

Framework Biodiversity Management Plan (BMP)

GPC Sajószöged 243 MW Solar PV
Power Plant Project, Hungary

PREPARED FOR

GoldenPeaks Capital

GoldenPeaks Capital

DATE

26 September 2025

REFERENCE

0785433



Source: <https://goldenpeakscapital.com/solar-energy>

DOCUMENT DETAILS

DOCUMENT TITLE	Framework Biodiversity Management Plan (BMP)
DOCUMENT SUBTITLE	GPC Sajószöged 243 MW Solar PV Power Plant Project, Hungary
PROJECT NUMBER	0785433
DATE	26 September 2025
VERSION	0.2 draft
AUTHOR	Nehir Yildiz
CLIENT NAME	GoldenPeaks Capital

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
0.1 draft	000	Nehir Yildiz	Adam Teixeira-Leite	Adam Teixeira-Leite	26.09.2025	Draft submitted to client for review and comment
0.2 draft	001	Lamija Karabeg	Adam Teixeira-Leite	Adam Teixeira-Leite	10.10.2025	Draft submitted to client for review and comment

SIGNATURE PAGE

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GPC Sajószöged 243 MW Solar PV Power Plant Project, Hungary

0785433

Dana Bratu

Partner

ERM GmbH

Brüsselerstr. 1-3

60327 Frankfurt

Germany

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LIST OF ACRONYMS & ABBREVIATIONS

Acronym	Description
AoI	Area of Influence
BAP	Biodiversity Action Plan
BMEP	Biodiversity Monitoring and Evaluation Program
BMP	Biodiversity Management Plan
CH	Critical Habitat
CMS	Convention on Migratory Species
COD	Commercial Operation Date
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
EN	Endangered
ERM	Environmental Resources Management
ESR	Environmental and Social Requirement
ESDD	Environmental & Social Due Diligence
EU	European Union
GIP	Good International Practice
GPC	GoldenPeaks Capital
IAS	Invasive Alien Species
IFI	International Financial Institution

Acronym	Description
IUCN	International Union for Conservation of Nature
km	Kilometer
KPI	Key Performance Indicator
LC	Least Concern
m	Meter
NG	Net Gain
NNL	No Net Loss
NT	Near Threatened
PBF	Priority Biodiversity Features
PV	Photovoltaic
SAC	Special Areas of Conservation
VU	Vulnerable

DEFINITION OF KEY TERMS

Adaptive management:

A proactive and iterative approach to managing biodiversity that involves adjusting mitigation or monitoring measures over time in response to observed results. It ensures that actions remain effective under changing conditions and unforeseen outcomes, supporting the achievement of biodiversity objectives through ongoing evaluation and learning.

Invasive alien species (IAS):

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 minimization 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.

No Net Loss (of biodiversity):

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 minimize the impacts, to restore affected areas and finally to offset the residual impacts, so that no loss remains.

No net loss is defined as the point at which project-related biodiversity losses are balanced by gains resulting from measures taken to avoid and minimize these impacts, to undertake on-site restoration and finally to offset significant residual impacts, if any, on an appropriate geographic scale (EBRD, 2024).

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) are a subset of biodiversity that 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, 2024).

Protected area:

EBRD adopts the IUCN definition of a protected areas, which is *"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"* (EBRD, 2024).

Residual Impact

Impacts on biodiversity that remain even after the application of avoidance, minimization, and restoration measures. Residual impacts are typically addressed through biodiversity offsets or long-term management and monitoring strategies.

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

This document presents the Framework Biodiversity Management Plan (BMP) for the GoldenPeaks Capital (GPC) Sajószöged Solar PV Power Plant Project located in northeastern Hungary. GoldenPeaks Capital Holding Ltd is the Project 'Sponsor' for the planned 243 MW portfolio of solar photovoltaic (PV) power plants, comprising six sub-projects: Sajószöged I, II, III, VI, VII & IX.

The location of the Project is shown on the map in Figure 1, with further details and description provided in Information Box 1.

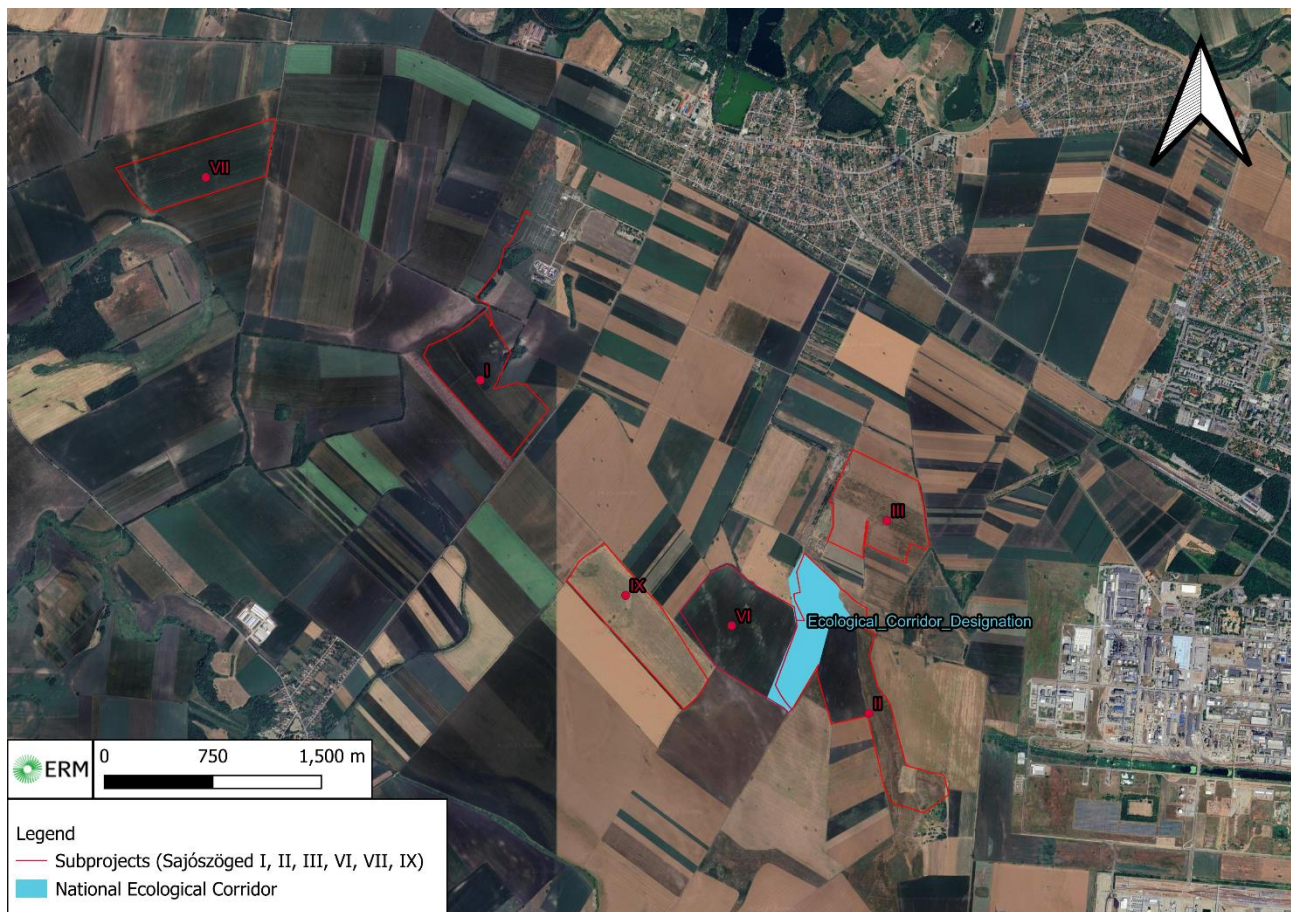


FIGURE 1-1 PROJECT LOCATION MAP

Source: ERM, based on data provided by the client

The Project is seeking financing from the European Bank for Reconstruction and Development (EBRD) and other lenders for the development, construction, and operation of the solar power plant. Following the Environmental & Social Due Diligence (ESDD) undertaken by ERM in August 2025, which considered alignment with the key international lender's requirements/standards that being the EBRD Environmental and Social Requirements (ESR) (EBRD, 2024), a key finding was that the sub-project 'Sajószöged II' overlaps with the buffer zone of a national ecological network corridor that supports species that are protected and of conservation importance at national, regional (Europe) and international levels. This includes

four bird species that were found to qualify as Priority Biodiversity Features (PBF) in line with the assessment criteria of EBRD ESR6.

To ensure alignment with EBRD ESR6, a staged approach has been proposed to ensure at least No Net Loss (NNL) of biodiversity is achieved for identified PBF bird species associated with the Project. This includes firstly preparing a Framework Biodiversity Management Plan or BMP (this document) based on existing PBF species data to inform EBRDs decision-making process regarding the Project financing and to supersede and inform the development of a more comprehensive, Project-specific BMP for the Project, as a subsequent step before commencing with construction.

This document presents the Framework BMP for the Project, which focuses on managing PBF species to meet a NNL of biodiversity objective, aligned with the requirements of EBRD ESR6.

Information Box 1. Project Description and Status (summary)

The 243 MW Project comprises six subprojects: Sajószöged I, II, III, VI, VII, and IX, located within the administrative areas of Nagycséc, Hejőbába, Sajószöged, and Nemesbikk in Borsod-Abaúj-Zemplén County, Hungary. The subprojects are all distributed across agricultural land and will be interconnected by underground 22 kV power cables to a 220/22 kV Project substation, located within the Sajószöged I subproject site. This substation will be connected to the grid via a 220 kV underground export cable to an existing substation within the 400/220/32 kV Sajószöged high-voltage electrical transmission substation operated by MAVIR ZRt. (the Hungarian Transmission System Operator).

Each subproject has undergone individual construction permitting, including Preliminary Environmental Assessments, in accordance with Hungarian legislation.

The Project will be developed through six Hungarian special purpose vehicles (SPVs):

SPV	Project	Capacity (MWac)
Golden NES Solar Kft.	Sajószöged I.	27.75
Peak NES Solar Kft	Sajószöged II.	41.25
GP NES Solar Kft	Sajószöged III.	27
Hejő Solar Kft.	Sajószöged VI.	32.7
Nemes NES Solar Kft.	Sajószöged VII.	28.5
Sajószöged Solar Kft.	Sajószöged IX.	30

GoldenPeaks Capital Holding Ltd is the Project 'Sponsor'.

Project implementation will be carried out by Spectris Hungary Kft. ("Spectris"), a wholly owned subsidiary of GoldenPeaks, which oversees the execution of local energy projects in Hungary. Spectris will also manage the operation of the Project following its commissioning.

The Project construction is planned to initiate in Q3, 2025 with the commercial operation date (COD) envisaged for June 2027.

1.2 PURPOSE

The Framework BMP serves as an initial high-level framework that outlines the overall mitigation approach and strategy for PBF bird species to guide the development of a project-specific BMP (see Information Box 2 below). A key focus is on mitigating risks and impacts to bird species that qualify as PBF for the Project (*see the ESDD report by ERM for further information on the PBF screening done*) and with a key objective of meeting No Net Loss (NNL) as a minimum for the PBF species potentially impacted by the Project¹. Five (5) bird and two (2) amphibian species qualify as PBF for the Project, in line with the criteria of EBRD ESR6 that considers the conservation and management of biodiversity and ecosystems.

This includes:

Red-footed Falcon (*Falco vespertinus*, VU), Western Marsh-harrier (*Circus aeruginosus*), White Stork (*Ciconia ciconia*), European Roller (*Coracias garrulus*), Red-backed Shrike (*Lanius collurio*), as well as the amphibians European Tree Frog (*Hyla arborea*) and Green Toad (*Bufo viridis*).

Information Box 2. What is a BMP?

Despite renewable energy projects such as solar power plants playing an important role in moving towards a more sustainable energy sector, these relatively 'clean energy' projects can also result in often unintended negative impacts and consequences to the environment and biodiversity, 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.

A Biodiversity Management Plan (BMP) provide a systematic approach to biodiversity management and conservation at the project-level that can be integrated into GoldenPeaks Environmental & Social Management System (ESMS). The BMP is necessary to inform the management and mitigation of biodiversity risks and impacts during construction, operation and maintenance of the solar power plant and builds on the existing actions/commitments already being implemented or planned for implementation for the Project (i.e. 'embedded' mitigation measures).

1.3 SCOPE

The scope for preparing the Framework BMP involved the following:

- Review and summarize/document the existing information in the ESDD report (ERM, 2025) concerning identification of PBF species;
- Set high-level objectives for the BMP (i.e. No Net Loss of biodiversity for PBF species in line with EBRD ESR6 requirements);

¹ For PBF, EBRD ESR6 states that project-related activities are not be implemented unless:

- The project can demonstrate that no technically/economically feasible alternatives exist,
- Stakeholders are consulted,
- The project is permitted legally under relevant laws,
- Appropriate mitigation is implemented in accordance with the mitigation hierarchy to ensure at least No Net Loss (NNL) and preferably Net Gain (NG) of biodiversity over the long term to achieve measurable conservation outcomes.

- Document potential Project-related risks/impacts to PBF species based on the existing information for the Project;
- Review available information from the International Union for Conservation of Nature (IUCN) red list of threatened species (online database: <https://www.iucnredlist.org/>) to inform an understanding of the ecology, habitat requirements, key threats and existing/known conservation actions for each PBF bird species;
- Develop high-level actions for PBF species in order to meet the BMP objectives of NNL for biodiversity for PBF, applying the mitigation hierarchy with a focus on prioritizing avoidance and minimization of impacts (*informed by species requirements and threats documented by the IUCN – above bullet item*);
- Consider what further baseline biodiversity monitoring requirements apply to the Project, including timing/schedule and prioritizing sampling locations, especially to cover PBF species and inform BMP actions;
- List other biodiversity management actions and measures likely to be required (e.g. invasive species control, ecosystem services, other important species apart from PBFs, etc.) and document how mitigation is already integrated into the Project and what further requirements are likely to be necessary for the BMP to supplement the 'existing/embedded measures' already considered for the Project;
- Document preliminary roles and responsibilities for BMP implementation;
- Highlight any assumptions, limitations and knowledge gaps (if any);
- Identify the key next steps and timeframes for the detailed BMP preparation; and
- Provide the Framework BMP in a suitable report format.

2. APPLICABLE LEGISLATION, STANDARDS AND GUIDELINES

2.1 LEGISLATION

2.1.1 EUROPEAN DIRECTIVES

EU Habitats Directive:

In terms of the EU Habitats Directive² (amended 2013), both habitats and species of wildlife are considered. In terms of habitats, Annex I lists habitat types of community interest, that typically requires designation of SACs (Special Areas of Conservation – in terms of Natura 2000 protected areas network essentially). These are natural habitat types that are in danger of disappearance in their natural range or have a small natural range that warrants specific conservation action and attention. 'Priority' habitat types are also assigned in Annex I for specific habitats, and these are in particular danger of disappearance and warrant the strictest conservation measures.

Species listed in Annex II include animal/plant species of community interest. As to the restrictions that apply to species and their habitats listed in Annex IV of the Habitats Directive, most notable is Article 12 concerning the protection of species listed in Annex IV, as follows:

1. Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (a) in their natural range, prohibiting:

² European Union. (1992). *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)*. Official Journal of the European Communities, L 206, 7–50. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31992L0043> (Accessed: May 2025).

- (a) all forms of deliberate capture or killing of specimens of these species in the wild;*
- (b) deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;*
- (c) deliberate destruction or taking of eggs from the wild;*
- (d) deterioration or destruction of breeding sites or resting places.*

EU Birds Directive:

In terms of the EU Birds Directive³ (amended in 2013), species listed in Annex I “*shall be the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution*”.

2.1.2 NATIONAL LEGISLATION FOR HUNGARY

Hungary’s national legal framework for biodiversity and nature conservation is based on a comprehensive set of primary acts (parliamentary laws) and implementing government/ministerial decrees. These legal instruments regulate the protection of natural values, habitats, species, and the sustainable management of natural resources, as well as the implementation of EU nature directives (Birds and Habitats Directives) and international commitments.

The key ones relevant to biodiversity, nature and wildlife conservation/protection are as follows:

- Act LIII of 1995 on the General Rules of Environmental Protection
Framework law establishing principles, environmental impact assessment, and cross-cutting rules for biodiversity and habitats.
- Government Decree 314/2005 (XII.25.) on Environmental Impact Assessment (EIA) and Unified Environmental Permits
Regulates EIA and unified environment-use authorization processes, essential for assessing impacts on biodiversity.
- Act LIII of 1996 on Nature Conservation
The main statute for nature conservation, protected areas, species protection, Natura 2000 implementation, and sanctions.
- Government Decree 275/2004 (X.8.) on Natura 2000 Sites
Rules for designation, management, and appropriate assessment for the Natura 2000 network.
- Ministerial Decree 14/2010 (on land-parcel mapping for Natura 2000)
Parcel identifiers and maps for Natura 2000 site boundaries.
- 269/2007. (X. 18.) Government Decree on the Management of Natura 2000 Grasslands
Land use rules for Natura 2000 grasslands.

³ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.

- Act LV of 1996 on Game Protection, Game Management and Hunting
Rules for management and protection of wild fauna, hunting seasons and licences, relevant to wild animal conservation.
- Act XXXVII of 2009 on Forests, Forest Protection and Forest Management
Regulates forest protection and sustainable forest management, key for forest biodiversity and habitat conservation.
- Act XXVIII of 1998 on the Protection and Welfare of Animals
Animal welfare and protection law, including wild animal treatment and certain species-protection provisions.
- 348/2006. (XII. 23.) Government Decree on the Protection, Keeping, Utilization, and Presentation of Protected Animal Species
Detailed rules for protected and strictly protected animal species.
- 153/2009. (XI. 13.) FVM Decree on the Implementation of the Forest Act
Technical rules for forest management and protection.
- Act LVII of 1995 on Water Management
Regulates protection and sustainable use of surface and groundwater, important for freshwater habitats and wetlands.

2.2 APPLICABLE STANDARDS

As mentioned in Chapter 1, the Project seeks to align with the E&S Requirements (ESR) of EBRD (2024), including Environmental and Social Requirement 6 (ESR6) which addresses the management of biodiversity and ecosystems. EBRD PR6 is therefore the 'applicable standard' that applies to the Framework BMP and also the Project-level comprehensive BMP to follow later.

A summary of the key ESR6 requirements for managing biodiversity and ecosystems is presented below in Table 2-1, also indicating which aspects are relevant to the Project based on the ESDD (Environmental and Social Due Diligence) report findings (ERM, 2025), that being primarily:

- Priority Biodiversity Features (PBF)
- Other non-PBF biodiversity features
- Invasive Alien Species (IAS) - plants

The key ESR6 requirements for these features are:

- NNL objective for PBF at a minimum (measurable conservation outcomes achieved);
- Consideration of alternatives to avoid adverse impacts;
- Consultation with relevant stakeholders;
- Development to be legally permitted/authorized;

- Implement the mitigation hierarchy (focus on avoiding and minimizing impacts);
- Consider adaptive management practices;
- Life-cycle approach to be considered (manage impacts/risks at all relevant project phases); and
- Preventing IAS establishment, controlling spread of existing IAS at the site.

TABLE 2-1 SUMMARY OF EBRD ESR6 REQUIREMENTS FOR MANAGING BIODIVERSITY

Aspect of Biodiversity	EBRD ESR6 requirements	Applicable to Project? (based on the ESDD, ERM 2025)
APPLICABLE TO PROJECT		
Priority Biodiversity Features (PBFs)	Activities are not be implemented unless: ■ The project can demonstrate that no technically/economically feasible alternatives exist, ■ Stakeholders are consulted, ■ The project is permitted legally under relevant laws, Appropriate mitigation is implemented in accordance with the mitigation hierarchy to ensure NNL and preferably NG of biodiversity over the long term to achieve measurable conservation outcomes.	
Other non-CH or non-PBF biodiversity features	For other biodiversity features that don't qualify as CH or PBF: ■ As a priority, avoid adverse impacts, ■ Where avoidance is not possible, follow the mitigation hierarchy to minimize/mitigate adverse impacts, ■ Only consider offsets as a last resort measure, Adopt a precautionary approach and apply adaptive management practices with measures response to changing conditions and informed by the result of monitoring throughout the project lifecycle.	
Invasive Alien Species (IAS)	Specific requirements for IAS include: ■ Avoid and proactively prevent accidental or deliberate introductions of IAS, ■ No intentional introduction of IAS, ■ Identify potential risks, impacts and mitigation options related to accidental transfer/release of IAS, Control spread of any established IAS.	
NOTE APPLICABLE TO PROJECT (EXCLUDED FROM BMP)		
Protected Areas / Internationally Recognized Areas	Where the project/activity occurs in a legally protected or internationally recognised area: ■ Identify and assess potential project-related impacts and apply the mitigation hierarchy, so that project impacts will not compromise the integrity, conservation objectives and/or biodiversity importance, ■ Development is to be legally permitted, ■ Management plans for protected areas to be reviewed and alignment with any relevant measures, ■ Consultation with protected areas managers and any affected communities or other relevant stakeholders, ■ Promote and enhance conservation objectives and effective management of the protected area through additional programs.	 The ESDD concluded that none of the subprojects are located within nationally or internationally designated protected areas or internationally recognized areas

Aspect of Biodiversity	EBRD ESR6 requirements	Applicable to Project? (based on the ESDD, ERM 2025)
APPLICABLE TO PROJECT		
		such as KBAs/IBAs, etc.
Critical Habitat (CH)	Critical habitat assessment to be undertaken as relevant and informed by the ESIA scoping phase. No activities to take place in areas of critical habitat unless: ■ No other alternatives in habitats of lesser biodiversity value, ■ Stakeholders are consulted, ■ Legally permitted, ■ No measurable adverse impacts on critical habitat values, ■ Project designed to deliver Net Gains (NG) for critical habitat, ■ No net reduction in population of CR/EN species, ■ Appropriate long-term biodiversity monitoring and evaluation program (BMEP) integrated into the project adaptive management program, ■ As a last resort, biodiversity offsets may be considered, ■ Mitigation strategy, including NG, to be described in a Biodiversity Action Plan (BAP) or Biodiversity Management Plan (BMP) where appropriate.	 The ESDD screened for critical habitat and concluded no critical habitat for the Project.

Source: EBRD ESR6 (EBRD ESP, 2024), ESDD report for the Project (ERM, 2025)

2.3 GIP GUIDELINES CONSIDERED

The Framework BMP also seeks to align with Good International Practice (GIP) for managing and mitigation biodiversity impacts for solar energy projects. International and regional (European) guidelines considered widely as being examples of GIP that were reviewed and used to inform the Framework BMP included:

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

3. APPROACH TO BIODIVERSITY MANAGEMENT

The recommended approach to biodiversity management for the Project, aligned with the requirements of EBRD ESR6 (described also in section 2.2: 'Applicable Standards') is as follows:

- Objective to achieve at least **NNL of biodiversity for PBF species** (5 bird species concerned and 2 amphibian species);
- Ensuring that relevant **stakeholder consultation** takes place (as necessary);
- Ensuring that the Project is **legally permitted** in terms of relevant national laws in Hungary;
- Implementing the **mitigation hierarchy** with a focus on avoiding and minimizing impacts where possible before restoration (offsets/compensation as a last resort);
- Incorporating **adaptive management principles and practices** into management planning, informed by monitoring during pre-construction, construction and operational phases; and
- **Controlling Invasive Alien Species (IAS)** – focused on plant species.

This approach forms the framework for developing the BMP for the Project and is described further in the sub-sections that follow, below.

3.1 ACHIEVE NNL OF BIODIVERSITY FOR PBF SPECIES

This is a specific requirement of EBRD ESR6 for PBF.

EBRD ESR6 requires that mitigation be implemented to achieve at least NNL (preferably NF) for PBF that stand to be impacted by the Project. This will need to be achieved over the long-term through measurable conservation outcomes.

These conservation actions and outcomes will need to be specific to the four bird species that qualify as PBF for the Project.

3.2 UNDERTAKE APPROPRIATE STAKEHOLDER CONSULTATION

This is a specific requirement of EBRD ESR6 for PBF.

The BMP to be developed based on this framework will need to first identify what further stakeholder consultation needs to take place based on the management actions and mitigation measures proposed. Inputs from key stakeholders is advisable to ensure that actions align with any national or local conservation objectives for the PBF bird species that form the focus of the BMP. This will also be useful to understand any local contexts specific to these species, including insights into any existing opportunities, constraints and limitations that could influence decisions around conservation actions for the target PBF species.

As a minimum, it is advised that the following consultation takes place:

- Bükk National Park Directorate (the relevant regional nature/protected areas management authority/body) should be consulted and further discussions may be necessary concerning alignment of the BMP measures with the recommendations of any

permits/authorisation issued pertaining to biodiversity and any other matters that the Directorate raises.

- In addition, Non-governmental Organisations (NGOs) focused on wildlife conservation in the region should be identified and consulted with as needed. Examples are likely to include the local partner of BirdLife International in Hungary (MME: Magyar Madártani és Természetvédelmi Egyesület⁴), especially given that PBFs are all bird species identified for the Project. Their current level of involvement in the region and willingness to engage remains unclear at this stage and will need to be considered further during BMP preparation, at an early stage in the process.

3.3 CONFIRM THE PROJECT LEGAL STATUS

This is a specific requirement of EBRD ESR6 for PBF.

The status of the Project with respect to the required permits and authorisations needs to be confirmed upfront. This was essentially covered under the ESDD completed by ERM (2025), with the following being key findings:

- The Project has secured all essential building and cable rights permits required for its implementation, with the exception of part of the Sajószöged II subproject.
- All permits were issued by the Borsod-Abaúj-Zemplén County Government Office, in line with Hungarian legal requirements, and include environmental and biodiversity-related conditions set by the relevant authorities.
- A key biodiversity issue arose in the Sajószöged II extension area, where permitting was suspended because the new plots overlapped with the National Ecological Network (see map in Figure 1-1). According to Hungarian spatial planning regulations, development is strictly limited in ecological corridors and buffer zones to protect natural and semi-natural habitats and maintain ecological connectivity. To address this, the developer revised the project to exclude ecological corridor plots and focus only on buffer zones, ensuring compliance with biodiversity protection rules. This adjustment was supported by an environmental assessment and approved by the Bükk National Park Directorate and the Ministry of Agriculture. Local zoning plans were also updated to reflect these changes, and the new land configuration has been registered.

As a result, the permitting process now fully incorporates biodiversity safeguards, and all required permits, except for the remaining Sajószöged II extension, are in place. The project's approach demonstrates compliance with both national environmental law and biodiversity conservation requirements.

⁴ MME (Magyar Madártani és Természetvédelmi Egyesület), is the leading NGO and nature conservation organization in Hungary and works internationally as a member of the BirdLife International Partnership. The NGO undertakes practical work to conserve Hungary's biodiversity based on sound scientific research and advocates for the effective conservation of birds and their habitats by government at a national and local level and supports this work through educational programmes and its membership. Online at: <https://www.birdlife.org/partners/hungary-magyar-madartani-es-termeszetvedelmi-egyesulet-mme/>

3.4 APPLY THE MITIGATION HIERARCHY

This is a requirement of EBRD ESR6 for both PBF and non-PBF biodiversity features.

To align with EBRD ESR6, the Project is expected to integrate the mitigation hierarchy all stages of development and operation. This requires the Developer to consider options to avoid impacts before considering minimization of impacts and restoration to address residual impacts. *Offsets as a means of compensating for 'significant' residual impacts are only to be considered as a last resort measure, after other measures have first been investigated in full.*

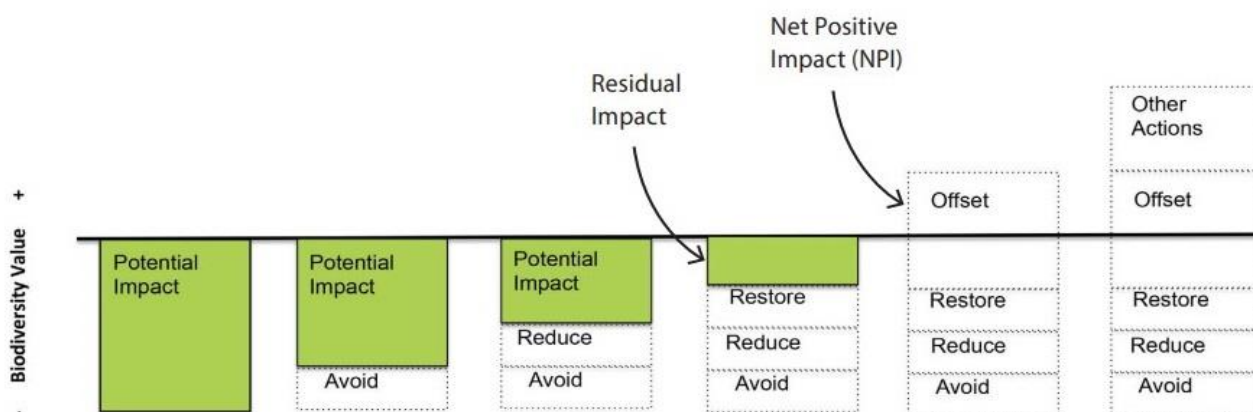
The mitigation hierarchy is a necessary and fundamental approach to managing biodiversity impacts addressed to be addressed by the BMP, with the measures and actions reflecting due consideration of the mitigation hierarchy of controls, which seeks to avoid and mitigate impacts on biodiversity first, before considering restoration options, and with offsets only implemented as a last resort measure (i.e. once other options have been first considered and exhausted and where residual impacts remain that require compensation). See Table 3-1 and **Error!**

Reference source not found..

TABLE 3-1 MITIGATION HIERARCHY

Mitigation Step	Description
Avoid	Measures taken to prevent irreplaceable loss of biodiversity or associated ecosystem services. Alternatives include site selection, design and scheduling.
Minimize / Reduce	Reduce or minimize the duration, intensity and/or extent of any impact that are not feasibly avoidable. Alternatives include physical controls, operational controls and abatement controls.
Remediate / Restore	Where disturbance to biodiversity or ecosystem services has occurred, remediation may be possible in the form of rehabilitation and restoration. Alternatives include re-establishing habitat types, re-establishing biodiversity values and re-establishing ecosystem services.
Offset	Offset or compensate for any residual impacts that cannot be avoided, minimized, or remedied on site. These include restoration offsets and averted loss offsets.

Source: adapted from Hardner *et al.* (2015)



Source: Hardner *et al.* (2015)

FIGURE 3-1 DIAGRAM ILLUSTRATING THE IMPACT MITIGATION HIERARCHY**3.5 ADOPT AN ADAPTIVE MANAGEMENT APPROACH**

This is a requirement of EBRD ESR6 for both PBF and non-PBF biodiversity features.

Biodiversity and natural ecosystems can be inherently dynamic systems that may not always respond predictably to management measures, rehabilitation or restoration actions.

Given the complexity in predicting impacts and the effectiveness of mitigation measures for biodiversity over the long term, EBRD ESR6 requires an adaptive management approach, whereby mitigation and management measures are responsive to changing conditions and the results of monitoring throughout the Project lifecycle. Adaptive management informed by Monitoring and Evaluation (M&E) will therefore need to be integrated into the Project-specific BMP.

The early identification of any important issues, challenges, constraints to implementation of management/mitigation measures, failures of key actions and changes in the environment, through an appropriately designed Monitoring and Evaluation (M&E) program, allows adaptive management solutions to be identified and tailored to the Project.

Adaptive management relies on a clear process of gathering data, evaluating the data and responding according to what the results indicate, as shown in Figure 3-2. *This approach is not limited to modifying previous approaches to the management of biodiversity but aims to produce a plan which contributes to new knowledge and learnings that can improve future management, alongside best short-term outcomes based on present knowledge.*



FIGURE 3-2 DIAGRAM SHOWING THE 'ADAPTIVE MANAGEMENT CYCLE'

Source: ERM (unpublished)

Adaptive management informed by M&E would focus on the following aspects in the BMP:

- Recording information to track performance of implementation of the BMP measures and establish relevant controls;
- Recommend the use of dynamic mechanisms (e.g. internal inspections, self-verification exercises, external audits) to verify compliance and progress toward desired management objectives and outcomes;
- Identify any discrepancies between success criteria, targets and actual performance;
- Implement adaptative management using a 'Plan-Do-Check-Act' approach to modify actions or implement new approaches to close gaps, as necessary;
- Update the BMP to reflect the outcome of ongoing regular M&E so that management actions and measures reflect the current understanding of impacts, success of implementation and progress of outcomes; and
- Monitoring actions are also to be reviewed and adjusted according to performance experience and actions.

The BMP is ultimately intended to be a 'living document' that should be reviewed and updated as actions are developed and implemented, and as the process of adaptive management guides delivery of biodiversity/conservation outcomes in meeting the defined NNL objective for

PBF. A regular review frequency needs to be agreed to with lenders (e.g. annually during construction and for the first 2-3 years of operation, then modified as needed), whereby BMP actions, indicators/success criteria and targets are reviewed against M&E outputs and taking into consideration also stakeholder expectations and feedback.

Essentially the question that should be answered is:

How successful has implementation of the BMP actions and measures been and what needs to or could be adjusted or improved and how?

A periodic review of performance indicators/success criteria and any related targets to achieving NNL will be important to check if these are being met and if these are indeed realistic in the first case. This should lead to an understanding of causes and corrective actions needed to ensure BMP objectives are being met.

There is also a component of 'management of change' which an adaptive management approach would achieve, by allowing for updates to the BMP as needed and as changes in the project and environment could change under various scenarios that cannot be easily identified or predicted at this early stage in the process:

- Any major amendments to the BMP that affect its application will be undertaken in consultation with the appropriate regulatory authorities, lender's and/or other key interested/affected stakeholders.
- Any fundamental changes to the Project could potentially result in a material change to the BMP, specifically with regards to the final layout of the Project infrastructure.
- Changes in the Project may occur due to unanticipated situations. Adaptive changes may also occur during the course of the project life cycle. Any fundamental changes to the project/operation that could potentially result in a material change to the BMP need to be considered, specifically with regards to the design, layout and activities involved. The BMP will be regularly reviewed and updated after any change in the context in which the Project operates and during the construction phase.
- New biodiversity risks or impacts may appear that require to be addressed over the life-cycle of the project and this will typically require a review and update of the BMP as necessary.

3.6 ADOPT A LIFE-CYCLE APPROACH

This is a requirement of EBRD ESR6 for both PBF and non-PBF biodiversity features.

Aligned with EBRD ESR6, the BMP must take a life-cycle approach to biodiversity management for the Project, by addressing all phases of the projects (entire life-cycle from design/planning, construction, commissioning, operation, decommissioning, closure and, where applicable - post-closure). For the take of simplicity and given the nature of the Project, this has been taken to include construction, operation and decommissioning phases.

Decommissioning and closure would need to be addressed in future updates to the BMP, or a separate BMP for this particular phase may need to be developed prior to this phase in future (see further commentary in the text box below).

Recommendations regarding decommissioning of the Project in future

In future, the BMP will also need to be reviewed and updated prior to the decommissioning phase to ensure that relevant impacts/risks are accounted for in the BMP or alternatively a specific decommissioning phase BMP can be developed to inform site decommissioning and closure, or alternatively repowering.

As this is still decades away and uncertain, and site conditions and biodiversity requirements and procedures are likely to change (possibly significantly) over this period, developing such a plan or integrating these phases into the BMP to be developed in the short-term is not recommended. Instead, it is suggested that at least one year prior to decommissioning is planned, the operational BMP be reviewed and updated comprehensively and any necessary plans for repowering or decommissioning (e.g. site decommissioning, closure and rehabilitation/restoration plans) be developed timeously prior to decommissioning taking place. *The alternative would be to develop a new and entirely separate BMP specific to the decommissioning phase.*

3.7 INVASIVE ALIEN SPECIES MANAGEMENT

Where there is a risk of invasive alien species (plant species for this particular Project) being introduced through the Project-related activities, or the Project contributing to the spread of existing IAS at the development site, it is required to include relevant management controls, and it is recommended that this be integrated into the BMP (unless addressed in another relevant management plan, or standalone IAS management plan).

For the Project, the ESDD (ERM, 2025) findings highlight the risk of invasive/alien plant species spreading at the site (based on the presence of existing undesirable invasive plant species) and recommends that an invasive species control protocol into the BMP, aligned with permit requirements, with consideration of the following:

- Implement control measures during construction to prevent the import of soil, materials, or equipment containing seeds or propagules of invasive alien species;
- Establish and enforce protocols for regular mowing of disturbed areas, timed before seed maturation (e.g. July–August), to prevent seed dispersal and reestablishment.
- Prioritize mechanical or non-chemical vegetation control methods for both construction and operational phases;
- Limit herbicide use to essential cases only, ensuring application is fully compliant with national and EU chemical use regulations;
- Pay particular attention to ecological buffer zones (e.g. Sajószöged II) and areas adjacent to grazed grasslands; and
- At the operational stage include avoidance of herbicide and pesticides use as conditions in the tendering and contracting documents with the vegetation control (e.g. weed and invasive species control) services providers.

4. BIODIVERSITY MANAGEMENT PRIORITIES

A brief summary of the biodiversity values associated with the Project and potential impacts related to the Project construction/operation on each of these aspects of biodiversity is provided here in Table 4-1 to contextualise the Project and identify biodiversity management priorities.

This indicates that BMP priorities would focus on the PBF species, however aspects of habitat restoration and invasive/alien plant species control should also be covered by the BMP.

For further information and details on the baseline information (species lists, etc.), see **Annexure A** in Chapter 10 of this Framework BMP document. *The ESDD report (ERM, 2025) should also be referred to for further information.*

In line with the **mitigation hierarchy described in the EBRD PR6 Guidance Note**, the Project is expected to **avoid** impacts on biodiversity wherever possible. Where avoidance is not feasible, the Project must **minimise, mitigate**, and—where necessary—**restore** and **offset** adverse effects, in accordance with **relevant legislation and Good International Practice (GIP)**.

These principles are reflected in the management approach and structured mitigation actions set out in the table below.

TABLE 4-1 SUMMARY OF BIODIVERSITY MANAGEMENT PRIORITIES

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
1 PROTECTED AREAS / INTERNATIONALLY RECOGNISED AREAS					
The nearest protected areas (Natura 2000) are located a distance of over 1km from the Project and internationally recognized areas (such as IBAs) even further at >6 km distance.	Protected areas (Natura 2000) and internationally recognized areas are located at a distance well outside of the Project's anticipated Area of Influence for both direct and indirect impacts.	Low – no physical overlap	Avoid	Site located >1 km from nearest designated areas; no further mitigation required	Given there are no likely interactions or impacts on identified protected areas/internationally recognized areas, this will not be considered further in the BMP.
2 ECOSYSTEMS & HABITATS					
All sub-projects located in intensive agricultural landscapes (active grazing, hay production, and arable land) with low ecological value habitat that are modified or secondary/degraded saline grassland types.	Further loss of semi-natural features and contribution to fragmentation of habitat. Likely to be of limited significance given the existing levels of degradation and fragmentation at the landscape level.	■ Low	■ Minimize and Restore	■ Preserve topsoil for reuse during habitat restoration. ■ Use screw-mounted panels to prevent sealing and preserve natural infiltration. ■ Avoid impermeable surfaces. ■ Avoid construction in sensitive habitats such as saline grasslands, saline meadows and softwood gallery forests/woodlands.	Whilst not a key management priority given the modified and secondary status of habitats at the site, grassland habitat restoration post-construction and ongoing maintenance of these grasslands to support biodiversity (and PBF bird species) should still be considered in the BMP.
The Sajószöged II sub-project is located within the buffer zone and bordering an ecological corridor recognised in terms of the National Ecological Network.	Disruption of Ecological Network Corridor buffer zone functions for Sajószöged II sub-project.	■ Moderate	■ Avoid ■ Minimize ■ Restore	■ Avoid creating impermeable barriers that could fragment habitats. ■ Restore disturbed grasslands following construction activities	

⁵ Existing or embedded controls refer to those mitigation measures and actions for protecting biodiversity that form part of any permit conditions for the Project or agreed to with the relevant environmental authorities, as identified in the ESDD Report (ERM, 2025).

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
				■ Conduct work on grasslands only during dry or frozen conditions to reduce soil disturbance. ■ Route layout avoids key corridor features; design minimizes linear barriers ■ Restrict machinery movement to existing roads and tracks; if off-road access is necessary, confine it to a single designated path. ■ Reconnect disturbed corridor sections via soft landscaping and native vegetation recovery	
3 FLORA					
No protected, rare, or endemic species recorded.	Localised loss of common/ruderal flora species only, resulting in a negligible significance impact.	■ Negligible	■ Avoid	■ Limit vegetation clearance to what is strictly necessary, retain hedgerows and avoid cutting of boundary trees. ■ Retain existing native shrubs and trees. ■ Retain the native plant composition and avoid soil compaction in saline meadows ■ Where feasible, use trenchless technology (e.g., directional drilling) beneath tree root zones to avoid damage. ■ Conduct tree and shrub removal preferably between August 15 and March 1. ■	Management of native flora species is not considered a priority given the absence of conservation-important species and dominance of modified habitats and degraded vegetation communities.

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
Only common, disturbance-tolerant/ruderal plant species of Least Concern recorded. Several invasive alien species/weeds common to agricultural landscapes were identified	Potential introduction and spread of existing invasive alien species/weeds facilitated by disturbance and machinery operation during construction (particularly relevant to the National Ecological Network buffer zone associated with Sajószöged II).	Low to Moderate	■ Avoid, Minimize and restore	■ Ensure machinery is cleaned prior to site entry to avoid seed transfer; avoid working in IAS hotspots during seed dispersal season. ■ Control invasive and allergenic plant species through mowing. Time mowing before seed maturation (ideally in July or August) to prevent their spread. Limit herbicide use. ■ Where needed, actively remove invasive species and replant with native ground cover in key zones. If required, implement dedicated IAS control plan/programme.	Invasive Alien Species (IAS) control and management is relevant however (particularly for the National Ecological Network buffer zone associated with Sajószöged II) and this could either be integrated into the BMP or be addressed in a separate IAS control plan and programme for the Project.
4 FAUNA					
Birds Several species of locally common passerines (perching birds) and raptors. Six species qualify as PBF: <i>Ciconia ciconia</i> – White stork <i>Falco tinnunculus</i> – Red-footed falcon <i>Coracias garrulus</i> – European roller <i>Circus aeruginosus</i> – Western-marsh harrier	■ Breeding bird disturbance and nest destruction, especially for ground-nesting birds such as Eurasian skylark (<i>Alauda arvensis</i>), which are known to adapt to less intensively cultivated farmland. ■ Disturbance and nest destruction during the bird breeding season, particularly in vegetation and on utility poles. ■ Electrocution and collision risks for raptors and storks from overhead power lines.	■ Moderate to High (due to breeding and conservation status of PBF species)	■ Avoid ■ Minimize ■ Restore	■ Avoid disturbing or relocating bird nests—particularly of protected species—during the breeding season (March 15 to August 31). ■ Route planning to avoid nesting habitats and important foraging grounds. ■ Where needed, install artificial nests or poles to compensate for lost nesting features.	Yes. In particular, the management of PBF bird species is considered a priority for the BMP (see Chapter 5 that follows).

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
<i>Lanius collurio</i> (Red-backed Shrike)	Risk of disrupting ecological connectivity, degrading buffer functions and potential disturbance to protected species confirmed by Bükk NP Directorate (<i>Corvus corax</i>).				
Mammals: Locally common small and medium-sized mammal species that are of LC, common to agricultural areas in Europe.	- Polarized light pollution acting as an ecological trap. - Risk of disrupting ecological connectivity, degrading buffer functions and potential disturbance to protected species confirmed by Bükk NP Directorate (i.e. <i>Bombus argillaceus</i>, <i>Mustela nivalis</i>).	Low	Avoid, Minimize and Restore	- Respect ecological corridors and avoid activities during critical periods for protected or community-significant species. - Preserve areas designated as ecological corridor by minimizing disturbance and maintaining connectivity. - Use solar panels with anti-reflective coating to minimize polarized light pollution that can affect wildlife.	Management of terrestrial fauna (small mammals) is not considered a key priority given that species recorded or expected within the Project area are of Least Concern (LC), commonly associated with agricultural landscapes, and no conservation-significant or range-restricted species have been identified.
Amphibians: Several amphibian species (frog species) associated with grasslands and wetland areas were recorded, qualifying as PBF/CH including <i>Hyla arborea</i> (European tree frog) and <i>Bufo viridis</i> (Green toad).	Risk of disrupting ecological connectivity, degrading buffer functions and potential disturbance to protected species confirmed by Bükk NP Directorate (i.e. <i>Bombus argillaceus</i>, <i>Mustela nivalis</i>). Amphibian mortality during excavation and trenching.	Low to Moderate	Avoid, Minimize, Restore	- Design perimeter fencing to allow movement of protected species (e.g., amphibians, small mammals). - Rescue and release any animals (particularly protected amphibians, reptiles, and small mammals) found in trenches daily and before backfilling. - Install underground cables to eliminate above-ground hazards for birds.	Yes. In particular, the management of PBF/CH amphibian species is considered a priority for the BMP (see Chapter 5 that follows).

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
The recorded species are typically of Least Concern (LC) globally according to IUCN and may include nationally protected species.				- Where overhead lines and exposed electrical components (e.g., transformers) are unavoidable, apply bird-safe designs (e.g., insulation, perch deterrents according to Hungarian standards VAT-H2 and VÁT-H21) to protect avian species from electrocution. - Keep excavation trenches open for the shortest possible duration. - Schedule trenching activities outside the amphibian breeding season (i.e., between March 15 and May 15). - Cover unattended open pits to prevent animal entrapment. - In the case of Sajószöged II subproject, conduct additional baseline surveys during the vegetation period prior to the start of construction. - Develop a monitoring plan to assess the impacts of both polarized and non-polarized light pollution on local fauna (e.g., birds, bats, insects), including effects on behaviour and populations.	

Receptor	Potential Project-related Risks & Impacts	Significance	Mitigation Hierarchy	Existing or Embedded Mitigation / Controls ⁵	Management Priority for BMP?
				■ Implement a long-term monitoring program to evaluate the environmental and ecological impacts of the solar park, involving independent experts and representatives from the national park. ■ Use the monitoring results to inform and adapt impact mitigation strategies throughout the project lifecycle.	

5. CRITERIA AND REQUIREMENTS FOR IDENTIFICATION OF CH/PBF

This section outlines the criteria used to identify Critical Habitats (CH) and Priority Biodiversity Features (PBFs) relevant to the Project in accordance with EBRD ESR 6 and its Guidance Note 6.

Among the five EBRD ESR6 criteria, only *Criterion 2 – Threatened and/or Restricted-Range Species* is relevant for this Project, as all other criteria were screened out during the baseline review. Criterion 2 was retained because several species recorded within the Project area meet the conditions for Priority Biodiversity Features (PBFs) under this category.

These criteria help determine which species and habitats require specific management and monitoring measures under the Biodiversity Management Plan. The criteria and their application to the Project are summarized in Table 2-1 below.

TABLE 5-1 CRITERIA AND CONDITIONS FOR IDENTIFYING CRITICAL HABITATS (CH) AND PRIORITY BIODIVERSITY FEATURES (PBFS)

Criterion	Description (per EBRD ESR6 and GN6)	Source	Application to this Project / Interpretation
Criterion 2 – Threatened and/or Restricted-Range Species	This criterion applies to areas known, or likely, to support species that are either threatened (Critically Endangered – CR, Endangered – EN, or Vulnerable – VU) on the IUCN Red List, or that have a restricted global distribution (range < 50,000 km ² or < 5 locations).	IUCN Red List, EU Habitats and Birds Directives (Annex I and IV), national Red Lists, scientific literature, expert judgment.	PBF: Applies to species listed as VU or nationally protected as well as species listed in Annex I/IV species. CH: Triggered if the site supports ≥ 0.5 % of the global population AND ≥ 5 reproductive units for EN/CR species, or a globally significant population for VU species.
		For this Project, the following species meet PBF criteria under Criterion 2: • Red-footed Falcon (<i>Falco vespertinus</i>, VU) – Annex I species, Vulnerable globally. • European Roller (<i>Coracias garrulus</i>, NT) – Annex I species, Near-threatened and declining in Europe.	

Criterion	Description (per EBRD ESR6 and GN6)	Source	Application to this Project / Interpretation
		• Western Marsh-harrier (<i>Circus aeruginosus</i> - LC) – Annex I species. • White Stork (<i>Ciconia Ciconia</i> - LC) – Annex I species, Least Concern globally but protected regionally. • Red-backed Shrike (<i>Lanius collurio</i> - LC) – Annex I species. • European Tree Frog (<i>Hyla arborea</i> - LC) and Green Toad (<i>Bufo viridis</i> - LC) – Annex IV Habitat Directive species. None of the above meet the quantitative thresholds for Critical Habitat designation. All are treated as Priority Biodiversity Features (PBFs) under EBRD PR6.	

The IUCN highlights that intensive agricultural practices, loss of habitats, reduction of insect prey, and shortage of nesting sites represent key pressures for the relevant PBF bird (*Falco vespertinus*, *Coracias garrulus*, *Ciconia Ciconia*, *Circus aeruginosus*, *Lanius collurio*) and amphibian species (*Bufo viridis* and *Hyla arborea*). Based on a review of the known threats and conservation actions identified by the IUCN (see Table 5-2) for the relevant bird and amphibian species, conservation actions and opportunities most appropriate to these species are primarily linked to:

- the protection and maintenance of suitable grassland habitats;
- artificial habitat creation;
- protection of existing and potential nest sites;
- maintaining and improving breeding conditions and nesting opportunities;
- reduction of pressures from intensive farming practices;
- reduction in contaminants/poison sources from the environment (e.g. pesticides);
- mitigation against collision/electrocution linked to overhead powerlines;
- maintaining/improving foraging habitats and prey availability for raptors;
- predator control;
- Protection, restoration, and management of small wetlands, ponds, and drainage ditches suitable for amphibian breeding;
- Maintaining natural vegetation and moisture around breeding ponds to prevent desiccation and support foraging;
- Ensuring connectivity between aquatic and terrestrial habitats by maintaining ecological corridors and minimizing barriers (e.g., fencing design);
- Seasonal restrictions on construction works during key breeding and migration periods (e.g., March–May);

- Installation of temporary amphibian exclusion fencing and pitfall traps during construction to safely capture and relocate individuals from active work zones;
- Monitoring of amphibian populations during and after construction to assess effectiveness of mitigation measures and detect potential population declines;
- Engagement with local environmental authorities or conservation NGOs to identify opportunities for joint restoration or monitoring of amphibian breeding habitats; and
- Monitoring of species populations.

The above listed bird and amphibian protection/conservation opportunities and actions were considered further as part of the BMP Framework towards developing suitable mitigation and management measures to support the protection of these species and align with the Project>NNL objective for PBF.

TABLE 5-2 DETAILS REGARDING PBF SPECIES

PBF Species	Threat Status (IUCN)	Population Size Estimates (IUCN)	Population Trend (IUCN)
Birds			
Red-footed falcon <i>Falco vespertinus</i>	VU globally and in Europe	Europe: 115,000 – 170,000 individuals Hungary: 950 -1,400 (breeding pairs)	Decreasing
European roller <i>Coracias garrulus</i>	LC globally and in Europe	Europe: 102,000 – 208,000 individuals Hungary: 1,800 (breeding pairs)	Decreasing
Western Marsh-harrier <i>Circus aeruginosus</i>	LC globally and in Europe	Europe: 303,000 – 485,000 individuals Hungary: 9,000 (breeding pairs)	Stable
White Stork <i>Ciconia ciconia</i>	LC globally and in Europe	Europe: 502,000 – 563,000 individuals Hungary: 4,400 – 5,100 (breeding pairs)	Increasing
Red-backed Shrike <i>Lanius collurio</i>	LC globally and in Europe	Europe: 164,000-260,000 individuals Hungary: 300,000 – 340,000	Stable
Amphibians			
European Tree Frog <i>Hyla arborea</i>	LC globally and in Europe	Europe: No information available Hungary: No information available	Decreasing
Green Toad <i>Bufo viridis</i>	LC globally and in Europe	Europe: No information available Hungary: No information available	Decreasing

Source: IUCN threatened species database (<https://www.iucnredlist.org>)

5.1 ECOLOGICALLY APPROPRIATE AREA OF ANALYSIS (EAAA) APPROACH

This Biodiversity Management Plan Framework adopts an Ecologically Appropriate Area of Analysis (EAAA) approach to support impact assessment and mitigation planning, in line with the EBRD ESR6 Guidance Note (GN6) and the International Finance Corporation's (IFC) Guidance Note 6, paragraph GN59.

The EAAAs were delineated based on the ecological characteristics and habitat use of each species, particularly during breeding and foraging periods, using best available literature and expert judgment. The criteria for identifying Critical Habitat (CH) and Priority Biodiversity Features (PBFs) were applied to each EAAA in accordance with **Table 5-1: Criteria and Conditions for Identifying Critical Habitat and Priority Biodiversity Features**.

For all identified PBFs, an EAAA was defined and evaluated against the conditions for CH (Table 5-1). The following table provides species-specific references to the Ecologically Appropriate Area of Analysis (EAAA) applied for each Priority Biodiversity Feature (PBF), including justification of its spatial extent and interpretation of potential population significance in line with EBRD PR6 Guidance Note 6.

TABLE 5-3 EAAA DESCRIPTION AND DEFINITION

Species	EAAA Description and Justification
European Roller (<i>Coracias garrulus</i>)	Prefers open farmland, forest edges, and scattered trees used for nesting and hunting. A 5 km EAAA is applied, corresponding to known foraging distances around breeding territories in Central and Eastern Europe. This spatial extent allows assessment of potential project-related effects on local habitat use.
Red-footed Falcon (<i>Falco vespertinus</i>)	This colonial raptor breeds in open agricultural landscapes and forages over grasslands and pastures. A 5 km radius is applied as the EAAA, reflecting typical breeding colony extent and foraging ranges observed in Central and Eastern Europe. The EAAA represents an ecologically relevant area for assessing potential impacts. Based

Species	EAAA Description and Justification
	on the species population data within this range is not expected to be significant at the national or regional level.
Western Marsh-harrier (<i>Circus aeruginosus</i>)	Associated mainly with wetlands, reedbeds, and adjacent agricultural habitats for nesting and foraging. The EAAA is defined as a 3–5 km buffer around potential nesting and feeding habitats, representing typical territory size for the species. The species is expected to occur only in low densities within the Project's area of influence, and the EAAA is unlikely to represent a critical area for its population.
White Stork (<i>Ciconia ciconia</i>)	Occupies agricultural landscapes and pastures, nesting on elevated structures and foraging in open grasslands. A 5 km radius EAAA is applied, consistent with typical foraging ranges around breeding sites. The area provides potential feeding habitat but is not considered significant to the maintenance of the species' overall population.
Red-backed Shrike (<i>Lanius collurio</i>)	Favors open shrublands, hedgerows, and agricultural margins for breeding and foraging. A 2 km EAAA is applied, reflecting the species' limited territory size and short foraging movements. Although suitable habitat occurs within the Project area, the EAAA is not expected to support an important portion of the species' population.
European Tree Frog (<i>Hyla arborea</i>)	A 1 km EAAA is applied based on the species' limited dispersal capability and its association with open grasslands, overgrazed

Species	EAAA Description and Justification
	pastures, and nearby agricultural fields present. Population data are unavailable for Hungary, but the species is widespread and classified as Least Concern globally and regionally, with a decreasing trend. In the absence of specific population data, it can only be assumed that the portion of the population within the EAAA is not significant at the national or regional level. However, confirmation of this assumption would require additional proxies, such as local amphibian monitoring data or habitat suitability assessments.
Green Toad (<i>Bufo viridis</i>)	A 1 km radius is defined as the EAAA, reflecting the species' restricted movement range and preference for temporary and permanent waterbodies. No population data are available for Hungary, but the species is widespread and listed as Least Concern globally and in Europe, with a decreasing trend. In the absence of specific population data, it can only be assumed that the portion of the population within the EAAA is not significant at the national or regional level. However, confirmation of this assumption would require additional proxies, such as local amphibian monitoring data or habitat suitability assessments.

TABLE 5-4 KEY THREATS, EXISTING/KNOWN CONSERVATION ACTIONS AND ECOLOGICAL REQUIREMENTS FOR PBF BIRD SPECIES

Common Name	Latin Name	Ecological Requirements (IUCN)	Known Threats (IUCN)	Conservation Opportunities (IUCN)
1 Red-footed falcon	<i>Falco vespertinus</i>	- Resident species in Hungary - Breeds in open lowland (steppe, forest-steppe, woodland, cultivated land with shelterbelts) - Usually colonial but can be solitary - Prefers nests in upper part of trees - Feeds on large insects mainly - Hunts over a variety of open habitats including steppe and agricultural lands	- Habitat loss and degradation (mainly due to agricultural expansion) - Reduction of nesting sites - Agricultural effluents, pesticides - Reduction in prey availability - Hunting/trapping - Persecution/poisoning - Powerline collision risk	- Management of grassland - Habitat protection - Artificial colonies to halt population fragmentation (Hungary*) - Ensuring nest site availability - Reducing pesticide impacts - Anti-poaching controls - Monitoring of populations
2 Western Marsh-harrier	<i>Circus aeruginosus</i>	- Resident species in Hungary - Extensive areas of dense marsh vegetation of lowlands - Feeds on small birds and small mammals mainly - Hunts over a variety of open habitats including steppe and agricultural lands	- Habitat alteration including drainage and desiccation of wetlands - Pesticides/poisoning - Powerline collision risk - Wind energy - Hunting/trapping	- Conservation of wetland habitat - Leave unharvested areas in agricultural areas around active nests - Monitored by systematic breeding surveys - Nest protection - Predator control - Improvement of nesting and foraging habitats
3 White Stork	<i>Ciconia ciconia</i>	- Resident species in Hungary - Open areas associated with wetlands, lakes and arable land - Affinity for drier grasslands, steppe and cultivated fields during winter (avoids dense vegetation cover) - Breeds/nests solitarily or in loose colonies, usually near foraging areas - Varied diet including small mammals, herpetofauna,	- Habitat alteration including drainage of wetlands/wet meadows - Conversion of foraging areas - Human development - Intensification of agriculture - Pesticides/poisoning - Collision and electrocution risk associated with powerlines - Hunting	- Management of grazing practices (intensive grazing, unfertilised grassland) - Traditional livestock farming - Mowing of grasslands to increase food supply - Creating mosaics of native grasslands and herb-rich meadows - Retention or creation of artificial habitats (e.g. ditches, ponds, lakes)

Common Name	Latin Name	Ecological Requirements (IUCN)	Known Threats (IUCN)	Conservation Opportunities (IUCN)
		■ Migrates south during European autumn/winter		■ Mitigation for powerlines (burial or visible marking of cables) ■ Monitoring of populations
4 European roller	<i>Coracias garrulus</i>	■ Resident species in Hungary ■ Prefers lowland open habitats including natural forest, woodland, mixed farmland ■ Breeds in abandoned cavities in poplar trees in riparian forests usually ■ Forage for insects, mainly in agricultural fields and meadows ■ Winters in Africa	■ Habitat loss and degradation ■ Loss of breeding habitat, especially hedgerows and riparian forest in Europe ■ Pesticides ■ Reduction of nesting sites ■ Hunting/trapping	■ Habitat protection and management ■ Maintenance/provision of nest sites ■ Reduction of pesticide impacts ■ Continued population monitoring
5 Red-backed Shrike	<i>Lanius collurio</i>	■ Summer resident and breeding species in Hungary; winters in sub-Saharan Africa. ■ Prefers open habitats such as pastures, shrublands, hedgerows, and mosaic agricultural landscapes with scattered bushes and trees. ■ Nests in thorny shrubs or hedgerows, often close to foraging areas. ■ Feeds primarily on large insects (beetles, grasshoppers), but also small mammals, birds, and reptiles. ■ Requires structurally diverse landscapes with perching and hunting posts.	■ Declines are mainly due to loss and fragmentation of habitat caused by afforestation and agricultural intensification. ■ Increased pesticide use leading to reduced insect prey availability (Yosef et al. 2012). ■ Heavy application of inorganic nitrogen fertilizers causes earlier and denser vegetation growth, reducing hunting efficiency (Tucker & Heath 1994). ■ Cooler and wetter summers at the northern and western range edges negatively affect breeding success (Yosef et al. 2012). ■ Reduction of suitable nesting and foraging habitats through removal of hedgerows and shrub cover.	■ Maintain and restore traditional farmland and low-intensity grazing systems to preserve habitat structure and prey availability. ■ Protect and re-establish hedgerows, shrub belts, and fallow field margins as nesting and hunting habitats. ■ Reduce pesticide and fertilizer use through agro-environmental schemes promoting organic or low-input farming. ■ Prevent afforestation of open grasslands and retain open habitats within the species' breeding range.

Common Name	Latin Name	Ecological Requirements (IUCN)	Known Threats (IUCN)	Conservation Opportunities (IUCN)
				■ Monitor population trends through national breeding bird surveys to detect local declines. ■ Raise awareness among farmers and landowners about the ecological role and conservation importance of the species. ■ Support participation in EU Common Agricultural Policy (CAP) agri-environmental programs targeting farmland bird conservation.
6 European Tree Frog	<i>Hyla arborea</i>	■ Widely distributed across Europe, including throughout Hungary. ■ Typically associated with open, well-illuminated broad-leaved and mixed forests, bushlands, shrublands, meadows, orchards, vineyards, gardens, and riparian zones. ■ Avoids dark and dense forests, preferring semi-open habitats with nearby stagnant water bodies such as ponds, lakes, swamps, ditches, or puddles for spawning and larval development. ■ Subpopulations can tolerate periods of dryness and are occasionally found in anthropogenic landscapes, including large cities. ■ Reproduction occurs in stagnant or slow-flowing	■ Residential and commercial development causes direct habitat loss and fragmentation. ■ Agricultural intensification, including conversion of meadows and orchards to crop monocultures. ■ Pollution from domestic wastewater, industrial effluents, and agricultural runoff (pesticides, fertilizers). ■ Drainage and alteration of wetlands reducing suitable breeding sites. ■ Road and railway construction leading to habitat fragmentation and increased mortality during migration. ■ Logging and wood harvesting reducing suitable forest-edge microhabitats.	■ Protection and restoration of breeding ponds, ditches, and riparian habitats, maintaining hydrological stability. ■ Retain open, sun-exposed forest margins, meadows, and shrublands adjacent to aquatic habitats. ■ Reduce pollution and chemical runoff through integrated pest management and buffer strips near water bodies. ■ Implement amphibian crossing structures (fences, tunnels) along roads intersecting migration routes. ■ Prevent introduction of invasive fish species into breeding waters. ■ Promote biodiversity-friendly agricultural practices and maintain small wetlands within farmlands.

Common Name	Latin Name	Ecological Requirements (IUCN)	Known Threats (IUCN)	Conservation Opportunities (IUCN)
		waters, often with dense aquatic vegetation, from April to June.	Invasive alien species and diseases affect local amphibian populations.	- Engage local communities and landowners in wetland restoration and amphibian-friendly land management. - Monitor breeding success and population trends to guide adaptive management.
7 Green Toad	<i>Bufo viridis</i>	- Widely distributed across Central and Southeastern Europe, including Hungary. - Occupies a broad range of habitats, from forest-steppe, grasslands, and scrublands to urban centers, gardens, and parks. - Highly adaptable and often benefit from moderately disturbed or semi-urban environments. - Spawning and larval development occur in a wide range of temporary and permanent freshwater bodies, such as ponds, lakes, ditches, puddles, swamps, pools in streams, and reservoirs. - Tolerates a relatively broad range of environmental conditions.	- Habitat loss and fragmentation caused by residential and commercial development. - Agricultural intensification, including conversion of grasslands to cropland and overgrazing. - Pollution from industrial and military effluents, and agricultural runoff (pesticides and fertilizers). - Road mortality during seasonal migrations to breeding ponds. - Invasive non-native species (including predatory fish and amphibians) that compete with or prey upon larvae. - Unsustainable water management, drainage, and loss of small wetlands. - Local persecution or collection and trapping of terrestrial animals in rural areas.	- Protection and restoration of breeding habitats, particularly temporary ponds and small wetlands in agricultural landscapes. - Creation of artificial waterbodies (e.g., seasonal ponds, ditches) to increase breeding opportunities. - Reduce agricultural chemical inputs and control effluent discharge to improve water quality. - Integrate amphibian-friendly design in road infrastructure, such as underpasses and drift fences. - Maintain semi-natural habitats and buffer zones between farmland and aquatic habitats. - Monitor populations and breeding success to detect local declines and assess management effectiveness. - Raise public awareness and promote community involvement in amphibian conservation and wetland protection.

Source: IUCN threatened species database (<https://www.iucnredlist.org>)

6. BMP MANAGEMENT MEASURES AND ACTIONS

A preliminary list of appropriate biodiversity management measures and actions has been proposed here for consideration and to inform preparation of the Project-specific BMP.

These have been informed by:

- The overall approach to biodiversity management reflected in Chapter 3
- The biodiversity management priorities identified in Chapter 4
- The requirements for PBF bird species discussed in Chapter 5

The Framework BMP provides high-level information regarding these preliminary measures and actions, including further actions/next steps for the BMP, responsible parties and indicative timeframes.

These are described in Table 6-1 for each phase of the Project.

TABLE 6-1 PROPOSED BIODIVERSITY MANAGEMENT MEASURES AND ACTIONS

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
1 Pre-construction Phase					
1a Identify existing hedgerows and trees for protection, as well as any marshland habitat	➤ Identify existing PBF bird habitat including hedgerows, tree/shelter belts and any marshland habitat on the site and in adjacent areas using a combination of GIS analysis based on available aerial photography/satellite imagery, analysis of existing data from project reports and supplemented by field surveys to verify these areas. ➤ Commit to the avoidance and protection of these areas in the BMP, as important habitat for nesting birds such as European Roller (PBF) for example (hedgerows, poplar trees), marshland areas for Western-marsh Harrier (PBF). <i>This is in alignment also with the specific conditions of the Building Permits for the sub-projects.</i> ➤ Demarcate sensitive habitats for protection as 'no-go' areas for construction on the site development plan.	Yes	External consultants (ERM, local ecologists)	Loss or disturbance of nesting habitats for PBF species such as European Roller and Western Marsh Harrier; fragmentation of ecological corridors; destruction of tree/scrub areas used by passerines and raptors.	Prior to construction commencing
1b Conduct pre-construction wildlife (bird) surveys and checks for any nesting activity of birds	➤ Pre-construction bird surveys will need to be aligned with the breeding period for PBF bird species in particular (spring, summer typically: mid-March – end of August), acknowledging that some construction activities will commence during winter and outside of the breeding period. ➤ Focus surveys on ground-nesting birds (e.g. Eurasian Skylark) within agricultural land and consider also existing shrubs/hedgerows and trees on the site and in adjacent areas for suitable perching sites or nesting sites for passerines (e.g. Eurasian Roller, PBF) and raptor species. ➤ Identify any raptor/stork nests on existing powerline pylons within or near the development site and demarcate these on the site development plan, and plan	Yes	External consultants (local ecologists)	Disturbance or destruction of active bird nests, particularly during the breeding season (March–August); direct mortality; impacts to legally protected or PBF bird species such as Eurasian Skylark and White Stork.	Prior to construction commencing

⁶ The "Targeted Impacts / Biodiversity Risks" column identifies the key biodiversity-related impacts or risks that the corresponding management action seeks to mitigate, aligned with the EBRD Performance Requirement 6 (PR6) mitigation hierarchy.

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks⁶	Timeframe (indicative)
	to implement measures to avoid or reduce construction noise and visual disturbances/impacts near these locations where possible.				
1c Commit to implementing Bird Flight Diverters and insulation against electrocution risk for the overhead powerline	➤ Plan to install Bird Flight Diverters (BFDs) as part of overhead powerline design in accordance with Good International Practice (GIP). ➤ Design and implement insulation of powerline components to reduce electrocution risk for raptors/storks according to GIP. ➤ <i>These design measures will also need to align with the specific conditions of the Building Permits.</i>	No	Developer External consultants	Electrocution or collision risk for raptors and storks using overhead powerlines; high mortality risk particularly for large-bodied birds.	Prior to construction commencing
1d Identify suitable areas for storing equipment, machinery and stockpiling of topsoil	➤ Identify areas for temporary works, camp sites, equipment storage/laydown areas, etc., away from sensitive bird habitat and known nesting sites. ➤ Any topsoil removed will need to be stockpiled for later use in rehabilitation and restoration of the site and habitat. <i>This is in alignment also with the specific conditions of the Building Permits for the sub-projects.</i>	Possibly	Developer External consultants (ERM, local ecologists)	Habitat degradation and disturbance due to compaction, pollution, or physical obstruction; potential indirect impact to nearby nesting birds or amphibians.	Prior to construction commencing
1e Develop plans to restore/recreate suitable habitats to support biodiversity	➤ Develop a habitat restoration and maintenance plan to inform small-scale restoration of grasslands and with the intention create a mosaic of grassland and herb-rich meadows to support biodiversity, particularly species such as White Stork and Red-footed Falcon (PBFs). This will focus on the following: - Identify existing secondary/degraded saline grasslands in the Project area for restoration, enhancement/management. This shall be based on existing data from reports and supplemented by field surveys and mapping in GIS as necessary. <i>This is in alignment also with the specific conditions of the Building Permits for the sub-projects.</i>	Yes	External consultants (ERM, local ecologists)	Long-term habitat loss or degradation of grassland and meadow habitats; loss of feeding or nesting areas for PBF species like White Stork, Red-footed Falcon, and amphibians.	Prior to construction commencing (ideally), at a minimum before the completion of construction

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
	- Identify additional areas where grassland/meadow habitat may be recreated or restored, with a focus on the buffer zone area for the ecological corridor forming part of the Ecological Network (i.e. for the Sajószöged II sub-project). - Consult with the relevant authorities as necessary during restoration plan preparation. - Apply for any relevant authorizations/permits for undertaking restoration (where applicable). - Consider both passive and active restoration techniques, as relevant. - Avoid creating or allowing the establishment of woodland or shrubland in areas that were formerly grassland or pasture. - Incorporate tree/shrub planting where possible as part of restoration works (e.g. creation of shelter belts, protective buffer between the Project and the corridor for example forming part of the Ecological Network (specifically for the Sajószöged II sub-project). - Planting of native poplar trees and hedgerows would be advantageous to supporting nesting activities of European Roller (PBF bird species) for example. - Avoid backfilling and destruction of existing drainage ditches or restore these areas post-construction.				
1f Plan to construct artificial nesting sites for Red-footed Falcon at appropriate locations	➤ Identify suitable areas where artificial nesting sites for Red-footed Falcon (PBF) could be implemented within the Project area and especially the buffer zone and ecological corridor (Sajószöged II sub-project). ➤ Develop a plan to install artificial nests and monitoring protocols to track actual bird usage of artificial sites. ➤ Consult with the relevant authorities as necessary ➤ Apply for any relevant authorizations/permits (where applicable).	Yes	External consultants (ERM, local ecologists)	Reduced nesting success due to habitat modification or loss of natural nesting features; fragmentation of breeding habitat for falcons.	Prior to construction commencing (ideally), at a minimum before the completion of construction
1g Develop an IAS control plan and programme	➤ Develop an appropriate and site-specific plan and programme to manage Invasive Alien Species (IAS), with a focus on plants and agricultural weed species,	Possibly	External consultants	The introduction or spread of invasive alien	Prior to construction commencing

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
	including avoiding introduction of new plants and controlling the spread of existing species at the site. The IAS plan can be a stand-alone plan/program or form part of the Biodiversity Management Plan (BMP) for the Project. ➤ <i>The IAS plan/program also needs to align with the specific conditions of the Building Permits for the sub-projects.</i> ➤ This plan and program should include the following aspects: - Identify areas at particular risk and the associated species. - Consider species-specific control measures, aligned with EU guidelines and regulations for controlling these species. - Prioritise mechanical, non-chemical vegetation control methods for construction and operation phases. - Restrict herbicide use to essential cases only and ensure compliance with EU and national regulations. - Particular attention should be given to ecological buffer zones (Sajószöged II) and adjacent grazed grasslands, since these areas are ecologically sensitive, support protected species, and contribute to the continuity of the National Ecological Network. Management practices should therefore prioritize minimizing disturbance and preventing the spread of invasive species within these zones. - Comply with authority requirements to mow IAS/allergenic plants before seed maturation (July–August). - A monitoring plan to monitor IAS pre- and post-treatment and inform further maintenance requirements is to be included.		(ERM, local ecologists)	plant species during construction and operation could lead to long-term degradation of native habitats, particularly in sensitive areas such as the Sajószöged II buffer zone, reducing habitat quality for protected and common species alike.	
1h Develop and implement training plan	➤ Design and implement a plan for employee training to raise awareness around biodiversity and impacts as well as relevant management measures.	No	External consultants	Lack of biodiversity awareness and	Prior to construction commencing

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
	➤ This can be included as an Annex/Appendix to the BMP or integrated into other site management plans as appropriate. ➤ These can be in the form of interactive workshops, toolbox talks, field exercises, and protocols.		(ERM, local ecologists)	insufficient understanding of mitigation measures among construction personnel could lead to unintentional damage to sensitive habitats, failure to implement agreed controls, and increased risk of non-compliance with environmental commitments.	
2 Construction Phase					
2a Implement access controls, restrictions and avoidance measures	➤ In accordance with the plans and commitments for the pre-construction phase (see above), implement measures to control access, restrict activities and avoid disturbance of sensitive habitats, especially for breeding bird species. ➤ Avoid stockpiling materials, equipment and soil within adjacent natural areas, buffer zone of the corridor forming part of the Ecological Network (specifically for the Sajószöged II sub-project).	No	EPC contractor	Uncontrolled construction access and material stockpiling near sensitive habitats could lead to habitat degradation, trampling, disturbance to breeding bird species, and the spread of invasive species within the ecological corridor buffer zones.	During construction

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
2b Align construction with key breeding periods for birds	➤ As far as possible, schedule noisy and intensive maintenance activities (e.g. roads maintenance or upgrades requiring earthworks or the use of noisy/heavy machinery) outside of sensitive/PBF bird breeding periods (e.g. spring, summer typically: mid-March – end of August). ➤ Activity scheduling should be considered per sub-project on a case-by-case-basis and informed by pre-construction breeding/nesting surveys for birds as well as habitat survey findings. It may be the case that restrictions apply fully or partially only to certain sub-projects in more sensitive areas (e.g. Sajószöged II sub-project).	No	EPC contractor	Construction and maintenance activities conducted during the critical bird breeding season may cause nest abandonment, reduce breeding success, and disturb Priority Biodiversity Features within sensitive sub-project areas.	During construction
2c Implement Bird Flight Diverters (BFDs) and powerline insulation	➤ Implement BFDs and appropriate insulation in line with the planned design for the overhead powerline and in alignment with the Building Permit conditions.	No	EPC contractor	Overhead powerlines without mitigation pose a collision and electrocution risk to birds, particularly large-bodied and migratory species; this can lead to injury or mortality and negatively impact bird populations in the project area.	During construction
2d Implement standard GIP measures to minimise wildlife disturbance during construction activities	➤ Implement standard GIP construction measures to protect biodiversity and minimise disturbance to wildlife, including those related to other plans/ESMP and <i>in alignment with the Building Permit conditions</i>, for example (but not exclusively): - Invasive Alien Species (IAS) - Waste and wastewater management	No	EPC contractor	Without the application of standard good international practice (GIP), construction activities may	During construction

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks ⁶	Timeframe (indicative)
	- Vehicle speed controls - Noise management - Dust control - Site inspections - Incident monitoring and reporting - Wildlife friendly fencing - Pest management - Excavation and trench management for underground powerlines - Wildlife rescue and release / shepherding protocols - Worker conduct/policy			result in significant noise, dust, waste, and direct harm to wildlife, increasing the risk of mortality, habitat degradation, and non-compliance with permit conditions.	
3 Post-construction Phase					
3a Implement plans to restore / recreate habitats and monitor these	➤ In accordance with the habitat restoration plans and commitments prepared during the pre-construction phase (see above), implement habitat restoration at the site as soon as practically possible. ➤ Progressive rehabilitation and restoration is advisable, where possible (i.e. undertake restorative actions as works are completed for each sub-project). ➤ Develop measures for the ongoing management of restored grassland/meadow habitats through controlled grazing or mowing (to be included in overall restoration plan ideally). ➤ Develop a plan and programme to monitor the success of restoration activities and implement adaptive management measures as needed (to be included in overall restoration plan ideally).	No	EPC contractor External contractors External consultants	Failure to restore or recreate habitats following construction may result in long-term loss of ecological function, reduced biodiversity value, and the degradation of grassland/meadow habitats important for supporting Priority Biodiversity Features.	After construction has been completed
4 Operational Phase					
4a Undertake bird fatality monitoring for the overhead powerline	➤ Design and implement a monitoring program to monitor the powerline for bird fatalities due to collision or electrocution. ➤ Align as far as possible with good international practice in Post-construction Fatality Monitoring (PCFM) for powerlines (e.g. IFC, EBRD and KfW, 2023). ➤ Use monitoring outcomes to inform adaptive management where required.	Yes	Operator External consultants (local ecologists)	Without systematic monitoring, bird mortality due to collisions or electrocution along the powerline may go	During first 1-2 years of operation, extended as necessary based on findings

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks⁶	Timeframe (indicative)
				undetected, preventing adaptive mitigation and leading to cumulative impacts on vulnerable and migratory bird species.	
4b Monitor restored/created habitats	➤ Monitor the success of restoration activities and implement adaptive management measures as needed based on monitoring outcomes.	Yes	Operator External consultants (local ecologists)	Lack of post-restoration monitoring may result in ineffective or failed habitat recovery, with no mechanism to trigger adaptive management if ecological conditions do not improve as intended.	During first 1-5 years of operation, extended as necessary based on findings
4c Implement monitoring for PBF bird species	➤ Confirm use of restored habitats and any recreated ones as well as artificial nests by PBF bird species through focused surveys during the breeding period (spring/summer).	Yes	External consultants (local ecologists)	Without focused monitoring, it will not be possible to verify whether Priority Biodiversity Feature (PBF) bird species are utilizing restored habitats or artificial nests, limiting the ability to assess	During first 1-2 years of operation, extended as necessary based on findings

Actions	Further Steps Required (to be considered and further detailed during BMP preparation)	Field Surveys Required?	Responsibility	Targeted Impacts / Biodiversity Risks⁶	Timeframe (indicative)
				conservation outcomes and adjust management strategies.	
4d Implement managed grazing of restored grassland/meadow habitats or artificial mowing	➤ Implement a plan for the ongoing management of restored grassland/meadow habitats through controlled grazing or mowing.	No	Operator	Inadequate management of restored habitats through grazing or mowing may lead to ecological succession, invasive species encroachment, and habitat degradation, undermining restoration objectives.	Lifetime of Project
4e Ban use of pesticides and herbicides	➤ Harmful pesticides and herbicides use is to be strictly controlled and guided by EU regulations and preferably prohibited during maintenance of habitats/vegetation.	No	Operator	Use of harmful pesticides and herbicides could negatively impact flora and fauna, reduce habitat quality, and harm pollinators or amphibian species, particularly in ecologically sensitive or restored areas.	Lifetime of Project

7. IMPLEMENTATION OF THE BMP

This chapter focuses on implementation of the Project-specific BMP to be developed, guided by the Framework BMP and includes:

- Roles and responsibilities;
- Reporting and communication; and
- Review and update.

7.1 ROLES AND RESPONSIBILITIES

The ultimate responsibility for implementing the Project-specific BMP rests with the developer (during construction) and solar park operator (for the operational phase), that being Spectris Hungary Kft. ("Spectris"), a wholly owned subsidiary of GoldenPeaks Capital.

However, specific technical tasks and measures will need to be delegated to contractors / independent experts with the relevant expertise in the implementation of specific actions and monitoring.

The key roles and responsibilities anticipated for BMP implementation are presented in Table 7-1 below and will need to be reviewed and updated as necessary during BMP preparation.

TABLE 7-1 BMP IMPLEMENTATION ROLES AND RESPONSIBILITIES

Role	Responsibilities (BMP-related only)
Project Manager (Spectris)	• Ensure E&S requirements are communicated throughout business. • Responsible for providing the required resources (financial, technical and external support) to complete the required tasks and to facilitate appropriate level of company support to the Project. • Communicate the content of the BMP (including any updates) to external service providers/contractors (as relevant) and act as the focal point to promote implementation, performance monitoring and provide guidance and support. • Ultimate responsibility for ensuring implementation of required corrective actions including in response to identified biodiversity related non-compliances and incidents. • Ensuring that the BMP is kept up to date and appropriate to the nature and scale of the Project and ensuring effective implementation. • Ensure periodical review of the BMP implementation effectiveness in line with the provisions of the BMP. • Selection of specialized external contractor(s) for specific tasks to be carried out as part of the implementation of BMP actions/measures such as (but not limited to) additional studies, specific interventions, stakeholder engagement and data analysis and reporting.
Service providers (external contractors)	External services providers/contractors contracted specifically by Spectris / the SPVs to develop and maintain the project (e.g. EPC contractor⁷ for construction, maintenance contractors during operation) that have the following responsibilities concerning the BMP: • Ensure any relevant company specific mitigation measures/plans are appropriate and resourced with adequate budget. • Determine sequence and interaction of staff, resources and processes. • Ensure all activities on site are undertaken in accordance with the BMP, own E&S Management Plans, Procedures and Method Statements.

⁷ At the stage of the due diligence completed by ERM, the EPC Contractor(s) had not yet been appointed.

Role	Responsibilities (BMP-related only)
	- Responsible for the day-to-day management / compliance of the operations and activities. - Responsible for incidents reporting where relevant. - Responsible for ensuring any subcontractor performing works at the Project sites adhere to the relevant plans and procedures as well. - Responsible for maintaining site records. - Reporting the inspection and monitoring records to Project Manager and Spectris.
Specialized contractors / consultants (external)	External consultant(s) appointed by Spectris to handle and support with specific biodiversity-related matters and that have the following responsibilities concerning the BMP preparation and implementation: - Effective execution of the specific tasks assigned in conformity with the BMP action plan and according to contractual arrangements with Spectris. - Assist with developing any necessary supporting plans, programs and protocols as required (e.g. habitat restoration plans, monitoring programs). - Collaborate with local ecological NGOs (such as birdlife international, etc.) and experts particularly for carrying out monitoring and other field-based biodiversity activities. - Facilitate organization of additional studies and stakeholder engagement activity where necessary. - Inform the Project Manager about biodiversity performance and provide recommendations on mitigation measures to be implemented. - Periodical review of biodiversity management effectiveness. - Recommending adaptive measures and actions, as necessary - Support Spectris with reviews and updates to the BMP as necessary. - Support with delivering training on implementation of the BMP and supporting plans and protocols. - Adhoc support onsite or remotely via phone/email as necessary.

7.2 REPORTING & COMMUNICATION

Reporting and communication allow for the developer and operator (and any external consultants/contractors) to communicate results that are appropriate and realistic, in a simple, timely and regular manner that allows for informed decision-making.

Key tasks related to reporting and communication for the BMP include:

- Finalizing the reporting and communication framework, including internal and external requirements and content;
- Ensuring competent experts are consulted to determine up-to-date requirements for reporting on external frameworks;
- Identifying timeframes;
- Identifying roles & responsibilities for internal and external reporting; and
- Establishing lines and mechanisms of communication.

There are likely to be several internal and external (third-party) reporting and communication requirements linked to different drivers that include:

- Internal reporting and communication in accordance with internal requirements and to inform BMP review and update and adaptive management based on monitoring outcomes;

- Local reporting requirements in terms of national legislation;
- Reporting required for projects financed by international financial institutions (i.e. EBRD);
- Corporate level sustainability reporting requirements relevant to the company (where relevant); and
- Any biodiversity disclosure requirements relevant to the company (where relevant).

7.2.1 INTERNAL REPORTING AND COMMUNICATION

Internal reporting and communication requirements and mechanisms will need to be described and defined by the developer/operator, together with timeframes (recommended at least annually, subject to review), and responsibilities for reporting and communication of key outcomes, towards meeting the following:

- Spectris/GoldenPeaks internal Environmental & Social Management System (ESMS) (as relevant);
- Industry-specific / ISO 14001 requirements (where relevant); and
- Reporting and communication to inform decision-making, BMP review and update and adaptive management processes linked to monitoring outcomes.

7.2.2 EXTERNAL REPORTING AND COMMUNICATION

External (third-party) reporting and communication requirements and mechanisms will need to be described and defined, together with timeframes and responsibility for reporting and communication of outcomes, including but not necessarily limited to:

- Reporting and communications requirements for external financing (e.g. international financial institutions);
- Sustainability reporting at the corporate level (e.g. ESRS, GRI) where applicable; and
- Biodiversity disclosure requirements where relevant (e.g. TNFD).

7.3 REVIEW AND UPDATES

The BMP is intended to be a 'living document' that should be reviewed and updated as actions are developed and implemented, and as the process of adaptive management guides delivery of biodiversity outcomes in meeting the defined objectives. A regular review frequency needs to be agreed with lenders (e.g. annually during construction and for the first 2-3 years of operation), whereby BMP actions, success indicators/criteria and targets are reviewed against M&E outputs and taking into consideration also stakeholder expectations and feedback.

Urgent updates in line with the principle of 'adaptive management' can be the responsibility of the developer/operator of the solar plant Project (Spectris), with support from external consultants, however any material changes to intervention design, the timing of monitoring activities, etc. should be made in consultation with a third-party consultant to ensure accountability.

Typically, lenders including EBRD prefer that the same consultant who authored the BMP in its original format be retained for the sake of consistency and continuity, however this is not a prescriptive requirement.

8. NEXT STEPS

Key next steps towards the planning and implementation of appropriate biodiversity management for the Project are presented below in Table 8-1, together with responsibilities and timeframes.

TABLE 8-1 NEXT STEPS TOWARDS THE IMPLEMENTATION OF THE BMP FRAMEWORK

#	Next Steps	Responsibility	Timeline
1	Develop the Project-specific BMP, informed by the Framework BMP and involving necessary stakeholder consultation	External consultant (ERM)	Prior to construction commencing
2	Coordinate with local /in-country ecologists to complete supplementary pre-construction ecological surveys focused on habitats and breeding birds	Local / in-country ecologists External consultant (ERM) to coordinate	Prior to construction, aligned with breeding season in spring/summer (mid-March to end of August)
3	Implement relevant BMP measures during pre-construction, construction and operational phases	Developer EPC contractor Operator	Pre-construction, Construction, Operation

9. REFERENCES

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10. ANNEXURES

10.1 ANNEX A: BASELINE SUMMARY FOR BIODIVERSITY

A summary of the key baseline values and receptors for biodiversity (protected areas, ecosystems, habitat, flora and fauna) is provided here, based on the summaries contained in the ESDD report (ERM, 2025). Summaries are provided for each of the six sub-projects typically, as follows: Sajószöged I, II, III, VI, VII, IX.

10.1.1 PROTECTED AREAS / INTERNATIONALLY RECOGNIZED AREAS

Sajószöged I, III, VI, VII, IX

- None of the subprojects are located within nationally or internationally designated protected areas.
- Closest protected sites:
 - HUBN20029 Girincsi Nagy-erdő (SCI site, ~1.2–2 km): designated for Annex I habitats (3130, 3270, 6440, 91E0, 91F0) and multiple species.
 - HUBN20030 Hejő mente (SCI site, ~3 km): includes Pannonic loess steppic grasslands, alluvial meadows, lowland hay meadows, and alluvial forests.
 - Kesznyéten IBA/KBA (~6.5 km northeast).
 - Borsodi-Mezőség Ramsar site (~9 km southwest).

Sajószöged II

- Located within the National Ecological Network buffer zone and bordering an ecological corridor. Species confirmed in corridor/buffer areas are *Bombus argillaceus* (Southern cuckoo bumblebee – protected), *Corvus corax* (Common raven – protected; nesting on HV pylons ~500 m from site), *Mustela nivalis* (Least weasel – protected), additional protected insect and bird species linked to grasslands.
- Surrounding international sites: Girincsi Nagy-erdő SCI (~2 km), Hejő mente SCI (~3 km), Kesznyéten IBA (~6.5 km), Borsodi-Mezőség Ramsar (~9 km).

10.1.2 ECOSYSTEMS AND HABITATS

Sajószöged I, III, VI, VII, IX

- Intensive agricultural landscapes with low ecological value.
- Habitat details:
 - Sajószöged VI: 58 plant species, saline grassland (*Festucion pseudovinae*), softwood riparian woodland (*Salicion albae*).
 - Sajószöged IX: 42 flora species, reedbeds and hedgerows.
 - Sajószöged I, III, VII: 28–29 flora species, dominated by ruderal weeds.

Sajószöged II

- Agricultural site with active grazing, hay production, and arable land.
- Dominant habitats are degraded saline grasslands (*Festucion pseudovinae*), often overgrazed or reseeded with alfalfa, disturbed weed communities along field margins and tracks (*Artemisietea vulgaris*, *Polygono-Poetea annuae*), burdock-dominated patches (*Arction lappae*), dry acacia stands (*Balloto-Robinion*), with limited understorey diversity.
- 98 plant species recorded.

10.1.3 FLORA

Sajószöged I, III, VI, VII, IX and Sajószöged II

- Sajószöged I, III, VII are belonging 28–29 species, Sajószöged VI are 58 plant species, Sajószöged IX has 42 species and 98 species are recorded at Sajószöged II.
- No protected, rare, or endemic species
- Common disturbance-tolerant plants:
 - *Agropyron repens* – Couch grass (IUCN: LC)
 - *Artemisia vulgaris* – Mugwort (IUCN: LC)
 - *Taraxacum officinale* – Dandelion (IUCN: LC)
- Invasive alien species recorded / of concern:
 - *Robinia pseudoacacia* – Black locust
 - *Ailanthus altissima* – Tree of heaven
 - *Ambrosia artemisiifolia* – Ragweed
 - *Amorpha fruticosa* – Desert false indigo

10.1.4 FAUNA

Sajószöged I, III, VI, VII, IX

Amphibians:

- *Bufo viridis* – Green toad (LC; EU Habitats Directive Annex IV; Bern II)
- *Hyla arborea* – European tree frog (LC; EU Habitats Directive Annex IV; Bern II)
- *Rana esculenta* – Marsh frog (NE; nationally protected) (noted at sites VI and IX)

Birds (~26 species/site)

- *Alauda arvensis* – Skylark (LC; EU Birds Directive Annex I)
- *Lanius collurio* – Red-backed shrike (LC; EU Birds Directive (Annex I) Annex I)
- *Hirundo rustica* – Barn swallow (LC; national protection)
- *Buteo buteo* – Common buzzard (LC; national protection)

Mammals

- *Crocidura leucodon* – Common shrew (LC; national protection)
- *Talpa europaea* – European mole (LC; national protection)
- Generalists: weasel, roe deer, field vole.

Sajószöged II

Amphibians

- *Bufo viridis* – Green toad (LC; EU Habitats Directive Annex IV; Bern II)
- *Hyla arborea* – European tree frog (LC; EU Habitats Directive Annex IV; Bern II)
- *Rana esculenta* – Marsh frog (NE; nationally protected)

Birds

- *Ciconia ciconia* – White stork (LC; EU Birds Directive Annex I)
- *Falco tinnunculus* – Red-footed falcon (NT; EU Birds Directive Annex I; Bern; CMS)
- *Coracias garrulus* – European roller (NT; EU Birds Directive Annex I; Bern)
- *Merops apiaster* – European bee-eater (LC; EU Birds Directive Annex I)
- *Circus aeruginosus* – Marsh harrier (LC; EU Birds Directive Annex I)

- *Alauda arvensis* – Skylark (LC; EU Birds Directive Annex I)
- *Lanius collurio* – Red-backed shrike (LC; EU Birds Directive Annex I)
- *Hirundo rustica* – Barn swallow (LC; national protection)
- *Buteo buteo* – Common buzzard (LC; national protection)

Mammals

- *Crocidura leucodon* – Common shrew (LC; national protection)
- *Talpa europaea* – European mole (LC; national protection)
- Generalists: weasel, roe deer, field vole.



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ERM GmbH
Brüsseler Str. 1-3
60327, Frankfurt
Germany

www.erm.com