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Western Balkans Investment Framework Infrastructure Project Facility Technical Assistance 8 (IPF 8)

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Mediterranean Corridor, Bosnia and Herzegovina - Croatia CVc Road Interconnection, Subsection: Konjic (Ovcari) - Prenj Tunnel - Mostar North

Gap Analysis & ESIA Disclosure Pack

WB20-BiH-TRA-02 Component 1

Volume 2: Technical Annexes to the ESIA

Annex E: Appropriate Assessment

December 2025

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Western Balkans Investment Framework (WBIF)

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Annex E: Appropriate Assessment

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The Infrastructure Project Facility (IPF) is a technical assistance instrument of the Western Balkans Investment Framework (WBIF) which is a joint initiative of the European Union, International Financial Institutions, bilateral donors and the governments of the Western Balkans which supports socio-economic development and EU accession across the Western Balkans through the provision of finance and technical assistance for strategic infrastructure investments. This technical assistance operation is financed with EU funds.
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1 Introduction

1.1 Project background

In August 2020 ENOVA was commissioned to undertake Environmental and Social Assessment referring to the Corridor Vc subsection Konjic (Ovcari) - Prenj Tunnel - Mostar North. Desk and field surveys of the project area were conducted in the period from 2020 to 2022. Performed desk survey found that the planned motorway crosses two potential Natura 2000 sites (Zlatar and Prenj-Cvrsnica-Cabulja) and two candidate Emerald sites (Zlatar and Konjicka Bijela) which triggered the need for an appropriate assessment in line with Article 25 of *Law on Nature Protection of FBiH* and Article 6(3) of the Habitats Directive in order to enable the project to meet the requirements of the EBRD's PR 6. Parts of the Habitats Directive have been passed by the *Decree on the Natura 2000 Program – Protected Areas in Europe*[1] adopted by the Government of Federation of Bosnia and Herzegovina (BiH) in order to establish the ecological network of protected natural habitat types and species in the Federation of Bosnia and Herzegovina (FBiH) and to include certain sites into international network of protected natural habitats and species.

The purpose of this Report is to provide all relevant information that can help in the process of assessing the Project's potential adverse impacts to the identified potential Natura 2000 sites and, if identified, how they can be mitigated. The assessment of impacts in the Appropriate Assessment forms the basis for the decision on whether this Project can proceed, and finally, to decide how impacts can be mitigated, or, as a last resort, compensated where avoidance and mitigation are not feasible. The screening report will form an Annex E: Appropriate Assessment on potential NATURA 2000 areas to the final Environmental and Social Impact Assessment (ESIA).

1.2 Introduction to Appropriate Assessment

The Emerald Network is a pan-European ecological network with the goal to preserve the biodiversity of Europe. Its establishment is one of the requirements of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern, 1979), also known as the Bern Convention. The Emerald Network is one of the main mechanisms for its implementation. The Bern Convention is built around the principle that the long-term survival of wild species is only possible by protecting their habitats. Subsequently, habitat conservation is its main focus. If a development project is implemented within the Emerald Network site borders, more detailed research is necessary to assess the potential impact on the site, including its species and habitats.

Similarly, according to the Habitats and Birds Directives, member states of the European Union are obligated to safeguard areas and species that are vital to the preservation of wildlife in Europe. If a plan or project could have an impact

[1] Official Gazette of FBiH, No. 41/11

on one of these sites, it must be assessed to see if it would compromise the integrity of the site. This assessment will help the decision-maker decide whether to move forward with the plan or project. Appropriate Assessment (AA) or, in some countries, the Habitats Directive Assessment (HDA) is the name of this evaluation procedure.

Due to the fact that a part of the planned project passes through the potential Natura 2000 areas of BiH, it is necessary to conduct an Appropriate Assessment. The requirement for Appropriate Assessment of plans or projects originates from national laws, the Bern Convention and EU Directives.

1.2.1 National legislation

The *Law on Nature Protection*[2] is the foundation of nature protection in FBiH. It defines the relevant bodies for nature protection, general conservation measures, evaluation of operations in nature, habitats and ecologically important areas, species and subspecies, protection and conservation of biodiversity and ecosystems, the conditions for establishment of Natura 2000, etc. The most relevant articles for AA process are summarised below:

- Articles 25-29 (inclusive) are focused on the appropriate assessment. They define the terms and elaborate on the AA process that follows the Habitats Directive requirements for performing AA. They state that AA shall be done for Projects planned within ecological network. AA shall be done as a part of the EIA. AA is mandatory for Projects that may cause significant impacts on conservation objectives and integrity of the ecological network. Scope of the AA shall be determined by a Rulebook written by the Minister.
- Article 58 states that the Government of the FBiH ("the Government") will establish Natura 2000 ecological network.
- Article 59 states that the Government will, by decree, based on the established criteria of the Habitats Directive and submitted relevant scientific information, create a list of habitat types and species that are widespread on the territory of FBiH. When a site of EU importance is identified, the Government will mark that area as a specially protected area within six years. The Government will establish priorities regarding the importance of sites for: maintaining and establishing a favourable state of habitat types and species, the connectivity of Natura 2000, and evaluating threats of degradation and destruction to which the areas are exposed. When the area is included in the Natura 2000, the provisions of Article 60, paragraphs 2, 3 and 5 will apply to it.
- Article 60 states that if the habitats are part of a specially protected area, the Government will prescribe the necessary protective measures together with a management plan that is specially made for those areas, or that is integrated into other development plans, legal, administrative, or contractual measures that correspond to the ecological needs of said habitats. The Government will prescribe appropriate measures in specially protected areas to avoid deterioration of habitats and habitats of species.

[2] Official Gazette of FBiH, No. 66/13

Any plan or project that is not directly related to or not necessary for the management of the site but is likely to have a significant impact on it, either alone or in combination with other plans or projects, will be subject to appropriate assessment in terms of conservation objectives.

- Article 67 lists ecologically important areas and states that they shall be proclaimed by the Government upon proposition made by the Federal Ministry for Environment and Tourism accompanied by expert opinion from Federal Institutes and responsible cantonal bodies.
- Article 68 states that protection of ecologically important areas is ensured by implementation of adequate measures and conditions for protection aiming to preserve biological and landscape diversity. Actions causing destruction in ecologically important area aren't allowed.
- Article 69 states that an international ecologically important area is an area that was established by the Government based on the Law on Nature Protection. Destruction and significant damage to such areas is not allowed.

The Government of FBiH also adopted the *Decree on the Natura 2000 Program – Protected Areas in Europe* in 2011, in order to establish the ecological network of protected natural habitat types and species in FBiH and to include certain sites into international network of protected natural habitats and species. The *Decree* was brought based on the former *Law on Nature Protection* from 2003. This *Decree* includes objectives for preservation of Natura 2000 sites and necessary measures for preservation or for favourable state of population of wild plants and animal species in the nature, their respective habitats and habitat types. The *Decree* passes a part of EU Habitat directive[3] with its Annexes and a part of the Birds Directive[4] on the conservation of wild birds with its Annexes.

It can be concluded that the relevant legislation in FBiH provides good foundations for future official establishment of Natura 2000 ecological network. However, the work on proclamation of such areas is not building on these foundations. Official (potential) Natura 2000 network was not established by the Government on the basis of the *Law on Nature Protection*. The Law states that the Government is to adopt a list of habitats and species of concern by a Decree and, if any of EU importance are present, that area will be a special protected area. None of the provisions of Article 59 were implemented prior to the finalisation of the ESIA Package. Due to the fact that the Natura 2000 network and associated protected areas have not been officially proclaimed, the legal basis for the AA process concerning Natura 2000 sites remains uncertain under the FBiH law. However, as BiH has ratified the Bern Convention, its obligations regarding Emerald sites must be implemented.

It is important to note that BiH is not a member of the European Union and does not have the obligation to formally proclaim Natura 2000 areas before accession to the EU. The *Support to implementation of the Birds and Habitats directives in Bosnia and Herzegovina* project aimed to identify potential Natura 2000 sites in

[3] Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

[4] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009

BiH with appropriate site codes, areas, present species and habitats. First preliminary Natura 2000 sites for BiH have been proposed based on the value of species and habitats but they have not been officially recognised nor do they have protection and management plans.

Nonetheless, as a precaution and in the absence of official documentation on Natura 2000 in FBiH, the findings of the aforementioned Project have been used to determine whether the planned motorway encroaches on any potential Natura 2000 areas. To fully understand and evaluate the impacts the Project might have on sites potentially included in a future ecological network, the identified sites from the aforementioned project will be assessed as (potential) Natura 2000 sites in accordance with the FBiH Law.

1.2.2 Bern Convention

The Bern Convention is a binding international legal instrument in the field of nature conservation, which covers most of the natural heritage of the European continent and extends to some States of Africa. Its aims are to conserve wild flora and fauna and their natural habitats and to promote European co-operation in that field.

The Convention places particular importance on the need to protect endangered natural habitats and vulnerable species, including migratory species. All countries that have signed the Bern Convention must take action to: promote national policies for the conservation of wild flora and fauna, and their natural habitats; have regard to the conservation of wild flora and fauna in their planning and development policies, and in their measures against pollution; promote education and disseminate general information on the need to conserve species of wild flora and fauna and their habitats; encourage and co-ordinate research related to the purposes of this Convention and also co-operate to enhance the effectiveness of these measures.

Non-EU countries, such as BiH, fulfil some of the requirements of the Bern Convention under the Emerald Protected Areas Network. Each Emerald site is defined as an Area of Special Conservation Interest (ASCI) and is designated on the basis that it fits one or several of the following conditions:

- It contributes substantially to the survival of threatened species, endemic species, or any species listed in Appendices I and II of the convention
- It supports significant numbers of species in an area of high species diversity or supports important populations of one or more species
- It contains an important and/or representative sample of endangered habitat types
- It contains an outstanding example of a particular habitat type or a mosaic of different habitat types
- It represents an important area for one or more migratory species; and
- It otherwise contributes substantially to the achievement of the objectives of the convention.

Emerald Network is an ecological network composed of Areas of Special Conservation Interest as an equivalent of Natura 2000 in non-EU countries. Setting up the Emerald Network at national level is considered as one of the main tools for the signatory countries to comply with their obligations under the Bern Convention. As BiH ratified the Bern Convention in 2008, the obligation extends to BiH as well. Although BiH is not a member of the EU, the timely and legally binding designation of Emerald sites would facilitate a smoother transition to Natura 2000, which offers stricter legal protection and stronger enforcement compared to the Emerald Network.

- For this assessment to be applied in BiH, it must also encompass Emerald sites or ASCIs. This is feasible because the Habitats Directive implements the Bern Convention in the EU, and Emerald sites fall within the scope of the assessment to ensure all precautionary measures are considered.
- The first step in BiH to establish Emerald sites was made in 2006 through the implementation of a CARDS/Emerald programme in the Western Balkans when seven sites in B&H were proposed. However, a big step forward was the World Wildlife Fund (WWF) project of the Mediterranean Programme Office (MedPO) *Living Heart of Europe* which was completed in 2011.

1.2.3 EU Directives

In May 1992 European Union governments adopted legislation designed to protect the most seriously threatened habitats and species across Europe. This legislation is called the Habitats Directive and complements the Birds Directive adopted in 1979. These directives protect around 1,200 animal and plant species and 230 habitat types in over 20% of the European Union's territory. At the heart of both these Directives is the creation of a network of sites called Natura 2000. The Birds Directive requires the establishment of Special Protection Areas (SPAs) for birds. The Habitats Directive similarly requires Special Areas of Conservation (SACs) to be designated for other species, and for habitats. Together, SPAs and SACs make up the Natura 2000 Network. All EU Member States contribute to the network of sites in a Europe-wide partnership. Each Member State must compile a list of the best wildlife areas containing the habitats and species listed in the Habitats Directive and the Birds Directive. For both types of sites it is the task of the Member State to put the necessary protection provisions/designations in place.

The goal of Natura 2000 is to ensure the long-term survival and favourable conditions of the most valuable and endangered habitats and species. These objectives are achieved, inter alia, by aligning with the interests and well-being of the population living and carrying out activities in certain Natura 2000 sites. Network areas are determined according to scientific criteria that are the same for all countries.

Article 6 (3) and (4) of the Habitats Directive which has been transposed into relevant FBiH legislation state the following:

- 'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject

to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

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

The EU has published a number of documents which provide guidance on the requirements of Appropriate Assessment, including *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (2002), which sets out the principles of how to approach decision making during the process and this have been followed as closely as possible. As this document states that it is necessary to first make a screening report of the project's impact on the area that may have a potential impact on the Natura 2000 area, it means that the emphasis for assessment should be objectively demonstrated, with supporting evidence that:

> There will be no significant effects on a Natura 2000 site (in our case a potential Natura 2000 site) - Stage one: Screening; or
> There will be no adverse effects on the integrity of a Natura 2000 site (in our case potential Natura 2000 site) - Stage two: Appropriate assessment.

1.3 Approach to the Assignment

1.3.1 Stages of the AA Process

The AA process has four stages that need to be done if it is concluded that all four stages are necessary. If at any stage in the process it is determined that there will be no significant effect on any Natura 2000 site, the process is effectively completed. The four stages are as follows:

> Stage 1 – Screening - The process to identify the likely impacts of a project on a European site, either alone or in combination with other plans and projects and consider whether the impacts are likely to be significant in the absence of mitigation.
> Stage 2 – Appropriate Assessment of the Proposed Works; The consideration of the impacts on the integrity of the European site, whether alone or in combination with other plans and projects, with regard to the site's structure and function and its conservation objectives. Where there are adverse impacts, an assessment of mitigation options is carried out to determine adverse effect on the integrity of the site. If these mitigation options cannot

avoid adverse effects, then development consent can only be given if stages 3 and 4 are followed.

- Stage 3 – Assessment of alternative solutions - Examining alternative ways of achieving the objectives of the project to establish whether there are solutions that would avoid or have a lesser effect on European sites.; and
- Stage 4 – Imperative reasons of overriding public interest (IROPI) - Assessing alternative ways to achieve the project's objectives to determine whether solutions exist that would avoid or minimise impacts on European sites.

Stages 1 and 2 relate to Article 6(3) of the Habitats Directive; and Stages 3 and 4 to Article 6(4).

1.3.2 The Assessment Approach

In BiH, the Habitats Directive does not apply and therefore there are no officially proclaimed Natura 2000 sites. Consequently, there are no formal *Qualifying Interests* or *Conservation Objectives* for the sites of European nature conservation interest. However, BiH ratified the Bern Convention and is obligated to protect candidate Emerald sites and assess any impacts that may occur in those areas. Despite being required to comply, the Convention is not fully implemented in BiH. This means that directly applying the AA process is difficult. However, there are lists of species that are of concern registered within the potential Natura 2000 sites and candidate Emerald sites in the Standard Data Forms submitted upon nomination.

The objectives of an equivalent assessment applicable for potential Natura 2000/candidate Emerald sites are as follows:

- Establish the importance of the site in a wider EU context – list the justifications for the site's nomination as a potential Natura 2000/Emerald site and list the ecosystems and species important to this status. These ecosystems and species will be the *Qualifying Interests*.
- In the absence of Conservation Objectives for the sites, the objectives for the key species and habitats in a wider EU context should be established - they will form equivalent *Conservation Objectives* and can then be the basis upon which to assess the significance of impacts the Project will have on them.
- Determine whether the parts of the sites directly affected by the project support the 'Qualifying Interests' identified and how significant these areas are in the context of the site's interests.
- Determine whether the proposals will have any adverse effects on the integrity of the site.

These objectives were met through undertaking desk study and field survey to establish the baseline and then conducting the assessment. The findings are presented in the chapters below. The desk study sources, and detailed findings of field surveys are provided in the Annexes A-C.

The aim of the desk study was to understand the reason why these sites have been proposed and to identify key ecological components, elements, features that might be directly or indirectly impacted by the Project.

2 Stage 1 - Appropriate Assessment Screening

2.1 Screening Methodology

The methodology and procedures of the European Commission's recommendations were followed. Biodiversity expert reports, impact assessment of the planned project and the state of preservation of potential Natura 2000 sites (whether there are existing settlements, roads, arable lands in potential Natura 2000 sites) were used to prepare this document and assess the magnitude of the impacts. This is the first stage of the Appropriate Assessment process, conducted to assess the likelihood of significant impacts from a proposed project or plan. If it is determined that no significant impacts on Natura 2000 sites (or other legally protected areas, as applicable) are likely, the assessment can conclude at this stage. Otherwise, the process must proceed to Stage 2 for a more detailed evaluation.

The AA Screening process that has been conducted can therefore be summarised as follows:

- determination of whether the project is directly affecting a potential Natura 2000 or candidate Emerald site
- description of the proposed project that could potentially affect the identified sites,
- identification of the potential impacts on potential Natura 2000/Emerald sites
- assessment of the significant of effects to the sites and establishing whether stage 2 is needed.

In order to support the AA process and the conclusions, stakeholder engagement was performed in line with information presented in ESIA. One of the key stakeholders is the Federal Ministry of Environment and Tourism (FMOET). As part of the Environmental Impact Assessment (EIA) process, an earlier version of this AA was prepared in accordance with the Habitats Directive and submitted to the FMOET as a component of the local EIA documentation.

In alignment with the requirements of the European Commission, the AA was subsequently adapted into the Form B format, which reflects the same technical content while meeting the procedural specifications set by the EU. This version of the AA (Form B) was shared and discussed with the FMOET during official meetings held in January and July 2025.

During these consultations, the Ministry was presented with the revised documentation. Feedback from the Ministry included a request for additional compensatory measures for *Cottus gobio*, seeing as parts of its habitat would be

irreversibly altered. This has since been transposed into both the Form B and the AA. The process is now entering its final stage, with the official endorsement of the AA (Form B) by the FMOET anticipated in by the end of 2025.

This communication is intended to keep stakeholders informed of the steps undertaken to ensure both national and EU-level compliance and transparency in the project's environmental assessment process.

2.2 Project Description

This subproject includes three subsections between Konjic (Ovcari) and Mostar North along motorway Vc. According to the ToR, the subproject starts with the Konjic Intersection in Ovcari and ends with the Mostar North Interchange and the total length is 35.26 km, has six bridges and nine viaducts.

The motorway subsection Konjic (Ovcari) - Prenj Tunnel - Mostar North (Vrapcici) starts in settlement Ovcari with an interchange which will enable connection of the motorway and the existing main road M17. At the northern entrance to the City of Konjic, after the interchange, the motorway crosses the Sipad industrial zone. Further ahead, the subsection passes through the slopes where steep cuts are envisaged and where the Viaduct 3 over river Tresanica was designed to cross to the opposite side of the M17. Immediately after the end of Viaduct 3, the route enters the slope which passes through tunnels - Tunnel T1 and Tunnel T2.

After exiting the Tunnel T2, the route crosses over the Neretva River and the local road with Viaduct 4. Crossing to the opposite side, the motorway continues along the slopes at the rear of the settlement Bijela up to the settlement Mladeskovici, where the Konjic South interchange is positioned. Further on, the motorway route is laid at the foot of the slope above the settlements of Bijela and Gornja Bijela all the way to the end of the section. The route further runs along the slopes parallel to the Rakov Laz shooting range, continues through the uninhabited green landscape to the slopes of Prenj Mountain, where the tunnel under Prenj (Tunnel T3) begins and terminates in the territory of the City of Mostar.

After exiting the tunnel through the Prenj mountain, the motorway route traverses mountain curves towards the south and the City of Mostar, through a system of cuts and bridges through uninhabited mountain areas. At the exit from the Prenj mountain range, the road crosses the valley on 300 m long embankment and enters the Klenova Draga Tunnel (Tunnel T3A) on the western cliffs of the gorge.

After the Klenova Draga Tunnel the next viaduct of approx. 800 m begins and turns into approx. 640 m long Tunnel T4. The viaduct over Badnjena Draga near Seliste, which stretches parallel to the settlement begins here.

The route continues northeast of the settlement and extends along the edges of the hill north of Podgorani, where the bridge over Seocka Draga begins and leads the route to Dolac, north of Humilisani. Further, the route continues in a slight semicircle around the settlement of Humilisani along the slopes of Porim. Below Humilisani, the route runs south and under Sljemen, it enters the 2,200-m-long Tunnel T5, and exits into the Kuti area, the point where the Mostar (north) exit ramp has been envisaged.

The south connection to main road M17 (hereinafter: Konjic Bypass) is also a subject of this ESIA. Konjic bypass will connect the motorway at Ovcari Interchange with the M17 to Jablanica. This bypass will allow for M17 traffic to access the motorway directly without entering the urban area of Konjic. Konjic Bypass begins by turning off the motorway via the Ovcari Interchange. After that, motorway passes the next 100 m in an embankment and reaches the first 80-m-long viaduct. After the viaduct, it enters an 800-m-long tunnel. After exiting the tunnel, the route goes for approx. 500 m through embankments and another 500 m through a cut with the highest point of approx. 30 m. The next 200 m of the route passes through embankments and cuts and reaches a 350-m-long bridge that crosses the existing Sarajevo-Capljina railway, the Neretva River, and the main road M17. After 200 m, Konjic Bypass connects to M17.

2.2.1 Identification of Potential Area of Influence

The area of direct impact of the project covers an area of 206.05 ha and includes the motorway itself, embankments, cuts, access roads, service plateaus and all other structures known at this stage of the Project that will cause habitat usurpation. This area will be permanently and irreversibly changed and is therefore assessed as an area that will be significantly affected.

As part of the development of the project tasks, it was previously determined that the area of impact of the project is the surrounding buffer zone of the motorway route where the greatest impact is expected. According to preliminary findings, the impact area covered a buffer zone of 500 m on both sides of the road, for most impacts. However, due to the specific nature of biodiversity receptors, further refinement based on biology of species was needed. The ecologically appropriate area of analysis (EAAA) is determined to include the "wider distribution of potentially affected biodiversity features and the ecological patterns, processes and functions that are necessary for maintaining them throughout this distribution"[5]. The project area of influence reflects ecological characteristics of the area and biology of found biodiversity features based on conducted field research, characteristics of surrounding habitats and ecosystems (e.g., habitat type, land use, natural barriers), literature data, known distribution and expert opinion for each individual species.

[5] EIB Guidance Note for Standard 3 on Biodiversity and Ecosystems, 2018

2.3 Identification of Sites of Interest

2.3.1 Natura 2000 Sites

Desk survey has shown that the planned motorway route passes directly through two potential Natura 2000 areas: Prenj-Cvrsnica-Cabulja (site code BA8300064) and Zlatar (site code BA8300064) (Figure 1).Other potential Natura 2000 sites located in the vicinity of the project area are up to a maximum distance of 33 km. Additionally, Velez (site code BA7200088) Natura 2000 site is located 1 km east from the southernmost point of the route and Bjelasnica - Igman – Visocica – Treskavica (site code BA8300005) is 3 km away from the project area. It can be concluded that Velez (FBiH) and Bjelasnica – Igman – Visocica - Treskavica are outside of the area where direct impacts of the Project could be registered, however are part of the screening in order to assess any potential indirect impacts.

The potential Natura 2000 sites considered for this document are Prenj-Cvrsnica-Cabulja and Zlatar as they are in the direct impact zone of the motorway. Although no direct impacts can be expected for other Natura 2000 sites, they have been included in the Screening stage for assessment of potential indirect impacts. As a result of no proclamation or official recognition, management plans have not been developed for either of these sites.

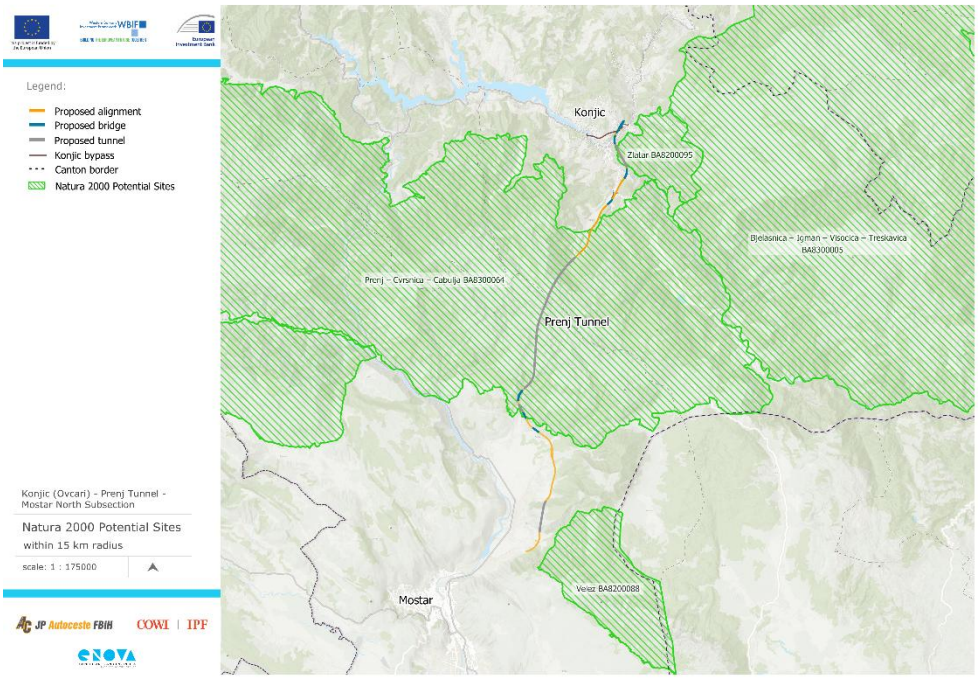

Figure 1: Position of potential Natura 2000 sites in relation to the project area

2.3.2 Emerald Network

BiH has designated 29 candidate Emerald sites as of December 2021. Five Emerald sites have been identified to be within a 15 km radius of the Project. Two of the proposed Emerald Sites are brought forward for further consideration

as part of the Appropriate Assessment for Corridor Vc subsection Konjic (Ovcari) –Prenj Tunnel - Mostar North: Zlatar (BA0000004) and the Canyon of river Konjicka Bijela (BA0000006) due to the planned motorway route going through these areas (Figure 2). Zlatar has the surface of 2,368.00 ha and the road is planned to cross the south-western corner in the form of a tunnel through the mountain thus minimising the impact. Canyon of river Konjicka Bijela (3,300.00 ha) will be used as natural access to Mt. Prenj and approach to northern tunnel-entry point. Preservation of this canyon pre-entry into the Prenj Mountain is an important element which was also pointed out by the previous environmental impact study done in 2016. Additionally, the assessment will consider three nearby sites: Idbar Canyon (BA0000003), approximately 5 km west of the route; Gornji tok Neretve (BA0000002), approximately 4.6 km west of the route; and Rakitnica River Canyon (BA0000001), approximately 8.7 km west of the route.

The listed candidate Emerald sites are a part of this document due to the possibility of their official proclamation and subsequent inclusion in Natura 2000 network post-accession to the EU. They do not have any form of legal recognition. They are not protected areas, and no management plans were developed nor implemented.

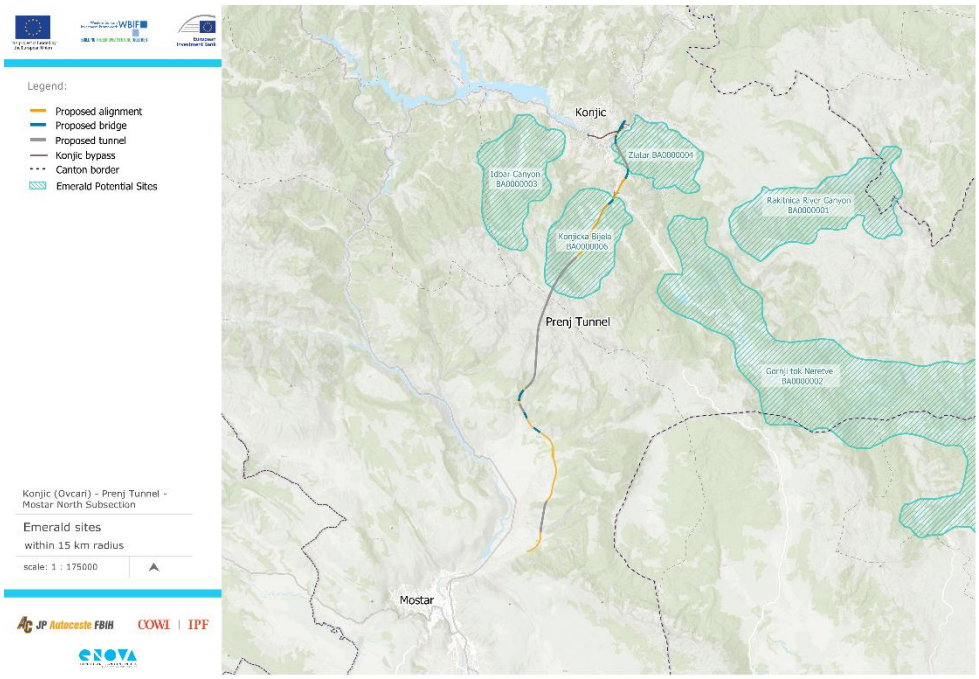

Figure 2: Candidate Emerald sites in relation to the motorway route

2.3.3 Description of the Natura 2000 Sites

This chapter will describe the potential Natura 2000 and candidate Emerald sites that the section crosses or that lie within a 15 km radius of the Project, based on desktop studies and field surveys. Areas will be described based on the biodiversity features for which they were proposed as Natura or Emerald sites

with a complete description and list of habitats and species of importance. Conservation status for some habitat and species of proposed Natura 2000 sites were done on the basis of the information give in the Standard Data Form (SDF).

2.3.3.1 Velez BA8200088

Velez is a proposed Natura 2000 site located in FBiH, covering a total area of 6,296.71 ha. Alongside the Prenj-Cvrsnica-Cabulja complex and the canyon of the Neretva River, Velez is part of a karstic mountain range renowned for its exceptional biodiversity and ecological value. The area is notable for hosting a variety of steno-endemic flora, making it a critical hotspot for conservation. Its geomorphological diversity, characterised by classic karst formations such as caves, sinkholes, rocky outcrops, and limestone pavements, supports a mosaic of microhabitats. These microhabitats are vital for a range of not only flora species, but fauna as well, including those with highly specialised ecological niches. The site features diverse habitats, including subalpine grasslands, rocky screes, and priority habitats such as **8240 Limestone pavements*. The endemic flora of Velez include species adapted to the harsh and nutrient-poor conditions of karst ecosystems. The karstic features of Velez may also provide essential roosting and foraging habitats for bat species, making the site a significant area of interest for chiropterological studies. Following BiH's accession to the International Agreement on the Conservation of Bats (EUROBATS), Velez has been identified as a priority for further investigation into the presence of Annex II species. This site was declared of conservation value due to the presence of 7 habitat types and 18 Natura 2000 species, each presented in Table 1 and Table 2 below. Species and habitat types confirmed as present at the Project site are bolded.

Table 1: Habitats of importance for the proclamation of the potential Natura 2000 site Velez

Habitat code	Habitat type	Conservation status
8310	Caves not open to the public	Type B[6]
8210	Calcareous rocky slopes with chasmophytic vegetation	Type A
8140	Eastern Mediterranean screes *Drypidetalia spinosae*	Type A
*8240	Limestone pavements	Type A
62A0	**Eastern sub-mediteranean dry grasslands (*Scorzoneratalia villosae*)**	**Type B**
6170	Alpine and subalpine calcareous grasslands	Type A
91K0	Illyrian Fagus sylvatica forests (*Aremonio-Fagion*)	Not estimated

>

Based on detailed literature review and field research, the Project area potentially harbours 19 Natura 2000 habitat types. Out of the 19 possibly

[6] Conservation status **A**: outstanding conservation, **B**: good conservation, **C**: average or reduced conservation.

present habitat types, six of these habitats were confirmed during field surveys in 2021 within both the AoI and EAAA. Out of these six habitats, only one habitat — *62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)* is a Natura 2000 habitat that triggered the declaration of the Velez pSCI. Along the motorway route, this habitat is present in several localities, namely south of Podgorani with two fragments at Kutilivac. The fragments of this habitat present at Podgorani are located approximately 7.5 km away from the proposed Natura 2000 site Velez, while the two fragments at Kutilivac are approx. 700 m to 1.5 km away from this site (Figure 3).

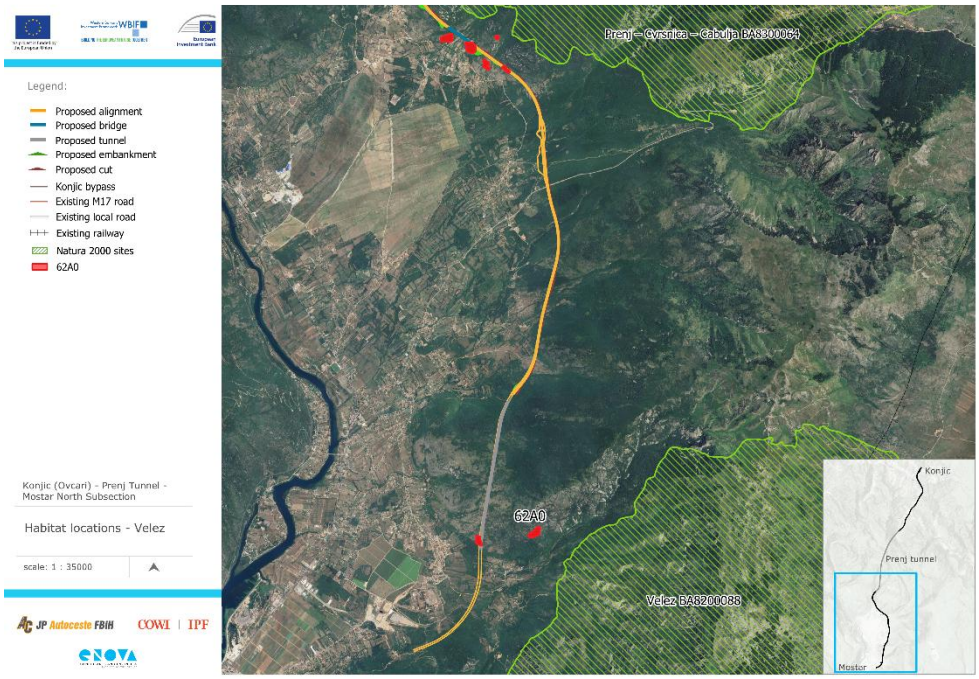

Figure 3: Confirmed habitat types of EU importance in relation to Velez

This habitat is of good conservation status within the Velez Natura 2000 site and is a common and widespread habitat in this area of Europe. The spatial coverage of this habitat type is approx. 3.45 km^2 in the surveyed area, with approx. 1.1 ha under direct impact by the motorway embankments in Podgorani. However, considering these fragments are located well outside of the proposed Natura 2000 site's boundaries, impacts on habitat integrity within the site itself are not expected. As the proposed Natura 2000 sites have not been adopted since 2014, when they were first proposed, **no revision of habitat and species status has been done**.

The following Table presents the Natura 2000 species recorded during field surveys.

Table 2: Species of importance for Natura 2000 site Velez

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
M	1352	*Canis lupus*	HD II/IV/V, IUCN LC
M	1354	*Ursus arctos*	HD II/IV, IUCN LC

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
M	1371	*Rupicapra rupicapra balcanica*	HD II/IV/V, IUCN LC
I	1065	*Euphydryas aurinia*	HD II, IUCN LC
R	**1279**	***Elaphe quatuorlineata***	**HD II/IV, IUCN LC**
M	1307	*Myotis blythii*	HD II/IV, IUCN VU
M	1321	*Myotis emarginatus*	HD II/IV, IUCN LC
M	1206	*Rhinolophus blasii*	HD II/IV, IUCN VU
M	1305	*Rhinolophus euryale*	HD II/IV, IUCN VU
M	**1304**	***Rhinolophus ferrumequinum***	**HD II/IV, IUCN LC**
M	**1303**	***Rhinolophus hipposideros***	**HD II/IV, IUCN LC**
M	1310	*Miniopterus schreibersii*	HD II/IV, IUCN VU
M	1324	*Myotis myotis*	HD II/IV, IUCN LC
P	6184	*Pulsatilla vulgaris ssp. grandis*	HD II, IUCN LC

>
Three fauna species were confirmed through field surveys, with seven more species expected to be present at different localities along the motorway route. The Project area is located outside of this proposed Natura 2000 site, approx. 1 km east of the east from the southernmost point of the route. The presence of these biodiversity features, as well as analogous habitats is expected deeper into this proposed Natura 2000 site. Due to the distance of this site from the motorway route, direct losses are highly unlikely; however indirect impacts may still occur, which will be further discussed for individual species considered to be present at the Project site.

2.3.3.2 Bjelasnica – Igman – Visocica – Treskavica BA8300005

Bjelasnica – Igman – Visocica – Treskavica is a suggested Natura2000 site that is also planned as a National Park. Located in Central Bosnia, this site spans approximately 88,000 ha and encompasses four prominent mountain massifs: Igman, Bjelasnica, Treskavica, and Visocica. These massifs are primarily composed of Triassic limestone with dolomite formations towards the western region. The area is characterised by a vast mountain plateau, exhibiting widespread karst topography and numerous limestone formations, including caves, sinkholes, and other unique geological features.

This proposed site supports exceptional biodiversity, including **32 globally endangered and 54 locally endangered plant species**. This area, along with the canyon of River Rakitnica and Mt. Ivan, is characterised by the second highest number of endemic plant species (109), only second to Prenj – Cvrsnica – Cabulja (125 endemic flora taxa). It is particularly significant for its high level of endemism, hosting **194 Bosnian endemic species** and **61 endemics of the Dinaric Alps**, underscoring its critical role as a biodiversity hotspot.

Avifauna is equally rich, with **71 bird species recorded**, of which **29 are globally endangered**, highlighting the site's importance for bird conservation. Additionally, the area provides habitat for **24 endangered invertebrate species**, many of which are included in various European Red Lists, further emphasising the ecological significance of this landscape. The site was declared of conservation importance due to the presence of **27 different habitat types**, four of which are of prime significance, and **51 Natura2000 species.** The above-said is highlighted within Table 3 and Table 4.

The site is characteristic for its preservation of developed mountain ecosystems of the Dinaric alps. Natura 2000 habitats of the greatest conservation importance for this site include *6170 Alpine and subalpine calcareous grasslands, 8210 Calcareous rocky slopes with chasmophytic vegetation, 95A0 High oro-Mediterranean pine forests* and *91K0 Illyrian Fagus sylvatica forests (Aremonio-Fagion)*.

Table 3: Habitats of importance for the proclamation of the potential Natura 2000 site Bjelasnica – Igman – Visocica – Treskavica

Habitat code	Habitat type	Conservation status
8310	Caves not open to the public	Type B
62A0	**Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae*)**	**Not estimated**
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	Type B
6510	Lowland hay meadows (*Alopecurus pratensis, Sanguisorba officinalis*)	Type B
6520	Mountain hay meadows	Type B
*8160	Medio-European calcareous scree of hill and montane levels	Not estimated
3240	**Alpine rivers and their ligneous vegetation with *Salix elaeagnos***	**Type B**
4030	European dry heaths	Type C
4060	Alpine and Boreal Heaths	Type B
*4070	Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Mugo-Rhododendretum hirsuti*)	Type A
6170	Alpine and subalpine calcareous grasslands	Type A
*6230	Species-rich Nardus grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe)	Type B
8140	Eastern Mediterranean screes	Type B
8210	Calcareous rocky slopes with chasmophytic vegetation	Type A
3220	Alpine rivers and the herbaceous vegetation along their banks	Type B
4080	Sub-Arctic *Salix spp.* scrub	Type B
91K0	Illyrian *Fagus sylvatica* forests (Aremonio-Fagion)	Type B
95A0	**High oro-Mediterranean pine forests**	**Not estimated**
***9530**	**(Sub-) Mediterranean pine forests with endemic black pines**	**Type B**

Habitat code	Habitat type	Conservation status
9110	*Luzulo-Fagetum* beech forests	Type B
9140	Medio-European subalpine beech woods with *Acer* and *Rumex arifolius*	Type B
*91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	Not estimated
91F0	Riparian mixed forests of *Quercus robur*, *Ulmus laevis* and *Ulmus minor*, *Fraxinus excelsior* or *Fraxinus angustifolia*, along the great rivers (*Ulmenion minoris*)	Not estimated
91L0	Illyrian oak-hornbeam forests (*Erythronio-carpinion*)	Type C
91M0	Pannonian-Balkanic turkey oak –sessile oak forests	Not estimated
91R0	Dinaric dolomite Scots pine forests (*Genisto januensis-Pinetum*)	Not estimated
9410	Acidophilous Picea forests of the montane to alpine levels (*Vaccinio-Piceetea*)	Type B

Of the six habitats confirmed during the field surveys, four habitats — *62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)*, *3240 Alpine rivers and their ligneous vegetation with Salix elaeagnos*, *95A0 High oro-Mediterranean pine forests* and **9530 (Sub-) Mediterranean pine forests with endemic black pines* are Natura 2000 habitat that triggered the declaration of this pSCI. Two of these habitats have a good conservation status, while two are not estimated, with one being a priority Annex I habitat (**9530*). All habitat types are located well outside of the proposed Natura 2000 site and due to the distance, no measurable direct impacts are expected for the integrity of these habitats within the site (Figure 4).

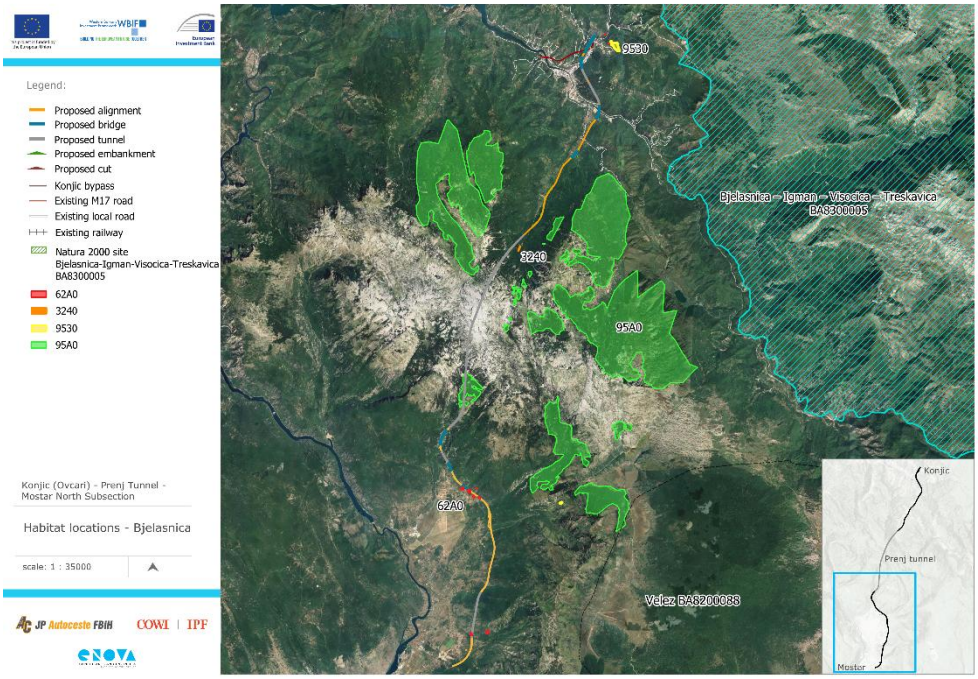

Figure 4: Confirmed habitat types of EU importance in relation to Bjelasnica – Igman – Visocica - Treskavica

The following Table presents the Natura 2000 species recorded during field surveys.

Table 4: Species of importance for Natura 2000 site Bjelasnica – Igman – Visocica – Treskavica

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
M	1361	*Lynx lynx*	HD II/IV/V, IUCN LC
M	1354	*Ursus arctos*	HD II/IV, IUCN LC
M	1352	*Canis lupus*	HD II/IV/V, IUCN LC
M	6338	*Dinaromys bogdanovi*	HD II/IV, IUCN VU
M	1371	*Rupicapra rupicapra balcanica*	HD II/IV/V, IUCN LC
R	**1217**	***Testudo hermanni***	**HD II/IV, IUCN VU**
R	1298	*Vipera ursinii*	HD II/IV, IUCN VU
I	**6199**	***Euplagia quadripunctaria***	HD II
I	4039	*Nymphalis vaualbum*	HD II/IV, IUCN LC
I	1065	*Euphydryas aurinia*	HD II, IUCN LC
I	1060	*Lycaena dispar*	II, IV, IUCN LC
I	1083	*Lucanus cervus*	HD II, IUCN NT
I	**1089**	***Morimus funereus***	**HD II, IUCN VU**
I	1084	*Osmoderma eremita*	HD II/IV, IUCN NT
I	1087	*Rosalia alpina*	HD II/IV, IUCN LC
A	1193	*Bombina variegata*	HD II/IV, IUCN LC
B	A217	*Glaucidium passerinum*	BD I, IUCN LC
B	A220	*Strix uralensis*	BD I, IUCN LC
B	A223	*Aegolius funereus*	BD I, IUCN LC
B	A108	*Tetrao urogallus*	BD I, IUCN LC
B	**A091**	***Aquila chrysaetos***	**BD I, IUCN LC**
B	A104	*Bonasa bonasia*	BD I, IUCN LC
B	A215	*Bubo bubo*	BD I, IUCN LC
B	A224	*Caprimulgus europaeus*	BD I, IUCN LC
B	A080	*Circaetus gallicus*	BD I, IUCN LC
B	**A239**	***Dendrocopos leucotos***	BD I, IUCN LC
B	**A236**	***Dryocopus martius***	BD I, IUCN LC
F	1107	*Salmo marmoratus*	HD II, IUCN VU

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
F	1163	***Cottus gobio***	HD II, IUCN LC
B	A078	*Gyps fulvus*	BD I, IUCN LC
B	**A338**	***Lanius collurio***	BD I, IUCN LC
B	A246	*Lullula arborea*	BD I, IUCN LC
B	A255	*Anthus campestris*	BD I, IUCN LC
B	A241	*Picoides tridactylus*	BD I, IUCN LC
B	**A234**	***Picus canus***	BD I, IUCN LC
F	6339	*Salmothymus (Salmo) obtusirostris*	HD II, IUCN VU
F	**6347**	***Squalius svallize***	HD II, IUCN NT
M	1305	*Rhinolophus euryale*	HD II/IV, IUCN VU
M	**1304**	***Rhinolophus ferrumequinum***	**HD II/IV, IUCN LC**
M	**1303**	***Rhinolophus hipposideros***	**HD II/IV, IUCN LC**
M	1310	*Miniopterus schreibersii*	HD II/IV, IUCN VU
M	1316	*Myotis capaccinii*	HD II/IV, IUCN VU
M	1321	*Myotis emarginatus*	HD II/IV, IUCN LC
M	1307	*Myotis blythii*	HD II/IV, IUCN VU
M	1324	*Myotis myotis*	HD II/IV, IUCN LC
P	1902	*Cypripedium calceolus*	HD II, IUCN NT
P	4068	*Adenophora lilifolia*	HD II, IUCN LC
P	4070	*Campanula serrata*	HD II, IUCN LC
P	6244	*Tozzia alpina ssp. carpathica*	HD II, IUCN DD
P	1473	*Aquilegia kitaibelii*	HD II, IUCN DD
P	1604	*Eryngium alpinum*	HD II, IUCN NT

Through field surveys, 14 fauna species were confirmed, with an additional 11 species expected to be present at varying locations of the Project. The Project area is located 3 km away from the proposed Natura 2000 site, through the Zlatar site, which shares its western border with Bjelasnica – Igman – Visocica – Treskavica. Although no direct impacts are expected due to the distance, minor disturbances can be expected to mobile and migratory species that inhabit this site, which will be promptly assessed in Chapter 3.

2.3.3.3 Prenj – Cvrsnica – Cabulja BA8300064

Prenj – Cvrsnica – Cabulja is a proposed Natura 2000 site located in FBiH, covering a total area of 97,097.63 ha. It is characterised by well-preserved alpine ecosystems and intact natural processes. The site is of high value due to its 20 habitat types and 42 Natura 2000 and BD I species. Additionally, the area boasts significant geomorphological and biodiversity richness, with notable

endemism and relic characteristics in its vascular flora and fauna. It is home to steno-endemic communities that are exclusively found here. The canyons of the River Neretva and its tributaries further contribute to the site's uniqueness, serving as tertiary refugia for both flora and fauna. This has led to the mountain complex being commonly referred to as the Prenj Endemic Centre, highlighting its sensitive ecological character. Listed habitat types are presented in Table 5 below. Habitat types confirmed by the surveys within the potential Natura site are bolded. The most represented habitat types within this Natura 2000 site are *6170 Alpine and subalpine calcareous grasslands*, *Eastern sub-Mediterranean dry grasslands* and *Calcareous rocky slopes with chasmophytic vegetation*.

Table 5: Habitats of importance for the proclamation of the potential Natura 2000 site Prenj - Cvrsnica - Cabulja

Habitat code	Habitat type	Conservation status
8310	Caves not open to the public	Type B
62A0	Eastern sub-Mediterranean dry grasslands *(Scorzoneratalia villosae)*	Type B
4060	Alpine and Boreal heaths	Type A
8210	Calcareous rocky slopes with chasmophytic vegetation	Type A
8140	Eastern Mediterranean screes	Type A
4070*	Bushes with *Pinus mugo* and *Rhododendron hirsutum* (*Mugo Rhododendretum hirsuti*)	Type A
6170	Alpine and subalpine calcareous grasslands	Type A
3240	**Alpine rivers and their ligneous vegetation with *Salix elaeagnos***	**Type A**
8120	Calcareous and calcshist screes of the montane to alpine levels *(Thlaspietea rotundifolii)*	Type A
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels)	Type A
91K0	Illyrian *Fagus sylvatica* forests *(Aremonio Fagion)*	Type A
9530*	**(Sub) Mediterranean pine forests with endemic black pines**	**type A**
95A0	**High oro Mediterranean pine forests**	**Type A**
91E0*	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno Padion, Alnionin canae, Salicion albae)*	Type B
4080	Sub Arctic *Salix* spp. scrub	Type A
5130	*Juniperus communis* formations on heaths or calcareous grasslands)	Not estimated
9180*	*Tilio Acerion* forests of slopes, screes and ravines	Not estimated
9140	Medio European subalpine beech woods with *Acer* and *Rumex arifolius*	Type B
9250	*Quercus trojana* woods	Not estimated
91R0	Dinaric dolomite Scots pine forests *(Genisto januensis Pinetum)*	Not estimated

Of these 20 habitat types, three habitat types have been confirmed through field surveys within the EAAA — *9530* (Sub) Mediterranean pine forests with endemic black pines*, a priority habitat found near Ovcari, approx. 8.4 km from the site; *3240 Alpine rivers and their ligneous vegetation with Salix elaeagnos*, found at 277 m from its closest point to the route, north of Bijela; and *95A0 High oro-Mediterranean pine forests,* representing valuable forests of *Pinus heldreichii* present at higher altitudes of Mt. Prenj, with a spatial coverage of 17.30 km^2 in the surveyed area. The map below shows the habitat types registered within the potential Natura 2000 site that are fully or partly within the Project EAAA (Figure 5).

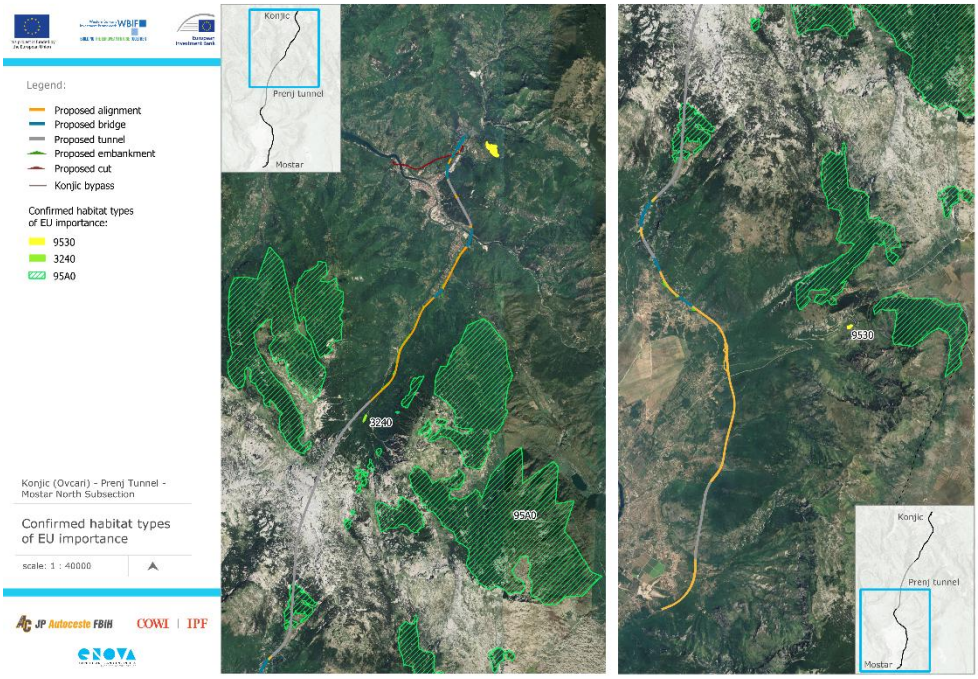

Figure 5: Confirmed habitat types of EU importance in relation to Prenj – Cvrsnica - Cabulja

It is important to emphasise that not all habitats were confirmed during field research. Due to the uncertainty of whether the habitat *3240* will lie underneath the tunnel, and with that the assessment of the magnitude of impacts remains uncertain. The impacts on the *95A0* habitat are greatly minimised by the planned construction of the tunnel which will pass underneath this habitat, conserving the integrity of the habitat fragments closest to the route. This is discussed in more detail in Chapter 3.

The following Table presents the Natura 2000 species recorded during field surveys.

Table 6: Species of importance for Natura 2000 site Prenj-Cvrsnica-Cabulja

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
M	6338	*Dinaromys bogdanovi*	HD II/IV, IUCN VU

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
M	1352	*Canis lupus*	HD II/IV/V, IUCN LC
M	1371	*Rupicapra rupicapra balcanica*	HD II/IV/V, IUCN LC
M	1354	*Ursus arctos*	HD II/IV, IUCN LC
M	1361	*Lynx lynx*	HD II/IV/V, IUCN LC
I	**6199**	***Euplagia quadripunctaria***	**HD II**
I	1065	*Euphydryas aurinia*	HD II, IUCN LC
I	1083	*Lucanus cervus*	HD II, IUCN NT
I	**1089**	***Morimus funereus***	**HD II, IUCN VU**
A	1193	*Bombina variegata*	HD II/IV, IUCN LC
R	**1217**	***Testudo hermanni***	**HD II/IV, IUCN VU**
R	1298	*Vipera ursinii*	HD II/IV, IUCN VU
F	1107	*Salmo marmoratus*	HD II, IUCN VU
F	**1163**	***Cottus gobio***	HD II, IUCN LC
F	1154	*Pomatoschistus canestrinii*	HD II
F	6339	*Salmothymus obtusirostris*	HD II, IUCN VU
F	**6347**	***Squalius svallize***	HD II, IUCN NT
B	A223	*Aegolius funereus*	BD I, IUCN LC
B	A166	*Tringa glareola*	BD I, IUCN LC
B	A108	*Tetrao urogallus*	BD I, IUCN LC
B	A034	*Platalealeu corodia*	BD I, IUCN
B	A241	*Picoides tridactylus*	BD I, IUCN LC
B	A077	*Neophron percnopterus*	BD I, IUCN VU
B	A246	*Lullula arborea*	BD I, IUCN LC
B	**A338**	***Lanius collurio***	**BD I, IUCN LC**
B	A339	*Lanius minor*	BD I, IUCN LC
M	1355	*Lutra lutra*	HD II/IV, IUCN NT
B	A092	*Hieraaetus pennatus*	BD I, IUCN LC
B	A078	*Gyps fulvus*	BD I, IUCN LC
B	A076	*Gypaetus barbatus*	BD I, IUCN NT
B	A109	*Alectoris graeca*	BD I, IUCN NT
B	A255	*Anthus campestris*	BD I, IUCN LC
B	**A091**	***Aquila chrysaetos***	**BD I, IUCN LC**
B	A104	*Bonasa bonasia*	BD I, IUCN LC
B	A215	*Bubo bubo*	BD I, IUCN LC

Group	Species code	Scientific name	Habitats and Birds Directive, IUCN Red List
B	A224	*Caprimulgus europaeus*	BD I, IUCN LC
B	A080	*Circaetus gallicus*	BD I, IUCN LC
B	A084	*Circus pygargus*	BD I, IUCN LC
B	A379	*Emberiza hortulana*	BD I, IUCN LC
B	A101	*Falco biarmicus*	BD I, IUCN EN
B	A103	*Falco peregrinus*	BD I, IUCN LC
P	1419	*Botrychium simplex*	HD II, IUCN EN
P	1473	*Aquilegia kitaibelii*	HD II, IUCN DD
M	1305	*Rhinolophus euryale*	HD II/IV, IUCN VU
M	**1304**	***Rhinolophus ferrumequinum***	**HD II/IV, IUCN LC**
M	**1303**	***Rhinolophus hipposideros***	**HD II/IV, IUCN LC**
M	1307	*Myotis blythii*	HD II/IV, IUCN VU
M	1324	*Myotis myotis*	HD II/IV, IUCN LC
M	1310	*Miniopterus schreibersii*	HD II/IV, IUCN VU
P	4072	*Cerastium dinaricum*	HD II, IUCN VU
P	4101	*Scilla litardierei*	HD II, IUCN NT
P	6184	*Pulsatilla vulgaris* ssp. *grandis*	HD II, IUCN LC
P	4089	*Arabis scopoliana*	HD II, IUCN DD
P	4070	*Campanula serrata*	HD II, IUCN LC
P	1604	*Eryngium alpinum*	HD II, IUCN NT
P	1902	*Cypripedium calceolus*	HD II, IUCN NT
I	1087	*Rosalia alpina*	HD II/IV, IUCN LC
I	1088	*Cerambyx cerdo*	HD II/IV, IUCN NT

Nine fauna species were confirmed within the surveyed area. The relatively low number of registered species of conservation concern can be attributed to the fact that biodiversity features of the highest value—those that trigger conservation actions under the Habitats and Birds Directives and justify the designation of Natura 2000 sites—are predominantly found at higher altitudes on Mt. Prenj. Flora and fauna at elevations above 2,000 m asl are particularly valuable, representing *Qualifying interests* for site conservation. Since the planned motorway will traverse Mt. Prenj via a tunnel, and the above-ground sections are located in areas already subject to anthropogenic pressures, direct impacts on these high-value features will be avoided. Detailed assessment of impacts for each feature will be analysed within Chapter 3.

2.3.3.4 Zlatar BA8200095

Zlatar, a proposed Natura 2000 site and an Emerald site, is located in the Konjic municipality, FBiH, covering a total area of 2,623.36 ha. The Konjic region and its surroundings are predominantly situated on a dolomitic substrate. Flora on this substrate invokes interest for its distinctive characteristics, some of which overlap with the unique flora found on limestone. However, an outstanding characteristic of dolomitic flora includes the occurrence of alpine species at lower altitudes, with a significant prevalence compared to those on limestone. Consequently, Zlatar is characterised by the presence of such plant species, many of which are steno-endemic to this substrate and are of conservation concern. These steno-endemic species, particularly those adapted to mountain environments, are especially sensitive to environmental changes. The area is also characterised by its high habitat diversity, featuring nine distinct habitat types and eleven Natura 2000 species, which form the basis for designating the potential Natura 2000 site Zlatar. Preliminary lists of habitats and species of conservation interest for this site are provided in Tables below, with those confirmed through field surveys bolded.

Table 7: Habitats of importance for the proclamation of the potential Natura 2000 site Zlatar

Habitat code	Habitat type	Conservation status
62A0	**Eastern sub-Mediterranean dry grasslands *(Scorzoneratalia villosae)***	Type A
4030	European dry heaths	Type B
8210	Calcareous rocky slopes with chasmophytic vegetation	Type B
6110	Rupicolous calcareous or basophilic grasslands of the *Alysso-Sedionalbi*	Type B
6210	**Seminatural dry grasslands and scrubland facies on calcareous substrates (*Festuco- Brometalia*)**	Type B
***6220**	**Pseudo-steppe with grasses and annuals of the *Thero-Brachypodietea***	Type B
*91E0	Alluvial forests with *Alnus glutinosa*and *Fraxinus excelsior (AlnoPadion, Alnionincanae, Salicionalbae)*	Type B
***9530**	**(Sub) Mediterranean pine forests with endemic black pines**	Type A
91K0	Illyrian *Fagus sylvatica* forests *(Aremonio-Fagion)*	Not estimated

Of these nine habitat types, four have been confirmed along the route through field surveys — *62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)*, located approx. 20 km from the site through the Mt. Prenj; *6210 Seminatural dry grasslands and scrubland facies on calcareous substrates (Festuco- Brometalia)*, with the nearest fragments situated 300 m from Zlatar, covering an area of 0.83 km²; **6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea*, a priority habitat found near Ovcari, 500 m from Zlatar; and **9530 (Sub) Mediterranean pine forests with endemic black pines*, also a priority habitat, partially overlapping with the Zlatar site (Figure 6). This

may not be the final list of habitats, as some may not have been recorded through field surveys. Considering the proximity of some of these habitats to both the route and the Zlatar site, direct impacts cannot be excluded and therefore will be further discussed in Chapter 3.

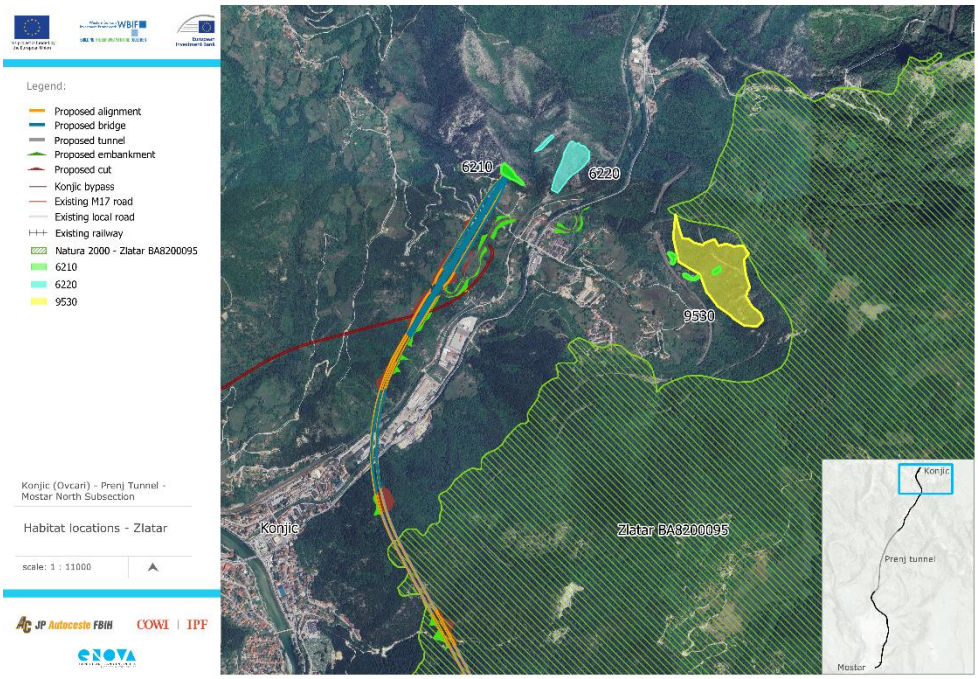

Figure 6: Confirmed habitat types of EU importance in relation to Zlatar

Table 8: Species of importance for potential Natura 2000 site Zlatar

Group	Species code	Scientific name	Habitats and Birds Directives, IUCN Red List
M	1305	*Rhinolophus euryale*	HD II/IV, IUCN VU
I	1092	*Austropotamobius pallipes*	HD II/V, IUCN EN
I	6199	***Euplagia quadripunctaria***	HD II
F	6347	***Squalius svallize***	HD II, IUCN NT
F	6339	*Salmothymus (Salmo) obtusirostris*	HD II, IUCN VU
F	1163	***Cottus gobio***	HD II, IUCN LC
F	1107	*Salmo marmoratus*	HD II, IUCN VU
I	1083	*Lucanus cervus*	HD II, IUCN NT
I	1065	*Euphydryas aurinia*	HD II, IUCN LC
P	1473	*Aquilegia kitaibelii*	HD II, IUCN DD
P	1902	*Cypripedium calceolus*	HD II, IUCN NT

Although three Natura 2000 species were confirmed along the route, their presence was documented well outside the site. Some species were not recorded during field surveys but are possible around Zlatar and Ovcari, as suitable habitats for these species have been identified (e.g., *Rhinolophus euryale* and

Lucanus cervus). This outcome may be attributed to the motorway route passing through the southwestern margins of the site, with the surveyed area primarily focused on the motorway corridor and adjacent marginal habitats. It is likely that species such as *Lucanus cervus* are present in greater numbers deeper within the site. Consequently, the motorway is not expected to directly impact the *Qualifying interests.* However, indirect impacts may arise during the construction phase, including disturbance caused by increased noise, vibration, and light levels, potentially inducing avoidance behaviour.

2.3.4 Description of Emerald Sites

This chapter describes the candidate Emerald sites in the vicinity of the Project based on desktop studies and field surveys. It is important to emphasise that these candidate Emerald sites currently lack any formal legal recognition and are a part of this document due to the possibility of their inclusion in the Natura 2000 network. As no management plans were developed nor implemented for these sites, the assessment will be based on the information gathered through the SDF. The candidate Emerald sites Zlatar BA0000004 and Konjicka bijela BA0000006 are partly within the potential Natura 2000 sites identified during desk study. Since these sites are part of the potential Natura 2000 sites, the lack of data for the candidate Emerald sites is compensated with the information available for the potential Natura 2000 sites and field research carried out by experts. All engaged experts are well acquainted with the area where the project is planned, an assessment of the condition of the populations and an assessment of the impact of the project on the area of direct and indirect impact was done.

An important note regarding the species listed in the Standard Data Forms for candidate Emerald sites and the low number of confirmed species is that the surveyed Emerald sites were first nominated in 2005, and the provided information may now be outdated and unreliable. Additionally, some listed species lack suitable habitats within the site. For example, several wetland bird species are listed despite not inhabiting the area. This discrepancy may be attributed to the extrapolation of data from other sites, reliance on unreliable literature sources, or the absence of detailed field surveys, resulting in inaccuracies.

2.3.4.1 Konjicka Bijela BA0000006

Konjicka Bijela is a candidate Emerald site which encompasses the Bijela River Canyon, covering an area of 3300.00 ha. This area is recognised as a biodiversity hotspot, although research specific to the site remains limited. The canyon is incised into limestone and dolomite formations, resulting in a landscape characterised by steep cliffs, karstic features, and pristine waterways. The area hosts a diverse range of habitats, including riparian zones, rocky outcrops, and forested areas, which collectively support a wide array of species. Notably, these habitats provide refugia for several species that are either endemic or rare within the Dinaric Alps. Furthermore, the site's position within the broader Neretva River basin highlights its ecological significance as a critical component of a regional network of conservation priorities in BiH. According to

the data available within the SDF, this site was declared of conservation interest due to the presence of **34 species** enlisted in Resolution 6 of the Bern convention, encompassed through the following Table 9.

Table 9: Species of importance for candidate Emerald site Konjicka Bijela

Group	Code	Scientific name	Habitats and Birds Directives
B	A229	*Alcedo atthis*	BD I
B	A029	*Ardea purpurea*	BD I
B	A024	*Ardeola ralloides*	BD I
A	1193	*Bombina variegata*	HD II, IV
M	1352	*Canis lupus*	HD II, IV, V
I	1088	*Cerambyx cerdo*	HD II, IV
B	A031	*Ciconia ciconia*	BD I
B	A080	*Circaetus gallicus*	BD I
B	A081	*Circus aeruginosus*	BD I
F	**1163**	***Cottus gobio***	HD II
B	A027	*Egretta alba*	BD I
B	A026	*Egretta garzetta*	BD I
R	1279	*Elaphe quatuorlineata*	HD II, IV
R	1220	*Emys orbicularis*	HD II, IV
I	1065	*Euphydryas aurinia*	HD II
I	1052	*Euphydryas maturna*	x
B	A022	*Ixobrychus minutus*	BD I
I	1083	*Lucanus cervus*	HD II
I	1060	*Lycaena dispar*	HD II, IV
M	1310	*Miniopterus schreibersii*	HD II, IV
I	**1089**	***Morimus funereus***	HD II
M	1316	*Myotis capaccinii*	HD II, IV
M	1324	*Myotis myotis*	HD II, IV
B	A023	*Nycticorax nycticorax*	BD I
I	1084	*Osmoderma eremita*	HD II, IV
M	1306	*Rhinolophus blasii*	HD II, IV
M	1305	*Rhinolophus euryale*	HD II, IV
M	**1304**	***Rhinolophus ferrumequinum***	HD II, IV
M	**1303**	***Rhinolophus hipposideros***	HD II, IV
F	1134	*Rhodeus sericeus amarus*	HD II
I	1087	*Rosalia alpina*	HD II
F	1107	*Salmo marmoratus*	HD II

Group	Code	Scientific name	Habitats and Birds Directives
R	1217	*Testudo hermanni*	HD II, IV
M	1354	*Ursus arctos*	HD II, IV

*Priority species; M-Mammal; F-fish; R-reptile; I-insect; B-bird; A-amphibian, **bold** - confirmed

Field surveys have confirmed the presence of three species of conservation interest along the route and within this Emerald site. However, existing literature indicates that additional species, particularly insect and bat species, as well as some large mammals, are likely to be present within the site. Given that the route passes directly through this area, the possibility of direct impacts on these conservation features cannot be ruled out. Since this Emerald site is included within the Prenj–Cvrsnica–Cabulja Natura 2000 site, the impact assessment for the Natura 2000 site will also address the potential impacts on the conservation features of this Emerald site.

2.3.4.2 Zlatar BA0000004

Zlatar, aside from being a Natura2000 site (described in detail in Chapter 2.3.3.4) is a proposed Emerald site, covering an area of 2368.00 ha. The Emerald and Natura 2000 site have different area coverage and were proposed for conservation based on differing features, with the Emerald site encompassing **31 species** enlisted in Resolution 6 of the Bern convention (Table 10).

Table 10: Species of importance listed for candidate Emerald site Zlatar

Group	Code	Scientific name	Habitats and Birds Directives
B	A229	*Alcedo atthis*	BD I
P	1473	*Aquilegia kitaibelii*	HD II
B	A029	*Ardea purpurea*	BD I
B	A024	*Ardeola ralloides*	BD I
A	1193	*Bombina variegata*	HD II, IV
I	1088	*Cerambyx cerdo*	HD II, IV
B	A031	*Ciconia ciconia*	BD I
B	A080	*Circaetus gallicus*	BD I
B	A081	*Circus aeruginosus*	BD I
F	1163	*Cottus gobio*	HD II
P	1902	*Cypripedium calceolus*	HD II
B	A026	*Egretta garzetta*	BD I
R	1279	*Elaphe quatuorlineata*	HD II, IV
R	1220	*Emys orbicularis*	HD II, IV
I	1065	*Euphydryas aurinia*	HD II
I	1052	*Euphydryas maturna*	HD II
B	A022	*Ixobrychus minutus*	BD I

Group	Code	Scientific name	Habitats and Birds Directives
I	1083	*Lucanus cervus*	HD II
I	1060	*Lycaena dispar*	HD II, IV
M	1310	*Miniopterus schreibersii*	HD II, IV
I	1089	*Morimus funereus*	HD II
M	1316	*Myotis capaccinii*	HD II, IV
M	1324	*Myotis myotis*	HD II, IV
B	A023	*Nycticorax nycticorax*	BD I
I	1084	*Osmoderma eremita*	HD II, IV
M	1306	*Rhinolophus blasii*	HD II, IV
M	1305	*Rhinolophus euryale*	HD II, IV
M	**1304**	***Rhinolophus ferrumequinum***	**HD II, IV**
M	**1303**	***Rhinolophus hipposideros***	**HD II, IV**
R	1217	*Testudo hermanni*	HD II, IV
M	1354	*Ursus arctos*	HD II, IV

*Priority species; M-mammals; P-plants; I-insects; B-bird; A-amphibian; R-reptile, **bold** - confirmed

Similar to Konjicka Bijela, several of the listed species are anticipated to be present at the site, in addition to the horseshoe bat species identified during the field surveys, which can once more be attributed to the marginal distribution of research due to the location of intersection between the site and the motorway. These features are also included in the assessment for the Natura 2000 site Zlatar.

2.3.4.3 Idbar Canyon BA0000003

The Idbar Canyon is a candidate Emerald site, covering an area of 5500.00 ha. This site is poorly explored for its biodiversity features; therefore, the analysis will be based on the information given in the SDF. The site was declared of conservation interest due to the presence of **31 species** enlisted in Resolution 6 of the Bern convention. A list of species of significance is shown in Table 11 below.

Table 11: *Species of importance listed for candidate Emerald site Idbar Canyon*

Group	Code	Scientific name	Habitats and Birds Directives
B	A229	*Alcedo atthis*	BD I
B	**A091**	***Aquila chrysaetos***	BD I
P	1473	*Aquilegia kitaibelii*	HD II
B	A029	*Ardea purpurea*	BD I
B	A024	*Ardeola ralloides*	BD I
M	1352	*Canis lupus*	HD II, IV

Group	Code	Scientific name	Habitats and Birds Directives
I	1088	*Cerambyx cerdo*	HD II, IV
B	A031	*Ciconia ciconia*	BD I
B	A080	*Circaetus gallicus*	BD I
B	A081	*Circus aeruginosus*	BD I
F	1163	*Cottus gobio*	HD II
P	1902	*Cypripedium calceolus*	HD II
B	A026	*Egretta garzetta*	BD I
R	1220	*Emys orbicularis*	HD II, IV
I	1065	*Euphydryas aurinia*	HD II
I	1052	*Euphydryas maturna*	HD II
B	A022	*Ixobrychus minutus*	BD I
I	1083	*Lucanus cervus*	HD II
I	1060	*Lycaena dispar*	HD II, IV
M	1310	*Miniopterus schreibersii*	HD II, IV
I	**1089**	***Morimus funereus***	HD II
M	1316	*Myotis capaccinii*	HD II, IV
M	1324	*Myotis myotis*	HD II, IV
B	A023	*Nycticorax nycticorax*	BD I
I	1084	*Osmoderma eremita*	HD II, IV
M	1306	*Rhinolophus blasii*	HD II, IV
M	1305	*Rhinolophus euryale*	HD II, IV
M	**1304**	***Rhinolophus ferrumequinum***	**HD II, IV**
M	**1303**	***Rhinolophus hipposideros***	**HD II, IV**
R	1217	*Testudo hermanni*	HD II, IV
M	1354	*Ursus arctos*	HD II, IV

Three of the abovementioned species have been confirmed at the Project site. Although the motorway is located 5 km east of this candidate Emerald site, the ecological requirements and daily movements of these species reduce the likelihood of significant impacts on the site's conservation objectives. Horseshoe bats (*Rhinolophus hipposideros* and *Rhinolophus ferrumequinum*) typically forage within a few kilometres of their roost sites, depending on prey availability and the quality of the surrounding habitat. *R. hipposideros* is a species that prefers highly sheltered foraging habitats, such as dense woodland, hedgerows, and riparian zones, and rarely ventures beyond 3–4 km from its roost. Similarly, *R. ferrumequinum* favours mixed landscapes, including open pastures and woodland edges, typically foraging at distances up to 4 km from its roost, but often much less when prey is abundant near roosts. Given that the motorway is located 5 km from the candidate Emerald site in its nearest points, it is beyond the regular foraging ranges of these species, particularly when suitable foraging habitats closer to their roosts are available.

Moreover, the presence of well-connected natural features such as tree lines or riparian corridors is critical for these bats' commuting and foraging. Disturbances caused by the motorway, such as habitat loss or fragmentation, are unlikely to extend significantly into the Emerald site due to the distance involved. *Morimus funereus*, a saproxylic beetle, is strongly associated with mature and decaying wood in forest ecosystems. Its lifecycle depends on the presence of undisturbed wooded habitats with enough deadwood for larvae development. While the species has limited dispersal capabilities compared to birds and bats, its reliance on local forest patches means it is more likely to remain in proximity to areas with abundant deadwood resources, such as Rakov Laz. The motorway's route and its distance from the recorded locality, combined with the forested and rugged terrain of Mt. Prenj, reduce the likelihood of significant disruption to the habitats critical for this species.

Golden Eagles (Aquila chrysaetos), as apex predators, require expansive territories and are known to travel significant distances while hunting. The inactive nest in Klenova Draga is located more than 10 km from the candidate Emerald site and on the opposite side of Mt. Prenj. This geographic barrier limits the likelihood of the pair relying on the Emerald site as a primary hunting or nesting area. Golden Eagles prefer open landscapes, such as montane grasslands, cliffs, and alpine habitats, for foraging. While their foraging ranges can extend up to 100 km², it is improbable that the eagles frequent the Emerald site given the presence of closer, suitable habitats near their known nesting area.

Given the distance from the Idbar Canyon, the ecological requirements of these species, and the physical barriers presented by Mt. Prenj, direct impacts on the conservation efforts within the candidate Emerald site are unlikely. Furthermore, the presence of alternative habitats and the relatively localised effects of the motorway support this conclusion.

2.3.4.4 Gornji tok Neretve BA0000002

Gornji tok Neretve, also referred to as the Upper Neretva, is a candidate Emerald site spanning an area of 21,419 ha. Renowned for its rich ichthyofauna diversity, the site hosts several endemic fish species unique to the region. Beyond its aquatic biodiversity, this area represents one of the most significant and relatively undisturbed natural habitats in BiH, supporting a wide array of flora and fauna.

Although substantial research efforts for the Upper Neretva have gained momentum only in recent years[7,8], preliminary studies conducted in 2005 led to its designation as a site of conservation interest. This recognition was based on

[7] Knook, V., Weiss, S. & Singer, G. (2022). Science Week 2022: Neretva River, Bosnia and Herzegovina. Preliminary Report for RiverWatch and EuroNatur. 42 pp.. 10.13140/RG.2.2.11685.58084.

[8] Borko, S., Singer, G., Eichelmann, U. (Eds). (2023). Science Week 2023, Neretva River, Bosnia and Herzegovina. Preliminary Report for Riverwatch and EuroNatur Foundation. 94 pp

the confirmed presence of 34 species listed under Resolution 6 of the Bern Convention. These species, representing key conservation priorities, are detailed in Table 12 below.

Table 12: Species of importance listed for candidate Emerald site Gornji tok Neretve

Group	Code	Scientific name	Habitats and Birds Directive
B	A229	*Alcedo atthis*	BD I
B	**A091**	***Aquila chrysaetos***	BD I
P	1473	*Aquilegia kitaibelii*	HD II
B	A029	*Ardea purpurea*	BD I
B	A024	*Ardeola ralloides*	BD I
A	1193	*Bombina variegata*	HD II, IV
M	1352	*Canis lupus*	HD II, IV
I	1088	*Cerambyx cerdo*	HD II, IV
B	A031	*Ciconia ciconia*	BD I
B	A080	*Circaetus gallicus*	BD I
B	A081	*Circus aeruginosus*	BD I
F	1163	*Cottus gobio*	HD II
P	1902	*Cypripedium calceolus*	HD II
B	A026	*Egretta garzetta*	BD I
R	1220	*Emys orbicularis*	HD II, IV
P	1604	*Eryngium alpinum*	HD II
I	1065	*Euphydryas aurinia*	HD II
I	1052	*Euphydryas maturna*	HD II
B	A022	*Ixobrychus minutus*	BD I
I	1083	*Lucanus cervus*	HD II
I	1060	*Lycaena dispar*	HD II, IV
I	**1089**	***Morimus funereus***	HD II
M	1316	*Myotis capaccinii*	HD II, IV
M	1321	*Myotis emarginatus*	HD II, IV
M	1324	*Myotis myotis*	HD II, IV
B	A023	*Nycticorax nycticorax*	BD I
I	1084	*Osmoderma eremita*	HD II, IV
M	1306	*Rhinolophus blasii*	HD II, IV
M	1305	*Rhinolophus euryale*	HD II, IV
M	**1304**	***Rhinolophus ferrumequinum***	**HD II, IV**
M	**1303**	***Rhinolophus hipposideros***	**HD II, IV**
F	1134	*Rhodeus sericeus amarus*	HD II
I	1087	*Rosalia alpina*	HD II, IV

Group	Code	Scientific name	Habitats and Birds Directive
F	1107	*Salmo marmoratus*	HD II
R	1217	*Testudo hermanni*	HD II, IV
M	1354	*Ursus arctos*	HD II, IV

Three of the abovementioned species have been confirmed at the Project site. The Golden Eagle nest in Klenova Draga is approximately 13 km from Gornji tok Neretve, while the nearest point of the motorway route to the candidate Emerald site lies 4.6 km away. Considering the distances involved, the ecological requirements of these species, and the geographical barriers in the area, significant direct impacts on conservation efforts for these species within the candidate Emerald site are unlikely.
However,

2.3.4.5 Rakitnica River Canyon BA0000001

Rakitnica River Canyon is a candidate Emerald site, covering an area of 2000.00 ha. The vegetation of the mountains that make up this canyon is diverse due to the influence of both different climatic zones (continental and sub-Mediterranean climatic influences) and the influence of contact with the mountain edge of the Herzegovinian floral endemic centre (Prenj – Cvrsnica – Cabulja). This area represents among the most diverse areas in Europe and the whole Mediterranean. The area is characterised as a biodiversity hotspot, featuring nesting grounds for rich bird populations, including jackdaws, eagles, hawks, falcons and the deaf grouse. The Rakitnica canyon and surrounding forests host large mammals such as brown bears, grey wolves, wild cats, roe deer, and chamois, alongside smaller species like foxes, martens, squirrels, and badgers. Notably, the area supports all three venomous viper species found in the Balkans (*Vipera ammodytes, V. berus,* and *V. ursinii*). These features, coupled with opportunities for eco-tourism and research, underscore the region's ecological significance.

The site was declared of conservation interest due to the presence of **33 species** enlisted in Resolution 6 of the Bern convention. A list of species of significance is shown in Table 13 below.

Table 13: Species of importance listed for candidate Emerald site Rakitnica River Canyon

Group	Code	Scientific name	Habitats and Birds Directive
B	A229	*Alcedo atthis*	BD I
P	1473	*Aquilegia kitaibelii*	HD II
B	A029	*Ardea purpurea*	BD I
B	A024	*Ardeola ralloides*	BD I
A	1193	*Bombina variegata*	HD II, IV
M	1352	*Canis lupus*	HD II, IV

Group	Code	Scientific name	Habitats and Birds Directive
I	1088	*Cerambyx cerdo*	HD II, IV
B	A031	*Ciconia ciconia*	BD I
B	A080	*Circaetus gallicus*	BD I
B	A081	*Circus aeruginosus*	BD I
F	1163	*Cottus gobio*	HD II
P	1902	*Cypripedium calceolus*	HD II
B	A027	*Egretta alba*	BD I
B	A026	*Egretta garzetta*	BD I
R	1220	*Emys orbicularis*	HD II, IV
I	1052	*Euphydryas maturna*	HD II
B	A022	*Ixobrychus minutus*	BD I
I	1083	*Lucanus cervus*	HD II
I	1060	*Lycaena dispar*	HD II, IV
M	1310	*Miniopterus schreibersii*	HD II, IV
I	**1089**	***Morimus funereus***	**HD II**
M	1316	*Myotis capaccinii*	HD II, IV
M	1324	*Myotis myotis*	HD II, IV
B	A023	*Nycticorax nycticorax*	BD I
I	1084	*Osmoderma eremita*	HD II, IV
M	1306	*Rhinolophus blasii*	HD II, IV
M	1305	*Rhinolophus euryale*	HD II, IV
M	**1304**	***Rhinolophus ferrumequinum***	**HD II, IV**
F	1134	*Rhodeus sericeus amarus*	HD II
I	1087	*Rosalia alpina*	HD II, IV
F	1107	*Salmo marmoratus*	HD II
R	1217	*Testudo hermanni*	HD II, IV
A	1167	*Triturus carnifex*	HD II, IV
M	1354	*Ursus arctos*	HD II, IV

Two of the abovementioned species were confirmed during field surveys along the motorway route. However, the nearest point of the motorway route is 8.7 km from the Rakitnica River Canyon. As with the two previously assessed candidate Emerald sites, considering this distance, as well as the habitat preferences and ecological requirements of the species, significant direct impacts on their conservation efforts within the candidate Emerald site are unlikely.

2.4 Identified Natura Habitats

Since all of the potential Natura 2000 sites have a large area and the project passes with bridges and roads only through a small part of the area in relation

to the entire proposed area, a large number of habitats important for the sites were not identified during field research.

Features of Interest and Conservation Objectives of the Natura 2000 sites

The Features of Interest and Conservation Objectives (established based on explained methodology) of the four proposed Natura 2000 sites are given in Table 3 below. This information was obtained from the FMOET[9] database on desginating potential Natura 2000 sites in BiH provided on their website[10].

Table 14: Features of interest for potential Natura 2000 sites within 15 km of the Project

Natura 2000 sites	Distance from site	Qualifying features	Comment
Prenj – Cvrsnica – Cabulja **Site code BA8300064**	0 km*	20 habitat types were recorded in the proposal for nomination of the potential Natura 2000 sites, of which three were highlighted as being of special importance due to their classification as habitat types that can occur in both non-priority and priority forms: Habitat type (Annex I Habitat types): 9530 – (Sub-) Mediterranean pine forests with endemic black pines 91E0 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnionincanae, Salicionalbae);* 9180 - *Tilio-Acerion* forests of slopes, screes and ravines. 42 species of importance have been recorded in the site according to desk survey. The main quality and importance of this site are well preserved alpine ecosystems with natural processes in place. The most represented Natura 2000 habitat types in site are Alpine and subalpine calcareous grasslands, Eastern sub-mediteranean dry grasslands, Calcareous rocky slopes with chasmophytic vegetation. A full list of species and habitats can be found in the chapter "Description of the Natura 2000 Sites"	This area is proposed as type C (type of site) - both SPA (Special Protection Area) and SCI (Site of Community Importance). Prenj – Cvrsnica - Cabulja is not legally adopted as a Natura 2000 site. No procedure for the adoption of proposed Natura 2000 sites has been carried out.
Zlatar **Site code BA8200095**	0 km*	Nine habitat types were identified through desk study, two of which were highlighted as being of special importance due to their classification as habitat types that can occur in both non-priority and priority forms:	This area is proposed as type B (type of site) – SCI. Zlatar is not legally adopted as

[9]Federal Ministry of Environment and Tourism
[10]https://www.fmoit.gov.ba/bs/okolis/zastita-prirode/ekoloska-mreza-natura-2000

Natura 2000 sites	Distance from site	Qualifying features	Comment
		Habitat type (Annex I Habitat types): 91E0 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae);* 9530 - (Sub-)Mediterranean pine forests with endemic black pines The quality and importance of the site is connected to the well-preserved dolomitic vegetation. The most important Natura 2000 habitat types in site are Dinaric dolomite Scots pine forests, Calcareous rocky slopes with chasmophytic vegetation, Rupicolous calcareous or basophilic grasslands, Pseudo-steppe with grasses and annuals. 11 Natura 2000 species have been recorded at this site. A full list of species and habitats can be found in the chapter "Description of the Natura 2000 Sites"	a Natura 2000 site. No procedure for the adoption of proposed Natura 2000 sites has been carried out.
Velez **Site code BA8200088**	1 km	Seven habitat types were recorded according to desk study, of which one habitat was highlighted as being of special importance due to its classification as a priority habitat: Habitat type (Annex I Habitat types): *8240 - Limestone pavements The quality and importance of the site is connected to the unique karstic formations which support a mosaic of microhabitats. These microhabitats are vital for a range of not only flora species, but fauna as well, including those with highly specialised ecological niches. 18 Natura 2000 species have been recorded at this site. A full list of species and habitats can be found in the chapter "Description of the Natura 2000 Sites"	This area is proposed as type B (type of site) – SCI. Velez is not legally adopted as a Natura 2000 site. No procedure for the adoption of proposed Natura 2000 sites has been carried out.
Bjelasnica – Igman – Visocica – Treskavica **Site code BA8300005**	3 km	27 habitat types were recorded according to desk study, five of which were highlighted as being of special importance due to their classification either as priority habitats or those which occur in both non-priority and priority forms: Habitat type (Annex I Habitat types): *8160 - Medio-European calcareous scree of hill and montane levels	This area is proposed as type C (type of site) - both SPA and SCI. Bjelasnica – Igman – Visocica – Treskavica is not legally adopted as a Natura 2000 site. No

Natura 2000 sites	Distance from site	Qualifying features	Comment
		*4070 - Bushes with Pinus mugo and Rhododendron hirsutum (Mugo-Rhododendretum hirsuti) *6230 - Species-rich *Nardus* grasslands, on silicious substrates in mountain areas (and submountain areas in Continental Europe) *9530 - (Sub-) Mediterranean pine forests with endemic black pines *91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) The quality and importance of the site is connected to its preservation of developed mountain ecosystems of the Dinaric alps. Natura 2000 habitats of the greatest conservation importance for this site include 6170 Alpine and subalpine calcareous grasslands, 8210 Calcareous rocky slopes with chasmophytic vegetation, 95A0 High oro-Mediterranean pine forests and 91K0 Illyrian Fagus sylvatica forests (*Aremonio-Fagion*). 51 Natura 2000 species have been recorded at this site. A full list of species and habitats can be found in the chapter "Description of the Natura 2000 Sites"	procedure for the adoption of proposed Natura 2000 sites has been carried out.

* Corridor Vc passes directly through the proposed Natura 2000 and Emerald site

Features of Interest and Conservation Objectives of the candidate Emerald sites

Table 15: Features of interest and Conservation objectives for candidate Emerald sites within a 15 km reach of the Project.

Emerald sites	Distance from site	Qualifying features	Comment
Zlatar **Site code BA0000004**	0 km *	32 species of interest were described for this candidate site. Only species were recorded as the value of the area, no specific habitat types were	This area is proposed as type C. No further information was provided by the official website[11].For candidate Emerald sites for BiH there are no listed conservation objectives aside from listed species that are

[11] https://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=BA0000004&release=3

Emerald sites	Distance from site	Qualifying features	Comment
		recorded. Since Zlatar is also a potential Natura 2000 site, Table 3 lists the habitats of importance.	provided in this table. Only species of interest are listed as values for their conservation. No other information is available.
Konjicka bijela** **Site code BA0000006**	0 km	34 species of interest were described for this candidate site. Only species were recorded as the value of the area, no specific habitat types were recorded. Since Konjicka Bijela is part of the potential Natura 2000 site Prenj-Cvrsnica-Cabulja, Table 1 lists the parts of the habitats of importance.	This area is proposed as type C. No further information was provided by the official website[12]. Candidate Emerald sites for BiH have no listed conservation objectives aside from listed species that are provided in this table. Only species of interest are listed as values for their conservation.
Idbar Canyon **Site code BA0000003**	5 km	31 species of interest were described for this candidate site. Only species were recorded as the value of the area, no specific habitat types were recorded. There is no list of habitats of importance provided for this site.	This area is proposed as type C. No further information was provided by the official website[13]. Candidate Emerald sites for BiH have no listed conservation objectives aside from listed species that are provided in this table. Only species of interest are listed as values for their conservation.
Gornji tok Neretve **Site code BA0000002**	4.6 km	34 species of interest were described for this candidate site. Only species were recorded as the value of the area, no specific habitat types were recorded. There is no list of habitats of importance provided for this site.	This area is proposed as type A. No further information was provided by the official website[14]. Candidate Emerald sites for BiH have no listed conservation objectives aside from listed species that are provided in this table. Only species of interest are listed as values for their conservation.
Rakitnica River Canyon **Site code BA0000001**	8.7 km	33 species of interest were described for this candidate site. Only species were recorded as the value of the area, no specific habitat types were recorded. There is no list of habitats of importance provided for this site.	This area is proposed as type B. No further information was provided by the official website[15]. Candidate Emerald sites for BiH have no listed conservation objectives aside from listed species that are provided in this table. Only species of interest are listed as values for their conservation.

* Corridor Vc passes directly through the potential Natura 2000 and candidate Emerald site

** A large part of this area is included within the Natura 2000 proposed network Prenj - Cvrsnica - Cabulja

[12] https://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=BA0000006&release=3#1

[13] https://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=BA0000003&release=3#1

[14] https://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=BA0000002&release=3#1

[15] https://natura2000.eea.europa.eu/Emerald/SDF.aspx?site=BA0000001&release=3#1

3 Assessment of Potential Impacts

3.1 Methodology

The impact assessment was conducted using the methodology outlined in the ESIA.

As shown in The following Table presents the Natura 2000 species recorded during field surveys.

Table 6The following Table presents the Natura 2000 species recorded during field surveys.
Table 6, several Annex I habitats and Annex II and IV species may be adversely affected by environmental changes or deterioration resulting from the proposed project. To evaluate potential effects on candidate Emerald sites or potential Natura 2000 sites, the assessment examines whether a pathway exists connecting the Project's activities to these receptors.

The Project involves the development of the main motorway, including bridges, tunnels, access roads, and the Konjic Bypass. Details of the route, as well as the specific locations and lengths of bridges and tunnels, are provided in the ESIA.

Certain project components, particularly the construction of bridges and tunnels, may lead to both direct and indirect impacts on potential Natura 2000 sites. These impacts could include land-take within site boundaries, changes to hydrology or water quality, and other potential environmental effects.

3.2 Direct Impacts

This section of the AA focuses on identifying locations with direct spatial overlap, where direct impacts on potential Natura 2000 sites are likely. The nature and significance of these impacts vary depending on the specific site and the proposed development.

Potential impacts as a result of the implementation of this Project are the following:

- Altered abiotic/site factors (e.g., through soil removal, compaction or erosion, water from planned activities).
- Habitat fragmentation and habitat loss.
- Disturbance of species causing fleeing and avoidant behaviour.
- Fatality and injury of fauna, intentional picking and collecting of plant specimens.
- Potential road mortality (collision risks for certain species groups).

A total of 9,653.42 ha which may be indirectly affected during the construction phase and/or project operation phase have been assessed through the research of habitat status prior to the start of project activities.

The total surveyed area that might be under (in)direct impact located within potential Natura 2000 sites is approx. 3,335 ha and in candidate Emerald sites 2,368 ha. A large majority of this area will not be directly impacted due to the planned construction of tunnels, which by themselves largely mitigate major habitat loss. However, for the purpose of taking precautionary measures, the wider area has been included in the assessment to acquire a better understanding of potential impacts.

Direct impacts are expected where the motorway route intersects Natura 2000 sites, and along with them, the corresponding Emerald sites. For the Zlatar Natura 2000 site, this means 4.41 ha (1.54 ha short road segment between Tunnel T1 and Tunnel T2, 2.87 ha Ovcari disposal site) will be directly impacted, and as for the site Prenj-Cvrsnica-Cabulja 31.55 ha (road layout including embankments; access roads; disposal will be created on the motorway footprint and the inert waste generated by construction of access roads to Prenj Tunnel and Prenj Tunnel itself will be used by Contractor for embankments, avoiding the need for additional disposal sites). As the Emerald sites have somewhat different area coverage, for Zlatar, the area expected to be under direct impact is 14.74 ha (1.54 ha – short road segment between Tunnels T1 and T2, 1 ha - after southern portal of the Tunnel T2, and 12.2 ha – disposal site Ovcari), and for the candidate Emerald site Konjicka Bijela approx. 36 ha will be under direct impact (31.3 ha by the construction of the road, approx. 4.7 ha by widening of existing roads for the purpose of using them as access roads).

The parts where tunnels pass through the proposed Natura 2000 sites and candidate Emerald sites, direct impact on the integrity of habitats is not expected. However, some indirect impacts may arise (further discussed in Chapter 3.3).

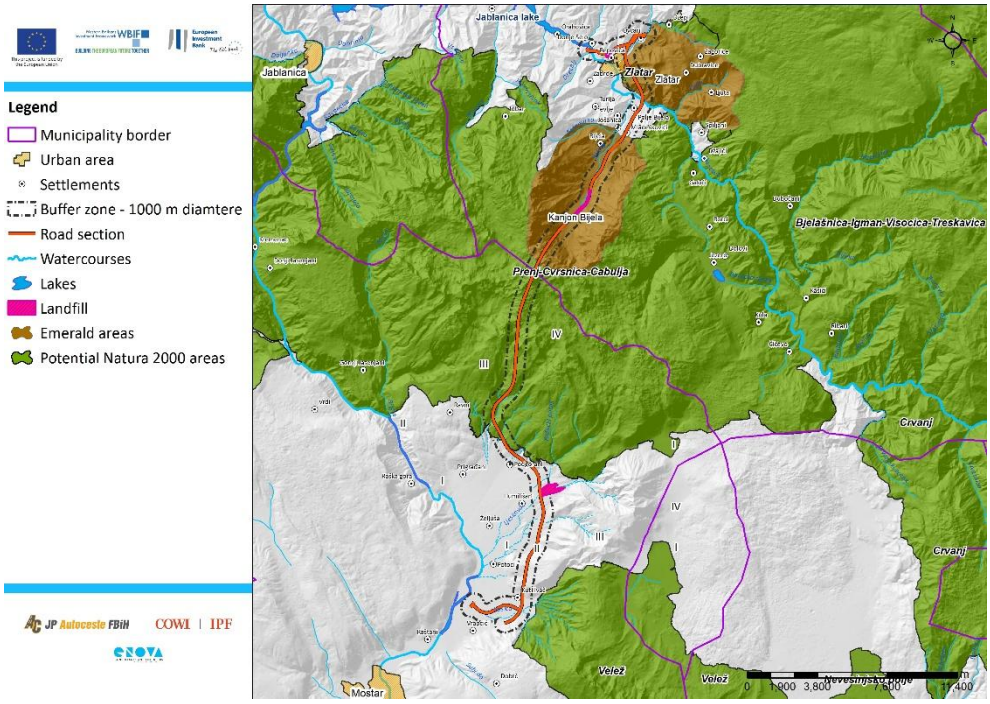

Figure 7: Position of areas of concern in relation to the motorway route and inert waste disposal sites

Although the olm (*Proteus anguinus*) was not identified as potentially present during the desktop survey and does not represent a known trigger species for any of the proposed Natura 2000 areas and candidate Emerald sites, an eDNA analysis was conducted to determine its potential presence in the aquifers beneath the Prenj and Orlov Kuk tunnels[16]. The results of the report confirmed that all samples tested negative for the presence of species' eDNA. Therefore, the presence of *Proteus anguinus* in the caverns of Prenj Mountain is unlikely to occur and potential impacts can be excluded.

At the intersection with the motorway route, relocation and unhindered implementation of the existing road network below or above the motorway route is planned. A total of five local road deviations and two regional roads were designed. Local road 1 – the first planned local road passes through and interacts with a current local road in the settlement Polje Bijela located in the Prenj-Cvrsnica-Cabulja potential Natura 2000 site. The width of local and regional roads is adjusted to the width of existing roads and ranges from 3.5 to 6.6 m. Since the construction of local roads overlaps with the already existing access road sand local roads of the settlement, it is not anticipated that there will be a significant impact from these planned project activities. However, widening might be needed on several access road sections and that was calculated under direct impact. Another potential impact with some likelihood of

[16] Aljancic, G. (2025). *Report on the detection of the environmental DNA of Proteus anguinus in aquifers under the Prenj and Orlov Kuk tunnels* (Annex I: Stankovic, D., & Strah, S. (2025). *Detection of Proteus anguinus using eDNA analysis on three water samples from Bosnia and Herzegovina – Technical Report*). Tular Cave Laboratory.

significant effect is wastewater produced either from construction of roads or from tunnels and bridges. The water from the road is accepted in a controlled way, with a concrete gutter of 0.75 along the green belt and 0.50 m along the stop lane, it is conducted to the drain, and then to the collector which is located in the dividing belt or sidewalk. The water from the collector is piped to the oily water purifier and then discharged into the recipient. Surface water from the surrounding terrain is led by peripheral trapezoidal or segmental concrete ditches to prefabricated reinforced concrete culverts and passes through the motorway hull. Leachate from the placenta is collected through drainage pipes and conducted to the outlet into the recipient, most often the manhole culvert.

3.3 Indirect Impacts

Details of the potential Natura 2000 sites where it is considered that there is a likelihood of indirect impacts occurring as a result of the proposals of the planned activities of the project Konjic – Mostar North Corridor Vc are presented in this chapter. Indirect impacts have been determined by examination of a number of factors including the spatial distance of the potential Natura 2000 site from the proposal; the sensitivity of the qualifying features of the site to various perturbations and the physical requirements of the site, particularly in terms of hydrology and water quality, and the potential for disturbance to fauna, which are amongst the most frequent pathways by which indirect impacts occur. Some examples of the consequences of typical indirect impacts are as follows:

- Altered species or habitat composition due to increased edge effects (a consequence of habitat fragmentation, for example) – Proposed indirect impact poses a risk for identified fauna, but combination with mitigation measures reduce the likelihood of a significant impact. This type of effect can occur mostly with invertebrate species where opening of forest habitats and large areas of marginal parts favour species tied to the forest edge.
- Reduced breeding success (e.g., due to disturbance, habitat loss, fragmentation, pollution) possibly resulting in reduced population viability.
- Air quality and climate change and impacts from greenhouse gas emissions reduction/increase – air quality is discussed in ESIA it is identified as an indirect impact but there is no likelihood of significant effect. Pollution in form of waste material either from chemicals or other objects already present near the route and in the radius of 500 m, show that the area was already under high anthropogenic influence (in Konjicka Bijela there is Igman- Konjic shooting range; Konjicka Bijela is a candidate Emerald site as well as part of the potential Natura 2000 site Prenj-Cvrsnica-Cabulja).
- Runoff of pollutants during construction and operational phase of development resulting in impacts to surface water and groundwater and the species they support. The Authority does not foresee any indirect impacts arising out of the Integrated Implementation Plan which are of significance.

3.4 Likelihood of Significant Effects

From the analysis of effects on all Natura 2000 and Emerald sites in addition to an examination of likely changes as a consequence of the proposed project, it was concluded that there is no conceivable likelihood that the proposed project will impact upon the integrity of the potential Natura 2000 sites (Prenj – Cvrsnica – Cabulja and Zlatar) and candidate Emerald sites (Zlatar and Konjicka bijela) through which the motorway route passes. There will be no cumulative effects with the construction of auxiliary roads, tunnels, viaducts and other supporting infrastructure needed to complete the project. Therefore, there is no likelihood of significant effects on the integrity of potential Natura 2000 and candidate Emerald sites, effects listed in this document. However, it can be concluded that the impacts with a potential of a slight and controlled (through mitigation measures) significant effect may occur. Direct impact on motorway footprint is unavoidable. Such impacts will be discussed in document Appropriate assessment stage 2.

3.5 Screening Conclusion

The potential effects on the Annex II species and Annex I habitats and their conservation statuses as a consequence of the proposed project were examined in order to determine if, based on the uncertainty, likelihood or certainty of significant effects, the assessment of this proposed project should proceed to a full Appropriate Assessment.

Screening has concluded that impacts are possible and due to precautionary measures, appropriate assessment will move on to stage 2: appropriate assessment. This decision was based on potential for loss, reduction or fragmentation of Annex I habitat area, potential disturbance, loss or fragmentation or reduction of Annex II species density and / or their habitats from noise, emissions and excavation works which are elements of the proposed project.

The possible impacts that might arise from the draft plan have been examined in the context of a number of factors that could potentially affect the integrity of the Natura 2000 sites. All of the sites of interest identified in the zone of direct impact will be taken forward to Stage 2 Appropriate Assessment as the potential impact cannot be excluded in the screening stage.

3.5.1 Overview of Impacts

An overview of a full assessment for all direct and indirect potential impacts the implementation of this Project may have on individual biodiversity features, with regards to their distribution and ecology, is provided in the following Table 16 below.

Table 16: Overview of direct and indirect impacts for Natura 2000 and Emerald sites

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
1.	**Prenj – Cvrsnica – Cabulja** **Site code BA8300064**	*Euplagia quadripunctaria*	The Jersey Tiger is a diurnal moth widely distributed throughout Europe from Estonia and Latvia in the north to the Mediterranean coast and islands in the south, also found in western Russia, the southern Urals, Asia Minor, Rhodes and nearby islands, the Near East, Caucasus, southern Turkmenistan, and Iran. Its EOO is larger than 20 000 km^2 and is found in multiple localities throughout BiH. However, exact population size of this species within BiH remains unknown, as well as its population trends. Within the Project site, this species was recorded at Humilisani and Polje Bijela. The larvae of this species are polyphagous, with diet preferences towards the plant families Boraginaceae, Lithospermum and species of nettle. Their characteristic habitats include clear, alternating wet and dry or general dry forests with flower-rich transition zones (thistles, *Origanum vulgare*, *Eupatorium cannabinum*) and of bushy, rocky slopes bordering deciduous forest (heat-loving species). The larvae reach maturity in May or early June. Main threats to this species include the loss of suitable habitat, as with most butterfly species, considering the clearance of vegetation (through dense afforestation, levelling, housing developments) which represent the hosts for their	The exact localities where *Euplagia quadripunctaria* was recorded are not directly affected by the implementation of this project, therefore no adverse effects are expected for these populations. However, analogous habitats may be present within the area where the motorway intersects the Natura 2000 site. Habitat loss or vegetation clearance in these habitats could directly impact the distribution of *E. quadripunctaria* by reducing the availability of essential resources — host plants and flowering plants for adult feeding. Additionally, habitat fragmentation may limit the species' movement between suitable areas, potentially isolating populations and compromising their long-term viability. Key habitats critical for the species include sunny, open grasslands and meadows, scrubland and woodland edges, river valleys, riparian zones, and rocky or marginal habitats with herbaceous vegetation. These habitats provide nectar sources for adults, larval host plants such as nettles (*Urtica spp.*), and essential microhabitats that support the species' life cycle. Sunny grasslands and meadows are vital for foraging and breeding, while woodland edges and transitional zones offer a balance of shade and sunlight, maintaining ecological stability. Riparian zones and river valleys enhance habitat

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			dietary and reproductive needs significantly impacts their populations. This is a sedentary species, with daily migrations limited to a couple hundred m, rarely exceeding 1 km.	connectivity and ensure microclimatic conditions suitable for both adults and larvae. Lastly, rocky outcrops and marginal habitats contribute to habitat heterogeneity, enabling the species to thrive across diverse landscapes. Along the route, this species is most likely to be encountered within Thermophile woodland fringes and Mediterranean montane grassland. Part of these habitats are located where the tunnel through Mt. Prenj is planned. Habitat fragmentation may occur as the motorway and its fencing present a physical barrier, isolating populations, reducing genetic diversity and limiting access to critical resources like food and breeding sites. Altered microclimatic conditions from vegetation clearance and infrastructure could disrupt the species' specific habitat needs, affecting larval development and adult foraging. Pollution, such as dust and runoff, could degrade plant quality, reducing nectar availability and damaging larval host plants. The introduction of invasive plant species could further degrade habitats by outcompeting native plants crucial for the species' diet. While direct impacts are minimal, these indirect effects could significantly reduce the moth's habitat quality and overall viability, highlighting the need for mitigation measures to preserve habitat connectivity, control invasive species, and minimise pollution.
		Morimus funereus	This saproxylic beetle is commonly found in the deciduous woodlands of the region. It occurs in Greece, North Macedonia, Albania, Belgium, Croatia, Slovenia, the Czech Republic, Germany, Hungary, Italy, Moldova, Romania, Bulgaria, Serbia, Montenegro, Slovakia, Ukraine, Türkiye,	As this species is very reliant on forest habitats, specifically dependent on the presence of mature woodland and deadwood, potential direct impacts of habitat loss may occur during vegetation clearance and tree felling. The species' limited capacity for migration makes it particularly

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			and BiH. Although it is similar to *Rosalia alpina*, some morphological characteristics distinguish the two species. Its extent of occurrence (EOO) exceeds 20,000 km², and it is present in multiple localities across BiH. However, the exact population size of this species within BiH remains unknown, as do its population trends. Within the Project site, this species was recorded in the deciduous forests of Rakov Laz, on the slopes of Mt. Prenj. The larval development of this species is closely associated with old and deadwood, which serves as a food source. The adults feed on plant extracts and are active from March to October. The primary threat to this woodboring beetle species is the removal of old and dead trees from forests, eliminating the food source for the larvae. Due to its limited ability to migrate and disperse, the species is highly sensitive to any changes in its habitat.	vulnerable to habitat loss and fragmentation. Even small-scale habitat disruptions, such as the localised clearance along the motorway route, could isolate individuals or groups, limiting their ability to find suitable resources or mates. This is a localised impact that will affect the habitats nearest to the route, however, vast woodland habitats are present throughout the site, as well as around the Project area. This impact has the potential to adversely affect the populations of this species, however, is not an impact that cannot be easily mitigated (provisioned within the BMP). Indirect impacts to *Morimus funereus* could arise from habitat fragmentation and changes to its food sources, as well as light pollution, given the species' nocturnal behaviour. Loss of old and deadwood, which serve as food sources for larvae, could further degrade its environment. Vegetation clearance, invasive species, and changes in forest structure reduce suitable habitats for the beetle. While direct impacts may be minimal, these indirect effects, especially fragmentation of habitat, pose a risk to the species.
		Bombina variegata	This species is distributed over much of central and Southern Europe. It can be found in coniferous, deciduous and mixed forests, bushlands and meadows, floodplains and grasslands, pastures and Mediterranean maquis. At low elevations this species lives in deciduous forests, at higher altitudes it is more often found in coniferous forests and highland glades. The species uses many types of wetlands, including lakes, ponds, swamps, rivers, stream pools, springs (including mineral and thermal springs), puddles, reservoirs, gravel pits, drinking trough,	The species was registered along the unnamed stream near Repovica (Konjic bypass road), outside this proposed Natura 2000 site. Considering this species seldom undertakes migrations greater than 1.5 km, direct and indirect impacts on the conservation objectives and population status within the Prenj – Cvrsnica – Cabulja site are not expected. Fragmented and small habitats, suitable for amphibians found in the area of Repovica (Konjic bypass), Mladeskovici, Klenova draga, Zelenika

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			concrete tanks, ditches and even water filled wheel ruts. The breeding habitats are typically unshaded temporary pools within, or close to, woodland. The species can tolerate slight water pollution.	and Bosnjaci (motorway) must not be disturbed by heavy machinery during construction.
		Testudo hermanni	Hermann's tortoise is a species of tortoise native to Europe. This species is divided into two subspecies, of which the eastern Hermann's tortoise inhabits the Balkan coast and is autochthonous to Herzegovina. The subspecies of the eastern Hermann's tortoise, *T. hermanni hercegoviniensis* is a local form that is not yet geographically or in other ways reproductively isolated from *T. h. peloponnesica* and each derive from relict populations of the last ice age. This species can be found throughout southern Europe. The western population (*T. h. hermanni*) is found in eastern Spain, southern France, the Balearic Islands, Corsica, Sardinia, Sicily, southern and central Italy (Tuscany). The eastern population (*T. h. boettgeri*) is found in Serbia, Kosovo, North Macedonia, Romania, Bulgaria, Albania, Turkey and Greece, while *T. h. hercegovinensis* populates the coasts of BiH, Croatia and Montenegro. This species is common and widespread in Herzegovina. Although this species was recorded at a range of localities (Klenova Draga, Dolac, Bosnjaci, Humilisani, Kutilivac), the Project area is considered unlikely to support regionally important populations of the species. It prefers open patchy evergreen Mediterranean oak forest, but in its absence inhabits maquis, garrigue, dune scrub and maritime grassland, as well as agricultural and railway edge habitats, thus showing the adaptability to various range of habitats. The species is endemic to southern	The species was recorded at multiple sites, however only one site — Klenova Draga, is located within this Natura 2000 site. The locality is within the zone of potential direct impact due to habitat alteration, noise, vibration, and potential mortality during construction activities, including access road creation. The adaptability of the species to various habitats suggests some resilience to disturbance. However, the species relies on loose soil for burrowing and abundant herbaceous plants for foraging, which may be disturbed or lost during construction through vegetation clearance and compaction of soil. Therefore, habitat loss and alteration at this site is expected. Direct mortality could occur during vegetation clearance, excavation, or road use, as individuals may be crushed or displaced. However, due to the adaptability of the species and the absence of evidence for a regionally important population, the magnitude of impact on the species at a population level, as well as the conservation objectives throughout the site is expected to be low. Indirect impacts are primarily linked to habitat modification, fragmentation, and the introduction of environmental disturbances. This species relies on open, patchy habitats with loose soil, partial shading, and abundant herbaceous plants for burrowing, thermoregulation, and foraging. While the project area is unlikely to support regionally significant populations, indirect impacts could

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			Europe. Some habitat requirements for this species include the presence of loose soil for burrowing, partial shading and an abundance of herbaceous plants important for dietary habits (dandelion, chicory and plantains). The main threats to this species include ongoing habitat modification and destruction, international pet trade, and over-collecting.	nonetheless degrade local habitat quality and connectivity. Noise and vibration from construction activities and ongoing traffic could disrupt the tortoise's natural behaviours, mainly associated with hibernation periods. Slow movement of this species makes it highly susceptible to increased mortality from construction activities and motorway operation. Juveniles and hatchlings are at higher risk due to their smaller size and greater susceptibility to injury.
		Cottus gobio	The European bullhead is a freshwater fish that is widely distributed in Europe, mainly in rivers. It is a small demersal fish that lives both in cold, clear, fast-flowing small streams and in middle-sized rivers. The bullhead breeds in the spring, and primarily feeds on benthic life forms. Its distribution is limited by temperature regime and lower oxygen levels, making it primarily inhabit cold, clear and fast-flowing water of small stream to medium-sized rivers as well as on gravel or rocky shores of cold lakes. It is sensitive to pollution and is usually found in areas with good water quality, particularly in the Neretva River basin and the upper reaches of the Una, Sana, and Drina rivers. The species has been recorded as present in multiple localities: Bijela; upstream from Konjic; Tresanica and Drezanka.	The species *Cottus gobio* has been recorded at several locations along the Neretva River and its tributaries, including sites potentially impacted by the motorway construction. Although none of these sites are within the Natura 2000 Prenj-Cvrsnica-Cabulja boundaries, they fall within the Neretva River basin and may lie within the 500 m area of influence of the motorway route. This species relies heavily on cold, clear, fast-flowing water with high oxygen levels and good water quality. Disturbances to these habitats could significantly harm the species. Impact on the species is expected to occur predominantly as a result of regulation of River Bijela.
		Squalius svallize	The Neretva chub is an endemic freshwater species distributed across Neretva, Trebisnjica and Ljuta drainages (Croatia and Bosnia Herzegovina). It is not under national legal protection in BiH.	The species has been recorded at several sites, including the mouth of Grabovka, Drezanka, and the Neretva downstream of Salakovac. While none of these locations lie within the Prenj-Cvrsnica-Cabulja Natura 2000 site, one site is

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			The species occurs in streams with swift water, lakes in karstic areas and enters subterranean waters. Adults inhabit water bodies on the low plains, with little current, where they feed on invertebrates. It spawns from April to June. The species was found in multiple localities: Mouth of Grabovka; Drezanka; Neretva — downstream of Salakovac.	situated approximately 4 km from its boundary and 2 km from planned access roads for the motorway construction. Given the 500 m area of influence for the motorway route, these sites are outside the immediate impact zone. While these direct impacts are unlikely due to the distance, indirect impacts are possible due to the hydrological connectivity of the Neretva River basin. These impacts could include sedimentation, habitat degradation, and changes in water flow, which may affect the species' local populations.
		Lanius collurio	The Red-Backed Shrike breeds in both temperate and Mediterranean climates, preferring sunny, warm, and typically dry areas with level or gently sloping terrain. It favours landscapes with scattered bushes, shrubs, or low trees that provide hunting perches, overlooking areas of short grass, heath, or bare soil. It typically nests in dense, often thorny bushes like hawthorn (*Crataegus*), blackthorn (*Prunus spinosa*), bramble (*Rubus*), or dogrose (*Rosa*). An opportunistic feeder, the Red-Backed Shrike primarily consumes insects and other invertebrates, but also small mammals, birds, amphibians, and reptiles. It is migratory, spending the winter in eastern and southern Africa. The species was recorded at multiple localities along the site, specifically Ovcari, Polje Bijela, Konjicka Bijela, Rakov Laz, Zelenika, Bosnjaci. It is a numerous and widely distributed species throughout BiH. The size of the population in BiH is estimated at 25,000-50,000 nesting pairs, and its population is stable. The species is widespread in BiH and neighbouring countries.	Along the Konjic–Tunnel Prenj–Mostar motorway route, the species was recorded at multiple sites, including Rakov Laz, located within the Natura 2000 site Prenj-Cvrsnica-Cabulja, and Konjicka Bijela, approximately 200 m from the Natura 2000 site boundary. As these localities fall within the motorway's 500 m area of influence, direct impacts are likely. However, engaged expert stated that the project will not disrupt *Lanius collurio* habitats outside the designated buffer zone. The removal of shrubs and bushes during construction could reduce nesting opportunities, particularly in thorny plants like hawthorn, blackthorn, and bramble. Changes in vegetation structure may also alter prey availability, as insects and other invertebrates thrive in the species' preferred mosaic habitats. Dust deposition could degrade the quality of vegetation and reduce the abundance of prey species. Disturbances such as increased noise and vibrations may induce stress, causing avoidance

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				behaviour and nest abandonment for this species. Collision risk for this species is generally considered low compared to larger or less agile birds, as the species is small, highly manoeuvrable, and typically avoids high-speed movement near roadways.
		Aquila chrysaetos	Golden eagle is the most widespread species of eagle in the world. It inhabits a large part of the Northern Hemisphere. It prefers flat or rocky, mostly open terrain. Golden eagles are mainly a sedentary species, with daily migrations ranging from 20 to 30 km from nesting ground, and they maintain some of the largest known home ranges (or territories) of any bird species but there is much variation of home range size across the range, possibly dictated by food abundance and habitat preference (it can range from 20 to 200 km^2). Threats to this species include poisons, disturbance and activities near the nest, as well as changes in habitat quality, and excessive hunting. In BiH, the breeding population is estimated at 50-80 breeding pairs, mainly associated with the hilly and mountainous, rocky areas of the country, while it is completely absent from the flatland habitats in the north of BiH. In the area of Klenova Draga, an abandoned nest of a Golden Eagle has been registered, while one bird was spotted flying above Klenova Draga in 2022.	Due to the proximity of the recorded nest at Klenova Draga, which lies within the Natura 2000 site Prenj-Cvrsnica-Cabulja, during the construction phase, direct impacts cannot be excluded. Golden Eagles are highly sensitive to disturbance, particularly during the nesting period. While the nest at Klenova Draga is currently inactive, it is considered a reserve nest that could potentially be used in the future. The construction activities, particularly near the southern portal of the tunnel, could cause significant disturbance to the eagles' territory. If construction activities occur during the nesting period, it is possible that the disturbance could lead to abandonment of the nest, resulting in the loss of offspring. After the completion of the motorway, the negative impacts are expected to be minimised, although any long-term disturbance from traffic or other anthropogenic factors could still affect the species' territory, particularly if the route crosses critical foraging areas. Therefore, while the direct impacts during construction are expected to be significant, they can be minimised with careful planning and mitigation measures.
		Rhinolophus ferrumequinum	The Great Horseshoe bat, the largest European horseshoe bat, characterised by a complex nose structure resembling a horseshoe which contributes towards its highly specialised	The motorway's area of influence extends 500 m from the route, covering areas where *Rhinolophus ferrumequinum* has been recorded, particularly at Podporim and Konjicka Bijela. Both

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			echolocation system, can be found in temperate Mediterranean habitats (e.g. hardwood and riparian forests, pastures) though it is present in some select central European areas. During summer, it roosts in warm attics of buildings and underground sites, while in winter the colonies tend to gather in large caves, tunnels and mines. The flight is slow and usually at low heights (although they can fly up to 6 m) and they tend to hunt near shrubby and arboreal vegetation or near the ground in meadows. Typically, it feeds within a radius of about 5 km from its roost. It is a rather sedentary species and the distance between its roosts ranges from 20-50 km. In BiH, this is a widespread species, however, no estimate of their population size has been performed. Along the motorway route, this species has been recorded at Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari, Podporim, where its roosts lie on house roofs or other warm locations.	construction and increased traffic could disturb the species' roosting and foraging activities. If roosts are located near the route, these activities could directly impact the species by causing habitat loss, disturbance, or displacement. Additionally, heightened human presence and potential light pollution near roosts could disrupt the bats' natural behaviours. Since the species is particularly sensitive to these disturbances, especially during breeding and roosting periods, it's crucial to limit construction activities in dusk. The Great Horseshoe Bat has a slow, low flight pattern, often flying close to the ground or near vegetated areas like meadows, shrubs, or low trees. This makes the species vulnerable to collisions during the operational phase of the motorway, particularly if the route passes near known foraging and roosting sites.
		Rhinolophus hipposideros	The Lesser Horseshoe Bat is the smallest European horseshoe bat. Widely distributed across Europe, it inhabits warmer regions with woodlands, riparian forests, and pastures. Roost selection varies by season: in summer, it prefers large rock crevices and building attics, while in winter, caves, tunnels, and mines provide shelter. Lesser Horseshoe Bats are agile fliers, moving in a whirling pattern close to the ground, typically at heights of up to 5 m. Like other Rhinolophidae, they are largely sedentary, with an average distance between roosts ranging from 5 to 50 km. In BiH, this species is widespread, but population size estimates are unavailable. Along the	Direct impacts could result from construction and operational activities. These impacts may include habitat loss, disturbance, and displacement from roosts and foraging areas. If roosts or key foraging habitats are located within the 500 m influence zone, construction could lead to habitat fragmentation or loss, especially if the foraging areas are disturbed by traffic, noise, or light pollution. Given the species' low flight patterns and agility, especially when foraging near the ground or in low vegetation, there is a risk of vehicle collisions. It is particularly important to minimise disturbance during the breeding season (summer), as the bats are more sensitive to human activity during this time.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			motorway route, this species has been recorded at Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari, where their roosts lie most commonly in abandoned buildings and roofs of houses, with no presence of moisture.	
		Rhinolophus euryale	This is mostly a circum-Mediterranean species showing a patchy distribution. This species is highly dependent on natural underground shelters throughout the year, using artificial shelters only in a few locations in the northern part of its distribution area. It is considered a sedentary species, although it undergoes seasonal movements of 50-100 km between summer and winter roosts. Its presence is linked to limestone areas with caves serving as shelters. It can be found up to 1,360 m above sea level, mainly in Mediterranean climate valleys with deciduous forests, riparian forests, and scrublands, as well as olive groves and tree plantations. It is rarely found in coniferous forests and usually avoids open areas. It typically hunts in wooded habitats, usually within a range of 4-10 km from its refuge. Its flight is very agile and manoeuvrable, capable of hunting in almost impenetrable shrubby areas. This species was not confirmed during the field survey on this section of the motorway; however, it is expected in Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari and Zlatar.	As the species tends to fly between 4 to 10 km during the foraging, it can be expected in this Natura 2000 site and could be affected during construction and operation phase. These impacts may include habitat loss, disturbance, and displacement from roosts and foraging areas. Given the species' low flight patterns and agility, especially when foraging near the ground or in low vegetation, there is a risk of vehicle collisions.
		Myotis emarginatus	*Myotis emarginatus* is a Mediterranean bat species that occurs, in Europe, from Portugal eastwards to western Ukraine and the western shores of the Black Sea.	This species was not confirmed during the field survey but taking in consideration literature review it is expected to be found on Prenj Mountain. As the species tends to cross up to 12 km during the foraging (usually less), it can be expected in broader range of this Natura 2000

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			Summer roosts in the southern part of its distribution are often associated with caves, although there are also breeding colonies in abandoned buildings such as farmhouses. Isolated individuals may use various shelters, including rock crevices and tree holes. It is essentially a sedentary species, with a distance between breeding and hibernation roosts of about 40 km. It is generally found in forested environments and habitats with low vegetation such as shrublands where climatic conditions are favourable. It can be found from sea level up to 1,800 m. Hunting areas include deciduous forests, open horticultural areas, parks, and naturalised gardens. Foraging bats cover straight distances up to 12 km from their nursery to feeding sites, but shorter distances are generally flown.	site and could be affected during construction and operation phase. These impacts may include habitat loss, disturbance, and displacement from roosts and foraging areas.
		Miniopterus schreibersii	This bat has a wide distribution and is well distributed in Europe, especially in Mediterranean-influenced areas. Throughout the year it roosts in large caves and mines. This species carries out seasonal migrations from their breeding roosts to winter roosts, using caves as waypoints along the way. On average, distances travelled are around 40-100 km. The habitat of this species covers the entire range of Mediterranean environments, including open spaces, forests, or urban areas, but always linked to limestone areas with cave presence. The altitude limit is around 1,400 m above sea level. This species may have to travel considerable distances to feed, typically about 15-20 km from the roost, with maximum recorded distances of 40 km.	This species was not confirmed during the field survey on this section of the motorway, however it is expected to forage in Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari and Zlatar. If roosts are located near the route, these activities could directly impact the species by causing habitat loss, disturbance, or displacement. Foraging areas within the 500-m influence zone are also at risk due to noise, light, and vibration from construction and traffic. Since the species is particularly sensitive to these disturbances, especially during breeding and roosting periods, it's crucial to limit construction activities near known roost sites, especially in the summer when the bats are most active.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				The species often tends to forage around streetlight which makes the species vulnerable to collisions during the operational phase of the motorway, particularly if the route passes near known foraging and roosting sites.
		Canis lupus	The Grey Wolf is a widely distributed top predator that has historically been distributed over almost the whole of Eurasia and North America. In Europe, the most abundant population is preserved in Eastern and Southern Europe. The global wild wolf population was estimated to be 300,000 in 2003 and is considered to be of Least Concern by the International Union for Conservation of Nature (IUCN). It can be found between sea level and 3,000 m. Wolves generally live in forests, inland wetlands, shrublands, grasslands, pastures, deserts, and rocky peaks on mountains. Habitat use by wolves depends on the abundance of prey, snow conditions, livestock densities, road densities, human presence and topography. This species is found in more than 10 localities in BiH, there is no data on the size of the population in BiH; as well as data on the dynamics of wolf populations, widespread in the Dinaric Alps in BiH and inhabits high forests. Regarding the Project area this species was not found but it is expected to inhabit Mt. Prenj.	The wolf in the area of influence of the motorway section does not have the habitats necessary for breeding and feeding. The wolf habitats that will be under indirect pressure are the areas of the Prenj Mountain. Such impacts are reflected in temporary changes in the behavior of local populations due to noise and the presence of people. Impact such as habitat fragmentation should be low, as this species is expected to occur mostly on plateau of Mt. Prenj that will be preserved, as the area of motorway is already under fragmentation of habitats due to the local roads, settlements and other infrastructure that due to traffic noise of urban and semi-urban areas does not sustain large mammals such as Gray Wolf.
		Ursus arctos	Dinara-Pindos subpopulation which is the second largest population in Central and Southern Europe consists of Brown Bears in the forested areas extending from the Dinara range in Slovenia in the north through Pindos Mountains in Greece in the south. The countries involved are Slovenia, Croatia, BiH, Serbia, Kosovo, Montenegro, FYR Macedonia, Albania, and Greece. Last data has	Habitats on this route do not support the needs of this species for breeding and feeding and the possibility of permanent residence of these species is low. Therefore, Brown Bear habitat will not be influenced in the area of the motorway section and will be only under indirect pressure that considers areas of Prenj Mountain.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			estimated number of bear population to be 438 individuals on the area of about 12.000 km^2 in BiH. Especially important habitat for Dinaro-Pindos subpopulation are mountains with mixed forests of black pine (*Pinus nigra* ssp) and oak (*Quercus* sp) as well as pastures, depending on slope and elevation.	Such impacts are reflected in temporary changes in the behavior of local populations due to noise and the presence of people as the construction of access roads and enabling easier access to the area of the Mt. Prenj, which will increase the number of tourists, hunters and investments in the construction of facilities.
		Rupicapra rupicapra balcanica	The Balkan chamois inhabits rugged, mountainous terrain, often in areas with steep cliffs, rocky slopes, and alpine meadows. These habitats provide refuge from predators and ideal foraging conditions, and as such is expected to be present at Mt. Prenj. It thrives in habitats with sparse vegetation, such as subalpine and alpine meadows, as well as forested zones near the tree line, especially during the winter months when food is scarce at higher elevations. However, they are known to migrate seasonally, using higher altitudes during summer for grazing and descending to lower altitudes during winter to escape harsh weather conditions. This species was not recorded during the biodiversity surveys. The Project area would not be considered as its typical primary habitat, but it could occur transiently during seasonal migrations or in response to specific environmental conditions, such as heavy snow forcing it to lower altitudes. Occasional presence is plausible as the area around the Project along Konjicka Bijela and the Mt. Prenj slopes provide dense forest cover.	Presence of this species was not confirmed during the field survey, however based on the hunting association survey it is expected in hunting area of Bijelo Polje, Podgorani and Humilisani. The chamois, which are known for their sensitivity to disturbance, could avoid areas with heavy traffic.
		Dinaromys bogdanovi	The Balkan Snow Vole is endemic to Croatia, BiH, Serbia (Kosovo), Montenegro, North Macedonia and Albania. It occurs from sea level to 2,200 m but is typically found over 1,500 m and rarely much lower. It is the only living representative of	As this species tends to inhabit isolated, inaccessible areas over 1,500 m, that are subject to little human disturbance, no direct impact is expected. Minor indirect impact can be present

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			its genus, and its range was shrinking throughout prehistorical times. Estimated extent of occurrence is 111,387 km^2. As it is restricted to karst limestone habitats, this species has a naturally discontinuous distribution, and subpopulations are always small and isolated.	only if noise and soil tremor from construction reaches these elevations which is highly unlikely.
		Lynx lynx	The Dinaric population is distributed from central-southern Slovenia through central Croatia (Gorski Kotar and Lika) up to western Bosnia. Throughout Europe and Siberia, the Eurasian Lynx is primarily associated with forested areas which have good ungulate populations, and which provide enough cover for hunting.	Presence of this species was not confirmed during the field survey, but there are some literature data and indications from hunting society on presence of this species on Mt. Prenj. Habitats on route of the motorway do not support the needs of this species for breeding and feeding and the possibility of permanent residence of these species is low. Therefore, this species' habitat will not be influenced in the area of the motorway section and might only be under indirect pressure.
		Lutra lutra	The Eurasian otter has the widest distribution of all otter species. Its range covers parts of Europe, Asia and Africa. It is known from a wide variety of aquatic habitats, including highland and lowland lakes, rivers, streams, marshes, swamp forests and coastal areas. It is very adaptable, using saltwater as well as freshwater habitats, and even sewerage systems in urban areas. In most parts of its range otter distribution is correlated with presence of riverbank vegetation. Otters in different regions may depend upon different features of the habitat, but the important component of otter habitat, for breeding purposes, is the presence of	This species was not confirmed during field survey, however its scat was recorded in 2022[17] and it can be concluded that the otter may occur in near proximity of this Natura 2000 site. While the proximity of these localities to the motorway route poses a potential threat to the species, the impacts are unlikely to directly compromise the conservation objectives of the Natura 2000 site. However, they could have some adverse effects on local populations of *Lutra lutra*. Disturbances to these habitats such as pollution, sedimentation, or changes in hydrology could harm the species. Construction activities,

[17] https://bankwatch.org/wp-content/uploads/2024/07/Comments-on-ESIA-package-Prenj-for-written-submission-to-the-EBRD-and-EIB-30-June-2024.pdf

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			holes in the riverbank, including cavities among tree roots, piles of rock, wood or debris.	including earthworks, clearing, and machinery use, can introduce sediments and pollutants into nearby streams, degrading water quality and disrupting the habitat. Additionally, habitat disturbance along stream banks, such as vegetation removal may reduce the availability of foraging sites. An indirect impact on this species may result from the regulation of the Bijela and Suhi Potok streams. This regulation is expected to primarily affect ichthyofauna, leading to a potential loss of prey for the Eurasian otter.
		Lucanus cervus	This species is widespread across most of Europe. This is an obligate saproxylic species. The larvae develop in moist decaying wood near or below the soil surface, including decaying old stumps, but also in the base of fence posts; always decay from white-rot fungi; and generally in light soils. In Central Europe larvae mostly live in wood of oak, sometimes other broad-leaved trees.	This species is expected in the area of Ovcari, Zlatar, southern slopes of Prenj mountain, despite the fact that it was not found during the field survey. The construction of the motorway, particularly the cutting down of old trees and the installation of infrastructure such as street lamps, poses several threats to species like *Lucanus cervus*, which depend on preserved forest areas, especially old beech and oak trees. The removal of these trees directly impacts the availability of habitats for these species, as they rely on dead and decaying wood for reproduction and development. To minimise these impacts, targeted mitigation will be necessary but no significant population-level impacts are anticipated.
		Cerambyx cerdo	*Cerambyx cerdo*, widely distributed in Southern and Central Europe, is generally associated with oak forests where there are mature or partially dead and sun-exposed trees. The larvae develop in large old oak trees where they grow in	The species was not found during field survey, but according to it's habitat preferences it is expected in the area of Ovcari, Zlatar, southern slopes of Prenj mountain. As it shares habitat preference and bihevioral pattern as *Lucanus cervus*, all threats and

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			sheltered but sunny situations, such as hedgerows and in open farmed countryside.	mitigation measures, already given above can be ascribed to this species.
		Euphydryas aurinia	This is a species of South and Central Europe. The Marsh Fritillary occurs in very different types of habitat, like moist, sheltered grasslands, along the edges of raised bogs and on dry, calcareous grasslands. Habitats of this species include humid grasslands and tall herb communities (26%), mesophile grasslands (21%), dry calcareous grasslands and steppes (9%), broad-leaved deciduous forests (7%), heath and scrub (5%), alpine and subalpine grasslands (5%).	These species was not recorded during the field survey, however due to the presence of suitable habitat it might be present in the valley of Konjicka Bijela, which enters buffer zone of this Natura 2000 site. Impact such as habitat fragmentation can be ascribed from assessed impacts for *Lucanus cervus* as they share similar habitat. However, anticipated project activities are unlikely to significantly impact the long-term survival of this species.
		Euphydryas maturna	This is a typical species of open woodlands and coppice, mostly threatened by changes in woodland management or the felling or destruction of the forests.	
		Osmoderma eremita	This species is restricted to developing in veteran trees, so any activities which destroy these trees (e.g. cutting down avenues) is strongly detrimental to the species.	
		Rosalia alpina	This species is distributed from Cantabrian Mountains east to Caucasus. The Rosalia longicorn habitats must meet a series of suitable conditions such as low-density forests or at the edge of the forest, avoiding shaded microhabitats; wood pastures (with isolated trees), sun and rain exposed trees; pastureland with very old trees and dead branches. The continuity of the deadwood recruitment is essential for dispersal.	
		Nymphalis vaualbum	It occurs in the lowlands of Eastern Europe, in deciduous or mixed woods. It prefers damp woods, and is found in clearings or at the wood edge. It is a mobile butterfly and a strong	This species was not recorded during the field survey, however due to the presence of suitable habitat it is expected in the valley of Konjicka

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			migrant. Because of its migratory behaviour, it is difficult to ascertain whether populations are permanent or temporary.	Bijela, which enters buffer zone of this Natura 2000 site. Anticipated project activities are unlikely to significantly impact the long-term survival of this species.
		Lycaena dispar	*Lycaena dispar* is a wetland species in decline throughout Europe. The species prefers undisturbed grasslands along the riverbanks and stream banks.	This species was not recorded during the field survey, however due to the presence of suitable habitat it might occur in the valley of Konjicka Bijela, which enters buffer zone of this Natura 2000 site. Anticipated project activities are unlikely to significantly impact the long-term survival of this species.
		Austropotamobius pallipes	*Austropotamobius pallipes* has a wide distribution throughout Europe. This is a freshwater species which can be found under submerged cobbles, rocks, logs, tree roots, and amongst fallen leaves in permanent water bodies such as canals, streams, rivers, lakes, reservoirs and water-filled quarries.	Species not confirmed during surveys.
		3240 Alpine rivers and their ligneous vegetation with Salix elaeagnos	The habitat encompasses communities developed on various types of alluvial deposits along fast-flowing rivers and streams, forming specific shrub formations with species such as *Salix eleagnos*, *Salix purpurea* ssp. *gracilis*, *Salix daphnoides*, *Salix nigricans*, and *Hippophae rhamnoides*. Such habitats are most commonly found in slightly widened or broad gorges around watercourses, occasionally just wide enough to allow transported material to accumulate along the banks. However, in canyons, this habitat type rarely develops. Plant communities that develop around fast-flowing watercourses have not been previously	Although it can be assumed that no significant construction activities are planned in this area, it is essential to preserve this habitat, and access roads or the movement of machinery should be strictly prohibited. This habitat may be indirectly impacted by the construction phase of this Project by altering hydrology and sediment dynamics, leading to reduced substrate stability and changes in vegetation structure. Increased sediment runoff and pollutants from construction could degrade water quality, smother vegetation, and facilitate the spread of invasive species. Dust deposition, oil and de-icing agents may further disrupt ecological processes, affecting native plant

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			studied in BiH, resulting in limited literature and a skewed understanding of their distribution in the country. The most notable stands are developed along the upper course of the Neretva River and its tributaries, as well as the upper reaches of the Vrbas, Bosna, and Drina Rivers. However, this habitat type rarely develops along larger rivers, slower-flowing rivers, and within canyon systems. Along the route, this habitat was identified at 277 m from its closest point to the route, north of Bijela. The spatial coverage of this habitat type is approx. 0.59 km^2 in the surveyed area.	communities and associated fauna. This habitat type may be impacted by material and wastewater runoff during the drilling of the tunnel passing through Mt Prenj. However, as at this point it is uncertain at which point the drilling of the tunnel will take place, the magnitude of these impacts is difficult to estimate.
		95A0 High oro-Mediterranean pine forests	High oro-Mediterranean pine forests (relict forests of Bosnian pine (*Pinus heldreichii* ssp. *leucodermis*) range between 1400 and 1800 m a.s.l., form a subalpine vegetation belt characteristic of a unique type of relict zonation. These forests have an open structure due to their growth in extreme habitats, including limestone rock formations, steep slopes with cliffs and screes, as well as narrow ridges and crests. Bosnian pine communities can also extend into the montane belt, descending to 1,200 m a.s.l. In these cases, they exhibit an edaphic character, occupying dolomitic and morainic rendzinas. In BiH, this habitat can be found at seven locations: Prenj, Cvrsnica (the westernmost population), Hranisava (the northernmost population), Rujiste, Konjic Igman, Orjen, and Vran Mountain. Along the motorway, these forests are present at higher altitudes of Mt. Prenj, with a spatial coverage of 17.30 km^2 in the surveyed area.	This habitat type is found at higher altitudes on Mt. Prenj. As such, the tunnel planned to be built through this site will pass underneath these habitats, avoiding adverse impacts.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
2.	**Zlatar (Natura 2000 and Emerald)** **Site code BA8200095** **Site code BA0000004**	*Euplagia quadripunctaria*	Refer to species description under 1.	Species were recorded well outside the pSCI. Direct impacts cannot be expected.
		Squalius svallize	Refer to species description under 1.	
		Cottus gobio	Refer to species description under 1.	No impact anticipated within the site.
		6210 Seminatural dry grasslands and scrubland facies on calcareous substrates (Festuco- Brometalia)	This habitat type encompasses a wide range of meadow communities, generally classified within the *Festuco-Brometea* class (Br.-Bl. et Tüxen 1943). These communities are typically rich in orchids and are prone to shrub colonisation. Significant orchid habitats are characterised by the presence of a large number of orchid species, substantial populations of at least one rare or endangered orchid species, and numerous rare or very rare orchid species. If a specific habitat is rich in orchids, it may be classified as a priority type (*). These habitats find their optimum on steeper slopes, southern exposures, and well-drained soils in the hilly and montane zones of BiH. The geological substrate of the communities of this order consists of limestones, dolomites, dolomitised limestones, silicates, etc., while the soils are predominantly calcomelanosols, calcocambisols, luvisols, etc., with pH values ranging between 6.5 and 7.5. This habitat type has been identified at Konjic, with the nearest fragments located 300 m from Zlatar, covering an area of approx. 0.83 km^2.	Direct impacts on the integrity of this habitat type within the Zlatar site are unlikely, as the habitat is located approximately 300 m away at its closest point. However, indirect impacts are to be taken into account. Dust deposition from construction activities can smother vegetation, affecting the delicate plant communities, particularly orchids, and inhibiting photosynthesis. Additionally, altered hydrology and soil compaction could disrupt the natural water drainage, causing changes in vegetation composition and potential soil erosion. Habitat fragmentation from the motorway may hinder species migration and connectivity, particularly for rare or endangered orchids. Although natural revegetation is possible, it may be slow, especially if the impacts of dust and fragmentation disrupt plant recruitment and soil conditions, particularly for orchid species which depend on symbiotic relationships with soil microbiomes. These impacts will be most apparent within 25 m from the motorway, gradually subsiding with increasing distance, usually up to 200 m.
		**6220 Pseudo-steppe with grasses and annuals of the Thero-Brachypodietea*	The habitat consists of rocky pasture communities of grasses and annual plants that develop on shallow soils within the Mediterranean vegetation belt. These habitats arise as the final regressive stage of evergreen holm oak (*Quercus ilex*) or cork oak (*Quercus suber*) forests, typically due to	Direct impacts on the integrity of this habitat type within the Zlatar site are unlikely, as the habitat is located approximately 500 m away at its closest point.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			forest burning, maquis clearing, or soil erosion following complete deforestation. These pseudo-steppes are primarily composed of low-growing hemicryptophytes and therophytes, with an emphasis on species from the Gramineae (Poaceae) and Leguminosae (Fabaceae) families. In BiH, this habitat is represented by the alliance *Cymbopogo-Brachypodion ramosi* Horvatić 1958. In the Project area, this habitat type was found near Ovcari, 500 m from Zlatar.	
		**9530 (Sub) Mediterranean pine forests with endemic black pines*	Black pine forests on dolomite grow on steep slopes with dolomite rendzinas. They are mostly monodominant, open coniferous forests composed of species that are ecologically adapted to the high magnesium content in the soil solution (dolomitophytes). These forests occur in two variants: Dinaric and Herzegovinian. The **Herzegovinian variant** has a smaller range, occurring at altitudes between 300–1,000 m. In this variant, the dominant species is the Dalmatian subspecies of black pine, accompanied by a significant presence of Mediterranean floristic elements. A large fragment of this habitat type is located under 100 m from Zlatar, near Ovcari.	This habitat type is located approx. 900 m from the route, and under 100 m from the Zlatar site. While the route's distance minimises the risk of direct habitat loss, indirect impacts on the habitat's integrity and Zlatar's conservation objectives remain a concern. Functional fragmentation could still occur if species' movement corridors are indirectly affected.
3.	**Velez** **Site code BA8200088**	*62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)*	The Eastern sub-Mediterranean dry grasslands (*Scorzoneratalia villosae* Horvatic 1975) consist of communities that represent the final degradation stage of climazonal forest vegetation. They are characterised by dry grassland habitats exposed to the Mediterranean climate, typically facing south. These habitats form floristically rich communities of tufted, often low-growing plant species, grasses, as well as endemic and endangered taxa.	The nearest fragments of this habitat are located at Kutilivac, approximately 700 m to 1.5 km from the Natura 2000 site boundary. This distance substantially reduces the likelihood of direct impacts on the site.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
		Canis lupus	Refer to species description under 1.	Please see under 5.
		Ursus arctos		
		Rupicapra rupicapra balcanica		
		Euphydryas aurinia		Along the motorway route, this species is expected to occur at Konjicka Bijela. Due to the distance of this Natura 2000 site from the motorway route, and the limited dispersal ability, as well as the fact this species usually does not undertake daily migrations larger than a couple hundred m, impacts on this species at Velez due to the implementation of this Project are unlikely.
		Elaphe quatuorlineata	The four-lined snake is found across Italy, the western Balkan Peninsula, the western half of Greece and many Greek islands, Macedonia, the southwestern corner of Bulgaria, coastal Slovenia, coastal Croatia, BiH, Montenegro, North Macedonia, and Albania. Preferring Mediterranean climates, the species is commonly found in habitats with vegetation, stone walls, sparse woodlands, forest margins, and abandoned buildings, as well as warm, shady, and humid areas, particularly wetlands and locations near puddles and streams.	The species was recorded at Klenova Draga, approximately 10 km from the Velez Natura 2000 site. This distance suggests that the species is unlikely to move between the motorway route and the Natura 2000 site frequently or at all, given the species' limited dispersal abilities and home range size. Habitat fragmentation or disturbance caused by the motorway construction is unlikely to affect individuals residing within the Natura 2000 site, as their habitats are not directly connected. There is no evidence to suggest that the species has a population or critical habitat directly within the motorway's area of influence that overlaps with the Natura 2000 site.
		Rhinolophus ferrumequinum	Refer to species description under 1.	The species has been recorded at several sites near the motorway route: Podporim (5 km), Humilisani (3 km), and Kutilivac (1.3 km). While Podporim is farther, Humilisani and Kutilivac fall within the motorway’s 500 m AoI, meaning any roosts there could be vulnerable to construction-

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				related disturbances. However, disturbances are to anticipated to extend into the designated site.
		Rhinolophus hipposideros	Refer to species description under 1.	Given their foraging habits, which involve gleaning prey from vegetation or the ground within a wider radius from their roosts, the motorway could disrupt feeding activities, especially in areas where the species forage near the ground or along the road edges. However, significant affects on the species and the designated site are not anticipated.
		Rhinolophus euryale	Refer to species description under 1.	
		Myotis myotis	The greater mouse-eared bat is found throughout Eurasia and part of northern Africa. This species primarily inhabits caves and buildings such as churches and castles. They also dwell in relatively open, lightly wooded forests. They possess a large activity space with a radius of around 10 km. No estimations of population status and size have been done for this species in BiH. It is expected to occur at Kutilivac, Humilisani, Gornje selo, Konjicka Bijela, Ovcari, although it was not confirmed along the motorway route.	
		Miniopterus schreibersii	Refer to species description under 1.	This species is likely to occur at Kutilivac and Humilisani, localities nearest to the Velez site. Considering the proximity of these localities, the daily activity range of this species and its migratory character, minor impacts due to the construction of the motorway can be expected. These impacts are assessed under item 1.
		Myotis emarginatus		This species was not recorded through field research, however, according to literature review, is expected at Mt. Prenj. As the species tends to cross up to 12 km during the foraging (usually less), it can be expected in broader range of this Natura 2000 site and could be affected during construction and operation phase. The assessment of impacts done for the Prenj – Cvrsnica – Cabulja site applies for this site as well.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
5.	**Bjelasnica – Igman – Visocica – Treskavica** **Site code BA8300005**	*62A0 Eastern sub-Mediterranean dry grasslands (Scorzoneratalia villosae)*	Refer to habitat description under 3.	These habitat types are located far outside the borders of this Natura 2000 site. No direct or indirect impacts are expected.
		3240 Alpine rivers and their ligneous vegetation with Salix elaeagnos	Refer to habitat description under 1.	
		95A0 High oro-Mediterranean pine forests	Refer to habitat description under 1.	
		**9530 (Sub-) Mediterranean pine forests with endemic black pines*	Refer to habitat description under 2.	
		Testudo hermanni	Refer to species description under 1.	Given the distance of the Natura 2000 site from the motorway and the localities where this species was confirmed through field surveys, combined with the species' limited mobility and dispersal capacity, direct or indirect impacts on the populations or conservation objectives within the Bjelasnica – Igman – Visocica – Treskavica site are unlikely.
		Euplagia quadripunctaria	Refer to species description under 1.	
		Morimus funereus	Refer to species description under 1.	
		Aquila chrysaetos	Refer to species description under 1.	Golden Eagles as require expansive territories and are known to travel significant distances while hunting. The inactive nest in Klenova Draga is located more than 15 km from the proposed Natura 2000 site and on the opposite side of Mt. Prenj. No direct or indirect impacts are expected for populations of this species within the Bjelasnica – Igman – Visocica – Treskavica site.
		Dendrocopos leucotos	The White-backed Woodpecker occurs in broad-leaved forest. It uses old-growth and overmature	The White-backed Woodpecker was recorded at Rakov Laz, approximately 6 km from the

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			but relatively open deciduous and mixed forest with a high proportion of dead trees and fallen timber. In central and southern Europe, it is found in forests dominated by beech (*Fagus* spp.), hornbeam (*Carpinus betulus*) and oak (*Quercus* spp.) and in northern and eastern Europe forests dominated by birch (*Betula* spp.) and aspen (*Populus tremula*). The species is generally resident with some local movements. Everywhere, this species' survival is dependent on preservation of reasonably large areas of unmanaged deciduous forest, including dead wood. Restoration of natural habitats is also important. The size of the population in BiH is estimated at 350-500 nesting pairs, with the populations stable. The species is widespread in BiH and neighbouring countries.	Bjelasnica–Igman–Visocica–Treskavica Natura 2000 site, on the slopes of Prenj mountain near the mountain cabin Jezerce. The presence of *Dryocopus martius* at Rakov Laz further suggests the area supports mature, deadwood-rich forests. The 6 km separation and the localised, resident nature of *D. leucotos* suggest that the recorded territory is unlikely to directly overlap with the conservation objectives or habitat integrity of the Natura 2000 site. The habitat near Rakov Laz appears sufficiently isolated from the site's conservation goals, minimising the risk of significant, both direct and indirect impacts from the proposed project.
		Dryocopus martius	The Black Woodpecker inhabits parts of Europe and most of Asia. It inhabits all types of forests, although it is somewhat more common in hilly and mountainous areas than in lowlands. The presence of old, tall forests is essential within its territory for nesting cavities. It is entirely absent only in deforested areas. This is a mostly sedentary species which undertakes daily migrations in ranges of 500 m to 2 km away from its nest. The home range of the black woodpecker typically varies from about 1 to 4 km^2, depending on factors like food availability and habitat quality. In BiH, it is a locally numerous species and can be found in all parts of the country. The size of the breeding population is estimated at 1,500-2,500 breeding pairs, and the trend is unknown.	The closest recorded territories of *Dryocopus martius* along the proposed motorway route are Polje Bijela (4.6 km from the Natura 2000 site), Mladeskovici (4.9 km), and Konjicka Bijela (5.5 km). *Dryocopus martius* is a largely sedentary species, with daily movements typically ranging from 500 m to 2 km from its nest. This limited movement range suggests that the recorded territories, being 4.6 km or more away from the Natura 2000 site, do not directly overlap with the site's conservation objectives. The species requires old, tall forests for nesting and is sensitive to habitat loss, logging, and the removal of old trees. These impacts would primarily affect areas directly adjacent to the motorway route, resulting in localised effects on the species' habitat and populations. The risk of collision with vehicles is relatively low, as the

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			Threats to this species include logging, deforestation of forest habitats, removal of old trees, etc. The species was recorded at multiple localities along the motorway route, specifically: Polje Bijela, Mladeskovici, Konjic Bijela, Rakov Laz, Lisani, Bosnjaci.	species is adapted to forest interiors and is less prone to flying near roads.
		Cottus gobio	Refer to species description under 1.	Given the distance of 5 km, impacts are unlikely to extend to the *Cottus gobio* habitats within the Natura 2000 site.
		Lanius collurio	Refer to species description under 1.	Direct impacts on *Lanius collurio* within the Bjelasnica – Igman – Visocica – Treskavica Natura 2000 site are unlikely, as the closest recorded territories along the proposed motorway route are Polje Bijela (4.6 km from the site), Konjicka Bijela (5.5 km), and Ovcari (4.9 km), all outside the Natura 2000 site's boundaries. The species relies on habitats with a mosaic of grasslands, scattered shrubs, and small trees, and while localised habitat disruption may occur near the motorway, such impacts are not expected to extend to the Natura 2000 site. *Lanius collurio* exhibits limited daily movements during the breeding season (their territory ranges from 1 to 5 ha, depending on habitat quality and food availability), confined to its immediate territory, further reducing the likelihood of interactions with the site. Collision risks with vehicles are minimal, as the species primarily forages within its territory and is not prone to frequent road crossings. Potential threats, such as habitat loss and vegetation removal near the motorway, are localised to its immediate vicinity and would not directly affect the Natura 2000 site.

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
		Picus canus	Grey-headed woodpecker inhabits Central Europe, parts of Scandinavia, the entirety of Eastern Europe, the temperate zone of Asia, parts of Himalayans, all the way to Malaysia and Sumatra. It is a sedentary species, with slight movements during the winter period. The grey woodpecker inhabits a wide range of semi-open forest habitats rich in broadleaved trees, but the habitat varies throughout its range. In the Balkans, this species inhabits all regions, favouring locations dominated by forest habitats. It often chooses rocky hilly and mountainous areas above 300-400 m above sea level. Grey woodpeckers typically engage in local movements to forage for food. They may move around 200 to 500 m from their nesting sites in search of insects, larvae, and other food sources. It is a widely distributed species in BiH. The size of the breeding population is estimated at 1,500-3,000 breeding pairs, and the trend is not known.	The Grey-headed Woodpecker (*Picus canus*) was recorded near the Neretva River, approximately 4.7 km from the Bjelasnica - Igman - Visocica - Treskavica Natura 2000 site. This species is sedentary with slight movements during winter, typically foraging within 200 to 500 m of its nesting site. Given the proximity of the recorded territory to the motorway route and the fact that the area of influence extends 500 m, there may be localised impacts on habitat quality, especially if construction activities affect forested areas near the Neretva River. The primary threats to *Picus canus* are logging, deforestation, and the removal of old trees, which are essential for nesting and foraging. These impacts could affect local populations within the 500-m influence area, especially if the construction activities disrupt forested habitats or result in tree removal. However, as the species is relatively sedentary and its movements are limited to local foraging distances, the impacts are likely to be confined to areas near the motorway route. The risk of direct impacts on the Natura 2000 site itself is minimal, as the recorded territories are several km away from the site, and the species' local movements do not extend to that distance. Therefore, while there could be localised impacts on *Picus canus* within the 500-m buffer zone, these effects are unlikely to extend to the Bjelasnica - Igman - Visocica - Treskavica Natura 2000 site.
		Squalius svallize	Refer to species description under 1.	Given the distance of the Natura 2000 site from the motorway and the localities where this species was confirmed through field surveys, combined with the species' limited dispersal

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				capacity, direct or indirect impacts on the populations or conservation objectives within the Bjelasnica – Igman – Visocica – Treskavica site are unlikely.
		Rhinolophus ferrumequinum	Refer to species description under 1.	As this species is largely sedentary and forages within 5 km of its roost, the construction of the motorway may lead to localised impacts on its populations, particularly if construction activities disturb roosting sites or foraging habitats. The main threats to this species include habitat loss and fragmentation, disturbance to roosting sites, and the use of pesticides, which may decrease food availability. However, as the closest recorded territories are at least 3.5 km away from the Natura 2000 site, direct impacts on the site itself are unlikely. The impacts are expected to be more localised, affecting the areas within the 500-m influence zone along the motorway route, especially if roosting sites in buildings or other structures near the route are disturbed. Based on the distance of the recorded territories and the species' foraging and roosting behaviour, direct impacts on the Natura 2000 site Bjelasnica - Igman - Visocica - Treskavica are not expected, though localised impacts on the species' habitat could occur closer to the motorway route.
		Rhinolophus hipposideros	Refer to species description under 1.	Like the Great Horseshoe Bat, the Lesser Horseshoe Bat may face direct impacts from construction activities along the motorway route, particularly from disturbances to roosting sites and foraging areas. Due to the distance, direct impacts on the populations and conservation objectives of the site itself are unlikely. However, localised impacts within the 500-m zone could occur, especially if human activities disturb roosting sites or degrade nearby foraging

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				habitats, which could affect the Lesser Horseshoe Bat population in the vicinity.
		Lynx lynx	Refer to species description under 1.	The species is expected to occur at Mt. Prenj, far outside the reach of this site's boundaries, and no direct impacts are expected. Given the large territory of this species and dispersal capabilities, indirect impacts of the motorway assessed for the Prenj – Cvrsnica – Cabulja site apply.
		Ursus arctos		
		Canis lupus		
		Dinaromys bogdanovi		Along the motorway route, the species is expected at Mt. Prenj. Considering the home ranges of these species vary between 1 to 5 ha, direct and indirect impacts on the populations and conservation objectives for this species are unlikely at Bjelasnica – Igman – Visocica – Treskavica.
		Rupicapra rupicapra balcanica		The species is expected to occur at Mt. Prenj, far outside the reach of this site's boundaries, and no direct impacts are expected. Given the large territory of this species and dispersal capabilities, indirect impacts of the motorway assessed for the Prenj – Cvrsnica – Cabulja site apply.
		Nymphalis vaualbum		
		Euphydryas aurinia		
		Osmoderma eremita		
		Rosalia alpina		
6.	**Konjicka bijela** **Site code BA0000006**	*Bombina variegata*	Refer to species description under 1.	Considering the partial overlapping of this Emerald site with Natura 2000 Prenj – Cvrsnica – Cabulja, impact assessment under 1. apply for this site as well.
		Canis lupus		
		Ursus arctos		
		Cerambyx cerdo		
		Circus aeruginosus	The Western Marsh Harrier is mainly migratory, with populations in Western Europe, North Africa and at the south of its range in Asia being generally resident. The territory size of this species varies greatly on the quality of its habitat, but typically ranges between 2 to 5 km^2.	This species was recorded at Seliste in dispersion, approx. 10 km from the Konjicka Bijela site. They require extensive wetlands during their breeding season, possibly where common reed (*Phragmites australis*) is abundant. Konjicka Bijela is not represented by the

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			However, this species is known to forage 10 km or more from its nests.In BiH, the size of its population is estimated to 350-700 nesting pairs and is thought to be stable. This species is widespread in the region.	presence of marshy habitats, and is primarily characterised by forested areas making the site less attractive for regular use. While the habitat within Konjicka Bijela may not support regular foraging or breeding, the species might occasionally traverse or visit the site during dispersion, particularly in search of alternative prey or habitat patches. Such use would likely be infrequent and opportunistic. Impacts on this species as a result of the implementation of this Project are unlikely.
		Euphydryas aurinia	Refer to species description under 1.	Considering the partial overlapping of this Emerald site with Natura 2000 Prenj – Cvrsnica – Cabulja, impact assessment under 1. apply for this site as well.
		Euphydryas maturna		
		Lucanus cervus		
		Osmoderma eremita		
		Rosalia alpina		
		Cottus gobio	Refer to species description under 1.	
		Morimus funereus		This species was recorded at Rakov Laz within the site itself. Since parts of this site overlap with the Prenj – Cvrsnica – Cabulja Natura 2000 site, the assessment of direct impacts on this species also applies to this area.
		Miniopterus schreibersii		Due to the mobility of this species, and since parts of this candidate Emerald site overlap with the Prenj – Cvrsnica – Cabulja Natura 2000 site, the assessment of direct impacts also applies to this area.
		Myotis myotis		
		Rhinolophus euryale		
		Rhinolophus ferrumequinum		
		Rhinolophus hipposideros		

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
		Rhinolophus blasii	The species is present in the entire eastern Adriatic coast, parts of Serbia and Montenegro and within the southern Carpathian basin of Romania, Bulgaria, Greece and Turkey as well as some Mediterranean islands (Crete and Cyprus). It is also found in Asia Minor and North Africa. It roosts almost exclusively in karst caves, which are inhabited all year round. It can probably perform seasonal movements of up to 100 km. This is a species of typical Mediterranean landscapes with small-scale mosaic combining open habitats and shrublands. Usually occurs in lower altitudes and hunts in scrub and low-growing hornbeam and oak forests along edges in highly structured landscapes. It feeds mainly on the wing, circling around shrubs and edges at 0.5 to 5 m height. Blasius's horseshoe bats are extremely agile and can easily catch prey close to vegetation or pick prey directly from the ground. It usually hunts within less than 10 km from the roost. The species was not recorded during field research; however, it is expected to occur at Mt. Prenj.	Although this species was not recorded at the site, it is expected to reside within caves of the Mt. Prenj. Three unnamed caves have been recorded to be closest to the motorway route, with two at Podgorani 500 m from the route, and one cave at Mt. Prenj, 1.3 km from the proposed tunnel through Prenj. These caves are not expected to be directly impacted by the construction of the motorway, and both caves are an adequate distance from the motorway route for light disturbance to be significant. It is uncertain whether this species has roosts within these caves. Due to its unclear status within the Project area, the magnitude of indirect impacts from human presence and vibration are uncertain.
7.	**Idbar Canyon** **Site code BA0000003**	*Aquila chrysaetos*	Refer to species description under 1.	The inactive nest in Klenova Draga is located more than 10 km from the candidate Emerald site and on the opposite side of Mt. Prenj. This geographic barrier limits the likelihood of the pair relying on the Emerald site as a primary hunting or nesting area. Golden Eagles prefer open landscapes, such as montane grasslands, cliffs, and alpine habitats, for foraging. While their foraging ranges can extend up to 100 km², it is improbable that the eagles frequent the Emerald site given the presence of closer, suitable

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
				habitats near their known nesting area. Direct impacts are highly unlikely.
		Morimus funereus		While the species has limited dispersal capabilities compared to birds and bats, its reliance on local forest patches means it is more likely to remain in proximity to areas with abundant deadwood resources, such as Rakov Laz. The motorway's route and its distance from the recorded locality, combined with the forested and rugged terrain of Mt. Prenj, reduce the likelihood of significant disruption to the habitats critical for this species. Direct impacts to the populations of the Idbar Canyon site are unlikely.
		Rhinolophus ferrumequinum		Horseshoe bats (*Rhinolophus hipposideros* and *Rhinolophus ferrumequinum*) typically forage within a few kilometres of their roosts, with *R. hipposideros* generally staying within 3–4 km and *R. ferrumequinum* foraging up to 4 km, often less when prey is abundant nearby. Since the motorway is located 5 km from the nearest point of the candidate Emerald site, it lies beyond the regular foraging range of these species, especially when suitable habitats are available closer to their roosts. Additionally, the presence of well-connected natural features, such as tree lines and riparian corridors, is crucial for commuting and foraging. Disturbances from the motorway, including habitat loss or fragmentation, are unlikely to significantly affect the Emerald site due to the distance.
		Rhinolophus hipposideros		
8.	**Gornji tok Neretve** **Site code BA0000002**	*Aquila chrysaetos*	Refer to species description under 1.	As previously assessed, due to the ecological requirements of these species, physical barriers and the fact that this candidate Emerald site is at
		Morimus funereus		

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
		Rhinolophus ferrumequinum		a significant distance from the localities where these species were recorded, direct impacts are unlikely. However, some indirect impacts will be assessed in the following Chapter.
		Rhinolophus hipposideros		
		Salmo obtusirostris	The Softmouth Trout is an endemic salmonid species found in a few rivers flowing into the Adriatic Sea in the Western Balkans, specifically in BiH, Croatia and Montenegro. It inhabits cold, clear streams and small rivers at high altitudes, usually in deep, quiet pools. This species is naturally present in four major drainages of the Adriatic Sea basin: the Neretva-Vrljika system, the Jadro, the Moraca-Zeta system, and possibly the Krka River drainage near Knin. In BiH, the species is critically endangered.	The impacts on these species must also be considered, particularly regarding the known spawning grounds for Softmouth Trout and Marble Trout in the river Neretva around Konjic. Construction activities, including excavation, vegetation clearance, and potential sedimentation, could affect water quality and habitat conditions downstream, which in turn could impact the spawning success of these trout species upstream. This is exacerbated by the planned construction of the bridge M1 of the river Tresanica and M2 of the river Neretva. Disturbances such as increased sediment load, alterations to water flow, and habitat fragmentation could compromise the quality of the spawning grounds and disrupt the migratory patterns of these species if mitigation measures are not applied.
		Salmo marmoratus	The Marble Trout is a species of salmonid, freshwater fish. In the region, this species can be found in shared BiH and Croatia drainage of the Neretva River, and in shared Montenegro and Albania drainage of the Moraca with Zeta River and the tributary Cem (Cijevna). This species inhabits cold streams and rivers in montane and piedmont landscapes with temperature usually not rising above 15° C during summer. This is a critically endangered species in BiH. In BiH, its main threats are habitat loss (habitat destruction) due to construction of five large dams on the Neretva River and plans for construction of several new dams on the upper course of the Neretva, water pollution, overfishing (sportfishing,	

No	Natura 2000 sites	Species	Short description of characteristics of the trigger species/habitat	Potential impacts
			food, including poaching), and hybridisation with introduced species of trout.	
9.	**Rakitnica River Canyon** **Site code BA0000001**	*Morimus funereus* *Rhinolophus ferrumequinum*	Refer to species description under 1.	As previously assessed, due to the ecological requirements of these species, physical barriers and the fact that this candidate Emerald site is at a significant distance from the localities where these species were recorded, direct impacts are unlikely.

4 Stage 2 - Appropriate Assessment

At Stage 2 Appropriate Assessment, the impact of a project alone and in combination with other projects or plans on the integrity of the Natura 2000 site is considered with respect to the conservation objectives of the site and to its structure and function. Essentially then, the appropriate assessment examines the implications for the site in view of the site's conservation objectives, once it has been concluded that the potential for significant effects is certain, likely or uncertain. Adopting the precautionary principle in this case, significant effects have been described as uncertain.

4.1 Potential Impacts and Likelihood of Significant Effects

The screening report for Stage 2 Appropriate Assessment presents details of all of the potential Natura 2000 sites within the area of influence of the planned project. The Table 14 and Table 15 of the Stage 1 Appropriate Assessment Screening report contain details such as features of interest, conservation objectives and the distance of the potential Natura 2000 and candidate Emerald sites.

The 2018 guidance on the provisions of Article 6 of the Habitats Directive, "*Managing Natura 2000 sites*" outlines the following potential changes that may occur at a designated site, which may result in effects on the integrity and function of that site:

- Deterioration of habitat types and habitat species- Habitat loss in potential Natura 2000 sites occurs in slope areas of the Prenj and Zlatar mountains, and in the peripheral area in the proposed Natura 2000 sites far beyond the priority habitats. Primarily, habitat loss refers to: 1. permanent changes for the needs of motorway construction; and 2. temporary habitat loss due to backfilling of excavated material (excavation landfills to be formed by tunnel construction). This includes habitat or species fragmentation, which has the likelihood of slight significant impact;

- Disturbance to key species – Key species referred to species of conservation concern registered in the Project area within the sites of interest, as well as species known to inhabit the sites that were confirmed on field. The key species identified in this area are not narrowly distributed and the project will preserve habitat continuity. Permanent effects can be light pollution that can lead to bat aggregation. When it comes to carnivores, bears and wolves will be most affected, but mitigation measures are sufficient to ensure the continuity of habitats and passages used by wildlife. Due to a longer period of construction, it is possible to temporarily interrupt the movement of game. As for the survival of amphibians and reptiles, there are no permanent water bodies in the area of impact. There will be no destruction of amphibian breeding grounds. It is necessary to secure a

corridor to prevent *Testudo hermanni* (Hermann's tortoise) from entering the lowland sections of the route. The Tresanica, Bijela, and Neretva rivers are potential habitats for *Cottus gobio* (bullhead), *Squalius svallize* (Adriatic dace), *Salmo obtusirostris* (softmouth trout) and *Salmo marmoratus* (marbled trout). Construction activities in these areas will be regulated in accordance with water permits and best practices.

- Changes in key indicators of conservation value (water quality etc.)- likelihood of slight significant impact.

The available information on the two proposed Natura 2000 sites within the potential zone of influence has been reviewed to determine whether project activities such as deforestation and fragmentation of marked habitat areas have a significant impact on their features of interest. The potential for impacts and likelihood of significant effects on the features of interest identified in this report is based on information collated from the desk study, the nature of the project, site visits and the detailed information provided by flora and habitat experts through 2020 and 2021. The two Emerald sites identified in the project's impact zone are: Zlatar and Konjicka Bijela. Both emerald sites are included, at least partially, in the coverage area of the proposed Natura 2000 sites, so the values of the proposed sites also apply to the two Emerald sites, seeing as the features used for their designation overlap. The likelihood of impacts occurring are established in light of the type and scale of the proposed development, the location of the proposed development with respect to Natura 2000 sites and the features of interest of the Natura 2000 sites.

This document has been prepared following expert assessment and identification of impacts with the magnitude of the impacts on habitats and the species that inhabit it. Environmental impact assessment is performed based on the criteria for determining the magnitude of the impact which describes the nature, physical extent and duration of the impact and sensitivity of the receptor which represents the extent to which a particular receptor is more or less susceptible to a given impact. Potential impacts can be divided into two categories: direct and indirect impact.

Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for the development of auxiliary roads during the construction of the motorway. Direct impacts can be a result of change in land use or management, such an impact can occur during excavation and disposal at various locations, excavation of earth for road construction and drainage pipes. The main direct impacts on flora, vegetation and habitat during the construction of the motorway are the felling and removal of vegetation cover in the areas through which the motorway passes, as well as at construction site and material storage sites.

Indirect and secondary impacts do not follow a direct cause-and-effect relationship and are challenging to fully identify, especially during the various phases of motorway construction. Such impacts may occur during deforestation for construction, which can lead to the settlement of invasive species. Invasive

species introduction is a key indirect impact. Other expected indirect impacts on flora include damage to vegetation from various agents, contributing to the spread of invasive species. Habitat fragmentation, particularly affecting species such as bats, can cause disturbance through the destruction of speleological features or roosting sites. Indirect disturbances may also result from noise, vibration from machinery, and light pollution, all of which can impact species and habitats.

During field research conducted by experts on flora and fauna various impacts were identified and the magnitude of these impacts on habitats and species was assessed. The impacts will be described in detail in the next chapter.

5 Identification of Impacts

During the development of the motorway route, the Project has sought to avoid, minimise and mitigate impacts on biodiversity and where this is not possible and significant residual impacts remain, compensation has been applied. The measures obligatory for the JPAC and Contractor are given in the BMP. However, prior to the implementation of any mitigation measures, impacts on individual biodiversity features which were triggers for the designation of these sites have been assessed through the screening stage.

Within the proposed route of the motorway there are different types of ecosystems, which is why it is necessary to pay attention to the specifics of the impacts on each of the ecosystems depending on its composition and structure, as well as the current state and management of specific ecosystems. Particularly endangered are the ecosystems of cliffs, rock crevices where the largest number of endemic and endangered plant species and communities are located as well as identified Annex II and I species and Annex I habitats. These ecosystems are outside of the direct impact zone.

5.1 Habitat Loss

Habitat loss can result from clearance, conversion of the original habitat to a new habitat type, modification of an existing habitat (changing its ecological functions) or degradation of a habitat to a point where it is of low quality and can be considered lost. Loss of habitats can also result in habitat changing in such a way that it becomes incapable of supporting species requirements; it may also be a catalyst for other associated impacts namely habitat fragmentation, direct and indirect loss of species and species disturbance and displacement.

As the main direct impact on habitats and species in the phases of pre-construction and construction, loss of habitat along the subsection Ovcari - Prenj will be done for the construction of auxiliary roads and the main part of the project - construction of tunnels through Prenj and Zlatar. Significant portion of sub-section Ovcari-Prenj and Zlatar is designed through the mentioned planned protected area via tunnel passing through Mt. Prenj, thus minimising adverse

impacts, particularly for habitat types such as **9530*. Tunnel will also enter the mountain at a lower altitude of approx. 620 m asl, preserving sensitive and valuable habitats and species mainly limited to higher altitudes. Consequences represent physical loss of following plant communities: White hornbeam forests (Carpinetum orientalis), Pubescent Oak-hornbeam forests (Querco-Ostryetum carpinifolia and Orno-Osryetum), Beech Forest (Fagetum montanum), Thermophilic beech forests (Seslerio-Fagetum, Ostryo-Fagetum and Aceriobtusati-Fagetum), Black hornbeam forests (Pinetum-nigrae) as well as increased loss of geological base - dolomite and its erosion, especially in the localities Zlatar and mountain Prenj. Indirect deforestation pressure is the spread of invasive species. Regarding the Annex I habitats within the Prenj–Cvrsnica–Cabulja and Zlatar sites, no direct loss is anticipated for *3240 Alpine rivers and their ligneous vegetation with Salix elaeagnos*, provided that access roads and machinery movement are strictly controlled to prevent disturbance. The *95A0 High oro-Mediterranean pine forests* at higher altitudes on Mt. Prenj are safeguarded by the planned tunnel construction, which will pass beneath these habitats, avoiding surface-level impacts. Similarly, the **9530 (Sub) Mediterranean pine forests with endemic black pines*, located approximately 900 m from the motorway route and less than 100 m from the Zlatar site boundary, are not expected to be directly affected. However, potential indirect impacts, including functional fragmentation of species' movement corridors, could affect the ecological integrity and conservation objectives of the Zlatar site, necessitating careful monitoring and mitigation measures.

Morimus funereus, a species highly sensitive to habitat disturbances due to its limited dispersal ability, is expected to experience habitat loss in areas where construction activities require the clearance of deciduous forests. This impact is particularly significant due to the removal of deadwood and mature trees, which are essential for larval development. Given the species' recorded presence at Rakov Laz, the most prominent impacts are expected along the parts of the motorway route that pass directly through deciduous forests, particularly in the areas around Konjicka Bijela and on the slopes of Mount Prenj. Since existing roads will be used to access the site, any minor vegetation maintenance required is expected to have minimal additional impact, as illustrated in the accompanying Figure.

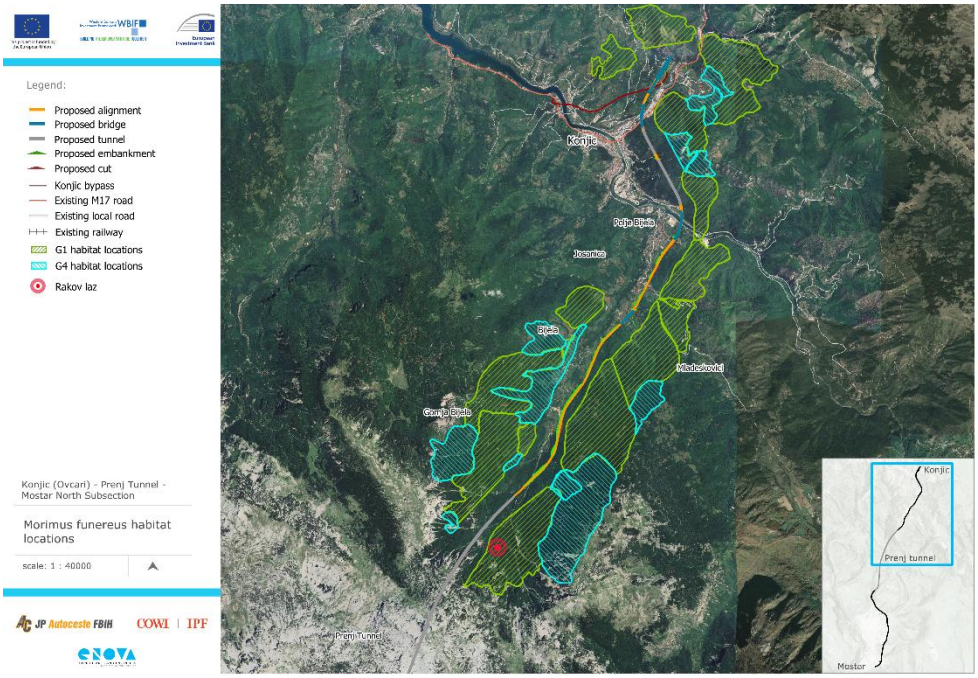

Figure 8: Deciduous (G1 — shown in green) and mixed forest fragments (blue) within the zone of direct impact from the implementation of this Project in relation to the locality where Morimus funereus was confirmed (red pin)

The construction of the tunnel through Mt. Prenj, where part of the critical habitat for *Euplagia quadripunctaria* may exist, poses a significant threat. The loss of thermophile woodland fringes, where the species is likely to be found, would result in a direct loss of suitable foraging and breeding grounds. In addition to vegetation clearance, habitat fragmentation due to the motorway could further isolate populations, reducing available habitat patches and impeding species movement.

The fact that *Euplagia quadripunctaria* is a sedentary species with limited daily movement (usually not exceeding a few hundred m) makes it particularly vulnerable to habitat fragmentation. The species relies on clear, well-maintained transition zones that alternate between dry and wet conditions, and these habitats are increasingly rare. The loss of vegetation, particularly through dense afforestation or infrastructure development, could significantly impact its reproductive success and survival.

While this is a localised impact unlikely to significantly affect the overall population or conservation objectives of the Prenj–Cvrsnica–Cabulja site, as the area affected is small when compared to the surrounding analogous habitats, habitat loss for *Testudo hermanni* at Klenova Draga is inevitable. This includes vegetation clearance for road and access road construction, as well as habitat alteration caused by soil compaction. Although the species is adaptable to a wide range of habitats, construction activities could disrupt loose soils required for burrowing and lead to the loss of breeding sites. Additionally, direct mortality risks cannot be excluded during vegetation clearance, excavation, or road use, as individuals may be displaced or crushed. The proximity of the locality to the

motorway route makes these direct impacts particularly relevant, though their overall magnitude on the species' population and site conservation objectives is expected to remain low due to its adaptability. This subsection has been declared a matter of public interest. Additionally, no alternative route would entirely avoid sensitive areas, as this region lies within the autochthonous range of the Hermann's tortoise. While impacts are unavoidable, their minimisation will require the implementation of specific mitigation measures.

Habitat loss for *Lanius collurio* can be expected at Rakov Laz and Konjicka Bijela, due to vegetation clearance but also due to disturbances which are inevitable during the construction of this motorway subsection. These disturbances may lead to nest abandonment, reduced prey availability, and lower breeding success, particularly within the 500 m buffer zone surrounding the motorway. However, the species' adaptable nature and the stable population size in BiH suggest that these impacts will remain localised and unlikely to threaten the overall population or conservation objectives of the site. Indirect impacts beyond this buffer zone, such as habitat degradation or hydrological changes, are not anticipated to significantly affect *Lanius collurio* populations.

The proximity of a reserve nest at Klenova Draga, within the Natura 2000 site Prenj–Cvrsnica–Cabulja, places *Aquila chrysaetos* at risk of direct impacts during motorway construction. This species is highly sensitive to disturbance, particularly during the nesting period. Although the nest is currently inactive, its status as a reserve nest suggests potential future use. Construction activities near the southern portal of the tunnel, within the species' territory and the 500 m area of influence, could disrupt territorial behaviour, leading to nest abandonment or displacement during critical breeding stages. This disturbance could result in the loss of offspring if construction coincides with the nesting period. Post-construction impacts are expected to be minimal; however, long-term disturbances from traffic or other anthropogenic factors could affect the species' territory if the route intersects critical foraging areas. While these impacts are significant during construction, they can be mitigated with strategic planning and implementation of appropriate measures to reduce disturbance during sensitive periods.

If roosting sites for bat species are identified along the motorway route, construction activities, including vegetation clearance and indirect disturbances such as noise, light, and vibration, may lead to roost abandonment. The loss of suitable roosting habitats is particularly concerning due to these species' reliance on specific roosting conditions, such as stable temperatures and low light levels. Given their sedentary nature and sensitivity to habitat alterations, such impacts could fragment and isolate populations, reducing the availability of critical roosting and foraging sites within the 500-m area of influence. Habitat loss during the construction phase is likely to have a compounding effect, as these species are heavily dependent on proximate foraging habitats, which may also be affected by vegetation removal and subsequent habitat degradation.

The construction of tunnels in the protected areas Vrtaljica - Zlatar and Prenj can lead to possible hydrogeological disturbances, which has a direct impact on flora and vegetation.

During field research several fish of conservation importance were recorded in rivers Neretva, Tresanica and Salakovac (*Cottus gobio* - Bern Convention (Annex III) and EC Habitats Directive Annex II, *Squalius svallize*- Bern Convention (Annex III), *Cobitis narentana*- IUCN Red List Status: Vulnerable (VU)). During the construction of the bridge M1 of the river Tresanica and M2 of the river Neretva, the structure of the ecosystem and the coast will be disturbed, and water turbidity may occur, which would affect the population of fish recorded downstream. To avoid construction on unstable ground, the Suhi Potok stream and Bijela are to undergo training and regulation. For Suhi Potok, a total of 1,280 m will undergo training, with the width of the riverbed at the bottom being 6.0 m. This would entail excavation in full profile, essentially representing a new canal with stone lining with a level that follows the natural slope of the Suhi Potok riverbed. This stream is, however, dry for most of the year. Intermittent streams typically do not support permanent fish populations unless there are perennial pools or connections to larger water bodies. Seasonal drying is unfavourable for *Cottus gobio*, *Salmo marmoratus* and *Salmo obtusirostris*, and while *Squalius svallize* is also dependent on consistent aquatic habitats, it may use the stream as a seasonal corridor. Aside from *Cottus gobio*, these species were not confirmed in the Suhi Potok and Bijela, and the likelihood of their occurrence at segments planned for regulation is relatively low. Indirect impacts downstream are possible due to sediment transport and alteration of water quality. Additional regulation of the natural riverbed of the river Bijela over a length of approximately 600 m is required to preserve the Bijela and Gornja Bijela springs. Habitat loss may occur, most prominently for *Cottus gobio*, seeing as simplified riverbed structures remove essential habitat features of the benthos, which this species is reliant on. Alteration of the natural flow in Suhi Potok and Bijela may lead to increased sediment transport downstream, further degrading habitats of this species.

The construction of the abovementioned bridges and regulation of riverbeds becomes especially significant for species which were not recorded during field surveys, however, are expected to be present in Neretva near Konjic. This refers to the Softmouth Trout and the Marbled Trout, whose upstream populations in the Gornji tok Neretve Emerald site may become influenced due to the loss of spawning habitats as a result of ecosystem degradation at these sites. As the presence of invasive species in these localities has been recorded, it is necessary to take measures to prevent the prevalence of invasive species (Rainbow trout, Prussian carp, Pike-perch, Pumpkinseed). California trout could very easily dominate and suppress native fish species. Precisely because of this, preventive measures have been taken to determine water quality at four sites where the M1 and M2 bridges are being built. The following information on quality analysis is taken from the ESIA study (Chapter 8).

Based on the results of physico-chemical analyses of the surface waters, in samples SP1, SP2 and SP4 all tested parameters are below limit values

stipulated by the *Regulation on Hazardous and Harmful Substances in Waters and the Decree on the Classification of Waters and Coastal Seas of Yugoslavia within borders of SR BiH* and meet the criteria for surface waters of class I and II. In accordance with the Water Framework Directive (WFD), all waters present at the Project site must achieve both good chemical status and good ecological status (GES) and maintain this good status. Where there are sites protected under EU legislation, the Directive aims for compliance with any relevant standards or objectives for these sites. This Framework outlines objectives by which all deterioration of the ecological status of waters is to be prevented, the introduction of impediments to the attainment of good WFD status for water bodies is to be prevented, the attainment of the WFD objectives for the water body are not compromised and the achievement of the WFD objectives in other water bodies within the same catchment are not permanently excluded or compromised.

To assess the impacts of the Project on water bodies and ensure its compliance with the objectives of the WFD, some general environmental objectives are set out, such as ensuring the following:

- No changes affecting high status sites;
- No changes that will cause failure to meet surface water GES or Good Ecological Potential (GEP) or result in a deterioration of surface water ecological status or potential;
- No changes which will permanently prevent or compromise the Environmental Objectives being met in other water bodies; and
- No changes that will cause failure to meet good groundwater status or result in a deterioration groundwater status.

Article 4.7 of the WFD provisions exceptions under which the Member states do not breach the objectives of this Directive. Article 4.7 states:

'Member states will not be in breach of this Directive when:

- failure to achieve good groundwater status, good ecological status or, where relevant, good ecological potential or to prevent deterioration in the status of a body of surface water or groundwater is the result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater, or
- failure to prevent deterioration from high status to good status of a body of surface water is the result of new sustainable human development activities.

and all the following conditions are met:

(a) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;
(b) the reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every six years;
(c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and

(d) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.'

If public interest is declared, the state may decide on a derogation by issuing a document outlining the decision to derogate. The spatial plan issued by JPAC stipulates that modifications to surrounding infrastructure, including alterations to watercourses (derogations), may be undertaken to facilitate construction needs. This approach aligns with Article 4.7 of the EU WFD, ensuring compliance.

The impact assessment on surface waters is detailed in Chapter 8 of the ESIA. It states that the ecological status and potential of the waters were determined following the *Decision on the characterisation of surface and groundwater, reference conditions and parameters for the assessment of water status and monitoring of waters and biotic characteristics of rivers in the water area of the Adriatic Sea*[18], which is aligned with the EU Water Framework Directive. Several water bodies in the area have undergone significant hydromorphological changes prior to the implementation of this project, with their revitalisation and restoration requiring substantial financial investment. These water bodies are classified as heavily modified, including the River Bijela, which forms part of the Salakovac Accumulation. Similarly, the Tresanica River is also a heavily modified water body, with sections of its watercourse regulated near Konjic for flood protection purposes. Both rivers have good ecological potential and are not under significant anthropogenic impact. While the chapter identifies moderate impacts on the Neretva and Tresanica Rivers—key habitats for the mentioned fish species—it notes that avoiding construction in the riverbed partially mitigates effects on the sensitive river ecology. To ensure full compliance with the WFD and maintain good ecological status, Chapter 8 outlines additional mitigation measures to minimise adverse effects.

5.2 Habitat Fragmentation

Habitat fragmentation is mainly a product of habitat loss and involves isolation of one fragment of habitat to another, separation of a larger habitat into smaller fragments, increase in the edge to interior habitat size ratio, and decrease in the average size of remaining fragments. The effect of such fragmentation directly impacts the distribution of floral and faunal species. Fauna, while mobile, may be affected through limitations imposed on their movement range which can lead to crowding effects (reduced territory size), increased competition, reduced gene flow and eventual reduced breeding success and possibly survivorship. Displacement and disturbance of species may occur more commonly due to reduced presence of refuge areas in remaining fragments where species are protected from noise and visual stimuli. Associated secondary impacts include

[18] Official Gazette of the FBiH No. 1/1

edge effects where species originally located in the interior of a habitat parcel are consequently exposed to the edge of the remaining parcel.

During the construction phase, there will be a minor direct loss of habitat due to site preparation activities. Habitat fragmentation is primarily expected from the motorway fencing and road construction itself. Species with large habitat requirements, low population densities, and low reproductive rates are particularly sensitive to road-induced fragmentation. Wide-ranging carnivores, for example, are highly vulnerable due to their ecological characteristics, and certain thresholds of road density can limit their distribution. In this context, the motorway may act as a physical barrier, disrupting gene flow and potentially threatening the survival of not only subpopulations but also entire metapopulations of affected species in the long term. Such barriers complicate natural processes in the environment, including the movement of fauna, and can also impact the navigation abilities of volant species.

The Eurasian otter (*Lutra lutra*), a species not confirmed through field surveys but previously recorded in the area through earlier studies and other literature sources, is highly sensitive to habitat fragmentation. Otters require both aquatic and terrestrial ecosystems for hunting, breeding, and dispersal, making them vulnerable to disturbances in these habitats. The size of their territories can range from 1 to 40 km, depending on the availability of food and the presence of dense vegetation, reed beds, or forested areas along riverbanks. As semi-aquatic animals, otters need access to both freshwater habitats (rivers, streams, lakes) and the surrounding terrestrial areas. These habitats often span large distances, and the construction of roads can sever these interconnected spaces, resulting in the fragmentation of their habitat and the isolation of subpopulations. Such isolation is a serious concern, as it can lead to a loss of genetic diversity. Without regular contact between different groups, the flow of genetic material diminishes, potentially causing inbreeding, which weakens the population's overall health. Inbreeding can increase the likelihood of genetic defects and reduce the species' ability to adapt to changing environmental conditions, making them more vulnerable to diseases and other stressors. Roads, particularly when they cut across watercourses or wildlife corridors, can also impede otter movement by acting as physical barriers that restrict access to vital areas such as feeding grounds, den sites, and migration routes. Moreover, roads can also alter the quality of nearby habitats by increasing pollution, noise, and human activity, which can further deter otters from utilising critical areas. The construction of this motorway, as previously assessed for other aquatic organisms, impacts the quality of water at certain parts of the route, affecting the food sources otters depend on (fish and invertebrates). Increased human presence and disturbance around roads will make otters avoid key areas, reducing the effectiveness of their territorial range.

The Balkan chamois is not typically found at 600 m as a primary habitat, as this is below its preferred range. It could occur transiently and is likely to be spotted due to dense forest cover at the part of the route that passes through Konjicka Bijela, and the Mt. Prenj slopes up to the tunnel. The removal of forest cover leading up to the tunnel which passes through Prenj as necessitated by the

construction of the motorway route will inevitably reduce the availability of suitable winter habitats and foraging grounds for chamois descending to lower altitudes. This could impede their seasonal migrations, as this motorway could physically divide its habitats, further isolating their populations and limiting gene flow. Chamois require uninterrupted access to both their summer grazing areas in higher elevations and their winter habitats at lower elevations. The motorway could sever these connections, forcing chamois to either alter their routes or abandon some habitats altogether. The fencing of the motorway may block off the corridors entirely, posing risk from increased predation and harsher terrain.

As a result of direct habitat loss, populations of species such as *Morimus funereus*, *Euplagia quadripunctaria* and *Testudo hermanni*, which are generally less mobile, are susceptible to becoming isolated, as the road may represent a physical barrier. Once fragmented, other sections of their habitats become either harder to reach or entirely unavailable. Volant species, both birds and bats, may abandon their nests and roosts due to the degradation of their habitats, fragmenting existing habitats, causing fleeing, overcrowding and increase in competition.

Habitat fragmentation will occur in part due to tunnel construction, however compared to the total habitat area estimated for potential Natura 2000 sites the impact is negligible. The indirect effect of fragmentation is to prevent the movement of species due to burial in the ground and the emergence of burials into which important species (reptiles and amphibians recorded in the habitat) can fall. Also, the movement of game will be limited, as outlined within the introductory sections of this Chapter. It is important to mention the area has not been found to be an important migratory route for mammals.

Direct loss of species occurs where a species is removed from its habitat as a consequence of a particular activity such as hunting, harvesting and translocation. Indirect loss occurs when individuals of a species are lost because of prey depletion, reduction in habitat viability for feeding or breeding, increased competition or predation and introduction of invasive species. Indirect impacts of this nature are expected for the Eurasian otter. The regulation of the Bijela and Suhi Potok watercourses is likely to affect populations of benthic invertebrates, fish, and other lifeforms of ichthyofauna — through both direct habitat losses for these species or the changes of physio-chemical properties of watercourses downstream. This reduction in prey availability could lead to the species avoiding areas that previously served as its primary habitat.

Removal of forest fragments may reduce prey availability for the Golden Eagle pair which may nest in Klenova Draga. This species is a versatile hunter which uses a multitude of different habitat types for hunting depending on which prey they hunt for. While forest edges are not its primary hunting ground, they do represent the permanent habitat of prey species. Construction activities may lead to a decline in insect populations, impacting prey availability for the Red-backed Shrike. Shrikes are unlikely to completely avoid the site unless habitat degradation is severe. However, reduced prey density and nesting site

availability could lead to local population declines. This same depletion of invertebrate populations will result in loss of hunting grounds for bat species.

Flora species will be directly impacted by working strip preparation, road construction, and the development of associated facilities, primarily through vegetation removal. The disturbed land, where native vegetation is cleared, becomes vulnerable to the encroachment of invasive and ruderal species, which can further degrade the habitat. This concern extends to species such as Hermann's tortoise (*Testudo hermanni*), which relies on the presence of partial shading and herbaceous plants for shelter, foraging, and thermoregulation. Additionally, the species is expected to be indirectly affected by soil compaction caused by construction activities, which could lead to the loss of suitable hibernation sites. Loose, well-drained soil is essential for the overwintering survival of Hermann's tortoise, as compacted soil can impede their ability to burrow and thermoregulate effectively during hibernation. This is also relevant for the Balkan chamois; however, as its dietary requirements consist of a larger range of species, and such are present in the areas surrounding the Project, the impact is expected to be negligible.

Direct loss of fauna species will primarily affect macrofauna, resulting from equipment movements, earthworks, and vegetation removal. Less mobile and smaller species are particularly vulnerable, especially during sensitive periods such as burrowing or nesting. For volant species, additional losses may occur due to accidental strikes with vehicles on access roads leading to and from construction sites, camps, and yards. Furthermore, improved road access to previously remote areas may indirectly impact species through increased hunting or harvesting during or after the construction phase.

Collision risk becomes a more significant concern during the operation phase of the project. Changes in light regimes and airflow resulting from road construction can disorient volant species, increasing the likelihood of collisions in open road areas, especially where significant habitat alterations have occurred. These risks are further amplified in locations with known migratory routes, nesting sites, or roosting areas, where species are more likely to interact with the motorway. There are no registered large waterbodies where birds could gather during migration or nesting, and no bottlenecks have been recorded through which birds migrate. Data on local migration routes for bat species is almost completely absent.

5.3 Disturbance of Fauna

Disturbance mainly relates to fauna species and will result from visual, light, noise and vibration emissions produced from project activities and facilities. Species disturbed by such impacts may lead to behavioural changes such as reduced breeding/ foraging time and duration, selection of breeding/ foraging sites, etc. Visual and noise factors may cause avoidance behaviour where fauna species steer clear of areas with vehicle, infrastructure and personnel presence and level of noise generated. Most Natura 2000 species outlined within the previous Chapters are highly sensitive to anthropogenic disturbance, with the

exclusion of *Lanius collurio* and *Testudo hermanni*, which are somewhat adaptable to human-altered habitats.

Increased noise and vibration often reflect on both hunting and reproductive success of species. The increase in stress caused by prolonged periods of noise exposure, particularly during breeding periods for birds, eventually invokes nest abandonment. This may also impact parental care, particularly for the Golden Eagle, which may leave the nest unattended leading to egg or chick mortality. As disturbances of this nature mainly cause avoidant behaviour for most fauna, this also includes prey species for the Golden Eagle. Subsequently, the Golden Eagle, which is known for high nesting and foraging site fidelity, may avoid the area for multiple years.

Noise and vibration can disrupt critical hibernation periods for the Hermann's tortoise. Stressful environmental conditions and waking early expends energy they would normally conserve during hibernation, which could compromise their survival. Early awakening due to disturbances might expose the tortoise to cold temperatures, as it has not yet had time to adapt to the seasonal changes. This can lead to a weakened immune system, making them more susceptible to disease or even death due to temperature fluctuations. Additionally, as this is a reclusive and shy animal, sudden and loud noises during construction activities can make them feel threatened, causing them to retreat into burrows or other hiding spots. While these behaviours are natural, frequent disturbances can interfere with their normal routines and overall fitness. This may also lead to reduced feeding and foraging activity, increasing mortality.

A species group particularly sensitive to increased noise are bats, as this disrupts signalling during breeding, social communication and foraging. When external noise interferes with the echolocation signals, bats may not be able to accurately interpret their surroundings. For example, construction noise, traffic sounds, or machinery vibrations can create acoustic interference, which disrupts the bat's ability to detect prey or navigate effectively. Increased noise can mask the sounds emitted by insects or other prey, making it more difficult for bats to locate food sources. This can lead to reduced foraging success and a higher energy expenditure for the bats, ultimately impacting their survival and reproduction. As such, an increase in this type of disturbance often leads to roost abandonment. Since an increase from machinery can disrupt mating signals (which is not limited to this species group), this can lead to reduced reproductive success during breeding seasons. Vibrations are also a significant source of physiological stress for these species. High-stress levels can lead to physiological changes that affect their immune system, reproductive success, and lifespan, caused by constant or loud disturbances during crucial times such as roosting or foraging, decreasing their ability to survive and reproduce. *Rhinolophus* species are particularly sensitive to noise because of their reliance on high-frequency echolocation calls, which are easily disrupted by external noise sources. These bats are adapted to using low levels of background noise, and any loud or continuous disturbance in their environment can significantly reduce their foraging efficiency, navigation ability, and overall health.

Increased lighting in areas where construction is conducted at night and due to increased vehicle and personnel movements may also contribute to avoidance behaviour especially for nocturnal species or during periods where species are more sensitive to disturbances (e.g., breeding season). Species of horseshoe bats are particularly sensitive to light pollution (also known as ALAN — Artificial Light at Night), however, as *Morimus funereus* is also a nocturnal animal, light pollution can interfere with its mating and foraging behaviours as well.

Disturbances of this nature are generally considered temporary and limited to the construction phase. However, where certain factors become permanently established—such as visual impacts, light and noise from permanent facilities and roads, as well as barrier and edge effects—these disturbances may persist in the long term.

5.4 Mitigation

Detailed mitigation and an Environmental and Social Management Plan (ESMP) have been developed as part of the ESIA (Chapter 19) and a Biodiversity Mitigation Plan (BMP) has been included. Measures needed to avoid, mitigate and compensate for losses and indirect impacts to the features of conservation interest outlined in the previous chapter have been included as part of the BMP. For further detailed outline on these measures and plans the ESIA should be referred to. However, as part of this assessment, some species may require targeted measures to prevent net loss.

For bat species, this is to include the construction of bat boxes to mitigate the loss of potential roosting sites in the area. These boxes should be placed at least 50–100 m from the motorway, in woodland habitats with natural corridors and where possible the proximity of larger waterbodies which may be used for foraging; to reduce exposure to noise, vibration, and light pollution. To reduce the risk of collisions with vehicles, these boxes are to be placed away from tunnel entrances (at least 200–300 m away). Tunnel entrances, in addition, can have strong air currents, noise, and sudden changes in light levels, which may confuse or disorient bats. Direct light exposure is to be avoided. Ideally, these structures should be placed near linear vegetation features like hedgerows or tree lines that provide safe navigation routes and connectivity to foraging grounds.

As the Eurasian otter has not been identified at the site, but is however expected, mitigation measures greatly depend on what the species uses the Project area for. If the Project area is used primarily for foraging, replanting and revegetation of a buffer zone around the motorway is sufficient to ensure habitat connectivity. However, if holts or natal dens are detected at the site, then protection zones must be put in place. Holts require a 30 m protection zone with no disturbance to their habitat, while natal dens require 150m protection zones. No works of any kind including clearance of vegetation and storage of materials can take place within the protection zones. The establishment of buffer zones around water bodies where dense vegetation which seems inaccessible are the most effective means of protection of habitat integrity for this species. However, where vegetation clearance is inevitable, and holts and natal dens are deemed

impacted, artificial breeding sites should be constructed. During the construction phase, due to their inquisitive nature, otters may approach the Project area, which is why all works should be restricted to daylight hours, so as to cause as little disturbance as possible to these nocturnal animals. Roads are the most hazardous type of development for otters, as they are susceptible to collision risks, and they may fragment their territories. Bridges and viaducts where otter territories may be present largely mitigate these impacts. In order to reduce collision risk, otter proof fencing, in a combination with wildlife passes (most effectively an underpass) are to be planned if pre-construction surveys confirm the presence of otter territories.

For general measures, and measures targeted towards the conservation of the abovementioned features, refer to the BMP.

It is important to highlight that the BMP envisages preparation of biodiversity-related plans. Biodiversity Offsetting Plan (BOP), Land and Habitat Restoration Plan (LHRP) and Invasive Species Management Plan (ISMP) must be developed as part of the CESMP. LHRP and BOMP recommendations and requirements are provided in the BMP.

One of the key outcomes of the Biodiversity Offset Plan (BOP) is the formal establishment of an ecological network to compensate for residual impacts resulting from unavoidable habitat loss within the motorway footprint. This will be achieved through meetings and workshops aimed at emphasising the risks posed by the current status quo in the designation of Emerald and Natura 2000 sites to nature conservation in BiH, JPAC will be tasked with organising these meetings, engaging stakeholders from the Government of FBiH, and identifying potential roadmaps to facilitate site recognition and official designation.

6 Stage 3 - Alternative Solutions

If the outcome of Stage 2 is negative i.e. adverse impacts to the sites cannot be scientifically ruled out, despite mitigation, the plan or project should proceed to Stage 3 or be abandoned. This stage examines alternative solutions to the proposal.

The alignment selection for the Corridor Vc motorway project in BiH has been subject to extensive technical, environmental and social assessments over nearly two decades. The process involved multiple Multi-Criteria Analyses (MCA), Environmental Impact Assessments (EIA), public consultations and parliamentary approvals, culminating in the adoption of the final alignment in 2017 within the Spatial Plan for the Area of Special Interest for FBiH (2008–2028). The alignment decision is not only legally binding but also deeply rooted in BiH's national policy priorities, spatial planning framework and long-term socio-economic development goals.

The "No Project" alternative: The "No Project" alternative was extensively analysed during the 2005-2006 Feasibility Study as part of the MCA. This option was deemed unacceptable for the following reasons:

- Strategic importance: Corridor Vc is part of the Trans-European Transport Network (TEN-T), connecting BiH with the broader European economic system.
- Economic benefits: The motorway is expected to drive regional economic development, reduce transportation costs and improve logistics efficiency.
- Environmental improvements: Diverting traffic from the existing M17 road will reduce air pollution, noise and environmental degradation in densely populated areas.
- Social development: The project will improve connectivity, stimulate tourism, create employment opportunities and enhance access to markets and services.

The Spatial Plan for the Area of Special Interest for FBiH "Motorway on Corridor Vc" 2008-2028, adopted by Parliament in 2011, has legally embedded the motorway project into BiH's spatial and economic development strategy. Therefore, revisiting the "No Project" option is no longer feasible as it contradicts the legally adopted spatial and strategic development policies.

The route alignment decision was a result of years of analysis, consultation and technical studies. Below is an overview of the key milestones:

- 2005-2006: Seven alternatives, including a "No Project" alternative, were evaluated through an MCA. Alternative 3 was selected based on technical feasibility, environmental impacts, cost and construction timeline.
- 2011: The Spatial Plan for Corridor Vc was adopted, and alignment optimisation was incorporated based on stakeholder feedback.
- 2014: A review of Alternative 3 concluded it was technically and economically unfeasible. A shorter and more cost-efficient alignment, Alternative 5 (through Prenj Mountain), was recommended.
- 2016: An updated Preliminary Design confirmed that Alternative 5 offered lower environmental impacts, better motorway geometry and reduced costs.
- 2017: The alignment through Prenj Mountain (Alternative 5) was formally adopted by the Parliament of FBiH as part of the Spatial Plan Amendment.

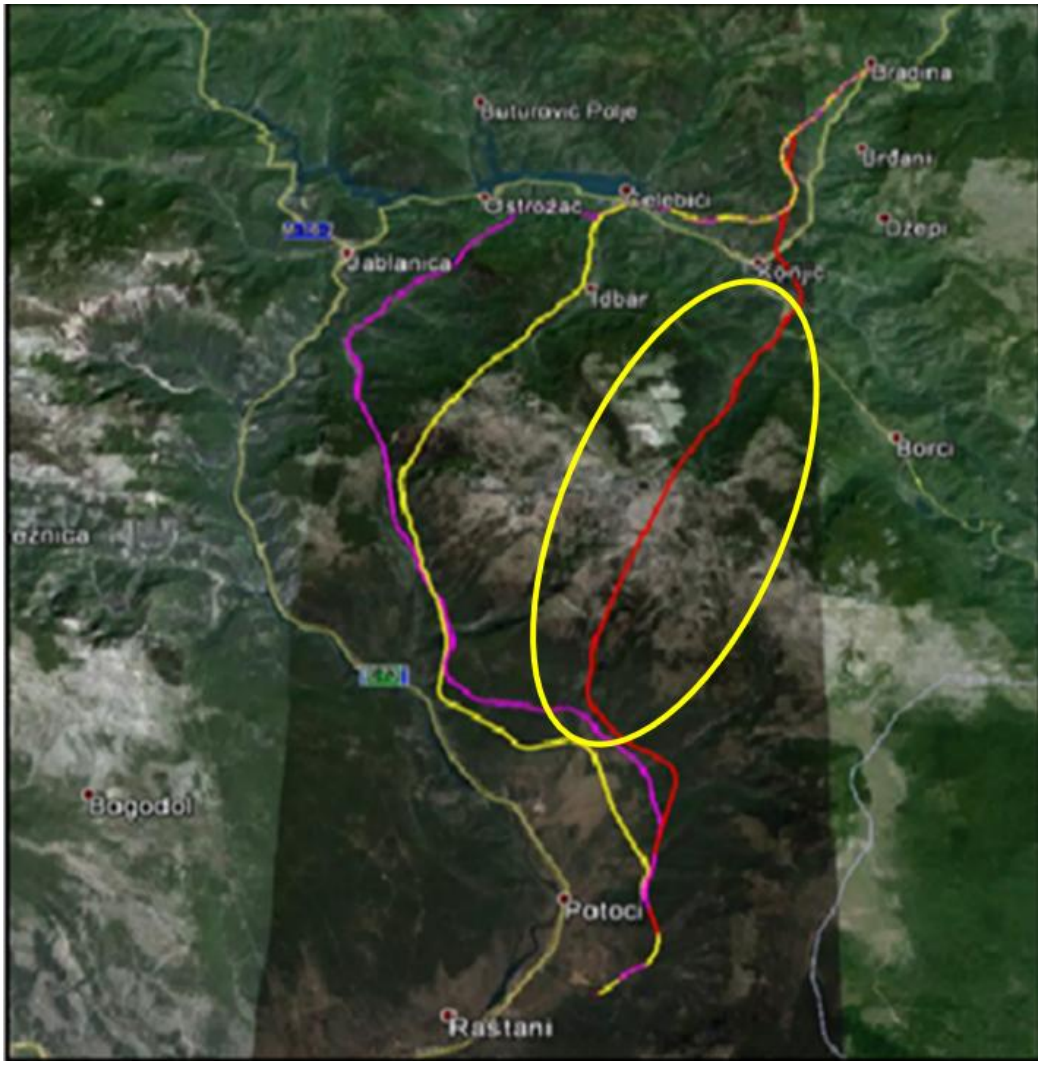

Figure 9: Corridor Alternatives; Light yellow – existing M17 road; Pink – alternative (3); Yellow – alternative adopted in 2006 (4); Red – alternative (5) through the Prenj Mountain

These decisions were based on well-founded technical, environmental and socio-economic assessments, validated through multiple rounds of public consultations and parliamentary reviews.

The alignment decision is legally binding under the amendments to the Spatial Plan for the Area of Special Interest for FBiH "Motorway on Corridor Vc" 2008-2028, adopted in 2017. Revisiting the route would require overturning established legal processes, repeating feasibility studies public consultations, and parliamentary approvals, resulting in delays measured in years and significant additional costs. Both the Prime Minister of FBiH and the JPAC have made it clear that the alignment cannot be reconsidered without compromising the entire project timeline and objectives.

While major alignment changes are no longer possible, several optimisations and micro-alignments have been implemented within the designated corridor to address environmental and social sensitivities:

> Geotechnical adjustments: Alignments have been shifted up to 200 m to avoid unstable areas and improve road safety.

- Hydrological improvements: Changes have minimised water sources and groundwater impacts, enhanced drainage systems and ensured that the alignment and wastewater discharge avoid water protection zones.
- Environmental benefits: Alignment adjustments reduced the risk of rockfalls, visual impacts and hydrological risks in sensitive areas like Klenova Draga Valley.
- Improved connectivity: The Konjic Bypass and other connections to the main M17 road were integrated into the project design to improve local accessibility.
- Minimising biodiversity impact: Avoidance measures that include relocation of disposal sites from the sensitive potential Natura 2000 and candidate Emerald sites, as well as alterations to the design of the motorway bridge over Neretva were included in the Project design.

These measures demonstrate the Project's commitment to adhering to the mitigation hierarchy by avoiding, minimising, mitigating and compensating for environmental and social impacts wherever feasible.

The current alignment is also optimised to comply with key environmental and social requirements under EBRD's PRs:

- PR 1/Standard 1 (Environmental and Social Assessment): Alternatives were analysed using MCA and validated through multiple public consultations.
- PR 4/Standard 9 (Community Health and Safety) and PR 5/Standard 6 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement): During the alignment optimisation process, priority was given to the technical stability and safety of the route, followed by minimising the impact on private property. The inclusion of the "Konjic South" interchange in the route was a key requirement from the City of Konjic, aimed at reducing traffic congestion in the city centre and improving access to the industrial zone. However, due to its location, this interchange impacts additional private properties. The alignment in general was designed to avoid densely populated areas, with land acquisition impacts primarily in the rural parts of the City of Konjic. For the Mostar side, the impact on privately owned property is minimal as there are no structures within the planned route that would require expropriation.
- PR 6/Standard 4 (Biodiversity): The current alignment avoids and minimises impacts on sensitive ecosystems to the maximum possible extent. There are no viable alternatives to the current alignment with regard to avoidance of priority biodiversity features or critical habitats as the extent of such habitats is major in the Project area, i.e. there is no alternative within the region for development of the Project in habitats of lesser biodiversity value. All requirements given in the paragraph 13 and 15 of the EBRD E&S Policy and point 17 of EIB Standard 4 are satisfied.
- PR 10/Standard 2 (Stakeholder Engagement): Public consultations were held throughout the alignment selection and local EIA and ESIA development phases.

JPAC and the Government of FBiH (through key ministries) have engaged in extensive public consultations at key project milestones. Additionally:

- Documentation, including ESIAs, MCAs and consultation reports, has been publicly disclosed.
- The Government of FBiH and JPAC have repeatedly confirmed their adherence to national legal frameworks and international standards in route selection.

In conclusion, the route alignment of Corridor Vc was the result of decades of analysis, consultation, and legal processes. It reflects the most technically, economically, environmentally, and socially viable option while balancing multiple competing criteria. Revisiting the alignment is neither legally nor practically feasible, demonstrating the lack of viable alternatives to the current alignment. As a result, the permanent impact on the candidate Emerald site Bijela Canyon that cannot be successfully mitigated is inevitable.

Moving forward, the focus remains on implementing robust mitigation measures, optimising micro-alignments, and ensuring continued compliance with environmental and social safeguards throughout the construction and operational phases.

7 Stage 4 - Assessment Where No Alternative Solutions Exist and Where Adverse Impacts Remain

Stage 4 of the Appropriate Assessment process, applicable when no viable alternative solutions exist and adverse impacts on Natura 2000 sites remain, involves demonstrating overriding public interest and implementing compensatory measures. In the context of the Corridor Vc motorway project, the alignment's strategic importance-linking BiH to the Trans-European Transport Network (TEN-T)—and its critical role in national socio-economic development serve as justification under imperative reasons of overriding public interest (IROPI) which was initially proclaimed in 2003 for the entire corridor by the BiH Government. In 2016, this subsection was proclaimed to be of public interest by the Government of FBIH. The project's contributions to regional connectivity, economic growth, environmental improvements, and social benefits outweigh the residual adverse impacts.

Compensatory measures, aligned with EBRD and EIB requirements, have been integrated to offset the impacts Project is anticipated to have on trigger species for the candidate Emerald site Bijela Canyon. These measures include habitat restoration (i.e. restoration of woodland habitats), biodiversity conservation actions (bird panels and bat boxes), and hydrological interventions to mitigate long-term ecological consequences. By adhering to the mitigation hierarchy and fulfilling legal and international obligations, the project ensures a balance between development goals and environmental stewardship.

Please see the Biodiversity Management Plan for the full list of offset measures.

8 Conclusion

In BiH, the Habitats Directive does not apply and therefore there are no officially proclaimed Natura 2000 sites. Consequently, there are no formal *Qualifying Interests* or *Conservation Objectives* for the sites of European nature conservation interest. This means that directly applying the AA process is very difficult. However, there are lists of species that are of concern registered within those potential Natura 2000 sites identified by the aforementioned project. Confirmed species from said lists and other registered species were used for evaluating impacts.

As assessed through the Screening stage, the Project passes through two proposed Natura 2000 sites and subsequently two candidate Emerald sites which partially overlap with the boundaries of the Natura sites. All other Natura 2000 and Emerald sites have been excluded from further assessment due to the distance being too great for the conservation objectives of these sites to be impacted for most features. Direct and indirect impacts have been assessed for the species that were identified as present (or expected) at the site and were the trigger for the designation of these protected areas.

Impacts on the sites of interest could not be excluded with certainty in the screening phase therefore appropriate assessment was done. The assessment established there will be direct unavoidable impact on the Konjicka Bijela and Prenj sites (they significantly overlap), while the impacts will be avoided in the Zlatar site. Proposed avoidance and mitigation will mitigate the impact. The BMP stipulated development of three plans pertaining to biodiversity and this document.

Significant impacts due to the implementation of this Project may be expected for both horseshoe bat species, *Aquila chrysaetos*, *Testudo hermanni*, *Lutra lutra* and *Rupicapra rupicapra balcanica*. For these species, avoidance, mitigation and compensatory measures have been set to safeguard the conservation objectives, primarily of the Prenj – Cvrsnica – Cabulja site. While the project poses significant risks to key species and habitats, it should proceed only if robust mitigation strategies are in place to address fragmentation, disturbance, and habitat loss. The project must incorporate measures to ensure that the impacts on biodiversity are minimised. If such measures can be effectively implemented and monitored, the project may proceed with reduced risk to biodiversity. Without proper mitigation, however, the project could result in long-term ecological harm, and its continuation should be reconsidered.

Biodiversity Offsetting Plan, Land and Restoration Plan and Invasive Species Management Plan are to be in the construction phase. With the implementation of all proposed measures, residual impacts will persist, particularly in the Konjicka Bijela and Prenj sites. Following the completion of Stages 3 and 4 of the Appropriate Assessment, it has been determined that no viable alternatives exist. This project has been declared of public interest, as outlined in Chapters 6 and 7.

To address the remaining impacts, compensatory measures have been established to minimise losses for sensitive receptors. These measures, detailed within this document and the Biodiversity Management Plan (BMP), include habitat restoration, creation, and enhancement. For instance, to offset the loss of forest habitats and by extension, the loss and fragmentation of habitats for forest-dwelling species – afforestation activities are planned for the affected areas. The Project may proceed contingent upon the full implementation of all avoidance, mitigation, and compensation measures as outlined. Strict adherence to the BMP and associated plans, alongside continuous monitoring, is essential to minimise residual impacts and ensure ecological integrity. Failure to implement these measures effectively would necessitate reconsideration of the project's feasibility to prevent long-term ecological harm.