Funded by
the European Union

BIODIVERSITY MANAGEMENT PLAN

April 2026

Technical Assistance to Connectivity in the Western Balkans 2 (CONNECTA 2)

NEAR/2022/EA-RP/0081

Sub-Project

Code: CONNECTA2-TRA-INFR-BIH-DD-01

Technical assistance for the preparation of due diligence of detailed design and cost estimate and gap analysis of the existing feasibility study and ESIA for Foca-Hum in BiH

Implemented by MOTT MACDONALD in consortium with COWI

Issue and revision record

Revision	Date	Originator	Checker	Approver	Description
1	22/07/2025	CONNECTA2 team	Dusan Savkovic (Proj. Manager)	Chris Germanacos	Draft Biodiversity Management Plan
2	16/04/2026	CONNECTA2 team	Dusan Savkovic (Proj. Manager)	Chris Germanacos	Final Biodiversity Management Plan

Information Class: EU Standard

Table of Contents

List of Figures

List of Tables

List of Abbreviations

BD I	Annex I of the EU Birds Directive
Bern II	Annex II of the Bern Convention on the Conservation of the European Wildlife and Natural Habitats
BiH	Bosnia and Herzegovina
BMP	Biodiversity Management Plan
CESMP	Construction E&S Management Plan
CH	Critical Habitat
CHA	Critical Habitat Assessment
DBH	Diameter at Breast Height
DCWMP	Detailed Construction Waste Management Plan
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EP	Environmental Permit
ESAP	Environmental and Social Action Plan
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESMS	Environmental and Social Management Plan
ESP	Environmental and Social Policy
ESS	Environmental and Social Standards
HD II/IV	Annex II and IV of the EU Habitats Directive
IAS	Invasive Alien Species
ISMP	Invasive Species Management Plan
IUCN	International Union for Conservation of Nature
KPI	Key Performance Indicator
LHRP	Land and Habitat Restoration Plan
MNE	Montenegro
OESMP	Operation E&S Management Plan
PBF	Priority Biodiversity Feature
PIU	Project Implementation Unit
PR	Performance Requirements
PRS	Javno preduzece Putevi Republike Srpske / Public Enterprise Roads of Republika Srpska
PS	Protected Species
Res. 6	Resolution 6 of the Bern Convention
RPF	Resettlement Policy Framework
RS	Republika Srpska
RS MPPCEE	RS Ministry of Spatial Planning, Construction and Ecology
SEP	Stakeholder Engagement Plan
SPS	Strictly Protected Species
TMP	Traffic Management Plan
UV	Ultraviolet
WB	World Bank
WMP	Waste Management Plan

SYNOPSIS

Project (sub-project) Title:	Technical assistance for the preparation of due diligence of detailed design and cost estimate and gap analysis of the existing feasibility study and ESIA for Foca-Hum in BiH
Project Number:	CONNECTA2-TRA-INFR-BIH-DD-01
Contracting Authority:	European Commission, DG NEAR
Main Beneficiaries:	EBRD, WB
End Beneficiary:	“Putevi Republike Srpske” (PRS)
Context:	National (Bosnia and Herzegovina)
Consultant:	Mott MacDonald Romania SRL in Consortium with COWI A/S
Administrative Order:	20 December 2024 (AO9)
Mobilisation of NKEs:	16 January 2025 (Kick-off Meeting - teleconference)
Sub-Project Duration:	7 months
Anticipated completion:	16 August 2025
Responsible Transport KE:	Chris Germanacos

1 Introduction

1.1 Background

This Biodiversity Management Plan (BMP) has been developed for the road construction Project along the Foca-Hum cross-border, route between Bosnia and Herzegovina (BiH) and Montenegro (MNE). Its primary purpose is to consolidate all proposed biodiversity-related mitigation measures associated with the planned Foca-Hum road alignment works in one document.

This BMP presents the findings of both desktop research and field surveys conducted between April and July 2025, during the season when most species are active, visible, and breeding. The BMP has been prepared to outline and expand on proposed biodiversity mitigation measures and, where applicable, to assign responsibilities for their implementation. It is important to note that this BMP is a dynamic document and will be periodically updated to reflect the results of future investigations and monitoring activities, as specified within. All survey results and baseline data are consolidated in the E&S due diligence package and the accompanying Book of Appendices (Appendix B: Biodiversity and Protected Areas).

The mitigation hierarchy has been applied to the proposed mitigation strategy contained within this plan. In essence this can be described as a three-step process:

- Avoid (spatially or temporally) or prevent negative impacts on the environment in general and biodiversity in particular;
- Minimise/reduce and rehabilitate on-site effects of development if impacts cannot be avoided; and
- Compensation/Remediation/Offset measures that are undertaken as a last resort (on or off-site) for the residual adverse impacts.

Avoidance involves selecting alternative approaches to prevent irreversible impacts through informed decisions on site location, project design, and scheduling. By carefully planning the placement of infrastructure, choosing suitable construction and operational methods, and adjusting the timing of activities, potential impacts can be strategically avoided from the outset.

Reduction focuses on implementing specific protective mitigation measures during the design, construction, and operational phases to minimise unavoidable adverse impacts to the greatest extent possible. This includes limiting the duration, intensity, and spatial extent of impacts. Practical examples include installing fencing to protect ecologically sensitive areas during construction or applying mitigation measures that align with national Environmental Impact Assessment (EIA) procedures.

Compensation/Remediation/Offsetting comes into play when significant impacts cannot be fully avoided or reduced. In such cases, offset measures should be developed to achieve measurable conservation outcomes, typically in areas not directly affected by the project. These actions are intended to compensate for residual adverse effects that remain after avoidance, minimisation, and restoration efforts have been applied.

The first objective of any project should be the avoidance of impacts on biodiversity. However, in cases where complete avoidance is not achievable, appropriate measures will be taken to minimise these impacts and restore affected biodiversity and ecosystem functions. Due to the inherent complexity in forecasting long-term project effects on biodiversity, the Project will adopt an adaptive management approach. This means that the implementation of mitigation and management strategies must remain flexible and responsive, allowing adjustments based on changing environmental conditions and ongoing monitoring results throughout the entire duration of the Project.

1.2 Project Description

The European Bank for Reconstruction and Development (EBRD) and the World Bank (WB) ("the Lenders") are considering financing for BiH and the Public Enterprise Putevi Republike Srpske (PRS) to construct a **13.04 km[1] road section** which forms part of the full 19.14 km Foca-Hum road which stretches from Brod na Drini (Foca) to Hum (Scepan Polje) at the Montenegro border. This 13.04 km section ("the Project") is classified as "Category B" under the EBRD Policy and "substantial risk" under WB Policy.

The entire Foca-Hum road, located in southeastern BiH from Brod na Drini (Foca) to Hum (Scepan Polje) at the Montenegro border, spans 19.14 km through challenging mountainous terrain. The route is divided into three sections, as shown in Figure below:

- Section A (5.5 km): Reconstruction of the existing road with minor realignments to improve safety and address terrain constraints.
- Section B (13.26 km): A newly designed alignment aimed at enhancing road geometry and accommodating higher travel speeds.
- Section C (0.38 km): Construction of a new cross-border bridge over the Tara River.

Section B is financed by the WB and EBRD, while Sections A and C is funded by the state budgets of BiH and Montenegro. Both Section A and Section C are treated as associated facilities.

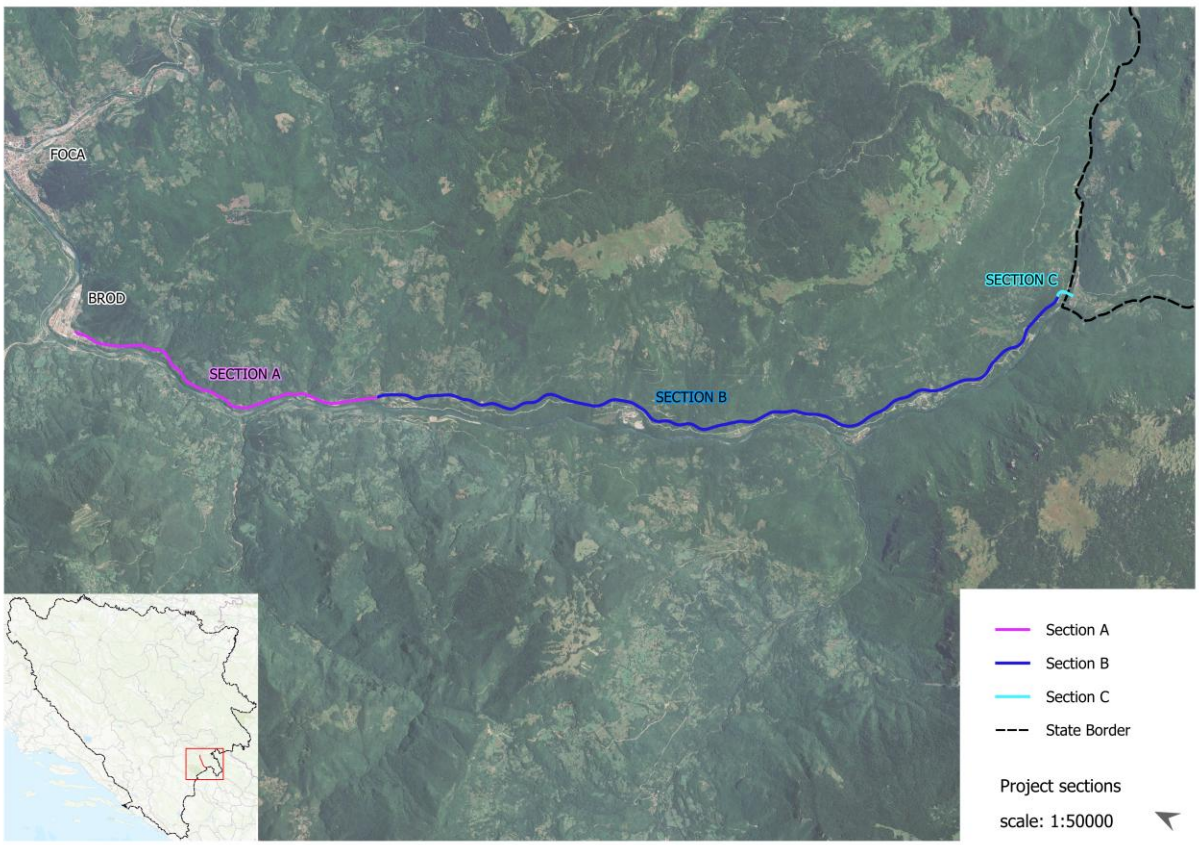


Figure 1: Project sections and the location of the road in BiH

[1]The final length will be defined after the new Main Design is prepared

1.3 Commencement

Lenders' approval for the financing of this section is currently under consideration, with a decision expected by mid-2026; however, no defined timeline for the start of construction is available.

1.4 Authority and Management

The Company which will implement the Project of rehabilitation and construction of road section along Foca-Hum cross-border connection is the PRS. PRS is a limited liability company and the legal successor of the Republic Directorate for Roads. One of the main responsibilities of PRS is related to ensuring the technical and technological integration of the main and regional road network.

The EBRD and WB are considering providing sovereign-guaranteed loan to the PRS for Project implementation. To ensure compliance with the requirements of the Ecological (Environmental) Permit (EP) issued in June 2024 and those of Lenders (including the EBRD standards and WB standards), the implementation of environmental and biodiversity protection measures must be organised through a defined structure within PRS and relevant external stakeholders.

PRS operates in accordance with an Annual Business Plan, which defines all projects scheduled for implementation including procurement of documentation, execution of works and supervision. All procedures follow national public procurement laws and include obtaining technical conditions, permits, and approvals. Currently, the organisation does not have formal internal procedures for environmental management, it does not hold ISO certification, nor it has an adopted corporate environmental policy.

Within PRS, there are three sectors, each with multiple departments:

- Technical Sector
- Legal Affairs Sector
- Economic and Financial Affairs Sector

Under the Technical Sector, Department of Planning, Road Network Development and Environmental Affairs is responsible for planning and overseeing the implementation of environmental (and biodiversity) measures. The department includes two key staff members: an Environmental Protection Engineer and an Ecologist. Their responsibilities include obtaining permits, liaising with competent authorities, and monitoring the execution of mitigation measures throughout all project phases. The Company does not have any employees whose sole responsibility is biodiversity at the moment of writing this report.

Additionally, the Project Implementation Unit (PIU) is organised and engaged by the PRS in reviewing reports and conducting occasional site visits. PIU has been formally established for Project implementation purposes and, as per information obtained from PRS, an external biodiversity expert was engaged as part of the PIU.

2 Scope

2.1 Scope of the Management Plan

The main purpose of the BMP is to outline the necessary measures for mitigating and monitoring biodiversity impacts, in full compliance with the EBRD Performance Requirements (PRs) and WB Environmental and Social Standards (ESSs). This document serves as a comprehensive framework that brings together all biodiversity-related mitigation and monitoring actions associated with construction works along the Project. The main objective of this document is to guide the implementation of future activities concerning biodiversity management throughout the Project lifecycle.

The BMP has been set out in ten sections as follows:

- **Section 1 Introduction:** General information about the Project and the BMP.
- **Section 2 Scope:** This section introduces the scope of the BMP and outlines existing overlaps with other Management Plans.
- **Section 3 Roles and Responsibilities:** This section sets out main information on who will implement the biodiversity mitigation and who is responsible for post-construction monitoring.
- **Section 4 Project Standards:** The requirement for mitigation is set out in this section regarding international, national laws and legislation as well as good practice guidance of Lenders.
- **Section 5 Mitigation Measures and Management Controls:** This section sets out the mitigation which is outlined in the BMP. Where further Management Plans are required, additional information has been included, so that they can be completed prior to commencement of construction.
- **Section 6 Implementation Schedule:** This section summarises the information that would be needed for the effective implementation of all recommended mitigation measures for biodiversity.
- **Section 7 Monitoring:** This section describes the biodiversity monitoring framework, including pre-construction, construction, and post-construction phases. It details the parameters to be monitored, and reporting requirements to ensure compliance with BMP objectives and performance indicators.
- **Section 8 Training:** Workforce training regarding biodiversity issues will be required. The training requirements have been detailed in this section.
- **Section 9 Audit and Control**.
- **Section 10 Document Control**.

2.2 Overlap with other Management Plans

The Environmental and Social Action Plan (ESAP), which is developed as part of this assignment, details a number of different Management Plans which are to be finalised and implemented either before or during construction. A number of these plans, while not directly related to biodiversity, are considered to provide (directly or indirectly) mitigation benefits to biodiversity.

- In compliance with EBRD's PRs and Good International Practice as well as with WB ESS's, the PIU is to require that the Contractor(s) develop and implement **Construction E&S Management Plan (CESMP)**. PRS is to request from the Contractor(s) to include all measures defined in the obtained Location Conditions, EIA and other relevant permitting documents, as well as the ESMMP developed as a part of the E&S due diligence package into the CESMP, including the mitigation measures for the following biodiversity-related aspects: air emissions, noise and vibration management, soil management, waste management, wastewater management, biodiversity management and protection of habitats, hazardous material management, spill response management, information disclosure and stakeholder engagement, chance find procedure, community health and safety management and traffic management.

CESMP shall be developed prior to construction and will also include the following Management Plans relevant to biodiversity:

The CESMP will include the following plans relevant for biodiversity:

- Waste Management Plan,
- Detailed Construction Waste Management Plan,
- Emergency Preparedness and Response Plan,
- Landscape and Habitat Restoration Plan (LHRP),
- Invasive Species Management Plan (ISMP),
- Topsoil Management Plan,
- Dust Management Plan,
- Materials Management Plan,
- OHS Management Plan,
- Fire Protection Plan,
- Maintenance Plan.

The BMP provides a framework for LHRP and ISMP that will be a part of the CESMP.

Operation Environmental and Social Management Plan (OESMP) shall be developed prior to commencement of the operational phase of the Project. The OESMP will include (but not be limited to) aspects of waste management, air quality management, noise management, spill response, emergency preparedness and response, maintenance management. Biodiversity management aspects during the operation phase will be covered in the BMP and will have to be integrated into the OESMP. The OESMP also needs to include all measures stipulated by the Location Conditions obtained from competent authorities.

The OESMP will include the following plans relevant for biodiversity:

- Emergency Preparedness and Response Plan,
- Updated existing OHS Plan,
- Fire Protection Plan.

3 Roles and Responsibilities

3.1 Key Roles and Responsibilities for BMP Implementation

The key roles and responsibilities for BMP implementation during the pre-construction, construction and operation phase are set out as standard practice within the general roles and responsibilities of PRS personnel. In summary, the key roles and responsibilities for the BMP implementation are as follow:

- **PRS** to ensure that requirements from the national EIA, permits, Lender's requirements, FIDIC standards (the Project will follow the Yellow Book) etc. are included in the Tender Documents. This must include the ESAP and BMP commitments. Upon completion of construction, all management and maintenance tasks during operation, will be managed by the PRS through engagement of external consultancy.
- Implementation of mitigation measures during the construction stage will be the responsibility of the **Contractor** in accordance with the contract specifications and loan requirements. To achieve this effectively, the Contractor must appoint a qualified Ecological Clerk of Works (ECoW) specifically to coordinate the implementation and monitoring of the BMP. The Contractor is obligated to submit monthly reports on construction site management and any (biodiversity-related) incidents which will further be reviewed and verified by the Supervision Engineer and PIU within the PRS.
- **The Supervision Engineer/PIU** is responsible for the overall supervision of construction works will supervise the monitoring of implementation of mitigation measures during the construction stage. The Supervision Engineer is responsible for the overall supervision of Contractor; construction works and implementation of mitigation measures during the construction stage. The Supervision Engineer has to submit monthly reports to the PRS.

3.2 Contractor Engagement

PRS has established a PIU responsible for Project implementation which will be supervised by the Lenders. The engaged construction Contractor will be obligated to prepare a CESMP in line with the ESMMP and ESAP. It will be supervised by the PIU.

PRS is uncertain about which FIDIC contract will be applied, although it is anticipated it will likely be the Yellow FIDIC, commonly used for design and build contracts in PRS. PRS is to ensure compliance with the requirements from the ESMMP, Lender’s requirements, FIDIC standards etc., and this must be included in the tender documentation. This includes the BMP commitments.

3.2.1 Monitoring and Reporting

The monitoring approach is tailored to the type of project, its environmental and social risks, potential impacts, and legal obligations. The implementation of environmental and social monitoring, including those outlined in E&S due diligence package, is the responsibility of the respective Contractor during construction phase. However, since overall responsibility for compliance with the PRs and ESSs lies with PRS as the implementing body, the PIU will regularly supervise both the Project and the implementation of E&S instruments and will define and enforce corrective actions when necessary. Monitoring during operation will be the responsibility of PRS.

If monitoring reveals any issues, the PIU will identify the required corrective and preventive actions and update the relevant management documents accordingly, subjecting them to approval by the EBRD and WB. These actions must then be implemented and tracked as per the updated ESAP and/or BMP.

PRS will be required to provide regular reports to the EBRD and WB on the E&S performance of the Project, including compliance with the PRs and implementation of ESAP, as well as ESMMP, BMP,

OESMP, SEP. PIU will prepare and submit E&S reports during construction which will provide a summary of E&S performance, including information on ESAP implementation progress in line with the reporting dynamics imposed by the Lenders.

The PIU must promptly notify the EBRD and WB of any E&S incident or accident relating to the Project which has, or is likely to have, a significant adverse effect, or of any changes to the Project's scope, design or operation that is likely to materially change its E&S impacts and issues.

The EBRD and WB may also periodically verify the monitoring information prepared by PIU through site visits by the E&S specialists and/or independent experts.

3.3 Key Interfaces

The key interfaces for the implementation of this and other management plans will be as follows:

- **The Contractor (and consequently all its sub-contractors)** - must implement the mitigation plans and, in turn, must liaise directly with the Head of PIU. Responsible for the implementation of ESMMP, CESMP and BMP mitigation measures and monitoring plan as well as any subsequent corrective measures prescribed by PIU, EBRD and WB.
- **The Supervision** - responsible for the overall supervision of construction works and will supervise the monitoring of the implementation of all management plans during the construction stage and will liaise with both the Contractor and PRS.
- **PIU** - responsible for overseeing the overall implementation of the Project, including coordination of all parties involved, ensuring that environmental and social requirements are met. The PIU will provide guidance to the Contractor, review reports and monitoring results and enforce corrective actions where needed. The PIU will report on ESMMP implementation compliance to the EBRD and WB in the regular Progress reports in dynamics agreed by the parties.

When construction is completed all management and maintenance issues will be dealt with by the PRS Department of Planning, Road Network Development and Environmental Affairs. It will therefore be this department that will manage and implement the post construction monitoring provided as a part of the BMP.

4 Project Standards

4.1 Summary of Applicable Project Standards

There are a range of applicable project standards (legislation and policy) as described in greater detail in the following section below. In summary, the key applicable standards are as follows:

- *Law on Environmental Protection*[2]
- *Law on Nature Protection*[3]
- *Decree on the Red List of Protected Species of Flora and Fauna of the Republic of Srpska*[4]
- *Decree on Strictly Protected and Protected Wild Species*[5] *- strictly protected species (SPS), protected species* (PS)
- Red List of Birds of Montenegro[6]
- Red List of Amphibians and Reptiles of Montenegro[7]
- List of Protected Plant and Animal Species of Montenegro[8]
- Annex I of the EU Birds Directive[9] - BD I
- Annex II and IV of the EU Habitats Directive[10] - HD II, IV
- Annex II of the Bern Convention on the Conservation of European Wildlife and Natural Habitats – Bern II[11]
- Resolution 6 of the Bern Convention[12] - Res. 6
- International Union for Conservation of Nature[13] Red List of Threatened Species - IUCN RL
- The agreement on the conservation of populations of European bats (EUROBATS)
- Convention on the conservation of migratory species of wild animals (the Bonn Convention)
- EBRD Environmental and Social Policy (2019)
- EBRD PR 6 Guidance Note (2023)
- WB Environmental and Social Framework (2018)

4.2 Applicable National Standards

Law on Environmental Protection is the key piece of legislation for environmental protection in the RS which promotes environmental depollution, including preservation and protection of natural resources and rational use of resources. It also defines projects and facilities that can be built and put into operation only if an EIA procedure has been carried out, i.e. an EP has been issued; the key by-laws in this case are: *Rulebook on Projects for Which EIA is Carried Out and Criteria for Deciding on the Need to Carry Out and Scope of EIA*[14] and *Rulebook on Facilities That Can be Built and Put Into Operation Only If They Have an Environmental Permit*[15].

Law on Nature Protection regulates the restoration, protection, preservation and sustainable development of landscapes, natural areas, plants, animals and their habitats, land, minerals and fossils and other nature components. One of its objectives is harmonisation of human activities, economic and

[2] Official Gazette of Republika Srpska, No. 71/12, 79/15 and 70/20
[3] Official Gazette of Republika Srpska, No. 49/24
[4] Official Gazette of Republika Srpska, No. 124/12
[5] Official Gazette of Republika Srpska, No. 65/20
[6] Red List of Birds of Montenegro. Environmental Protection Agency (EPA): Pp.50 Podgorica, 2021.
[7] Red List of Amphibians and Reptiles of Montenegro. Environmental Protection Agency (EPA): Pp.44 Podgorica, 2023.
[8] Official Gazette of Montenegro, No. 76/06
[9] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds
[10] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora
[11] Council of Europe (1979). *Annex II: List of species requiring special conservation measures*. In Convention on the Conservation of European Wildlife and Natural Habitats. Council of Europe.
[12] Resolution No. 6 (1998) listing the species requiring specific habitat conservation measures (including revised Annex I to Resolution No. 6 (1998), adopted in 2011 by the Standing Committee)
[13] IUCN (2025). The IUCN Red List of Threatened Species. Version 2025-1. <https://www.iucnredlist.org>
[14] Official Gazette of Republika Srpska, No. 124/12
[15] Official Gazette of Republika Srpska, No. 124/12

social development plans, programs, foundations and projects with sustainable use of renewable and non-renewable natural resources and long-term preservation of natural ecosystems and natural balance.

Implementation of the Project requires compliance with the provisions of relevant local legislation related to environmental issues, which indirectly leads to better biodiversity management. These are covered with provisions of the *Law on Environmental Protection* and *Law on Nature Protection*, but also with relevant permits (EP, Water Permit), specific laws and by-laws covering air quality, water quality, noise management, waste management, etc.

Table 1: Overview of key national law requirements

Issue	Summary of national law requirements
Environmental Impact Assessment (EIA)	The responsible authority for issuing the official opinion on the need to conduct an EIA procedure and the approval of EIA Study is the Ministry of Spatial Planning, Construction and Ecology (MPPCEE). The procedure is regulated by the *Law on Environmental Protection* and its by-law (*Rulebook on projects for which an EIA is carried out and criteria for deciding on the need to carry out and scope of an EIA*). Mandatory EIA for investments relevant to the Project include: ▪ construction of motorways and fast roads, ▪ construction of motorways and roads with four or more lanes, or reconstruction and/or expansion of an existing road with two lanes or less, with the aim of construct a road with four or more lanes, in the event that such a new road or reconstructed and/or expanded section has a continuous length of more than 10 km or more, including associated facilities, except for the accompanying contents of the main road, ▪ hazardous waste infrastructure: plant for burning hazardous waste, the facility where the chemical treatment is carried out, hazardous waste landfills (relevant for compliance of service suppliers), ▪ Non-hazardous waste infrastructure: incinerator capacity 50t/day or more, facility for biologically, physically and/or chemical treatment not so much that it falls off, capacity 50t/day or more, landfills with disposal capacity of 50t/day or more, co-incinerating facility (relevant for compliance of service suppliers) The RS MPPCEE may also require EIA for other projects; including the following: ▪ construction of viaducts of significant length, ▪ construction of regional roads and priority (magistral) roads over 10 km of length, ▪ operations in areas regulated by legal acts which regulate the protection of nature, the protection of cultural and historical heritage and water protection (natural protection of areas, national parks, natural monuments, protected landscapes, protected European networks, and protected habitats of wild plant and animal species, water catchment protected areas, locations of historical, cultural and archaeological importance.
Water permits, water and wastewater management	In Republika Srpska (RS), the *Law on Waters*[16] regulates activities that may influence water quality or quantity, including the construction of flood protection structures and similar interventions. For such projects, a set of water management documents must be obtained to ensure compliance with legal and environmental standards: ▪ Water Guidelines: Issued during the Urban Permit and Site Requirements phase, these define the conditions under which the competent Ministry permits the use of water resources.

[16] Official Gazette of Republika Srpska, No. 50/06, 92/09, 121/12 and 74/17

Issue	Summary of national law requirements
	▪ Water Approval: Granted prior to the issuance of the Construction Permit, this confirms that the project documentation aligns with the previously issued Water Guidelines, relevant water legislation, and planning documents. ▪ Water Permit: Issued before the Use Permit, this document confirms that all requirements outlined in the Water Approval have been fulfilled. It defines the purpose and conditions of water use, operational regimes for facilities, wastewater discharge limits, and requirements for solid and liquid waste disposal. It also outlines obligations regarding wastewater monitoring, frequency of measurements, quality control, record-keeping, and water fee payment and reporting. Regarding suppliers and material handling, the *Law on Waters* stipulates that the extraction and relocation of material from riverbeds and water lands is permitted only within regulated zones or as part of officially approved protection measures. These activities must be based on specific studies and water-related legal acts and must not significantly alter natural processes, disrupt ecosystem balance, or worsen the impacts of sedimentation. The aim is to maintain safe water flow and ecological stability. A *Rulebook on Conditions and Methods for Maintaining Riverbeds and Extracting Material from Watercourses*[17] was adopted by the Minister of Agriculture, Forestry and Water Management in 2022. According to this rulebook, all such activities are to be conducted in accordance with an annual plan adopted by the Public Water Management Company Vode Srpske.
Air Quality	*Law on Air Protection*[18] defines measures for air quality protection and improvement, as well as organisation and control of the implementation of these measures.
Noise	*Law on Environmental Noise Protection*[19] governs environmental noise protection as a key aspect of environmental and public health. It regulates the subjects of protection, measures and conditions for noise control, methods for noise measurement, public access to information, supervision, and other matters of importance. Article 12 of this law states that the law is integrated into the EIA process, requiring that impact studies determine conditions and measures to prevent, reduce, or eliminate harmful noise effects. For activities subject to integrated permits, the operating conditions must include noise protection measures in line with regulations on integrated pollution prevention and control defined in Article 13 of this law. Article 14 emphasises acoustic protection as a preventive measure, requiring that spatial and urban planning, as well as the design and construction of transport infrastructure, industrial, residential, and commercial facilities, incorporate noise protection measures through proper land use planning, traffic organisation, and source control. Compliance with these measures is verified during technical inspection and prior to the issuance of occupancy permits, even for projects exempt from full EIA, ensuring adherence to technical regulations and standards. Permissible environmental noise levels are further defined by the *Rulebook on Permissible Noise Intensity Limits*[20], which establishes maximum allowable noise levels for different land use categories and time periods.

[17] Official Gazette of Republika Srpska, No. 15/22
[18] Official Gazette of Republika Srpska, No. 124/11 and 46/17
[19] Official Gazette of Republika Srpska, No. 96/21
[20] Official Gazette of Republika Srpska, No. 2/23

Issue	Summary of national law requirements
Waste management	*Law on Waste Management*[21] defines waste types and classification, waste management planning, responsibilities and obligations in waste management, management of special waste streams, waste reporting and database. It also defines the development of a Waste Management Plan for plants for which an environmental permit has been issued. Waste management must be conducted in a way that minimises risks to human health, safety, and the environment. This includes continuous monitoring and implementing measures to reduce pollution of water, air and soil; prevent harm to flora and fauna; minimise the risk of accidents, explosions, or fires; avoid negative impacts on protected natural areas and assets; and limit noise and odour levels. All waste must be classified and collected separately in accordance with the waste catalogue, which lists both hazardous and non-hazardous waste based on origin, type, and treatment method. Hazardous waste is identified by its origin, properties, and composition, and where necessary, the waste owner is required to analyse the waste to determine its hazardous characteristics. Manufacturers or importers of products that become hazardous waste after use are responsible for accepting and managing that waste free of charge and in line with applicable regulations. Waste producers are required to: ▪ Develop a waste management plan through authorised organisations, ▪ Follow the waste management hierarchy, ▪ Ensure separate collection of waste for future processing, ▪ Store waste to minimise health and environmental impacts, ▪ Hand over waste to a licensed waste manager if unable to treat it themselves, ▪ Maintain records of generated waste, ▪ Appoint a designated person responsible for waste management, ▪ Grant access to inspectors for oversight of waste-related operations and documentation. The designated waste management officer must: ▪ Oversee the implementation and regular updates of the Waste Management Plan, ▪ Propose measures for waste prevention, reduction, reuse, and recycling, ▪ Ensure compliance with waste management regulations and report to authorities. Waste disposal in landfills is only permitted when no suitable alternative exists and must be carried out in accordance with legal, technical, and environmental requirements. The waste producer or owner must sort the waste before transport and complete a waste movement document, which must accompany each waste shipment (excluding household waste). A copy of the completed transfer document, confirming receipt by the waste recipient, must be returned. If this confirmation is not received within 15 days, the waste owner must initiate a trace and notify the Ministry. All completed waste movement documentation must be retained for a minimum of two years. Furthermore, entities subject to obtaining an Environmental Permit are obligated to prepare and adopt a WMP. BiH, including RS, is also a signatory to the Basel Convention, which governs the transboundary movement and disposal of hazardous waste.

[21] Official Gazette of Republika Srpska, No. 36/09, 88/10, 14/16, 95/18 - other law, and 35/23

Issue	Summary of national law requirements
Nature protection	*Law on Nature Protection* regulates the restoration, protection, preservation and sustainable development of landscapes, natural areas, plants, animals and their habitats, land, minerals and fossils and other nature components. One of its objectives is harmonisation of human activities, economic and social development plans, programs, foundations and projects with sustainable use of renewable and non-renewable natural resources and long-term preservation of natural ecosystems and natural balance. The applicable law in RS mandates that all individuals and entities engaged in activities that may impact nature must contribute to the protection and enhancement of natural values, including biological, geological, and landscape diversity, as well as the preservation of nature's general functions and ecological balance. The competent authority for enforcing and overseeing nature protection is RS MPPCE, which sets out the norms, general objectives, and goals for the conservation of nature, geological formations, landscapes, and other environmental components. A fundamental principle of the law is the precautionary principle, requiring that potential risks to nature be considered even in the absence of complete scientific certainty. Project holders, whether legal entities, entrepreneurs, or individuals, who utilise natural resources or undertake construction and other activities in nature are required to operate in accordance with established nature protection measures and conditions outlined in planning documents, programs, and technical project documentation. These parties must ensure their actions avoid or minimise environmental harm. Upon completion of works, they are also obliged to carry out appropriate remediation or recultivation measures in accordance with applicable laws and regulations. If, during the process of issuing nature protection conditions (including EIA procedures), it is determined that a project may have a significant impact on the conservation objectives or integrity of an ecologically significant area, the Ministry or the responsible local self-government authority must conduct an acceptability assessment. If the assessment concludes that the activity could significantly harm conservation objectives, consent for the activity will be denied. However, if the activity is determined to be in the overriding public interest, consent may be granted despite the potential impact. Special attention is given to infrastructure projects such as roads, power systems, hydrotechnical structures, and others that may intersect animal migration corridors or cause habitat fragmentation. These facilities must be designed and constructed using special technical and structural solutions that reduce negative impacts on wildlife and ensure their safe passage. Such measures include ecological overpasses (green bridges), tunnels, permeable culverts, guiding fences, fish passes, and other wildlife-friendly infrastructure. The technical requirements for these mitigation features are governed by a Rulebook, issued by the Minister in coordination with the relevant ministries for transport, energy, agriculture, forestry, and water management. Additionally, PRS follows the *Guidelines for Design, Construction, Maintenance,* and *Supervision of Roads, specifically Book 1: Design, Section 1: Road Design, Chapter 6: Roads and Environment*, which is applicable in both entities. For infrastructure projects, location permits and technical requirements must account for these nature protection measures. Moreover, the law establishes the Ecological Network

Issue	Summary of national law requirements
	of RS as a foundational contribution to the future EU Natura 2000 network and broader system of protected areas.

4.3 Lender's Requirements

4.3.1 EBRD Requirements

The Environmental and Social Policy (ESP, 2019) is a key EBRD document, which details the commitments of the Bank's Funding Agreement to promote in the full range of its activities, environmentally sound and sustainable development. Bank-financed projects are expected to meet good international practice related to sustainable development. The Bank has defined specific Performance Requirements (PRs) for key areas of environmental and social issues and impacts. The EBRD PRs and their applicability to this Project are given in Table . New facilities or business activities to be financed by EBRD should be designed to meet PRs from the outset. If a proposed business activity to be financed relates to existing facilities that do not meet PRs at the time of Board approval, the client will be required to adopt and implement an ESAP.

Table 2: Overview of applicable EBRD PRs to the Project

Performance requirement	Applicable to the Project
PR1: Assessment and Management of Environmental and Social Risks and Impacts	Yes
PR2: Labour and Working Conditions	Yes
PR3: Resource Efficiency and Pollution Prevention and Control	Yes
PR4: Health, Safety and Security	Yes
PR5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Yes
PR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes
PR7: Indigenous Peoples	No
PR8: Cultural Heritage	Yes
PR9: Financial Intermediaries	No
PR10: Information Disclosure and Stakeholder Engagement	Yes

Under the ESP, EBRD categorises each project to determine the nature and level of environmental and social investigations, information disclosure and stakeholder engagement required. The categorisation (A, B or C) of each project depends on the nature, location, sensitivity and scale of the project, and the significance of its potential adverse future environmental and social impacts.

Based on the assessment of environmental and social aspects, the proposed classification of the Project is "Category B".

4.3.2 WB Requirements

The WB has established the Environmental and Social Framework (ESF, 2018) to support its overarching goal of eradicating extreme poverty and promoting shared prosperity through sustainable development and environmental stewardship. The ESF comprises the Bank's Environmental and Social

Policy and a set of ten ESSs, which together guide Borrowers in ensuring sustainability across all project phases. The framework prioritises the anticipation and avoidance of environmental and social risks, the minimisation and mitigation of unavoidable impacts, and, where necessary, the compensation or offsetting of significant residual effects.

The ESSs set out mandatory requirements for Borrowers and projects, focusing on the identification and management of potential adverse environmental and social impacts. They are applied alongside national legislation, with the stricter provisions taking precedence. These guidelines must be tailored to the project's specific hazards, risks, and site characteristics.

As the Project is co-financed by the WB, it is also subject to the ESF. For this specific Project, the applicable ESS are listed in the Table .

Table 3: Overview of applicable WB ESSs to the Project

Environmental and Social Standards	Applicable to the Project
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Yes
ESS2: Labor and Working Conditions	Yes
ESS3: Resource Efficiency and Pollution Prevention and Management	Yes
ESS4: Community Health and Safety	Yes
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Yes
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Yes
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	No
ESS8: Cultural Heritage	Yes
ESS9: Financial Intermediaries	No
ESS10: Stakeholder Engagement and Information Disclosure.	Yes

4.4 EU Requirements

EBRD, being signatory to the European Principles[22] for the environment, is committed to promoting the adoption of EU environmental principles, practices and substantive standards[23] by EBRD financed projects, where these can be applied at the project level, regardless of their geographic location. When host country regulations differ from EU substantive environmental standards, projects will be expected to meet whichever is more stringent.

The WB ESF sets out the bank's commitment to sustainable development and warrants all projects it finances to the ten ESSs. The ESF incorporates internationally recognised good practices, and when national regulations differ from World Bank requirements, the project is expected to apply the more stringent standard. The most relevant World Bank standards applicable to this Project are summarised in Chapter 4.3.2 WB Requirements.

[22] https://www.nib.int/filebank/a/1521315365/9ae732ab406cefafa3525b7bd10ad134/7215-European_principles_for_the_environment.pdf
[23] Substantive environmental standards of the EU are comprised in EU secondary legislation, e.g., regulations, directives and decisions.

Table 4: The most relevant EU requirements pertaining to biodiversity management

Directive
EIA Directive (EIA Directive 2014/52/EU on the assessment of the effects of certain plans and programmes on the environment)
SEA Directive (Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment)
Birds (Directive 2009/147/EC on the conservation of wild birds) and Habitat Directives (Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora)
Water Framework Directive (Directive 2000/60/EC establishing a Framework for Community Action in the Field of Water Policy)
Waste Framework Directive (Directive 2008/98/EC on Waste)
EC Directive 2008/96/EC Road Infrastructure Safety Management
Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
The International Union for Conservation of Nature (IUCN)
The EUROBATS Agreement (Agreement on the Conservation of Populations of European Bats)
Bonn Convention - Convention on the Conservation of Migratory Species of Wild Animals (CMS)

It is also important to mention the *Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters* to which BiH acceded in 2008. The Aarhus Convention grants the public rights regarding access to information, public participation and access to justice, in governmental decision-making processes on matters concerning the local, national and transboundary environment.

4.5 Applicable Corporate Standards, Policies and Procedures

The Company currently does not possess any certified environmental or quality management standards such as ISO 14001:2015 or ISO 9001:2015. No formalised Environmental and Social Management System (ESMS) is in place, and there are no internal procedures or guidelines specifically addressing environmental protection, biodiversity management, or social aspects related to Project implementation.

5 Mitigation Measures and Management Controls

5.1 Introduction to Impact Mitigation

To achieve the objective of no net loss/net gain of biodiversity impacted by the Project, a structured approach following the mitigation hierarchy is implemented. The priority is to avoid impacts wherever possible. When avoidance is not practical, efforts should be made to minimise potential effects. If minimisation does not reduce the impact to an acceptable level, compensatory actions may be necessary. In cases where mitigation cannot be fully applied within the project's physical boundaries, biodiversity offsets may be introduced to compensate for residual losses beyond the project area. From the planning stage through to project completion, maintaining biodiversity at pre-project levels or enhancing it remains a central goal. In line with the mitigation hierarchy, this section presents three tables for each of the project stages: pre-construction, construction and operation, as well as compensation including avoidance, mitigation and compensation measures.

5.2 Avoidance and Mitigation-By-Design

For this Project, avoidance may be achieved through Main Design requirements and temporal and spatial limitations.

Current design observations are as follows:

- Main Design was developed in 2017. However, a new Main Design will be developed by engaged Contractor (Yellow FIDIC).
- According to the technical specifications of the alignment, the Project road consists of a total of 15 bridges with a total length of 1,951 m which is about 10,19% of the total length of the road. Structures such as bridges are permeable structures which allow for the uninterrupted movement of species and avoid permanent habitat loss along the Project footprint. By constructing bridges over the streams, negative impact on the flora and fauna is significantly reduced. This is particularly beneficial for species that rely on continuous habitat or safe passage, as well as for protecting aquatic ecosystems from direct disturbance, sedimentation, or hydrological alterations. As such, strategically placed bridges minimise habitat degradation and reduce negative impact on the flora and fauna along the Project corridor.
- Current design does not envisage bridge pillars in watercourses. This design solution must be kept throughout any potential design revisions.
- Surplus excavation material will be disposed of at 15 spoil disposal sites across seven locations, covering a total area of 83,280 m^2. During the field survey it was established that several locations where the disposal of the excavation material is planned, is location of suitable habitat for amphibian species identified as Critical Habitat (CH). These areas include small water bodies, both ephemeral and permanent ponds, as well as wheel ruts, which serve as important breeding sites and may be directly affected by spoil disposal activities. Although the Project does not result in the permanent loss of all aquatic habitats in the area (since flowing water habitats will largely be maintained through bridge design, while additional aquatic habitats remain available within 50-200 m from the alignment) the identified breeding sites are particularly sensitive and require protection. Therefore, such areas must be preserved through establishment of avoidance zones and the Main Design must be adapted accordingly.

The avoidance activities given in Table 5 will need to take place prior to start of construction.

Table 5: Pre-construction avoidance measures

Action	KPI
▪ Avoidance and mitigation measures must be included in the new Main Design in a timely manner, aiming for prevention of avoidable direct habitat loss and disturbance, and ensuring Project's alignment with EBRD's PR6 and WB's ESS6. This includes, but is not limited to, the following design-linked measures, which are detailed in the upcoming sections: – Integration of avoidance zones, as detailed in the measure below, in future planning and revision of existing design including relocation of spoil disposal sites (04B, 04C, 03A, 03B, 03C and 03D) to avoid amphibian breeding sites – Inclusion of bat-friendly bridge design and retention of key habitat features (mature trees, deadwood) – Maintenance of minimum distances of spoil disposal sites and construction layouts from watercourses – Integration of requirements of timing restrictions. Upon finalisation of the Main Design, the BMP shall be updated to reflect the final layout, confirm incorporation of these measures, and identify any additional actions required to achieve no net loss / net gain objectives where applicable. ▪ Avoidance zones that must be clearly referred to in the new Main Design include Annex I priority habitat types[24] all of very limited distribution and triggering CH-criteria, important breeding sites of CH species *Bombina variegata,* and River Drina and its riparian zone including small fragments of CH trigger *Adenophora liliifolia* habitat as shown in **Error! Reference source not found.** and Figure 3 below. Construction of access roads, vegetation clearance, installation of facilities, material disposal and all other construction activities are strictly prohibited within these zones. No spoil material may be deposited within or adjacent to these areas. ▪ Relocate spoil disposal sites 04B, 04C, 03A, 03B, 03C and 03D, from locations that intersect with or are in close proximity to critical habitats for amphibian species found between ch. 5+800 and 6+250. These sites shall be relocated without exception to alternative areas that do not overlap with identified avoidance zones. ▪ All road segments intersecting water streams must include appropriately dimensioned culverts, with guiding fences to direct animals toward these passages. Culverts shall maintain a suitable microclimate (humidity and shade) and have rough, non-slip surfaces along the sides to facilitate movement. ▪ Where avoidance is not feasible, this must be clearly demonstrated during the Main Design development. Impacts must be minimised, and disturbed habitats restored and/or compensated for. BMP is to be updated once Main Design is finalized to reflect these changes. ▪ PRS to ensure these avoidance zones are included in Tender Documentation and later in Main Design and construction site plans and ensure compliance with this measure. ▪ Bridges will be designed with the aim of maintaining and enhancing their function as potential bat commuting sites in order to support net gain, despite being unquantifiable. This will include bolting of simple rough-surfaced or textured surfaces made of concrete, wood, or metal onto the bridge undersides to facilitate bat grip. These structures must be approx. 1 m tall and must include top seals which will prevent water ingress, in addition to ventilation openings which regulate temperatures[25]. These	Main Design in accordance with measures in this BMP

[24] G1.A4 *Tilio-Acerion* forests of slopes screes and ravines (corresponding to to Annex I priority habitat type 9180*), G1.1 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) (91E0*), E1 Semi-natural dry grassland and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (*important orchid site) (6210*), C2.121 Petrifying springs with tufa formation (*Cratoneurion*) (7220*)

[25] For real-life application examples and good practice please see: Erickson, Gregg A., et al. (2002). Bat and Bridges Technical Bulletin (Hitchhiker Guide to Bat Roosts), California Department of Transportation, Sacramento CA. pp. 36 – 100.

Action	KPI
structures should be implemented on bridges on chainages between 6+790 and 6+850, 7+700 and 7+900, 9+940 and 10+060, 11+413 and 11+555, 13+355 and 13+410, 15+270 and 15+350, subject to confirmation of feasibility during detailed design revision. ■ Main Design shall also contain detailed information on lighting that is to be used. Artificial light should be minimised or bat-friendly spectra used (e.g., red or warm LEDs) where lighting is necessary for safety. Prevent construction of auxiliary illuminated infrastructure such as rest stops, and billboards (if any) in or near woodlands. Where such infrastructure is needed, implement shielding, motion-sensors, and directional lighting. ■ Main Design is to include the requirement for design of hop-overs for bats. Hop-overs must be designed and later implemented along commuting corridors for birds and bats, particularly along hedgerows, treelines, or riparian corridors, to reduce collision risk. This will be done by preserving, where feasible, or establishing all vegetation on both sides of the road to encourage animals to cross at higher, safer altitudes. These hop-overs should be placed in continuity with existing tree lines or forest edges to ensure their effectiveness in providing natural flyways. Locations for these structures are: from km 17+193 to km 17+275 and from km 18+044 to km 18+125. Plant tall, native trees (>4 m in height) along road segments with increased bat activity to serve as hop-overs that guide bats across the road at safer flight heights where preservation of existing vegetation is not possible.	

The Figure 2 and Figure 3 below illustrate designated avoidance zones, which represent areas where project activities are restricted or prohibited to prevent negative impacts on sensitive habitats, species, and ecological features. Additionally, these zones will include a 5 m buffer around the River Drina and its riparian habitats where no works and siting of construction or road structures are allowed. These zones have been identified through biodiversity baseline studies and identification of habitats listed in Annex I of Habitats Directive and sensitive CH receptors, in alignment with international standards including EBRD PR6 and WB ESS6. Please note that avoidance zones will be provided to PRS in digital format and remain available for future use and distribution to the Contractor.

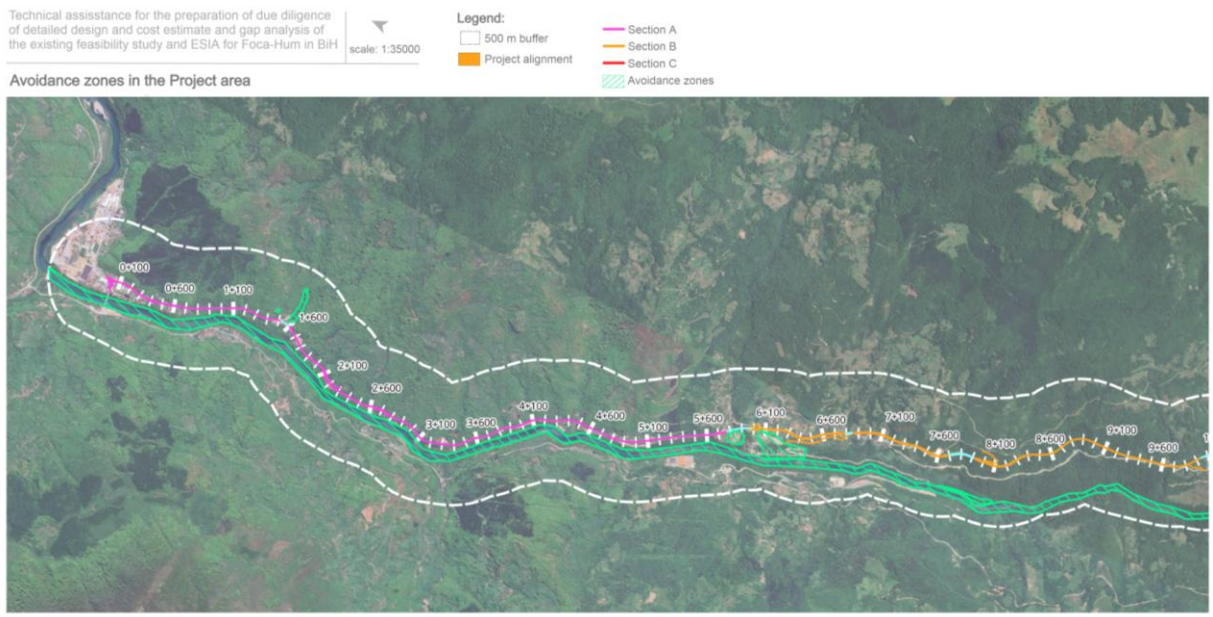


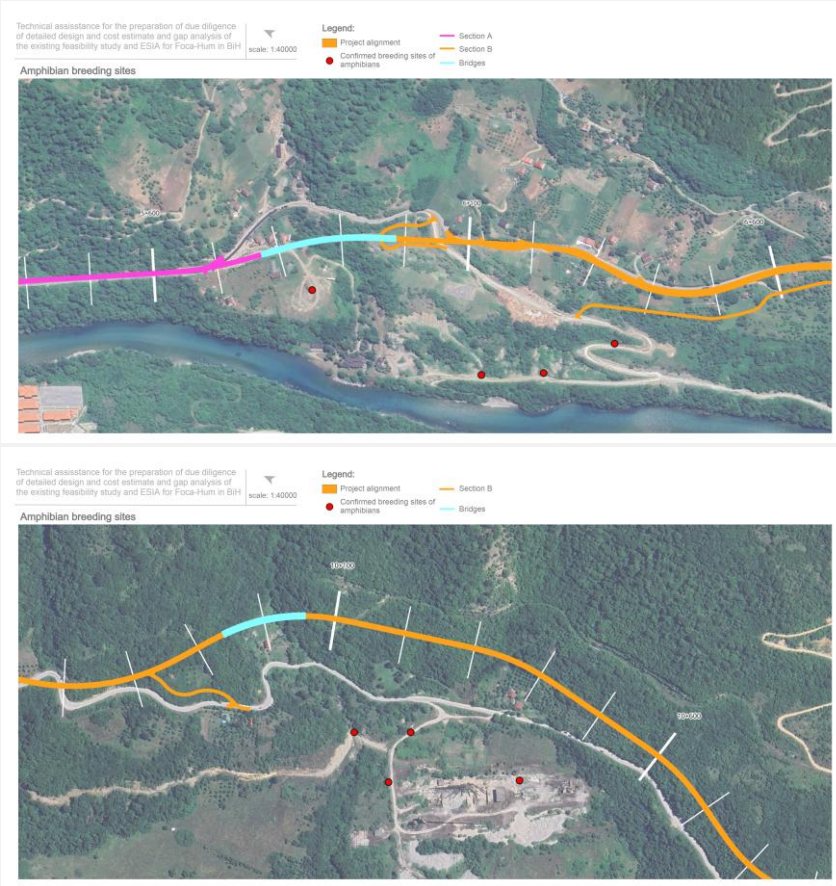
Figure 2: Map of designated avoidance zones identified to protect critical habitats and sensitive species

(sections A and B)

Figure 3: Map of designated avoidance zones identified to protect critical habitats and sensitive species (sections B and C)

Table 6: Construction avoidance measures

Feature	Action	KPI
General avoidance measures	▪ Carefully plan and designate locations for machinery parking, fuel depots, construction and waste material storage, earthworks, machinery movement, as well as worker access must outside forested areas and defined avoidance zones established to protect ecological receptors. ▪ Avoidance zones shall be physically demarcated using physical markers (signs, biodegradable paint, flag markers and similar) or temporary fencing prior to the commencement of works. Compliance shall be regularly monitored by ECoW to ensure no encroachment occurs. ▪ Avoid the use of hazardous substances and materials, so as to protect the environment from their potentially harmful impacts. ▪ As the conditions of the Project area may change between the survey period and the start of construction, the ECoW must conduct pre-clearance surveys. The aim is to check for presence of slow moving fauna (and adequately relocate them to nearby suitable habitats prior to clearance) or bat roosts in old trees (diameter at breast height DBH greater than 100 mm) and buildings to be demolished.	▪ ECoW (and other experts, where needed) engaged and active on-site before start of vegetation clearance. ▪ Reports on pre-clearance survey results: species observed, location of roosts, and high-risk areas identified (checklist/report filed and dated). ▪ All avoidance zones marked and adhered to. ▪ No herbicides and fire used for vegetation clearance.
Habitats, flora and vegetation	▪ Use of herbicides and fire as a tools for vegetation clearance is prohibited. Mechanical removal methods must be used for clearance. ▪ Annex I habitat type *7220 Petrifying springs with tufa formation (*Cratoneurion*) is included in the avoidance zones. However, due to presence within 20 m buffer zone of the footprint, small habitat patch size and extremely fragmented local distribution, special measure of obligatory physical protection prior to the commencement of construction through the installation of protective fencing (high-visibility mesh or wire fencing) must be implemented. The fencing must remain in place and intact for the entire duration of construction.	

Feature	Action	KPI
Invertebrates	▪ Prohibit cutting of older trees and removal of dead wood beyond what is needed for construction in the zone of Project area of influence, particularly oak, as they are important for saproxylic species. ▪ Identify and mark all potential host trees for *Morimus funereus*, *Cerambyx cerdo* and *Lucanus cervus* (i.e. mature oaks and other broadleaf trees with signs of decay or beetle activity) prior to the start of clearance. These trees should be retained *in situ* and protected through the establishment of appropriate buffer zones (minimum 15 m). Where avoidance is not feasible (i.e. where retention of such trees would compromise construction safety, conflict with the permanent footprint of infrastructure, and where no technically viable alternative alignment or micro-siting solution is available) any tree located within or near suitable habitat and proposed for felling must be left in adjacent forest habitats to maintain their ecological function as deadwood habitat.	▪ Clearance conducted outside bird nesting period. ▪ Cutting of old treas beyond of what is needed for construction and removal of the dead wood avoided.
Fish	▪ No spoil, excavated earth, or construction waste is to be deposited in the river under any circumstances. Furthermore, the washing of concrete mixers, tools, and construction equipment is strictly prohibited within 20 m from water courses avoid direct contamination of aquatic ecosystems.	
Amphibians	▪ Vegetation clearance and earthworks shall not be undertaken within a minimum 30 m buffer around identified amphibian breeding sites during the peak breeding period (April–May), at ch. 5+800–6+250 and 10+050–10+475 shown below; and during peak bird breeding period (May).  **Figure 4: Amphibian breeding sites under potential noise impact**	

Feature	Action	KPI
Birds	▪ Schedule vegetation clearance outside bird nesting season (i.e. this activity shall not be implemented between mid-March and beginning of July). ▪ Avoid construction works during the peak nesting season in May. ▪ If measures of temporal limitation of works cannot be fully respected due to demonstrated unfeasibility of stoppage of works, mitigation must be implemented as given in *5.3.1 Construction Measures* below.	
Mammals	Recognizing that changes to habitat conditions and, therefore, presence of species may change from the end of the survey to the start of construction, Contractor must perform the following pre-clearance checks: ▪ Before earthworks commence, a rapid mammal survey (focusing on badgers and otters) must be conducted to identify potential new denning sites and burrows, if any. All confirmed or suspected mammal dens or burrow systems shall be surrounded by a no-intervention buffer zone of at least 25 m, marked clearly on-site and excluded from all pre-construction activities. ▪ Prior to any vegetation clearance, all trees with potential roost features (e.g., crevices, cavities, peeling bark) must be inspected by ECoW (or a qualified bat expert if ECoW lacks experience in bat research) for the presence of roosting bats. If an active roost is detected, works in the immediate vicinity shall be halted and an appropriate exclusion buffer established. A 100-m exclusion buffer shall apply to maternity or hibernation roosts, and a minimum of 50 m for day roosts if found during pre-clearance survey. For species such as *Rhinolophus hipposideros*, *Myotis myotis,* and *Miniopterus schreibersii*, which rely on well-established maternity or hibernation roosts, destruction must be avoided wherever possible. Removal of a confirmed roost will be considered unavoidable only where it is located within the permanent Project footprint or poses a demonstrable safety risk, and where no technically feasible design alternatives are available. In such cases, works shall only proceed under the supervision of a qualified bat specialist and in accordance with applicable legal requirements and permits from the Competent authority. Artificial roost structures such as bat boxes shall be installed beforehand in accordance with species-specific requirements.	

5.3 Minimisation

Minimisation of biodiversity loss is achieved by adjusting construction or operation activities.

5.3.1 Construction Measures

Feature	Action	KPI
General mitigation measures	▪ Contractor to engage a qualified ECoW. ▪ Contractor must develop LHRP as a part of the CESMP. LHRP will outline all measures aimed at habitat restoration, reinstatement, and mitigation measures defined in this BMP and ESMMP related to vegetation clearance, habitat disturbance, and site rehabilitation. The LHRP addresses the restoration of areas temporarily or permanently affected by construction activities, including stabilisation of exposed surfaces, rehabilitation of borrow pits, reinstatement of construction areas and revegetation using native species. All temporary work zones must be fully	▪ Developed and approved LHRP and ISMP integrated in CESMP prior to start of earthworks.

Feature	Action	KPI
	rehabilitated using stored topsoil and local native species. Based on species confirmed during field surveys, the LHRP must also include targeted revegetation measures supporting habitat quality, including the planting of host plant species for Lepidoptera of conservation concern, such as *Lonicera spp.*, *Plantago spp.*, *Ligustrum spp.*, *Succisa pratense*, *Scabiosa columbaria*, *Knautia arvensis*, *Dipsacus spp.*, and *Urtica spp* in order to prevent net loss for said species. In LHRP, include measures for stripping and storing topsoil separately in suitable conditions (max. 1 m height, seeded if stored long-term) for later site restoration. Do not mix it with subsoil or construction debris. ■ The LHRP introduction will define the plan's purpose, objectives, and describe the project area with its key features, while the scope will present baseline data, habitat maps, and details of species of conservation concern. Stabilising exposed surfaces, rehabilitating borrow pits, recultivating waste landfills and reinstatement of construction areas will be done through natural or assisted regeneration and habitat reconstruction, as appropriate to site conditions. The management section will describe planting techniques, sourcing and selection of native species, as well as site preparation and maintenance measures. An implementation schedule will set out the required actions, responsible personnel, and record-keeping, while the monitoring and reporting framework will ensure regular evaluation through performance indicators such as survival rates and vegetation cover. ■ Contractor must also develop ISMP as a part of the CESMP. ISMP will define management controls for the prevention, control and eradication of invasive species during construction activities. It will include a detailed identification and inventory of invasive species recorded in the project area, based on baseline data which identified 5 invasive species along the Project route (black locust *Robinia pseudoacacia*, tree of heaven *Ailanthus altissima*, annual fleabane *Erigeron annuus*; with presence of Jerusalem artichoke *Helianthus tuberosus* and annual ragweed *Ambrosia artemisiifolia* indicated in EIA but unconfirmed during 2025 surveys). The plan will rely on precise mapping and photographic documentation of invasive species stands to ensure timely detection of high-risk areas, supported by a thorough risk assessment of potential spread and impacts on native biodiversity and ecosystem services. Prevention and early detection measures will focus on monitoring, screening, and raising awareness to limit the introduction of invasive species, while general control and eradication measures will follow good international practices, including regular washing of machinery and careful management of soil from contaminated areas. Specific removal techniques will be defined for high-priority species with A2 and A3 invasive codes, such as black locust, tree of heaven, annual fleabane, Jerusalem artichoke and common ragweed. The plan will also include strict procedures for material storage and soil disposal to prevent further spread, with restrictions on disposing invasive-contaminated soil in protected areas, candidate Emerald or potential Natura 2000 sites. In addition, the ISMP will define measures for restoring and rehabilitating native ecosystems affected by invasive species, such as habitat restoration, reforestation, and erosion control. A contingency plan will be established to respond to unexpected	■ All construction activities supervised by ECoW. ■ Works confined to approved zones. ■ IAS spread prevented in line with ISMP. ■ Vegetation cleared in stages. ■ No pollution events noted. ■ No suitable reptile habitat created at construction sites. ■ All pits filled or equipped with ramps if open over 24 h and no fauna mortality incidents in open pits. ■ No full overnight lightning used, with implementation of directional lightning where neccesary. ■ Preservation of mature vegetation and hedgerows where feasible, temporary screens if removal needed. ■ Pre-clearence surveys conducted.

Feature	Action	KPI
	introductions of new invasive species or unforeseen impacts on native ecosystems. Finally, a monitoring and reporting programme will be developed to track eradication efforts, evaluate the effectiveness of the ISMP, and measure progress through SMART goals and clear KPIs, with all activities supervised and assessed by a ECoW during the construction phase. ▪ Construction activities must be strictly limited to approved working areas to minimise disruption of areas outside of construction site. All active construction zones must be physically demarcated using fencing, warning signs, or other barriers to prevent accidental expansion into adjacent natural habitats. Clear access routes for personnel and machinery must be established, and off-road movement is strictly prohibited. Only designated entry and exit points shall be used for material delivery and vehicle access. Any unauthorised movement into sensitive ecological zones constitutes non-compliance and must be addressed immediately. ▪ Develop and approve detailed method statements covering environmental protection measures before works commence. ▪ Vegetation clearance must be conducted in a progressive phased manner to enable fauna to move away from the area of works, disperse into surrounding habitats and to avoid fauna from being isolated in fragmented areas of habitat. Vegetation clearance must be limited strictly to areas designated for construction, and any removal of native vegetation beyond what is needed for construction must be avoided. Where clearance is necessary it must be conducted under supervision and clearance boundaries must be clearly marked in advance. ▪ Limit the lighting of construction site only to the hours necessary for construction and avoid lighting the construction site fully overnight. Implement the use of directional lighting, avoiding upward light spill and illumination of watercourses. ▪ Systematic waste collection and secure storage must be ensured to prevent attraction of wildlife, contamination of habitats, or other indirect impacts on animal species. All handling, storage, and disposal of municipal waste must comply with the CWMP. ▪ The ECoW shall provide appropriate training tailored to the needs of construction personnel to help achieve minimal impact on species in the construction areas and ensure the safety of construction workers when encountering fauna. ▪ Any sighting of fauna within the active construction zone must be immediately reported to the ECoW, who will coordinate safe relocation to suitable habitats outside of the direct impact area. ▪ Enforce good behaviour by construction workers, including prohibition of hunting, trapping and general harassment of wild animals and excessive collection of wild herbs, and education on preventing and controlling bush fires. ▪ Should any threatened species and/or habitats of national or international significance be identified prior to or during construction, the BMP must be updated promptly in accordance with adaptive management principles. This should include the definition of additional required actions, an update of the CHA and measures to ensure no net loss/net gain for the affected features, if needed.	▪ No nest and roosts removal unless necessary, artificial roost created where required.

Feature	Action	KPI
	▪ ECoW must submit monthly environmental compliance reports to the Supervision Engineer and the PIU, and violation of avoidance measures must result in corrective action, which may include halting of works.	
Habitats, flora and vegetation	▪ Manage waste generated during vegetation removal, grubbing, and soil excavation in a way that prevents the spread of Invasive Alien Species (IAS) and degradation of nearby habitats, in accordance with the ISMP. Movement of contaminated material will be controlled, and reuse on-site will only be permitted where material is confirmed free of IAS. Excess materials must not be dumped under viaducts or in natural areas but reused on-site or disposed of in authorised locations. ▪ Suppress dust from unpaved roads, exposed surfaces, and cut slopes by regular water spraying, especially near sensitive habitats (i.e. 91E0 and 7220). ▪ Clean all machinery and vehicles prior to entering the construction site to avoid unintentional introduction of invasive alien species.	
Invertebrates	▪ Vegetation clearance will be carried out in phases to allow species to disperse, and dust suppression will be implemented ▪ Retain dead wood, leaf litter, and other microhabitats important for invertebrates wherever possible outside the direct impact zone. To support saproxylic invertebrates (e.g. *Morimus funereus*, *Lucanus cervus*, *Cerambyx cerdo*), standing dead trees, fallen logs, and decaying wood material should be retained within or adjacent to the Project area to maintain habitat continuity. Where practicable, additional habitat features such as small deadwood piles or retained logs may be created within nearby suitable habitats to support local populations. These measures shall be implemented as good ecological practice.	
Fish	Mitigation of impacts on fish relies on ensuring the impact on surface waters remains minimal through implementation of good construction practice such as inspections of equipment and machinery for leakage, availability of spill kits at the construction site and sediment management.	
Amphibians	▪ Directional fencing shall be planned alongside ground-level parts of the route near critical habitats for amphibians. This must be a fine-mesh or plastic or geotextile fence, with a maximum mesh size of <1 cm, and a height of approximately 40–60 cm above ground. The fence must be partially buried (at least 10 cm) or have a bent lower edge to prevent animals from passing underneath. The upper edge should be smooth or slightly overhanging to prevent climbing.	
Reptiles	▪ During the construction period sites must be managed so as not to provide a suitable habitat for reptiles (shelter and hibernation). Measures include non-storage of garbage and undertaking work to relocate the rubble, where the presence of reptiles is expected, when temperatures are above 7 °C and when reptiles are not in a state of hibernation.	
Birds	▪ If vegetation clearance during peak bird nesting period (May) is unavoidable, a breeding bird survey shall be carried out by a qualified ornithologist before any work begins. The survey must identify all active nests, nesting territories, and species of conservation concern. All active nests shall be strictly protected and remain undisturbed until chicks have	

Feature	Action	KPI
	fledged or the nest is confirmed inactive by a specialist. A minimum exclusion buffer of at least 25 m shall be established around identified nests. Larger buffers may be applied where required by the ornithologist, based on species-specific sensitivity. This measure is primarily relevant for shrub- and tree-nesting species recorded in the Project area, particularly *L. collurio* and *F. albicollis*, which may be directly affected by vegetation clearance. These exclusion zones must be clearly marked on-site and communicated to all construction personnel. No vegetation removal or ground disturbance may occur within these zones during the nesting period to avoid disturbance, abandonment, or loss of breeding success for protected or sensitive bird species. Where a nest is located within vegetation planned for removal, works must be postponed until the breeding cycle is complete. Removal or relocation of active nests will not be undertaken, except in exceptional circumstances and only with prior approval from the Competent authority (MPPCEE, Republic Institute for Cultural Heritage and Nature Protection). ▪ If works must proceed during the nesting season due to demonstrated technical necessities, they may only continue following confirmation by the ECoW that no active nests are present in the direct impact zone (e.g. nests on remaining surrounding vegetation or less likely ground nests). No activity shall occur within a minimum 25 m of any identified nest, unless otherwise specified by the ECoW based on species-specific sensitivity, in which case larger buffers shall be applied. ▪ Preserve existing vegetation, especially mature trees, hedgerows, riparian vegetation, and small forested patches that provide critical nesting, roosting, or foraging habitats for birds. Where the project alignment runs adjacent to stagnant water bodies, forest edges, nesting areas, existing lines of trees, tall shrubs, or dense vegetation should be retained as natural screens to reduce the visual and auditory impact of construction activities. These vegetation buffers act as ecological barriers, reducing stress for species caused by machinery, workers, and noise. If removal of a section is unavoidable for safety or technical reasons, phased removal will be considered, and temporary visual screening (geotextile fencing) will be used during works. Upon works cessation, implementation of LHRP will aim for habitat restoration through tree planting.	
Mammals	▪ Should any roosts be found and accidentally disturbed by negligence of the Contractor or as the result of an accidental situation, habitat restoration shall be done after the construction phase is finished. Alternative roost sites in the vicinity shall be built in case of any being destroyed by the construction works. ▪ Construction site lighting must not spill into commuting corridors, such as hedgerows, riparian strips, and treelines, which must remain dark to prevent disruption of foraging and navigation. ▪ Underpasses and viaducts must be constructed to allow unimpeded passage for terrestrial wildlife during construction and operation. ▪ During site walkovers, the ECoW must observe trenches and excavation for trapped mammals. Ensure the placement of exit ramps/wooden ladders to allow trapped fauna to escape.	

5.3.2 Operation Measures

Feature	Action	KPI
General mitigation measures for all features	▪ Conduct regular road maintenance including timely road surface repairs, roadside vegetation management, frequent debris removal to prevent hazards, and upkeep of drainage structures and culverts. ▪ Avoid the use of herbicides or harmful chemicals for vegetation control during operation to prevent further degradation of habitats and reduce harm to non-target plant and animal species. Adopt manual or mechanical methods for vegetation management along the roadside and associated green areas unless herbicides represent the best method for targeted invasive species management. ▪ All incidents of fauna mortality and injury along the road shall be systematically recorded during operation through regular roadkill surveys conducted at least twice per month during the first year of operation, and quarterly thereafter. Where increased mortality is recorded (e.g. repeated incidents at the same location or clusters of ≥ 3 incidents within a 100 m section over one monitoring period), targeted mitigation measures shall be implemented. For herpetofauna, mortality along the road is to be used to assess the existence of high-risk zones where seasonal migrations may cause increased mortality. This will inform the need for the establishment of fencing along culverts (extending to 5 m on each side of these structures), and along ground level sections where increased mortality incidence is recorded. ▪ All wildlife underpasses, and culverts designed for fauna movement must remain fully functional and unobstructed throughout the operation phase. Regular inspection and maintenance are required to prevent siltation, debris accumulation, vegetation overgrowth, or vandalism. ▪ To prevent contamination, stormwater runoff from road surfaces shall be collected via sedimentation chambers in manholes and vegetated swales before being released into the environment. Regular maintenance of drainage infrastructure is mandatory ▪ Guiding fences for amphibians must be kept intact and repaired where damaged. Quarterly inspections and annual reporting are required. ▪ During regular maintenance check if hibernacula have been damaged or have collapsed. If this is the case, these structures must be rebuilt and reinforced. ▪ PRS must establish cooperation with the local hunting association in order to timely mark zones with recorded collisions with large mammals, should these happen. Appropriate warning signs must be installed at these locations within 60 days of identification, in coordination with the local hunting association. ▪ Evaluate bat mortality along the road corridor at least monthly during peak activity seasons (April–October), and adapt mitigation (e.g., expand hop-overs, reduce lighting) if mortality hotspots are identified.	▪ All damages to blockages to culverts repaired within 7 days. ▪ Area under bridges maintained and kept passable for fauna. ▪ At least 2 seasonal surveys per year for first three years of operation. ▪ Demonstrated continuous decline in invasive species cover. ▪ Seasonal hibernacula inspections conducted, damaged structures restored and signs of usage recorded. ▪ Register in place for registering of roadkill. ▪ Adaptive measures implemented if roadkill rates exceed baseline by >20%.

5.4 Compensation

After implementation of all feasible avoidance, minimisation, and mitigation measures, minor measurable Project-induced residual impacts remain for three CH-triggering features that may have

minor implications at the local population level: reptile habitats and habitats of two bat species. These residual impacts arise due to the widespread and abundant occurrence of these features within the Project footprint, making complete avoidance unfeasible and resulting in a limited net habitat loss.

Residual impacts on species will be addressed through the implementation of targeted compensation measures. The required compensation has been quantified in accordance with the methodology outlined in Treweek et al. (2010)[26], based on the extent of habitat loss and a habitat quality index combining condition and distinctiveness. It can be noted that the general habitat quality for such CHs was medium due to the presence of existing fragmentation and habitat degradation from linear infrastructure and settlements, resulting in simple compensation measures which can be addressed through this document without the need for a separate Biodiversity Action Plan.

Feature	Action	KPI
Reptiles (namely *Vipera ammodytes, Zamenis longissimus* and *Coronella austriaca*)	▪ The project implementation is expected to result in loss of a total of 6.09 ha out of 634.73 ha of identified suitable habitat for reptiles, making up 0.95% of the total area of suitable habitat. Habitat quality, due to the presence of fragmentation and habitat degradation from linear infrastructure and settlements, was assessed using a combination of condition and distinctiveness (matrix score 0.33 and moderate habitat quality with coefficient 0.6). This results in a requirement of approximately 1.99 offset credits. To achieve this through betterment of habitat condition from moderate to good, 0.99 ha and more of habitat requires compensation. This will be compensated through the measures outlined below. ▪ Where habitat removal affects reptile species that rely on loose soils, dry stone, or open ground for hibernation and egg-laying, artificial hibernacula and oviposition structures must be constructed. The number of structures shall be proportionate to the calculated compensation requirement (approximately 1 ha of equivalent habitat), with a minimum of **5 structures** implemented along impacted sections. The proposed number of hibernacula exceeds the minimum requirement and is considered proportionate to the extent and capacity of the surrounding habitat, ensuring the achievement of net gain. Structures shall be located at least 100 m from the road, near retained or restored basking and foraging areas. They shall consist of south-facing, well-drained earth mounds or subsurface features (50-100 cm depth) constructed using rocks, logs, soil, and organic material, and covered with soil and vegetation debris to maintain stable temperature and humidity conditions. Alternative designs may include log/rock piles or shallow underground chambers where appropriate. Construction of hibernacula shall be completed prior to earthworks to allow for species adaptation. Indicative placement includes sections around km 6+600, km 12+100 to 12+425, and km 17+650 to 17+750, subject to field verification. All structures must be protected from shading and disturbance, monitored for seasonal use, and maintained to prevent overgrowth.	▪ 100% of planned reptile hibernacula and bat boxes installed prior to commencement of earthworks in relevant sections and maintained in functional condition (not overgrown or degraded) for a minimum of 3 years, as verified through checks ▪ Occupancy of at least 2/3 of hibernacula and bat boxes confirmed by the end of year 2
Mammals	▪ **Bat species** *Nyctalus noctula* and *Barbastella barbastellus* are widespread species and, consequently, present throughout the Project area they use for foraging and flyover, making it difficult to quantity the	

[26] Treweek, J., Butcher, B., Temple, H. (2010). *Biodiversity offsets: possible methods for measuring biodiversity losses and gains for use in the UK*. In Pract. 69. 29-32.

Feature	Action	KPI
	exact habitat loss. However, the key confirmed habitat type for these species are broadleaved deciduous woodlands of EUNIS G1 habitat type. A total of 14.53 ha of these forests will be lost as a result of Project construction. Not all woodland within the Project area provides uniform ecological value for bat species, as habitat quality varies due to existing anthropogenic pressures, including logging, fragmentation, edge effects, and differing stand maturity. While EUNIS G1 woodland is broadly suitable bat habitat, approximately 65% of these areas are of low functional quality in terms of bat-supporting potential. Consequently, the effective loss of habitat of moderate to higher functional value is estimated at approximately 5.09 ha, which forms the basis for the assessment of residual impacts and compensation requirements. ▪ Following the implementation of avoidance, minimisation and habitat restoration measures detailed in BMP, residual impacts are expected to be minor and limited to localised habitat loss and disturbance and are not anticipated to result in significant effects at the population level. However, loss is still expected to occur warranting the need for measures aimed at minimising potential disturbance and supporting habitat functionality for CH species. No confirmed roost sites for either species were identified within the Project footprint during baseline surveys; however, the presence of suitable foraging and commuting habitat indicates that potential roosting resources may occur intermittently within the wider landscape. For both species, roost availability (particularly suitable tree cavities and bark features) is a key limiting factor, and individuals are known to utilise a network of multiple roost sites with frequent switching behaviour across the landscape. As such, impacts are not appropriately characterised through fixed roost densities per unit area, but through the loss of roosting opportunities within functionally suitable habitat. In the absence of standardised roost-per-hectare metrics, a precautionary and proportionate approach has been adopted, whereby a sufficient number and diversity of artificial roosting features are provided to maintain roost network functionality. ▪ To address residual impacts and support habitat functionality, a network of at least 35 bat boxes per species will be installed prior to the start of vegetation clearance. This will include crevice-type boxes suitable for *B. barbastellus* and larger cavity boxes for *N. noctula*, positioned along linear features used for commuting and foraging, such as forest edges and riparian vegetation, within forested areas approximately 50-100 m from the road. Boxes will be installed at varying heights (4-10 m for *Nyctalus*; 2-6 m for *Barbastella*) and orientations to mimic natural conditions, with a minimum provision of three boxes per km. ▪ Where artificial roost features are installed along the Project area, these must be monitored using bat detectors and emergence counts to verify occupancy. Maintenance is required for a minimum of 3 years.	

6 Implementation Schedule

6.1 Work Schedule

Lenders' approval for the financing of this section is currently under consideration, with a decision expected by mid-2026; however, no defined timeline for the start of construction is available. The Main Design has been prepared but will be subject to further revisions. Planned duration of works is 36 months from the start of construction; however, this timeline remains only indicative and may be extended depending on the progress of the permitting process. Due to these uncertainties, an exact plan of works is not yet available, and the BMP document should be updated with any new information on the construction timeline.

6.2 Review of This Management Plan

Due to the complexity of predicting the impacts of this Project on biodiversity over the long term, the aim will be to adopt a practice of adaptive management in which the implementation of mitigation and management measures are responsive to the changing conditions and the results of monitoring throughout the Project's lifecycle. This BMP should therefore be reviewed on an annual basis during the construction phase in order to review the mitigation contained herein.

The plan will be reviewed in conjunction with the following stakeholders during construction:

- PRS,
- Contractor's Representative – qualified ECoW, and
- Supervision Engineer.

During operation, PRS will take on this responsibility. Any major changes based on significant new findings must also be communicated with the Republic Institute for Cultural Heritage and Nature Protection.

Any proposed amendments or revisions should be provided to EBRD and WB for review and approval.

7 Monitoring

7.1 Monitoring Requirements within the Approvals

Companies holding an EP must submit their monitoring report to the relevant environmental inspector, however, the EP issued for the Project does not contain monitoring requirements with regard to biodiversity.

PRS must obtain and comply with all necessary environmental, water and health and safety permits. The permits will cover and stipulate all measures contained in the regulations. Permits to apply for include:

- Use Permit – to be obtained
- Building Permit – to be obtained
- Water Consent – application follows the completion of the Main Design documentation
- Water Permit – to be obtained
- Urban Permit – to be obtained

7.2 Key Monitoring Activities

The key monitoring activities for all phases are presented under Table .

Table 7: Key monitoring activities for all phases of the Project implementation

Feature	Action/Monitoring Parameter	KPI
Pre-construction	▪ Monitoring of Main Design development and inclusion of BMP requirements.	Main Design developed in line with BMP
Construction	▪ ECoW to monitor and control any unauthorised disturbances to natural habitats outside of the designated construction zone and approved vegetation clearance boundaries. Daily surveys will identify any signs of ground disturbance, vegetation damage, or soil compaction outside marked areas. If breaches are identified, photographic documentation and GPS data will be recorded to measure the extent of accidental disturbance. Any disturbance greater than 10 m^2 triggers a corrective and preventative response. ▪ ECoW will monitor the presence of flora and fauna species within the construction area. Rapid daily site assessments will be conducted to identify presence of species at the site, primarily slow moving fauna unable to escape machinery in time. Monitoring will be conducted prior to any major construction activities such as excavation, or structure installation. Assessments will rely on visual observation. All findings will be recorded in a field log, including the date, time, weather conditions, species identified, precise location (with GPS coordinates), and photo documentation. Results will be compiled into a monthly monitoring report. If species or sensitive features of concern are identified, works in the affected area will cease immediately. Wildlife may be carefully relocated to suitable adjacent habitats, and a buffer zone of 25 m will be established around active bird nests, and 100 m	▪ ECoW engaged and active on-site before start of vegetation clearance. ▪ No net increase in coverage of invasive species from the current baseline (in line with ISMP). ▪ No disturbed habitat outside of the area necessary for construction. ▪ All potentially harmful activities supervised by ECoW. ▪ All pits filled or equipped with ramps if open over 24 h and no fauna mortality incidents in open pits. ▪ Speed limit signage placed and visible at sensitive locations. ▪ No wildlife fatalities due to speeding.

Feature	Action/Monitoring Parameter	KPI
	around identified bat roosts, with continued monitoring until risk has passed or relocation is authorised. ▪ ECoW to conduct monitoring of speed-related roadkill will throughout the construction phase, through walk-through inspections and slow driving along access roads and within the construction corridor. This will be done weekly during active construction and material deliveries. Each recorded incident will include the identified species, time, location and photo documentation. ECoW will log all data monthly, calculate the roadkill indices, and identify hotspots of incidents. Incident data collected during construction will form the baseline for roadkill monitoring during the operation phase and will inform placement of mitigation structures. If repeated incidents at the same location occur throughout two monitoring cycles, adaptive management will be needed in the form of temporary speed reductions or installation of temporary speed bumps. ▪ ECoW to monitor spread of invasive species during construction in line with the baseline and monitoring parameters set by the ISMP.	▪ No fatalities of fauna recorded on site. ▪ No nests/roost affected.
Operation	▪ Vegetation monitoring reports on survival, growth, coverage of planted native species as prescribed by the LHRP. Monitoring must be carried out by a qualified botanical expert through field surveys and vegetation audits including methods such as plot sampling and vegetation transects. Collected data shall include survival rates, vegetation cover percentage, and growth measurements (e.g. height, canopy spread) of planted native species. A monitoring report will be prepared following each survey, summarising vegetation performance, observed gaps, and recommendations for remedial actions, if applicable. ▪ Number and spatial distribution of invasive species through targeted field surveys focused on invasive plant species. Standard botanical protocols will be applied, including visual inspection, species identification, and estimation of cover and abundance using vegetation transects. Surveys will prioritise early detection and assessment of ecological impact. Baseline data will be established during the first monitoring visit, serving as a reference point for all subsequent assessments. Remedial actions will be triggered if a comparative increase in cover or spatial extent of invasive species is observed relative to the baseline. If invasive species cover exceeds 10% in any 100 m segment of the monitored area, or if spatial spread is detected compared to previous monitoring periods, remedial actions shall also be triggered. In cases where initial infestations are already extensive (e.g. cover exceeds 30% or large areas are affected), immediate control measures may be implemented without delay. Remedial actions include mechanical removal, or selective herbicide application (where appropriate and in accordance with environmental	▪ At least 2 seasonal surveys per year for first three years of operation. ▪ At least 50% seedling survival rate one year after reforestation and revegetation efforts (as is to be defined in LHRP). If this is not achieved remedial actions may be required, such as additional planting if after year 1, 2 or 3, there has been a loss of 30% of planted trees or more, or less than 90% coverage of vegetation (herbaceous plants). ▪ Demonstrated continuous decline in invasive species cover. ▪ Seasonal hibernacula inspections conducted; damaged structures restored, and signs of usage recorded. ▪ Register in place for registering of potential roadkill.

Feature	Action/Monitoring Parameter	KPI
	regulations). Follow-up monitoring will assess the effectiveness of implemented control measures. A monitoring report must be prepared following each field visit, summarising key findings, species identified, infestation trends, and any recommended corrective or implemented control measures. ▪ Inspection logs for hibernacula and bat boxes; signs of usage, moisture, traces and thermal suitability documented. Inspections to ensure proper placement, structural integrity, and to check for signs of damage and use (droppings, nesting material, shedding, visual observations). Inspection logs will be produced with details on structural integrity and placement, usage evidence and photo documentation. These logs will be analysed by PRS/external consultancy to inform the need for adjustment. Damaged structures are to be restored, and if no use of these structures is detected within two monitoring cycles, the positioning and design may be adjusted. ▪ Number of roadkills per km. Monitoring will be carried out by maintenance staff during regular check-ups, either through walk-through surveying or slow driving along the road. Photo documentation, location and time of observation of roadkill will be reported after each monitoring event. A designated, qualified ecologist appointed by PRS will be tasked with analysing the acquired data Roadkill indices will be calculated per kilometre and tracked over time to identify hotspots and temporal patterns. If roadkill rates exceed baseline averages by more than 20% for any species group, adaptive management measures must be implemented. ▪ PRS is to establish active cooperation with the local hunting association in order to collect data on collisions of vehicles with large mammals. Appropriate warning signage shall be installed at locations where high rates of collisions are noted in cooperation with the local hunting association in order to help enhance road safety and reduce mortality.	▪ Adaptive measures implemented if roadkill rates exceed baseline by >20%.

7.3 Monitoring Review

Monitoring measures proposed above will continue during the first three years post-construction. It is then envisaged that the monitoring efficacy and need for continued monitoring of each feature will be reviewed. A future monitoring programme, covering year 4 - 10 post-construction will be developed and implemented accordingly.

8 Training

8.1 Overview

The Contractor will be responsible for implementing mitigation measures during the construction phase, in line with contract specifications and loan requirements. The Contractor shall appoint a qualified ECoW for this purpose, and to coordinate the implementation and monitoring of the BMP. As it is understood, PRS does not currently employ any biodiversity experts in their team, however External Biodiversity Expert was engaged as a part of PIU.

It is required for PRS to improve internal communication and accountability within the company for the implementation of measures within ESAP throughout the whole Project cycle. This should be the responsibility of the PIU unit.

8.2 Induction Training

Before commencing site works, all personnel should undergo induction training to raise awareness of potential biodiversity issues along the road section. This can be accomplished through a series of brief (maximum 15 min) toolbox talks delivered by the ECoW. Topics should include invasive species management, bat roost habitats, erosion prevention and other relevant issues. The Contractor will be responsible for organising and delivering this induction training.

8.3 Job-specific Training

The PIU Biodiversity Expert should undertake training prior to Project implementation so that they develop a better understanding of the reasoning behind the measures proposed in the BMP and how to implement them. This training could take the form of a one-day induction, being run by the ECoW, as a site run activity, e.g. to locate invasive plant species, potential bat roost habitats, relocation of species etc.

8.4 Training Requirements

The need for further training should be identified and remedied during the construction and operation phase. The need for further or additional training should be identified in consultation with the appointed contractor or external consultancy.

9 Audit and Reporting

9.1 Auditing

The Supervision Engineer, responsible for the overall supervision of construction works, shall also monitor the implementation of mitigation measures during the construction phase. The Supervision Engineer must submit monthly reports to the PRS, which will then be analysed, and where required to improve efficiency, corrective measures and actions will be proposed.

9.2 External Auditing and Record Keeping

The Company is not currently subject to any formal external auditing processes related to environmental or quality management systems. As the Company is not certified under ISO 14001:2015 or ISO 9001:2015, no external audits are carried out in accordance with these standards

The PIU will be tasked with tracking monthly records, which will be submitted to PRS Management. This will include biodiversity specific records as well. These records can be made available to stakeholders upon submission of official request.

10 Document Control

The document will go through multiple iterations during the construction and operational phases. Each time the BMP is revised and reissued, the issue number on the cover page must be updated. All versions will be archived by PRS, so that iterations remain accessible for future reference.

When changes to the BMP occur, they are to be summarized in this section.