or accidents at hydrotechnical structures (dikes, dams), excess moisture	Cadastre code	Assets located in flood-risk areas or at risk from hydrotechnical construction failures	Flood wave propagation time or concentration time of hazardous rainfall from rain gauge station to exposed assets	Existing hydrotechnical defence works – technical characteristics, watercourse, owner, critical points within administrative area	Design and actual performance levels of existing hydrotechnical structures, with associated design flows
PILU ATU						
Pilu village	Ciohos Morilor drainage canal system, Pilu Varsand drainage (UD 2 Pilu)	III. 1.40a	472 houses; 6 public institutions (Town Hall, Police, Kindergarten, Orthodox Church, Pentecostal Church, Seventh-day Adventist Church); 3 companies (SC Familial-Service, SC Reinan, Moara Pilu); DN79A road; 8.6 km electricity network; 5.4 km telecommunications network; Gardens: 210 ha; Pasture: 1400 ha; Arable land: 1830 ha	12 hours	Right bank dike Ciohoș L = 10.083 km; Left bank dike Ciohoș L = 9.250 km; Owner: ABA Crișuri; Drainage scheme UD2 Pilu (2685 ha) discharging to Ciohoș via Pilu Pumping Station (km 3+750) Q = 2.6 m³/s; main collectors P4 = 3550 m, P5 = 3375 m, P40 = 1200 m; Domnesc Pumping Station km 2+581 (ANIF); Poganier Pumping Station km 10+054 (ANIF); Pilu bridge km 5+700; Gravity discharge pipeline SP Pilu km 3+750; infiltration zone km 0+500	5%
GRANICERI ATU						
Graniceri village	Canalul Morilor; risk sources include dike failure, canal overtopping from excessive precipitation and excess moisture	III.1.40 a	1 agricultural company (SC Agricolă Grăniceri); DJ79A road (0.5 km); 44 ha pasture; 700 ha agricultural land		Canalul Morilor dikes: km 9+250–11+980 L = 2.64 km; km 10+083–11+943 L = 1.86 km; Poganier Pumping Station km 10+100; installed discharge Q = 3.972 m³/s; Critical points: infiltration km 11+000–11+300 left bank; Owner: ANIF	1%
Siclau village	Budier drainage system (CC4 and CC5); risk sources include overtopping and excess moisture		35 ha agricultural land		Budier drainage system: CC4 length = 8.5 km; CC5 length = 8 km; Socodor Pumping Station km 16+500 on Canal Morilor left bank; max installed discharge Q = 6.190 m³/s; Owner: ANIF	1%

[10] https://crisuri.rowater.ro/wp-content/uploads/2023/04/13-Obiective-inundabile-2021-AR.pdf

Nonetheless, for the project area have been developed both a hydrology study and a Flood Risk Assessment of Event Occurrence and Maximum Flow Probabilities of Overflow, prepared by the National Hydrology and Water Management Institute (INHGA), 2022. Based on these, a Hydrological & Hydraulic Study for Flood-Risk Assessment Report was developed by Fichtner for the project area in 2023.

The Morilor Canal is a regulated watercourse with a high conveyance capacity (reported up to approximately 300 m^3/s) and multiple upstream control structures. Based on available data and hydraulic modelling, the canal does not pose a significant overflow flooding risk to the majority of the Project area under current operating conditions.

Flood risk modelling was undertaken for 50-, 100- and 200-year return period events, incorporating both upstream catchment inflows and direct rainfall over the Project site. The modelling outputs include estimates of flood extent, maximum flood depth and peak flow velocity, which were further used to assess scour and erosion potential. The results indicate that:

- Most of the Project area experiences no significant flooding, even under extreme (200-year) events.
- For the worst-case (200-year) scenario, maximum flood depths are generally below 0.15 m across the majority of the site.
- Localised areas, primarily in the south-western portion of the site and near the Budieru canal, may experience flood depths of up to approximately 0.5 m, with very limited areas approaching but not exceeding 1.0 m.
- Peak flood velocities across the Project area are low, and higher velocities are confined to existing canals rather than open site areas.

A combined flood depth and velocity analysis was undertaken to assess scour and erosion risk. The results indicate that:

- The overall scour risk across the Project area is very low to negligible.
- No areas within the Project footprint were identified as having moderate or high scour risk.
- Potential erosion is limited to existing drainage channels, with no material erosion risk identified for PV array areas, internal roads, or substation platforms under modelled conditions.

The hydrological assessment identified that temporary waterlogging may occur during extreme rainfall events due to:

- Low relief and flat terrain;
- Fine-grained soils with limited permeability;
- Localised depressions and constrained drainage connectivity.

These conditions may result in short-term water accumulation following intense rainfall, but do not represent a persistent flooding hazard. Groundwater levels, as confirmed by geotechnical investigations, occur at depths generally between 1.8 m and 4.0 m below ground level, reducing susceptibility to uplift or liquefaction phenomena during flood events.

Based on the additional baseline information presented in this SLIP, including updated hydrological modelling, flood risk assessments, and refined understanding of local drainage systems and groundwater conditions, the conclusions of the impact assessment remain consistent with those presented in the 2023 ESIA.

3.4 Wastewater / waste management

3.4.1 Waste baseline

3.4.1.1 Regional

The county-level waste management framework is defined by the Arad County Waste Management Plan 2021–2025 (Planul Județean de Gestionare a Deșeurilor în Județul Arad 2021–2025), hereafter referred to as PJGD Arad[11], approved by Arad County Council Decision no. 236/2021. The PJGD Arad sets out the strategic objectives, waste streams, infrastructure requirements, and operational capacities for municipal and non-municipal waste management at county level, in alignment with national and EU waste legislation.

Implementation of the PJGD Arad is supported through the Integrated Solid Waste Management System of Arad County (Sistemul de Management Integrat al Deșeurilor Solide în Județul Arad), referred to as SMID Arad, which has been developed and is operated by the Intercommunity Development Association for Integrated Waste Management of Arad County (Asociația de Dezvoltare Intercomunitară Sistem Integrat de Gestionare a Deșeurilor Județul Arad), hereafter ADI-SIGD Arad. The SMID Arad comprises the network of transfer stations, sorting and composting facilities, and authorised disposal infrastructure serving all urban and rural administrative units in the county, including the communes of Grăniceri and Pilu. The system covers municipal, recyclable, biodegradable, bulky, construction and demolition waste (C&DW), hazardous household waste, and specific waste streams such as electrical and electronic waste (WEEE), packaging waste and green waste.

The organisation and long-term development of waste collection and sanitation services are further guided by the Strategy for the Development of the Sanitation Service in Arad County[12] (Strategia de dezvoltare a serviciului de salubrizare în Județul Arad), approved by ADI-SIGD Arad Decision no. 320H of 10 June 2025.

Arad County operates a developed integrated waste management system, which includes the following key facilities:

- 4 transfer stations:
    - Chișineu-Criș (Zone 2), capacity approx. 7,075 t/year
    - Ineu-Mocrea,
    - Sebiș (Zone 4) – capacity approx. 8,375 t/year
    - Bârzava (Zone 5) – capacity approx. 6,250 t/year
- 2 sorting stations: Arad (approx. 54,000 t / year) and Ineu-Mocrea (approx. 6000 t / year)
- 2 composting facilities:
    - Arad (closed tunnel composting), capacity: 19,000 t/year
    - Ineu-Mocrea (open composting), capacity: 700 t/year
- Ecological landfill serving the county, located in Arad, having a capacity of approx. 1.723.311,8 mc operated by FCC Environment România; annual storing - approx. 130 000 t waste / year[13].

For the purposes of integrated waste management, Arad County is organised into five operational zones, of which Grăniceri and Pilu communes form part of Zone 2, operated by RETIM Ecologic Service S.A.

[11] https://vechi.cjarad.ro/uploads/files/deseuri/PJGD.pdf

[12] https://primariazarand.ro/wp-content/uploads/2025/05/strategia-de-dezvoltare-a-serviciului-de-salubrizare.pdf

[13] https://www.fcc-group.eu/romaniaro/filiale/a-s-a-servicii-ecologice-s-r-l-sediul-central-din-arad

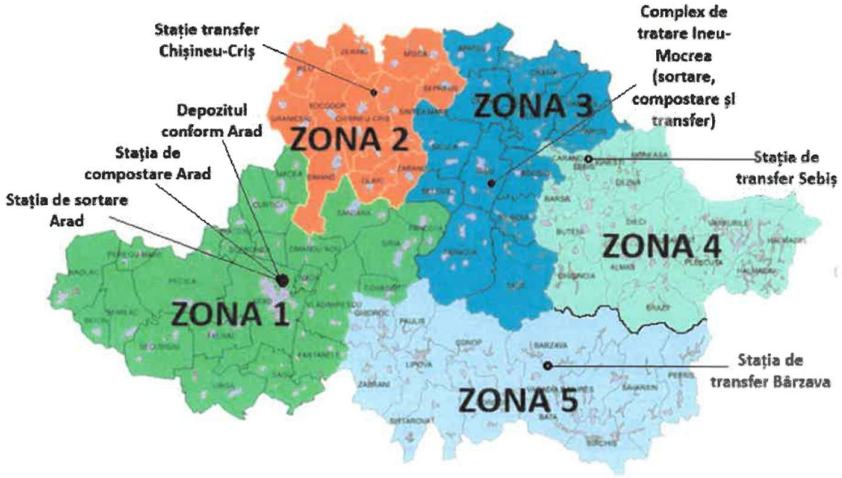


Figure 10 Arad County waste management zoning, source: Strategy for the Development of the Sanitation Service in Arad County

3.4.1.2 Packaging waste

Packaging waste is managed nationally under Extended Producer Responsibility (EPR) schemes supervised by the Administration of the Environmental Fund (AFM) and 14 organisations are authorised to implement EPR obligations for packaging waste [14]. Dozens of nationally authorised packaging waste recovery organisations are registered at national level (in Arad County 53 collectors, 11 recycling operators) to cover plastic, paper / cardboard, metal, wood and textile fractions). Most of the operators are legally permitted to operate across all counties, including Arad, and may complement county systems for recyclable packaging streams.

3.4.1.3 Construction and demolition waste

Based on official correspondence issued by the county authorities in 2025[15], Arad County does not operate a dedicated landfill for construction and demolition waste (CDW). However, FCC Environment România S.R.L. is authorised as non-hazardous landfill operator and is permitted to accept CDW under specific permit conditions. In addition, ten authorised CDW treatment operators are active in the county, licensed for the crushing, recovery and reuse of inert construction waste. These include, inter alia, DAG & M.N. SRL, DEMECO SRL, EUROKIPPER SRL, NELBOG SRL, PORR Construct SRL, SELEPETRI Construct SRL, SYLC Con Trans SRL (multiple authorised working points) and TATSTYL Grup SRL.

In accordance with the environmental authorisation issued to FCC Environment România, the facility is authorised to receive for disposal industrial construction and demolition waste, limited to the following European Waste Catalogue (EWC) codes: plastic construction materials (17 02 03), asphalt waste other than those containing coal tar (17 03 02), cables other than those containing hazardous substances (17 04 11), and mixed construction and demolition waste excluding hazardous fractions (17 09 04). In addition to the CDW streams accepted for treatment and recovery, FCC Environment România S.R.L is permitted to receive non-hazardous inert mineral wastes for direct material reuse, specifically for landfilling, levelling and covering works, in accordance with applicable environmental permits. These include concrete (EWC 17 01 01), bricks (EWC 17 01 02), tiles and ceramic products (EWC 17 01 03), mixed concrete, bricks and ceramics other than those specified under EWC 17 01 06 (EWC 17 01 07), soil and stones other than those containing hazardous substances (EWC 17 05 04), and soil and stones (EWC 20 02 02). The authorised maximum annual intake of inert material for reuse is 8,000 tonnes per year.

[14] https://www.afm.ro/taxe_lista_operatori_economici.php

[15] Notification no. DJM AR / 15103 / 14.08.2025, Ministry of Environment, Waters and Forests, regarding CDW management in Arad County, https://comunapetris.ro/download/cO4tGTHJukZbTWmttov4uVLJIqoMZMNCUZFLbAIr.pdf

3.4.1.4 Electrical and electronic waste

WEEE management is organised nationally under EPR schemes supervised by the Supervisory Commission for Electrical and Electronic Equipment (Comisia de Supraveghere EEE) within the Ministry of Environment, Waters and Forests and by the Administration of the Environmental Fund (AFM) and 19 organisations are authorised to implement EPR obligations for WEEE[16].

Industrial and commercial WEEE generated in Arad County is collected through licensed waste collection and transport operators that operate locally or regionally and are authorised to handle WEEE waste codes. These operators typically act under contract with nationally authorised EPR organisations and provide on-site collection services for industrial generators.

Examples of licensed operators active in Arad County or the West Region, providing industrial WEEE collection and logistics services, include:

- FCC Environment România S.R.L. – authorised for collection and transport of non-hazardous industrial waste, including WEEE fractions, with operational presence in Arad County;
- RETIM Ecologic Service S.A. – licensed waste collection operator with capacity to collect specific non-hazardous industrial waste streams, including electrical and electronic waste, subject to permit conditions;
- DEMECO S.R.L. – authorised for collection, transport and treatment coordination of hazardous and non-hazardous waste, including WEEE, operating nationally and regionally;
- GreenWEEE International S.A. – nationally licensed WEEE collector and recycler, operating through regional collection networks and industrial take-back services;
- Rematholding Co. S.A. – licensed collector and recycler of electrical and electronic waste, metals and industrial equipment, operating at national level with regional service coverage.

These operators collect industrial WEEE such as electrical panels, inverters, cables, control equipment, lighting systems and IT equipment directly from industrial sites and ensure transfer to authorised treatment and recycling facilities, in compliance with Romanian and EU WEEE legislation. Romania maintains a network of authorised WEEE treatment and recycling facilities operating at national and regional level, including GreenWEEE International, Rematholding, DEMECO and CCR Recycling, which operate licensed depollution, dismantling and recycling facilities.

Both Timiș and Bihor counties operate well-developed integrated waste management systems, with Timiș fully implementing an integrated system covering all administrative units and featuring transfer, sorting and composting centres coordinated by the Asociația de Dezvoltare Intercomunitară Deșeuri Timiș under the county waste management plan, and Bihor having an established multi-zone integrated waste management structure with facilities for transfer, sorting and mechanobiological treatment developed under EU-funded programmes to support separate collection, recycling and treatment objectives.

3.4.1.5 Local

Both Grăniceri and Pilu communes are members of the Intercommunity Development Association Integrated Waste Management System Arad County (*Asociația de Dezvoltare Intercomunitara Sistem Integrat de Gestionare a Deseurilor jud. Arad*) and are included within Waste Management Zone 2, where municipal waste collection services are provided by RETIM Ecologic Service S.A.

Waste produced by individual homes in the AoI is collected in 120 l bins. Residents are required to separate waste into the main fractions (plastic, paper, green waste and glass); however, selective collection practices remain limited, as confirmed by the 2023 ESIA findings.

According to the PJGD Arad (2021)11, municipal waste generation in Arad County shows the following characteristics:

[16] https://mmediu.ro/domenii/mediu/deseuri/comisii-de-supraveghere/comisia-de-supraveghere-eee/

- Total municipal waste generated (county level):
    - Approx. 110,000–115,000 tonnes/year in the 2020–2025 period
- Per capita generation:
    - Urban areas: approx. 0.7–0.8 kg/person/day
    - Rural areas: approx. 0.35–0.45 kg/person/day

Rural waste generation levels are therefore significantly lower than urban averages, reflecting settlement density, consumption patterns and household practices. Grăniceri and Pilu communes fall within this rural profile.

Bulky waste, construction and demolition waste from households, and hazardous household waste (e.g. batteries, paints, oils) are managed through periodic collection campaigns organised by ADI-SIGD Arad, including the local municipalities, and its contracted operators.

Despite the presence of formal collection services, informal practices persist to a limited extent, as acknowledged in county planning documents[17] and observed more broadly in rural Arad County. These include:

- Occasional illegal dumping of green waste, bulky items or small quantities of construction debris along field margins, secondary roads or unused plots, particularly outside village cores; and
- Open burning of vegetal waste (garden residues), especially during seasonal agricultural activities.

Site reconnaissance undertaken to date by the Project developer representatives did not identify any large-scale illegal dumping areas or active open burning within the Project footprint or its immediate surroundings. However, such practices are recognised as a residual risk in rural areas. Thus, a dedicated pre-construction waste identification survey will be carried out prior to the commencement of works to identify and map any existing informal dumping areas and to implement appropriate remediation measures where necessary. This activity will be coordinated by the Project developer's ESG Manager and will be complemented by regular site monitoring throughout the construction and operation phases to prevent the occurrence of illegal dumping and ensure ongoing site cleanliness and compliance.

3.4.1.6 Environmental permit provisions

In line with the EIA permit (Decizia etapei de incadrare) conditions, the Project will generate non-hazardous waste streams during the construction phase and, to a limited extent, during operation. These include construction and demolition waste such as mixed concrete and masonry residues, asphalt waste, excavated soil and stones, metal waste and cables, as well as packaging waste and household-type waste generated by site personnel. In the table below are presented the types of waste mentioned as potential in the EIA permit.

Table 6 Project waste types according to EIA permit

Source of waste by project phase	Waste code (HG no. 856/2002)	Description	Temporary storage method	Proposed waste management method
Site organisation	**17 01 07**	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	Temporary storage in containers within the site organisation area	Reuse for filling works
Construction of the photovoltaic park	**17 03 02**	Bituminous mixtures other than those mentioned in 17 03 01	Temporary storage on site	Reuse for filling works
	17 05 04	Soil and stones other than those mentioned in 17 05 03	Temporary storage on site	Reuse for land restoration

[17] Arad County Spatial Planning Plan, 2024, https://www.cjarad.ro/activitate/directia-arhitect-sef/1-plan-de-amenajare-a-teritoriului-judetean-arad/

	17 04 11	Cables other than those mentioned in 17 04 10	Temporary storage in containers on site	Recovery through authorised companies
	17 04 07	Mixed metals	Temporary storage on a concrete platform	Recovery through authorised companies
	15 01 01	Paper and cardboard packaging	Temporary storage in suitable containers within the site organisation area	Recovery through authorised companies
	15 01 02	Plastic packaging	Temporary storage in suitable containers within the site organisation area	Recovery through authorised companies
	15 01 03	Wooden packaging	Temporary storage in suitable containers within the site organisation area	Recovery through authorised companies
Personnel activities during both construction and operation phases	**20 03 01**	Mixed municipal waste	Stored in bins in an area separated from other waste	Disposal by authorised sanitation company, based on contract

Waste will be collected selectively and temporarily stored within designated areas of the site organisation, using containers, platforms or storage areas suitable for each waste type. Temporary storage will be carried out separately for each waste stream, with containers and storage areas clearly labelled with the corresponding waste codes to ensure traceability and safe handling.

Reuse and recovery are prioritised wherever technically feasible. Mixed inert construction waste, asphalt waste and excavated soil will be reused on site for filling works and land restoration, subject to suitability. Metal waste, cables and packaging waste will be transferred to authorised recovery operators, while mixed municipal waste generated by personnel will be collected and removed by an authorised sanitation company under contract.

Hazardous waste, including waste oils and electrical equipment containing hazardous components, will be stored temporarily in dedicated, secured containers equipped with retention systems and transferred exclusively to authorised hazardous waste operators.

An inventory of all generated waste will be maintained and updated on an ongoing basis, and monthly records will be kept detailing quantities generated, stored temporarily, recovered or disposed of, by waste type. In accordance with Government Emergency Ordinance no. 92/2021, the Project will prepare and submit mandatory waste management reports to the competent authorities, including annual waste reporting through the national environmental reporting systems, as applicable.

Any additional waste streams generated during Project implementation and not explicitly listed in the table will be classified and managed in accordance with Commission Decision 2000/532/EC, Government Emergency Ordinance no. 92/2021 on the waste regime, with amendments, and the permit conditions of the contracted authorised operators.

The EPC contractor will deal with contracting all needed waste operators during construction and first 2-3 years of O&M, and the SPV will handle these afterwards.

3.4.1.7 Project review

Indicative waste generation factors have been derived using good international industry practice (GIIP) for utility-scale solar PV developments, combined with standard construction workforce benchmarks and internationally recognised guidance for infrastructure projects as well as current project developer practice in similar previous projects. The estimates are conservative, assume effective segregation and prioritisation of reuse and recycling, and are intended to demonstrate the scale of waste generation relative to available regional waste management capacity, rather than to define final operational quantities.

During construction, the dominant waste types typically include packaging waste (cardboard, plastics and wood from PV modules and equipment deliveries), metal and cable off-cuts, minor quantities of inert construction debris (e.g. mixed concrete or asphalt residues), excavated soil and stones (generally reused on site), small amounts of hazardous waste associated with machinery maintenance (oils, filters and absorbents), municipal-type waste from the workforce, and very limited quantities of WEEE arising from defective electrical components or tools. During operation, waste generation is low and largely limited to municipal-type waste from O&M staff, minor maintenance-related hazardous waste, and occasional WEEE from replacement of inverters, monitoring systems or IT equipment. At decommissioning, the main waste streams are expected to consist of PV modules, electrical equipment and structural materials, which are managed under dedicated take-back, recycling and recovery schemes and are not relevant to the current construction and early operation phases.

Table 7 Indicative waste generation and project-scale quantities

Phase	Waste stream	Project-scale implication (~1,044 MW)
Construction	Packaging (cardboard, plastics, wood)	~1,500–4,700 t (total)
	Metals & cables	~100–300 t
	Inert CDW	Reuse (~200–830 t)
	Soil & stones	Reuse
	Hazardous (oils, filters, absorbents)	~5–20 t

	Municipal - type (workforce)	~100–250 t (total)
	WEEE	<1–3 t
Operation (annual)	Municipal - type (O&M staff)	<5 t/yr
	Maintenance hazardous	<5 t/yr
	WEEE	~50–100 kg/yr

When assessed against the existing waste management infrastructure in Arad County, the estimated waste quantities confirm that the system has adequate capacity to accommodate the Project. County-level data indicate annual municipal waste flows in excess of 110,000 tonnes per year, supported by established transfer, sorting and composting facilities operating under the Integrated Waste Management System of Arad County, together with authorised landfill acceptance routes and multiple licensed recovery operators for construction, packaging and electrical waste streams. The Project's waste volumes, represent only a small proportion of annual county waste flows and will be generated progressively over several years. In addition, high-recovery streams such as packaging materials, metals and cables will be prioritised for recycling through authorised operators, further limiting disposal requirements. WEEE generated during construction and operation will be managed through national EPR systems and transferred to licensed treatment and recycling facilities operating at regional or national level. In addition, the Integrated Waste Management Systems of Timiș and Bihor counties, located in the neighbouring regions, are well developed and can be accessed if required, providing further assurance of sufficient capacity and operational resilience.

Therefore, the Project is not expected to exceed available disposal or treatment capacity nor create operational constraints within the Arad County integrated waste management system.

3.4.1.8 Stakeholder engagement

Consultations were undertaken during the statutory permitting processes for both the planning and construction phases of the Project. Engagement with competent authorities and service providers formed an integral part of the environmental screening, EIA notification and permitting procedures, and provided confirmation of existing practices relevant to the Project.

These consultations confirmed that Grăniceri and Pilu communes are fully integrated into the countywide waste management system (Zone 2), that municipal waste collection services are operational, and that county-level infrastructure has capacity to accommodate additional waste streams generated by the Project without affecting service provision to local communities.

At local level, the municipal authorities of Grăniceri and Pilu were consulted during the planning and permitting stages, including the issuance of the Urban Planning Certificate and environmental screening decisions. These consultations confirmed existing household waste collection arrangements, the low development rate of centralised sewerage infrastructure in the communes, and the reliance on individual sanitation solutions for domestic wastewater. Oversight and compliance responsibilities were confirmed through consultation with the Arad EPA and the Arad County Environmental Guard (GNM) during the environmental screening and permitting process. These authorities retain responsibility for regulatory supervision, inspections and enforcement related to waste and wastewater management throughout Project implementation.

3.4.2 Wastewater baseline

3.4.2.1 Local

Grăniceri commune has a centralised water supply system and sewage system implemented in both Grăniceri and Siclau settlements. In Pilu Commune only 10% of the households in Pilu settlement currently benefit from centralised water supply, whilst the sewage system is not yet developed.

Grăniceri commune benefits from an operational wastewater treatment system located in Grăniceri settlement, with treated wastewater returned to Buderiu canal. Both Grăniceri and Pilu communes are part of the Association for Intercommunity Development Water Sewerage Arad County, and a new infrastructure development project was financed via EU funding to upgrade and extend the water supply network in

Grăniceri commune and extend water supply and sewerage system in both Pilu and Varsand settlements in Pilu commune, including new electrochlorination stations in Pilu an Varsand.

In line with common practices observed across rural areas in Romania, households not connected to sewerage networks typically rely on individual septic tanks, many times impermeable. Improperly designed or poorly maintained septic systems may present environmental risks such as leakage, infiltration to shallow groundwater, or occasional uncontrolled discharge, particularly in areas with shallow groundwater levels and drainage canals.

3.4.2.2 Project review

Wastewater generation associated with the Project will be limited in scale and will occur exclusively from sanitary use by personnel during both the construction and operation phases. No industrial or technological wastewater will be generated as part of the photovoltaic park activities.

During the construction phase, sanitary wastewater will be generated by on-site personnel and will be managed through the use of mobile ecological sanitary units installed within the site organisation area. These units will be serviced periodically, with wastewater collected and transported by authorised operators to licensed treatment facilities, in accordance with the conditions set out in the environmental screening decision issued by the Arad Environmental Protection Agency.

During the operation phase, sanitary wastewater generated by operational staff will be managed in a similar manner, using sealed sanitary containers or ecological toilets, depending on staffing levels and operational arrangements. Emptying, transport and treatment will continue to be performed exclusively by authorised wastewater management companies, based on contractual arrangements.

In accordance with the environmental permit conditions, no discharge of wastewater to soil, surface water or groundwater is permitted. All wastewater will be contained, collected and removed off-site for treatment, ensuring full compliance with national water protection legislation and the requirements of the Arad EPA.

3.4.3 Impact assessment

The impact assessment builds on the 2023 ESIA Chapter 7.7 and provides a stronger link between (i) the site-specific baseline for Grăniceri and Pilu, (ii) the Project waste and wastewater streams, (iii) available local/regional management capacity, and (iv) sensitive receptors, including the nearby Natura 2000 context and the local drainage network (Morilor / Poganieru / Buderiu channels). The assessment focuses on waste- and wastewater-related pathways; impacts on soil and water quality are assessed in the dedicated Geology and soil and Groundwater / Surface water chapters and are cross-referenced here.

Baseline sanitation practices, including reliance on septic tanks in non-sewered areas, indicate that wastewater pressures already exist in the local environment. However, the Project design eliminates direct discharge pathways by requiring sealed containment and off-site treatment, resulting in a lower environmental risk profile.

3.5 Biodiversity Conservation and Sustainable Management of Living Natural Resources

An updated Biodiversity Impact Assessment (BIA) has been carried out for the Project, and a new report has been issued, which supersedes the version prepared in 2023.

The assessment has been revisited in light of several key developments. Since the last iteration of the Critical Habitat Assessment (CHA) in 2024, the EBRD has published a revised set of Environmental and Social Requirements (ESRs), together with updated guidance under ESR 6, including additional direction on impact assessment and mitigation.

The report has also been updated to incorporate the findings of the 2026 Biodiversity Baseline Assessment and the 2026 Critical Habitat Assessment. In addition, it addresses comments and recommendations arising from the Environmental and Social Due Diligence (ESDD) conducted as part of the ESIA by independent consultants from WSP in January 2026.

The full assessment is provided as an annex to the current report in the Biodiversity Impact Assessment annex section.

3.6 Cultural Heritage

Rationale and Scope

The following Section has been prepared in order to expand the description of the legislative process and engagement with local authorities, as well as to further detail the mitigation measures required to protect the cultural heritage and archaeological artifacts located on the project's footprint.

It details the permits already obtained, the studies already performed, as well as the next steps required by the local legislation and international best practices.

3.6.1 Updated legislative framework

3.6.1.1 Engagement with the Arad County Directorate for Culture and Competent Authorities

A phased permitting process with the competent cultural authority (DJC Arad, Ministry of Culture) was required at both spatial planning (PUZ) and construction authorisation stages, in accordance with Law no. 422/2001 on the protection of historical monuments and related regulations:

1. **Preliminary Cultural Heritage Screening and Land Status Clarification** - At an early stage of development, the Project Developer requested official confirmation of the cultural heritage status of the land parcels affected by the Project, based on cadastral and land registry documentation. The response from DJC Arad confirmed that the parcels are not classified as historical monuments, are not located within designated monument protection zones, and do not contain registered archaeological sites, while acknowledging the general archaeological potential of the wider area.
2. **Cultural Heritage Approval at PUZ (Zonal Urban Plan) Stage -** For the preparation and approval of the PUZ for the photovoltaic park and its grid connection, a specific cultural heritage endorsement from DJC Arad was required. The submitted PUZ documentation covered urban planning regulations, site and location plans, land registry information, and a description of the proposed development and associated infrastructure. DJC Arad issued a favourable opinion for the PUZ, subject to conditions requiring archaeological diagnostic investigations where applicable, the obtaining of archaeological discharge prior to construction permitting, and full compliance with archaeological legislation for any intrusive works, thereby allowing the PUZ to be approved while deferring archaeological clearance to a subsequent permitting stage.
3. **Archaeological Assessment and Construction-Stage Cultural Permit** - At the construction authorisation stage, the Project Developer submitted a comprehensive technical dossier to DJC Arad for cultural heritage approval, including detailed project designs, site layouts prepared in the STEREO 70 coordinate system, and a description of all ground-disturbing works. Based on this documentation, DJC Arad issued a favourable cultural heritage permit for construction, recognising the archaeological sensitivity of the site and defining approved construction perimeters, while conditioning the start of works on the completion of preventive archaeological investigations, issuance of an archaeological discharge certificate approved at national level, implementation of archaeological supervision where required, and prior notification of the authority, with construction permitted only after full compliance with these conditions.
4. **Intrusive Archaeological Diagnostic Report** - Following PUZ approval, an intrusive archaeological diagnostic was undertaken by authorised specialists due to the recognised archaeological sensitivity of the area. As result of the intrusive diagnostic the following measures were proposed:
    a. the implementation of preventive archaeological research within the selected delineated project perimeters. The study highlights 10 areas of interest.

b. provision of continuous archaeological supervision within the delineated project perimeters. The study identifies two such areas.

c. the provision of archaeological supervision during the construction phase of the photovoltaic park.

3.6.1.2 Archaeological discharge process

The archaeological discharge (certificat de descărcare de sarcină arheologică) is issued by the competent cultural authority based on a specialised archaeological documentation package, prepared in accordance with Romanian cultural heritage legislation and applicable archaeological standards.

The process requires the submission of a complete technical dossier, which includes:

- A formal application for the issuance of the archaeological discharge certificate;
- The technical design of the proposed intervention;
- Valid Urban Planning Certificate and Land Registry extract;
- Location and site plans at appropriate scales (1:25,000 / 1:10,000 / 1:5,000), including a detailed digital site layout (.dwg or .shp);
- Topographic survey prepared in STEREO 70 coordinate system, including a digital tabular list of coordinates for all areas affected by the Project;
- A Preventive Archaeological Research Project, prepared by authorised specialists, comprising a documented archaeological diagnosis based on desk study and/or field investigations;
- A Preventive Archaeological Research Report, prepared in compliance with national archaeological standards (OMCC no. 2392/2004), following completion of field investigations;
- A copy of the contract with an accredited archaeological institution responsible for the preventive research;
- A digital orthophotoplan (scale 1:5,000) for project areas exceeding 1,000 m².

The archaeological discharge certificate is issued only after review and approval of the preventive archaeological research results by the competent authorities. Construction works involving ground disturbance may commence only after issuance of the certificate. This process ensures the identification, evaluation, and appropriate management of any archaeological remains, in line with national legislation and EBRD ESR8 requirements.

As per the Cultural Heritage Approval permit, construction works may be carried out outside the areas requiring archaeological discharge, provided that all ground-disturbing activities in such areas are undertaken under continuous archaeological supervision and in accordance with the conditions set by the competent cultural authority.

3.6.2 Construction mitigation measures

Based on the cultural heritage permits issued by the Arad County Directorate for Culture, the results of the intrusive archaeological diagnostic investigations, and the applicable Romanian and international legislation, the Project commits to the following measures:

- The Project will implement preventive archaeological research (rescue excavations) in all perimeters identified by the authorised archaeological diagnostic as requiring such measures, prior to the commencement of construction works. These investigations will be carried out by accredited archaeological specialists, in accordance with Romanian archaeological standards and procedures, and will form the basis for obtaining the Certificate of Archaeological Discharge. Archaeological materials recovered during preventive investigations will be documented, conserved, and transferred to the Arad Museum Complex in line with national requirements.

- Construction works will be microsited where feasible to avoid direct impacts on known archaeological features, including preserved mounds and site boundaries identified through the diagnostic. Where avoidance is not possible, clearly marked and, where necessary, fenced exclusion zones will be established. Ground-disturbing activities undertaken in proximity to preserved archaeological features will be subject to continuous archaeological supervision, and works will be temporarily halted if previously unknown archaeological remains are encountered, pending guidance from the competent authority.
- The Project will maintain ongoing coordination with the Arad County Directorate for Culture, building on consultations undertaken during the PUZ and construction permitting stages. All required cultural heritage approvals, including archaeological research authorisations and final archaeological discharge certificates, will be obtained prior to land clearance and construction. A joint pre-construction field verification involving the Project, the authorised archaeologists, and the Arad Museum Complex will be carried out, where required, to confirm the location, extent, and treatment of archaeologically sensitive areas within or adjacent to the Project footprint.
- Arrangements for the temporary and permanent storage, conservation, and curation of artefacts will be agreed with the Arad Museum Complex and formalised through contractual arrangements or a memorandum of understanding, as applicable.
- Outside the perimeters requiring archaeological discharge, construction works may proceed under archaeological supervision, in accordance with permit conditions, ensuring compliance with chance finds procedures and immediate notification of the authorities should new discoveries arise.
- Where human remains or culturally sensitive features are identified, the Project will comply with Romanian legal requirements and the instructions of the competent authorities. If applicable, targeted pre-construction consultations with affected communities will be undertaken to inform the treatment of such finds, and outcomes will be documented through the Stakeholder Engagement Plan.

In compliance with lender requirements, the ESIA (ERM November 2023) includes the baseline cultural heritage review and full impact assessment results are provided in Annex 2 of the ESIA for reference. There are fourteen cultural heritage features located within the Project impact area that have been confirmed as overlapping with the direct construction works. The project has developed a Cultural Heritage Management Plan and Chance Find Procedure to ensure the construction of the Dama project does not lead to adverse impacts on the sites Cultural Heritage. More details of the CHMP and CFP are provided in the project CESMP.

No active cemetery is located within the Project footprint or its immediate area of influence. The reference to a “cemetery” arose from the archaeological assessment, which identified several burial mounds (barrows) within the wider area. These barrows are archaeological heritage features of historical significance and do not represent active or maintained cemeteries.

The identified barrows are subject to archaeological research and protection requirements under Romanian cultural heritage legislation. No relocation of graves is currently anticipated. Prior to construction, archaeological discharge procedures will be undertaken in accordance with permits issued by the competent cultural heritage authorities.

In the unlikely event that human remains are encountered during archaeological investigations, they will be managed exclusively by licensed professional archaeologists in accordance with Romanian law. Any required reburial or further handling will be undertaken in consultation with the relevant authorities and, where appropriate, local religious representatives.

3.7 Socio-Economic setting

Rationale and Scope

The following Section has been prepared in response to the need to update and refresh key socio-economic baseline indicators, using the latest available data, with particular focus on unemployment rates and labour force participation within the social Area of Influence (AoI).

This update ensures that the Supplementary ESIA reflects current employment conditions and post-2020 trends, thereby strengthening the accuracy and relevance of the socio-economic baseline and subsequent impact assessment.

3.7.1 Employment

The findings of *Appendix F: Socioeconomic Baseline Study* remain valid: in 2024 the Manufacturing sector still had the largest employment base, followed by Trade, with a relatively balanced distribution across genders. Following sectors are Agriculture (the distribution across genders became balanced compared to 2021) and Construction (instead of Transportation, which comes forth compared to 2021; these changes can be considered minor though). In the Construction and Transportation sectors, most jobs are occupied by men.

Employees in 2024 in Arad County by gender and sector of the economy (2024)

Sector	Total	Female	Male
C Manufacturing	53,100	32.7%	24.9%
G Wholesale and retail trade; repair of motor vehicles and motorcycles	30,100	17.3%	15.0%
A Agriculture, forestry and fishing	18,500	9.0%	10.5%
F Construction	14,600	2.0%	12.3%
H Transportation and storage	13,600	2.5%	11.0%
P Education	10,400	7.0%	4.4%
Q Human health and social work activities	10,300	9.0%	2.7%
N Administrative and support service activities	7,300	4.2%	3.6%
I Hotels and restaurants (accommodation and food service activities)	4,900	3.3%	2.1%
M Professional, scientific and technical activities	4,500	2.9%	2.0%
S Other service activities	4,300	2.3%	2.3%
O Public administration and defence; compulsory social security	4,100	2.9%	1.6%
E Water supply; sewerage, waste management and remediation activities	3,200	0.7%	2.5%
J Information and communication	2,200	1.0%	1.3%
R Arts, entertainment and recreation	2,200	1.1%	1.2%
K Financial and insurance activities	2,100	1.2%	1.1%
L Real estate transactions	800	0.6%	0.3%
B Mining and quarrying	700	0.1%	0.6%
D Production and supply of electricity, heat, gas, hot water and air conditioning	700	0.1%	0.6%

Compared to 2021 data, in 2024 the unemployment rate in Arad County slightly increased (from 1.6 to 1.8). However, it still remains significantly lower than the national rate of 5.4 registered in 2024.

Table 8 Unemployment rate by gender in Arad County

Year	Total	Male	Female
2021	1.6	1.3	1.9
2024	1.8	1.6	2

Regarding employment data in the project direct Social AoI, figures do not show significant changes, with the exception of the number of unemployed people in Pilu commune, which increased again to 51, after registering 49 in 2021, but decreasing to 29 in 2022. It is to note that the increase in the number of unemployed people in Pilu affected men.

Table 9 Number of employed and unemployed persons by ATU

ATU	Total population			Average no of employees		Average no of registered unemployed		
	2021	**2024**	**2025**	**2021**	**2024**	**2021**	**2022**	**2024**
Graniceri	2,203	2,479	2,468	170	177	22	16	28
Pilu	2,078	2,146	2,195	205	255	49	29	51

Table 10 Share of registered unemployed at the end of the month in the total labour resources, by gender and ATU

ATU	Total		Male		Female	
	2021	**2024**	**2021**	**2024**	**2021**	**2024**
Arad County	1.0%	1.2%	0.9%	1.2%	1.1%	1.2%
Grăniceri	1.4%	1.7%	1.1%	2.3%	1.6%	1.1%
Pilu	3.6%	3.7%	3.7%	4.8%	3.6%	2.4%

Table 11 Number of unemployed persons by ATU and gender

ATU	Total		Male		Female	
	2022	**2024**	**2022**	**2024**	**2022**	**2024**
Grăniceri	16	28	13	20	3	8
Pilu	29	51	14	35	15	16

Overall, the impact assessment on direct employment levels in the ESIA remain valid: Given the existing unemployment and risk of poverty in the region, the sensitivity of this impact´s receptors is considered high, bringing about not only an immediate increase of employment during construction (and in less degree during operation), but also professional experience for future projects of similar character.

3.8 Labour and working conditions

Rationale and Scope

The following Section has been prepared in response to the requirement to update the socio-economic baseline with current information on housing and accommodation infrastructure within the project's Area of Influence (AoI), as well as to further contextualise the project's economy and employment impacts.

The Section presents an updated assessment of the availability, capacity, and condition of local housing and accommodation, and identifies the specific commune(s) in Arad County where the construction workforce will be accommodated, thereby establishing a robust and accurate baseline.

In addition, the Section sets out a dedicated worker accommodation strategy, describing the range of accommodation options considered and the preferred approach. In line with the project design, which does not establish a dedicated workers' camp, the strategy explains how workers will be housed within existing local accommodation in the identified AoI communes. The rationale for the selected option is provided, together with measures to secure sufficient and appropriate accommodation while avoiding undue pressure on local housing resources.

The following assessment updates the evaluation of employment impacts and also emphasises indirect and induced employment effects, which are expected to deliver more sustainable socio-economic benefits and are better aligned with local livelihood patterns, including animal husbandry and seasonal agriculture. Indirect and induced employment impacts are estimated using recognised employment multipliers.

The Section also outlines enhancement measures to maximise local economic benefits, including supplier mapping, local procurement communication measures, and defines monitoring indicators such as the number and percentage of contracts awarded to local suppliers and estimated indirect and induced jobs supported.

3.8.1 Housing and accommodation

The housing stock in the Social AoI was the following in 2023 (nearly the same as in 2021, 3 more housing units built in Pilu):

ATU	Total	Private
Graniceri	1091	1086
Pilu	809	805

Besides rentals from locals, further opportunities to accommodate workers are the following:

ATU	Accommodation	Distance from Graniceri	Capability	Notes
Socodor	Casa Ramona guest house	12.5 km		
Chișineu-Criș	Block of apartments for rent of the Dalcom Turist company	19 km	10 apartments accommodating 4 persons each	See at www. https://cazarechisineucris.ro/
Chișineu-Criș	Olympia Residence	19 km	Apartments to rent	
Gyula, Hungary	**Multiple options, since it is a famous tourist resort.**	**20 km**	**11 hotels** **9 pensions** **22 guesthouses**	
Nădab	Olympia guest house	21 km		
Arad	Multiple options, since this is the county seat.	43 km	9 hotels 9 pensions	

ATU	Accommodation	Distance from Graniceri	Capability	Notes
			3 guesthouses Housing units specifically rented for workers	
Salonta	Madaras guest house	54 km		
Mădăraș	Millenium Hotel Rustica pension	58 km		

3.8.2 Worker accommodation principles and general strategy

The objective of this Workers' Accommodation Strategy is to ensure that all project workers are housed in safe, adequate, and affordable accommodation during the construction phase, while avoiding pressure on local housing markets, public services, and community infrastructure.

The Project will not establish a dedicated workers' camp. Instead, construction workers will be accommodated in existing commercial accommodation facilities (guesthouses, hotels, pensions, and rental apartments) within the social AoI, primarily in nearby communes and towns. A proportion of workers are anticipated to be locally recruited and commuting daily, thus they will not require accommodation.

When setting up the accommodation arrangements, the following principles will be taken into consideration:

- **Use of existing accommodation and avoidance of camps** - Accommodation will be provided exclusively through existing, legally registered hotels, guesthouses, pensions, and rental apartments within the Project's Area of Influence, thereby avoiding permanent or semi-permanent worker settlements and reducing labour influx risks
- **Adequate living conditions and worker welfare** - All accommodation used by the Project will provide safe, decent, and hygienic living conditions, including adequate space per person, potable water, sanitation, heating/ventilation, lighting, waste collection, and fire safety, in line with national legislation and EBRD ESR2 requirements.
- **Prevention of overcrowding and health risks** - Occupancy levels will be controlled to prevent overcrowding and associated health and safety risks. Accommodation arrangements will respect minimum space standards and be appropriate to the length of stay and number of workers housed.
- **Protection of local communities and housing markets** - Workers will be distributed across multiple accommodation locations to avoid overburdening local housing supply, public services, or infrastructure, particularly in small rural communes. The Project will avoid exclusive or large-scale leasing that could displace local residents or regular users.
- **Community health, safety, and security** - Accommodation choices and worker behaviour will be managed to minimize risks to surrounding communities, including risks related to traffic, noise, public order, and communicable diseases. A worker Code of Conduct will apply to all personnel, including off-site behaviour.
- **Legal compliance and contractor accountability** - The EPC Contractor and subcontractors will be contractually required to comply with all applicable labour, housing, health, and safety regulations, and with EBRD PR2 and PR4. Contractors will be responsible for ensuring that accommodation providers meet these requirements.
- **Monitoring, grievance management, and corrective action** - Accommodation conditions will be subject to periodic checks by the Contractor and Project Owner. Workers and community members will have access to the Project grievance mechanism to raise concerns related to accommodation or worker behaviour, with timely investigation and corrective action where required.

3.8.2.1 Accommodation options considered

Several accommodation options within the AoI were identified and assessed. Guesthouses and small pensions located in nearby communes offer short-term, flexible lodging at distances of up to 20 km from the project location.

In Chișineu-Criș, rental apartments and serviced apartment blocks operated by professional providers offer an additional option, particularly suitable for medium-term stays and supervisory staff. These facilities benefit from town-level infrastructure capacity and reduce the risk of affecting rural housing availability. Occupancy levels will be controlled to prevent overcrowding and ensure compliance with national standards.

Larger urban and tourist centres, including Arad and Gyula (Hungary), provide higher-capacity hotels, pensions, and guesthouses. These locations are well suited for peak construction periods and specialist personnel, as their accommodation markets are sufficiently robust to absorb temporary demand without adverse community impacts. Where such options are used, organized transport will be arranged to manage commuting distances and traffic safety.

3.8.2.2 Responsibilities

Accommodation arrangements will be managed through contractual requirements imposed on the EPC Contractor and subcontractors. All facilities used must comply with Romanian legal requirements for health, safety, fire protection, water supply, sanitation, and waste management, as well as with EBRD ESR2 standards on workers' welfare. Accommodation conditions will be periodically monitored, and any deficiencies will be promptly addressed. Community concerns related to workers' presence or behaviour will be managed through the Project's grievance mechanism.

With these measures in place, risks associated with workers' accommodation and labour influx are expected to remain low and manageable, consistent with the ESIA conclusions.

3.8.3 Employment Impacts during construction and decommissioning

The need for construction workers can partially be met through a direct employment in the Social AoI and the wider area of Arad County and the West Region. It is assumed that the Project will employ daily up to 500 people for the duration of construction phase, currently estimated to last approximately 2.5 years. However, in case the Project timeline is accelerated at a later planning stage, there may be a need to engage additional workforce.

While the increase in direct employment during construction is significant, it should be noted that these employment opportunities are predominantly temporary and linked to the construction and decommissioning phases. Employment levels will gradually decline upon completion of construction, with only a limited number of positions retained during the operation phase. As such, the Project is not expected to generate long-term direct employment at scale, but rather short- to medium-term job opportunities typical for utility-scale renewable energy developments.

3.8.3.1 Compatibility with local livelihoods

The Project recognises the prevalence of part-time, seasonal, and subsistence livelihoods within the Social AoI, particularly related to animal husbandry, subsistence agriculture, and seasonal farming. Where feasible, construction roles, especially low-skilled and semi-skilled positions, may be structured to allow compatibility with existing local livelihood activities, thereby enhancing accessibility of employment opportunities for local residents.

3.8.3.2 Indirect and induced employment

In addition to direct employment, the Project will generate indirect and induced employment through demand for goods and services (e.g. logistics, catering, accommodation, transport, equipment hire, and local services). Using recognised construction-sector employment multipliers and assuming a conservative multiplier of

approximately 1.4[18] indirect and induced jobs per direct job, the Project could support a substantial number of additional temporary jobs during peak construction. Based on a conservative input–output employment multiplier of 1.4, the Project's peak construction workforce of approximately 500 direct jobs is estimated to support an additional 200 indirect and induced jobs, resulting in a total of approximately 700 jobs supported during peak construction. These estimates are indicative and will depend on workforce composition, accommodation arrangements, and the extent of local procurement.

3.8.3.3 Local procurement and supplier development measures

To maximise indirect and induced employment benefits, the Project will implement measures to enhance local and regional procurement, including:

- Supplier mapping and capacity assessments within the Social AoI and Arad County;
- Clear and transparent communication of procurement opportunities at local and regional level;
- Encouragement of EPC contractors to engage local and regional SMEs where technically and commercially feasible.

3.8.3.4 Monitoring

To monitor the effectiveness of measures aimed at maximising direct, indirect, and induced employment and local procurement benefits during the construction phase, the following indicators will be applied:

Direct Employment:

- Total number of workers employed during construction (monthly average and peak).
- Number and percentage of construction workers hired from:
    - the direct Social AoI;
    - Arad County;
    - wider regional and national labour markets.
- Number and percentage of workers engaged on:
    - full-time contracts;
    - part-time or seasonal contracts.
- Number of workers receiving Project-supported training or skills development.

Indirect and Induced Employment:

- Estimated number of indirect and induced jobs supported during peak construction, based on the applied employment multiplier and verified direct employment figures.
- Number of local and regional service providers engaged (e.g. transport, catering, accommodation, equipment hire, logistics).
- Qualitative assessment of sectors benefiting from indirect and induced employment (e.g. hospitality, transport, services), updated annually during construction.

Local and Regional Procurement:

- Total value of goods and services procured during construction.
- Value and percentage of procurement spend awarded to:
    - suppliers within the Social AoI;

[18] Indirect and induced employment estimates are based on recognised input–output multiplier approaches as reviewed by the International Labour Organization (ILO, 2024). The ILO review shows that Type II input–output multipliers, which capture direct, indirect and induced employment effects, typically result in total employment effects moderately above direct job numbers, with applied tools frequently moderating induced effects to avoid overestimation. Consistent with this guidance and in line with conservative ex-ante assessment practice, a combined indirect and induced employment multiplier of approximately 1.4 jobs per direct construction job has been applied.

    - suppliers within Arad County;
    - suppliers at regional and national level.
- Number and percentage of contracts awarded to local and regional SMEs.
- Number of supplier outreach, information, or engagement activities conducted locally (e.g. supplier briefings, procurement notices).

Reporting and Review

- Frequency of monitoring: monthly internal tracking; quarterly reporting during construction.
- Responsible parties: EPC Contractor (data collection); Project Sponsor (oversight and reporting).
- Corrective actions: where local employment or procurement targets are not being met, additional outreach, supplier engagement, or training measures will be implemented.

3.8.4 Livelihood Impacts

3.8.4.1 Loss of Jobs

The Project land was acquired and leased prior to the current phase of development by the present Sponsor. At the time of land acquisition and change of land use for the Project, the workforce previously associated with Agricola Grăniceri was no longer employed.

Accordingly, no direct livelihood impact related to loss of employment or income has been identified in connection with Agricola Grăniceri employees under the current Project's land acquisition process.

3.8.4.2 Accidental Damage to Neighbouring Land Plots

Construction activities associated with the underground grid connection (including trenching, HDD works, and temporary access routes) may pose a low risk of inadvertent damage to neighbouring agricultural plots (e.g., crop damage, soil compaction, temporary disruption of irrigation channels).

All Project Affected Persons (PAPs), including any newly identified vulnerable PAPs as per the Project's vulnerability criteria, will be eligible for mitigation and compensation measures on a case-by-case basis in the event of unforeseen impacts.

In addition to the continuation of eligibility for agricultural subsidies by affected land users, the Project commits to compensating any unforeseen accidental damage to neighbouring plots in accordance with the Entitlement Matrix set out in the Livelihood Restoration Plan (LRP).

Compensation and management principles include:

- Verification of damage through joint site inspection;
- Valuation based on replacement cost and/or lost production value;
- Restoration of land to pre-project productivity levels;
- Timely payment prior to or immediately following damage confirmation;
- Case-by-case mitigation and compensation proportionate to the scale of impact.

Unforeseen impacts will be managed through the Project Grievance Mechanism (GRM) and documented in monitoring reports. Where monitoring or the grievance mechanism identifies vulnerable and/or severely impacted households or individuals, additional targeted assistance will be provided on a case-by-case basis to avoid disproportionate impacts and to support livelihood resilience, in line with IFC PS5 and EBRD ESR5.

With the implementation of these measures, the residual impact is assessed as Minor and Temporary.

3.8.4.3 Access Restrictions on Agricultural Plots

Construction of the 3.6 km underground grid connection cable along agricultural road DE 553/1 and associated works may result in temporary restrictions to grazing areas and agricultural access routes.

Consistent with the LRP, two pastoral households are identified as directly affected. The first household is engaged in cattle farming and relies on daily movement of livestock along agricultural roads that intersect the cable corridor. The second household is engaged in sheep farming and depends on municipally leased pastureland that is intersected by the cable route, with grazing activities structured around seasonal cycles. For both households, the impact is limited to temporary disruption of grazing access and livestock movement during construction. There will be no permanent loss of pastureland, productive assets, or land rights.

In addition to these two directly affected households, approximately 20 other farmers and agricultural road users may experience minor and short-term inconvenience during construction. Such inconvenience may relate to temporary traffic management measures, short-duration access interruptions during trenching works, or localized disturbance associated with construction equipment. These impacts are indirect, limited in duration, and fully reversible.

In line with the LRP commitments, the primary mitigation strategy is avoidance through scheduling works during the winter period, where feasible, to minimise overlap with peak grazing and agricultural seasons. Construction will be undertaken in short, phased segments to maintain access wherever practicable, and advance notice will be provided to affected users. Agricultural roads and pastureland will be fully reinstated following completion of works. Where avoidance measures are not sufficient and demonstrable temporary income loss occurs, compensation will be provided in accordance with the LRP. All affected persons will have continued access to the Project Grievance Mechanism.

3.8.4.4 Mitigation Measures for Construction

A LRP has been prepared and approved for the Project. The LRP applies exclusively to households and land users directly or indirectly affected by temporary access restrictions associated with these components. No physical displacement occurs under the Project.

The Project commits to full implementation of the LRP in accordance with its defined eligibility framework, entitlement matrix, scheduling strategy, monitoring programme, grievance mechanism, implementation timeline and ring-fenced budget.

Key mitigation measures during construction include the following:

- **Avoidance-First Scheduling** - The primary mitigation strategy is impact avoidance through construction scheduling. Works affecting pastureland and agricultural access routes will, where feasible, be undertaken during the winter period (November–February) to avoid peak grazing seasons and agricultural activity, consistent with the seasonal calendar defined in the LRP. Where winter construction is implemented, works will be staged in segments of up to 1 km to maintain access and minimise the duration of disruption to livestock movement and agricultural traffic.
- **Management of Temporary Grazing Access Restrictions** - Two directly affected pastoral households—DAH-1 (cattle farming) and DAH-2 (sheep farming)—may experience temporary grazing access restrictions during installation of the underground cable. Where scheduling and avoidance measures do not fully prevent disruption, compensation will be provided in accordance with the LRP entitlement matrix. This includes payment of €0.55 per sheep per day, €2.50 per cow per day, and a €100 per day labour allowance where applicable, as well as reimbursement of any demonstrable subsidy losses and full restoration of affected pastureland to its pre-construction condition. Compensation will be calculated based on the verified duration of impact and documented livestock numbers established through the LRP census.
- **Agricultural Road Access Management** - Temporary restrictions to agricultural roads may indirectly affect approximately 20 farmers and road users during construction. To minimise disruption, the Project will provide advance notice of construction timing, implement appropriate temporary traffic management measures, and agree alternative access routes where required. Agricultural roads will be fully reinstated following completion of works, without inappropriate graveling that could affect subsidy eligibility, and access for agricultural machinery will be maintained wherever practicable.
- **Accidental and Unforeseen Impacts** - The Project will compensate any unforeseen accidental damage to neighbouring plots along the grid connection route, in line with the LRP entitlement matrix. Unforeseen impacts will be addressed through case-by-case mitigation and compensation. Where

monitoring or the grievance mechanism identifies vulnerable or disproportionately affected households or individuals, additional targeted assistance will be provided, consistent with the LRP commitments. A 10% contingency is included within the ring-fenced LRP budget to address unforeseen impacts.

- **Subsidy Protection** - Construction scheduling and reinstatement measures will ensure compliance with APIA monitoring requirements. Where Project activities result in demonstrable subsidy loss despite avoidance measures, the Project will reimburse affected households in accordance with the LRP provisions.
- **Restoration of Land and Access** - All temporarily disturbed areas will be reinstated to pre-construction condition or better, with restoration verified through post-construction inspections and follow-up monitoring in line with the LRP. Livelihood restoration will be considered complete once access has been fully restored, any applicable compensation has been paid, monitoring confirms livelihood functionality has been re-established, and affected households confirm satisfaction.

The Project's grievance mechanism will remain operational throughout construction and operation. All grievances will be acknowledged within 7 days and resolved within 30 days, as set out in the LRP. Grievances related to access, compensation, reinstatement or subsidy impacts will be logged, tracked and reported through the LRP monitoring framework.

Monitoring and Verification

Implementation of mitigation measures will be monitored through:

- Pre-construction baseline verification;
- Monthly monitoring during construction;
- Quarterly post-construction monitoring;
- Final livelihood verification six months after reinstatement;
- External verification by the Lenders' Technical Advisor.

All commitments described above will be integrated into the CESMP and Project Commitments Register to ensure traceability and lender reporting compliance.

3.9 Community health and safety

Rationale and Scope

This section has been updated to ensure that the Infrastructure and Public Services Impact Assessment (Section 8.5.2) is fully aligned with the enhanced baseline on health infrastructure and emergency services and with the updated assessment of housing and accommodation conditions within the project's Area of Influence.

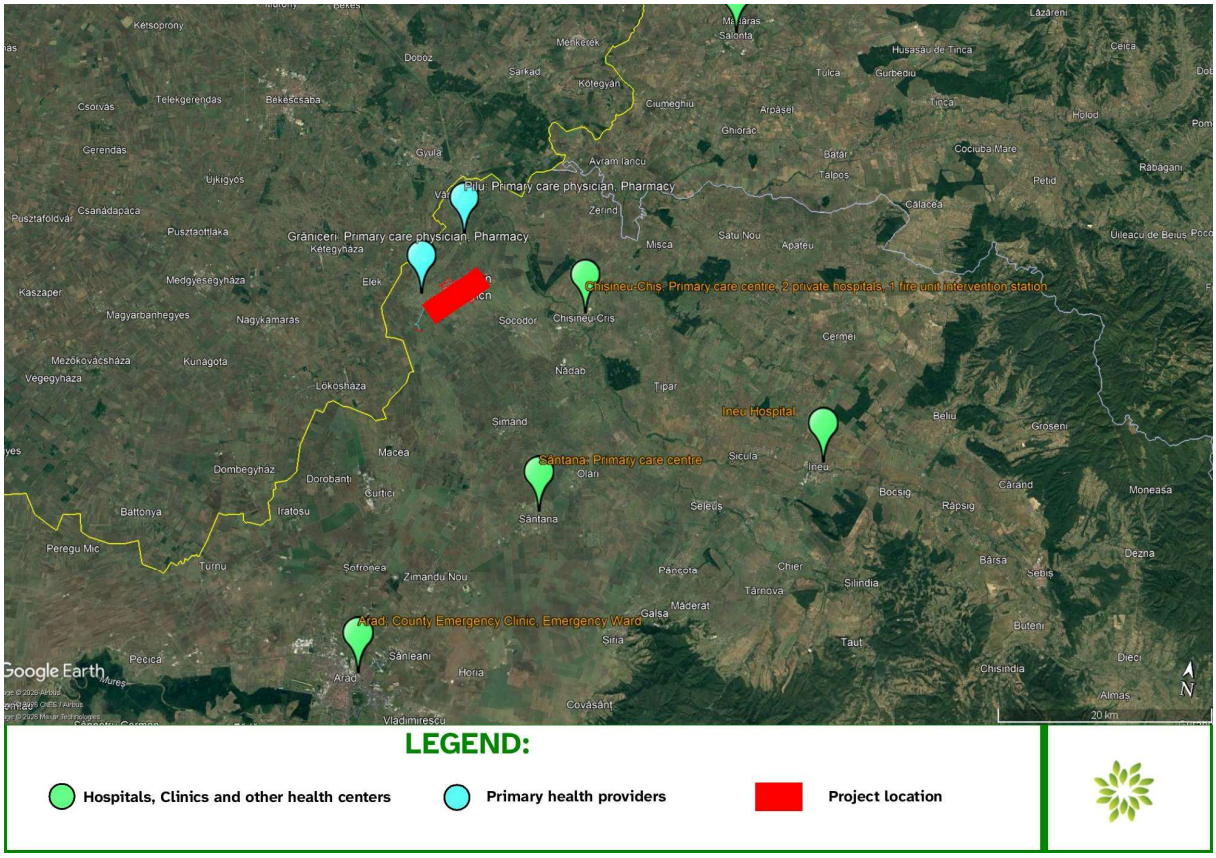
The revised assessment builds on the strengthened baseline by incorporating specific information on healthcare and emergency service capacities, referral pathways, response roles, and distances to key facilities, as well as current data on housing availability and accommodation arrangements related to the project's construction workforce influx.

This update moves beyond a high-level acknowledgement of potential pressure on local services and housing and provides a more detailed, evidence-based evaluation of vulnerabilities, capacities, and potential constraints, supporting clearer conclusions on impact significance and the need for mitigation or enhancement measures.

3.9.1 Updated health infrastructure

3.9.1.1 Baseline conditions

In Grăniceri and Pilu communes proper, the only health care facilities are the primary care physician's offices (one in each commune) and two pharmacies (one in each).



The most important health care facility in Arad county is the County Emergency Clinic in Arad (Spitalul Clinic Județean de Urgență). It is a Category II facility, with 1,315 beds and providing complex range of healthcare services, including inpatient care. Arad city is located at a 42 km distance from Grăniceri – in normal conditions, a ride takes around 45 minutes. It can be considered the primary referral hospital for the project.

Ineu Hospital (Spitalul Orășenesc Ineu) is a Category IV health care facility located at a 48 km distance from Grăniceri. It has 110 beds, and provides health care in general medicine, chronique diseases, surgery, ICU, Orthopaedics and Traumatology and others.

The Municipal Hospital in Salonta (Spitalul Municipal Salonta) is in Bihor county, at 54 km distance from Grăniceri. It ensures 122 beds for inpatient care, and provides health care in general medicine, surgery, ICU, and others.

Primary care centres (“centre de permanență” in Romanian, which are primary-care out-of-hours small clinics run by associations of family doctors contracted with the National Health Insurance House to provide continuous basic medical services outside normal General Practitioners’ office hours, typically evenings/nights and weekends/holidays):

- Chișineu/Criș: 19 km distance
- Sântana: 40 km from Grăniceri

Besides the above listed public facilities, the nearest private health care facilities are available in Chișineu-Criș, which is at a 19 km distance from Grăniceri (20 minutes ride under normal conditions):

- Chișineu-Criș Health Centre: a small facility for inpatient care in respiratory medicine and general medicine;
- Sfântul Gheorghe Hospital: outpatient care in general medicine, surgery, orthopaedics, genecology; inpatient care in ICU, surgery, orthopaedics, genecology, ophthalmology, physiotherapy.

Emergency services: in Arad County only the County Emergency Clinic of Arad has emergency wards.

The Arad County Inspectorate for Emergency Situations has its headquarters in Arad, the county seat. It has a fire unit in Ineu, with 2 intervention stations, one being located in Chișineu-Criș.

In Romania there is a network of private and volunteer emergency services. However, no data is available whether Grăniceri and/or Pilu communes have such emergency services in place.

No healthcare workers (doctors, stomatologists, pharmacists, nurses) are registered in the project area (Grăniceri and Pilu communes). Since in rural areas it is a common practice that healthcare personnel commutes to the facilities where they work, this aspect should not be flagged, it only reflects a general situation and overall gap in the health system of Romania (decreasing number of personnel in healthcare).

3.9.1.2 Assessment of adequacy in relation to worker influx

Given the nature and scale of the upcoming construction works (which does not typically involve high-risk activities likely to result in major accidents or mass-casualty events), the generally good accessibility of the site (flat terrain and county roads in good condition), and the proximity of available emergency response and healthcare services, no material gaps are identified with respect to emergency preparedness and medical service coverage in the project area.

Considering:

- the nature and scale of construction works, which do not typically involve high-risk activities likely to generate major accidents or mass-casualty events;
- the temporary character of the construction workforce, with no indication that workers will be accompanied by dependents;
- the good accessibility of the site, facilitated by flat terrain and county roads in good condition; and
- the availability and proximity of primary, secondary, and tertiary healthcare and emergency response services,

no material gaps are identified in relation to healthcare capacity or emergency preparedness that could be exacerbated by the anticipated worker influx.

Any minor occupational health incidents are expected to be managed through on-site first aid and routine referral pathways, while more serious cases can be adequately handled by existing county-level hospitals and emergency services.

3.9.2 Worker influx impacts on accommodation, public infrastructure and health services

3.9.2.1 Pressure on housing stock through the influx of non-local workers

Construction of the Project is expected to require a peak workforce of up to approximately 500 workers over the main construction period. A proportion of workers are anticipated to be locally recruited and commuting daily, thus they will not require accommodation.

The Project area is predominantly rural, with limited formal accommodation capacity in the immediate vicinity. Existing housing options include small guesthouses, rented private dwellings, and accommodation facilities in nearby towns within a 10–25 km radius, or Arad, situated at a distance of approximately 40 km from the project location. In this context, the closest urban centres with significant and diversified accommodation options are Gyula (20 km away) and Arad (43 km away), both of which offer a wider range of hotels, pensions, serviced apartments, and tourist facilities capable of accommodating a portion of the construction workforce.

3.10 Traffic and road safety

Rationale and Scope

This section provides an updated overview of baseline traffic and transport conditions relevant to the Project, forming the basis for the assessment of construction-phase traffic impacts. As the Project will rely on public road infrastructure for the delivery of materials and equipment, including heavy goods vehicles, an understanding of existing road capacity, condition and usage is essential.

The baseline focuses on the national and Arad County road networks and prevailing traffic trends, including cross-border movements in western Romania. It establishes the reference conditions against which Project-related traffic volumes, routing options and potential impacts are assessed, and informs the identification of sensitive receptors and mitigation measures in accordance with EBRD Environmental and Social Requirements (ESR1 and ESR4).

3.10.1 Updated traffic baseline conditions

Romania has an extensive road network, which remained broadly stable over the period 2022–2024, increasing slightly from approximately 86,300 km to 86,800 km. National roads represent around one-fifth of the total network length, with a gradual increase in highway length observed over the same period, reflecting ongoing investment in strategic transport corridors. County and communal roads account for the majority of the network and are particularly relevant for rural and peri-urban areas where large-scale solar projects are typically located.

Roads in Romania by type, kilometres, 2022-2024, NIS			
	2022	**2023**	**2024**
All roads	86,336	86,388	86,847
National Roads	17,582	17,677	17,994
out of which highways	949	997	1,137
County and communal roads	68,754	68,711	68,853

In terms of surface quality, national roads are generally of a high standard, with nearly all (approximately 96%) surfaced with modern asphalt or concrete. In contrast, county and communal roads show more variable conditions, with only about 40% having modern surfacing, while the remainder are paved with light asphalt or remain earthen or stone surfaced. This indicates differing levels of capacity and resilience across the road network.

Roads in Romania by Surface Type, 2024, NIS			
	Modern surfacing (asphalt and concrete	**Light asphalt paving**	**Earthen or stone**
All roads	51.5%	23.7%	24.8%
National Roads	95.8%	3.4%	0.8%
County and communal roads	40.0%	29.0%	31.1%

Arad County has a well-developed road network totalling approximately 2,370 km in 2024, which has remained largely stable over the period 2022–2024. National roads account for around 20% of the total network length and include approximately 64 km of highways, providing good strategic connectivity within the

county and to neighbouring regions, including cross-border routes. County and communal roads represent the majority of the network and are particularly relevant for local access to rural areas.

Roads in Arad by type, kilometres, 2022-2024, NIS			
	2022	**2023**	**2024**
All roads	2,447	2,373	2,372
National Roads	478	478	478
out of which highways	64	64	64
County and communal roads	1,969	1,895	1,894

In terms of surface quality, the overall condition of roads in Arad County is relatively good compared to the national average. Approximately two-thirds of all roads are surfaced with modern asphalt or concrete. All national roads are fully modernised, indicating high capacity and reliability for regional and long-distance traffic. County and communal roads display more varied conditions, with around 58% having modern surfacing, while the remainder are either lightly paved or earthen/stone surfaced.

Roads in Arad by Surface Type, 2024, NIS			
	Modern surfacing (asphalt and concrete	**Light asphalt paving**	**Earthen or stone**
All roads	66.6%	13.8%	19.6%
National Roads	100.0%	0.0%	0.0%
County and communal roads	58.2%	17.3%	24.6%

3.10.2 Cross-Border Impacts

The Project site lies close to the Vărsand border crossing with Hungary, making cross-border traffic conditions a relevant consideration for the traffic and transport assessment.

Traffic data recorded at the Vărsand border crossing indicate a steady increase in vehicle movements over the period 2022–2024. Total traffic increased from approximately 381,000 vehicles in 2022 to nearly 488,000 vehicles in 2024, representing an overall growth of around 28% over two years. This increase was driven primarily by a substantial rise in foreign-registered vehicles, which almost doubled over the same period, while traffic volumes associated with Romanian-registered vehicles also showed a consistent but more moderate upward trend. These data reflect a general intensification of cross-border mobility and trade flows in the western part of Romania and provide an appropriate baseline for assessing cumulative traffic conditions in the vicinity of the Project.

Traffic through the Varsand border point, NIS			
Varșand traffic (no. of vehicles)	**2022**	**2023**	**2024**
Foreign	76,059	127,117	146,567
Romanian	305,342	321,639	341,333
Total	381,401	448,756	487,900

It is important to note, however, that the traffic figures for 2022–2024 reflect conditions prior to Romania's full accession to the Schengen Area. As of January 2025, Romania joined the Schengen Area with respect to land borders, resulting in the removal of systematic border controls at internal borders with other Schengen states, including Hungary. As a consequence, border control infrastructure at locations such as Vărsand has been decommissioned, and traffic flows have become significantly more fluid. The removal of passport and customs checks has eliminated border-related queuing and stop-and-go traffic patterns that previously characterised peak periods at the crossing. After accession to the Schengen Area, vehicle traffic recorded at Romania's external borders showed continued growth19, with an approximate 5–7% increase in traffic volumes during the first five months of 2025 compared to the previous year. This suggests that the removal of systematic internal border controls has contributed to increased mobility and higher flows of cross-border traffic.

The removal of border controls substantially reduces the likelihood that project-related construction traffic would interact with border-induced congestion. The fluidisation of traffic following Schengen accession improves the overall capacity and resilience of the local and regional road network, thereby reducing the sensitivity of traffic receptors to temporary increases in vehicle movements associated with construction activities.

3.10.3 Road Safety

3.10.3.1 National Level

Romania's most recent road-safety data[20] for 2025 points to a moderate improvement in accident outcomes, but within a context that remains structurally high-risk by European standards. Official police statistics indicate that 3,950 serious road accidents were recorded nationwide during the year, resulting in 1,293 fatalities and 3,125 persons seriously injured. Compared with 2024, this represents a reduction of 285 serious accidents (−6.7%) and 185 deaths (−12.5%), alongside a smaller decline of 122 in the number of severely injured victims. In practical terms, the annual toll still translates into roughly three road deaths per day, underscoring the continued scale of the public-health burden despite the year-on-year improvement.

When placed in European comparative perspective, the structural severity of Romania's road-safety profile becomes clearer. The national fatality rate stands at approximately 77 deaths per million inhabitants, significantly above the European Union average of around 44 per million. This gap positions Romania among the highest road-mortality countries in the EU, with fatality risk levels nearly double those recorded in several Western and Northern Member States. The disparity indicates that while the absolute number of accidents is important, the lethality of collisions remains a defining concern.

The relationship between accident frequency and mortality further illustrates this severity. With 1,293 deaths arising from 3,950 serious crashes, the data suggests that roughly one in three serious road accidents results in a fatality. This ratio is high in EU terms and reflects the predominance of high-energy impacts on undivided national roads, where speeding and dangerous overtaking are recurrent causal factors. It also signals systemic constraints linked to infrastructure design and post-crash response capacity, particularly outside major urban centres.

3.10.3.2 Arad county

A1 Motorway

The A1 motorway sector linking Arad and Timișoara demonstrates a comparatively low accident density and fatality burden relative to regional national roads, with incident occurrence largely episodic and associated with high-speed or heavy-vehicle collisions rather than systemic safety deficiencies. In the absence of consolidated annual accident totals at segment level, available police and emergency reporting nonetheless confirms that motorway design standards materially mitigate collision severity and frequency. Consequently, where project traffic utilises the A1 corridor, the baseline road-safety risk is considered structurally lower than on adjacent

[19] https://www.politiadefrontiera.ro/en/main/i-analysis-of-the-activity-of-the-romanian-border-police-in-the-first-five-months-of-2025-9210.html

[20] https://www.romania-insider.com/romania-road-accidents-2025

national or county road networks, and the incremental contribution of project traffic to accident risk would be expected to remain limited.

National Road 7 (DN7)

In 2025, the DN7 national road corridor recorded a total of 286 traffic accidents resulting in 373 casualties, including 25 fatalities, according to statistics provided by the Arad County Police Inspectorate[21]. DN7 is one of Romania's longest and most strategically significant national roads, linking the western border at Nădlac with central and southern regions of the country and carrying substantial passenger and freight traffic. Police data further indicates temporal concentration of risk, with the highest incidence of accidents occurring on Fridays between 14:00 and 18:00, reflecting peak end-of-week traffic flows and congestion pressures.

These figures confirm that DN7 constitutes a high-risk transport corridor at both regional and national levels, due to its traffic volumes, mixed vehicle composition, and strategic transit function. In response, targeted road-safety enforcement and awareness campaigns have been implemented by traffic police authorities along the route to reduce accident frequency and severity.

National Road 79 (DN79)

DN79 represents another major risk corridor, connecting Arad to Oradea and further north-western economic centres. The route carries substantial commuter, logistics, and cross-border traffic, particularly linked to industrial and agricultural supply chains. Police reporting has historically associated DN79 with collisions involving heavy goods vehicles and rural intersection conflicts, especially where local access roads interface directly with the national carriageway.

National Road 69 (DN69)

DN69, linking Arad to Timișoara, is also recognised as a high-pressure mobility axis. Prior to the completion of parallel motorway capacity, DN69 functioned as the primary inter-city connector, and it continues to carry significant commuter and commercial flows. Accident risk along this corridor is shaped by ribbon development, at-grade intersections, and speed differentials between local and transit traffic. Even with partial traffic redistribution to the A1 motorway, DN69 remains a sensitive receptor due to its regional economic importance.

3.10.4 Project associated traffic

The information presented in this roadmap survey is preliminary and for indicative planning purposes only. All routes, dimensions, constraints, and logistical assessments included herein are subject to further validation. The final detailed road survey for equipment transportation, delivery, and associated logistics will be conducted exclusively by the EPC Contractor following the signing of the EPC Contract. Consequently, all figures, assumptions, and observations in this document may change based on the EPC Contractor's verified survey results and detailed engineering.

3.10.4.1 Transport routes and receptors

Construction of the Project will require the transportation of photovoltaic modules, mounting structures, electrical equipment, construction materials, and auxiliary infrastructure from external suppliers and logistics hubs to the Project site. These movements will be concentrated during the construction phase and will involve increased use of heavy goods vehicles (HGVs), delivery trucks, and construction-related traffic on public roads.

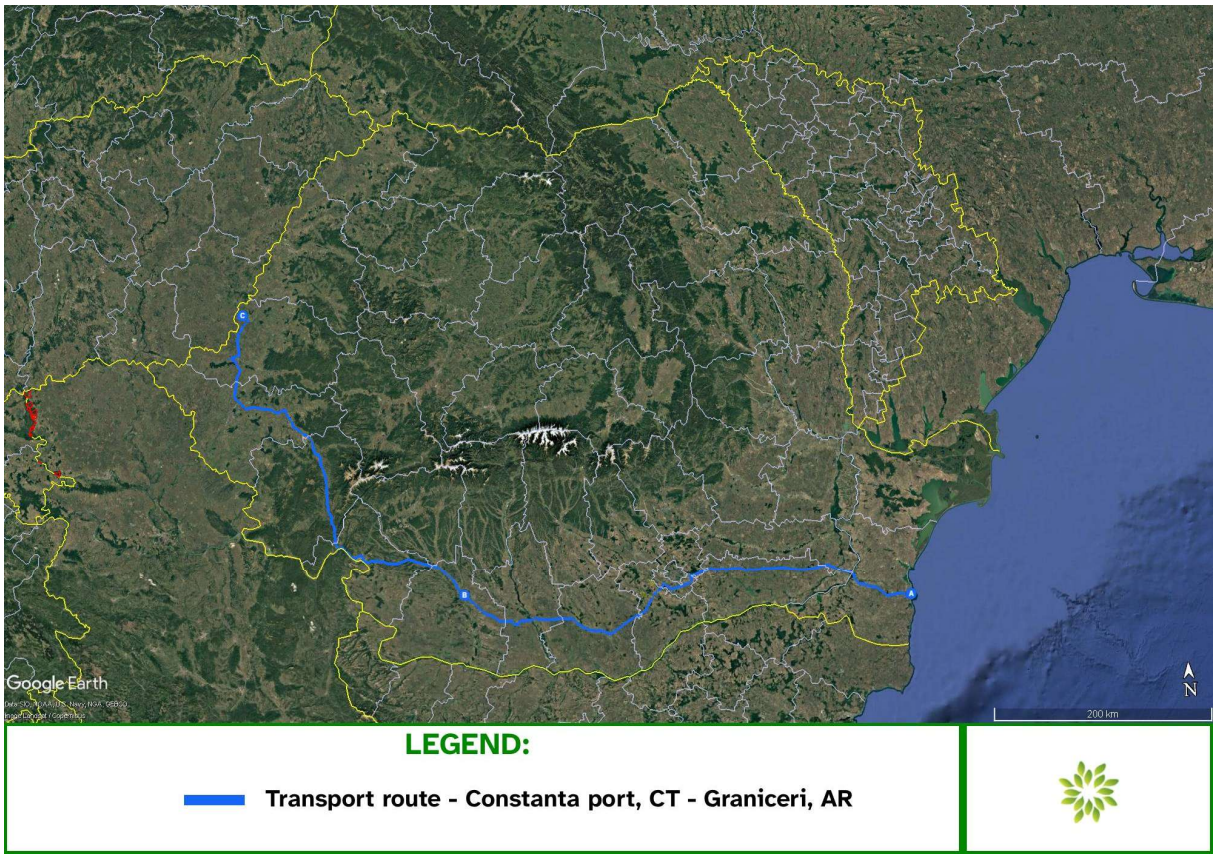
This section identifies the anticipated construction transport routes and the social receptors that may be exposed to transport-related impacts within the Project's Area of Influence (AoI). The AoI for transport includes national, county, and local roads used for material delivery, as well as access roads to the construction sites.

The assessment focuses on receptors that could be affected by increased traffic volumes, changes in traffic composition, and the presence of heavy vehicles. These include local communities, residents, vulnerable road users (such as pedestrians, cyclists, children and elderly people), public social infrastructure (e.g. schools,

[21] https://www.actualitati-arad.ro/286-de-accidente-si-373-de-victime-in-2025-pe-dn-7/

churches, municipal buildings), local road users, and economic activities located along or adjacent to the construction routes.

Construction materials and equipment are expected to be transported primarily from the Port of Constanța to the Project location near Grăniceri, Arad County. The indicative transport corridor follows national and motorway infrastructure and is planned so as to bypass major urban centres, including Constanța, Bucharest, Craiova, Drobeta Turnu Severin, Timișoara and Arad. Where passage near urban areas is unavoidable, transport will be routed via existing ring roads (centura) rather than through city centres.



The use of bypasses and ring roads is intended to minimise interactions with dense residential areas, reduce exposure of sensitive receptors, and limit potential impacts related to traffic congestion, road safety, noise and disturbance. As a result, transport-related impacts on urban communities are expected to be limited and largely temporary, with more localised effects confined to sections of county and communal roads closer to the Project site. Final routing will be confirmed by the EPC Contractor following detailed pre-construction road surveys and coordination with the relevant road authorities.

Social receptors in the vicinity of the project location

After leaving Arad, the construction transport route continues on county and local roads and crosses the villages of Șofronea, Macea and Sânmartin, as well as the town of Curtici, before reaching the Project location near Grăniceri. Within these settlements, the transport route passes through or in proximity to a number of sensitive social receptors, including schools, healthcare facilities, cultural and religious sites (e.g. churches), public parks, and residential areas, as well as areas of regular pedestrian activity.

The presence of these receptors increases sensitivity to construction-related traffic, particularly in relation to road safety, pedestrian–vehicle interactions, noise, and temporary access constraints. These sections of the route are therefore considered priority areas for the implementation of enhanced traffic management and community safety measures during the construction phase, which will be detailed in the Traffic and Transport Management Plan.

Sofronea village

The construction transport route passes along the eastern edge of Șofronea, in close proximity to several sensitive social receptors. Key receptors identified along this section of the route include the Virgil Iovanas General School, the Sofronea Train Station, surrounding residential areas, and associated pedestrian access routes.

Curtici town

The construction transport route passes through the town of Curtici, intersecting a dense urban fabric with multiple sensitive social receptors located directly adjacent to, or in close proximity to, the roadway. Identified receptors along this section include educational facilities (Ion Creangă Primary School and Ion Creangă Technological/High School), parks and playgrounds, the Curtici Day Center, the Culture House, and the local cemetery, as well as surrounding residential areas and pedestrian corridors.

Macea village

The construction transport route passes through the commune of Macea, following local roads that run directly through the built-up area. Along this section of the route, several sensitive social receptors are located in close proximity to the roadway, including educational infrastructure (Pavel Covaci Primary School, Speranța Macea Elementary School, and a kindergarten), health infrastructure (general practitioner office and pharmacy), and the local cemetery, in addition to surrounding residential areas.

Sanmartin village

The construction transport route passes directly through the built-up area of the village of Sânmartin, following local roads that run through predominantly residential zones. A key sensitive social receptor identified along this section of the route is the Sânmartin Primary School, located in close proximity to the roadway, together with adjacent residential properties and local pedestrian routes.

Near project location

Before reaching the location of the build-up area for the project, the route is situated in the proximity of the Socodor village, which it does not cross and does not pass next to any direct social receptors.

3.10.4.2 Construction phase traffics volumes and vehicle types

Construction of the Project will require the transportation of photovoltaic (PV) modules, mounting structures, electrical equipment, and auxiliary materials from external logistics hubs, primarily the Port of Constanța, to the Project site. The traffic volumes and vehicle types described below are based on the preliminary road survey and logistics planning document and are provided for **indicative assessment purposes**. The final routing, delivery programme and vehicle specifications will be confirmed by the EPC Contractor following contract award and completion of a detailed road survey.

PV Module Deliveries

PV modules will be delivered in **40-foot high-cube (40HQ) containers** using articulated heavy goods vehicles (HGVs). Deliveries are organised in three construction phases (A, B and C), each subdivided into four delivery batches.

- **Phase A** will involve the delivery of **930 containers** between **September 2026 and February 2027**, with an average of **9 trucks per day** and peak days of up to **10 trucks per day**.
- **Phase B** will follow the same delivery schedule and volumes as Phase A (930 containers, 9–10 trucks per day) and will **fully overlap** with Phase A deliveries.
- During periods when Phase A and Phase B deliveries overlap, the Project will experience its **maximum daily intake of up to 20 HGVs per day**.
- **Phase C** will involve the delivery of **747 containers** between **March 2027 and September 2027**, with lower daily volumes of approximately **7–8 trucks per day**.

- Overall, PV module deliveries will take place between **16 September 2026 and 5 September 2027**, with Phases A and B representing the peak traffic period .

Main Equipment and Construction Materials

- In addition to PV modules, construction traffic will include deliveries of mounting structures, electrical infrastructure and associated equipment. These materials will also be transported by HGVs, primarily flatbed and rigid trucks, with occasional articulated vehicles.

Mounting structures (piles and upper structure):

- Deliveries are organised in staged packages over 25-day periods.
- Each active delivery package typically generates **2–3 trucks per day**.
- When two major delivery packages overlap, daily traffic may increase to **4–6 trucks per day**, representing the peak construction equipment traffic.

LV/MV power stations:

- Delivered in smaller batches over 20-day periods.
- Average traffic generation of **1–2 trucks per day**.

String inverters:

- Delivered in short, 10-day delivery windows.
- Typically generate **approximately 1 truck per day**, with negligible contribution to peak traffic volumes.
- The delivery programme has been structured to limit the number of concurrent activities and to avoid excessive congestion at site access points .

Phase-Specific Traffic Characteristics

- **Phase A and Phase B** represent the **highest traffic intensity**, due to the overlap of PV module deliveries and major mounting structure deliveries. Peak daily volumes during these phases may reach **20 module trucks per day**, plus **4–6 trucks per day** associated with structural components during overlap periods.
- **Phase C** has a reduced capacity and correspondingly lower traffic intensity, with typical daily volumes of **approximately 2 trucks per day**, increasing to **3–4 trucks per day** during short overlap periods of pile and upper-structure deliveries.

Overall Construction Traffic Volumes

Based on the preliminary logistics assessment:

- **Phase A** will generate a minimum of **1,494 truck movements**.
- **Phases A and B combined** will generate approximately **2,988 truck movements**.
- **Phase C** will generate a minimum of **874 truck movements**.

These movements will consist predominantly of heavy goods vehicles, with limited light vehicle traffic associated with supervision and site management. The described traffic volumes will be managed through the implementation of a dedicated Traffic and Transport Management Plan, with particular attention to peak delivery periods and sensitive receptors along the transport routes, in accordance with EBRD ESR 4.

Workforce Transportation and Commuting

In addition to the heavy vehicle traffic associated with the delivery of photovoltaic modules, mounting structures, transformers, cabling, and other construction materials, the Project will also generate daily workforce-related traffic during the construction phase. Construction workers are expected to commute from nearby towns and villages within the project area of influence. Workforce transportation will be organized

either through dedicated shuttle buses arranged by the EPC contractor (organized mass transport) or through the use of personal vehicles.

The use of organized mass transport will be prioritized where feasible in order to reduce the number of individual vehicles accessing the site, thereby minimizing traffic congestion, road safety risks, and associated air emissions. The Traffic and Transport Management Plan will include measures to manage peak-hour traffic flows, designate approved access routes, implement speed limits, and coordinate worker arrival and departure times to reduce potential impacts on local communities and existing road users.

3.11 Land Acquisition

Rationale and Scope

This subsection has been prepared to document, in a transparent and chronological manner, the process through which land required for the development of the Project was secured, in line with ESIA disclosure standards and applicable lender requirements on land access, tenure, and involuntary resettlement risk.

3.11.1 Historical land ownership and agricultural use

Prior to the development of the Project, the land within the current footprint formed part of an agricultural holding operated by Agricola Grăniceri. The land was used predominantly for large-scale crop production and associated agri-industrial activities, supported by fixed agricultural infrastructure, storage facilities, and mechanized farming equipment. The superficies documentation confirms the existence of agricultural assets and operational installations linked to the farming activity, reflecting the productive agricultural function of the land before its transition to energy generation use.

The agricultural enterprise held legal ownership and/or use rights over multiple land parcels located within the administrative territory of Grăniceri and adjacent communes. These rights formed the legal basis for subsequent contractual negotiations concerning land repurposing.

3.11.2 Transfer of rights from Agricola Grăniceri and implications for operations

The transition from agricultural to energy land use was enabled through the execution of superficies agreements between Agricola Grăniceri (as landowner/right holder) and the Project developer. Under these agreements, the landowner granted the developer long-term rights to use the land for the construction and operation of a photovoltaic energy facility and associated infrastructure.

The superficies contract established:

- the right to construct, operate, maintain, and decommission the solar PV installation and related infrastructure;
- the right to install electrical infrastructure, cabling, and internal access roads;
- defined contractual timeframes covering development, operation, and post-operation phases.

The agreement also clarified the transition of land away from agricultural production, including the status of agricultural assets and the discontinuation or reconfiguration of farming activities on the affected parcels prior to Project implementation.

No physical displacement of residential structures occurred, as the land was used for commercial agricultural production rather than habitation.

3.11.3 Entry of the current developer and voluntary agreements

Following the securing of superficies rights, the current developer formally entered the Project through negotiated, voluntary agreements with the landowner and relevant rights holders. All land required for the solar PV footprint and its associated infrastructure was secured through bilateral contractual arrangements concluded on a willing-buyer / willing-lessor basis.

No expropriation procedures, compulsory acquisition measures, or involuntary resettlement processes were applied at any stage of Project development. Land access was obtained exclusively through market-based

transactions and contractual land use rights, consistent with the mitigation hierarchy established under international lender standards on land acquisition.

3.11.4 Ancillary land access and infrastructure agreements

In addition to the Project footprint, certain linear and ancillary infrastructure elements, such as underground cabling, grid connection works, and road access, required formal land use rights.

These were secured through agreements concluded with local administrative authorities, granting rights of access, use, and upgrading of existing communal and agricultural roads, as well as the installation of electrical and fibre infrastructure where required. Such agreements were executed with the communes of Socodor, Grăniceri, and Pilu, enabling:

- consolidation and modernization of access roads;
- installation of underground electrical cables and fibre optics;
- long-term access for construction, operation, maintenance, and decommissioning.

These use rights were granted free of charge for Project purposes, for the duration of the infrastructure lifecycle, and without affecting underlying public ownership of the land.

3.11.5 Change of land use and regulatory approvals

Following the consolidation of land rights, the Project initiated the statutory planning and permitting procedures required to convert the land designation from agricultural use to land allocated for renewable energy production. This process was undertaken in accordance with Romanian spatial planning legislation and formed part of the broader urban planning approval framework applicable to solar PV developments.

The change of land use was approved through the relevant planning documentation and permits, thereby formalizing the legal transition from agricultural production to energy infrastructure development.

3.11.6 Additional land required

The project plans to acquire the administrative area currently owned by Agricola Grăniceri, to serve as the construction site organization. This land plot is situated in the vicinity of the PV farm location. This land has not yet been secured as part of the development footprint. While a Sale and Purchase Agreement (SPA) framework is in place, the transfer of property rights remains conditional upon the activation of the contractual call option. Until such time as this option is exercised and the transaction is completed, the land remains under the legal ownership and control of Agricola Grăniceri.

3.12 Cumulative impact assessment

Rationale and Scope

This section has been developed to ensure that the Cumulative Impact Assessment developed as part of the ESIA is fully updated with the additional information uncovered during the elaboration of the SLIP package. The main changes refer to the presence of the DEx16 Express Road project in the project AoI and the influx of workers due to project activites.

Based on the reviewed baseline information, existing Project waste management arrangements, and other known projects in the area, no regional waste infrastructure limitations have been identified, and the Project is not expected to create strain on local waste management services or treatment capacity.

3.12.1 Additional VEC Identification

Aspect	Project Risk	Include as VEC?
Community health and safety	The concurrent implementation of multiple large-scale developments in the area, such as other utility-scale photovoltaic parks and the Express Route DEx16, may cumulatively intensify worker influx–related	Yes

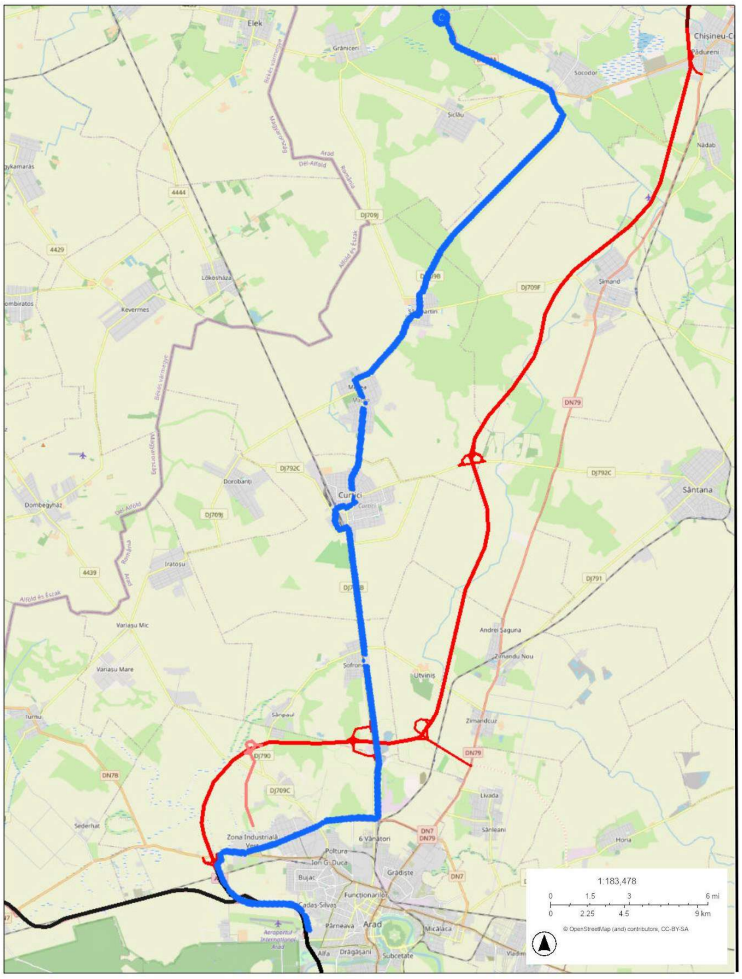
	pressures on local accommodation, public infrastructure, and health services. Overlapping construction schedules can increase temporary labor demand beyond the absorptive capacity of nearby communes, contributing to rental price inflation, limited housing availability, and potential overcrowding. Local health facilities, which typically operate with limited staffing and resources in rural western Romania, may experience increased demand for primary care and emergency services.	

3.12.2 Updated VEC Status and Condition

VEC 3: Traffic

The DEx16 Oradea–Arad Expressway is a major linear transport infrastructure project in western Romania, extending approximately 120 km between the municipalities of Oradea and Arad. The project connects to the A3 Motorway near Borș and the A1 Motorway near Arad/Nădlac and includes a branch from Salonta to the Hungarian border, where it will connect to Hungary's M44 expressway. The proposed project transport route intersects the DEx16 route in the North of Arad.

DEx16 forms part of the trans-European Via Carpatia corridor, linking the Baltic Sea, the Black Sea, and the Aegean Sea. Given its strategic role in facilitating international freight and passenger traffic, the project has the potential to generate cumulative environmental and social impacts in combination with existing and reasonably foreseeable developments in the region.



LEGEND:
Transport route - Constanta port, CT - Graniceri, AR
Oradea - Arad Express Route DEx16

VEC 7: Community Health and Safety

Community health and safety conditions in the area are shaped by the predominantly rural character of the communes and their reliance on limited local public services. Primary healthcare is provided through local family medicine practices, while more specialized and emergency services are accessed in Chișineu-Criș or Arad Municipality.

Emergency response capacity, including ambulance and fire services, is present but may involve longer response times due to distance and road conditions. Road safety represents an existing sensitivity, particularly on communal and agricultural roads used by farm machinery and daily commuters. Vulnerable groups include elderly residents, who represent a significant share of the population, as well as children and persons with limited mobility.

Public infrastructure such as water supply, sanitation, and waste management systems generally functions within existing demand levels but has limited spare capacity. These baseline characteristics indicate that any additional pressures related to construction traffic, worker influx, or increased use of local services should be carefully managed to avoid temporary strain on community health and safety conditions.

3.12.3 Additional Cumulative Impacts

VEC 3: Traffic

Additional traffic influx and traffic congestion related to the construction work for the DEx16 could disproportionally affect transportation in the area, especially in the vicinity of Arad, where the project transport route intersects with the DEx16 route.

VEC 7: Community Health and Safety

In the context of concurrent developments in the area, including other photovoltaic projects and the DEx16 Express Route, cumulative pressures on community health and safety may arise during overlapping construction periods.

A higher concentration of non-local workers may lead to increased demand for primary healthcare services, while emergency response systems could experience temporary strain due to greater traffic volumes and potential occupational incidents.

Simultaneous use of local water supply and sanitation systems may also reduce available spare capacity. Although these impacts are expected to be temporary and largely construction-phase specific, their combined effect could disproportionately affect vulnerable groups, including elderly residents and persons with limited mobility, if not appropriately coordinated and managed across projects.

3.12.4 Significance of Cumulative Impacts

VECs	Scenario A: Cumulative Impact of other developments and land uses	Scenario B: Contribution of DAMA PV Project to Cumulative Impact
3 Traffic	**Impact Statement (other projects):** Other PV plants and the DEx16 Express Route (Oradea–Arad) could be under construction simultaneously with the Project. Local and regional roads are expected to experience increased congestion, delays, elevated traffic safety risks, and accelerated road surface wear and deterioration. The construction of DEx16, involving large-scale earthworks, heavy machinery, and significant material transport, may further intensify traffic volumes on regional transport corridors and access roads. Due to the relatively limited traffic generated during PV plant operations, and the uncertainty regarding the precise timing of commissioning phases, cumulative impacts are primarily associated with overlapping construction periods. **Selected data informing the impact statement:** ▪ Based on available planning information, other wind and solar projects could be in the construction phase concurrently with the Project and DEx16. ▪ Renewable energy projects are likely to rely on the Port of Constanța for delivery of oversized components, while DEx16 will require substantial volumes of construction materials sourced nationally	**Impact Statement (the Project):** With the mitigation measures recommended in the Traffic Section of the ESIA, Project construction is anticipated to result in minor negative impacts on road congestion, safety, and road condition when assessed on a standalone basis. However, in the event of overlapping construction activities with other renewable energy projects and the DEx16 Express Route (Oradea–Arad), cumulative impacts on regional road networks may increase to minor–moderate significance, depending on the degree of temporal and spatial overlap and the extent of shared use of regional transport corridors. **Selected data informing the impact statement:** ▪ Recommended traffic management measures would reduce the impact of additional truck movements on other road users by scheduling deliveries during non-peak hours, coordinating with local authorities and police regarding routing and timing, and providing advance public information on construction schedules. ▪ Recommended safety measures include driver training and monitoring, adherence to speed restrictions, good vehicle maintenance, and proper loading

	or regionally, potentially increasing demand on national transport corridors. ▪ Cumulative transportation effects would arise if projects under construction during the same period use overlapping sections of regional and county roads for heavy truck transport and worker commuting. While individual projects may primarily use local or agricultural roads within their respective footprints, shared use of regional roads—including those connecting to Arad Municipality and Chișineu-Criș—could result in measurable cumulative impacts on traffic flow, safety, and road condition.	and securing of materials. ▪ Cumulative risk may arise if construction traffic associated with other PV projects and DEx16 overlaps on the same regional and county roads used for heavy truck transport and worker commuting. ▪ The Project is expected to rely primarily on designated access routes and local roads within its footprint; therefore, cumulative effects would mainly occur where regional road infrastructure is shared with other large-scale developments during peak construction periods.
7 Community Health and Safety	**Impact statement (other projects):** Several renewable energy projects and the DEx16 Express Route (Oradea–Arad) could be under construction simultaneously with the Project. Increased workforce presence and higher traffic volumes may generate cumulative pressures on local healthcare services, emergency response capacity, road safety conditions, and public utilities. Given the predominantly rural setting and limited spare capacity of local medical and emergency services, overlapping construction activities could temporarily increase response times, service demand, and safety risks, particularly for vulnerable groups such as elderly residents, children, and persons with reduced mobility. As operational-phase workforce requirements are minimal, cumulative impacts are primarily associated with the construction phase. **Selected data informing the impact statement:** ▪ Based on available information, multiple PV and wind projects, together with DEx16, may overlap temporally during peak construction periods. ▪ Primary healthcare services are locally limited to family medicine practices, with specialized and emergency care accessed in Chișineu-Criș or Arad Municipality. ▪ Emergency response capacity (ambulance, fire services) may be affected by increased traffic volumes and longer travel distances on shared road networks. ▪ Public infrastructure systems (water supply, sanitation, waste management) operate within current demand levels but have limited additional capacity, potentially	**Impact statement (the Project):** With the implementation of mitigation measures outlined in the ESIA, the Project is anticipated to result in minor negative impacts on community health and safety when considered on a standalone basis. However, in the event of concurrent construction with other renewable energy projects and DEx16, cumulative impacts may increase to minor–moderate significance depending on the scale of workforce overlap, traffic interactions, and shared use of local services. **Selected data informing the impact statement:** ▪ The Project will implement a Worker Code of Conduct, occupational health and safety measures, and traffic management controls to reduce risks to local communities. ▪ Workforce numbers are temporary and construction-phase specific, with limited long-term population increase expected. ▪ The Project will rely primarily on designated access routes and planned logistics management, reducing interaction with sensitive receptors where feasible. ▪ Coordination with local authorities and service providers is foreseen to monitor potential pressures on healthcare, emergency services, and utilities during peak construction activities.

	increasing sensitivity to simultaneous construction-related demand.	

3.12.5 Appropriate Mitigation

VEC 7: Community Health and Safety

Summary of Project Measures that Mitigate Impacts to VECs:

▪ Preparation and implementation of a Traffic Management Plan (TMP), including designated transport routes, speed restrictions, signage, and scheduling of deliveries during non-peak hours to reduce congestion and road safety risks.

▪ Implementation of a Worker Code of Conduct addressing respectful community interactions, prohibition of alcohol and substance abuse, and zero tolerance for harassment or gender-based violence.

▪ Development of a Community Health and Safety Management Plan aligned with international good practice, including risk assessments and preventive measures related to communicable diseases and population influx.

▪ Coordination with local authorities and emergency services to ensure awareness of construction schedules and access arrangements.

▪ Maintenance of safe site access controls, fencing, and security measures to prevent unauthorized entry and protect community members.

▪ Regular inspection and maintenance of construction vehicles, mandatory driver training, and enforcement of load limits to reduce accident risks.

▪ Implementation of grievance mechanisms accessible to local communities to promptly address safety-related concerns.
▪ Waste management and sanitation measures at construction sites and worker accommodation to prevent public health risks.

Proposed Mitigation for Other Projects to address Cumulative Impacts:

▪ Establish coordination mechanisms among concurrent projects (including renewable energy developments and DEx16) to align construction schedules and transport routing in order to reduce peak traffic volumes and shared pressure on emergency services.

▪ Develop joint traffic and road safety awareness campaigns in collaboration with local authorities, particularly targeting high-risk road segments and vulnerable road users.

▪ Coordinate with local healthcare providers to monitor potential increases in service demand during peak construction periods and, where necessary, provide temporary support (e.g., medical screening, first aid facilities on-site).

▪ Harmonize worker codes of conduct and community engagement protocols across projects to ensure consistent standards of behavior and risk prevention.

▪ Share information on workforce numbers and accommodation arrangements to better anticipate cumulative pressures on local infrastructure and utilities.

▪ Establish collaborative emergency preparedness and response planning, including communication protocols between projects and local response units.

▪ Support local initiatives aimed at strengthening road safety infrastructure and community awareness, particularly in rural areas with limited existing capacity.

4 Information disclosure and Stakeholder Engagement

In accordance with IFI requirements, the SLIP will form part of the environmental and social disclosure package to be made available for public review and comment for a minimum period of 60 days prior to consideration by the EBRD Board. The SEP includes details on this disclosure process, including information related to public disclosure and community involvement (making use of Public Information Brochure and project posters).

ANNEXES

Biodiversity Impact Assessment

Biodiversity Baseline Report

ANNEX A

Biodiversity Impact Assessment (BIA) Report

Dama Solar PV Plant Project, Romania

Prepared by	TLCommunications	**Date**	12 March 2026
		Report reference	TLC-01-2026-RESOLV ENERGY-DAMA-BIA
Prepared for	**Error! Reference source not found.**	**Version**	V0.1 Draft

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SIGNATURE

The report has been developed by Adam Teixeira Leite of TLCommunications, in his capacity as a freelancer and independent environmental consultant and international biodiversity expert.

The reporting and assessment have been undertaken with due care and the utmost professionalism and constitute the author's own work. Where third-party data or information has been used, this has been referenced appropriately.

Adam Teixeira Leite

Company owner / freelancer and Principal Consultant: biodiversity expert

TL Communications CONSULTING SERVICES

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ACRONYMS / ABBREVIATIONS

Acronym/Abbrev.	Full Term
AoI	Area of Influence
ALAN	Artificial Light at Night
BAP	Biodiversity Action Plan
BIA	Biodiversity Impact Assessment
BMP	Biodiversity Management Plan
CESMP	Construction Environmental and Social Management Plan
CH	Critical Habitat
CHA	Critical Habitat Assessment
CR	Critical Endangered
DD	Data Deficient
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EEA	European Environmental Agency
EN	Endangered
ERM	Environmental Resources Management
ESIA	Environmental and Social Impact Assessment
ESDD	Environmental and Social Due Diligence
ESR	Environmental and Social Requirement
EU	European Union

Acronym/Abbrev.	Full Term
GN	Guidance Note
IBA	Important Bird and Biodiversity Area
IFC	International Finance Corporation
IFI	International Finance Institution
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
kV	Kilo Volt
LC	Least Concern
MW	Mega Watt
NG	Net Gain
NNL	No Net Loss
NT	Near Threatened
PA	Protected Area
PBF	Priority Biodiversity Feature
PS	Performance Standard
PV	Photovoltaic
RDL	Red Data List
SCI	Site of Community Importance
SPA	Special Protection Area
SWMP	Storm Water Management Plan
VU	Vulnerable

KEY TERMS

Protected area: Legally protected areas meet the IUCN definition: "*A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values*." this includes areas proposed by governments for such designation (IFC, 2012; EBRD, 2024).

Natural habitat: Natural habitats are 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 (IFC, 2012).

Critical habitat: Critical habitat is typically defined as the most sensitive biodiversity features and the definition varies to a degree depending on that of the relevant International Financial Institution (IFI). Typically, though, this relates to habitat important for supporting globally/regionally threatened species, endemic and/or restricted-range species, migratory and/or congregatory species, threatened or unique ecosystems/habitats and ecological / evolutionary processes. An example of the definition of the IFC is as follows: *(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* (IFC, 2012).

Priority biodiversity features: This concept replaces the previous definition of natural habitat used previously by EBRD and adopts a criterion-based approach already used for definition of critical habitat. Priority in all EBRD definitions combines consideration of irreplaceability and vulnerability. Priority biodiversity features (PBF) have a high, but not the highest, degree of irreplaceability and/or vulnerability. Although a level below critical habitat in sensitivity, they still require careful consideration during project assessment and impact mitigation (EBRD ESR6, 2024).

Net Gain (NG): Net gains are additional conservation outcomes that can be achieved for the biodiversity values for which critical habitat was designated. Net gains may be achieved through the development of a biodiversity offset and/or, in instances where the client could meet the lenders requirements without a biodiversity offset, the client should achieve NG through the implementation of programs that could be implemented in situ (on-the-ground) to enhance habitat and protect and conserve biodiversity (IFC, 2012).

No Net Loss (NNL): No net loss is defined as the point at which project-related biodiversity losses or impacts on biodiversity are balanced by the gains resulting from measures taken to avoid and minimise these impacts, to undertake on-site restoration and finally to offset significant residual impacts, if any, on an appropriate geographic scale (e.g., local, landscape-level, national, regional) (IFC PS6, 2012). This is an approach and goal for a development project, policy, plan or activity in which the impacts on biodiversity it causes are balanced by measures taken to avoid and minimise the impacts, to restore affected areas and finally to offset the residual impacts, so that no loss remains.

Ecosystem services: An ecosystem service is any positive benefit that nature provides to people. These are essentially direct and indirect contributions that natural ecosystems (known as natural capital) provide for human well-being and quality of life. This can be in a practical sense through providing food and water and regulating climate, as well as less tangible cultural aspects such as providing spaces for recreation to reduce stress. What is important to acknowledge is that underpinning all these services is biodiversity (nature).

Invasive alien species: An invasive species is an organism (plant or animal) that causes ecological or economic harm in a new environment. Invasive species may be alien or exotic (not native or indigenous to the particular area, geography or region).

Mitigation hierarchy: A tool commonly applied in Environmental Impact Assessments (EIAs) which helps to manage biodiversity risk. The hierarchy of controls that begins with avoidance, then considers minimisation or reduction of impacts, followed by restoration actions and finally compensation for biodiversity loss (e.g. through offsetting) as a last resort measure only once all other options have been considered/exhausted.

Offset: Conservation activities or actions that aim to compensate for the lasting impacts of development on species, habitats and ecosystems that persist even after other mitigation measures have been applied. According to EBRD ESR 6 (2024), a biodiversity offset refers to "*Measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts*" and "*The goal of biodiversity offsets is to achieve "no net loss" and preferably a net gain of biodiversity on the ground*". Biodiversity offsets should typically be considered a last resort in any mitigation package and should only be attempted with input from credible external experts with relevant experience in their design and implementation.

Rehabilitation: A management action that aims to restore a certain level of ecosystem functioning in degraded sites, to reverse negative impacts by repairing and replacing the essential or primary ecosystem structures and functions which have been altered or eliminated by disturbance.

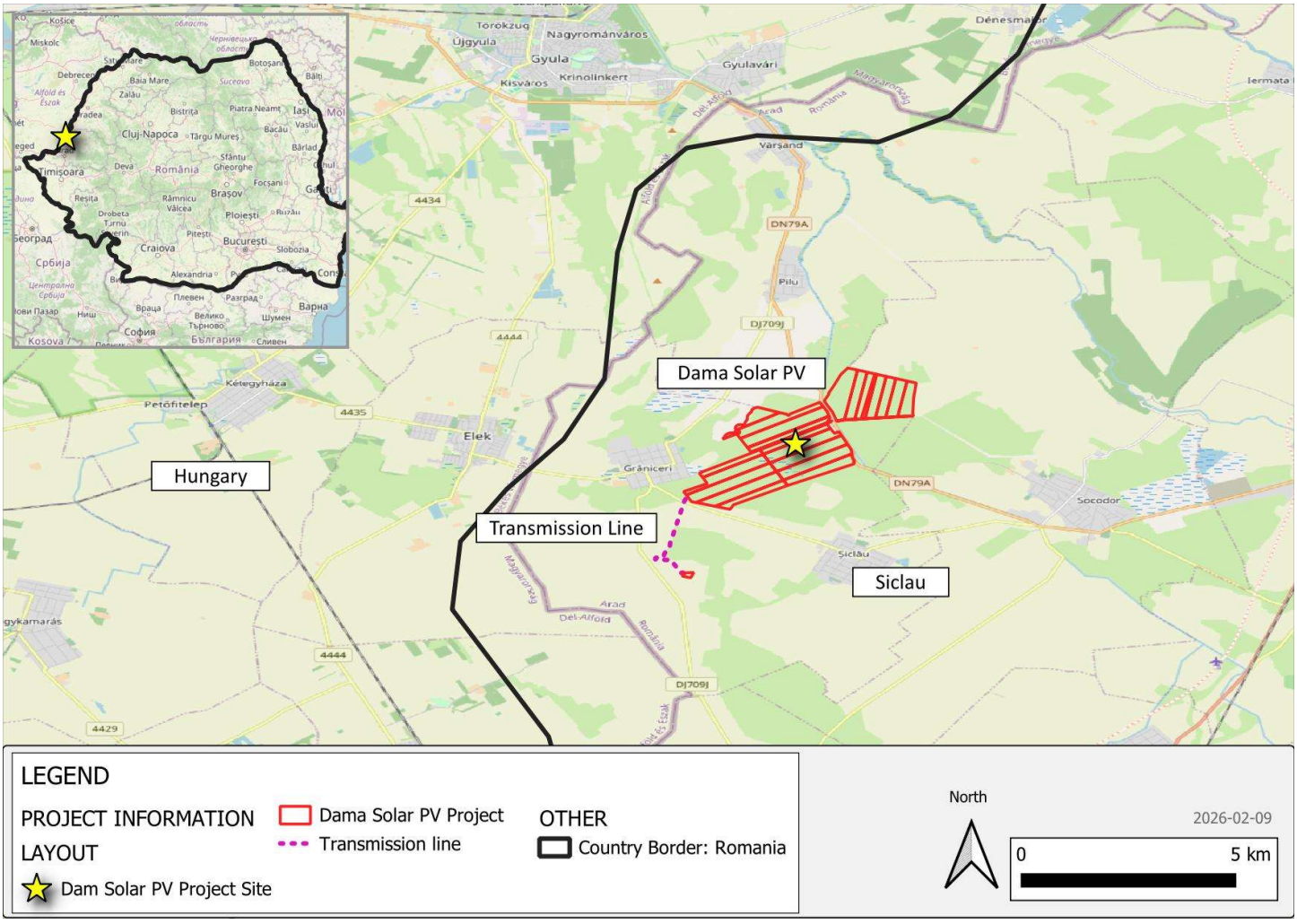
Restoration: The process of reclaiming habitat and ecosystem functions by restoring the lands and waters on which plants and animals depend. Differs from rehabilitation, in that the goal is to restore the ecosystem or habitat to its former state or better.

1. Introduction

1.1 Background

The 'Dama Solar Photovoltaic (PV) Plant Project is a large 1,065 Megawatt (MW) solar PV power plant that is being planned in the western-most part of Romania near the border with Hungary (referred to hereafter as 'the Project'). A locality map showing the solar PV project area (solar panel arrays and underground transmission line) is provided below in **Figure 1**. *Detailed Project information can be found in the relevant section of the main Environmental and Social Impact Assessment (ESIA) report and has not been duplicated here.*

FIGURE 1 PROJECT LOCALITY MAP



Information/data sources: TLCommunications, using Client-provided data and public 'creative commons' / 'free-to-use' GIS datasets, background imagery: Google Earth™ StreetMap™

Importantly, the Project is located within two Protected Areas (Pas) defined in terms of the Natura 2000 network of sites in Europe, which raises the importance in terms of biodiversity-related impacts:

- ROSCI0231 'Nădab - Socodor – Vărșad ' - Site of Community Importance (SCI) – Project overlaps with ~13% of the SCI.
- ROSPA0015 'Câmpia Crișului Alb și Crișului Negru' - Special Protection Area (SPA) – Project overlaps with ~2.6% of the SPA.

In addition, the Project overlaps a Key Biodiversity Area (KBA) that is also an Important Bird and Biodiversity Area (IBA), known as 'Câmpia Crişurilor' KBA/IBA, with the degree of overlap being ~2.5% of the IBA/KBA.

For further detailed information, the reader is referred to the 'Biodiversity Baseline Report' for the Project (TLCommunications, 2026).

The Project is seeking finance based on international project finance that includes several prospective lenders represented by the following International Financial Institutions (IFIs):

- The International Finance Corporation (IFC); and
- The European Bank for Reconstruction and Development (EBRD).

The Environmental and Social (E&S) Policy and Standards/Requirements of the EBRD and IFC have been considered as the 'applicable standards' for the Project. *For further information regarding applicable E&S standards, the reader is referred to the relevant chapter of the main ESIA report*.

1.2 Purpose

Renewable energy projects such solar parks play an important role in moving towards a more sustainable energy sector that can assist with combating the negative impacts of non-renewable energy on global climate. However, these 'clean' or 'green' energy projects can also result in unintended negative impacts and consequences to the environment unless carefully planned and managed. This includes risks and potential impacts to biodiversity, which underpins the resilience and functions of ecosystems and the flow of ecosystem goods and services (Bennun *et al.,* 2021).

Biodiversity Impact Assessment (BIA) is the process of determining the types and significance of effects a project will have on biodiversity, and the various components thereof, which lies at the core of the ESIA process (Hardner *et al*., 2015). Risks and impacts to biodiversity typically vary according to the project being assessed as well as the context of the receiving environment where the project is located.

This report presents the Biodiversity Impact Assessment or BIA (updated in February 2026 for the Project) which has been prepared in support of the Project's alignment with the applicable international standards, which include:

- EBRD Environmental and Social Requirement 6 (ESR 6): *Biodiversity Conservation and Sustainable Management of Living Natural Resources* (EBRD, 2024);
- IFC Performance Standard 6 (PS 6): *Biodiversity Conservation and Sustainable Management of Living Natural Resources* (IFC, 2012).

The purpose of the BIA is to identify and assess potential impacts of the Project on biodiversity, informed by the Project design and description and the biodiversity baseline established. Following on from this assessment, mitigation measures in line with the mitigation hierarchy (avoid, minimise, rehabilitate/restore, offset) are proposed. Finally, residual impacts are also considered and measures to manage these are recommended.

For this project, construction and operation phases are assessed as relevant to the infrastructural components and activities.

Special Note on the updated BIA and new report issued:

An updated impact assessment covering biodiversity was undertaken for the Project and a new report issued (this document) that now supersedes the previous version developed by Environmental Resources Management (ERM) in 2023, and which has been specifically revisited for the following reasons:

1. In the time between the last iteration of the CHA in 2024, the EBRD released a revised set of ESR as well as an update to Guidance Note regarding ESR 6, that includes guidance on impact assessment and mitigation;
2. To reflect the updates to the Biodiversity Baseline Assessment (2026);
3. To reflect the updates to the Critical Habitat Assessment (2026); and
4. To address any other comments/recommendations arising from the Environmental and Social Due Diligence (ESDD) for the ESIA which was completed by external/independent consultants from WSP in January 2026.

2. Approach and Methods

A phased approach to the identification and assessment of biodiversity impacts was followed that included several steps, with each described below.

2.1 Information and Data Sources

Key data and information sources for informing the identification and assessment of impacts included:

- The revised Project description contained in the ESIA report;
- The revised layout plan for the development (Client provided);
- The revised Biodiversity Baseline Report, which includes an assessment of ecosystem services (TLCommunications, 2026);
- The revised Critical Habitat Assessment (CHA) report (TLCommunications, 2026);
- Relevant sections of the ESIA (ERM, 2023) pertaining to noise/vibration impacts, air quality, pollution and the impact on soils, hydrology and surface/ground water resources;
- The Hydrological and Hydraulic Study for Flood-Risk Assessment (Fichtner, 2023);
- The Biodiversity Action Plan (The Biodiversity Consultancy, TBC, 2025);
- IFC PS 6 and EBRD ERS6 and associated guidance notes.

Information sources considered in the mitigation strategy and recommendations for impact management included:

- The Biodiversity Management Plan (BMP) for construction (ERM, 2025);
- The Biodiversity Action Plan (The Biodiversity Consultancy, TBC, 2025);
- IFC PS 6 and EBRD ERS6 and associated guidance notes;
- The IFC EHS Guidelines;
    - Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning (Hardner et al., 2015);
    - A cross-sector guide to implementing the Mitigation Hierarchy (Ekstrom et al., 2015);
    - Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers (Bennun et al., 2021).

2.2 Defining the Area of Influence

The 'Area of Influence' (AoI) describes the boundaries of the extent to which Project impacts may be felt by the various relevant environmental receptors. The AoI can typically extend well beyond a Project's physical footprint, and in this case an AoI for the direct footprint (the 'Direct AoI') is defined as well as an 'Indirect AoI' that takes into consideration the indirect footprint that extends beyond. *It is considered permissible to have a study area and AoI that captures a number of different ecosystems and species or to have a series of areas depending on ecosystem or ecological factors (IFC/EBRD).*

The development footprint of the Project is the starting point for the AoI determination, and this has been referred to as the **'Direct AoI'**. This encompasses the Project infrastructure and activities based on the preliminary layout as well as all temporary work areas (such as access roads, camp sites, equipment/material laydown areas, stockpile areas and any dump sites). The Direct AoI covers impacts to habitat and vegetation as well as direct impacts to fauna within the area that will be subject to direct disturbance.

The **indirect footprint** was also considered in the AoI definition for the Project, defined as the **'Indirect AoI'**, which encompasses areas adjacent to the Project direct footprint and extending a variable distance depending on several factors, namely:

- The type of infrastructure / type of activity
- The receiving environment (type, sensitivity of ecological receptors)

It must be acknowledged upfront that there is no single, comprehensive and scientifically robust resource or dataset available to the authors current knowledge, that can be used to accurately define the Indirect AoI, particularly for renewable energy projects (the focus in the past has largely been on the mining and oil&gas sectors). In the absence of such information, the Indirect AoI has been defined based on the best information available at hand and following GIP guidance where available.

To determine the indirect AoI, firstly there are several components to the Project that require consideration in order to determine the 'distance of effect' related to specific Project activities and the key ecological receptors related to these, following an approach that is considered both scientifically sound and well-aligned generally with GIP. This key information is summarized in **Table 1**.

TABLE 1 PROJECT PHASES AND ACTIVITIES CONSIDERED IN SPECIFIYING THE INIDRECT AOI

Relevant Activities	Disturbance effects and Ecological Receptors to account for in terms of 'Distance of Effect'
Construction Phase (similar for decommissioning)	
■ Construction/upgrading of access roads ■ Land clearing and excavations/trenching for underground cable ■ Operation of heavy machinery and construction vehicles ■ Civil works ■ Plant installation ■ Presence of labourers ■ Potential nighttime works ■ Water abstraction and use in construction ■ Accidental spills ■ Disposal of surplus materials	■ Direct vegetation clearance ■ Direct loss of habitat, including temporary disturbance of soil, vegetation and habitat ■ Disturbance to wetland habitat adjacent to the site ■ Sealing of soil surfaces ■ Direct water use ■ Indirect disturbance due to vibration, noise, light ■ Indirect habitat fragmentation ■ Water/soil pollution and contamination risk
Operational Phase (includes maintenance)	
■ Operation of the solar PV plant and substations ■ Maintaining a perimeter fence ■ Overhead powerline (~50m distance) ■ Operation of transmission lines	■ Risk of waterbird collision with solar panels due to 'lake effect' ■ Potential barrier effect (perimeter fencing, etc.) ■ Risk of collision/electrocution for short distance of overhead powerline

Relevant Activities	Disturbance effects and Ecological Receptors to account for in terms of 'Distance of Effect'
Construction Phase (similar for decommissioning)	
■ General maintenance activities during operation	■ Risk of electrocution for subterranean mammals ■ Minor disturbance (noise, visual) during operations and maintenance activities

Source: TLCommunications (unpublished)

Following on from the identification of infrastructure/activities and likely disturbance effects associated with these, the Indirect AoI is defined further in terms of the anticipated 'ecological receptors', which are the ecosystems, habitats and species likely to be affected directly and/or indirectly for the Project, as the 'distance of effect' for certain activities and disturbance effects will be different depending on the type and sensitivity of the receptor (e.g. physical habitat vs species). Based on the desktop review and biodiversity baseline determined for the Project, the following receptors are likely to be key ones for biodiversity for the Project:

- Physical habitats (several different types, including terrestrial habitats and aquatic habitats)
- Flora (plants)
- Birds (in particular waterbirds and raptors)
- Land mammals
- Herpetofauna (reptiles, amphibians)
- Aquatic species, such as invertebrates and amphibians

The Indirect AoI has therefore been defined for both terrestrial and aquatic ecosystems and habitats and to account for fauna belonging to the groups listed above (*at the individual species level, there is limited literature available for informing 'distance of effect', therefore guidance at the faunal group or class levelhas been used only, and where available based on a review of literature covering this topic*).

Following a review of available literature on the topic, the 'distance of effect' (or a range thereof) has been determined as far as possible that correspond to the following disturbances related to the Project infrastructure and activities and the ecological receptors likely to be affected, presented below:

- **Air quality and dust:** Natural England (2018[1]) recommend a distance of 200 m to account for air quality impacts around access roads. Dust emissions can affect plants and habitats up to 350 m from construction areas and exposed surfaces such as access/haul roads (or even more depending on site-specific environmental and atmospheric conditions).
- **Noise, vibration and visual (light) disturbance:** Literature reviewed (such as Kwon et al., 2018), suggests there is a strong possibility that species could be disturbed by noise up to a radius of approximately 250 m from construction sites, and outside of the 250 m noise level from construction should have been attenuated to background noise levels. For vibration effects, these appear to be very site and context specific and can range enormously.
- **Disturbance/displacement effects for breeding birds:** NatureScot (2022[2]) suggests a protection zone equivalent to a physical buffer distance of 50 m up to a maximum of 1000 m for protecting breeding birds from general disturbance from anthropogenic activities, including construction works.
- **Migratory species:** Migratory species such as birds and land mammals may trigger a requirement to consider Protected Areas (PAs), KBAs (Key Biodiversity Areas) and/or IBAs (Important Bird & Biodiversity Areas) up to tens of kilometres from the Project if there is a likelihood of migratory flows through the site and towards or between Pas,

[1] Natural England (2018). Natural England's approach to advising competent authorities on the assessment of road traffic emissions under the Habitats Regulations. June 2018. Online at: https://publications.naturalengland.org.uk/publication/4720542048845824

[2] NatureScot (2022). Disturbance Distances in selected Scottish Bird Species. Online at: https://www.nature.scot/doc/disturbance-distances-selected-scottish-bird-species-naturescot-guidance

KBAs and IBAs. However, a generic AoI to account for migratory effects is practically not possible to implement and such effects would need to be considered on a case-by-case basis (excluded from the AoI definition for the Project).

- **Aquatic ecosystems:** The Nature Conservancy (2015[3]) recommend ecological buffer widths to minimise impacts to fish and wildlife habitat, that range from 10m to 150m for most fish, amphibians, reptiles, birds and mammals. Macfarlane & Bredin (2017[4]) recommend minimum buffer zones for aquatic habitats (i.e. wetlands, rivers and estuaries) based on sector/activity type. For service infrastructure, generally a minimum 20 m buffer is recommended, for power/transmission lines a minimum buffer width of 10 m is defined and for unpaved roads, a minimum width of 15 m. *This being said, given that the Project may result in more widespread impacts on aquatic ecosystems as a result, the aquatic environment downstream and within a distance of 500 m up to 1000 m of the Project is likely to be a more reasonable and precautionary distance of effect that aligns with past experience on international Projects involving hydrological impacts.*
- **Transmission lines:** For power lines / transmission lines, NatureScot (2016[5]) recommend corridor widths for surveys considering the visual/light/noise disturbance and displacement potential for bird species linked to habitat types ranging from 125 m for woodland/urban sites up to 500 m for wetlands, grasslands and protected areas.

Based on the above information, the distance of effect for construction and operational phases has been summarized in **Table 2** has been considered to be a maximum distance of 1000 m (1 km) taken conservatively and precautionarily as the Indirect AoI for biodiversity for general construction and operation of the Project. *However, given the large number of waterbirds and raptors that frequent the Project area and which are associated with the Natura 2000 site and IBA, the indirect AoI to account for bird species movements between habitats at the site and elsewhere in the nearby area (between foraging and resting/breeding territories), a larger buffer distance of up to 5 km was considered more appropriate as the indirect AoI for birds.*

Note that the AoI for the decommissioning phase will be the same or very similar to the AoI defined for the construction phase as impacts will be similar or quite possibly less significant.

TABLE 2 DEFINING THE INIDRECT AOI FOR BIODIVERSITY

Aspect Considered	Distance of Effect (range)	Recommended Indirect AoI (buffer distance from Project)
Air quality and dust	200 - 350 m	350 m
Noise, vibration, visual (light) disturbance	250 m	250 m
Disturbance/displacement effects for breeding birds	50 - 1000 m	1000 m
Aquatic ecosystems	10 – 1000 m	1000 m
Transmission lines	125 - 500 m	500 m

Source: TLCommunications (unpublished)

[3] The Nature Conservancy (2015). Reducing Ecological Impacts of Shale Development: Ecological buffers. Online at: https://www.nature.org/media/centralapps/recommended-shale-practices-ecological-buffers.pdf

[4] Macfarlane & Bredin (2017). Buffer Zone Guidelines for Rivers, Wetlands and Estuaries. Part 1: Technical Manual. Online at: https://www.wrc.org.za/wp-content/uploads/mdocs/TT715-1_web.pdf

[5] NatureScot (2016). Guidance - Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds. Online at: https://www.nature.scot/doc/guidance-assessment-and-mitigation-impacts-power-lines-and-guyed-meteorological-masts-birds

2.3 Identifying important biodiversity receptors

Biodiversity 'values' (*also termed 'features' or 'attributes'*) are considered as the key receptors of impacts. Informed by the biodiversity baseline assessment, the biodiversity values relevant to the Project were identified and relative importance rated using the ratings in **Table 3**, with the summary outputs presented in **Table 4**. *For further detailed information concerning the habitat and species status used to inform the receptor importance ratings, the reader is referred to the 'Biodiversity Baseline Report' and 'Critical Habitat Assessment' (CHA) for the Project (TLCommunications, 2026).*

TABLE 3 RATING IMPORTANCE OF BIODIVERSITY VALUES

Receptor/Value Importance Rating	Description
Critical	Includes biodiversity values of very high conservation value and concern at the global level, that includes ecosystems, habitats and species which are: ■ Qualifying Critical Habitat (CH) values. ■ Representative of irreplaceable biodiversity. ■ CR at global or regional levels.
High	Biodiversity of high conservation value or concern that do not qualify as CH or irreplaceable and which include ecosystems, habitats and species that are: ■ Qualifying Priority Biodiversity Features (PBF). ■ Conserved within legally protected areas. ■ Threatened (EN or VU) at global or regional levels. ■ Specially protected or 'priority' species for conservation (for example, in terms of listing in Annex I or Annex II of the EU Habitats Directive as priority habitats/species). ■ Endemic species. ■ Species with restricted ranges.
Medium	Biodiversity of moderate conservation value or concern which include ecosystems, habitats and species that are: ■ Conserved within internationally recognized areas such as KBAs, IBAs, Ramsar sites. ■ Threatened (CR/EN/VU) at the national or state/municipal/district level. ■ Ecosystems, habitats and species that are protected but not considered 'priority' species for conservation (for example, in terms of listing in Annex I or Annex II of the EU Habitats Directive, Annex I of the EU Birds Directive). ■ Rare species. ■ Migratory species.
Low	Ecosystems, habitats and species of LC with no special conservation or protection status assigned by the IUCN globally or through regional/national conservation planning.

Key to IUCN threat status: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, LC = Least Concern

Source: TLCommunications (unpublished)

TABLE 4 IMPORTANCE RATINGS FOR BIODIVERSITY RECEPTORS / VALUES

Biodiversity Receptor / Value	Importance Rating	Critical Habitat CH) or Priority Biodiversity Feature (PBF) Present?	Description (informed by the baseline assessment)
1 Protected Areas	Critical	CH	■ Supports globally, regionally and nationally threatened species (CR, EN, VU). ■ Conserves Pannonic salt steppe/marsh habitat (1530) that is a priority habitat type listed in Annex I of the EU Habitats Directive (HD) and qualify as CH. ■ Protected bird species listed in Annex I of the EU Birds Directive. ■ Protected fauna and flora species listed in Annex II of the EU HD.

Biodiversity Receptor / Value	Importance Rating	Critical Habitat CH) or Priority Biodiversity Feature (PBF) Present?	Description (informed by the baseline assessment)
			■ Migratory and congregatory species of birds. ■ Conserved bird, mammal, reptile species likely qualify as PBF.
2 Internationally recognized areas	High	PBF	■ Supports Globally, regionally and nationally threatened species (CR, EN, VU). ■ Protected species listed in Annex I of the EU Birds Directive. ■ Migratory and congregatory species of birds. ■ Species likely qualify as PBF.
3a Habitats: natural / semi-natural	Critical	CH	■ Pannonic salt steppe/marsh habitat (1530) is a priority habitat type listed in Annex I of the EU Habitats Directive (HD) and qualify as CH.
3b Habitats: modified	Low	-	■ Modified habitats including arable land under cultivation or recently cleared/ploughed of no significant biodiversity value.
4 Flora	Low - Medium	PBF (potentially*)	■ Generally, species of LC that are common and widespread in Romania. ■ Species may be potentially present that could qualify as PBF.
5 Birds	Medium - High	PBF	■ Generally, species of LC that are common and widespread in Romania. ■ Several species qualify as PBF. ■ Several birds are conserved within the Natura 2000 site and IBA. ■ Globally, regionally and nationally threatened species (CR, EN, VU). ■ Protected species listed in Annex I of the EU Birds Directive. ■ Migratory and congregatory species of birds.
6 Bats	Medium - High	PBF	■ Generally, species of LC that are common and widespread in Romania. ■ Several species qualify as PBF. ■ Protected species listed in Annex II of the EU HD. ■ Migratory and congregatory species of bats.
7 Land mammals	Low - Medium	PBF	■ Generally, species of LC that are common and widespread in Romania. ■ European Ground Squirrel is conserved within the Natura 2000 site. ■ Protected species listed in Annex II of the EU HD.
8 Herpetofauna	Low - Medium	PBF	■ Generally, species of LC that are common and widespread in Romania. ■ Several species qualify as PBF. ■ Several species are conserved within the Natura 2000 site, such as European Pond-Turtle. ■ Protected species listed in Annex II of the EU HD.
9 Invertebrates	Low - Medium	PBF (potentially*)	■ Generally, species of LC that are common and widespread in Romania. ■ Several species may be potentially present that could qualify as PBF.
10 Ecosystem Services	Low	-	■ No priority ecosystem services that are important for the Project or for supporting local livelihoods were identified that could be impacted by the Project.

*The Asterix denotes species that would qualify as PBF that may potentially occur based on desktop assessment during the CHA, but which were not recorded during field surveys of the Project area

Key to IUCN threat status: CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient, LC = Least Concern

Source: TLCommunications (informed by the biodiversity baseline assessment)

2.4 Identifying impacts

Potential Project impacts on biodiversity values were identified, including site-specific direct and indirect impacts, and where relevant, induced impacts. These were identified for the construction and operational (including maintenance) phases of the Project, guided by GIP including:

- Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning (Hardner et al., 2015); and
- Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers" (Bennun et al., 2021).

2.5 Rating impact significance

Impact significance refers to the predicted response of the environment and biodiversity values to pressures associated with the relevant Project activities and phases, which is typically determined using the traditional risk formula that considers the **impact magnitude** (a product of the scale/size of the impact or area affected, the timing and duration of effect and the probability of the effect occurring) and the **value/importance of the relevant environmental receptor** as the key recipient of the effect of the impact. The simple impact rating matrix in **Table 5** was used to qualitatively rate significance, with impact magnitude rating descriptions used as per **Table 6** and significance descriptions presented in **Table 7**.

TABLE 5 IMPACT RATING MATRIX

		Receptor Value			
		Critical	High	Medium	Low
Impact Magnitude	Large	Very High	High	Medium	Low
	Moderate	High	Medium	Low-Medium	Low
	Small	Medium	Low-Medium	Low	Insignificant
	Negligible	Insignificant	Insignificant	Insignificant	Insignificant

Source: TLCommunications (unpublished)

TABLE 6 MAGNITUDE OF IMPACT

Impact Magnitude	Description
Large	■ Affects a large area of an ecosystem or habitat or a large proportion of the population of a species. ■ Likely to result in a decline in species populations that may not easily recover over time. ■ May result in a permanent or long-term and fundamental change in habitat or community structure, functioning or species persistence.
Moderate	■ Resulting in a detectable change to habitat and associated species. ■ May affect an appreciable proportion of a habitat or species population leading to a reduction in extent/individuals but which does not threaten the long-term viability of the ecosystem, habitat or species at the population level.

Impact Magnitude	Description
Small	■ Detectable effect that may affect a small area of an ecosystem or habitat or a small proportion of species' population. ■ Temporarily in nature and unlikely to cause a permanent or long-term decline in the population or number of individuals, which can easily recover.
Negligible	■ No detectable or perceivable change is expected to occur to ecosystems, habitats and species.

Source: TLCommunications (unpublished)

TABLE 7 IMPACT SIGNIFICANCE DEFINITIONS

Impact Significance Rating	Description
Very High	■ Large magnitude impacts may occur within highly valued/sensitive resources/receptors such as CH / irreplaceable biodiversity values. ■ Likely to undermine critical habitat values. ■ Considered unacceptable. ■ The potential impact will have a strong influence on the decision regarding the proposed activity and thus, a clear and substantiated need and desirability for the project needs to be provided, to justify the associated ecological risks.
High	■ Large magnitude impacts may occur within valued/sensitive resources/receptors. ■ An accepted limit, threshold or standard may be exceeded. ■ Could undermine critical habitat values. ■ Typically challenging to mitigate and therefore avoidance is generally the recommended option. ■ Generally considered unacceptable. ■ The potential impact will have a strong influence on the decision regarding the proposed activity and thus, a clear and substantiated need and desirability for the project needs to be provided, to justify the associated ecological risks. ■ It is ultimately the function of regulators and stakeholders to weigh such negative factors against the positive factors of a project, towards making a decision on the project.
Medium	■ Impacts have the potential to be significant but may be acceptable, provided that there are strict conditions and high levels of compliance and enforcement such that the impact remains within accepted limits and standards. ■ The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable. ■ If there is reasonable doubt as to the successful implementation of the strict mitigation measures, the impact should be considered unacceptable. ■ The potential impact should influence the decision regarding the proposed activity and require a clear and substantiated need and desirability for the project to justify the risks.
Low	■ Some effect will be experienced but the impact magnitude is sufficiently small (with and without mitigation) and will within accepted standards, and/or the receptor is of low sensitivity/value. ■ Typically, acceptable provided that generic mitigation is applied and routine inspections are undertaken. ■ The potential impact may not have any meaningful influence on the decision regarding the proposed activity.
Insignificant	■ An impact of negligible significance (or an insignificant impact) is where a resource or receptor will not be affected in any way by a particular activity, or the predicted effect is deemed to be `negligible` or `imperceptible` or is indistinguishable from natural background variations. ■ Should not have any meaningful influence on the decision regarding the proposed activity. ■ Basic duty of care applies.

Source: TLCommunications (unpublished)

2.6 Describing mitigation and management measures

Appropriate impact mitigation and management measures are recommended to reduce impact significance through measures aligned with the impact 'mitigation hierarchy' in alignment with IFC PS6 and EBRD ESR6 requirements.

This approach prioritises avoidance and minimisation before considering other options such as restoration and compensation only where impacts cannot be easily avoided or reduced through alternatives and design/planning measures. Offsets and other measures of compensation are typically considered a 'last resort' option under the mitigation hierarchy and are considered only after other options for mitigation have been considered and fully exhausted, with justification provided.

The following internationally recognized good practice guidelines were referred to closely for informing impact management and the suite of mitigation measures recommended:

- Mitigating biodiversity impacts associated with solar and wind energy development: Guidelines for project developers (Bennun et al., 2021);
- Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning (Hardner et al., 2015);
- A cross-sector guide to implementing the Mitigation Hierarchy (Ekstrom et al., 2015).

The requirements of the IFC and EBRD to meet 'Net Gain' (NG) of biodiversity for CH values and at least 'No Net Loss' (NNL) for PBF and natural habitat not qualifying as either CH or PBF, were also key consideration in terms of the mitigation strategy for the Project.

2.7 Assessing residual impacts

Impact significance was then revisited as part of the final step, to re-rate magnitude of impacts depending on the recommended mitigation and management measures and the potential for these to be successfully implemented and based on project experience and GIP examples from literature on the efficacy of such measures.

Where significant residual effects remain, these typically form the basis for recommendations regarding measures to compensate / offset where these are deemed relevant and/or feasible.

3. Impact Assessment Results

3.1 Impact Descriptions and Significance Assessment

Impacts are described and assessed for the construction phase (**Table 8**) and operational phase (**Table 9**), for the following impact categories:

#	Impact Category
1	Destruction/disturbance of habitat and vegetation
2	Degradation of aquatic habitat (wetlands/salt marsh)
3	Habitat fragmentation
4	Species mortalities
5	Disturbance of wildlife (noise, vibration, light)
6	Barriers to faunal movement
7	Invasive Alien Species introductions/spread
8	Pollution of soil/water
9	Air quality impact
10	Impact on Protected Areas and Internationally Recognized Areas values and objectives

Note on the decommissioning phase:

Decommissioning phase impacts are challenging to describe and predict at this stage of the Project planning. Given the time (decades potentially) between commissioning and decommissioning of the Project, the conditions at the site are liable to significant variation over time and GIP as well as applicable standards are also likely to change considerably.

In light of this, detailed assessment of decommissioning impact has been excluded; however, the general assumption is that these will be fairly similar to the construction phase impacts, albeit with potentially lower impact magnitude as a result of less intensive activities and probably fewer machines, vehicles and labourers on site during this time.

Importantly, there is an opportunity for the Project to make a positive contribution to biodiversity during closure through restoration of the habitats affected by the Project. It is therefore recommended that decommissioning impacts and appropriate mitigation be revisited at least one year prior to decommissioning, repowering or other significant changes to the Project, as necessary.

3.1.1 Construction Phase Impacts

TABLE 8 CONSTRUCTION PHASE IMPACTS ON BIODIVERSITY

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
#1 **Destruction/disturbance of habitat and vegetation**			
The principal impact on biodiversity (including species) during construction is likely to arise through the permanent/long term destruction and loss of habitat related to land occupancy required for the solar panel arrays and associated infrastructure. This impact arises from the initial clearing of vegetation and disturbance of topsoil/subsoil during site preparation and for temporary activities. **Permanent/long-term impacts:** Permanent above-ground infrastructure that remains post-construction will lead to the permanent loss or impairment of ecosystems, habitat and vegetation. This includes the solar arrays, substations and site offices where vegetation composition/structure will have changed in the long-term (post-construction). Importantly, the initial layout plan indicated that the loss of an area of approximately 82 ha of Pannonic salt steppe/marsh habitat / grassland that qualifies as 'Critical Habitat' (CH) could be associated should development proceed in these areas. This would be considered a significant impact and of moderate impact magnitude (given the extent of remaining habitat in the EAAA considered for the CHA) and this has been considered the 'pre-mitigation' scenario, *noting that a change in layout has been considered now in the latest iteration/revision to the layout in order to avoid direct loss of CH (ultimately, no Project infrastructure will be located within natural or critical habitat – as the scenario considered in the residual impact assessment with mitigation considered)*. The permanent loss of agricultural land is unlikely to constitute a significant magnitude of effect as alternative habitats for resting and foraging/hunting are available for key species such as mammals and herpetofauna, and vegetated strips will be maintained alongside drainage ditches/canals. In the case of the original layout that would have affected salt steppe/marsh habitat for birds and other faunal groups, the impact would be considered significant due to the loss of refugia and foraging areas. In terms of the impact of habitat loss on waterbirds, the site in its natural state (prior to agricultural development) would likely have resembled a mosaic of salt steppe/marsh, with wetlands dominant due to the clay-rich soils that dominate[7]. Given this context, the findings of the 'Hydrological and Hydraulic Study	Critical: steppe/salt marsh habitat qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: modified habitat on the development site associated with arable land, widely distributed species of LC	Moderate	High

[6] Note that for biodiversity/ecological receptors, several typically apply for a particular impact category with different importance ratings often assigned, these are listed and the MAXIMUM rating is taken conservatively to inform impact significance.

[7] Gleyed soils, with a significant clay content especially the subsoil at greater depth dominate based on the findings of the geotechnical survey and these effectively act as relatively impermeable layers. Naturally, the site would have been a mosaic of wetland and drier grassland areas, with salt marsh dominant given the soil composition and structure that lends itself to a high water table and surface water/wetland formation.

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
for Flood-Risk Assessment' (Fichtner, 2023) were considered to better understand to what extent the modified arable lands on the development properties could be subject to flooding and inundation, to inform the assessment of habitat lost that could be used seasonally or intermittently by waterbirds. This suggests that the plots in the south-west area below the main canal (Budieru channel) on the left side of Morilor are likely to be most prone to inundation at greater depths, with considerable areas of several hundred hectares likely to be inundated at shallow depths (below 0.5 m)[8]. Still, such an event leading to this level of inundation of the site is considered a rare occurrence, and seasonal flooding on a more regular basis is likely to be far less extensive due to the network of drains and canals that efficiently drain the site, and which will be maintained during construction and into the operation phase. A conclusive assessment on the actual extent of the site that could be periodically/seasonally inundated cannot be made at this stage; however, it is assumed that the areas described in the hydrological model outputs would likely be the areas that could be periodically inundated at shallow depths and supporting waterbirds potentially. **Temporary/short-term impacts:** Temporary affected areas (i.e. worker camps, equipment staging and material laydown areas, workshops, borrow pits/quarries, temporary access roads, underground transmission cables) will not will not be permanently impacted and can potentially recover (at least partially) in the long-term post-construction, with assistance as needed (e.g. through simple rehabilitation, passive restoration/natural recovery or assisted revegetation as necessary).			
#2 **Degradation of aquatic habitat (wetlands/salt marsh)**			
Apart from the direct impact to habitat as a result of development (discussed above under impact #1), there is also the potential to more indirectly affect the aquatic habitats associated with the wetland ecosystems and habitats (salt marsh) adjacent to the development footprint. This could manifest itself for example as edge impacts, water draw-down and other effects attributed to pollution effects, potential spills and invasive plant species (discussed under the relevant impacts further below). Avoidance of these adjacent areas will be key during construction.	Critical: salt marsh habitat adjacent to the development site qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF	Small	Medium
#3 **Habitat fragmentation**			

[8] The Digital Elevation Model (DEM) developed to inform the hydrological study by Fichtner (2023) and the findings of more recent topographic surveys confirm that the site is relatively flat, with neither complex topography nor rocky terrain, with largely evenly sloped topography and no significant variation in height or major depressions. The Project area itself has been subject to significant modification over several decades, through canalisation of natural watercourses and artificial drainage construction, all in an effort to lower the water table, rapidly convey storm water from the site in order to create the dry conditions for farming to take place. These represent hydrological and hydraulic constraints that affect actual flooding of the properties. The outputs of the flood risk modelling indicate that for return period of 50-, 100-and 200-year flood events, the Project area will be subjected to varying degrees of flooding and inundation. Within the context of the lifetime of the Project, the 1: 50 year flood interval is probably most significant to understanding flood risk and inundation levels, and this suggests that plots in the south-west area below the main canal (Budieru channel) on the left side of Morilor are likely to be most prone to inundation, with the remainder of the site being within the 0 – 0.15 m depth range of inundation. Those central and southern areas prone to greater depths of inundation (0.15 – 0.5 m depth mainly, with a few small areas that could experience depths exceeding 0.5 m) could represent potential habitat for waterbird species. Based on the flood model, this represents an area of 248.6 ha of shallow inundation (0 – 0.15 m) and 172.1 ha that could be subject to inundation at greater depths up to half a metre, with 15.3 ha considered possibly inundated at depths up to 0.75 m. *Refer to **Annexure A** in Section 6.1 of the BIA for a relevant flood risk/inundation level map and further data*.

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
The conversion of habitat typically result in the fragmentation of habitats; however, this is less of a concern for modified landscapes with altered habitats and where there are already high levels of disturbance, as well as open habitats compared to natural wooded areas for example. While plant species are generally less sensitive to habitat fragmentation, ground-dwelling fauna with low mobility and sedentary species (e.g. mammals, reptiles and breeding birds for example), may be more vulnerable to partial disturbance and loss of shelter. In contrast, highly mobile species, including birds, bats and larger mammals, are expected to be less affected by physical breaks in habitat structure, although they may experience reductions in roosting or foraging/hunting habitat availability. For solar parks of this nature, and where there are opportunities to enhance the onsite habitats through improved management practices, impacts may be considered positive, neutral or negative in certain cases and this is also likely to be species-specific. The possibility and effect of the project on connectivity of habitats remains largely unknown at this stage as there are several factors at play for different faunal groups, and long-term operational monitoring of wildlife behaviour would be needed to confirm any relevant impacts. However, at this stage, fragmentation effects in open habitats that are already dominated by agricultural effects are probably unlikely to be significant for most faunal groups.	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: widely distributed species of LC	Small	Low-Medium
#4 **Species mortalities**			
Linked directly to impact #1 (habitat destruction/disturbance) is the potential for construction activities to result in direct contact with species leading to injuries and even mortalities through interactions with wildlife and the estimated habitat loss. Construction vehicles accessing and operating within the Project area present a risk of wildlife-vehicle collisions, particularly as they move along informal access roads. Species that utilize or move between natural habitats may attempt to cross newly constructed access roads, increasing the likelihood of interactions with vehicles. In some cases, access roads may also unintentionally attract wildlife, acting as open corridors that facilitate movement but also expose animals to greater risk of collision. Slow-moving and sedentary species, including reptiles, amphibians, and small mammals are considered particularly vulnerable to collisions and other direct impacts, even to low-speed traffic. Additionally, cold-blooded species such as reptiles (lizards, etc.) may use open road surfaces for thermoregulation, increasing their exposure to vehicles and collision risks. While such collisions are considered probable, they are expected to be localized and manageable through appropriate mitigation measures (e.g. speed limits, signage, and driver awareness training). Impacts on ground nesting birds could also be a risk during construction, where nests could be destroyed or disturbed. Illegal hunting/poaching of wildlife by labourers and people accessing the site during construction could further contribute to species losses if not properly controlled.	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: widely distributed species of LC	Small	Low-Medium
#5 **Disturbance of wildlife (noise, vibration, light)**			
Noise and vibration disturbance can be expected due to the presence of workers and use of heavy machinery/equipment required for earthworks and installation of permanent infrastructure, and have the potential to negatively affect and potentially disturb/disrupt faunal activity and moving/feeding/breeding	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF	Small	Low-Medium

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
behaviour (mostly temporary effect), through auditory interference and masking of natural sounds, cues and communication between animals, impairment of auditory function (permanent or temporary hearing loss). The displacement of fauna during construction is considered to be mostly associated with noise (for birds and non-volant mammals) and vibration (herpetofauna). Locally common species are likely to be less sensitive to disturbance and can probably become habituated at the site, as has been the case already to an extent given the existing land use as arable farmland. Noise-related disturbance is expected to be localized, of low to moderate intensity and temporary in nature, and primarily associated with short-term construction activities. Consequently, most fauna may reoccupy the area following completion of works, particularly where habitats are maintained or structurally modified rather than permanently lost, and this will be the case where habitats are improved post-construction. On the other hand, the potential loss of PBF breeding bird species nests and disturbance of breeding activities may be significant where not mitigated effectively and will be particularly relevant to ground nesting species (such as Eurasian Skylark that shows a preference for low intensity agricultural land for breeding). In addition to noise/vibration, light can also be a significant disturbance factor. Artificial Light at Night (ALAN) refers to light emissions from artificial/anthropogenic sources that could include functional lighting on construction and maintenance vehicles accessing the site, operational facilities, flood lights for any works taking place at night, and including emergency and security lighting during operations. ALAN may cause behavioural changes in wildlife at the species level, which could also affect species populations. These are likely to be species-specific responses; however certain faunal groups (e.g. nocturnal land mammals and bats) are likely to be more sensitive. The absence of nocturnal breeding birds during baseline surveys is an important consideration here. Species response to ALAN may be as follows: ■ Result in temporary (for construction) or long-term (operational phase) disruption to faunal behaviour, e.g., change in local movement patterns, species migration patterns, altered breeding activity, etc. ■ Change in food availability, impacting on foraging activities and local biodiversity. Light sources can for example attract insects and terrestrial fauna that feed on insects (such as small mammals, bats, insectivorous birds), altering their feeding habitats. This change in food availability can lead to changes in local fauna assemblages. Increased concentrations of fauna may also lead to an increase in secondary impacts, such as increased predations or road kills due to vehicle collisions with animals. Bats may be attracted to, or avoid (depending on the species), lighting on substations, office installations or along access roads.	Low: widely distributed species of LC		
#6 **Barriers to faunal movement**			
Barriers to species movement (associated with temporary facilities and excavations created during construction) may be relevant for a short time period but will be most relevant during the operational phase as temporary barriers will eventually be removed upon completion of construction. Minor local flights and movement of raptor and waterbird species between resting, breeding, foraging/hunting grounds could also	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF	Small	Low-Medium

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
be affected temporarily, if at all. The presence of construction equipment can create barriers that bats may be reluctant to cross, and this can lead to further fragmentation of their foraging habitats, forcing bats to travel longer distances or seek alternatives, potentially less suitable foraging grounds, at least temporarily. However, these are not considered to be significant impacts given the temporary nature of the impact and limited extent.	Low: widely distributed species of LC		
#7 **Invasive Alien Species introductions/spread**			
Invasive Alien Species (AS) can be plants or animals whilst an introduced species is defined as a non-native species whose presence is due to intentional or accidental introduction, and which has the potential to become an invasive species. IAS are widely recognized as a major driver of biodiversity loss or modification[9]. The movement of vehicles, personnel, and equipment into and throughout the Project area may facilitate the introduction of IAS or contribute to the spread of existing IAS, and this is probably most relevant to flora which can be introduced/spread accidentally and primarily via the transport of seeds or propagules on machinery, soil, tools, and clothing. Furthermore, vegetation clearance and earthworks as well as domestic operations (e.g. inappropriate waste management) may create disturbed ground conditions that are highly conducive to the establishment and expansion of invasive/alien flora species and aggressive weeds of agricultural lands, potentially affecting adjacent natural habitats. This is particularly relevant to the site given the existing disturbed agricultural areas that are prone to weed invasion and indeed several IAS of plants were recorded along a mine access road and in disturbed areas near to the Project boundary. Invasive animal species are unlikely to pose a major risk as a result of the Project, for example invasive aquatic species such as non-native fish are unlikely to be introduced through construction activities as there are few pathways to their introduction.	Critical: adjacent salt steppe/marsh habitat qualifies as CH Low: modified habitat on the development site associated with arable land Low: widely distributed flora species of LC	Moderate	Medium
#8 **Pollution of soil/water**			
Typical waste products routinely generated during construction, other than permitted effluents and emissions, are described in detail under the 'Pollution/waste impact assessment' section of the ESIA and are not duplicated here. For detailed descriptions of possible waste products and sources, refer to that section of the ESIA. These typically can be classified as non-hazardous and hazardous waste and solid vs liquid forms of waste. Inadequate storage or disposal procedures for solid/liquid waste (products generated by the Project may result in accidental loss of waste and wind-blown dispersion of lighter materials such as paper or plastics, resulting in environmental contamination impacts). These are obviously more significant for hazardous waste materials versus non-hazardous waste' however, hazardous wastes are normally disposed of in an appropriate manner and would only enter the terrestrial/aquatic environment in the event of an accidental loss, emergency situations such as spills or unplanned leaks from vehicles, equipment and waste storage	Critical: salt marsh habitat adjacent to the development site qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna that qualify as PBF Low: modified aquatic habitat on the development site (artificial canals	Small - Moderate	Medium

[9] Potential impacts associated with the introduction of IAS/weed species include competition for resources with native flora; degradation of habitats for native species; alteration of natural habitat structure and disrupting of ecological processes (e.g. contribution to altered fire regimes resulting in altered habitats for native flora and fauna); reduced success of rehabilitation/restoration activities; and potential impacts associated with the introduction of pest animals that can include predation on native species (both flora and fauna), habitat degradation and grazing of rehabilitated areas.

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
facilities. Potential impacts on biodiversity associated with the intentional or accidental release of waste to the environment may include: ■ Soil and/or water contamination; ■ Reduction in surface water / groundwater quality; ■ Erosion and sedimentation of watercourses; ■ Loss or decline of native flora, vegetation communities and fauna habitat, with potential secondary impacts on local fauna dependent on these habitats; ■ Potential to impede natural vegetation growth and recovery; ■ Ingestion by or entanglement of fauna (within solid waste such as plastic, for example) potentially leading to injury or death; ■ Attraction of fauna to waste storage/disposal areas, altering foraging behaviour; and ■ Increase in feral/introduced fauna populations due to attraction to waste storage areas.	and irrigation ditches) associated with arable land Low: widely distributed flora and fauna species of LC		
#9 **Air quality impact**			
The construction phase of a project is acknowledged widely as the most significant source of dust (or particulate matter), with increased levels of dust due to vehicles travelling on informal dirt roads and through the creation of bare surfaces where vegetation clearing and bulk earthworks take place. Importantly, dust is more predominant in steppe environments and is particularly relevant during the dry season and during particularly windy periods. Specifically, the main sources of dust emissions are likely to include the clearing of land and site preparation, earth moving activities, cement production/handling, wind erosion of stockpiles, vehicle movement on dirt roads. The generation of dust may result in the following potential biodiversity impacts: ■ Reduction in plant health by smothering of vegetation, especially plant parts such as leaves required for photosynthesis and respiration; ■ Loss of vegetation and habitat damage, that may also extend to indirectly impact fauna reliant on these structures (faunal impacts likely to be limited); ■ Indirectly, dust suppression activities (such as water spraying) can also lead to the depletion of local water resources and impact on aquatic ecosystems, habitats and vegetation communities (as well as fauna); overspray or runoff of saline water if used for dust suppression that can affect vegetation; increase in nutrient loading, affecting vegetation community composition and structure; and increase potential for invasive species/weed growth on disturbed ground or areas affected by nutrient loading. Combustion emissions may occur from all transport vehicles accessing the site, whether it be the transportation and operation of construction vehicles, or regular movement of goods and services and site personnel. The release of greenhouse gases (GHG) is widely known to contribute incrementally to global warming, the potential generation of acid rains that can affect habitats, flora and fauna and lead to a localized reduction in air quality. These are complicated processes and interactions, with many different	Critical: salt marsh habitat adjacent to the development site qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna that qualify as PBF Low: modified aquatic habitat on the development site (artificial canals and irrigation ditches) associated with arable land Low: widely distributed flora and fauna species of LC	Small	Low-Medium

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[6]	Impact Magnitude	Impact Significance (pre-mitigation)
interactions, pathways and influencing factors which have not been considered in further detail here. *The reader is referred to the section of the impact assessment that covers 'GHG emissions' for further information*.			
#10 **Impact on Protected Areas and Internationally Recognized Areas values and objectives**			
Based on impacts 1-9 above, the Project has the potential to affect the habitat types (Pannonic salt steppe/marsh) and species (birds, mammals, herpetofauna) conserved within the Natura 2000 sites and IBA/KBA which the Project overlaps. For the Natura 2000 site 'Câmpia Crișului Alb și Crișului Negru' (SPA), the overlap with the Project is roughly 2.6% of the protected area with a similar overlap expected for the corresponding 'Câmpia Crișurilor KBA/IBA', and for the second Natura 2000 site, 'Nădab - Socodor – Vărșad', the overlap is larger at ~13%. Based on the baseline surveys conducted at the Project area in 2021/22 and 2024/25, of the 66 bird species qualifying and conserved in the Natura 2000 site Câmpia Crișului Alb și Crișului Negru, 38 were observed in the field (~58% of species), and of the 16 brid species qualifying for the Câmpia Crișurilor IBA, 14 were observed at the site (~88% of species). For the second Natura 2000 site, Nădab – Socodor, of the 7 qualifying/conserved species, 3 species were observed in the field (~43% of species). There is therefore the potential to impact on the conserved species and conservation objectives of these important areas for biodiversity, and this will be predominantly for birds. The relevant impacts and ratings to habitat and species (above under impacts 1-9) therefore apply in this case also within the context of the high receptor importance value/rating assigned to the Natura 2000 sites/IBA/KBA and the maximum of those impacts has been considered in this case.	Critical: salt marsh habitat adjacent to the development site qualifies as CH and conserved in the Natura 2000 site Nădab – Socodor Medium - High: Birds, mammals, herpetofauna that qualify as PBF and are conserved in the two Natura 2000 sites and IBA	Small to Moderate	High

3.1.2 Operational Phase Impacts

TABLE 9 OPERATIONAL PHASE IMPACTS ON BIODIVERSITY

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[10]	Impact Magnitude	Impact Significance (pre-mitigation)
#1 **Destruction/disturbance of habitat and vegetation**			
This impact is initiated during the construction phase and most relevant at that stage of the Project, with further direct impacts during operations considered unlikely (unless accidental). The impact during construction as described in Table 8 for impact #1 has not been duplicated here, although it is acknowledged that changes to vegetation and habitat structure and species composition can be long-lasting and extend throughout the Project lifetime, especially where vegetation is actively managed to maintain statutory safety requirements and for maintenance access. Indirectly, shading effects due to the installed PV panels can lead to changes in vegetation community composition and structure; however, where these are installed on agricultural/modified lands, natural recovery of the vegetation has been shown in many cases and can lead to an improvement in vegetation condition and habitats supporting increased species diversity in many cases. In terms of associated species impacts that could be negative, raptors are expected to lose some foraging/hunting habitat due to avoidance of the solar park. For these species, the functional loss of habitat may result in abandonment of a territory or of a portion of the territory for resident/breeding species and therefore a 'territory-based approach' was used in the assessment contained in the Biodiversity Action Plan or BAP (TBC, 2025) to determine the residual impact on resident species, migrants and wintering birds in the BAP, based on professional judgement. The outcome of that assessment suggests that some loss of territory for selected PBF bird species (including Long-legged Buzzard, Red-footed Falcon, Saker Falcon and Short-toed Snake Eagle, Short-eared Owl,) but for most species, losses will be balanced by potential gains through conservation measures recommended in the BAP and/or increased prey populations[11]. **Importantly, opportunities for improved management of the habitats on the development site through the BAP measures is likely to result in a positive contribution to biodiversity.** These are discussed further under Chapter 4.	Critical: steppe/salt marsh habitat qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: modified habitat on the development site associated with arable land, widely distributed species of LC	Negligible - Small	Low - Medium
#2 **Degradation of aquatic habitat (wetlands/salt marsh)**			

[10] Note that for biodiversity/ecological receptors, several typically apply for a particular impact category with different importance ratings often assigned, these are listed and the MAXIMUM rating is taken conservatively to inform impact significance.

[11] It is considered likely that prey species density may increase in the Project area as a result of abandoning agriculture and adopting management practices that favour biodiversity and the residual effect of converting large areas of arable land to grassland will translate in an overall improvement in habitat quality (TBC, 2025).

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[10]	Impact Magnitude	Impact Significance (pre-mitigation)
During the operational phase. there is the possibility that altered runoff from hardened surfaces such as access roads, any cement/concrete structures, substations as well as the PV panels themselves could increase flows from the site within the network of drainage channels and result in scouring, leading to possible erosion and sedimentation of the wetlands downstream of the site. Based on the findings of the hydrological/hydraulic study and flood risk assessment done for the Project (Fichtner, 2023), scour risk was modelled (linked to flood depth and peak velocity parameters) and the findings suggests there is no significant risk of scouring attributed to the site. Indeed, the site is very flat and not conducive to soil erosion. Erosion and sedimentation risk is therefore considered to be relatively low.	Critical: salt marsh habitat adjacent to the development site qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF	Negligible - Small	Low - Medium
#3 **Habitat fragmentation**			
This impact is initiated during the construction phase and has been addressed for that stage. The impact is not duplicated here, although it is acknowledged that a reduction in habitat connectivity is a long-term and possibly a permanent effect in many cases, extending past construction and into the operational phase and can be long-lasting throughout the Project lifetime.	*Assessed for the construction phase, not duplicated here.*		
#4 **Species mortalities**			
During the operational phase, regular operating staff and vehicles accessing the site (for monitoring and maintenance activities for example) may encounter wildlife, however this is expected to be infrequent based on limited vehicular activity anticipated during operation. Vehicular collision leading to potential wildlife mortalities are therefore considered a limited risk during operations. Solar panels reflect polarized light which could, at least in theory, be mistaken as surface water by waterbirds in particular and result in possible collisions with panels as they attempt to land, leading to injury and possibly mortality in the worst instance. This is commonly known as the theoretical 'lake effect' in solar projects. Whilst there is some evidence in the literature regarding the possibility of birds colliding with PV panels, the underlying mechanism for this potential impact remains poorly understood, with mortalities linked to solar panels likely to be rare based on available monitoring studies covering the subject, much of which is largely inconclusive. Relatively speaking, greater risks are likely to be posed by other forms of infrastructure such as wind farms, major highways, high-rise buildings with glass windows, utility lines, etc. In addition, whilst the small section of overhead powerline (spanning a total length of ~50 m with only two pylons to be built) may pose a risk of collision or electrocution to larger-bodied and less manoeuvrable waterbirds and raptors frequenting the site, the risk is likely to be minimal for such a small length (the remainder being buried below ground) and where properly designed, insulated and with Bird Flight Diverters (BFDs) installed to align with GIP. For high voltage lines, electrocutions risk is considered minimal in any case. There is limited evidence of risks posed by transmission lines to bats (Bennun et al., 2021) and since the bat species recorded are small insectivorous species, bat collisions with the transmission lines and possible electrocution risks are considered insignificant for this project. Underground cables and associated electrical infrastructure can pose a possible electrocution risk to small subterranean mammal species that burrow below ground. An example for the Project is the endangered European Ground Squirrel, *Spermophilus citellus,* which is a species of conservation importance known to the drier steppic	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: widely distributed species of LC	Small	Low-Medium

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[10]	Impact Magnitude	Impact Significance (pre-mitigation)
habitats in the area and which may be affected by the high-voltage underground transmission line planned through steppe/grassland/pasture habitats.			
#5 **Disturbance of wildlife (noise, vibration, light)**			
No additional or significant effects on fauna are anticipated during the operational phase, with operational disturbance effects considered insignificant. During the operational phase, no significant permanent sources of artificial light or significant noise are anticipated. Any use of artificial light would be limited to short-term and infrequent maintenance or emergency activities, which are expected to occur rarely and, where feasible, during daylight hours for safety reasons. Maintenance may result in some disturbance; however, this will be of low intensity and short in terms of duration. Whilst aquatic insects can be attracted to the polarised light reflected by solar panels (mistaking the panels for water surfaces), this is not a well-understood impact pathway and may not be particularly relevant to the site given the agricultural context.	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: widely distributed species of LC	Small	Low-Medium
#6 **Barriers to faunal movement**			
The perimeter fence planned for the site will pose a potential impact on species as these move between territories for resting, breeding and foraging/hunting. This will be particularly relevant to low-flying birds as well as ground mammals and herpetofauna which can have their movement restricted or even become trapped behind fences. This will ultimately depend on the fencing design, with options for semi-permeable fencing that could be considered.	Medium - High: Birds, mammals, bats, herpetofauna, invertebrates that qualify as PBF Low: widely distributed species of LC	Small	Low-Medium
#7 **Invasive Alien Species introductions/spread**			
Whilst initiated during construction and dealt with at that phase, the introduction of IAS during the construction phase can last into the operational phase of the project has the potential to have a significant and lasting negative effect on the habitat and plant/animal communities, that can extend well past the construction phase unless controlled. Since the preferred option for maintenance of vegetation within the solar park is sheep grazing, complemented with some manual weeding and vegetation cutting, the operational contribution to spreading IAS of plants is considered minimal.	Critical: adjacent salt steppe/marsh habitat qualifies as CH Low: modified habitat on the development site associated with arable land Low: widely distributed flora species of LC	Small	Low-Medium
#8 **Pollution of soil/water**			
Whilst largely a construction impact, this impact may be relevant to maintenance activities, but these are likely to be limited, with insignificant quantities of fuel, oil, etc. likely to be stored and handled during the operational phase, limiting risk of significant spills and impact.	Critical: salt marsh habitat adjacent to the development site qualifies as CH	Negligible	Insignificant

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[10]	Impact Magnitude	Impact Significance (pre-mitigation)
	Medium - High: Birds, mammals, bats, herpetofauna that qualify as PBF Low: modified aquatic habitat on the development site (artificial canals and irrigation ditches) associated with arable land Low: widely distributed flora and fauna species of LC		
#9 **Air quality impact**			
Unlikely to be present a significant impact given infrequent vehicle access to the site during operations. Most relevant to the construction phase.	Critical: salt marsh habitat adjacent to the development site qualifies as CH Medium - High: Birds, mammals, bats, herpetofauna that qualify as PBF Low: modified aquatic habitat on the development site (artificial canals and irrigation ditches) associated with arable land Low: widely distributed flora and fauna species of LC	Negligible	Insignificant
#10 **Impact on Protected Areas and Internationally Recognized Areas values and objectives**			
See the main description under impact #10 for the construction phase, which is not duplicated here. In short, impacts 1-9 above have the potential to impact on the conserved species and conservation objectives of these important areas for biodiversity. In terms of species-level impacts, the approach taken in the BAP (species-based approach for PBF species that qualify for the Natura 2000 sites/KBA/IBA) is of relevance (TBC, 2025) with the findings suggesting that: ■ no significant impacts to passerines and non-raptor terrestrial bird species are likely; ■ the same is the case for PBF land mammals, bats and herpetofauna;	Critical: salt marsh habitat adjacent to the development site qualifies as CH and conserved in the Natura 2000 site Nădab – Socodor Medium - High: Birds, mammals, herpetofauna that qualify as PBF and are	Small	Medium

Impact Categories and Descriptions	Key Receptor(s) and Importance/Value (link to ratings in Table 4)[10]	Impact Magnitude	Impact Significance (pre-mitigation)
■ impacts on waterbirds are expected as a result of habitat degradation (within an area of waterbird foraging habitat that covers an estimated 21.5 ha of the site).	conserved in the two Natura 2000 sites and IBA		

3.2 Residual Impacts

Taking into consideration the mitigation measures that are presented in Chapter 4, impact significance was revisited as part of the final step towards understanding residual impacts after mitigation has been applied. *Where significant residual effects remain, these typically form the basis for recommendations regarding measures to compensate / offset where these are deemed relevant and/or feasible.*

The results are presented in **Table 10**, with the findings suggesting that for most impact categories, no residual impacts of significance will remain post-mitigation and this considered the following as key measures when re-rating impact magnitude and significance:

- Several precautionary control measures and mitigation to avoid or minimise impacts are specified during construction and operations, aligned with GIP.
- Temporary impacts to nature steppe grassland habitats affected by the development (namely the underground transmission line) will be restored in order to result in no permanent losses in these areas and ensure recovery to pre-development state or better.
- An area of approximately 82.1 ha (comprising CH as salt steppe/marsh habitat) that was planned to be developed has now been avoided through re-design of the layout for the development and this area will be set-aside for conservation and improved management (see the BAP for further details and summary in Chapter 4). This has the potential to contribute to improved habitats and biodiversity Net Gain (NG) or Net Positive impact for the Project, reflected in the 'positive' impact rating for impacts #1 and #10.
- Buffers are proposed to protect adjacent habitats as well as drainage canals/ditches.
- Additional conservation actions are proposed in the BAP for birds and bats specifically.

Considering the set-aside and additional conservation actions and compensation measures outlined in the BAP, no residual impacts are anticipated for the Project, in particular for the most important aspects of biodiversity (being CH and PBF values and species/habitats conserved within the Natra 2000 sites and IBA/KBA), with the overall mitigation strategy aligned with the mitigation hierarchy and designed to achieve at least No Net Loss (NNL) and Net Gain (NG) where possible.

TABLE 10 ASSESSMENT OF RESIDUAL IMPACTS

#	Impact Category	Construction Phase		Operational Phase	
		Pre-mitigation	Post-mitigation (residual)	Pre-mitigation	Post-mitigation (residual
1	Destruction/disturbance of terrestrial habitat and vegetation	High	Low-Medium	Low-Medium	Positive*
2	Degradation of aquatic habitat (wetlands/salt marsh)	Medium	Low-Medium	Low-Medium	Low
3	Habitat fragmentation	Low-Medium	Low	*Assessed for the construction phase, not duplicated here*	
4	Species mortalities	Low-Medium	Low	Low-Medium	Low
5	Disturbance of wildlife (noise, vibration, light)	Low-Medium	Low	Low-Medium	Low
6	Barriers to faunal movement	Low-Medium	Low	Low-Medium	Low
7	Invasive Alien Species introductions/spread	Medium	Low	Low-Medium	Insignificant
8	Pollution of soil/water	Medium	Insignificant	Insignificant	Insignificant
9	Air quality impact	Low-Medium	Low	Insignificant	Insignificant
10	Impact on Protected Areas and Internationally Recognized Areas	High	Low-Medium	Medium	Positive*

4. Impact Mitigation and Management

Impacts mitigation and management measures, aligned with the mitigation hierarchy, are presented for the construction phase (**Table 11**) and operational phase (**Table 12**), for the relevant impact categories assed in Chapter 3.

Mitigation for the decommissioning phase have not been included, and it is recommended that decommissioning impacts and appropriate mitigation be revisited at least one year prior to decommissioning, repowering or other significant changes to the Project, as necessary.

4.1 Construction Phase Mitigation and Management

TABLE 11 RECOMMENDED IMPACT MITIGATION AND MANAGEMENT MEASURES FOR CONSTRUCTION

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
1 Destruction/disturbance of terrestrial habitat and vegetation			
Avoid	Implement activity restrictions and access controls: ▪ Restrict all activities to modified habitats (pasture / agricultural land only) and avoid natural habitats. ▪ Avoid locating permanent infrastructure as well as temporary construction camps and material/equipment laydown areas within or near identified natural or critical habitat (i.e. the semi-natural steppe and salt marsh/wetland habitat), as well as important areas for priority species. ▪ Use existing access roads or upgrade existing roads wherever possible before considering new access road construction. Prohibit travel on unauthorized roads/land to protect existing vegetation and minimise soil inversion. ▪ Avoid vegetation clearing in any riparian areas as per the IFC EHS Guidelines and avoid clearing near drainage canals (keep a distance of 7m from the canals) during the breeding season for amphibians. ▪ Surrounding vegetation and natural steppe and salt marsh habitat must be protected by employing appropriate barrier fencing and/or other forms of demarcations. ▪ Demarcate the construction zone or servitude for the transmission line on a map and on the ground clearly using high visibility tape for instance, to avoid impacting on sensitive areas outside of the permitted construction area. ▪ Develop sensitivity/exclusion maps for sensitive priority species and habitats.	Biodiversity Management Plan (BMP)	Environmental Manager/Officer EPC Contractor
Minimise	Minimise the extent of impact on habitats and vegetation: ▪ Only the vegetation that is absolutely necessary to be removed for construction purposes may be cleared, and where possible cut vegetation to ground level instead of stripping areas entirely. ▪ Properly working machinery must be engaged in the process of land preparation and execution of construction works, and the construction site must be secured in accordance with the conditions of the competent authority in Romania. ▪ Clearing is to be to be carried out in a sequential manner and in a way that directs escaping wildlife away from clearing and into adjacent native vegetation or natural areas on their own without the need for human intervention as far as possible. ▪ Cleared vegetation may be stockpiled in a manner that facilitates re-spreading or salvaging and does not impede vehicle, livestock or wildlife movement. This vegetation may not be buried or burnt on the site. ▪ Where possible, employ manual methods (e.g. hoeing or hand-pulling) to clear the ground of vegetation to limit soil and fauna disturbance, particularly in the vicinity of watercourses such as drainage canals. ▪ Implement relevant construction standards to limit the disturbance and erosion potential for soils, for example scheduling to avoid heavy rainfall periods when practical, mulching to stabilize exposed areas, and re-vegetating areas promptly (see below). ▪ The locations foreseen to be used as borrow sites for materials such as soil, sand, stone/rock/gravel need to be identified in advance to reduce the impact on the biodiversity.	Biodiversity Management Plan (BMP)	Environmental Manager/Officer EPC Contractor
Restore	Restore habitats temporarily disturbed: ▪ Develop and implement a suitable post-construction habitat restoration plan for temporary land take during construction. ▪ Where any area of land disturbed will be returned to agricultural production, no further requirements are recommended beyond soil reinstatement and basic landscaping to return the surface to pre-construction conditions.	Biodiversity Management Plan (BMP) Post-construction Habitat Restoration Plan	Environmental Manager/Officer EPC Contractor

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
	▪ Revegetate areas of temporary-use and lay down areas as soon as reasonably practicable after construction activities are complete. Implement progressive restoration as far as possible. ▪ Separately retain and store topsoil and sub-soil stripped from the construction areas for later use during reinstatement. ▪ Use native and non-invasive species for landscaping and rehabilitation works. ▪ Remove invasive plant species whenever possible and cultivate native plant species. ▪ Use soil, mulch and vegetation debris (that contain natural seed stock) to facilitate natural revegetation of disturbed areas, where reasonably practicable.		External expert biodiversity support where needed
Compensate	▪ Implement the relevant conservation actions and interventions proposed in the Biodiversity Action Plan (BAP), including habitat set-aside and species-specific interventions for birds and bats.	Biodiversity Action Plan (BAP)	Environmental Manager/Officer External expert biodiversity support where needed
2 Degradation of aquatic habitat (wetlands/salt marsh)			
Avoid / Minimise	Limit the potential for erosion and sedimentation: ▪ Implement relevant construction standards to limit the disturbance and erosion potential for soils (e.g. 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' – DEFRA, 2009). ▪ Scheduling of earthworks and intensive construction activities to avoid heavy rainfall periods where practical, mulching to stabilise exposed soils in erosion-prone areas, and re-vegetating areas promptly through a progressive restoration approach. ▪ Measures to prevent erosion from excavated areas and soil stockpiles to be implemented. For example. disturbed fertile topsoil will be covered and protected with vegetation, mulch, or erosion-resistant /wind-proof material ▪ Soil erosion features to be stabilised via backfilling as appropriate. ▪ Ensure that topsoil is returned and used in rehabilitation/habitat restoration as close to the site where it was originally removed (i.e. within 200 m or less) and not transported to and used in another location. ▪ Topsoil stockpiles ae to be located as close as possible to where it is stripped but away from watercourses (wetlands, drainage ditches, artificial canals and any other surface water drainage flow paths). ▪ Topsoil stockpiles are also to be planned away from areas that could be disturbed or re-worked in the near future ▪ Stockpiles of soil will be as low as possible with a maximum height of 3 to 4 m, a maximum batter slope of 1 in 1.5 and shaped to minimise soil erosion (soil dependent).	Biodiversity Management Plan (BMP) Construction Environmental & Social Management Plan (CESMP)	Environmental Manager/Officer EPC Contractor
3 Habitat fragmentation			
The same mitigation under #1 Destruction/disturbance of terrestrial habitat and vegetation) applies in this case as well for habitat fragmentation and has not been duplicated.			
4 Species mortalities			
Avoid	Undertake pre-construction wildlife searches/surveys: ▪ Pre-construction surveys of wildlife to be undertaken with a focus on burrowing mammals (European Ground Squirrel burrows), otter dens and nests of ground nesting birds (such as Eurasian Skylark) and construction activities should be avoided in those locations. Protocol for searches to be detailed in the BMP.	Biodiversity Management Plan (BMP) Construction Environmental & Social Management Plan (CESMP)	Environmental Manager/Officer EPC Contractor
Minimise	Minimise the potential for wildlife collisions through preventative controls: ▪ Use existing access roads or upgrade existing roads wherever possible before considering new access road construction.		External expert biodiversity support where needed

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
	▪ Limit vehicle speed on site for construction vehicles and vehicles accessing the site (set speed limit at 30 km/hr). ▪ Consider installing a speed limit device/VMS to company cars to ensure effect speed control. ▪ Place appropriate limits on the number of vehicle movements to and from the construction site. ▪ Restrict vehicles to the use of only authorized access roads. ▪ Restrict activities to day-time hours where possible when visibility is good and potential fauna collisions with vehicles can be more easily avoided. Where this is not possible, driver awareness training and reduced speed limits on internal roads will be employed. ▪ Illegal activities such as hunting of wildlife or collecting of indigenous plant species are to be discussed with construction workers as part of their inductions and regular training, and such activities are to be prohibited. ▪ Control the influx of people into the Project area.		
5 Disturbance of wildlife (noise, vibration, light)			
Avoid	Schedule timing of construction to minimise impacts on sensitive species: ▪ If European Ground Squirrel burrows are detected within or near the construction site (based on pre-construction wildlife surveys), earthworks near the burrows should be conducted outside this species breeding (March-July) and hibernation periods (late September – early March). If avoiding construction close to burrows is not possible, individuals at risk must be translocated. ▪ Avoid vegetation clearing, road works and panel installation during the breeding period of species that breed on the ground (such as Eurasian Skylark, etc.) – 15 April to 15 July. ▪ Staff and visitors must be warned not to disturb birds, especially during the nesting period where nests occur on the site or surrounds. Place information signs along the road in order to inform people of noise disturbance during working hours. ▪ To protect small, less-mobile species such as reptiles and amphibians, intense construction activity should be avoided in particular seasons in particular areas, for example, avoiding construction near drainage canals (keep a distance of 7m from the canals) during the breeding season to protect priority amphibian species. A good understanding of the seasonal patterns and ecology of sensitive species is required to identify key periods and areas to avoid, therefore, collaboration with biodiversity specialists is required. ▪ To protect bats, avoid intensive construction works in the period from dusk to dawn (in the period April-October), when bat activity is at its highest. During this period, artificial lighting should be restricted only to the construction works zone. Ideally, intensive nighttime work during this period should be avoided as far as possible. Implement avoidance measures near sensitive ecosystems and habitats: ▪ Establish avoidance and exclusion zones around known PBF waterbird and mammal habitats to minimise risk of direct impacts. Implement buffer zones or exclusion areas around important bird nesting or animal foraging sites to minimise disturbance. 200m conservative buffers are recommended as far as possible, especially from European Ground Squirrel burrows and Eurasian Otter dens, where the layout plan allows for this. ▪ Avoid the use of machinery in the vicinity of watercourses (includes the artificial canals/drainage ditches), in accordance with the IFC EHS Guidelines. Instead, use hand removal of vegetation near these areas. Implement preventative controls: ▪ Prevent the establishment of active nests during the primary bird nesting season (spring/summer) on standing plant and temporary facilities and structures by closing opening and vents and checking equipment before operation. ▪ Enforce good behaviour by construction workers, including prohibition of hunting, trapping, fishing and general harassment of wild animals. A site-wide prohibition on illegal activities such as hunting of wildlife or collecting of natural animal/plant species is to be enforced and discussed with construction workers, with	Biodiversity Management Plan (BMP) Construction Environmental & Social Management Plan (CESMP)	Environmental Manager/Officer EPC Contractor External expert biodiversity support where needed

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
	appropriate penalties / disciplinary actions in place for such illegal activities. Forbid personnel from disposing of food scraps into the environment.		
Minimise	Minimise construction noise: ▪ In order to minimise the levels of noise, select equipment with lower sound power levels. Use noise minimizing technology where possible, install acoustic enclosures for equipment casing radiating noise, install vibration isolation for mechanical equipment and limit operation hours for specific pieces of equipment. ▪ Equipment which is not being used must be turned off. ▪ Maintain vehicles and equipment in good working condition. ▪ Monitoring: monthly noise measurement with adequate phonometers, conducted by trained specialists. In accordance with the IFC EHS Guidelines, noise levels on-site should not exceed levels of 70 dBA, or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site. Minimise artificial light impacts through the following controls: ▪ Aim lights away from any adjacent sensitive habitats. ▪ Use directional lighting to reduce light spill and prevent light increases in adjacent sensitive habitats such as bushes and wooded habitats. ▪ Use low intensity lights where possible and use appropriate lighting that minimises ecological and physiological effects on wildlife and also limits attraction of insects e.g. use of long-wavelength (warm white, orange, red and infra-red) light instead of short-wavelength (UV, cool white, blue and green LEDs).		
Compensate	▪ Implement the relevant conservation actions and interventions proposed in the Biodiversity Action Plan (BAP), including habitat set-aside and species-specific interventions for birds and bats.	Biodiversity Action Plan (BAP)	Environmental Manager/Officer External expert biodiversity support where needed
6 Barriers to faunal movement			
Avoid / Minimise	Control species movement through and on the site: ▪ Avoid placing impermeable fences that could interfere with species movement. Use fences with regular passages (e.g. culverts) or larger mesh sizes, and a ground clearance under the fence of at least 10-15 cm for small animals. ▪ Develop protocols for the shepherding of any wild animals found in construction areas where they are unable to exit the construction site by themselves. ▪ Create escape ramps (timber and soil) for animals trapped in excavations. ▪ Undertake periodic checks of excavations. ▪ According to OUG 57/2007, handling of animals is forbidden for species included in annexes of EU Habitats/Birds Directives or protected in Romania (Annexes 4A and 4B of OUG 57/2007). Licenses can be only obtained in advance of animal relocations, specifying species and numbers, which is not possible to anticipate for animals trapped in excavations. In case of doubt, contact a biodiversity expert/ecologist to advise on the protocol to be followed. ▪ Call local vet if the trapped animal is injured. ▪ If any animal carcasses are found within the project area, their carcasses will be promptly removed to prevent the attraction of scavengers. Carcass removal will be done within 48 hours of discovery to prevent creating an attraction point for other animals and to reduce the risk of disease transmission.	Biodiversity Management Plan (BMP)	Environmental Manager/Officer EPC Contractor External expert biodiversity support where needed
7 Invasive Alien Species introductions/spread			

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
Avoid / Minimise	Avoid introductions and control the spread of IAS: ▪ Minimise the need to introduce foreign soils to the site that may carry foreign plant material. ▪ Wash down vehicles before they enter the site on designated areas. ▪ Remove invasive plant species whenever possible. Compile a suitable Invasive Alien Plant (IAP) species control plan and programme to eradicate dense colonies of alien plants and control the spread of minor species and weeds. Alternatively, incorporate relevant measures into the BMP. ▪ Implement an IAP species control plan and monitoring programme. ▪ Monitor IAPs to inform further management actions as required. ▪ Develop standard pest control measures for preventing infestations, and detail these in the BMP.	Biodiversity Management Plan (BMP) IAS Control Plan (if needed)	Environmental Manager/Officer EPC Contractor External expert biodiversity support where needed
8 Pollution of soil/water			
Avoid / Minimise	Prevent / reduce waste and pollution potential: ▪ Use water efficiently to reduce the amount of wastewater generation. In accordance with the IFC EHS Guidelines, identify opportunities to prevent or reduce wastewater pollution through measures such as recycling/reuse, input substitution, or process modification (e.g. change of technology or operating conditions/modes). ▪ When water quality criteria allow, stormwater should be managed as a resource for meeting water needs at the site. ▪ In accordance with the IFC EHS Guidelines, construction personnel should be trained to minimise water consumption for hand washing or showering and to ensure an understanding of water resource and wastewater issues. ▪ Assess compliance of wastewater discharges with the applicable discharge standard. Discharges of process wastewater, sanitary wastewater, wastewater from utility operations or stormwater to surface water should not result in contaminant concentrations in excess of local ambient water quality criteria or, in the absence of local criteria, other sources of ambient water quality. ▪ Implement a Project-specific Construction Waste Management Plan (CWMP). ▪ Pre-define all disposal sites for inert materials (e.g. soils) outside area of natural habitat. ▪ Develop and maintain a hazardous waste inventory to document and track sanitary waste generated and segregated. Sanitary wastewater tanks to be properly maintained and inspected to ensure tanks do not overflow. Engage a licensed waste/wastewater contractor for the periodic removal of septic tanks. ▪ Site inspections to be carried out regularly to ensure that all wastewater generated is properly managed, and no leakages or spill occur. In the event of a spill or overflow, immediate action will be taken in accordance with spill containment procedures and clean up procedures. ▪ Disposing of waste into the environment is prohibited. Waste products to be collected and transported to registered waste facilities only for proper disposal. ▪ Establish a secured designated fuel and chemical storage area, with an impervious cover and sufficient containment volume for the storage of all chemicals. ▪ Restrict refuelling of vehicles or equipment to impermeable hard-standing areas with strict spill controls. Always use drip trays when temporarily storing or handling fuels or when servicing/repairing vehicles on site. Employ best practice measures in handling and storing fuels, oils and chemicals liable to spillage. ▪ Emergency spill kit provision and training and develop procedures for emergency/spill response and for the storage and handling of fuels, construction materials and wastes. ▪ Clean-up any spills immediately. Make sure to have recipients that can collect fuels in case of leaks as well as a minimum of 3 kg of environmentally friendly substances able to absorb fuel and other spills. Inform the relevant authorities as soon as any significant or major spill event takes place. ▪ Remediate any contaminated soils or habitats where spills take place. ▪ Check hoses and valves regularly for leaks and ensure they are turned off and locked when not in use. ▪ Regularly check construction vehicles to identify and repair leaks or damaged fuel/lubricant lines.	Construction Environmental & Social Management Plan (CESMP) Construction Waste Management Plan (CWMP) Biodiversity Management Plan (BMP)	Environmental Manager/Officer EPC Contractor

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
9 Air quality			
Minimise	Reduce dust/air emission potential: ▪ Minimise surface vegetation clearing to minimum required for operations, ▪ Avoiding earthworks during particularly windy periods to reduce wind-blow dust. ▪ Minimise the size of material/spoil storage piles, ▪ Cover soil stockpiles during windy periods with appropriate cover materials. ▪ Restrict unnecessary traffic. ▪ Use a suitable cover/tarp when transporting soil/sand liable by truck that could be liable to spillage or dust pollution. ▪ As dust suppression, apply water or non-toxic chemicals to minimise dust from vehicle movements. ▪ Minimise and strictly regulate the offsite hauling of debris. ▪ Use truck bed covers when hauling materials liable to being blown by the wind. ▪ Use gravel for the access roads where possible. ▪ Planting vegetation where relevant to stabilize and bind bare soils.	Construction Environmental & Social Management Plan (CESMP) Air Quality Management Plan	Environmental Manager/Officer EPC Contractor
10 Impact on Protected Areas and Internationally Recognized Areas			
Addressed through the above measures for impacts 1-9.			

4.2 Operational Phase Mitigation and Management

TABLE 12 RECOMMENDED IMPACT MITIGATION AND MANAGEMENT MEASURES FOR OPERATION

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
1 Destruction/disturbance of terrestrial habitat and vegetation			
Addressed in construction mitigation table (see Table 11).			
2 Degradation of aquatic habitat (wetlands/salt marsh)			
Avoid / Minimise	▪ Develop and implement an operational Storm Water Management Plan (SWMP) as appropriate.	Storm Water Management Plan (SWMP)	Site operator
3 Habitat fragmentation			
Addressed in construction mitigation table (see Table 11).			
4 Species mortalities			
Avoid / Minimise	Reduce the risk of species injuries/mortalities: ▪ Install Bird Flight Diverters (BFDs, such as hanging, balls or spiral diverters) along the ~50m overhead transmission line in the vicinity of natural habitat and in areas where birds are likely to move locally, with spacing according to international good practice guidance (e.g. APLIC, 2012). ▪ Implement safe transmission lines, with insulation and spacing of conductors that eliminate electrocution risk for birds. Allow for a minimum spacing of 1 m between power cables to safeguard bird species from electrocution risk. ▪ In accordance with the IFC EHS Guidelines, electrocutions can be avoided by installing elevated perches, insulating jumper loops, placing obstructive perch deterrents, changing the location of conductors, and/or using raptor hoods.	Biodiversity Management Plan (BMP)	Site operator
5 Disturbance of wildlife (noise, vibration, light)			
Avoid / Minimise	Manage wildlife disturbance during operation: ▪ Staff and visitors must be warned not to disturb birds, especially during the nesting period where nests occur on the site or surrounds. Place information signs along the road in order to inform people of noise disturbance. ▪ Use low intensity operational lights at the site perimeter, substations and offices (as necessary) and where possible and use appropriate lighting that minimises ecological and physiological effects on wildlife and also limits attraction of insects e.g. use of long-wavelength (warm white, orange, red and infra-red) light instead of short-wavelength (UV, cool white, blue and green LEDs). ▪ Consider using an anti-reflective coating and/or texturing (e.g. nano-coatings) for the PV panels to reduce reflection and glint/glare effects.	Biodiversity Management Plan (BMP)	Site operator
Restore (enhance)	▪ Investigate opportunities to conserve, better manage or create suitable alternative habitats or enhancement of existing ones to support displaced species where applicable, e.g. planting native trees/vegetation around site perimeter, creating bird nesting/breeding places or creating green corridors. This will be informed by operational phase monitoring of species as per the Biodiversity Monitoring and Evaluation Program (BMEP) incorporated into the Biodiversity Action Plan (BAP).	Biodiversity Monitoring and Evaluation Program (BMEP) Biodiversity Action Plan (BAP)	Site operator External expert biodiversity support where needed
6 Barriers to faunal movement			

Relevant Step(s) of Mitigation Hierarchy	Recommended mitigation measures	Reference to relevant Plan(s)	Responsible Party / Parties
Avoid / Minimise	▪ Develop an adaptive plan if operational monitoring as part of the BMEP results show that any site fences present a physical barrier to faunal moments, which include the use of mesh or other materials with appropriate spacing to replace old mesh at strategic sections.	Biodiversity Monitoring and Evaluation Program (BMEP) Biodiversity Action Plan (BAP)	Site operator External expert biodiversity support where needed
7 Invasive Alien Species introductions/spread			
Addressed in construction mitigation table (see Table 11).			
8 Pollution of soil/water			
Avoid / Minimise	Prevent pollution: ▪ Vegetation maintenance by means of sheep grazing (conservation grazing), no synthetic fertilizers or pesticides to be used. ▪ Employ dry cleaning and cooling technologies (e.g. using air) to prevent soil and water contamination. Retaining as much vegetation around the solar park as possible may reduce dust and therefore the need for frequent cleaning. ▪ Disposing of waste into the environment is prohibited. Waste products to be collected and transported to registered waste facilities only for proper disposal.	Biodiversity Management Plan (BMP) Biodiversity Action Plan (BAP)	Site operator External expert biodiversity support where needed
9 Air quality			
Addressed in construction mitigation table (see Table 11).			
10 Impact on Protected Areas and Internationally Recognized Areas			
Addressed in construction mitigation table (see Table 11).			

4.3 Addressing Biodiversity NNL and NG Requirements

In alignment with the E&S standards/requirements of the IFC and EBRD, where Projects involve Critical Habitat (CH) and/or Priority Biodiversity Features (PBF), and in particular where these could be potentially negatively impacted, there are certain requirements that need to be followed according to IFC PS6 and EBRD ESR6. This is the case for the Dama Solar Project, where both CH and PBF has been identified during the CHA and the impact assessment in Chapter 3 of this report highlighting potential impacts to these important values.

For CH values, the following apply:

- Consideration of Project alternatives located in habitats of lesser biodiversity value (modified or natural habitats that are not CH) where feasible, aligned with the mitigation hierarchy (avoidance first, then consider minimisation);
- The Project needs to show that it does not lead to measurable adverse impacts on CH values;
- The Project needs to show that it does not lead to a net reduction in the global/regional/national population of any CR/EN species;
- The Project must align with the mitigation hierarchy, with a focus on avoiding and minimizing impacts before considering restoration and offset options;
- The mitigation strategy for the Project must be described in a Biodiversity Action Plan (BAP) and/or Biodiversity Management Plan (BMP) as relevant to Project impacts on CH (where identified);
- The Project must be designed, constructed and implemented/operated to achieve positive conservation outcomes (i.e. Net Gain (NG) / Net Positive Impact in terms of biodiversity) for the relevant CH values;
- A robust, long-term biodiversity monitoring and evaluation program (BMEP) with a focus on CH values must be integrated into the Project's adaptive management program;
- Relevant stakeholders are to be consulted; and
- The Project is to be permitted under applicable environmental laws.

For PBF values, the following apply:

- Consideration of Project alternatives where feasible, aligned with the mitigation hierarchy;
- The Project must implement the mitigation hierarchy to ensure at least No Net Loss (NNL) and preferably Net Gain (NG) of PBFs;
- Relevant stakeholders are to be consulted; and
- The Project is permitted under applicable environmental laws.

Most important is to define the NG and NNL strategy for CH and PBF values, respectively, and demonstrate how the mitigation hierarchy has been followed in terms of avoiding/minimising impacts before considering other compensatory options for example.

4.3.1 Biodiversity Management Plan

To address the general management and mitigation of impacts on biodiversity during the construction phase, a construction-phase Biodiversity Management Plan (BMP) has already been developed for the Project (ERM, 2025). The construction BMP sets out the measures to avoid and minimise impacts during construction, and then to restore affected habitats where necessary.

The BMP will require revision and updating based on the revisions made in February 2026 to the CHA report, baseline and BIA (this document).

4.3.2 Biodiversity Action Plan

A Project-specific Biodiversity Action Plan (BAP) has been developed by The Biodiversity Consultancy (TBC, 2025) that outlines the overall strategy and approach towards meeting NG for CH and at least NNL (preferably NG) for PBF together with a suite of proposed actionable interventions and species conservation actions.

The detail is found in the BAP document; however, a brief summary of the strategy and key actions/interventions proposed has been provided below:

Restoration of temporary habitat impacts

- The only area of natural steppe habitat that will be impacted by the Project (after avoidance measures were integrated into the design) is associated with the underground transmission line planned to the south-west.
- Detailed measures are provided in the BAP for the restoration of these areas post-construction, such that temporary losses will be reversed essentially with time (likely that the habitat in the transmission line easement will return to baseline condition within five years following construction, resulting in no permanent loss). In this way at least NNL will be achieved.

Buffers to protect adjacent habitats

- Infrastructure planned for the perimeter areas of the Project consists primarily of internal roads and fences, and the Project proposes to implement a 7 m internal perimeter buffer from permanent infrastructure. It is unlikely that measurable reductions in habitat quality outside of the Project area will occur and therefore NNL will be achieved for these external habitats based on this measure.

Habitat set-aside

- A habitat set-aside area of approximately 82.1 ha comprised of natural steppe/grassland and salt marsh habitat (in a degraded condition) as well as agricultural land is proposed, in areas where development will not take place (sections of grassland/salt marsh habitat where development was originally planned but will now be avoided in this critical habitat).
- Gains in habitat condition are foreseen as a result of both improved management within the solar park for the previously modified habitats (arable land, amounting to over 1,000 ha) as well a recovery of habitat associated with the planned set-aside (17.33 ha), through conservation actions designed to reduce pressures on the land (i.e. through a more sensitive grazing/biomass reduction regime). The quantum indicates an overall NG of 265.64 Habitat Hectares (extent of habitat factoring in condition).
- These habitat conservation actions will also benefit PBF bird species such as Saker Falcon, Imperial Eagle and other raptors as well as waterbirds, as well as PBF small mammals such as European Ground Squirrel potentially.
- The detailed measures and interventions for the set-aside are contained in the BAP and include establishment, grazing/mowing regime, fencing, water management, enhancement planting of selected species and certain activity exclusions to promote habitat recovery.

Additional conservation actions

- Additional soft conservation actions and compensation measures are recommended for further consideration, with a focus on avifaunal species (birds and bats), that include:
    - the installation of nest boxes for PBF raptor species such as Saker Falcon and Red-footed Falcon;
    - installation of a bat tower;
    - retrofitting of existing powerlines to reduce collision/electrocution risks to birds;
    - expanding the area of the two Natura 2000 sites;
    - protecting and enhancing wetland habitats outside of the Project area;

- research and monitoring of PBF habitats and species;
- biodiversity awareness programme.

Monitoring programme

- The BAP also includes a relatively high-level Biodiversity Monitoring and Evaluation Plan (BMEP) framework that can be used to inform the development of a detailed program for monitoring biodiversity conservation actions and outcomes as part of an adaptive management approach.

The BAP will now require revision and updating based on the revisions made in February 2026 to the CHA report, baseline and BIA (this document). *The update to the CHA in 2026 has identified numerous additional species that also qualify as PBF, it is recommended that the BAP be reviewed and updated to include these additional species and the strategy, approach, actions and interventions refined or revised as necessary to ensure NNL (or NG) can also be achieved practically for these additional species*.

5. References

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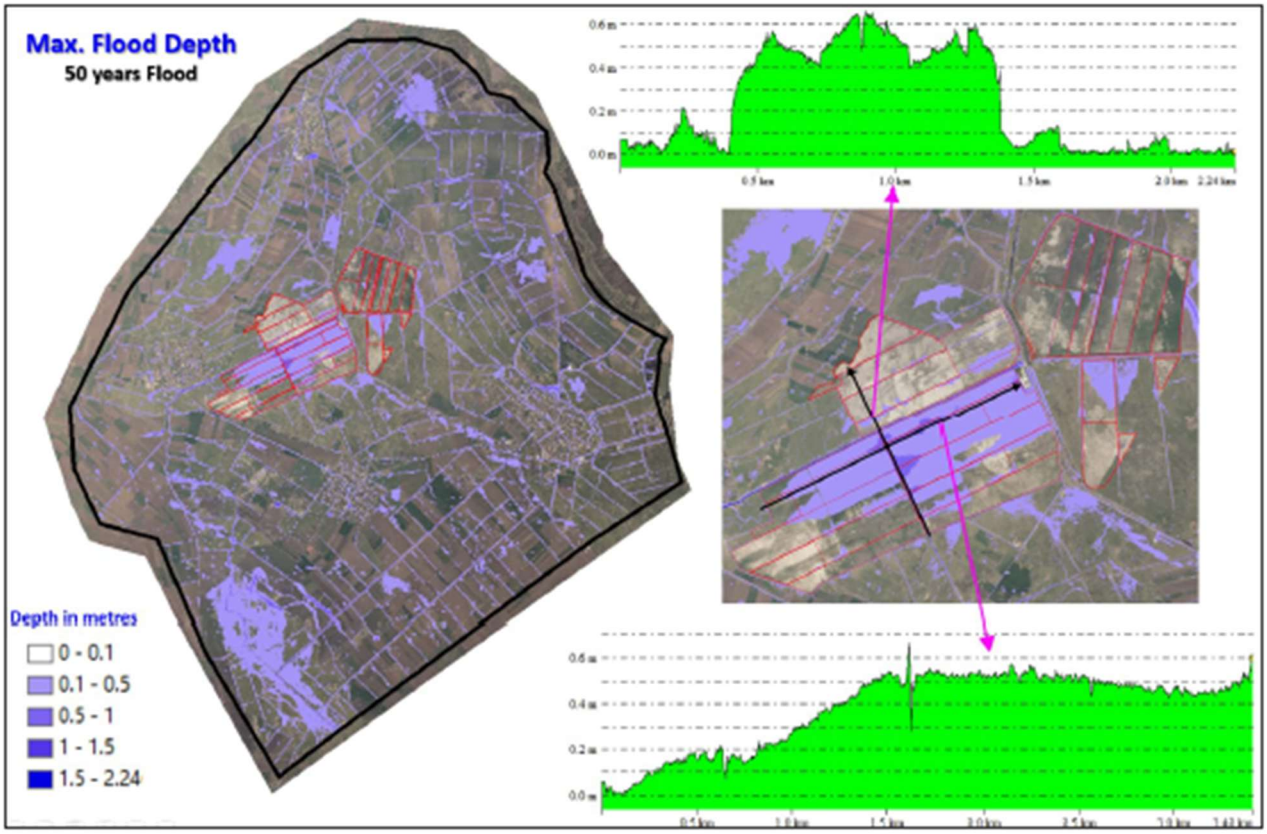
6. Annexures

6.1 Annexure A: Selected Flood Risk Assessment Outputs

FIGURE 2 MAXIMUM FLOOD DEPTH (DEPTH GREATER THAN 10CM) FOR 1: 50 YEAR FLOOD



Plot name	Max. Flood Depth [m]		Flooded Area [ha]			
	*max. in flooded area***	*avg. over flooded area*	*0 - 0.15 m*	*0.15 - 0.5 m*	*0.5 - 0.75 m*	*> 0.75 m*
South-west area below Budieru, left side of Morilor	1.05	0.17	248.6	172.1	15.3	0.0
North-west area above Budieru, left side of Morilor	0.34	0.04	150.7	0.8	0.0	0.0
South-east area below Poganieru, right side of Morilor	0.48	0.07	41.4	8.1	0.0	0.0
North-east area above Poganieru, right side of Morilor	0.41	0.03	197.4	1.2	0.0	0.0

** *Those maximum depths are appeared in the project plots only in a very small area concentrated near/along the existing open channels. The maximum depth in open field of the plots is much lesser than these magnitudes as visible in Figure 16 above*

Information source: Fichtner (2023) Hydrological and Hydraulic Study for Flood-Risk Assessment at Arad-Graniceri PV Site

ANNEX B

Biodiversity Baseline Assessment Report

Dama Solar PV Plant Project, Romania

Prepared by	TLCommunications	**Date**	12 March 2026
		Report reference	TLC-01-2026-RESOLV ENERGY-DAMA-BASELINE
Prepared for	**Error! Reference source not found.**	**Version**	V0.1 Draft

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AUTHOR	Adam Teixeira Leite *Principal Consultant: biodiversity specialist* TL Communications CONSULTING SERVICES
CLIENT	West Power Investments SRL

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SIGNATURE

The report has been developed by Adam Teixeira Leite of TLCommunications, in his capacity as a freelancer and independent environmental consultant and international biodiversity expert.

The reporting and assessment have been undertaken with due care and the utmost professionalism and constitute the author's own work. Where third-party data or information has been used, this has been referenced appropriately.

Adam Teixeira Leite

Company owner / freelancer and Principal Consultant: biodiversity expert

TL Communications CONSULTING SERVICES

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ACRONYMS / ABBREVIATIONS

Acronym/Abbrev.	Full Term (Description)
AoI	Area of Influence
AZE	Alliance for Zero Extinction
BIA	Biodiversity Impact Assessment
CH	Critical Habitat
CHA	Critical Habitat Assessment
CLC	Corine Land Cover
CR	Critically Endangered
DD	Data Deficient
E&S	Environmental and Social
EAAA	Ecologically Appropriate Area of Analysis
EBRD	European Bank for Reconstruction and Development
EEA	European Environmental Agency
EN	Endangered
EoO	Extent of Occurrence

Acronym/Abbrev.	Full Term (Description)
ES	Ecosystem Service
ESIA	Environmental and Social Impact Assessment
ESDD	Environmental and Social Due Diligence
ESR	Environmental and Social Requirement
EU	European Union
EUNIS	European Nature Information System
GBIF	Global Biodiversity Information Facility
GIP	Good International Practice
GN	Guidance Note
Ha	Hectares
IAS	Invasive Alien Species
IAP	Invasive Alien Plant
IBA	Important Bird and Biodiversity Area
IBAT	Integrated Biodiversity Assessment Tool
IFC	International Finance Corporation
IFI	International Finance Institution
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
km	Kilometer
km^2	Square kilometer
kV	Kilo Volt
LC	Least Concern
m	Meter
MW	Mega Watt
N.A.	Not Assessed
n/a	Not applicable
NT	Near Threatened
PA	Protected Area
PBF	Priority Biodiversity Feature
PS	Performance Standard
PV	Photovoltaic
RDL	Red Data List

Acronym/Abbrev.	Full Term (Description)
SCC	Species of Conservation Concern
SCI	Site of Community Importance
SPA	Special Protection Area
UNESCO	United Nations Educational, Scientific and Cultural Organization
VP	Vantage Point
VU	Vulnerable

KEY TERMS

Natural habitat: Natural habitats are 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 (IFC, 2012).

Critical habitat: Critical habitat is typically defined as the most sensitive biodiversity features and the definition varies to a degree depending on that of the relevant International Financial Institution (IFI). Typically, this relates to habitats important for supporting globally/regionally threatened species, endemic and/or restricted-range species, migratory and/or congregatory species, threatened or unique ecosystems/habitats and ecological / evolutionary processes. An example of the definition of the IFC is as follows: *(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* (IFC, 2012).

Priority biodiversity features: This concept replaces the previous definition of natural habitat used previously by EBRD and adopts a criterion-based approach already used for definition of critical habitat. Priority in all EBRD definitions combines consideration of irreplaceability and vulnerability. Priority biodiversity features (PBF) have a high, but not the highest, degree of irreplaceability and/or vulnerability. Although a level below critical habitat in sensitivity, they still require careful consideration during project assessment and impact mitigation (EBRD ESR6, 2024).

Ecosystem services: An ecosystem service is any positive benefit that nature provides to people. These are essentially direct and indirect contributions that natural ecosystems (known as natural capital) provide for human well-being and quality of life. This can be in a practical sense through providing food and water and regulating climate, as well as less tangible cultural aspects such as providing spaces for recreation to reduce stress. What is important to acknowledge is that underpinning all these services is biodiversity (nature).

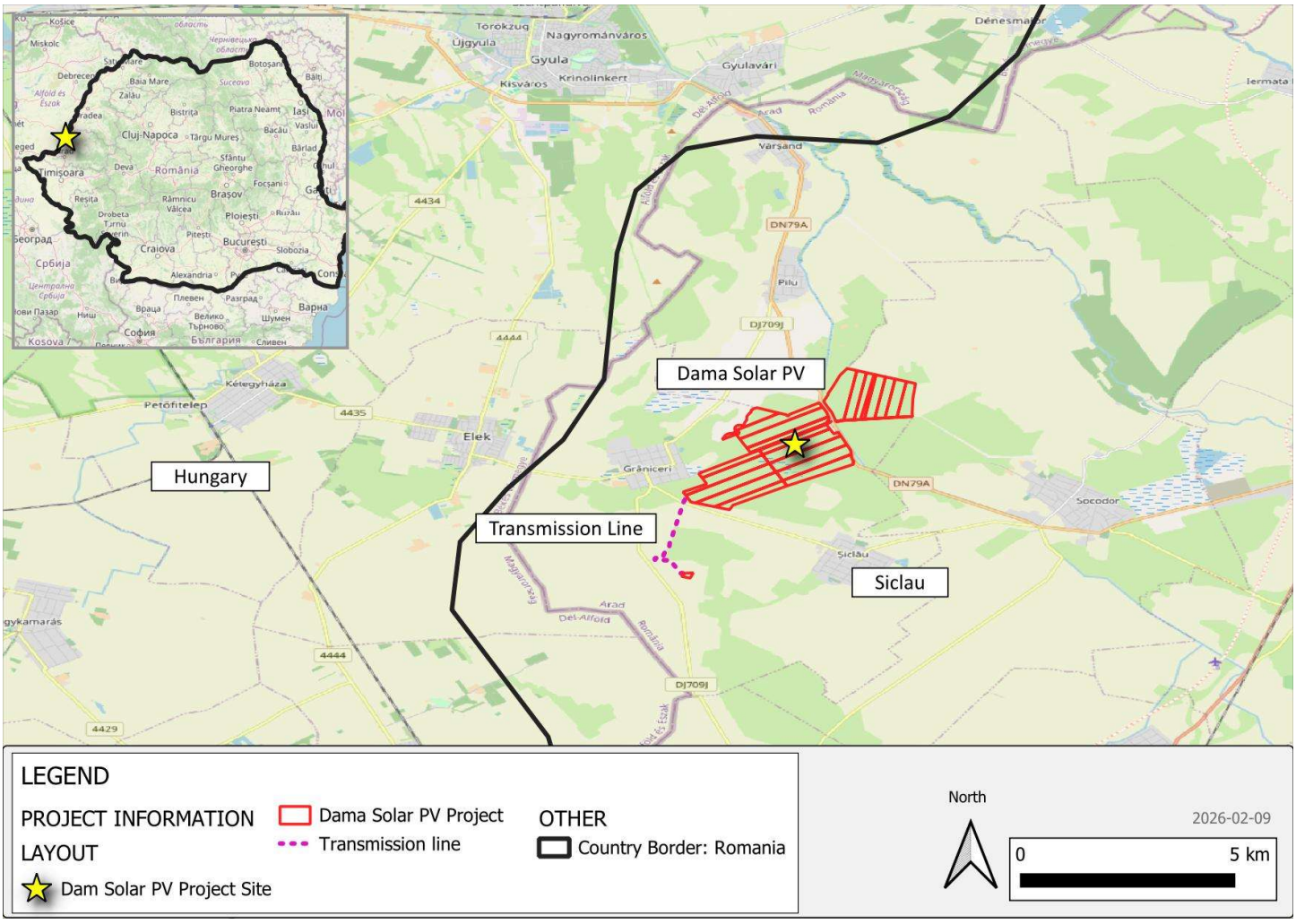
Invasive alien species: An invasive species is an organism (plant or animal) that causes ecological or economic harm in a new environment. Invasive species may be alien or exotic (not native or indigenous to the particular area, geography or region).

1. Introduction

1.1 Background

The 'Dama Solar Photovoltaic (PV) Plant Project is a 1,065 Megawatt (MW) solar PV power plant that is being planned in the western-most part of Romania near the border with Hungary (referred to hereafter as 'the Project'). A locality map showing the solar PV project area (solar panel arrays and underground transmission line to substation) is provided below in **Figure 1**. *Detailed Project information can be found in the relevant section of the main Environmental and Social Impact Assessment (ESIA) report and has not been duplicated here.*

FIGURE 1 PROJECT LOCALITY MAP



Information/data sources: TLCommunications, using Client-provided data and public 'creative commons' / 'free-to-use' GIS datasets, background imagery: Google Earth™ StreetMap™

The Project is seeking finance based on international project finance that includes several prospective lenders represented by the following International Financial Institutions (IFIs):

- The International Finance Corporation (IFC); and
- The European Bank for Reconstruction and Development (EBRD).

The Environmental and Social (E&S) Policy and Standards/Requirements of the EBRD and IFC have been considered as the 'applicable standards' for the Project. *For further information regarding applicable E&S standards, the reader is referred to the relevant chapter of the main ESIA report.*

Special Note on the updated baseline and new report issued:

An updated baseline assessment has been developed for the Project and a new report issued (this document) that now supersedes the previous version developed by Environmental Resources Management (ERM) in 2023, and which has been specifically revisited for the following reasons:

1. In the time between the last iteration of the baseline in 2023, the EBRD released a revised set of ESR as well as an update to Guidance Note regarding ESR 6, which importantly contains revised guidance for biodiversity assessment;
2. The baseline field surveys from 2021-2022 were used to inform the original baseline report of 2023, however follow-up surveys were done in 2024-2025 and this latest data has been used to update the baseline and make this more recent and relevant;
3. The threat status of species according to the IUCN may have changed between the period when the baseline was first issued in 2023 and 2026 (present day) and this has necessitated a review and updates where necessary to the species considered as part of the assessment (indeed numerous species global/EU threat has changed upon review);
4. To reflect the updates to the Critical Habitat Assessment (2026); and
5. To address any other comments/recommendations arising from the Environmental and Social Due Diligence (ESDD) for the ESIA which was completed by external/independent consultants from WSP in January 2026.

1.2 Purpose

This report presents the biodiversity baseline assessment for the Project, aligned with Good International Practice (GIP) and the Project's applicable international standards, which include:

- EBRD Environmental and Social Requirement 6 (ESR 6): *Biodiversity Conservation and Sustainable Management of Living Natural Resources* (EBRD, 2024);
- IFC Performance Standard 6 (PS 6): *Biodiversity Conservation and Sustainable Management of Living Natural Resources* (IFC, 2012).

The purpose of the baseline and report is to provide a synthesis of the information gathered during field surveys and desktop research, to provide an overview of the biodiversity values and in particular components that are of particular conservation interest (such as protected/threatened ecosystems, habitats and species). This information will ultimately be used to inform rating of biodiversity/ecological receptor importance and sensitivity and used during the impact assessment process.

2. Approach and Methods

2.1 Study Area

The 'Study Area' for the baseline was aligned with the direct and indirect Area of Influence (AoI) defined for the Project, as described in further detail in the Biodiversity Impact Assessment (BIA) report (TLCommunications, 2026). A broad study area for the was initially considered for the desktop assessment for species potentially occurring within a 50 km radius buffer zone of the Project (as well as 10 km and 1 km buffers used by IBAT), which is typically what the IBAT assessment and report outputs in a PS 6 report format, indicating species of conservation concern (i.e. threatened species, endemics, migratory species, etc.) that have known/modelled geographical distributional ranges that overlap with this buffer area according to the International Union for Conservation of Nature (IUCN) Red Data List (RDL) for threatened species (https://www.iucnredlist.org). This initial list of species was then subjected to further screening as part of the Critical Habitat Assessment (CHA) - *see the separate CHA Report (TLCommunications, 2026).*

The study area was also determined to include the Protected Areas (PAs) that overlap with the Project area, that includes two legally PAs defined in terms of the Natura 2000 network of sites in Europe (see map in **Figure 2**):

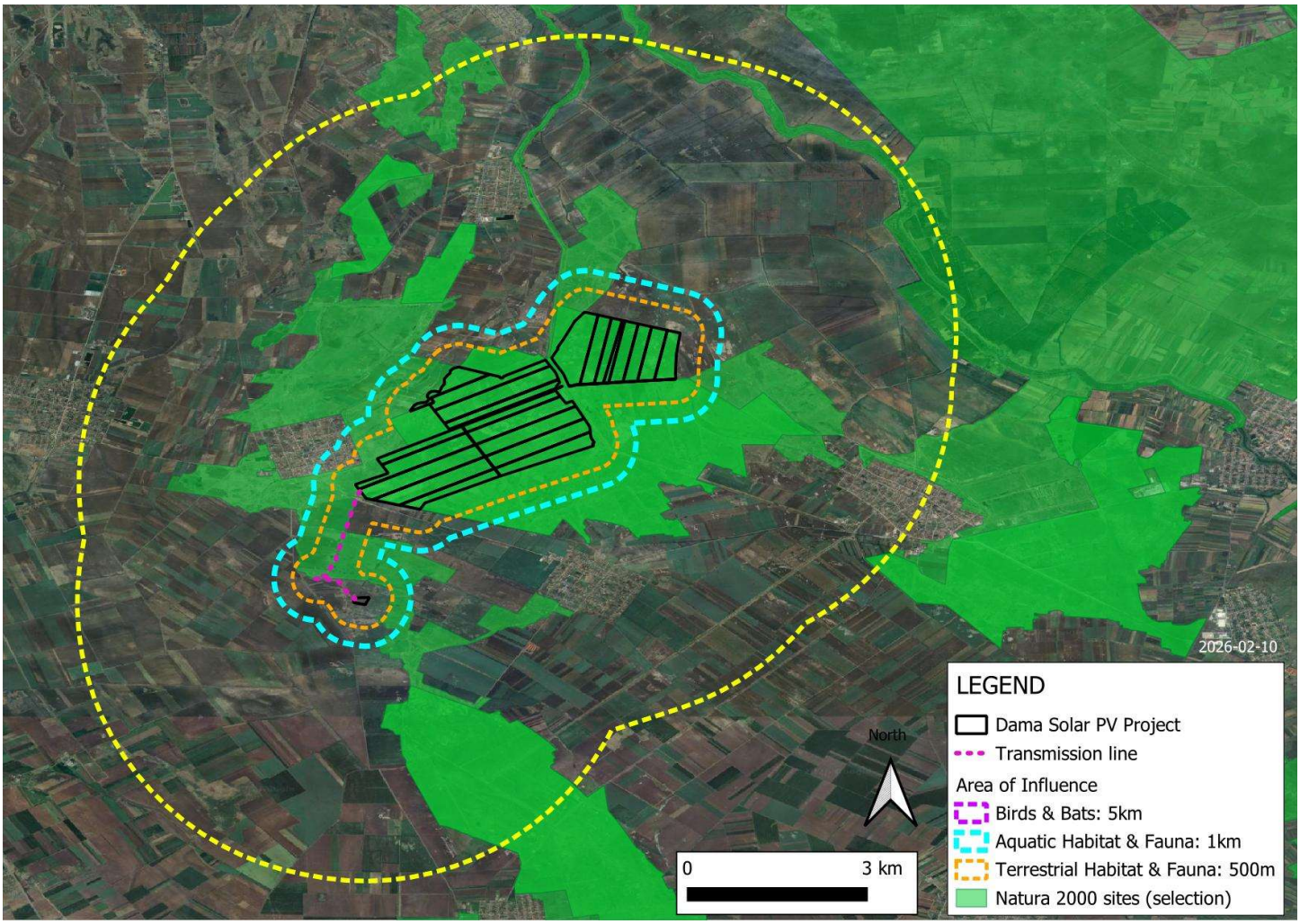
- ROSPA0015 'Câmpia Crișului Alb și Crișului Negru' - Special Protection Area (SPA) and also a KBA/IBA;
- ROSCI0231 'Nădab - Socodor – Vărșad ' - Site of Community Importance (SCI).

The AoI is defined in the Biodiversity Impact Assessment (BIA) prepared for the ESIA, and includes the following (see map in **Figure 2**):

- For **avifauna (birds and bats**), the AoI was defined conservatively to be a **5 km buffer** from the Project layout to account for local movement of highly mobile species of birds and bats moving between breeding/resting areas and foraging/hunting grounds. Protected area, KBA and IBA boundaries overlapping and in proximity to the Project were also included.
- For **terrestrial ecosystems, habitats, flora and fauna species**, the AoI was defined as a **500 m buffer**, given the highly transformed (agricultural) landscape with limited natural habitat, poor connectivity and limited natural habitat continuity, based on the estimated connectivity between remaining natural areas and ecological corridors, most notably those associated with the Natura 2000 protected areas coverage and the mosaic of steppic grassland and salt marsh habitats.
- For **aquatic ecosystems, habitats and species**, the AoI was extended to a **1 km buffer** to account for hydrological connectivity in the landscape and potential downstream impacts from the Project. This included the network of agricultural drains, canals and wetlands/salt marsh habitats in the Project area and those associated with the Natura 2000 site 'Nădab - Socodor – Vărșad'.

As the Project is not located within a known migratory corridor or key flyway for migratory bird species, the study area did not specifically consider broader migratory aspects, including those of large mammals species due to the limited connectivity and absence of species such as carnivores (wolves/bears) and threatened ungulates that typically have large ranges and migrate great distances.

FIGURE 2 MAP SHOWING THE STUDY AREA FOR THE BASELINE ASSESSMENT



Information/data sources: TLCommunications, using Client-provided data and public 'creative commons' / 'free-to-use' GIS datasets, Natura 2000 sites coverage (European Environmental Agency/EAA coverage dated 2024), background imagery: Google Earth™ Satellite™.

2.2 Information and Data Sources

Project-level biodiversity information from surveys conducted by the local expert consulting firm, Wildlife Management Consulting srl, in 2021, with follow-up surveys done in 2024 – 2025 by the same firm, and contained in the following reports:

- Wildlife Management Consulting srl (2025). Final report on the potential impact of the implementation of the "Grăniceri-Pilu Photovoltaic Park" project on biodiversity. Final, June 2025. [Machine Translated using Google Translate™ from Romanian to English).

- Wildlife Management Consulting srl (2021). Final report on the potential impact of the implementation of the "Grăniceri-Pilu Photovoltaic Park" project on biodiversity. Final, July 2021. [Machine Translated using Google Translate™ from Romanian to English).

In addition, desktop-assessment to supplement the field surveys included the following sources of information and key datasets:

- IBAT PS6 Report (with species list) – see Appendix A (section 8.1) of the CHA report, unpublished
- IUCN Red List of Threatened Species (online database), online at: https://www.iucnredlist.org/

- Observations/records of threatened species available on the Global Biodiversity information Facility (GBIF) online resource at: https://www.gbif.org/occurrence/map?occurrence_status=present
- Invasive alien species (IAS) records for Romania from the GBIF online resource at:
- Information on Natura 2000 sites from the European Environmental Agency (EAA) 'Natura 2000 Webviewer' online resource: https://natura2000.eea.europa.eu/
- Information from the Key Biodiversity Areas (KBA) online resource: https://www.keybiodiversityareas.org/site/factsheet/24357/site
- IBA factsheet information from the BirdLife International online resource: https://datazone.birdlife.org/site/factsheet/24357-c%C3%A2mpia-cri%C5%9Furilor
- Corine Land Cover (CLC) 2018 dataset, online at: https://land.copernicus.eu/en/products/corine-land-cover
- EUNIS (European Nature Information System) Habitat Classification System and Crosswalks (European Environmental Agency, EAA, 2022), online at: https://www.eea.europa.eu/en/datahub/
- Client data on the latest development layout for the Project, unpublished

Finally, the Critical Habitat Assessment (CHA) and corresponding report was a key source of information regarding identified Critical Habitat (CH) and Priority Biodiversity Feature (PBF) values for th Project:

- Critical Habitat Assessment (CHA) Report for Dama Solar PV Project, Romania (TLCommunications, 2026).

2.3 Desktop Assessment

Review of desktop data and information was considered for the overlapping Natura 2000 sites and KBA/IBA, based on available information from the relevant websites and data/fact sheets online (see data/information sources in Section 2.2). Further information was considered pertaining to the ecoregion as context and to understand regional threats to biodiversity.

Furthermore, a strong reliance on available species data from the IUCN sourced through IBAT was used and through the GBIF. This information was considered as part of the screening of species potential occurrence in the study area considered as part of the Critical Habitat Assessment (CHA) and which has not been duplicated in the baseline report.

Based on the IUCN species list returned in the IBAT assessment that could potentially occur within a 50 km range of the Project (based on known/modelled distribution and ranges for species), there are a total of 923 species that could potentially occur. The large majority (796 species) are species of LC globally. This is a massive dataset to screen in terms of CH/PBF, and therefore the approach rapidly refined this species list further based on the 10 km buffer included in the IBAT assessment, which returned a refined list of 319 species that could possibly be present in the study area, including fauna (mammals, herpetofauna, birds, invertebrates, fish and plants/fungi). These species were subject to initial screening (as per the approach in Chapter 2 of the CHA report) which resulted in further refinement of this large dataset and the identification of 'candidate species' that could potentially be present and qualify as CH/PBF based on:

- Possibility of meeting CH/PBF criteria (based on species threat and protection status globally, regionally and nationally)
- Overlapping known/modelled distribution and ranges (geographical and altitudinal)
- Presence of suitable habitat within the study area for supporting key species
- Actual records/observations based on field surveys
- Actual observations/records of threatened from GBIF

The CHA report should be referred to (specifically Chapter 2 for the approach/methods and Chapter 3 for the results) for the desktop species screening undertaken.

2.4 Field Survey Approach and Methods

2.4.1 Biodiversity Components Assessed

The local expert consulting firm, Wildlife Management Consulting srl, was commissioned by the Client to undertake the necessary field surveys for biodiversity to inform the national EIA and permitting process, which covered the following relevant components:

- Habitats and flora
- Birds (general activity, migratory, breeding and wintering species)
- Bats
- Terrestrial mammals
- Herpetofauna (reptiles, amphibians)
- Invertebrates

2.4.2 Survey Schedule

Field surveys were undertaken in 2021-2022, with follow-up/repeat surveys done in 2024-2025 and during the optimal periods for sampling each component of biodiversity studied. The survey schedule is presented in **Table 1** below.

TABLE 1 FIELD SURVEY SCHEDULE

Component of Survey	Timing	Survey period: 2021-2022		Survey period: 2024-2025	
		Months	Field days	Months	Field days
1 Habitats and flora	Spring, summer (growing season)	May – June 2021	Not stated	May – August 2024 (1-2 days each month)	6
2a Birds: migratory	Spring migration	May – April 2021	Not stated	May 2024 – April 2025 (2-3 days per month)	28
2b Birds: breeding	Spring, early summer (breeding)	May – July 2021	Not stated	May – June 2024 (2 days per month)	4
2c Birds: wintering	Winter	November 2021 – February 2022	Not stated	November 2024 – February 2025 (2 days per month)	8
3 Bats	Spring – Autumn	June – October 2024	Not stated	June – October 2024 (1-2 days per month)	9
4 Terrestrial Mammals	Spring, summer, autumn	May 2021 – April 2022	Not stated	May 2024 – April 2025 (1-2 days per month)	24
5 Herpetofauna: amphibians and reptiles	Spring, summer, autumn	May 2021 – April 2022	Not stated	May 2024 – April 2025 (1-2 days each month)	24
6 Invertebrates	Spring, summer	May – August 2021	Not stated	May - August 2024 (1-2 days each month)	6

Information/data sources: Wildlife Management Consulting srl (2021, 2024/25)

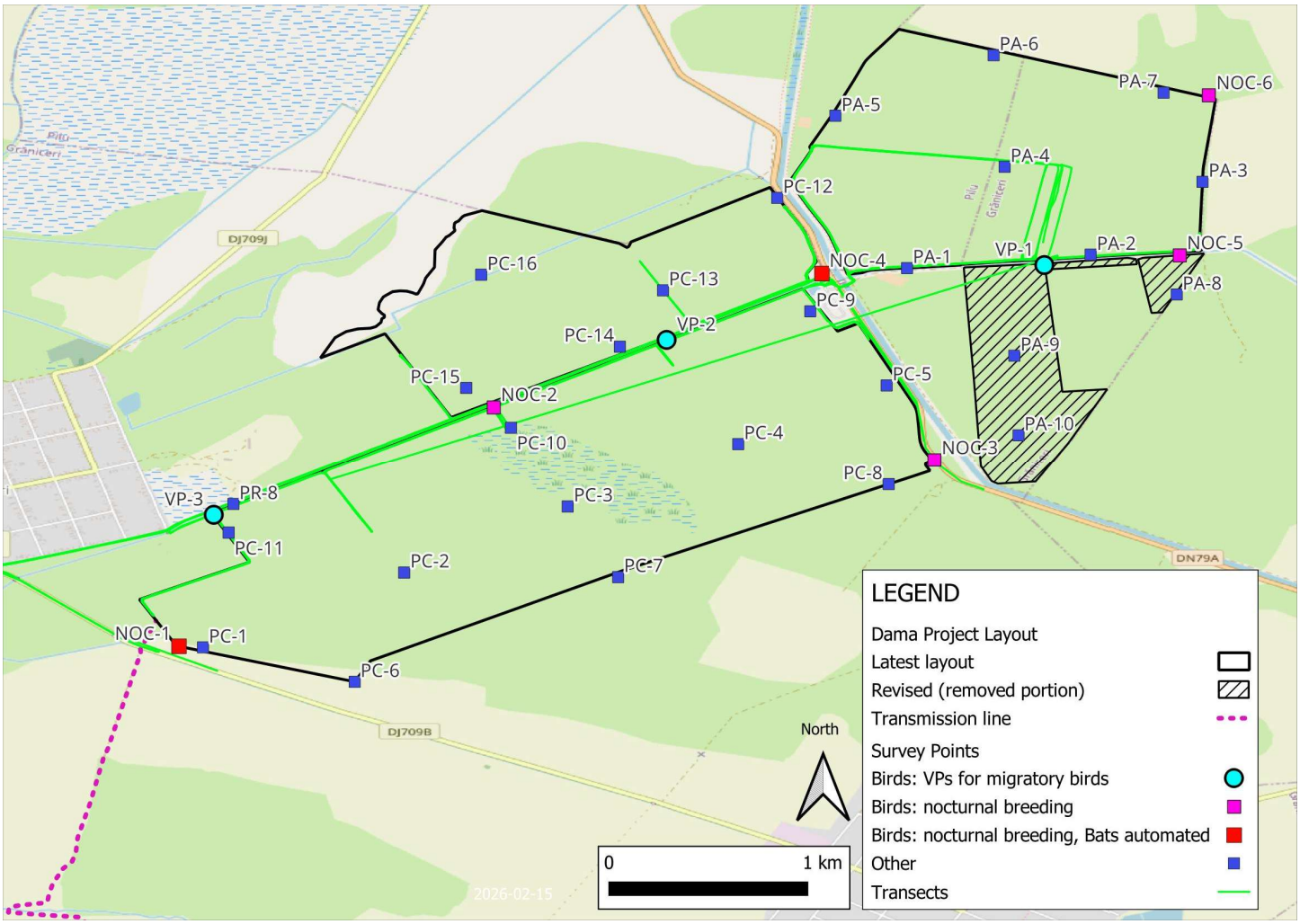
2.4.3 Survey Plan

The survey plan for the Project is shown on the map in **Figure 3**, which indicated:

- the locations of the transects in 'green' for habitat, flora, mammals and herpetofauna surveys as well as breeding and wintering bird sampling;
- general sampling point locations for sampling habitats and flora and passerine breeding bird surveys are indicated by the 'blue' markers;

- the six nocturnal breeding bird surveys (NOC-1 to NOC-6) on the edges of the Project footprint and shown by the 'purple' markers; and
- Vantage Points (VPs) used to survey raptors and migratory birds include the three 'turquoise' marker points (VP1 – VP3) that provide full coverage of the Project area.

FIGURE 3 MAP SHOWING THE BASELINE SURVEYS PLAN FOR THE PROJECT



Source of information/data: Client data provided, Raw data on sampling points/transects from Wildlife Management Consulting srl

Individual baseline survey maps for 2021 and 2024/25 showing the locations of sample points and transects for each individual component studied (e.g. migratory bird survey points) have been included in **Annexure B** (section 5.2) for comparison purposes.

2.4.4 Survey Approach and Methods

The survey approaches and methods for each component of biodiversity are summarized in **Table 2**, with the approach/methods for the 2021 and 2024 surveys indicated.

TABLE 2 FIELD SURVEY APPROACHES AND METHODS USED IN 2021 AND 2024

2021	2024-2025
1 Habitats and flora	
■ To assess habitats and associated vegetation communities and flora species, a botanical survey was undertaken with a combination of transect surveys and point sampling implemented. ■ Transects were aligned to obtain a representative sample of the habitats represented in the study area and randomly chosen plots were selected and surveyed using the phytocoenological survey method (Braun-Blanquet method) using 2standard 5m x 5m (25 m^2) sample plots. A total of 22 individual survey plots were selected for sampling habitats and associated vegetation communities within the development site footprint/layout and adjacent areas, with a focus on the more intact/untransformed semi-natural steppe and salt marsh habitats in the north, west and east ■ The identification of the habitats was achieved by recognizing the phytocenoses that characterize them.	*The same approach and methods for 2021 were used during the 2024 follow-up survey.*
2a Birds: migratory	
■ Fixed Vantage Point (VP) surveys were undertaken to record migratory bird activity in the Project area, with a total of three VPs selected to provide sufficient coverage of the Project layout and adjacent areas of habitat, providing a representative sample of the study area. ■ VP watches were conducted during the migratory season between the hours of 09.00- 18:00 under suitable weather conditions. A minimum of three hours was spent per VP. ■ Data collected included species, counts, activity at site, time spent at site.	*The same approach and methods for 2021 were used during the 2024-25 follow-up survey.*
2b Birds: breeding	
■ Breeding bird surveys were conducted during the appropriate breeding season in Romania and covered passerines (perching birds), raptors and nocturnal species. This involved observing birds (seen or heard) and recording these locations where present. Breeding activity was identified based on direct observation of nests and nesting, but also on indicative behavior (e.g. territorial behavior, courtship displaying and singing, carrying nest material and/or food, calls of hatchlings and their parents). ■ 26 fixed points were selected in the Project area and stratified to provide adequate coverage and a representative sample of the different habitats. These were used to identify nesting passerine and breeding activity. Visual observations from these fixed points conducted in 10 minute intervals. Records of nesting activity were recorded using the mobile application 'ObsMapp', with positions taken using a GPS. ■ For nocturnal species, breeding surveys were undertaken using 20 fixed sample points selected to provide sufficient coverage of the Project area and specifically tailored to habitats where nocturnal species are likely to be nesting/breeding. Observations involved five minutes of monitoring after sunset at each point during suitable weather conditions, with a focus on listening for bird calls, which were recorded to aid in species identification. ■ For breeding raptors, daytime sampling under suitable weather conditions, used a transect approach with 10 fixed monitoring points which were selected in order to provide maximum visibility during the key breeding period from beginning May to mid-July 2021 with active searches lasting 1-3 hours.	*Generally, the same approach and methods for 2021 were used during the 2024 follow-up survey, however 6 points were chosen for surveys of passerine breeding birds (26 in 2021) and 6 points were used for nocturnal bird surveys (20 points in 2021).*

2c Birds: wintering	
■ Wintering bird species presence, activity and abundance was sampled using a visual observation (3 points) and transect survey method during the winter period starting in November 2021 and concluding at the end of February 2022.	*The same approach and methods for 2021 were used during the 2024-25 follow-up survey.*
3 Bats	
■ Bat sampling employed a combination of manual acoustic detection and the installation of fixed/static automatic detectors, which generally aligns with good practice and the recommendations of EUROBATS (Rodrigues et al., 2015). Sampling was done to align with the period of peak activity (spring, summer, autumn) to cover also breeding and migratory seasons. ■ Manual acoustic detection was accomplished through 20 sampling points to provide coverage of the Project area using the Petterson D240x or Petterson M500 expansion detector. 15 minutes were spent per survey point. ■ The static/automated ultrasound detectors were installed at seven locations to provide effective coverage of the Project area, installed at a height of 1-2 m above ground level. These were left to record bat activity overnight. Detectors ensured full coverage of the Project area and the different habitat types (arable land, steppe, salt marsh). ■ Data was analyzed using 'Kaleidoscope Pro version 4.1.4' software to provide species identification and data on activity.	*Generally, the same approach and methods for 2021 were used during the 2024 follow-up survey, however two automatic detectors were installed compared to the seven locations in 2021.*
4 Terrestrial Mammals	
■ To survey terrestrial mammals, a combination of direct visual observations on foot and using drone monitoring and live/camera traps. During investigations on foot, indirect evidence such as animal tracks, calls, scat, scratch marks on trees, tree hollows, roosting sites and feeding sites were recorded. ■ For small mammals, live traps were placed at 300 points considered to provide good refugia within a representative coverage of different habitat types. Live traps were left overnight, and camera traps were established at five different locations also to record nocturnal activity within a sample of representative habitat types.	*The same approach and methods for 2021 were used during the 2024 follow-up survey.*
5 Herpetofauna: amphibians and reptiles	
■ A range of field techniques were used that cover the full diversity of terrestrial and aquatic habitats potentially used by amphibians and reptiles. ■ An inventory was first made of aquatic habitats used by species which were then inspected. ■ Herpetofauna (reptile and amphibian) visual surveys were then undertaken through active searches on foot using several transects to adequately cover the Project area and the various habitat types represented. Species observed within a certain distance on either side of the visual transects were noted. ■ Sampling for amphibians focused on semi-aquatic/wet and mesic habitats where water collects temporarily or seasonally at the site (e.g. salt marsh, temporary pools, irrigation ditches, etc.).	*The same approach and methods for 2021 were used during the 2024 follow-up survey.*
6 Invertebrates	
■ Invertebrate surveys used a transect-based visual assessment approach that covered the full Project area and focused on sampling of representative habitats in proximity to irrigation channels, drainage lines and areas where water had accumulated either temporarily or seasonally. The length of the transects varied depending on the habitat, and transect width was approximately 4 m. ■ Netting was used as a suitable technique to capture insects from dense vegetation for identification and later release back to the wild.	*The same approach and methods for 2021 were used during the 2024 follow-up survey.*

■ A complementary method used was the inspection of micro-habitats for soil species, where appropriate. ■ For the identification of specific species such as the butterfly *Zerynthia Polyxena* (Southern Festoon), clusters of the known herbaceous host plant for this species (*Aristolochia clematitis*, European birthwort) were identified and analyzed for the presence of eggs and larvae.	

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

Note on additional habitat surveys done in 2024 to inform the CHA: The local Romania consulting firm, Wilderness Research and Consultancy, conducted a follow-up survey of the site in September 2024 to field verify the location and boundaries of habitat in the Project area and surrounds that potentially qualifies as CH (Pannonic salt steppes and salt marshes type). A combination of visual assessment, drone surveys and vegetation sample plots that considered vegetation structure and composition were used to validate the habitat types. The findings of this survey and supplementary assessment are contained in the report by Wilderness Research and Consultancy and ERM (2024) which is included as **Appendix B** (section 8.2) of the CHA report (TLCommunications, 2026), which confirmed the location and extent of Pannonic salt steppes and salt marshes (CH) and resulted in a refined and detailed mapping of these areas in relation to the Project layout. This was ultimately used to revise the development boundary to avoid locating infrastructure and activities within these areas of critical habitat.

2.5 Assumptions, Limitations and Data Gaps

The following main assumptions, limitations and data constraints have been identified for the baseline surveys and monitoring undertaken and should be considered when interpreting the findings and conclusions of the biodiversity baseline data and information presented in this report:

- This report deals exclusively with a defined area and the extent and nature of habitats and fauna of that area.
- Sampling, by its nature, means that not all aspects may be assessed, identified or presented, and therefore the field monitoring results should be considered a 'snap-shot' of the faunal species activity occurring in the sampling area within a certain time period.
- With ecology being dynamic and complex, there may be some aspects that are not fully covered by the survey period;
- Seasonality for example can strongly influence the species of fauna encountered; therefore, all relevant seasons have been included in the survey design and schedule.
- Weather conditions can significantly hamper the monitoring of avifauna (birds and bats), with mist, rain, temperature and wind affecting visibility and bird flight activity as well as bat activity. Weather conditions were generally suitable for sampling, with no rain, good visibility, low-medium wind speeds and optimal temperatures suitable for bird and bat flight.
- Furthermore, it should be noted that GIP generally recommends that data should typically not be older than 2-3 years to inform impact assessment and mitigation for biodiversity (e.g. NatureScot. 2021[1]; Rodriguez et al., 2015[2]; Scottish Natural Heritage, 2017[3]; CIEEM, 2019[4]). Older data may still be valid under certain circumstances, and most

[1] NatureScot (2021). Bats and onshore wind turbines - survey, assessment and mitigation. August 2021.

[2] Rodriguez et al. (2015). EUROBATS No. 6 'Guidelines for consideration of bats in wind farm projects'.

[3] Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. Version 2. April 2017.

[4] CIEEM (2019). Advice note on the lifespan of ecological reports and surveys. April 2019. Online at: https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf

guidance suggests no fixed period of baseline data validity but rather recommends that additional surveys may be needed under the following circumstances:

- when prolonged unusual or inclement weather is considered likely to have significantly influenced bat activity during the surveys undertaken;
- where land management changes have taken place since the survey and these are considered likely to significantly influence bat activity;
- at large sites where there is increased potential for high variability in the pattern of bat activity and it is not practical to undertake the minimum level of recommended survey (below) in one active season; and
- at sites considered likely a priority to be important to local populations, e.g. close to areas designated as SSI and/or SAC for their bat interest.

Given the site context (agricultural land that has remained as such land use for decades), it is unlikely that site conditions will be restrictive on the baseline data that can be used to inform the ESIA.

Ultimately, since repeat surveys were done in 2024-25, the dataset remains valid to inform impact assessment.

3. Baseline Results

3.1 Ecoregion and Threats

The Project area is located in the Aradului Plain (north-western plains of Romania) with the 'Pannonian Mixed Forests' ecoregion being relevant to the Project and which consists of a large basin that hosts a variety of terrestrial ecosystems that include steppe, grasslands, shrublands, woodlands, broad-leaved forests and aquatic ecosystems that include river and stream networks, inland lakes and wetland ecosystems. Forest-steppe habitats and temperate forest types dominate the region naturally; however, a legacy of centuries of anthropogenic activity linked to forestry, agricultural activities and livestock grazing/animal husbandry as well as development of infrastructure has led to the loss of original forest and grassland areas and habitat fragmentation at a large-scale. This has led to a significant impact on terrestrial and aquatic species, with the loss of land mammals being particularly noteworthy.

Despite these anthropogenic influences, the region maintains a significant avifauna species diversity and hosts several Important Bird and Biodiversity Areas (IBAs) apart from the network of established legally Protected Areas. Several threatened species of mammals, reptiles and amphibians are also associated with the ecoregion.

Key threats to biodiversity are based on those described for the ecoregion and for key species in accordance with those in IUCNs Red Data List (online species database) and these include (but are not necessarily limited to):

- Natural habitat loss, degradation and transformation
- Fragmentation of habitats;
- Deforestation
- Conversion of land to arable land through intensification
- Overgrazing of steppe/grasslands;
- Pollution linked to agricultural runoff and commercial/industrial development
- Modification of natural watercourses through regulation, reservoir construction and canalization of rivers;
- Illegal hunting and unsustainable hunting/fishing practices
- Persecution/poisoning of problem wildlife considered 'pests';
- Collision and electrocution of birds linked to utility lines/powerlines and renewable energy project such as wind;
- Invasive/alien species and weeds;
- Wildfires; and
- Climate change in general.

Sources of information:

- https://www.worldwildlife.org/ecoregions/pa0431
- https://www.oneearth.org/ecoregions/pannonian-mixed-forests/

3.2 Protected Areas and Internationally Recognized Areas

3.2.1 Legally Protected Areas

Protected Areas are by *definition areas within a defined geographical space that are recognized, designated and/or managed legally or through other effective means towards the long-term protection/conservation of nature and associated ecosystem services and cultural values*. Various institutes have their own formal definitions, which vary somewhat in the language used, but for all intents and purposes have the same overall meaning and intention[5].

[5] Definitions for protected areas according to various institutions:

In terms of the Project location in relation to legally Protected Areas (PAs), the Project is located within two PAs defined in terms of the Natura 2000 network of sites in Europe[6] (see map in **Figure 4** with summary information on each included below):

- ROSCI0231 'Nădab - Socodor – Vărșad ' - Site of Community Importance (SCI) – Project overlaps with ~13% of the SCI.
- ROSPA0015 'Câmpia Crișului Alb și Crișului Negru' - Special Protection Area (SPA) – Project overlaps with ~2.6% of the SPA.

According to the IBAT PS6 report, other PAs are located a distance of 10 km or more from the Project and beyond the AoI for indirect impacts, therefore these were excluded from further assessment on the basis of unlikely impacts from the Project to these distal areas, with a focus rather on the two overlapping PAs mentioned above.

Nădab - Socodor – Vărșad SCI

The Nădab - Socodor – Vărșad SCI is 7, 802 ha in extent and designated as a Natura 2000 site and protected area under the EU Habitats Directive (EU HD). Salt-tolerant vegetation communities, representative of salt meadows and halophilous Pannonian marshes, are present and which develop in a typical mosaic pattern. Historically, the land was partially modified to facilitate agriculture and now in significant areas the natural vegetation has become reestablished. The site has a management plan in place.

Two qualifying habitats listed in Annex I of the EU HD (protected habitats in Europe) are present and conserved within the SCI as follows:

- Pannonic salt steppes and salt marshes (code 1530*, priority type) – 3,660 ha cover (~50 % of the SCI)
- Alluvial meadows of river valleys of Cnidion dubii (code 6440) – 114 ha cover (~1.5 % of the SCI)

The Natura 2000 site also conserves several species of flora and fauna that qualify as protected species in Europe based on their listing in Annex II of the EU HD, and these include the species listed in **Table 3**. For the Natura 2000 site 'Câmpia Crișului Alb și Crișului Negru' (SPA), the overlap with the Project is roguhyl 2.6% of the protected area

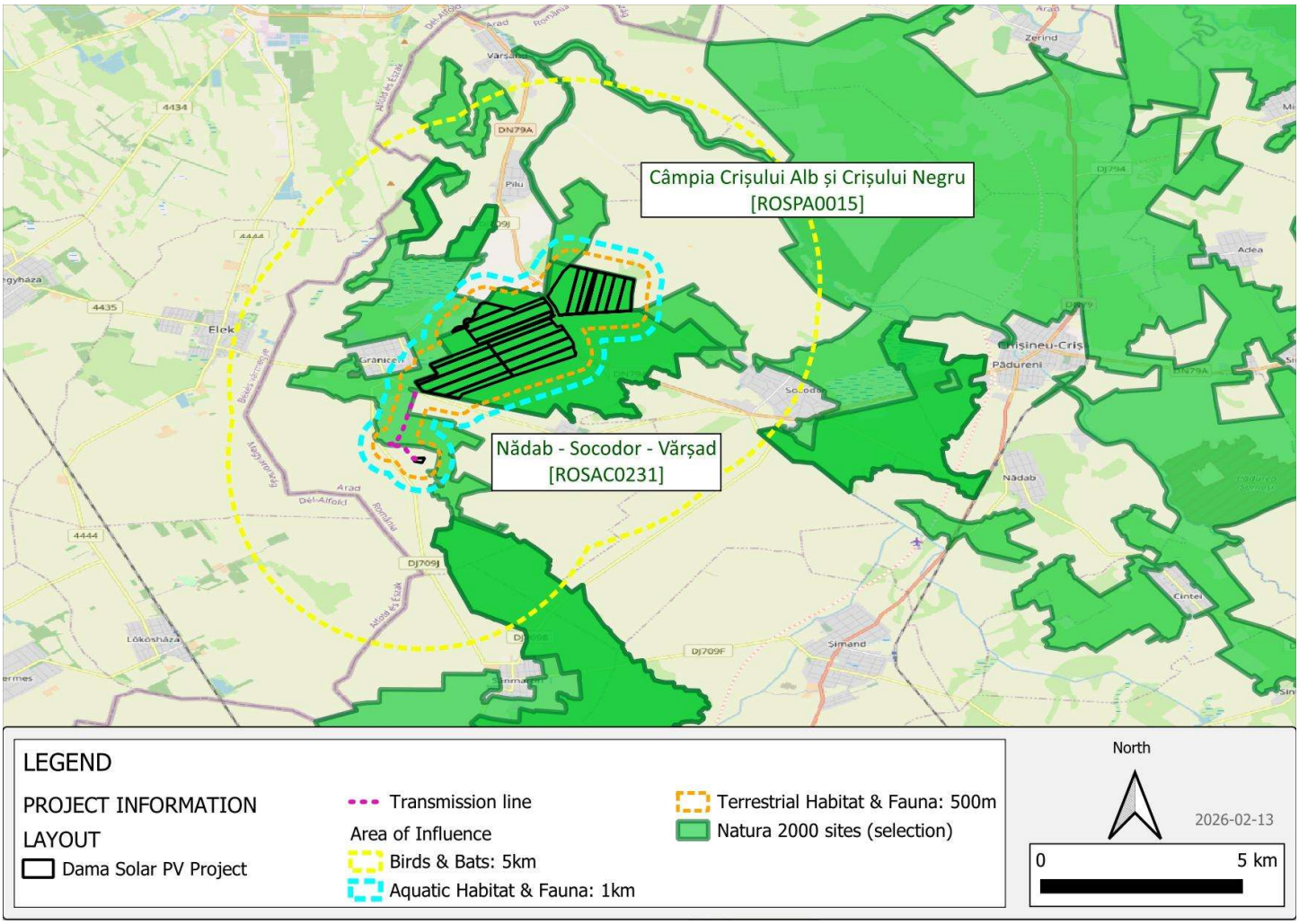
- The IUCN defines a protected area as "a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values".
- Convention on Biological Diversity: "protected area means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives".
- EBRD and IFC both adopt the IUCN definition. This also includes areas proposed by governments for such designation.

[6] Natura 2000 is the largest coordinated network of protected areas in the world and offers a protected landscape for Europe's most valuable and threatened species and habitats listed under the EU Birds Directive), Species Directive and the Habitats Directive (Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora). These typically include core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right (https://ec.europa.eu/environment/nature/natura2000/).

There are several categories of Natura 2000 sites classified:

- Special Areas of Conservation (SACs) are designated under the EU Habitats Directive (HD) for habitats and species listed in Annex I and II of the Directive, to ensure the favourable conservation of each habitat type and species throughout their range. SACs complement special protection areas and together form a network of protected sites across the European Union.
- Special Protection Areas (SPAs) are designated under the EU Birds Directive for the conservation of important bird species that are protected under this directive.

FIGURE 4 NATURA 2000 PROTECTED AREAS IN RELATION TO THE PROJECT



Information/data sources: TLCommunications, using Client-provided data and public 'creative commons' / 'free-to-use' GIS datasets, Natura 2000 sites coverage (European Environmental Agency/EAA coverage dated 2024)

TABLE 3 QUALIFYING PROTECTED SPECIES CONSERVED WITHIN THE NĂDAB - SOCODOR – VĂRȘAD SCI

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL
Herpetofauna: reptiles and amphibians				
Bombina bombina	European fire-bellied toad	LC	LC	VU
Triturus cristatus	Great Crested Newt	LC	LC	VU
Emys orbicularis	European Pond Turtle	NT	NT	VU
Mammals				
Mustela eversmanii	Steppe Polecat	LC	EN	VU
Spermophilus citellus	European Ground Squirrel	EN	EN	VU
Flora				

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL
Cirsium brachycephalum		LC	LC	VU
Marsilea quadrifolia	Water Shamrock	LC	VU	EN

Information/data sources: Natura 2000 webviewer (EEA) and Natura 2000 factsheets/datasheets

Câmpia Crișului Alb și Crișului Negru SPA

The Câmpia Crișului Alb și Crișului Negru SPA is designated as a Natura 2000 site and special protection area for birds in terms of the EU Birds Directive, with a total of 66 bird species conserved that includes breeding, wintering populations and concentrations (**Table 4**). The site is significantly larger than the SCI (above), at 39,158 ha. In terms of land use and habitats represented, the majority (~50 %) consists of improved grassland (pasture) and arable land under cultivation (~33%), with the remaining ~17% of the site comprised of natural habitats including broad-leaved deciduous woodland, water bodies, marshes and dry steppic grassland.

The site is considered one of the most important for waterfowl and forest-steppe bird species in the Tisza Plain. During the migration period, the wetland habitats and ponds typically host between 78,000 – 110,000 waterbirds. Human threats and pressures are considered significant, due to agricultural conversion of pastures, drainage works, hunting and inadequate management of fishponds. The site has a management plan in place.

TABLE 4 QUALIFYING PROTECTED BIRD SPECIES CONSERVED WITHIN THE CÂMPIA CRIȘULUI ALB ȘI CRIȘULUI SPA

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Status
Acrocephalus melanopogon	Moustached Warbler	LC	LC	VU	Breeding
Alcedo atthis	Common Kingfisher	LC	LC	LC	Breeding
Anas acuta	Northern Pintail	LC	VU	LC	Concentration
Anas clypeata	Northern Shoveler	LC	LC	LC	Concentration
Anas crecca	Common Teal	LC	LC	LC	Concentration
Anas penelope	Eurasian Wigeon	LC	LC	LC	Concentration
Anas platyrhynchos	Mallard	LC	LC	LC	Concentration
Anas querquedula	Garganey	LC	LC	LC	Concentration
Anas strepera	Gadwall	LC	LC	LC	Breeding, Concentration
Anser albifrons	Greater White-fronted Goose	LC	LC	LC	Wintering
Anthus campestris	Tawny Pipit	LC	LC	NT	Breeding
Aquila heliaca	Eastern Imperial Eagle	VU	LC	EN	Concentration
Ardea cinerea	Grey Heron	LC	LC	LC	Breeding, Concentration
Ardea purpurea	Purple Heron	LC	LC	LC	Breeding, Concentration
Asio flammeus	Short-eared Owl	LC	LC	VU	Breeding, Wintering
Aythya ferina	Common Pochard	VU	VU	VU	Breeding, Concentration
Aythya nyroca	Ferruginous Duck	NT	LC	EN	Breeding, Concentration
Bucephala clangula	Common Goldeneye	LC	LC	LC	Concentration
Calidris alpina	Dunlin	NT	LC	LC	Concentration

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Status
Calidris pugnax	Ruff	LC	NT	LC	Concentration
Charadrius dubius	Little Ringed Plover	LC	LC	LC	Breeding, Concentration
Chlidonias hybridus	Whiskered Tern	LC	LC	LC	Breeding
Ciconia ciconia	White Stork	LC	LC	LC	Breeding
Ciconia nigra	Black Stork	LC	LC	LC	Breeding, Concentration
Circaetus gallicus	Short-tailed Snake-eagle	LC	LC	VU	Breeding
Circus aeruginosus	Western Marsh-Harrier	LC	LC	LC	Breeding
Circus pygargus	Montagu's Harrier	LC	LC	NT	Breeding
Corvus frugilegus	Rook	LC	VU	LC	Breeding
Crex crex	Corncrake	LC	LC	VU	Breeding
Egretta alba	Great White Egret	LC	LC	LC	Concentration
Egretta garzetta	Little Egret	LC	LC	LC	Breeding
Falco cherrug	Saker Falcon	EN	EN	EN	Concentration
Falco columbarius	Merlin	LC	VU	NT	Wintering
Falco peregrinus	Peregrine Falcon	LC	LC	LC	Wintering
Falco tinnunculus	Common Kestrel	LC	LC	LC	Wintering
Fulica atra	Common Coot	LC	NT	LC	Breeding, Concentration
Gallinago gallinago	Common Snipe	LC	VU	VU	Breeding, Concentration
Gavia arctica	Arctic Loon	LC	LC	NT	Wintering
Gavia stellata	Red-throated Loon	LC	LC	NT	Wintering
Haliaeetus albicilla	White-tailed Sea-eagle	LC	LC	VU	Resident, Wintering
Hieraaetus pennatus	Booted Eagle	LC	LC	EN	Breeding
Himantopus himantopus	Black-winged Stilt	LC	LC	LC	Breeding
Ixobrychus minutus	Common Little Bittern	LC	LC	NT	Breeding
Lanius minor	Lesser Grey Shrike	LC	LC	VU	Breeding
Larus ridibundus	Black-headed Gull	LC	LC	LC	Concentration
Limosa limosa	Black-Tailed Godwit	NT	NT	NT	Breeding, Concentration
Locustella fluviatilis	River Warbler	LC	LC	LC	Breeding
Locustella naevia	Common Grasshopper-warbler	LC	LC	LC	Breeding
Luscinia svecica	Bluethroat	LC	LC	LC	Breeding
Mergus albellus	Smew	LC	LC	LC	Wintering
Mergus merganser	Goosander	LC	LC	LC	Concentration
Milvus migrans	Black Kite	LC	LC	NT	Breeding
Numenius arquata	Eurasian Curlew	NT	NT	NT	Concentration
Numenius phaeopus	Whimbrel	LC	LC	LC	Concentration
Nycticorax nycticorax	Black-crowned Night-heron	LC	LC	LC	Breeding
Pandion haliaetus	Osprey	LC	LC	NT	Concentration
Platalea leucorodia	Eurasian Spoonbill	LC	LC	LC	Breeding, Concentration
Pluvialis apricaria	Eurasian Golder Plover	LC	LC	LC	Concentration
Podiceps cristatus	Great Crested Grebe	LC	LC	LC	Breeding, Concentration

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Status
Recurvirostra avosetta	Pied Avocet	LC	LC	LC	Breeding, Concentration
Sterna hirundo	Common Tern	LC	LC	LC	Breeding, Concentration
Sylvia nisoria	Barred Warbler	LC	LC	NT	Breeding
Tachybaptus ruficollis	Little Grebe	LC	LC	LC	Breeding, Concentration
Tringa erythropus	Spotted Redshank	LC	LC	LC	Concentration
Tringa totanus	Common Redshank	LC	VU	LC	Concentration
Vanellus vanellus	Northern Lapwing	NT	VU	NT	Breeding, Concentration

Information/data sources: Natura 2000 webviewer (EEA) and Natura 2000 factsheets/datasheets

3.2.2 Internationally Recognized Areas

In addition to legally protected areas (PAs), IFC PS 6 and EBRD ESR 6 also recognize other 'internationally recognized areas' of biodiversity value, which is typically where the international standards differ from the National legislation in Romania and European directives. Other internationally recognized areas are exclusively defined as including but not limited to UNESCO Natural World Heritage Sites, UNESCO Man-and-Biosphere Reserves, Key Biodiversity Areas (KBAs) including Important Bird and Biodiversity Areas (IBAs), Alliance for Zero Extinction (AZE) sites and wetlands designated under the Ramsar Convention on Wetlands of International Importance (EBRD, 2024).

Notably, Alliance for Zero Extinction (AZE) and UNESCO natural world heritage sites are NOT associated with the Project, with the nearest being the 'Roșia Montană Mining Landscape' which is located roughly 140 km east of the Project. The nearest Ramsar site is 'Biharugra Fishponds' located about 45 km to the north across the Hungarian border.

The Project is located within a regional KBA[7] which is also identified as an IBA[8], that being 'Câmpia Crişurilor' (see map in **Figure 5**).. *Importantly, this is a legacy site that qualifies as being of international significance based on previously established criteria and thresholds for IBA identification and which does not meet the revised global KBA criteria and thresholds set out in the KBA Global Standard based on the data available (several bird species triggering IBA qualification that includes passerines, waterbirds and raptors*). The KBA is ~422 km^2 in terms of extent (equates to 42,200 ha).

The IBA has the same name and boundary as the KBA, with ~72 % being covered by the protected area coverage of Natura 2000 in terms of the Câmpia Crișului Alb și Crișului Negru SPA. 16 bird species are qualifying species of the sub-regional IBA. Including several breeding birds as well as passage migrants and many are the same species that qualify the Natura 2000 site in terms of the EU Habitats Directive (see **Table 5**). The Project overlaps with ~2.5% of the IBA/KBA

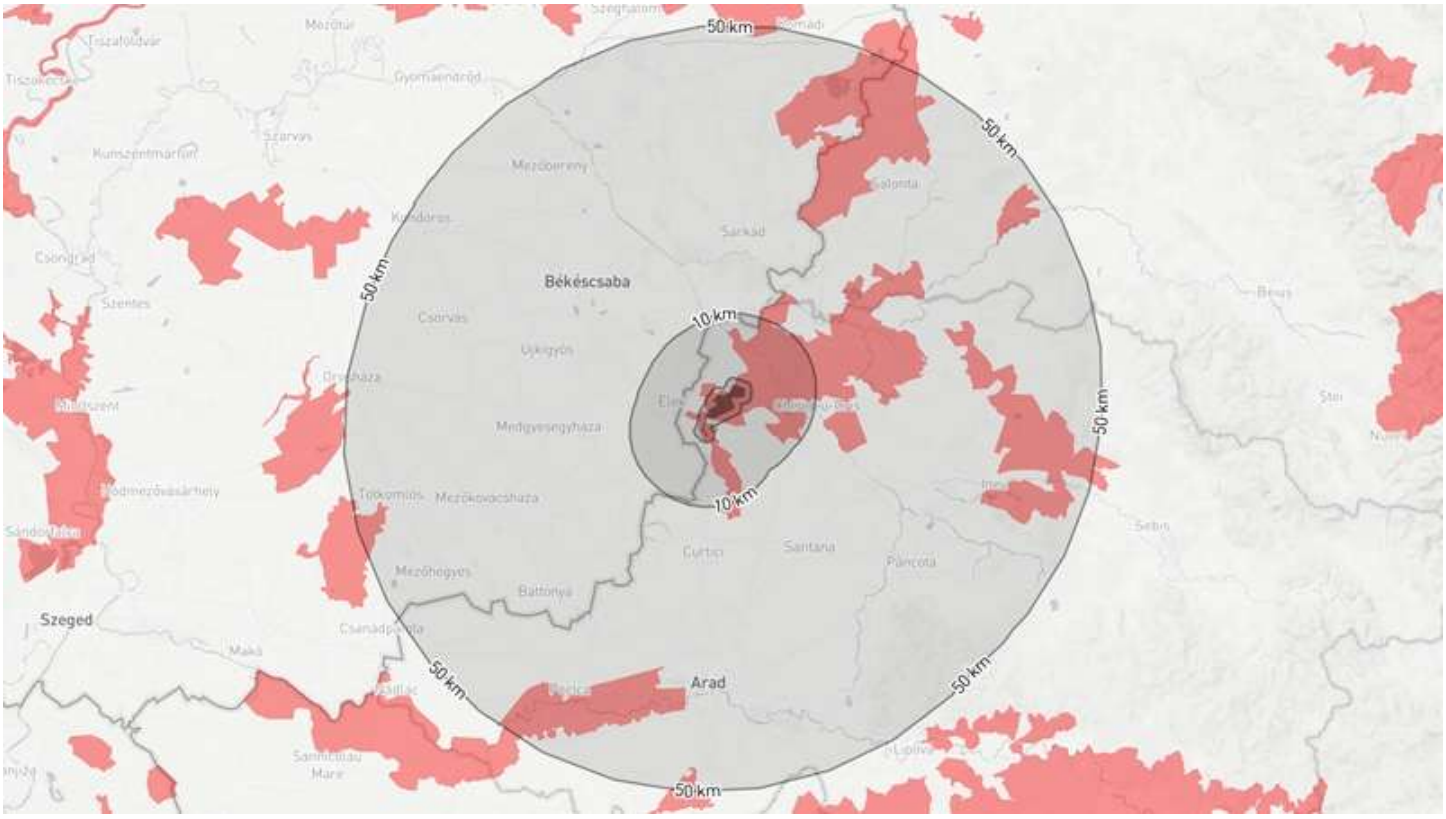
Sources of information:

- https://www.keybiodiversityareas.org/site/factsheet/24357/site
- https://datazone.birdlife.org/site/factsheet/24357-c%C3%A2mpia-cri%C5%9Furilor

[7] KBAs are identified in terms of the KBA Progamme and Global Standard of the IUCN and "*include the most important places in the world for species and their habitats*" (https://www.keybiodiversityareas.org). In essence, these are sites that contribute significantly to the global persistence of biodiversity. KBA status is a scientific identification process and therefore unrelated to legal status or governance type, therefore there is no formal or legal protection status afforded to KBAs, although many of these do overlap with legally Protected Areas.

[8] IBAs are key sites for bird conservation identified by BirdLife International, considered broadly as sites of the greatest significant for the conservation of the world's birds and the habitats/wildlife they need to thrive. According to BirdLife International, this network of sites is considered the minimum areas vital to the long-term viability of bird populations across their ranges and throughout their life cycles, and is also important for other forms of wildlife, such that the conservation of IBAs ensures the survival also of many other animals and plants.

FIGURE 5 KEY BIODIVERSITY AREAS IN RELATION TO THE PROJECT



Information/data sources: IBAT PS6 Report for the Project (February 2026)

TABLE 5 QUALIFYING BIRD SPECIES CONSERVED WITHIN THE CÂMPIA CRIŞURILOR IBA

Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Status IBA
Ardea cinerea	Grey Heron	LC	LC	LC	Passage migrant
Ardea purpurea	Purple Heron	LC	LC	LC	Passage migrant
Calidris pugnax	Ruff	LC	NT	LC	Passage migrant
Circus aeruginosus	Western Marsh-Harrier	LC	LC	LC	Breeding
Circus pygargus	Montagu's Harrier	LC	LC	NT	Breeding
Coracias garrulus	European Roller	LC	LC	LC	Breeding
Crex crex	Corncrake	LC	LC	VU	Breeding
Falco vespertinus	Red-footed Falcon	VU	VU	VU	Breeding
Grus grus	Common Crane	LC	LC	LC	Breeding
Lanius minor	Lesser Grey Shrike	LC	LC	VU	Breeding
Larus ridibundus	Black-headed Gull	LC	LC	LC	Passage migrant
Limosa limosa	Black-Tailed Godwit	NT	NT	NT	Passage migrant
Numenius arquata	Eurasian Curlew	NT	NT	NT	Passage migrant
Numenius phaeopus	Whimbrel	LC	LC	LC	Passage migrant
Pluvialis apricaria	Eurasian Golder Plover	LC	LC	LC	Passage migrant
Tringa glareola	Wood Sandpiper	LC	LC	LC	Passage migrant

Information/data sources: BirdLife International IBA Factsheet (https://datazone.birdlife.org)

3.3 Habitats

Land use and habitats in the study area were initially mapped using Corine Land Cover (CLC) data from 2018, which was translated to the comparative EUNIS (European Nature Information System) habitat types and Annex I types (EU Habtiats Directive) using the 'EUNIS habitat classification and cross-walks (tabular data)' published online by the European Environmental Agency (EEA). The CLC types are shown on the map in **Figure 6** and the corresponding EUNIS/Annex I types are listed in **Table 6**.

The land use/habitat mapping shows that much of the study area is considered to be modified under agricultural activity, dominated by heavily modified arable land and patches of untransformed pastures where livestock grazing takes place. Natural forest habitat is notably lacking (apart from some small patches in the east within the broader Natura 2000 site). Wetlands and aquatic ecosystems are represented in the terms of the CLC dataset which is relatively coarse and high-level, with a few watercourses associated with drainage lines, streams and rivers that drain to the north of the Project site.

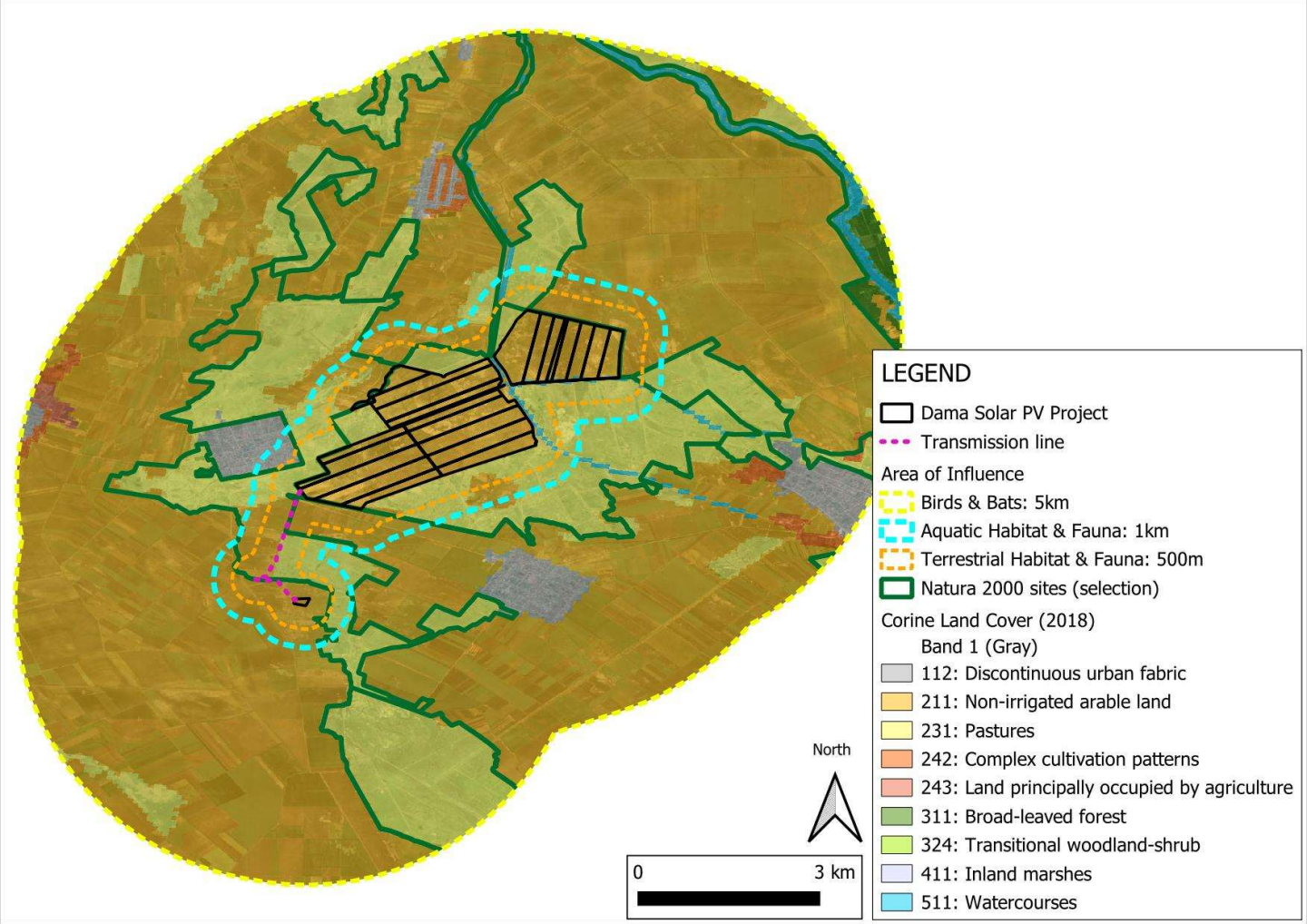
Two Annex I habitat types listed in the EU Habitats Directive (protected habitats) are classified and are qualifying/conserved values for the Natura 2000 site (ROSCI0231: Nădab - Socodor – Vărșad) that overlaps with the Project:

- 1530* Pannonic salt steppes and salt marshes *(priority habitat type), Endangered threat status regionally (Europe)
- 6440 Alluvial meadows of river valleys of the *Cnidion dubii*

The following additional Annex I habitats (EU HD) were identified as potentially occurring:

- 1340 Inland salt meadows
- 1310 Salicornia and other annuals colonizing mud and sand
- 6270 Fennoscandian lowland species-rich dry to mesic grasslands

FIGURE 6 LAND COVER/HABITAT MAP FOR THE STUDY AREA



Information/data sources: TLCommunications, using Client-provided data and public 'creative commons' / 'free-to-use' GIS datasets, Natura 2000 sites coverage (European Environmental Agency/EAA coverage dated 2024), Corine Land Cover (CLC), 2018.

TABLE 6 HABITAT TYPES SCREENING TABLE

Corine Land Cover Class (2018)	Corresponding EU Habitat Type		
	EUNIS habitat class (2021)	EU Red List habitat type with Threat Status (2016)	Annex I habitat type (EU Habitats Directive)
112: Discontinuous urban fabric	n/a	n/a	n/a
211: Non-irrigated arable land	V11: Intensive unmixed crops	n/a	n/a
	V12: Mixed crops of market gardens and horticulture		
	V15: Bare tilled, fallow or recently abandoned arable land		
231: Pastures	R21: Mesic permanent pasture of lowlands and mountains	E2.1a: Mesic permanent pasture of lowlands and mountains (VU)	6270 Fennoscandian lowland species-rich dry to mesic grasslands

Corine Land Cover Class (2018)	Corresponding EU Habitat Type		
	EUNIS habitat class (2021)	EU Red List habitat type with Threat Status (2016)	Annex I habitat type (EU Habitats Directive)
	V34: Trampled xeric grasslands with annuals	n/a	n/a
	V35: Trampled mesophilous grasslands with annuals		
242: Complex cultivation patterns	V21: Large-scale ornamental garden areas	n/a	n/a
	V22: Small-scale ornamental and domestic garden areas		
	V23: Recently abandoned garden areas		
243: Land principally occupied by agriculture with significant natural vegetation	V37: Annual anthropogenic herbaceous vegetation	n/a	n/a
	V38: Dry perennial anthropogenic herbaceous vegetation		
	V39: Mesic perennial anthropogenic herbaceous vegetation		
324: Transitional woodland/shrub	R51 Thermophilous forest fringe of base-rich soils	E5.2a: Thermophilous woodland fringe of base-rich soils (LC)	n/a
	R52 Forest fringe of acidic nutrient-poor soils	E5.2b: Thermophilous woodland fringe of acidic soils (LC)	
	R53 Macaronesian thermophilous forest fring	E5.2c: Macaronesian thermophilous woodland fringe (NT)	
	R57 Herbaceous forest clearing vegetation	n/a	
	V63 Lines of planted trees		
	V64 Small deciduous broadleaved planted other wooded land		
	V65 Small evergreen broadleaved planted other wooded land		
	V66 Small coniferous planted other wooded land		
411: Inland marshes	R63: Temperate inland salt marsh	E6.3: Temperate inland salt marsh (EN)	1340 Inland salt meadows
			1310 Salicornia and other annuals colonizing mud and sand
			1530 * Pannonic salt steppes and salt marshes
511: Watercourses	-	-	6440 Alluvial meadows of river valleys of the Cnidion dubii

Source of data/information: Corine Land Cover Dataset, EU Red List of Terrestrial habitats, EUNIS classification, EU Habitats Directive (Annex I), EUNIS classification and cross-walks (EEA, 2022)

Based on the habitat and botanical surveys completed by Wildlife Management Consulting srl (2021 / 2024), the following findings are of particular relevance:

Modified habitats

- The site was found to be dominated by arable land that was partly cultivated with crops and partly occupied by saline lands that had been plowed but not cultivated. These modified habitats comprise an estimated 284.6 ha (~98 %) and overwhelming majority of the site.
- Sampled plots within the development footprint and immediately adjacent areas were found to be agricultural land (arable land) that were either entirely cultivated, partly cultivated or uncultivated (ploughed/bare) at the time of surveys. These habitats were dominated almost exclusively by two key native species of plants: *Hordeum geniculatum* (Geniculate Barley, LC) and *Puccinela limosa* (n.a.) which are typical indicator species of a disturbance regime with characteristic ruderal habitat typical of cultivated lands and areas subject to livestock grazing such as pastures.
- Some species characteristic of Pannonic salt steppes and salt marshes (code 1530) are present, however due to the level of anthropogenic impact and degradation, the habitats within the development site were not considered to be representative of this important habitat type.
- The area has also been subjected to intensive modification through artificial drainage of the wet areas as a result of drainage canals constricted to lower the water table and efficiently drain water from the site to support dryland farming and grazing. There are no natural rivers/streams, with canalization and straightening of drainage lines having taken place.
- Wooded habitat associated with forest, woodland or shrubland vegetation communities were notably absent from the site, with the exception of a few artificial/planted linear hedgerows in places that also qualify as modified habitat types.

Natural habitats

- Salt-tolerant (halophilic) species were also recorded that are characteristic of salt steppe habitats in the Pannonic region. This suggests that saline wetlands habitats are present, at least within areas adjacent to the cultivated fields on the development site.
- Within the development site, semi-natural (partially modified) habitats include grazing pastures/grasslands for livestock (degraded vegetation cover and condition) and saline wetlands and make up ~4% of the site.
- Based on analysis of satellite imagery, there appear to be a few remnants and highly fragmented patches of secondary and degraded steppe / grassland within the adjacent habitats to the south, west and east of the Project area. Surveys confirmed that, in adjacent areas, wetlands (salt marsh) were identified and some of these areas are characteristic of the Annex I habitat type 'Pannonic salt steppes and salt marshes' (code 1530) which is a priority habitat type conserved within the Natura 2000 site that overlaps the Project area.
- The results of the follow-up survey of habitat by Wilderness Research and Consultancy focused on the unmodified habitats within the Project area and surrounds that could be Pannonic salt steppes and salt marshes type. The findings of this survey and supplementary assessment are contained in the report by Wilderness Research and Consultancy and ERM (2024) which is included as **Appendix B** (section 8.2) of the CHA report, which confirmed the location and extent of Pannonic salt steppes and salt marshes and resulted in a refined and detailed mapping of these areas in relation to the Project layout. This was ultimately used to revise the development boundary to avoid locating infrastructure and activities within these habitats that qualify as 'Critical Habitat' for the Project.

3.4 Flora

Species of flora recorded during field surveys in 2021 and 2024 were all found to be LC species common to Romania and none of these are endemics or species with restricted ranges. No species of conservation interest were recorded.

Typical halophilic species including *Hordeum geniculatum* and *Puccinellia limosa* were observed in the cultivated lands and arable lands, with halophytes dominating the wetland/salt marsh areas adjacent to the Project area, with an example of one of the dominant halophytes being *Bolboschoenus maritimus* (Sea-club Rush, LC), a species belonging to the sedge family (Cyperacea) and which typically grows on the margins of permanent or semi-permanent waters, brackish and salt water lagoons, back mangroves and margins of salt marshes as well as freshwater habitats (according to the IUCN description).

A mosaic of plant communities characteristic of salinized lands was observed, in particular the adjacent areas outside of the cultivated lands occupying the development footprint, which were dominated by the salt-tolerant species, *Festuca pseudovina* and *Hordeum geniculatum*.

The following herbaceous invasive/alien species of plants were documented on the side of the nearby mining road (not within the Project area itself):

- *Amorpha fruticosa,* False Indigo (density: 1-10)
- *Xanthium spinosum,* Spiny Cocklebur (density: over 500)

The supplementary habitat surveys completed by Wilderness Research and Consultancy in September 2024 to inform the CHA [included as **Appendix B** (section 8.2) of the CHA report], generally support the findings of the previous field surveys, documenting plant species typical of Pannonic salt-steppes and salt-marshes habitat that include: *Artemisia santonicum, Aster tripolium, Camphorosma annua, Festuca pseudovina, Puccinellia limosa, Plantago maritima, Trifolium fragiferum, Cynodon dactylon,* and *Hordeum hystrix*.

Furthermore, the following non-characteristic/weed species were recorded in disturbed areas during the surveys by Wilderness Research and Consultancy: *Carduus acanthoides, Cirsium vulgare, Euphorbia cyparissias, Eryngium campestre, Sambucus ebulus, Xanthium spinosum*.

3.5 Fauna

3.5.1 Birds

A combined total of 108 different species of birds were recorded during surveys, which is relatively diverse for an agricultural landscape, with several species that utilize the nearby salt-marsh/steppe habitats and others that are known from the Natura 2000 site and IBA. 71 species were recorded in 2021 and 107 in 2024, also with a greater number of individual birds (34,015) observed in 2021 compared to 2024 (20,474).

The large majority of birds observed were small passerines (perching birds) as well as waterbirds (ducks, swans, geese, cranes) and waders; however, several species of raptors were also recorded. Most are species of LC globally and regionally. See the full species list in **Table 7**.

The most common species based purely on number of individual observations included several waterbirds and migratory species (large flocks, congregations observed) as well as locally common passerines that are typically resident species:

- Greater White-fronted Goose, *Anser albifrons*
- Mallard, *Anas platyrhynchos*
- Common Crane, *Grus grus*
- Northern Lapwing, *Vanellus vanellus*
- Whimbrel, *Numenius phaeopus*
- Eurasian Skylark. *Alauda arvensis*

- Barn Swallow, *Hirundo rustica*
- House Sparrow, *Passer domesticus*
- Eurasian Golder Plover, *Pluvialis apricaria*
- Common Starling, *Sturnus vulgaris*
- Rook, *Corvus frugilegus*

In terms of those species of conservation interest:

- Several are threatened species at global, regional (EU) and/or national levels, namely waterbirds and raptors, with examples being: Eastern Imperial Eagle (*Aquila heliaca),* Red-footed Falcon (*Falco vespertinus),* Merlin (*Falco columbarius)* and Northern Lapwing (*Vanellus vanellus);*
- 32 species observed are qualifying species of the Natura 2000 site, with 12 conserved within the IBA;
- 30 species are protected retionally in terms of their listing in Annex I of the EU Birds Directive.

TABLE 7 BIRD SPECIES LIST WITH GENERAL OBSERVATIONS

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Counts 2021	Counts 2024/25	Natura 2000 qualifying species	KBA/IBA qualifying species	Annex I EU Birds Directive	Resolution 6 of Bern Convention
1	*Accipiter gentilis*	Northern Goshawk	LC	LC	LC	-	1				
2	*Accipiter nisus*	Eurasian Sparrowhawk	LC	LC	LC	1	11				
3	*Acrocephalus arundinaceus*	Great Reed-warbler	LC	LC	LC	14	30				
4	*Acrocephalus palustris*	Marsh Warbler	LC	LC	LC	-	4				
5	*Acrocephalus schoenobaenus*	Sedge Warbler	LC	LC	LC	18	3				
6	*Acrocephalus scirpaceus*	Common Reed-warbler	LC	LC	LC	1	4				
7	*Actitis hypoleucos*	Common Sandpiper	LC	LC	LC	-	3				
8	*Alauda arvensis*	Eurasian Skylark	LC	LC	NT	286	400				
9	*Alcedo atthis*	Common Kingfisher	LC	LC	LC	2	3	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
10	*Anas crecca*	Common Teal	LC	LC	LC	169	13	Natura 2000: Câmpia Crișului Alb			
11	*Anas platyrhynchos*	Mallard	LC	LC	LC	2,445	983	Natura 2000: Câmpia Crișului Alb			
12	*Anser albifrons*	Greater White-fronted Goose	LC	LC	LC	24,591	7,534	Natura 2000: Câmpia Crișului Alb			
13	*Anser anser*	Grelylag Goose	LC	LC	LC	-	126				
14	*Anthus campestris*	Tawny Pipit	LC	LC	NT	33	14	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
15	*Anthus cervinus*	Red-Thorated Pipit	LC	LC	LC	1	10				
16	*Anthus pratensis*	Meadow Pipit	LC	LC	LC	11	137				
17	*Anthus trivialis*	Tree Pipit	LC	LC	LC	-	3				
18	*Aquila heliaca*	Eastern Imperial Eagle	VU	LC	EN	9	2	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
19	*Ardea alba*	Great White Egret	LC	LC	LC	49	60				
20	*Ardea cinerea*	Grey Heron	LC	LC	LC	70	90	Natura 2000: Câmpia Crișului Alb	Yes		
21	*Ardea purpurea*	Purple Heron	LC	LC	LC	11	13	Natura 2000: Câmpia Crișului Alb	Yes	Yes	Revised Annex I of Resolution 6
22	*Ardeola ralloides*	Squacco Heron	LC	LC	NT	-	1			Yes	Revised Annex I of Resolution 6
23	*Athene noctua*	Little Owl	LC	LC	LC	-	1				
24	*Botaurus stellaris*	Eurasian Bittern	LC	LC	VU	1	-			Yes	Revised Annex I of Resolution 6
25	*Buteo buteo*	Eurasian Buzzard	LC	LC	LC	54	59				
26	*Buteo lagopus*	Rough-Legged Buzzard	LC	LC	LC	6	1				
27	*Calidris pugnax*	Ruff	LC	NT	LC	23	341	Natura 2000: Câmpia Crișului Alb	Yes	Yes	Revised Annex I of Resolution 6
28	*Carduelis carduelis*	European Goldfinch	LC	LC	LC	216	223				
29	*Chloris chloris*	European Greenfinch	LC	LC	LC	-	9				

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Counts 2021	Counts 2024/25	Natura 2000 qualifying species	KBA/IBA qualifying species	Annex I EU Birds Directive	Resolution 6 of Bern Convention
30	*Chroicocephalus ridibundus*	Black-headed Gull	LC	LC	LC	106	22				
31	*Ciconia ciconia*	White Stork	LC	LC	LC	6	14	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
32	*Ciconia nigra*	Black Stork	LC	LC	LC	3	3	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
33	*Circus aeruginosus*	Western Marsh-Harrier	LC	LC	LC	40	24	Natura 2000: Câmpia Crișului Alb	Yes	Yes	Revised Annex I of Resolution 6
34	*Circus cyaneus*	Hen Harrier	LC	LC	NT	25	2			Yes	Revised Annex I of Resolution 6
35	*Circus pygargus*	Montagu's Harrier	LC	LC	NT	2	3	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
36	*Coloeus monedula*	Eurasian Jackdaw	LC	LC	LC	-	110				
37	*Columba oenas*	Stock Dove	LC	LC	LC	-	1				
38	*Columba palumbus*	Common Woodpigeon	LC	LC	LC	18	71				Revised Annex I of Resolution 6
39	*Coracias garrulus*	European Roller	LC	LC	LC	-	3		Yes	Yes	Revised Annex I of Resolution 6
40	*Corvus corax*	Common Raven	LC	LC	LC	1	3				
41	*Corvus cornix*	Hooded crow	LC	LC	LC	4	5				
42	*Corvus frugilegus*	Rook	LC	VU	LC	48	579	Natura 2000: Câmpia Crișului Alb			
43	*Coturnix coturnix*	Common Quail	LC	NT	NT	11	16				
44	*Cuculus canorus*	Common Cuckoo	LC	LC	LC	7	8				
45	*Curruca communis*	Common Whitethroat	LC	LC	LC	-	1				
46	*Curruca curruca*	Lesser Whitethroat	LC	LC	LC	-	2				
47	*Cyanistes caeruleus*	Eurasian Blue Tit	LC	LC	LC	-	23				
48	*Cygnus cygnus*	Whooper Swan	LC	LC	N.A.	-	3			Yes	Revised Annex I of Resolution 6
49	*Cygnus olor*	Mute Swan	LC	LC	LC	14	30				
50	*Egretta garzetta*	Little Egret	LC	LC	LC	40	26	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
51	*Emberiza calandra*	Corn Bunting	LC	LC	LC	17	785				
52	*Emberiza citrinella*	Yellowhammer	LC	LC	LC	-	12				
53	*Emberiza schoeniclus*	Reed Bunting	LC	LC	LC	85	96				
54	*Erithacus rubecula*	European Robin	LC	LC	LC	-	2				
55	*Falco columbarius*	Merlin	LC	VU	NT	-	1	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
56	*Falco peregrinus*	Peregrine Falcon	LC	LC	LC	1	2	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
57	*Falco subbuteo*	Eurasian Hobby	LC	LC	LC	-	9				
58	*Falco tinnunculus*	Common Kestrel	LC	LC	LC	82	126	Natura 2000: Câmpia Crișului Alb			
59	*Falco vespertinus*	Red-footed Falcon	VU	VU	VU	5	3		Yes	Yes	Revised Annex I of Resolution 6
60	*Fringilla coelebs*	Common Chaffinch	LC	LC	LC	-	28				

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Counts 2021	Counts 2024/25	Natura 2000 qualifying species	KBA/IBA qualifying species	Annex I EU Birds Directive	Resolution 6 of Bern Convention
61	*Galerida cristata*	Crested Lark	LC	LC	LC	50	116				
62	*Gallinago gallinago*	Common Snipe	LC	VU	VU	25	16	Natura 2000: Câmpia Crișului Alb			
63	*Gallinula chloropus*	Common Moorhen	LC	LC	LC	3	15				
64	*Grus grus*	Common Crane	LC	LC	LC	216	896		Yes	Yes	Revised Annex I of Resolution 6
65	*Haliaeetus albicilla*	White-tailed Sea-eagle	LC	LC	VU	2	3	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
66	*Himantopus himantopus*	Black-winged Stilt	LC	LC	LC	15	4	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
67	*Hirundo rustica*	Barn Swallow	LC	LC	LC	42	568				Revised Annex I of Resolution 6
68	*Ixobrychus minutus*	Common Little Bittern	LC	LC	NT	-	1	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
69	*Lanius collurio*	Burmese Shrike	LC	LC	NT	-	7			Yes	Revised Annex I of Resolution 6
70	*Lanius minor*	Lesser Grey Shrike	LC	LC	VU	-	12	Natura 2000: Câmpia Crișului Alb	Yes	Yes	Revised Annex I of Resolution 6
71	*Limosa limosa*	Black-Tailed Godwit	NT	NT	NT	37	59	Natura 2000: Câmpia Crișului Alb	Yes		
72	*Linaria cannabina*	Common Linnet	LC	LC	LC	-	188				
73	*Locustella luscinioides*	Savi's Warbler	LC	LC	LC	4	1				
74	*Luscinia megarhynchos*	Common Nightingale	LC	LC	LC	-	2				
75	*Merops apiaster*	Eurasian Bee-eater	LC	LC	LC	2	48				
76	*Motacilla alba*	White Wagtail	LC	LC	LC	22	74				
77	*Motacilla flava*	Western Yellow Wagtail	LC	LC	LC	60	125				
78	*Numenius arquata*	Eurasian Curlew	NT	NT	NT	65	3	Natura 2000: Câmpia Crișului Alb	Yes		
79	*Numenius phaeopus*	Whimbrel	LC	LC	LC	-	454	Natura 2000: Câmpia Crișului Alb			
80	*Nycticorax nycticorax*	Black-crowned Night-heron	LC	LC	LC	5	2	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
81	*Oenanthe oenanthe*	Northern Wheatear	LC	LC	LC	12	54				Revised Annex I of Resolution 6
82	*Oriolus oriolus*	Eurasian Golden Oriole	LC	LC	LC	-	1				
83	*Parus major*	Great Tit	LC	LC	LC	-	3				
84	*Passer domesticus*	House Sparrow	LC	LC	LC	10	265				
85	*Passer montanus*	Eurasian Tree Sparrow	LC	LC	LC	42	98				
86	*Pernis apivorus*	Eurasian Honey-buzzard	LC	LC	LC	1	4			Yes	Revised Annex I of Resolution 6
87	*Phasianus colchicus*	Common Pheasant	LC	LC	LC	-	8				
88	*Phoenicurus ochruros*	Black Redstart	LC	LC	LC	3	3				
89	*Phylloscopus collybita*	Common Chiffchaff	LC	LC	LC	-	1				
90	*Phylloscopus trochilus*	Willow Warbler	LC	LC	LC	-	2				
91	*Pica pica*	Eurasian Magpie	LC	LC	LC	42	140				

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Counts 2021	Counts 2024/25	Natura 2000 qualifying species	KBA/IBA qualifying species	Annex I EU Birds Directive	Resolution 6 of Bern Convention
92	*Platalea leucorodia*	Eurasian Spoonbill	LC	LC	LC	48	16	Natura 2000: Câmpia Crișului Alb		Yes	Revised Annex I of Resolution 6
93	*Pluvialis apricaria*	Eurasian Golder Plover	LC	LC	LC	3,186	810	Natura 2000: Câmpia Crișului Alb	Yes	Yes	Revised Annex I of Resolution 6
94	*Porzana porzana*	Spotted Crake	LC	LC	LC	-	1			Yes	Revised Annex I of Resolution 6
95	*Rallus aquaticus*	Western Water Rail	LC	LC	LC	-	5				
96	*Saxicola rubetra*	Whinchat	LC	LC	NT	-	8				
97	*Saxicola rubicola*	European Stonechat	LC	LC	LC	10	37				
98	*Streptopelia decaocto*	Eurasian Collared-dove	LC	LC	LC	24	81				
99	*Sturnus vulgaris*	Common Starling	LC	LC	LC	383	3,496				
100	*Tachybaptus ruficollis*	Little Grebe	LC	LC	LC	5	4	Natura 2000: Câmpia Crișului Alb			
101	*Tringa glareola*	Wood Sandpiper	LC	LC	LC	-	9		Yes		
102	*Tringa nebularia*	Common Greenshank	LC	LC	N.A.	-	5				
103	*Tringa ochropus*	Green Sandpiper	LC	LC	N.A.	-	10				
104	*Tringa totanus*	Common Redshank	LC	VU	LC	5	4	Natura 2000: Câmpia Crișului Alb			
105	*Troglodytes troglodytes*	Northern Wren	LC	LC	LC	1	12			Yes	Revised Annex I of Resolution 6
106	*Turdus pilaris*	Fieldfare	LC	LC	LC	42	1				
107	*Upupa epops*	Commmon Hoopoe	LC	LC	LC	5	14				
108	*Vanellus vanellus*	Northern Lapwing	NT	VU	NT	1122	696	Natura 2000: Câmpia Crișului Alb			
					Total count of species	***71***	***107***	***32***	***12***	***30***	***33***
					Total count of individuals	***34,015***	***20,474***				

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

Migratory birds

Migratory activity was recorded during the spring and autumn migration periods when birds arrive and depart from the Project area. 13 key migratory species were identified during these focused surveys that includes mainly raptors and storks. 75 individuals were observed migratory in 2021, with 57 in 2024. In 2024, surveys revealed a low intensity of migration (weak) compared to other areas in the country, with the average crossings being ~2.5/day and ~3 individuals per day.

Key migratory species are listed in with the bulk of migrations being for Eurasian Buzzard (*Buteo buteo*), Western Marsh-harrier (*Circus aeruginosus*) and Common Kestrel *(Falco tinnunculus*) which are all species of LC.

Raptors of conservation interest such as Eastern Imperial Eagle and Red-footed Falcon were observed in very low numbers (a few individuals only).

TABLE 8 MIGRATORY BIRD SPECIES LIST

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Bird migratory counts 2021	Bird migratory counts 2024
1	*Accipiter nisus*	Eurasian Sparrowhawk	LC	LC	LC	1	-
2	*Aquila heliaca*	Eastern Imperial Eagle	VU	LC	EN	4	-
3	*Buteo buteo*	Eurasian Buzzard	LC	LC	LC	15	13
4	*Ciconia nigra*	Black Stork	LC	LC	LC	3	-
5	*Circus aeruginosus*	Western Marsh-Harrier	LC	LC	LC	19	10
6	*Circus cyaneus*	Hen Harrier	LC	LC	NT	8	1
7	*Circus pygargus*	Montagu's Harrier	LC	LC	NT	2	1
8	*Falco peregrinus*	Peregrine Falcon	LC	LC	LC	1	-
9	*Falco subbuteo*	Eurasian Hobby	LC	LC	LC	-	4
10	*Falco tinnunculus*	Common Kestrel	LC	LC	LC	20	21
11	*Falco vespertinus*	Red-footed Falcon	VU	VU	VU	2	1
12	*Haliaeetus albicilla*	White-tailed Sea-eagle	LC	LC	VU	-	2
13	*Pernis apivorus*	Eurasian Honey-buzzard	LC	LC	LC	-	4
					Total count of species	***10***	***9***
					Total count of individuals	***75***	***57***

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

Breeding birds

A total of 63 species were identified during the breeding bird surveys, with higher species counts during the 2021 surveys (56) compared to 2024 (35), with the number of individuals recorded in 2021 being 1,376 birds (see **Table 9**). Not all species observed were nesting at the site and many were simply using the territory for foraging/hunting and passage. Most are species of LC that are common and widely distributed across Romania.

Based on the 2024 surveys, species with the highest density were Common Starling (2.72 individuals/ha), followed by Eurasian Skylark (2.01 individuals/ha), and Barn Swallow (0.43 individuals/ha).

Species of conservation importance included:

- Red-footed Falcon, *Falco vespertinus*

- Rook, *Corvus frugilegus*
- Northern Lapwing, *Vanellus vanellus*
- Eurasian Curlew, *Numenius arquata*

During the nocturnal breeding bird surveys, no nocturnal and crepuscular bird species were identified.

TABLE 9 BREEDING BIRD SPECIES LIST

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Breeding bird counts 2021	Breeding bird counts 2024
1	*Acrocephalus arundinaceus*	Great Reed-warbler	LC	LC	LC	6	17
2	*Acrocephalus palustris*	Marsh Warbler	LC	LC	LC		3
3	*Acrocephalus schoenobaenus*	Sedge Warbler	LC	LC	LC	8	1
4	*Alauda arvensis*	Eurasian Skylark	LC	LC	NT	186	101
5	*Anas platyrhynchos*	Mallard	LC	LC	LC	25	12
6	*Anas querquedula*	Garganey	LC	LC	LC	5	
7	*Anthus campestris*	Tawny Pipit	LC	LC	NT	32	1
8	*Anthus cervinus*	Red-Thorated Pipit	LC	LC	LC	1	
9	*Anthus pratensis*	Meadow Pipit	LC	LC	LC	4	
10	*Ardea alba*	Great White Egret	LC	LC	LC	8	
11	*Ardea cinerea*	Grey Heron	LC	LC	LC	21	10
12	*Ardea purpurea*	Purple Heron	LC	LC	LC	5	3
13	*Asio otus*	Northern Long-Eared Owl	LC	LC	LC	3	
14	*Botaurus stellaris*	Eurasian Bittern	LC	LC	VU	1	
15	*Buteo buteo*	Eurasian Buzzard	LC	LC	LC	4	2
16	*Carduelis carduelis*	European Goldfinch	LC	LC	LC	17	3
17	*Chlidonias hybrida*	Whiskered Tern	LC	LC	LC	6	
18	*Ciconia ciconia*	White Stork	LC	LC	LC	5	
19	*Circus aeruginosus*	Western Marsh-Harrier	LC	LC	LC	16	1
20	*Columba palumbus*	Common Woodpigeon	LC	LC	LC	14	5
21	*Corvus frugilegus*	Rook	LC	VU	LC	13	15
22	*Corvus monedula*	Eurasian jackdaw	LC	LC	LC	2	
23	*Coturnix coturnix*	Common Quail	LC	NT	NT		6
24	*Cuculus canorus*	Common Cuckoo	LC	LC	LC	5	4
25	*Curruca communis*	Common Whitethroat	LC	LC	LC		1
26	*Curruca curruca*	Lesser Whitethroat	LC	LC	LC		2
27	*Cygnus cygnus*	Whooper Swan	LC	LC	N.A.		3
28	*Egretta garzetta*	Little Egret	LC	LC	LC	16	
29	*Emberiza calandra*	Corn Bunting	LC	LC	LC	5	5
30	*Emberiza schoeniclus*	Reed Bunting	LC	LC	LC	7	
31	*Falco subbuteo*	Eurasian Hobby	LC	LC	LC		1
32	*Falco tinnunculus*	Common Kestrel	LC	LC	LC	22	12
33	*Falco vespertinus*	Red-footed Falcon	VU	VU	VU	3	2
34	*Galerida cristata*	Crested Lark	LC	LC	LC	22	1
35	*Gallinago gallinago*	Common Snipe	LC	VU	VU	4	
36	*Gallinula chloropus*	Common Moorhen	LC	LC	LC	1	

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Breeding bird counts 2021	Breeding bird counts 2024
37	*Himantopus himantopus*	Black-winged Stilt	LC	LC	LC	3	
38	*Hirundo rustica*	Barn Swallow	LC	LC	LC	13	22
39	*Limosa limosa*	Black-Tailed Godwit	NT	NT	NT	1	
40	*Locustella luscinioides*	Savi's Warbler	LC	LC	LC	4	
41	*Luscinia megarhynchos*	Common Nightingale	LC	LC	LC	1	2
42	*Mareca penelope*	Eurasian Wigeon	LC	LC	LC	30	
43	*Merops apiaster*	Eurasian Bee-eater	LC	LC	LC	2	9
44	*Motacilla alba*	White Wagtail	LC	LC	LC	19	
45	*Motacilla flava*	Western Yellow Wagtail	LC	LC	LC	41	24
46	*Numenius arquata*	Eurasian Curlew	NT	NT	NT	25	
47	*Nycticorax nycticorax*	Black-crowned Night-heron	LC	LC	LC	3	
48	*Oenanthe oenanthe*	Northern Wheatear	LC	LC	LC	9	
49	*Passer domesticus*	House Sparrow	LC	LC	LC	10	6
50	*Passer montanus*	Eurasian Tree Sparrow	LC	LC	LC	2	
51	*Pernis apivorus*	Eurasian Honey-buzzard	LC	LC	LC	1	
52	*Phasianus colchicus*	Common Pheasant	LC	LC	LC		2
53	*Phoenicurus ochruros*	Black Redstart	LC	LC	LC	1	
54	*Pica pica*	Eurasian Magpie	LC	LC	LC	32	6
55	*Platalea leucorodia*	Eurasian Spoonbill	LC	LC	LC	19	5
56	*Pluvialis apricaria*	Eurasian Golder Plover	LC	LC	LC	429	
57	*Recurvirostra avosetta*	Pied Avocet	LC	LC	LC	16	
58	*Saxicola rubicola*	European Stonechat	LC	LC	LC	4	
59	*Spatula clypeata*	Northern Shoveler	LC	LC	LC	50	
60	*Streptopelia decaocto*	Eurasian Collared-dove	LC	LC	LC	4	4
61	*Sturnus vulgaris*	Common Starling	LC	LC	LC	34	137
62	*Upupa epops*	Commmon Hoopoe	LC	LC	LC	1	5
63	*Vanellus vanellus*	Northern Lapwing	NT	VU	NT	155	10
					Total count of species	***56***	***35***
					Total count of individuals	***1,376***	***443***

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

Wintering birds

52 species were recorded at the site during winter surveys, with 37 species recorded during both 2021 and 2024 surveys. These were mainly resident species of LC that are common and well distributed across the country and region (**Table 10**). The most common species during winter were waterbirds observed in large flocks, including Mallard and Greater White-fronted Goose.

There were a few species of conservation interest, namely raptors and waterbirds, however these were observed at fairly low levels (e.g. Eastern Imperial Eagle, Saker Falcon, Merlin, Rook, Northern Lapwing).

TABLE 10 WINTERING BIRD SPECIES LIST

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Wintering bird counts 2021	Wintering bird counts 2024
1	*Accipiter gentilis*	Northern Goshawk	LC	LC	LC		1
2	*Accipiter nisus*	Eurasian Sparrowhawk	LC	LC	LC		3
3	*Alauda arvensis*	Eurasian Skylark	LC	LC	NT	3	
4	*Alcedo atthis*	Common Kingfisher	LC	LC	LC	2	1
5	*Anas acuta*	Northern Pintail	LC	VU	LC	43	
6	*Anas crecca*	Common Teal	LC	LC	LC	66	2
7	*Anas platyrhynchos*	Mallard	LC	LC	LC	2181	228
8	*Anser albifrons*	Greater White-fronted Goose	LC	LC	LC	24591	7534
9	*Anser anser*	Grelylag Goose	LC	LC	LC		100
10	*Aquila heliaca*	Eastern Imperial Eagle	VU	LC	EN	2	
11	*Ardea alba*	Great White Egret	LC	LC	LC	22	1
12	*Ardea cinerea*	Grey Heron	LC	LC	LC	18	7
13	*Branta ruficollis*	Red-Breasted Goose	VU	VU	EN	1	
14	*Buteo buteo*	Eurasian Buzzard	LC	LC	LC	27	19
15	*Buteo lagopus*	Rough-Legged Buzzard	LC	LC	LC	6	1
16	*Calidris pugnax*	Ruff	LC	NT	LC	20	
17	*Carduelis carduelis*	European Goldfinch	LC	LC	LC	180	70
18	*Chroicocephalus ridibundus*	Black-headed Gull	LC	LC	LC	105	
19	*Circus cyaneus*	Hen Harrier	LC	LC	NT	17	1
20	*Corvus corax*	Common Raven	LC	LC	LC		1
21	*Corvus frugilegus*	Rook	LC	VU	LC		20
22	*Cyanistes caeruleus*	Eurasian Blue Tit	LC	LC	LC		10
23	*Cygnus olor*	Mute Swan	LC	LC	LC	6	7
24	*Emberiza calandra*	Corn Bunting	LC	LC	LC		200
25	*Emberiza citrinella*	Yellowhammer	LC	LC	LC		9
26	*Emberiza schoeniclus*	Reed Bunting	LC	LC	LC	51	35
27	*Falco cherrug*	Saker Falcon	EN	EN	EN	3	
28	*Falco columbarius*	Merlin	LC	VU	NT		1
29	*Falco tinnunculus*	Common Kestrel	LC	LC	LC	27	11
30	*Fringilla coelebs*	Common Chaffinch	LC	LC	LC		22
31	*Galerida cristata*	Crested Lark	LC	LC	LC	6	3
32	*Gallinago gallinago*	Common Snipe	LC	VU	VU	2	
33	*Gallinula chloropus*	Common Moorhen	LC	LC	LC		2
34	*Grus grus*	Common Crane	LC	LC	LC	216	896
35	*Haliaeetus albicilla*	White-tailed Sea-eagle	LC	LC	VU	2	
36	*Larus cachinnans/michahellis*	Caspain Gull	LC	LC	LC	200	
37	*Limosa limosa*	Black-Tailed Godwit	NT	NT	NT	36	
38	*Linaria cannabina*	Common Linnet	LC	LC	LC		79
39	*Mareca penelope*	Eurasian Wigeon	LC	LC	LC	700	
40	*Numenius arquata*	Eurasian Curlew	NT	NT	NT		2
41	*Numenius phaeopus*	Whimbrel	LC	LC	LC		50
42	*Passer montanus*	Eurasian Tree Sparrow	LC	LC	LC	30	

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Wintering bird counts 2021	Wintering bird counts 2024
43	*Phasianus colchicus*	Common Pheasant	LC	LC	LC		2
44	*Phoenicurus ochruros*	Black Redstart	LC	LC	LC	1	1
45	*Pica pica*	Eurasian Magpie	LC	LC	LC	4	16
46	*Pluvialis apricaria*	Eurasian Golder Plover	LC	LC	LC	64	200
47	*Streptopelia decaocto*	Eurasian Collared-dove	LC	LC	LC	18	4
48	*Sturnus vulgaris*	Common Starling	LC	LC	LC	114	40
49	*Tadorna tadorna*	Common Shelduck	LC	LC	LC	6	
50	*Troglodytes troglodytes*	Northern Wren	LC	LC	LC	1	3
51	*Turdus pilaris*	Fieldfare	LC	LC	LC	1	
52	*Vanellus vanellus*	Northern Lapwing	NT	VU	NT	291	23
					Total count of species	***37***	***37***
					Total count of individuals	***29,063***	***9,605***

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

3.5.2 Bats

Mammal species diversity was found to be moderate and with a typical species complement for similar agricultural landscape in Romania Bat, with the addition of species that utilize aquatic habitats such as the Pond Bat. A total of 15 species of bats were recorded during field surveys, with 9 recorded in 2021 and 13 in 2024 (many are repeat observations between the survey years). See the species list in **Table 11**. The overall activity in terms of number of bat passes recorded remained similar for both survey years, 2021 and 2024.

The majority are species of LC that are widely distributed and adapted to various ecosystems and disturbance regimes, typically common foragers over agricultural landscapes, with the most abundant species based on recorded activity (number of bat passes) being the following LC species which typically frequent pen agricultural landscapes for foraging and passage:

- Common noctule, *Nyctalus noctula*
- Lesser Noctule, *Nyctalus leisleri*
- Kuhl's Pipistrelle, *Pipistrellus kuhlii*
- Nathusius' Pipistrelle, *Pipistrellus nathusii*

There are several species of conservation interest that are threatened at the global, regional and/or national level and/or protected in terms of Annex II of the EU HD, most being recorded during the 2024 surveys, that include:

- Schreiber's Bent-winged Bat, *Miniopterus schreibersii*
- Pond Bat, *Myotis dasycneme*
- Greater Mouse-eared Bat, *Myotis myotis*
- Giant Noctule, *Nyctalus lasiopterus*
- Grey Long-eared Bat, *Plecotus austriacus*

The recorded activity of species of conservation interest was found to be significantly lower than for the more common species of LC, with the most active of these being *M. schreibersii*.

No colonies or roosts were identified near the site and the open habitats (agricultural lands, salt marsh and canals/drainage ditches) function primarily as hunting areas and for passage.

TABLE 11 BAT SPECIES LIST

#	Scientific Name	Common Name	Bat passes 2021	Bat passes 2024	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Annex II EU Habitats Directive	Resolution 6 of Bern Convention
1	*Eptesicus nilssonii*	Northern Serotine	2	-	LC	LC	LC		
2	*Eptesicus serotinus*	Eurasian Serotine	32	291	LC	LC	LC		
3	*Miniopterus schreibersii*	Schreiber's Bent-winged Bat	39	46	VU	VU	EN	Annex II	Revised Annex I of Resolution 6
4	*Myotis dasycneme*	Pond Bat	-	12	NT	VU	EN	Annex II	Revised Annex I of Resolution 6
5	*Myotis daubentonii*	Daubenton's Bat	-	126	LC	LC	LC		
6	*Myotis myotis*	Greater Mouse-eared Bat	-	4	LC	LC	NT	Annex II	Revised Annex I of Resolution 6
7	*Nyctalus lasiopterus*	Giant Noctule	-	30	VU	VU	VU		
8	*Nyctalus leisleri*	Lesser Noctule	501	460	LC	LC	LC		
9	*Nyctalus noctula*	Common noctule	1,413	431	LC	LC	LC		
10	*Pipistrellus kuhlii*	Kuhl's Pipistrelle	546	369	LC	LC	LC		
11	*Pipistrellus nathusii*	Nathusius' Pipistrelle	203	384	LC	LC	LC		
12	*Pipistrellus pipistrellus*	Common Pipistrelle	17	127	LC	LC	LC		
13	*Pipistrellus pygmaeus*	Soprano Pipistrelle	185	245	LC	LC	LC		
14	*Plecotus austriacus*	Grey Long-eared Bat	-	14	NT	NT	NT		
15	*Vespertilio murinus*	Parti-coloured Bat	-	155	LC	LC	LC		
		Total count of species	***9***	***13***					
		Total bat passes	***2,938***	***2,694***					

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

3.5.3 Terrestrial Mammals

Mammal species diversity was found to be moderately-low and with a typical species complement for similar agricultural landscape in Romania. A total of 14 species of terrestrial (land) mammals were recorded during field surveys in 2021, with six recorded in 2024, the majority being of LC and species that are widely distributed and adapted to various ecosystems and disturbance regimes, being common in agricultural landscape with human disturbance. See the species list in **Table 12**.

Two land mammal species of conservation interest are:

- **Eurasian Otter, *Lutra lutra***, which is NT at all levels and a protected species in Europe that is listed in Annex II of the EU Habitats Directive (HD). A few individuals were recorded within canals nearby to the Project area.
- **European Ground Squirrel (Souslik), *Spermophilus citellus*,** which is globally and regionally EN (VU nationally) and also an Annex II protected species as well as a qualifying species conserved within the Natura 2000 site, Nădab - Socodor – Vărșad. Only a few individuals were recorded in field surveys conducted in 2021, with the species not found on the site of the planned development but along an adjacent roadway in the south-east and was not recorded again in 2024.

TABLE 12 TERRESTRIAL MAMMALS SPECIES LIST

#	Scientific Name	Common Name	Recorded in 2021	Recorded in 2024	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Natura 2000 qualifying species	Annex II EU Habitats Directive	Resolution 6 of Bern Convention
1	*Apodemus uralensis*	Herb Field Mouse	Yes	-	LC	LC	LC			
2	*Capreolus capreolus*	European Roe Deer	Yes	Yes	LC	LC	LC			
3	*Dama dama*		Yes	Yes	LC	LC	N.A.			
4	*Erinaceus roumanicus*	Northern white-breasted hedgehog	Yes	-	LC	LC	LC			
5	*Lepus europaeus*	European hare	Yes	Yes	LC	LC	NT			
6	*Lutra lutra*	Eurasian Otter	Yes	-	NT	NT	NT		Annex II	Revised Annex I of Resolution 6
7	*Meles meles*	Eurasian Badger	Yes	Yes	LC	LC	N.A.			
8	*Microtus arvalis*	Common Vole	Yes	Yes	LC	LC	LC			
9	*Mus musculus*	House Mouse	Yes	-	LC	LC	LC			
10	*Mustela nivalis*	Least weasel	Yes	-	LC	LC	LC			
11	*Ondatra zibethicus*	Common Muskrat	Yes	-	LC	LC	N.A.			
12	*Rattus norvegicus*	Brown rat	Yes	-	LC	LC	N.A.			
13	*Spermophilus citellus*	European Ground Squirrel	Yes	-	EN	EN	VU	Natura 2000: Nădab - Socodor – Vărșad	Annex II	Revised Annex I of Resolution 6
14	*Talpa europaea*	European mole	Yes	-	LC	LC	LC			
15	*Vulpes vulpes*	Red fox	Yes	Yes	LC	LC	LC			
		Total count of species	***14***	***6***						

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

3.5.4 Herpetofauna

Herpetofauna species diversity was low, with a total of eight species recorded during field surveys, including five amphibians and three reptiles, most being of LC that are widely distributed and adapted to various ecosystems and disturbance regimes being common in agricultural landscape with human disturbance (see species list in **Table 13**). Amphibians were clearly abundant, with the most abundant species being the common Green Toad, *Bufo viridis* (LC) which numbered several thousand observations during the surveys in 2021.

Two species are of conservation interest:

- the **European Pond Turtle (*Emys orbicularis*)** which is NT globally and in Europe and VU nationally; and
- the **European fire-bellied toad, *Bombina bombina***, which is nationally VU.

These two species are protected in Europe in terms of their listing in Annex II of the EU HD and both are qualifying conserved species in the Natura 2000 site, Nădab - Socodor – Vărșad. Both are semi-aquatic species that were identified along the

irrigation canals at the site. For European Pond-turtle, the population was estimated to range between 26 – 43 individuals, with a far larger population size estimate for the common toad *B. bombina* which was considered to number in the thousands.

TABLE 13 HERPETOFAUNA SPECIES LIST

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Counts 2021	Counts 2024/25	Natura 2000 qualifying species	Annex II EU Habitats Directive	Resolution 6 of Bern Convention
1	*Bombina bombina*	European fire-bellied toad	LC	LC	VU	2,934	60	Natura 2000: Nădab - Socodor – Vărșad	Annex II	Revised Annex I of Resolution 6
2	*Bufo viridis*	Green Toad	LC	LC	LC	32,090	-			
3	*Emys orbicularis*	European Pond Turtle	NT	NT	VU	13	4	Natura 2000: Nădab - Socodor – Vărșad	Annex II	Revised Annex I of Resolution 6
4	*Hyla arborea*	European Tree Frog	LC	LC	LC	16	2			
5	*Lacerta agilis*	Sand Lizard	LC	LC	LC	24	10			
6	*Lissotriton vulgaris*	Smooth Newt	LC	LC	LC	3	-			
7	*Natrix natrix*	Grass Snake	LC	LC	LC	14	2			
8	*Pelobates fuscus*	Common Spadefoot	LC	LC	NT	11	-			
		Total count of species				***8***	***5***			
		Total count of individuals				***35,105***	***78***			

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

3.5.5 Invertebrates

A combined total of 45 species of invertebrates were recorded during surveys, with 41 recorded in 2021 and 20 in 2024 (many being repeat observations between the years). See the full species list contained in **Table 14**.

These are common species of LC that are widely distributed across Romania and quite typical of open agricultural habitats and areas with temporary/seasonal surface water, and which are not listed as protected species in terms of the EU HD. None of these are species conserved within the Natura 2000 site. They typically co-exist with low and medium intensity anthropogenic activity, confirming the generally modified status of the habitats at the site of the planned development.

One species of particular conservation interest was recorded, that being the Butterfly species, **Large Copper (*Lycaena dispar***) which is globally NT and VU at the national level and an Annex II EU HD protected species. *Lycaena dispar* was observed in May in adult formation. It is usually a hygrophilous species, characteristic of the banks of flowing or stagnant water. The host plant of the species is Rumex (*Rumex hydrolapathum, Rumex crispus, Rumex aquaticus*). In Romania, the species is typically widespread.

TABLE 14 INVERTEBRATES SPECIES LIST

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Observed 2021	Observed 2024/25	Annex II EU Habitats Directive	Resolution 6 of Bern Convention
1	*Acontia trabealis*		N.A.	N.A.	N.A.	Yes	Yes		
2	*Acrida ungarica*	Cone-headed Grasshopper	LC	LC	N.A.	-	Yes		
3	*Aglais io*	Peacock Butterfly	LC	LC	LC	Yes	Yes		
4	*Anax parthenope*	Lesser Emperor	LC	LC	LC	Yes	-		
5	*Bombus terrestris*		LC	LC	LC	Yes	Yes		
6	*Calosoma inquisitor*		N.A.	N.A.	LC	Yes	-		
7	*Coccinella septempunctata*		N.A.	N.A.	LC	Yes	Yes		
8	*Coenonympha pamphilus*	Small Heath	LC	LC	LC	Yes	Yes		
9	*Colias croceus*		LC	N.A.	N.A.	-	Yes		
10	*Dorcadion aethiops*		N.A.	N.A.	N.A.	Yes	-		
11	*Dorcadion bilineatum*		N.A.	N.A.	VU	Yes	-		
12	*Dorcadion fulvum*		N.A.	N.A.	N.A.	Yes	-		
13	*Dorcadion pedestre*		N.A.	N.A.	N.A.	Yes	-		
14	*Dorcadion scopolii*		N.A.	N.A.	N.A.	Yes	-		
15	*Drypta dentata*		N.A.	N.A.	N.A.	Yes	-		
16	*Ematurga atomaria*		N.A.	N.A.	LC	Yes	-		
17	*Erynnis tages*		LC	LC	LC	Yes	-		
18	*Erythromma viridulum*	Small-eyed Damselfly	LC	LC	LC	Yes	-		
19	*Harmonia axyridis*		N.A.	N.A.	LC	Yes	Yes		
20	*Hippodamia variegata*		N.A.	N.A.	N.A.	Yes	-		
21	*Holochelus aequinoctialis*		N.A.	N.A.	N.A.	Yes	-		
22	*Lycaena dispar*	Large Copper	NT	LC	VU	Yes	-	Annex II	Revised Annex I of Resolution 6
23	*Lycaena phlaeas*		LC	LC	LC	Yes	-		
24	*Lycaena thersamon*		LC	LC	LC	Yes	-		
25	*Mantis religiosa*		LC	LC	LC	Yes	-		
26	*Melitaea phoebe*	Knapweed Fritillary	LC	LC	N.A.	-	Yes		
27	*Meloe proscarabaeus*		N.A.	N.A.	LC	Yes	Yes		
28	*Meloe violaceus*		N.A.	N.A.	LC	Yes	Yes		
29	*Necrobia violacea*		N.A.	N.A.	LC	Yes	-		
30	*Noctua pronuba*		N.A.	N.A.	N.A.	Yes	-		
31	*Ochlodes sylvanus*		LC	LC	LC	Yes	Yes		
32	*Orthetrum albistylum*	White-tailed Skimmer	LC	LC	LC	Yes	-		
33	*Papilio machaon*	Swallowtail	LC	LC	LC	-	Yes		
34	*Pieris rapae*	Small White	LC	LC	N.A.	Yes	Yes		
35	*Platycnemis pennipes*	Blue Featherleg	LC	LC	LC	Yes	-		
36	*Plebejus argus*		LC	LC	LC	Yes	Yes		
37	*Polyommatus icarus*		LC	LC	LC	Yes	Yes		
38	*Pontia edusa*	Eastern Bath White	LC	LC	LC	Yes	Yes		
39	*Pyrgus malvae*		LC	LC	LC	Yes	-		

#	Scientific Name	Common Name	IUCN Threat Status (global)	IUCN Threat Status (Europe)	Romanian RDL	Observed 2021	Observed 2024/25	Annex II EU Habitats Directive	Resolution 6 of Bern Convention
40	*Pyrrhocoris apterus*		N.A.	N.A.	LC	Yes	Yes		
41	*Synaphe moldavica*		N.A.	N.A.	N.A.	Yes	-		
42	*Thanatophilus rugosus*		N.A.	N.A.	N.A.	Yes	-		
43	*Vanessa atalanta*		N.A.	N.A.	LC	Yes	Yes		
44	*Vanessa cardui*	Painted Lady	LC	LC	LC	Yes	Yes		
45	*Zerynthia polyxena*	Southern Festoon	LC	LC	VU	Yes	-		
					Total count of species	***41***	***20***		

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25), IUCN, Romania RDL, Natura 2000, EU Directives, Bern Convention

3.6 Invasive Alien Species

No invasive/alien fauna were recorded during surveys, although a couple of bird species have become naturalized in Romania.

Whilst no IAS of flora were observed in the Project area itself, the following plant species that are invasive or alien/weed species in Romania were identified on the side of the nearby mining road or in nearby disturbed areas:

- *Amorpha fruticosa,* False Indigo
- *Xanthium spinosum,* Spiny Cocklebur

3.7 Ecosystem Services

Ecosystem Services (ES) have been assessed in detail at a qualitative level in **Annexure A** (section 5.1). The assessment concluded that most ES are low priority given limited Project/local level community demand typically in combination with high replaceability/numerous alternatives regionally, with several being considered of medium importance (some demand, possibly contained in terms of alternatives) and these are largely linked to those linked to agricultural activities in the study area and management of natural hazards such as floods/storms/erosion as well as habitat maintenance for wildlife. These, have not been considered priority ES in terms of the IFC/EBRD definition as these are not considered to be significant for supporting local livelihoods and community health/safety and the Project is also unlikely to impact significantly on these ES based on the findings of the ESIA.

Potential 'high' priority ES being linked to those with high Project/local demand (and which would be challenging/costly to replace) could be linked to **global and local climate regulation,** however, this was not considered to be a priority ES in terms of the IFC/EBRD definition given that the Project will not result in significant adverse effects on global/local climate and in fact, as a renewable energy Project aims to make a positive net contribution to climate by providing a clean/green source of energy.

3.8 Critical Habitat and Priority Biodiversity Features

3.8.1 CH/PBF Habitats

The Project qualifies as CH in terms only of a single physical habitat type, that being **Pannonic salt steppes and salt marshes (code 1530*)** which qualifies as CH given its regionally EN threat status and most importantly, listing as a 'priority habitat' in Annex I of the EU Habitats Directive, thus qualifying in terms of criterion 1 (a) of the EBRD criteria. Following a field survey in 2024 (by the consulting firm: Wilderness Research and Consultancy) the location and extent of CH pertaining to the Pannonic salt steppes and salt marshes type was further ground-truthed, examined and the boundaries of patches representative of this habitat type were described and mapped to inform the CHA and development planning/layout revisions. No additional physical habitats qualify as PBF, with the Pannonic salt steppes and salt marshes already being CH.

3.8.2 PBF Species

Following the screening and assessment of numerous species of flora and fauna, none were found to meet or exceed the thresholds of the qualifying criteria in terms of priority species (i.e. threatened/protected species at global/regional/national levels, endemic/restricted-range species and migratory/congregatory species). No endemic or restricted-range species were identified for the EAAA and Project area.

Numerous species of flora and fauna were identified as PBF for the Project, qualifying under multiple criteria including those related to priority species (i.e. threatened/protected species at global/regional/national levels and migratory species of birds and bats typically). A combined total of 137 species qualify as PBF, including (see **Table 15** below):

- 110 bird species
- 4 amphibians
- 1 reptile
- 7 mammals
- 5 invertebrates
- 10 plants

Of the 137 species, 86 species (~62%) were recorded at the Project site during field surveys in 2021, with a further 30 species (additional 21%) being conserved within the overlapping Natura 2000 site and assumed to be relevant to the Project given their occurrence within the EAAA and with suitable habitat in the Project area and AoI for supporting these species. Thus, a total of 116 species (of the137 or 85% of the PBF species) are likely to be present in the AoI and could be impacted by the Project. For the remaining species of PBF identified (15% or 21 species), these could potentially be present based on the datasets considered in the CHA species screening process, but not confirmed, and in the face of scientific uncertainty regarding the presence of these species, the 'precautionary principle' has been applied and a risk-averse approach considered that includes these as PBF, conservatively and precautionary.

TABLE 15 LIST OF PBF SPECIES FOR THE PROJECT

Scientific Name	Common Name	Status of Natura 2000 conserved species	Field confirmed?
Herpetofauna (amphibians, reptiles)			
Bombina bombina	European fire-bellied toad		Yes

Scientific Name	Common Name	Status of Natura 2000 conserved species	Field confirmed?
Pelobates fuscus	Common Spadefoot		Yes
Triturus cristatus	Great Crested Newt		No
Triturus dobrogicus	Danube Crested Newt		No
Emys orbicularis	European Pond Turtle		Yes
Birds			
Accipiter nisus	Eurasian Sparrowhawk		Yes
Acrocephalus arundinaceus	Great Reed-warbler		Yes
Acrocephalus melanopogon	Moustached Warbler	Breeding	No
Acrocephalus paludicola	Aquatic Warbler		No
Acrocephalus schoenobaenus	Sedge Warbler		Yes
Acrocephalus scirpaceus	Common Reed-warbler		Yes
Alauda arvensis	Eurasian Skylark		Yes
Alcedo atthis	Common Kingfisher	Breeding	Yes
Anas acuta	Northern Pintail	Concentration	Yes
Anas clypeata	Northern Shoveler	Concentration	No
Anas crecca	Common Teal	Concentration	Yes
Anas penelope	Eurasian Wigeon	Concentration	No
Anas platyrhynchos	Mallard	Concentration	Yes
Anas querquedula	Garganey	Concentration	Yes
Anas strepera	Gadwall	Breeding, Concentration	No
Anser albifrons	Greater White-fronted Goose	Wintering	Yes
Anser erythropus	Lesser White-fronted Goose		Yes
Anthus campestris	Tawny Pipit	Breeding	Yes
Anthus cervinus	Red-Thorated Pipit		Yes
Anthus pratensis	Meadow Pipit		Yes
Apus apus	Common Swift		Yes
Aquila heliaca	Eastern Imperial Eagle	Concentration	Yes
Ardea alba	Great White Egret		Yes
Ardea cinerea	Grey Heron	Breeding, Concentration	Yes
Ardea purpurea	Purple Heron	Breeding, Concentration	Yes
Asio flammeus	Short-eared Owl	Breeding, Wintering	No
Asio otus	Northern Long-Eared Owl		Yes
Aythya ferina	Common Pochard	Breeding, Concentration	No
Aythya nyroca	Ferruginous Duck	Breeding, Concentration	No
Botaurus stellaris	Eurasian Bittern		Yes
Buteo buteo	Eurasian Buzzard		Yes
Buteo lagopus	Rough-Legged Buzzard		Yes
Calidris alpina	Dunlin	Concentration	No
Calidris falcinellus	Broad-billed Sandpiper		No
Calidris ferruginea	Curlew Sandpiper		No
Calidris pugnax	Ruff	Concentration	No
Calidris pugnax	Ruff		Yes
Carduelis carduelis	European Goldfinch		Yes
Charadrius dubius	Little Ringed Plover	Breeding, Concentration	No
Chlidonias hybridus	Whiskered Tern	Breeding	Yes
Chroicocephalus ridibundus	Black-headed Gull		Yes
Ciconia ciconia	White Stork	Breeding	Yes
Ciconia nigra	Black Stork	Breeding, Concentration	Yes
Circaetus gallicus	Short-tailed Snake-eagle	Breeding	No
Circus aeruginosus	Western Marsh-Harrier	Breeding	Yes
Circus cyaneus	Hen Harrier		Yes
Circus macrourus	Pallid Harrier		No
Circus pygargus	Montagu's Harrier	Breeding	Yes
Columba palumbus	Common Woodpigeon		Yes
Corvus frugilegus	Rook	Breeding	Yes
Corvus monedula	Eurasian jackdaw		Yes
Coturnix coturnix	Common Quail		Yes

Scientific Name	Common Name	Status of Natura 2000 conserved species	Field confirmed?
Crex crex	Corncrake	Breeding	No
Cuculus canorus	Common Cuckoo		Yes
Cygnus olor	Mute Swan		Yes
Delichon urbicum	Northern House Martin		Yes
Egretta alba	Great White Egret	Concentration	No
Egretta garzetta	Little Egret	Breeding	Yes
Emberiza schoeniclus	Reed Bunting		Yes
Falco cherrug	Saker Falcon	Concentration	Yes
Falco columbarius	Merlin	Wintering	No
Falco peregrinus	Peregrine Falcon	Wintering	Yes
Falco tinnunculus	Common Kestrel	Wintering	Yes
Falco vespertinus	Red-footed Falcon		Yes
Fulica atra	Common Coot	Breeding, Concentration	Yes
Gallinago gallinago	Common Snipe	Breeding, Concentration	Yes
Gallinula chloropus	Common Moorhen		Yes
Grus grus	Common Crane		Yes
Haliaeetus albicilla	White-tailed Sea-eagle	Resident, Wintering	Yes
Himantopus himantopus	Black-winged Stilt	Breeding	Yes
Hirundo rustica	Barn Swallow		Yes
Ixobrychus minutus	Common Little Bittern	Breeding	No
Lanius minor	Lesser Grey Shrike	Breeding	No
Larus cachinnans/michahellis	Caspain Gull		Yes
Larus ridibundus	Black-headed Gull	Concentration	No
Limosa limosa	Black-Tailed Godwit	Breeding, Concentration	Yes
Locustella fluviatilis	River Warbler	Breeding	No
Locustella luscinioides	Savi's Warbler		Yes
Locustella naevia	Common Grasshopper-warbler	Breeding	No
Luscinia megarhynchos	Common Nightingale		Yes
Luscinia svecica	Bluethroat	Breeding	No
Mareca penelope	Eurasian Wigeon		Yes
Merops apiaster	Eurasian Bee-eater		Yes
Milvus migrans	Black Kite	Breeding	No
Motacilla alba	White Wagtail		Yes
Motacilla flava	Western Yellow Wagtail		Yes
Numenius arquata	Eurasian Curlew	Concentration	Yes
Numenius phaeopus	Whimbrel	Concentration	No
Nycticorax nycticorax	Black-crowned Night-heron	Breeding	Yes
Oenanthe oenanthe	Northern Wheatear		Yes
Pandion haliaetus	Osprey	Concentration	No
Pernis apivorus	Eurasian Honey-buzzard		Yes
Phoenicurus ochruros	Black Redstart		Yes
Platalea leucorodia	Eurasian Spoonbill	Breeding, Concentration	Yes
Pluvialis apricaria	Eurasian Golder Plover	Concentration	Yes
Pluvialis squatarola	Grey Plover		No
Recurvirostra avosetta	Pied Avocet	Breeding, Concentration	Yes
Riparia riparia	Collared Sand Martin		Yes
Spatula clypeata	Northern Shoveler		Yes
Sterna hirundo	Common Tern	Breeding, Concentration	No
Sylvia nisoria	Barred Warbler	Breeding	No
Tachybaptus ruficollis	Little Grebe	Breeding, Concentration	Yes
Tadorna tadorna	Common Shelduck		Yes
Tringa erythropus	Spotted Redshank	Concentration	No
Tringa totanus	Common Redshank	Concentration	Yes
Troglodytes troglodytes	Northern Wren		Yes
Turdus iliacus	Redwing		No
Turdus pilaris	Fieldfare		Yes
Upupa epops	Commmon Hoopoe		Yes

Scientific Name	Common Name	Status of Natura 2000 conserved species	Field confirmed?
Vanellus vanellus	Northern Lapwing	Breeding, Concentration	Yes
Invertebrates			
Anisus vorticulus	Lesser Ramshorn Snail		No
Euglesa pseudosphaerium	False-orb Pea Mussel		No
Leptophyes discoidalis	Blackwing Speckled Bush-cricket		No
Lycaena dispar	Large Copper		Yes
Nomada errans	Zwartbuikwespbij		No
Mammals			
Cricetus cricetus	Common Hamster		No
Eptesicus serotinus	Eurasian Serotine		Yes
Lutra lutra	Eurasian Otter		Yes
Miniopterus schreibersii	Schreiber's Bent-winged Bat		Yes
Mustela eversmanii	Steppe Polecat		No
Myotis dasycneme	Pond Bat		No
Spermophilus citellus	European Ground Squirrel		Yes
Plants			
Alisma gramineum	Ribbon-leaved Water-plantain		No
Bovista paludosa	Fen Puffball		No
Cirsium brachycephalum			No
Elatine alsinastrum			No
Galeopsis segetum	Downy Hemp-nettle		No
Gastrosporium simplex	Steppentrüffel		No
Hygrocybe aurantiosplendens	Orange Waxcap		No
Marsilea quadrifolia	Water Shamrock		No
Picipes rhizophilus	Steppengras-Schwarzfußporlin		No
Tozzia carpathica	Carpathian Tozzia		No

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Additional:

Romania's Red Data Book of Threatened Species (Red Book or 'Cartea Roșie a speciilor din România' in Romanian) is in the form of a multi-volume national reference, with each volume having its own formal citation, with the most widely used editions published by the Romania Academy and the Institute of Biology in Bucharest. These are as follows:

- Red Data Book of Birds: Munteanu, D., Papadopol, A., & Weber, P., 2002 *Cartea Roșie a Aveselor din România*. Editura Muzeului Național de Istorie Naturală "Grigore Antipa", București.
- Red Data Book of Vertebrates: Botnariuc, N. & Tatole, V. (eds.) 2005. Cartea Roșie a Vertebratelor din România. Editura Academiei Române, București.
- Red Data Book of Invertebrates: Various authors, Romanian Academy series (multiple volumes, 1994–2000). Cartea Roșie a Nevertebratelor din România. Editura Academiei Române, București.
- Red Data Book of Vascular Plants: Dihoru, G. & Negrean, G. 2009. Cartea Roșie a Plantelor Vasculare din România. Editura Academiei Române, București.
- Red Data Book of Plants: Anastasiu, P., Sârbu, I., Oprea, A., et al. (eds.) 2015–2021. Cartea Roșie a Plantelor din România. Seria Nouă. Institutul de Biologie al Academiei Române, București.

5. Annexures

5.1 Annex A: Ecosystem Services Assessment

5.1.1 Introduction & Objectives

To inform the ESIA, a rapid assessment of Ecosystem Services ('ES') was completed in support of the Project's alignment with the applicable international standards of the IFC and EBRD, based on the biodiversity and social baseline information collected and collated. This rapid ES assessment aimed to:

- Rapidly identify and assess 'priority' ES for the Project study area based on (1) Project and community demand and (2) ES replaceability;
- Define the implications for the Project from an impact and management perspective; and
- Identify the recommended next steps for the Project (as necessary) in terms of managing any priority ES identified.

5.1.2 Definitions

An ecosystem service is any positive benefit that nature provides to people. These are essentially direct and indirect contributions that natural ecosystems (known as natural capital) provide for human well-being and quality of life[9]. This can be in a practical sense through providing food and water and regulating climate, as well as less tangible cultural aspects such as providing spaces for recreation to reduce stress. There are a vast number of services provided by ecosystems that are typically categorized into more manageable groups as follows:

- **Provisioning**: *The actual/tangible goods or products that people can extract or obtain from nature and the environment, such as food, materials (wood/fibre), fuel, medicinal plants and water*.
- **Regulating**: *The benefits obtained from an ecosystem's control of natural processes, such as climate regulation, disease control, erosion prevention and soil retention, water flow regulation, water filtration and protection from natural hazards (e.g. flood control).*
- **Supporting**: *Natural ecosystems could not function without supporting services, such as the nutrient cycle, soil formation and habitat provision for biodiversity, forming the basis for the other three types of services*.
- **Social and Cultural**: *Typically, non-material benefits that include ways in which nature impacts people's health and well-being through recreational and education benefits as well as improving mental health and building spiritual connections*.

What is important to acknowledge is that **underpinning all these services is nature or biodiversity**.

5.1.3 Approach and Methods

Lender's requirements and guidelines:

[9] Various IFIs define ES in their respective Environmental and Social (E&S) policies / performance standards / performance requirements, and these are generally the same or at least highly similar or comparable. According to IFC PS6, ecosystem services are defined as follows:

> *"Ecosystem services are the benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services."*

The approach to the assessment of ES has been tailored to meet the requirements and/or guidelines of the IFC and EBRD, which are as follows:

- A systematic review is to be conducted to identify priority ecosystem services.
- Priority ecosystem services are two-fold: (i) those services on which project operations are most likely to have an impact and, therefore, which result in adverse impacts to Affected Communities; and/or (ii) those services on which the project is directly dependent for its operations (e.g., water).
- When Affected Communities are likely to be impacted, they should participate in the determination of priority ecosystem services in accordance with the stakeholder engagement process.

ES should be prioritized, in coordination with the social baseline analysis, according to the importance of, and dependence on, the ecosystem services by relevant stakeholders. Whilst IFC does not provide further guidance on ES assessment, the European Bank for Reconstruction and Development (EBRD) has developed a draft guide and 'Structured Approach to Ecosystem Services for EBRD-financed Projects' (EBRD, 2022) which includes a stepped approach as follows:

- Defining the study area at the appropriate spatial scale;
- Scoping;
- Conducting field work; and
- Prioritization of ES for impact assessment and mitigation planning.

In terms of prioritization of ES, this is based on two key questions:

- Could the project affect ES that benefit project stakeholders?
- Is the ES important to the stakeholders' livelihoods, health, safety, or culture?
- If the answer is "yes" to both of these questions, then the ES should be considered a priority for further impact analysis.

The approach taken for the ES assessment has been informed by the IFC guidance and EBRD stepped approach (described above) and tailored to provide a rapid approach for the Project. The assessment and prioritization of ES was based on the following:

- Defining the study area for the ES assessment;
- Identifying ES relevant to the Project based on assumed Project demand for ES;
- Identifying ES relevant to local stakeholders and communities, especially those that are important for supporting or contributing to local livelihoods;
- Contextualizing ES supply based on the presence, condition and functioning of ecosystems and habitats present in the study area; and
- Prioritizing ES based on demand (project and community related) as well the assumed level of replaceability of the ES.

1 Study area

The study area is defined based on the study areas considered for the baseline assessment of biodiversity and social/cultural aspects of the Project and taking into consideration the Project's Area of Influence (AoI) for biodiversity and social topics. The social AoI considered the nearby settlments potentially impacted by land take due to the Project (administrative territorial units of Grăniceri and Pilu Communes), together with the settlements that could be affected by potential temporary impacts during the construction phase and long-term during operations (such as glint and glare effect).

2 Ecosystem Services considered

ES were identified for provisioning, regulating/supporting and social/cultural services (from ENCORE), as listed and described below in **Table 16**, based on information gained from the baseline assessments for biodiversity and social/cultural topics.

TABLE 16 LIST OF ECOSYSTEM SERVICES CONSIDERED WITH DEFINITIONS

Provisioning Services	
Water Supply	*Water supply is provided through surface water and groundwater resources such as wetlands, freshwater lakes, rivers, streams and aquifers. This can be for both potable and non-potable use.*
Fibre/Materials	*Ecosystems provide a diversity of materials including wood, biofuels, and fibers from wild or cultivated plant and animal species. Wooded ecosystems such as forests, woodland and shrubland provide both timber and non-timber related resources. Ecosystems also provide several Non-Timber Forest Products (NTFPs). One example is medicinal resources. A variety of plants are commonly harvested for traditional medicine and for developing pharmaceuticals in modern medicine.*
Genetic Material	*Genetic diversity (the variety of genes between, and within, species populations) distinguishes different breeds or races from each other, providing the basis for locally well-adapted cultivars and a gene pool for developing commercial crops and livestock.*
Food	*Almost all natural ecosystems provide conditions for growing, collecting, hunting and harvesting food. Herbaceous plants, fruits and seeds are some of the typical food types that can be directly harvested, whereas other ecosystems such as wetlands provide fertile soils that are commonly used for growing crops and vegetables.*
Biomass Provicioning	*Wooded ecosystems such as forests, woodland and shrublands can provide wood and wood residues used for biomass fuel when harvested and processed.*
Regulating and Supporting Services	
Global/local climate regulation	*Ecosystems influence climate at local and regional levels. Evapotranspiration from trees, vegetation and soils controls the amount of water vapor entering the atmosphere, influencing atmospheric moisture, rainfall, cloud formation, radiation transfer in the atmosphere and temperature control. Trees also serve to provide shade. Ecosystems, including vegetation, soils, peatlands and freshwater systems are capable of storing, regulating the global climate and mitigating climate change. Different ecosystems allow for varying degrees of carbon storage.*
Air Filtration	*Trees, vegetation and soil play an important role in regulating air quality by removing pollutants including carbon monoxide, particulate matter and nitrogen oxide from the air and releasing oxygen.*
Soil and Sediment Retention, Erosion Control	*Trees and vegetation assist with stabilizing soil, preventing erosion during intense rainfall, flooding, wind and moderate soil moisture and temperatures. Soil erosion is a key factor in the process of land degradation, loss of soil fertility and desertification, and contributes to decreased productivity of downstream fisheries.*
Water Purification	*Ecosystems help to regulate water quality by purification and waste treatment, through the trapping of sediments and dilution/ removal of harmful nutrients and chemicals. Ecosystems such as wetlands filter effluents, decompose waste through biological activity of microorganisms and eliminate harmful pathogens.*
Water Flow Maintenance / Regulation	*Freshwater ecosystems, such as wetlands, rivers, mangroves and aquifers, are a critical part of the global water cycle – supplying, purifying and protecting freshwater resources.*
Flood / Drought Protection	*Trees, forests, vegetation, wetlands and soils are capable of reducing the effects of flooding and drought through interception, holding and/or delaying the passage of rainwater to streams and rivers.*
Storm Mitigation	*As above, natural systems can provide mitigation from storm damage, protecting people and infrastructure.*
Noise Attenuation	*Natural vegetation and topographic landforms can function as natural attenuation structures for noise.*
Biological Control	*Predators and parasite activities in ecosystems control populations of potential pest and disease vectors, which can impact crops, water quality and species health.*
Soil Quality	*Trees and herbaceous vegetation create the organic matter content of soils through natural decay and soil formation processes. Buffering, filtering, degradation and retention of pollutants and nutrients occur within soils. This ensures soil fertility is maintained to support vegetation communities and human activities such as crop cultivation.*
Habitat Maintenance	*Habitats provide everything that an individual plant or animal needs to survive (food, water and shelter). Each ecosystem provides different habitats that can be essential for a species' lifecycle. Some habitats have an exceptionally high number of species which makes them more genetically diverse than others, known as biodiversity hotspots.* *Habitats also maintain a diversity of complex processes that underpin other ecosystem services. Species are a critical component in the building of habitats, with habitats and species intrinsic to one another's survival.*
Pollination	*Insects, wind, birds and bats pollinate plants and trees, which is essential for the development of fruits, vegetables and seeds. In agro-ecosystems, pollinators are essential for orchard, horticultural and forage production as well as the production of seed for root and fibre crops. They are also important for the development and maintenance of non agro- ecosystems, such as forest ecosystems that serve as habitat for animal species.*
Waste Remediation	*The capacity of natural ecosystems to assimilate waste products.*
Social & Cultural Services	
Recreational / tourism related services	*Nature-based opportunities for recreation play an important role in maintaining mental and physical health. Enjoyment of nature attracts millions of travelers worldwide. This cultural ecosystem service includes both benefits to visitors and income opportunities for nature tourism service providers.*
Cultural / Spiritual Services	*Nature is a common element in most major religions. Natural heritage, spiritual sense of belonging, traditional knowledge, and associated customs are important for creating a sense of belonging. Ecosystems and landscapes provide educational, scientific and research purposes that develop our understanding of the natural world and can lead to important scientific discoveries.*

Recreation	*Nature-based opportunities for recreation play an important role in maintaining mental and physical health. Enjoyment of nature attracts millions of travelers worldwide. This cultural ecosystem service includes both benefits to visitors and income opportunities for nature tourism service providers.*
Visual Amenity	*Animals, plants and ecosystems inspire art, culture and design.*

Source: TLCommunicationss (unpublished), based on ENCORE and TNFD

3 Assessment of Demand

Project demand:

The ENCORE[10] (Exploring Natural Capital Opportunities, Risks and Exposure) free-to-use online tool was used to provide a preliminary indication of sector-based relevance for various ES. This tool is based on defining upfront standard/generic ISIC (International Standard Industrial Classification) groups/classes that then provide information on ecosystem services demand/materiality and impacts based on global industry averages.

Two ISIC classes were selected to accommodate for the construction and operational phases of the Project: 'Construction of Utility Projects' and 'Solar Energy Production' to identify the most material/significant dependencies of the Dama solar PV Project on ES. The most material dependency in each case was used conservatively to define dependency materiality for the Project (i.e. *if construction dependency materiality for a particular ES was 'high' and operational dependency 'low', then dependency was taken as 'high' for the Project overall*).

The initial dependency ratings from ENCORE were also reviewed and refined based on information contained in the TNFD (Task-force on Nature-related Financial Disclosures) additional sector guidance concerning nature dependencies and impacts for 'Electric utilities and power generators' (TNFD, 2024[11]) and 'Engineering, construction and real estate' (TNFD, 2025[12]). Project demand was further considered in light of regional exposure to particular natural hazards, as described at a high level for the 'Savnik' administration area/region based on the free-to-use tool - ThinkHazard (https://www.thinkhazard.org/). This robust and simple to use web-based tool considers regional risk of exposure to potential natural hazards such as wildlfire, flood, earthquake, extreme head, land slide and water scarcity to assist with project planning and design.

Project demand was then further refined where necessary at the final stage based on the understanding of the Project specifics and findings of the biodiversity and social baseline assessments for the Project, as well as an understanding and interpretation of the ecosystems present in the study area, their condition, extent and functioning.

Community/local demand:

Local-level (community-related) demand for ES was ascertained by reviewing the Project social/cultural baseline data, specifically related to communities and stakeholders engaged during the ESIA process. Potential regional exposure to particular natural hazards (as above for Project demand) was also taken into consideration using the ThinkHazard tool.

The demand/dependency ratings used to qualitatively rate Project/community demand for EA in **Table 17** were used.

[10] ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure) is a free, online tool that helps organizations explore their exposure to nature-related risk and take the first steps to understand their dependencies and impacts on nature. The tool sets out how the economy – sectors, subsectors and activities – depends and impacts on nature. Available online at: https://www.encorenature.org/

[11] TNFD, 2025. Additional sector guidance: Electric utilities and power generators. Version 1.0. June 2024. Available for download online at: https://tnfd.global/tnfd-publications/?_sft_framework-categories=additional-guidance-by-sector#search-filter

[12] TNFD, 2025. Additional sector guidance: Engineering, construction and real estate. Version 1.0. January 2025. Available for download online at: https://tnfd.global/tnfd-publications/?_sft_framework-categories=additional-guidance-by-sector#search-filter

TABLE 17 RATINGS FOR ES DEMAND / DEPENDENCY

ES Demand	Description: Project demand	Description: Community demand
Low	The Project is not reliant on the ES at all or the company or operation can continue as is or with minor modifications	The ES may be used and valued by parts of the local community, but it is not considered important in maintaining quality of life or local livelihoods.
Medium	The Project is somewhat dependent on the ES but can probably still operate in the long-term in its absence or only with some modifications (e.g. slower production or use of substitutes).	The ES may be readily used by some members of the communities for income or subsistence, but they are not solely dependent upon the service for their livelihoods, and not everyone utilizes the service.
High	The ES is critical for the continued operation of the Project. Disruption in company or operation sites is likely to prevent or severely constrain operation.	The ES is highly important in maintaining the livelihoods of the communities and is used by most of the community regularly. In some cases, the service may be considered critical or essential towards maintaining the health and well-being of the community.

Source: TLCommunicationss (unpublished)

4 Replaceability of ES

In order to prioritize Project/local community dependencies on ES and thereby rate the importance of particular ES, it is not only necessary to evaluate the overall dependency level or demand associated with ES but also to consider alternative options for ES that are available to replace them, taking into account the potential replacement cost as well. This is essentially a rating of replaceability of the ES (whether there are alternatives available or how easy it would be to replace the ES if lost), that was informed by an analysis for each ES based on the baseline obtained from field surveys and understanding of the natural/modified ecosystems in the study area, using the qualitative ratings and statements in **Table 18**.

TABLE 18 RATING ES REPLACEABILITY

ES Replaceability	Description
High	Many spatial alternatives exist that are readily available to the Project and/or Affected Communities, and there are no major impediments to their usage, meaning that ES are considered easily and readily replaceable.
Medium	Relatively few alternatives for the ES are readily available, or replacement cost could be high.
Low	There are few to no alternatives to replace the ES, or replacement cost could be very high.

Source: TLCommunicationss (unpublished)

4 Prioritization of ES

Once ES demand (Project and community level) and replaceability were rated, the relative importance of each ES was determined which led to the identification of 'priority' ES using the simple matrix in **Table 19**.

TABLE 19 PRIORITIZATION MATRIX FOR ES

Demand (Project / community – max value)	Replaceability Rating		
	High	Medium	Low
High	Medium (not priority)	**High (priority ES)**	
Medium	Low (not priority)	Medium (not priority)	**High (priority ES)**
Low	Very Low (not priority)		Low (not priority)

Source: TLCommunicationss (unpublished)

5.1.4 Results

Rating Project Demand

Using the ENCORE tool for the ISIC (International Standard Industrial Classification) classes: 'Construction of Utility Projects' and 'Solar Energy Production' (see **Table 20**), yields the following potential construction and operational phase ES dependencies for the Project, which were also refined based on the TNFD sector guidance concerning nature dependencies and impacts for the electric utilities and construction sectors (TNFD, 2024 – 2025):

PROVISIONING SERVICES
Water supply - Medium
Fibre/ materials – N/A
Genetic material – N/A
Biomass provisioning – N/A

REGULATING AND SUPPORTING SERVICES
Global climate regulation – Very High
Local climate regulation - Medium
Rainfall pattern regulation – Very High
Air filtration services - Very Low
Soil/sediment retention and erosion control - High
Water purification - Medium
Water flow maintenance / regulation – Medium
Flood protection – Medium
Storm mitigation – Medium
Noise attenuation - Low
Mediation of other sensory impacts (other than noise) – Very Low
Dilution by atmosphere and ecosystems - Low
Biological control – N/A
Soil quality – N/A
Habitat maintenance – N/A
Pollination – N/A
Waste remediation - N/A

SOCIAL/CULTURAL SERVICES
Cultural / spiritual services – N/A
Recreation – N/A
Visual amenity – N/A

TABLE 20 RATING PROJECT DEMAND FOR ES

ES	ES DEPENDENCY BASED ON ENCORE OUTPUTS (MATERIALITY RATING AND DESCRIPTION PROVIDED)		TNFD SECTOR GUIDANCE (TNFD, 2024 – 2025)	
	CONSTRUCTION PHASE	OPERATIONAL PHASE	ELECTRIC UTILITIES: SOLAR	CONSTRUCTION PROJECTS
PROVISIONING SERVICES				
WATER SUPPLY	MEDIUM *Construction of utility projects depends on water supply services provided by ecosystems to ensure sufficient quantity and quality of water, for activities such as settling soil and dust and cleaning.*	MEDIUM *Thermal solar energy production depends on water supply services provided by ecosystems to ensure a sufficient quantity of water (e.g., parabolic trough and central tower systems using conventional steam plants to generate*	MEDIUM	MEDIUM
FIBRE/ MATERIALS	N/A	N/A	N/A	N/A
GENETIC MATERIAL	N/A	N/A	N/A	N/A
BIOMASS PROVISIONING	N/A	N/A	N/A	N/A
REGULATING AND SUPPORTING SERVICES				
GLOBAL CLIMATE REGULATION	MEDIUM *Construction of utility projects depends on global climate regulation by ecosystems to mitigate climate change and reduce the frequency and intensity of major climate events that could damage the buildings and infrastructure or affect the ability to continue construction activities.*	VERY HIGH *Solar energy production facilities depend on global climate regulation to maintain a relatively steady climate and to mitigate and reduce the frequency and intensity of major climate events that could damage buildings and infrastructure. Increased temperatures and extreme weather can also affect operations.*	VERY HIGH	Not relevant or no data.
LOCAL CLIMATE REGULATION	LOW *Ecosystems regulate the micro-climate in the locations of construction of utility projects sites, creating better conditions and reducing the cost of the activities (e.g. stabilizing local temperatures, regulating local humidity levels).*	MEDIUM *Ecosystems regulate the micro climate in the locations of solar power stations (e.g. stabilising local temperatures, regulating local humidity levels), increasing their productivity,*	MEDIUM	LOW

ES	ES DEPENDENCY BASED ON ENCORE OUTPUTS (MATERIALITY RATING AND DESCRIPTION PROVIDED)		TNFD SECTOR GUIDANCE (TNFD, 2024 – 2025)	
	CONSTRUCTION PHASE	OPERATIONAL PHASE	ELECTRIC UTILITIES: SOLAR	CONSTRUCTION PROJECTS
		reducing maintenance costs and extending longevity of the facilities and infrastructure.		
RAINFALL PATTERN REGULATION	VERY HIGH *Construction of utility projects depends on rainfall pattern regulation by ecosystems to mitigate the risk of floods and damages to the construction.*	*Not relevant or no data.*	N/A	VERY HIGH
AIR FILTRATION SERVICES	VERY LOW *Construction of utility projects depends on air filtration by ecosystems to improve quality of air, important for the working environment.*	Not relevant or no data.	N/A	VERY LOW
SOIL/SEDIMENT RETENTION AND EROSION CONTROL	HIGH *Construction of utility projects is dependent on soil and sediment retention to provide a stable substrate, erosion control, and landslide mitigation for infrastructure.*	MEDIUM *Solar energy provision is dependent on soil and sediment retention to provide a stable substrate, erosion control, and landslide mitigation for infrastructure.*	MEDIUM	HIGH
WATER PURIFICATION	MEDIUM *Construction of utility projects is dependent on water purification by ecosystems to maintain or improve the quality of the water used on construction sites and remove any potential pollutants from water.*	Not relevant or no data.	N/A	MEDIUM
WATER FLOW MAINTENANCE / REGULATION	MEDIUM *Construction of utility projects are dependent on water flow regulations to mitigate the risk of floods and damage to the construction.*	MEDIUM *Water flow regulation services is required to mitigate the risk of floods and damage and provide a regulated flow of water, used for cleaning the solar panels or for steam generation in generation of electricity in solar thermal'*	MEDIUM	MEDIUM
FLOOD PROTECTION	MEDIUM *Construction of utility projects is dependent on flood mitigation ecosystem services to protect infrastructure from flooding.*	MEDIUM *Solar energy production is dependent on flood mitigation ecosystem services to protect infrastructure from flooding.*	MEDIUM	MEDIUM

ES	ES DEPENDENCY BASED ON ENCORE OUTPUTS (MATERIALITY RATING AND DESCRIPTION PROVIDED)		TNFD SECTOR GUIDANCE (TNFD, 2024 – 2025)	
	CONSTRUCTION PHASE	OPERATIONAL PHASE	ELECTRIC UTILITIES: SOLAR	CONSTRUCTION PROJECTS
STORM MITIGATION	MEDIUM *Construction of utility projects is dependent on storm mitigation ecosystem services to protect construction sites and infrastructure from the impacts of wind, sand and other storms.*	MEDIUM *Solar energy production is dependent on storm mitigation ecosystem services to protect production sites and other infrastructure from the impacts of wind, sand and other storms.*	MEDIUM	MEDIUM
NOISE ATTENUATION	LOW *Vegetation can act as a noise barrier, reducing the impact of noise pollution from the construction of utility projects.*	VERY LOW *Ecosystems (e.g., vegetation) can act as a noise barrier, reducing the impact of noise pollution from solar energy production.*	VERY LOW	LOW
MEDIATION OF OTHER SENSORY IMPACTS (OTHER THAN NOISE)	VERY LOW *For some construction sites, vegetation can reduce the impact of dust generated during construction of utility projects.*	Not relevant or no data.	N/A	VERY LOW
DILUTION BY ATMOSPHERE AND ECOSYSTEMS	LOW *Construction of utility projects are reliant on the dilution of air and water pollutants from construction.*	Not relevant or no data.	N/A	LOW
BIOLOGICAL CONTROL	Not relevant or no data.	Not relevant or no data.	N/A	Not relevant or no data.
SOIL QUALITY	N/A	N/A	N/A	N/A
HABITAT MAINTENANCE	N/A	N/A	N/A	N/A
POLLINATION	N/A	N/A	N/A	N/A
WASTE REMEDIATION	N/A	N/A	N/A	N/A
SOCIAL/CULTURAL SERVICES				
CULTURAL / SPIRITUAL SERVICES	N/A	N/A	N/A	N/A
RECREATION	N/A	N/A	N/A	N/A
VISUAL AMENITY	N/A	N/A	N/A	N/A

Data sources: ENCORE tool (online), TNFD Sector Guidance (2024-25)

Considering natural hazard exposure for the Project at the regional level and 'Arad county', using the ThinkHazard tool, the following is relevant to the region (**Table 21**):

TABLE 21 RELEVANT REGIONAL NATURAL HAZARD RISKS

NATURAL HAZARD TYPE	RISK LEVEL FOR ARAD COUNTY, ROMANIA
RIVER FLOOD	HIGH
WILDFIRE	HIGH
URBAN FLOOD	MEDIUM
EARTHQUAKE	MEDIUM
LANDSLIDE	MEDIUM
EXTREME HEAT	MEDIUM
WATER SCARCITY	LOW
CYCLONE	NO DATA
COASTAL FLOOD	N/A
TSUNAMI	N/A
VOLCANO	N/A

Data source: ThinkHazard: https://www.thinkhazard.org/en/report/2447-romania-arad

Taking into consideration the ENCORE/TNFD ratings for demand and the natural hazard exposure risk, Project demand was rated as per **Table 22.**

TABLE 22 PROJECT DEMAND FOR ES

ES	PROJECT DEMAND FOR ES		
	INITIAL PROJECT DEMAND	RELEVANT NATURAL HAZARD RISK RATING	FINAL DEMAND RATING
PROVISIONING SERVICES			
WATER SUPPLY	Medium	Low	Low-Medium
FIBRE/ MATERIALS	N/A		
GENETIC MATERIAL			
BIOMASS PROVISIONING			
REGULATING AND SUPPORTING SERVICES			
GLOBAL CLIMATE REGULATION	Very High	Medium	High
LOCAL CLIMATE REGULATION	Medium	Medium	Medium
RAINFALL PATTERN REGULATION	Very High	Low	Medium
AIR FILTRATION SERVICES	Very Low	-	Very Low
SOIL/SEDIMENT RETENTION AND EROSION CONTROL	High	Medium	Medium
WATER PURIFICATION	Medium	Low	Low
WATER FLOW MAINTENANCE / REGULATION	Medium	Low	Low
FLOOD PROTECTION	Medium	Medium	Medium
STORM MITIGATION	Medium	Medium	Medium
NOISE ATTENUATION	Low	-	Low
MEDIATION OF OTHER SENSORY IMPACTS (OTHER THAN NOISE)	Very Low	-	Very Low

ES	PROJECT DEMAND FOR ES		
	INITIAL PROJECT DEMAND	RELEVANT NATURAL HAZARD RISK RATING	FINAL DEMAND RATING
DILUTION BY ATMOSPHERE AND ECOSYSTEMS	Low	-	Low
BIOLOGICAL CONTROL	N/A		
SOIL QUALITY			
HABITAT MAINTENANCE			
POLLINATION			
WASTE REMEDIATION			
SOCIAL/CULTURAL SERVICES			
CULTURAL / SPIRITUAL SERVICES	N/A		
RECREATION			
VISUAL AMENITY			

Rating Community Demand:

Local level/community demand for ES was based on the baseline for the ESIA for socio-economic and cultural heritage topics as well as supplementary desktop review of available information as needed. In summary, the following aspects are considered particularly noteworthy from a local demand perspective:

- **In terms of key provisioning services:**
  - the main activity supporting local livelihoods in the study area is agriculture, which is practiced at both commercial and subsistence levels;
  - there is likely to be a moderate level of demand for cultivated crops (cereals) that are both a source of food and income for local farmers and communities (arable land is largely under private ownership, with cereal crop production being dominated by larger commercial farmers);
  - animal husbandry and grazing of livestock takes place on pastures and steppe meadows, providing a source of food and revenue for locals including both larger commercial farmers and small-scale farmers (moderate demand);
  - there are few wooded ecosystems nearby that provide opportunities for timber collection, medicinal plants, honey or hunting;
  - there are no known fisheries in the area for subsistence or recreational fishing;
  - water is supplied by the regional water provider (Compania de Apa Arad SA) which has groundwater as a main resource and surface water as a secondary resource for both potable and non-potable use, as such dependency on rivers for direct supply is considered limited (also ground water due to salinity).
- **In terms of regulating/supporting services:**
  - in agroecosystems, pollinators are essential to maintaining cultivated areas and therefore demand is potentially moderate;
  - there is likely some demand for biological control (pests and predators) in terms of the agricultural and grazing use of lands;
  - soil fertility is an important aspect in agricultural landscapes such as this;
  - given the largely rural natura of the landscape and dominant activity being agriculture, the demand for noise/pollution/sensory attenuation and protection services are probably limited;

- The project area is located within a Natura 2000 site and a KBA/IBA, which are particularly important for bird species conservation and whilst the agricultural fields on the site (modified habitats) are suboptimal for supporting key species conserved within the protected area/IBA, the adjacent steppe/salt marsh habitats are important, particularly for bird species (waterbirds, etc.) such that local demand could be considered moderate-high given this context.

- **In terms of social/cultural services:**
  - demand for tourism/recreation is likely to be limited in the agricultural setting, but some level of demand can be linked to the Natura 2000 site.

Based on this local level context and understanding of community demand, ratings are provided in **Table 23**.

TABLE 23 COMMUNITY/LOCAL DEMAND FOR ES

ES	LOCAL / COMMUNITY DEMAND FOR ES		
	INITIAL LOCAL DEMAND	RELEVANT NATURAL HAZARD RISK RATING	FINAL DEMAND RATING
PROVISIONING SERVICES			
WATER SUPPLY	Medium	Low	Low-Medium
FIBRE/ MATERIALS	Low	-	Low
GENETIC MATERIAL	Low	-	Low
BIOMASS PROVISIONING	High	-	High
REGULATING AND SUPPORTING SERVICES			
GLOBAL CLIMATE REGULATION	Medium	Medium	Medium
LOCAL CLIMATE REGULATION	High	Medium	Medium-High
RAINFALL PATTERN REGULATION	Medium	Low	Low-Medium
AIR FILTRATION SERVICES	Low	-	Low
SOIL/SEDIMENT RETENTION AND EROSION CONTROL	Medium	Medium	Medium
WATER PURIFICATION	Medium	Low	Low-Medium
WATER FLOW MAINTENANCE / REGULATION	Medium	Low	Low-Medium
FLOOD PROTECTION	Medium	Medium	Medium
STORM MITIGATION	Medium	Medium	Medium
NOISE ATTENUATION	Low	-	Low
MEDIATION OF OTHER SENSORY IMPACTS (OTHER THAN NOISE)	Low	-	Low
DILUTION BY ATMOSPHERE AND ECOSYSTEMS	Medium	-	Medium
BIOLOGICAL CONTROL	Medium	-	Medium
SOIL QUALITY	High	-	High
HABITAT MAINTENANCE	Moderate-High	-	Moderate-High
POLLINATION	High	-	High
WASTE REMEDIATION	Low	-	Low
SOCIAL/CULTURAL SERVICES			
CULTURAL / SPIRITUAL SERVICES	Low	-	Low
RECREATION	Medium	-	Medium
VISUAL AMENITY	Low	-	Low

Rating ES Replaceability:

The potential replaceability of ES (availability of other alternatives to replace ES in the study area) was considered and rated in **Table 24**, relying on interpretation of baseline biodiversity/social data and desktop analysis using ThinkHazard.

TABLE 24 ES REPLACEABILITY

ES	REPLACEABILITY	COMMENTS
PROVISIONING SERVICES		
WATER SUPPLY	High	*Several alternatives in the region linked to the larger river network and open water areas and there is generally a low level of water scarcity risk regionally.*
FIBRE/ MATERIALS	High	*The site is not particularly important for this service and other options in the region are likely to be available and superior.*
GENETIC MATERIAL		
BIOMASS PROVISIONING		
REGULATING AND SUPPORTING SERVICES		
GLOBAL CLIMATE REGULATION	Low	*Largely irreplaceable at the global level.*
LOCAL CLIMATE REGULATION	Low	*Climate regulation services are inherently difficult or very costly to replace.*
RAINFALL PATTERN REGULATION	Medium	*Several alternatives in the region, low level of water scarcity regionally. Inherently difficult or very costly to replace.*
AIR FILTRATION SERVICES	Medium	*Inherently difficult or very costly to replace.*
SOIL/SEDIMENT RETENTION AND EROSION CONTROL	Medium	*Inherently difficult or very costly to replace.*
WATER PURIFICATION	High	*Several alternatives in the region, low level of water scarcity regionally.*
WATER FLOW MAINTENANCE / REGULATION	High	*Several alternatives in the region, low level of water scarcity regionally.*
FLOOD PROTECTION	Medium	*Inherently difficult or very costly to replace (flood risk region).*
STORM MITIGATION	Medium	*Inherently difficult or very costly to replace.*
NOISE ATTENUATION	High	*Limited benefits provided by the ecosystems at the site (flat area, lacking wooded habitats). Can be artificially substituted.*
MEDIATION OF OTHER SENSORY IMPACTS (OTHER THAN NOISE)	High	*Inherently difficult or very costly to replace.*
DILUTION BY ATMOSPHERE AND ECOSYSTEMS	Medium	*Inherently difficult or very costly to replace. Can be artificially substituted.*
BIOLOGICAL CONTROL	High	*Can be artificially substituted. Likely to be superior options elsewhere in the local region.*
SOIL QUALITY	High	*The saline soils at the site are not particularly productive or useful for growing crops, also with reduced grazing potential. There are likely to be better options elsewhere in the region.*
HABITAT MAINTENANCE	Medium-High	*The adjacent steppe/salt marsh habitats are important, particularly for bird species (waterbirds, etc.); however, there are numerous habitats associated with the protected area (Natura 2000) that are in a better condition to those found at the Project site and which provide superior opportunities to support local wildlife.*
POLLINATION	High	*Likely to be superior natural habitats such as grasslands and meadows in the broader Natura 2000 site providing superior opportunities for this service.*
WASTE REMEDIATION	High	*Can be costly to replace. Can be artificially substituted.*

ES	REPLACEABILITY	COMMENTS
SOCIAL/CULTURAL SERVICES		
CULTURAL / SPIRITUAL SERVICES	High	*In itself, the agricultural landscape at the site provides limited opportunities that can be easily replaced by other more intact habitats and landscape associated with the broader Natura 2000 site.*
RECREATION		
VISUAL AMENITY		

5.1.5 Priority ES

Taking into consideration Project and local/community demand for ES (maximum used) and ES replaceability, priority ecosystem services were identified where relevant (i.e. those that are in high demand and/or which are not easily replaceable or where there are few alternatives available for these ES).

The prioritization of ES in **Table 25** suggests that most ES are low priority (limited demand and/or high replaceability) with several that are of medium importance (some demand, possibly contained in terms of alternatives) and these are largely linked to those linked to agricultural activities in the study area and management of natural hazards such as floods/storms/erosion:

- Biomass provisioning (linked to agricultural production);
- Rainfall pattern regulation
- Soil/sediment retention and erosion control
- Flood and storm mitigation
- Dilution by atmosphere
- Soil quality
- Habitat maintenance
- Pollination

These, however, should not be considered priority ES in terms of the IFC/EBRD definition as these are not considered to be significant for supporting local livelihoods and community health/safety and the Project is also unlikely to impact significantly on these ES based on the findings of the ESIA for the biodiversity, environmental and social topics assessed.

Potential 'high' priority ES being linked to those with high Project/local demand (and which would be challenging/costly to replace) could be linked to **global and local climate regulation**. However, this was also not considered to be a priority ES in terms of the IFC/EBRD definition given that the Project will not result in significant adverse effects on global/local climate and in fact, as a renewable energy Project aims to make a positive net contribution to climate by providing a clean/green source of energy.

Table 25 ES PrioritiZation

ES	ES PRIORITIZATION				
	Project Demand [A]	Local / Community Demand [B]	Maximum Demand [MAX OF A AND B]	Replaceability	Priority ES
PROVISIONING SERVICES					
WATER SUPPLY	Low-Medium	Low-Medium	Low-Medium	High	Low
FIBRE/ MATERIALS	N/A	Low	Low		Very Low
GENETIC MATERIAL		Low	Low		Very Low
BIOMASS PROVISIONING		High	High		Medium
REGULATING AND SUPPORTING SERVICES					

ES	ES PRIORITIZATION				
	Project Demand [A]	Local / Community Demand [B]	Maximum Demand [MAX OF A AND B]	Replaceability	Priority ES
GLOBAL CLIMATE REGULATION	High	Medium	High	Low	High
LOCAL CLIMATE REGULATION	Medium	Medium-High	Medium-High	Low	Medium-High
RAINFALL PATTERN REGULATION	Medium	Low-Medium	Medium	Medium	Medium
AIR FILTRATION SERVICES	Very Low	Low	Low	Medium	Very Low
SOIL/SEDIMENT RETENTION AND EROSION CONTROL	Medium	Medium	Medium	Medium	Medium
WATER PURIFICATION	Low	Low-Medium	Low-Medium	High	Low
WATER FLOW MAINTENANCE / REGULATION	Low	Low-Medium	Low-Medium	High	Low
FLOOD PROTECTION	Medium	Medium	Medium	Medium	Medium
STORM MITIGATION	Medium	Medium	Medium	Medium	Medium
NOISE ATTENUATION	Low	Low	Low	High	Low
MEDIATION OF OTHER SENSORY IMPACTS (OTHER THAN NOISE)	Very Low	Low	Low	High	Low
DILUTION BY ATMOSPHERE AND ECOSYSTEMS	Low	Medium	Medium	Medium	Medium
BIOLOGICAL CONTROL	N/A	Medium	Medium	High	Low
SOIL QUALITY		High	High	High	Medium
HABITAT MAINTENANCE		Moderate-High	Moderate-High	Medium-High	Low-Medium
POLLINATION		High	High	High	Medium
WASTE REMEDIATION		Low	Low	High	Very Low
SOCIAL/CULTURAL SERVICES					
CULTURAL / SPIRITUAL SERVICES	N/A	Low	Low	High	Very Low
RECREATION		Medium	Medium		Low
VISUAL AMENITY		Low	Low		Very Low

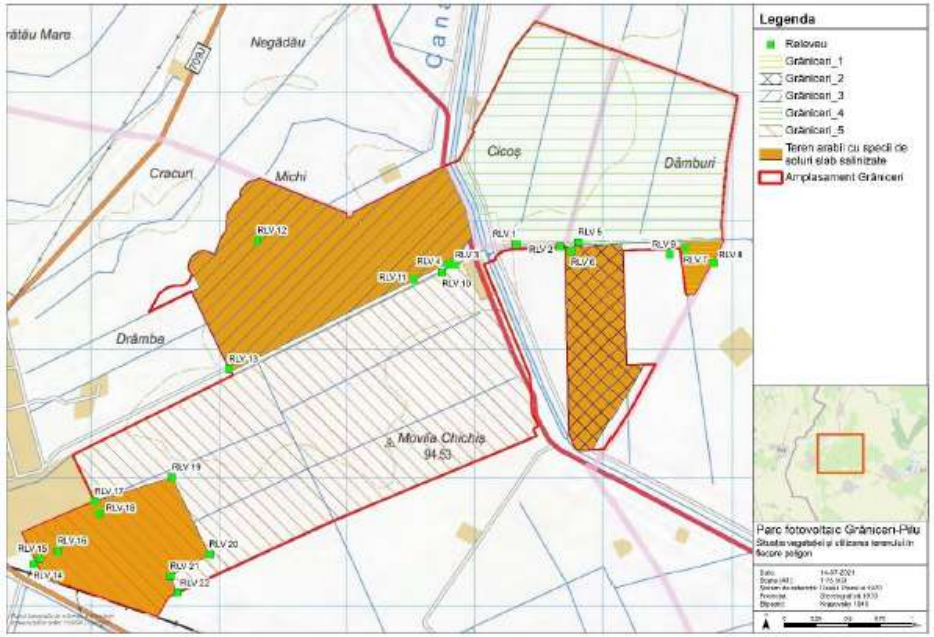
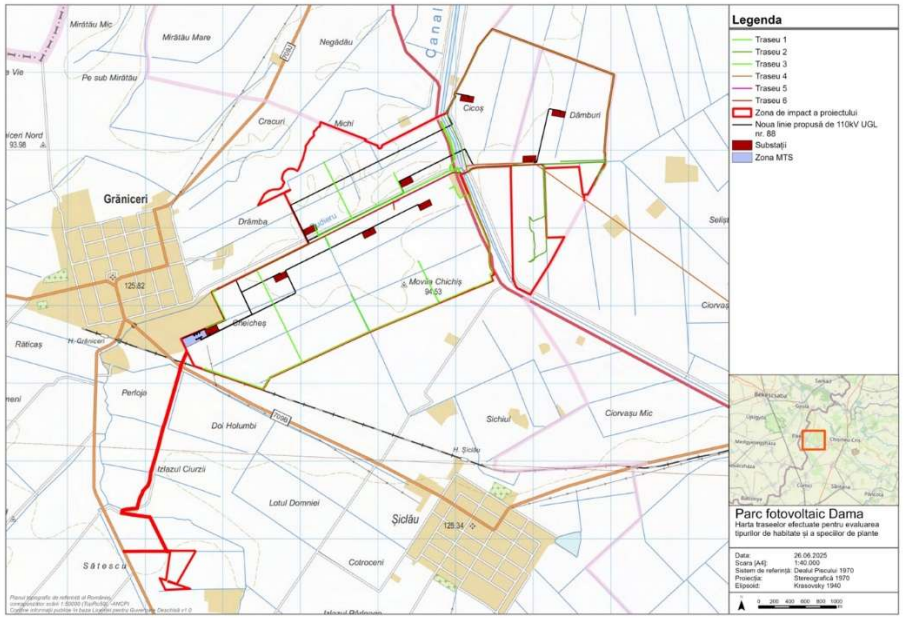
5.1.6 Conclusion

Given that there are no priority ES identified for the Project study area that could be adversely impacted by the Project it is not considered necessary to assess impacts on ES in further detail.

The ESIA impact assessment and mitigation measures adequately address the physical environment, biodiversity and socio-economic/cultural impacts, and as such impacts on ES are considered to be appropriately covered under the assessment. With mitigation implemented as per the ESIA recommendations, it is considered unlikely that there will be significant impacts to ES overall and no impacts to 'priority' services.

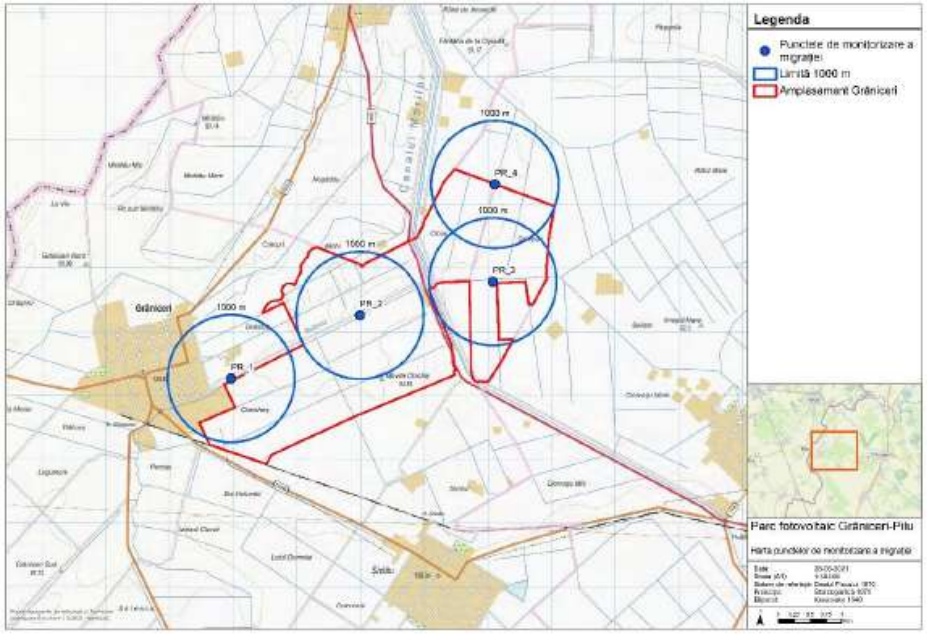
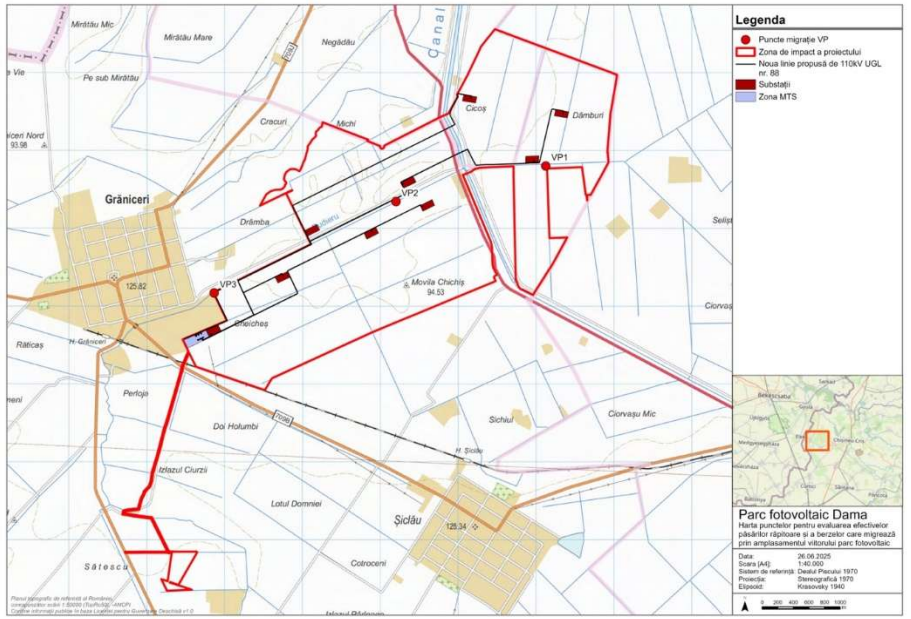
5.2 Annex B: Baseline Survey Maps

5.2.1 Habitats and Flora Surveys

2021	2024/25
	

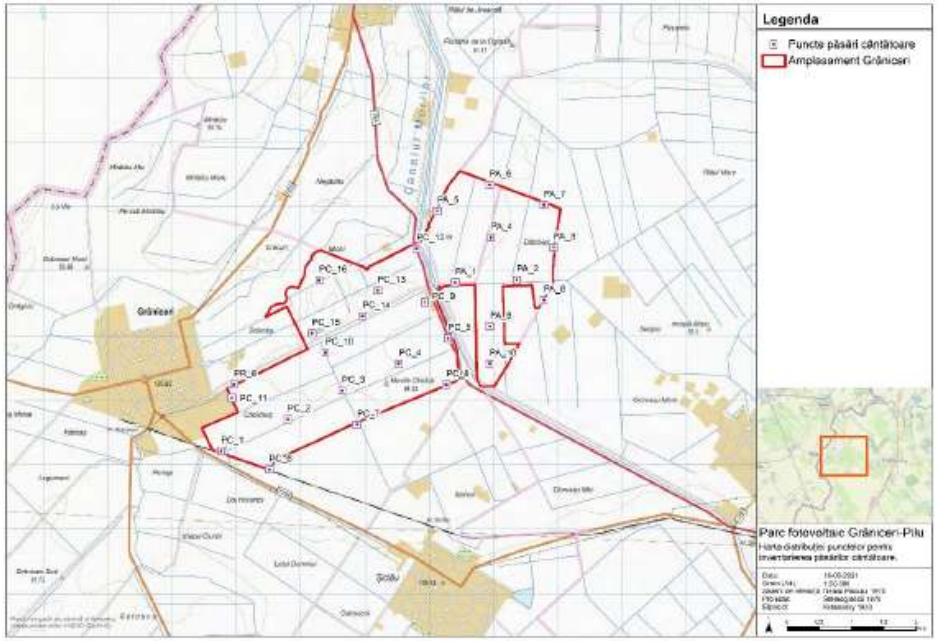
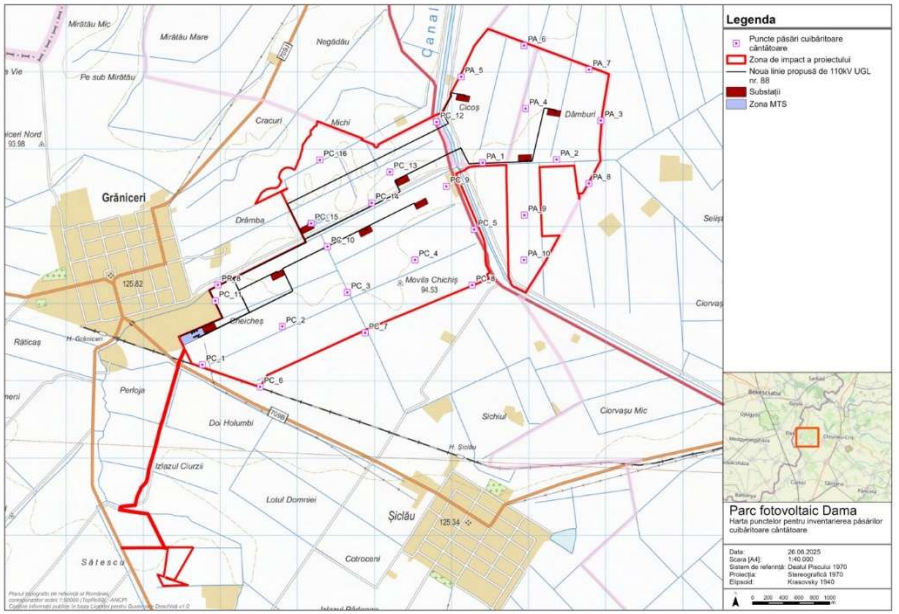
Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.2 Birds: VP / Migratory Surveys

2021	2024/25
	

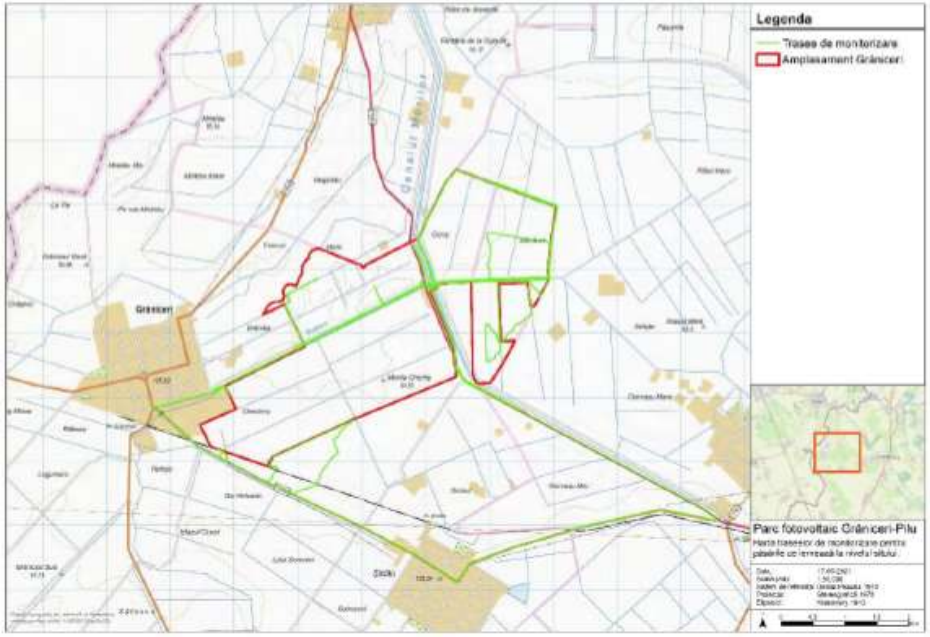
Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.3 Birds: Breeding Bird Surveys

2021	2024/25
	

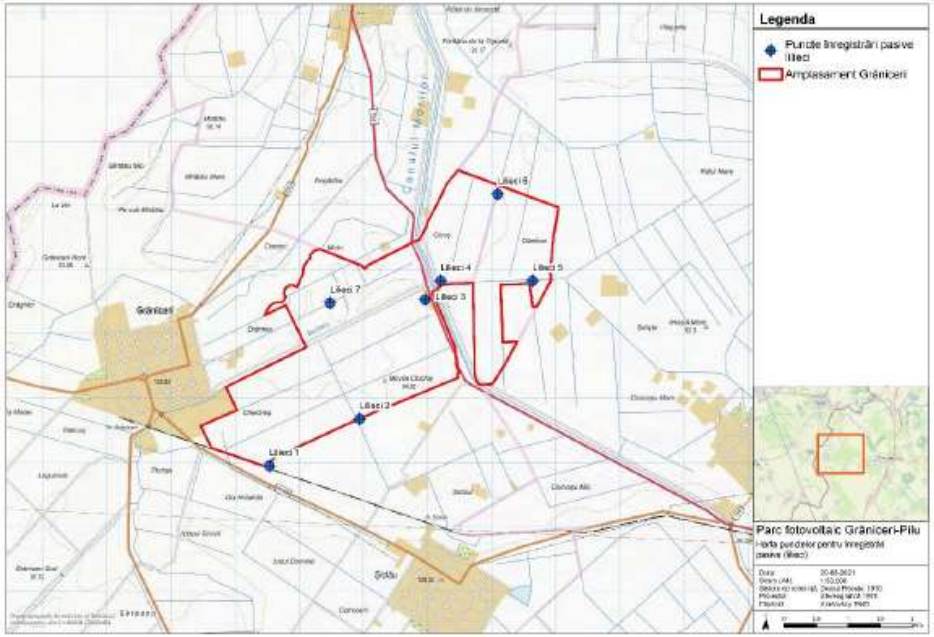
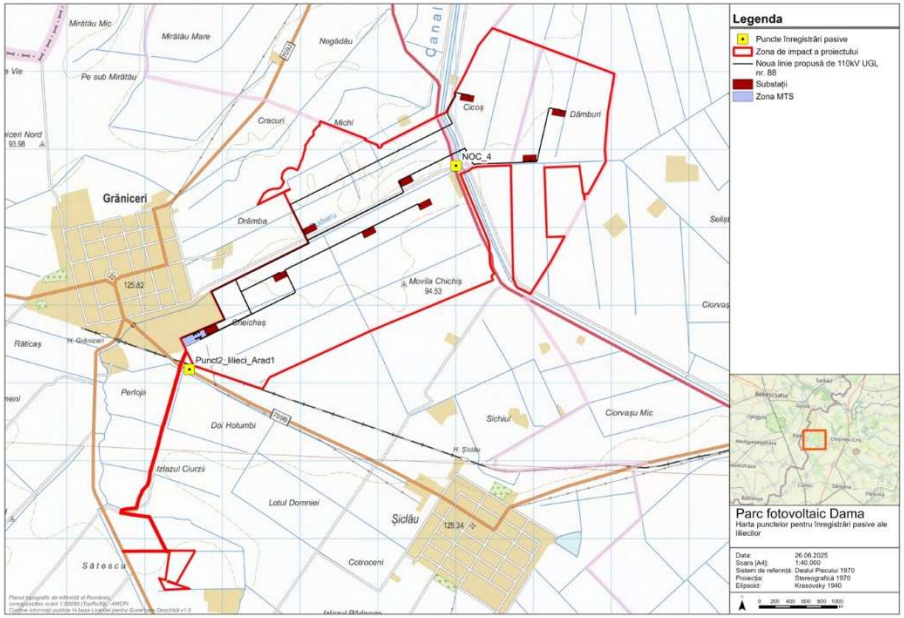
Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.4 Birds: Wintering Bird Surveys

2021	2024/25
	Same as 2021

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.5 Bats: Automated detectors

2021	2024/25
	

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.6 Bats: Manual detector surveys

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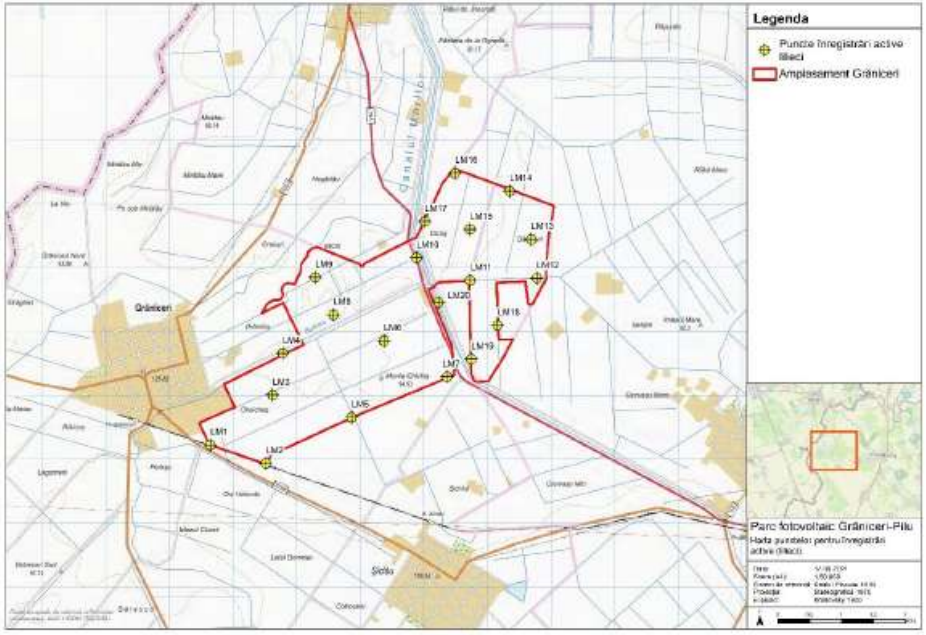
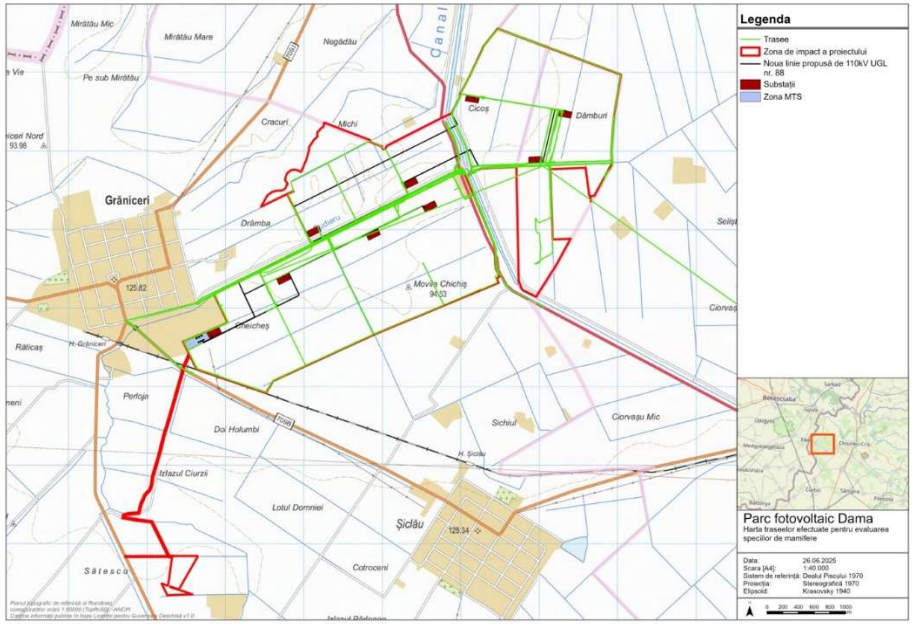
	See automated detector map for information

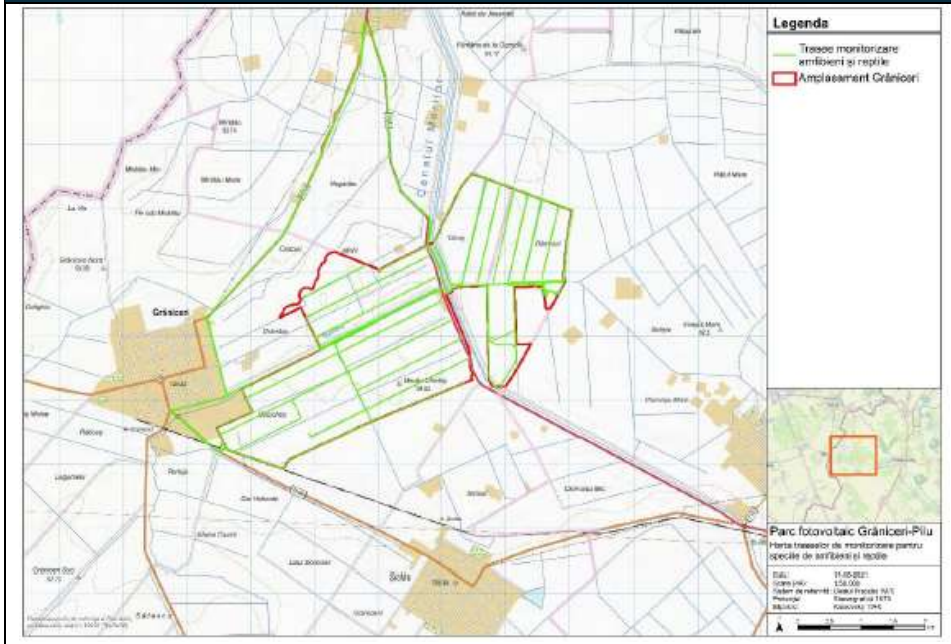
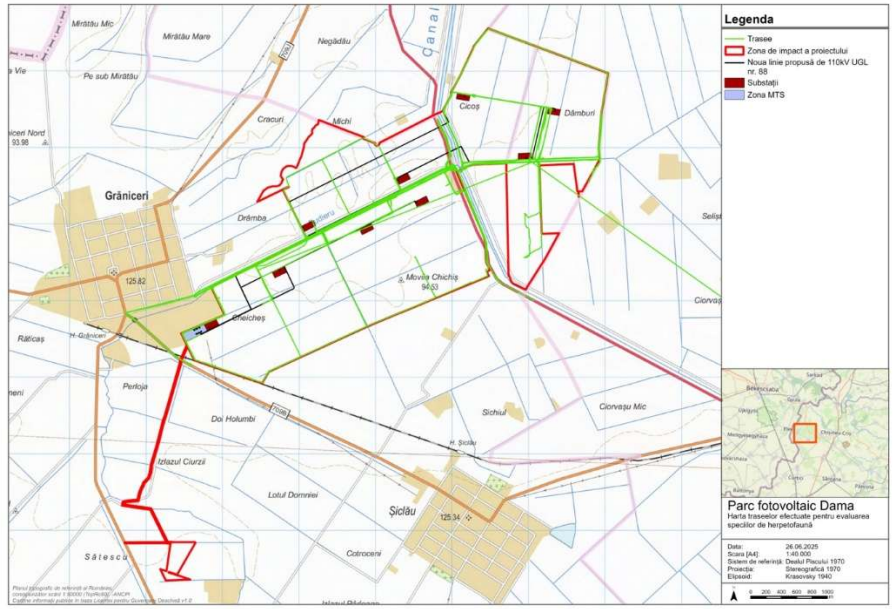
Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.7 Mammals

2021	2024/25
Same as herpetofauna map	

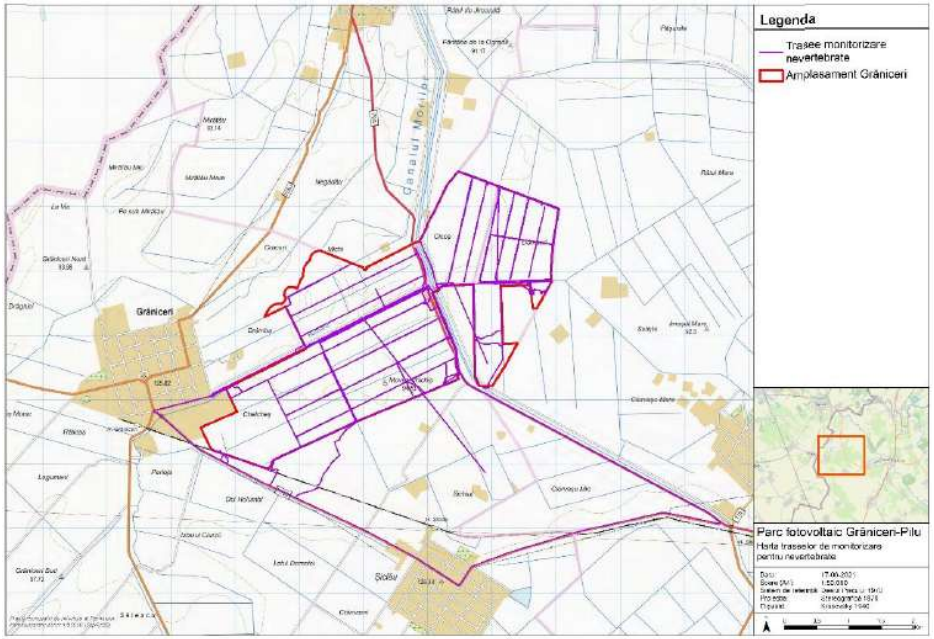
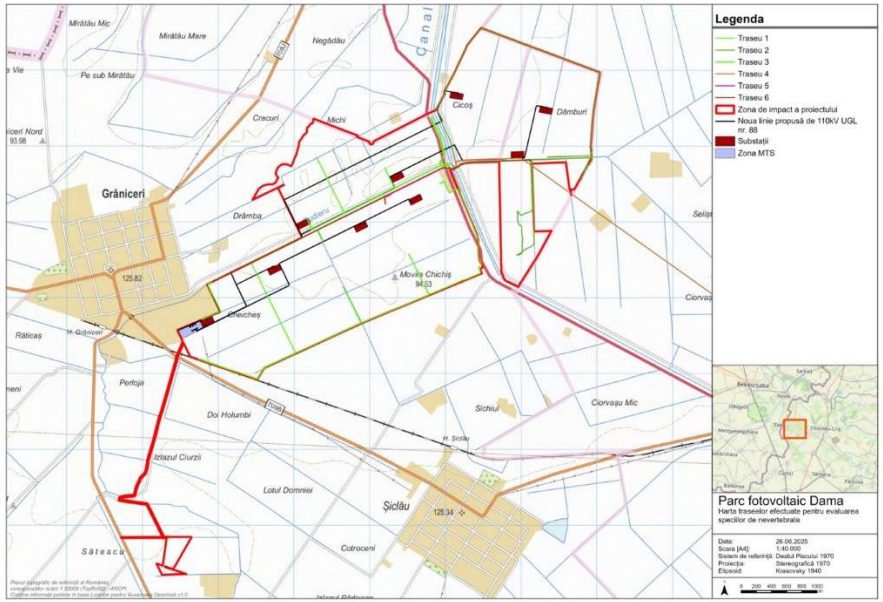
Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.8 Herpetofauna

2021	2024/25
	

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)

5.2.9 Invertebrates

2021	2024/25
	

Information/data sources: Wildlife Management Consulting srl (2021 & 2024/25)