

NON-TECHNICAL SUMMARY (NTS)

Corridor Level Environmental and Social Assessment for the Belgrade-Nis High Speed Railway Corridor, Serbia

July 2022

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List of Abbreviations

E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESP	Environmental and Social Policy
EU	European Union
GBVH	Gender Based Violence and Harassment
GHG	Greenhouse gasses
IBA	Important Bird Areas
IPA	Important Plant Areas
NTS	Non-technical Summary
OHS	Occupational Health and Safety
PBA	Prime Butterfly Areas
PIU	Project Implementation Unit
PPF9	Project Preparation Facility
PR	Performance Requirement
pSCI	proposed Sites of Community Importance
pSPA	proposed Special Protection Areas
RoS	Republic of Serbia
SEA	Strategic Environmental Assessment
SEP	Stakeholder Engagement Plan
SRI	Serbian Railway Infrastructure
WBIF	Western Balkan Investment Framework
WMP	Waste Management Plan

1 Introduction

Project Background. The European Bank for Reconstruction and Development (EBRD) is considering providing finance to the Republic of Serbia (RoS) for the benefit of Serbian Railways Infrastructure (SRI). A Project Implementation Unit (PIU) will be responsible for project management. The loan will be used to finance the rehabilitation and upgrade of the approx. 243 km-long railway line connecting Belgrade to Nis (“Corridor X”) with the aim to increase speed while enhancing quality of passenger and freight rail services. The entire Project will involve a combination of upgrading the design speed to up to 160/180/200 km/h (depending on the section) and doubling of single tracks. The reconstruction and development of Corridor X is recognised as one of the strategic priorities in both the previous Spatial Plan of RoS (2010-2020) and the new Draft Spatial Plan (2021-2035). The Project will be co-financed by the European Investment Bank (EIB) and European Union (EU).

The first tranche of the loan will be committed to finance the works of the Stalac-Djunis subsection (approx. 17 km in length), the only subsection for which an environmental and social assessment (E&S) has been carried out to date. Tranches to finance other subsections of Corridor X will be uncommitted.

Project Category. As the entire Project involves greenfield development and is part of an extensive wider linear infrastructure development on Corridor X, EBRD has classified it as a **Category A project**¹.

Project Design. The Belgrade-Nis line is still in the design phase – only a Conceptual Design has been developed for the entire Corridor, while completion of the Preliminary Design is expected in the first quarter of 2023. The exception is the Stalac-Djunis subsection for which a Conceptual Design has already been developed².

Project Disclosure Package. Under Lenders’ requirements, the following will comprise the disclosure package for the **entire Belgrade-Nis corridor** (in English and Serbian):

1. Corridor E&S Scoping Report (2022)
2. Corridor-level E&S Assessment Report and its annex Environmental and Social Management Plan (2022)
3. Corridor Resettlement Policy Framework (2022)
4. Corridor Environmental and Social Action Plan (2022)
5. Corridor Stakeholder Engagement Plan (2022)
6. Corridor Non-technical Summary (2022) – *this document*

*Note: SRI will utilise Corridor-level E&S Assessment Report and its annex Environmental and Social Management Plan during preparation of ESIA and ESMPs for each Project subsection (which also will be disclosed) in the next phase.

The following will comprise the disclosure package for the **Stalac-Djunis subsection** (in English and Serbian):

1. Draft Environmental and Social Impact Assessment Study (2016)
2. National Environmental Impact Assessment Study (2018)
3. Supplementary Study and its annex Environmental and Social Management Plan (2022)
4. Environmental and Social Action Plan (2022)
5. Resettlement Action Plan (2022)
6. Non-technical Summary (2022)

This document is a Non-technical Summary which provides a summary of the Belgrade-Nis section in non-technical language covering the Project background and description, the baseline conditions in the Project area, the (E&S) impacts with mitigation measures needed to structure the Project to meet the EBRD Environmental and Social Policy (2019), and the disclosure and communication requirements of the Project.

¹ This means that a comprehensive ESIA and review of associated documents must be carried out, followed by their public disclosure for a minimum period of 120 days.

² The Stalac-Djunis subsection will be constructed by two separate “design and build” contracts, one for LOT 1 (tunnelling works for Tunnel 4) and one for LOT 2 (all other civil works and track superstructure for the entire subsection). In February 2022, a contract for the design and execution of works on LOT 1 was signed between SRI and China Railway 21st Bureau Group Co. LTD.

2 Existing Railway Route

The railway route Belgrade-Nis is part of the Main line 102: Belgrade Centre-Rasputnica (Junction) "G"-Rakovica-Mladenovac-Lapovo-Nis-Presevo-State Border. It is part of the Corridor X and is defined as a priority for the development of the Serbian railway network.

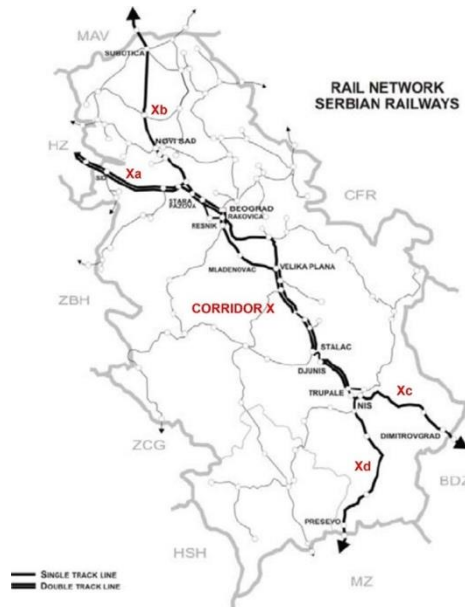


Figure 1: Corridor X as part of the Serbian railway network

A summary of the **main characteristics of the existing railway line Belgrade-Nis** are presented below:

- > **Speed:** The commercial speed of passenger trains is less than 50 km/h. The highest permissible speed of trains is 120 km/h between Jagodina and Paracin in the length of 17.4 km, while on the rest of the railway line it is mainly 100 km/h, although on certain sections train speeds range from 50 to 80 km/h. The lowest permissible speed of trains is 30 km/h at the entrance to the station Nis.
- > **Electrification:** While the railway line Belgrade-Nis is completely electrified, the electrical and telecommunicating equipment is technologically obsolete.
- > **Junctions:** The section Belgrade Centre-Resnik is part of the Belgrade railway junction, and the section Trupale-Medjurovo is part of the Nis railway junction.
- > **Tracks:** From Belgrade to Velika Plana, there are two single-track railway lines, which are not in the same corridor, that are used as a two-track railway line for one part of the traffic, i.e. for the direction towards Nis via Mladenovac, and via Mala Krna for the direction from Nis.
- > **Structures:** There is a total of 9 tunnels, 130 bridges and bridge structures, 449 culverts and other smaller-sized structures, as well as 126 level crossings.
- > **Stations:** There are 31 stations, 27 stops, 4 passing points, 5 junctions and 1 service point. 25 stations are mixed stations serving passengers and freight, whereas 6 are intended exclusively for passenger service.

3 Planned Investments

Key railway characteristics. This railway line will be modernised, so that:

- > the maximum speed will be increased from the current average of 50 km/h to the range of 160 to 200 km/h. Some smaller sections will have lower speeds, primarily in urban areas;
- > a second track will be constructed where needed;
- > the line will be equipped with a European Rail Traffic Management System (ERTMS);
- > the length of the main tracks in all stations and crossings will be at least 740 m;
- > the clear cargo profile in the tunnels will be upgraded to UIC-GC³;
- > in official passenger stations, platforms of 55 cm height will be constructed;
- > the minimum length of passenger platforms will be at least 400 m where international trains are planned to stop.

Subsections. For the purpose of an in-depth and concise analysis for the needs of Corridor-level E&S Assessment, the Belgrade-Nis railway is divided into 9 subsections:

Subsection 1: Belgrade-Resnik

Subsection 2: Resnik-Velika Plana

Subsection 3: Velika Plana-Gilje

Subsection 4: Gilje-Paracin⁴

Subsection 5: Paracin-Stalac

Subsection 6: Stalac-Djunis

Subsection 7: Djunis-Medjurovo

Subsection 8: Resnik-Ostruznica (as part of the Belgrade railway node) – *no conceptual design developed yet*

Subsection 9: Crveni Krst-Nis Center-Nis Marshalling yard (as part of the Nis railway node) – *no conceptual design developed yet*

Figure 2 below shows all these subsections on the Belgrade-Nis line, whereas the following figures show the existing and planned railway with ancillary structures for each of the 9 subsections. It should be noted that the presented characteristics and further analysis of E&S impacts of the future railway alignment are made on the basis of the existing Conceptual Design. Changes are possible in the process of developing the Preliminary Design.

³ (UIC) GB is the international freight profile designation defined in the TSI Rolling Stock (2002/735 / EC), which specifies the maximum permissible "external" dimensions of rolling stock together with the load.

⁴ Note: *already modernised several years ago by constructing a new double-track railway for the design speed of 160 km/h; therefore, this section will not be the subject of new reconstruction, but small-scale additional construction works are possible to enable reaching a speed of 200 km/h.*

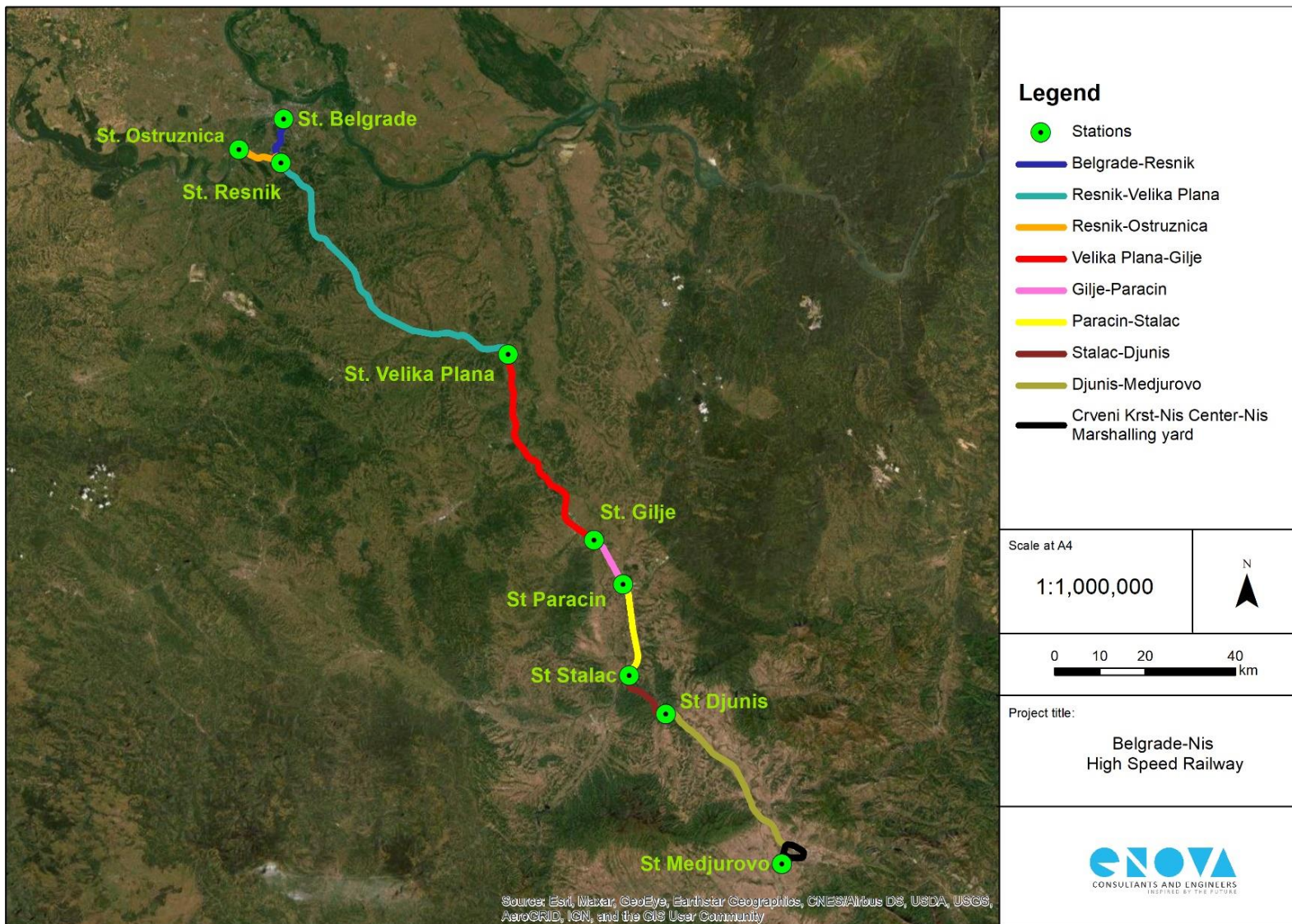


Figure 2: All subsections on Belgrade-Nis railway alignment

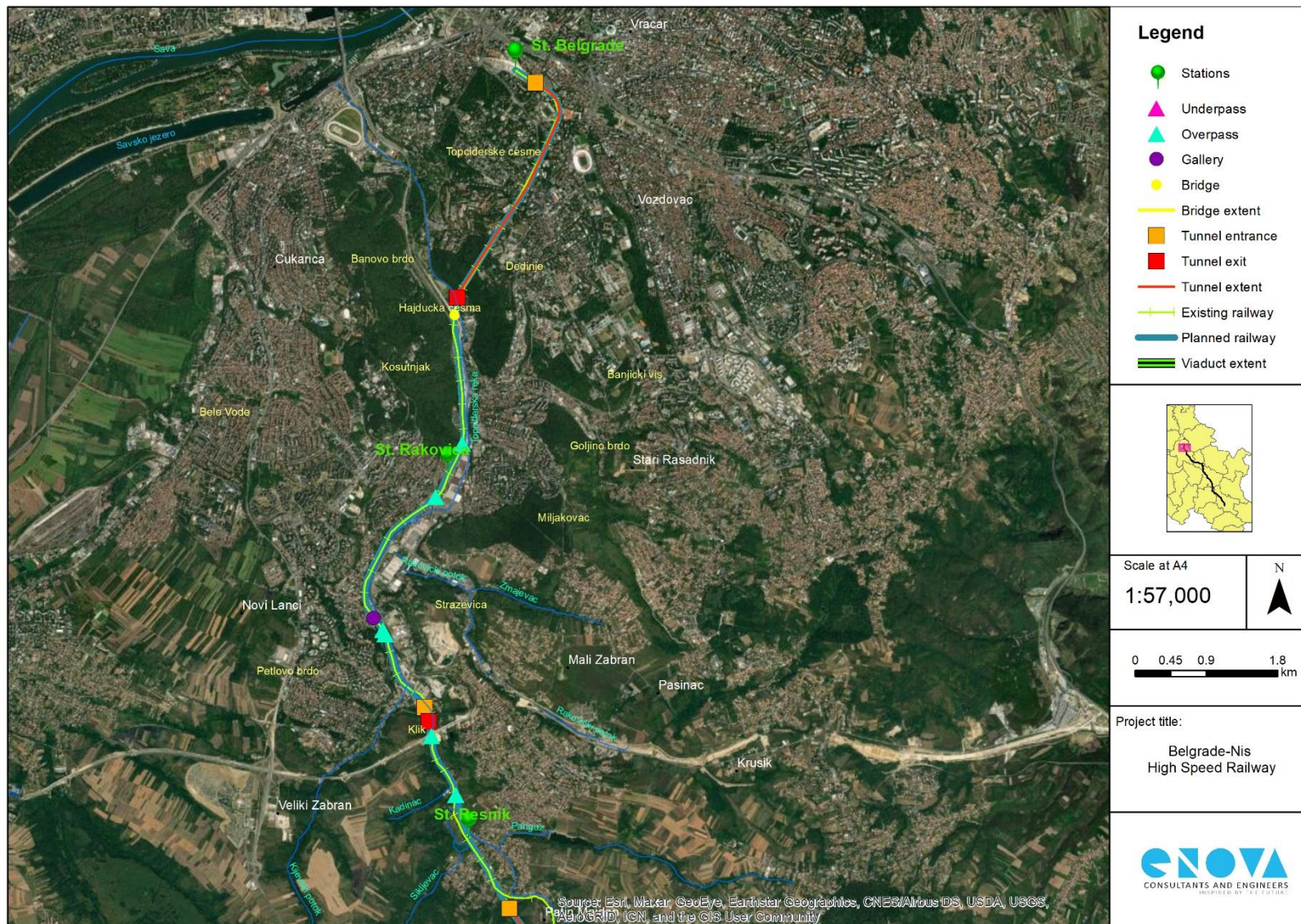


Figure 3: Existing and planned railway with ancillary structures (Belgrade-Resnik subsection)

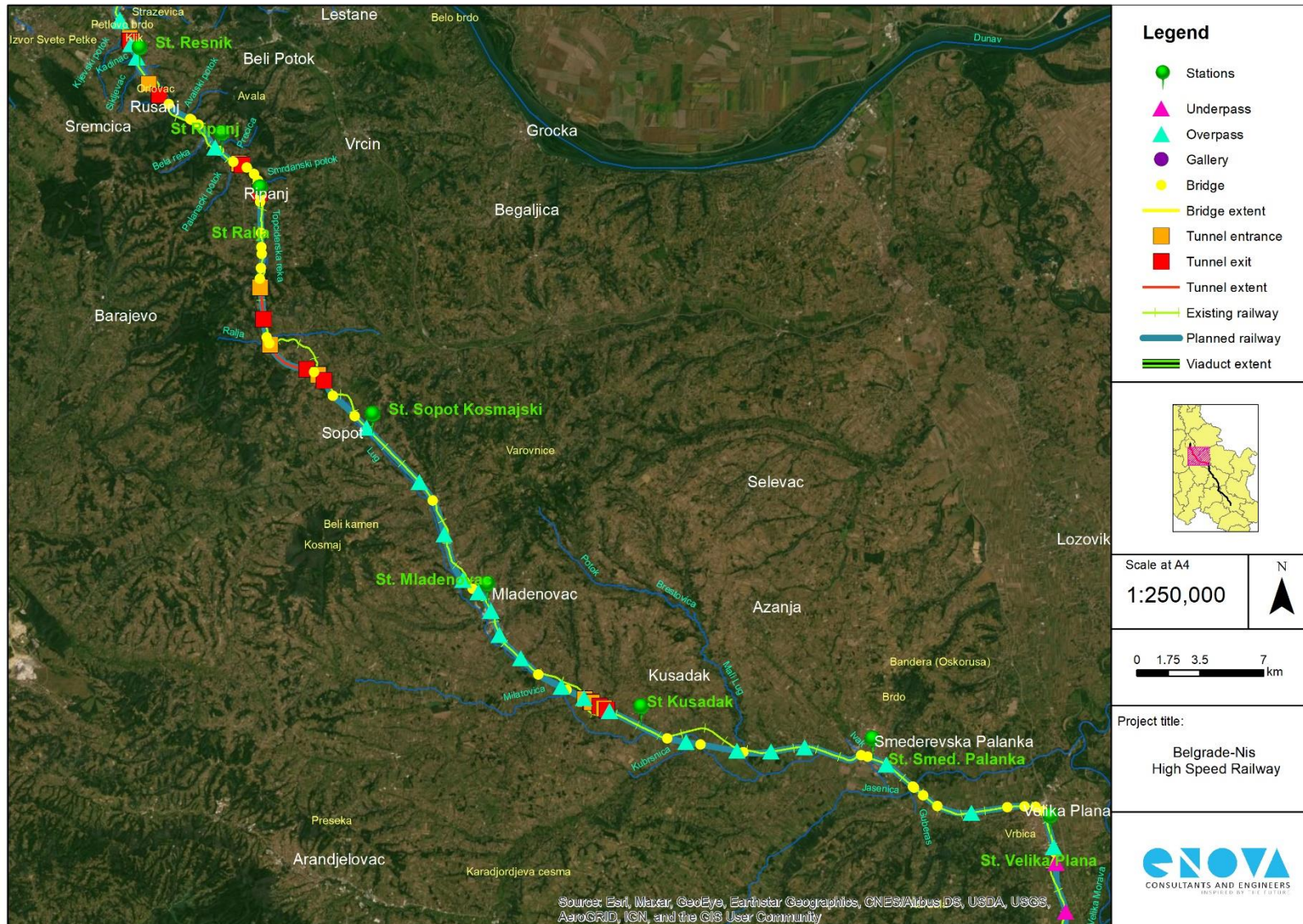


Figure 4: Existing and planned railway with ancillary structures (Resnik-Velika Plana subsection)

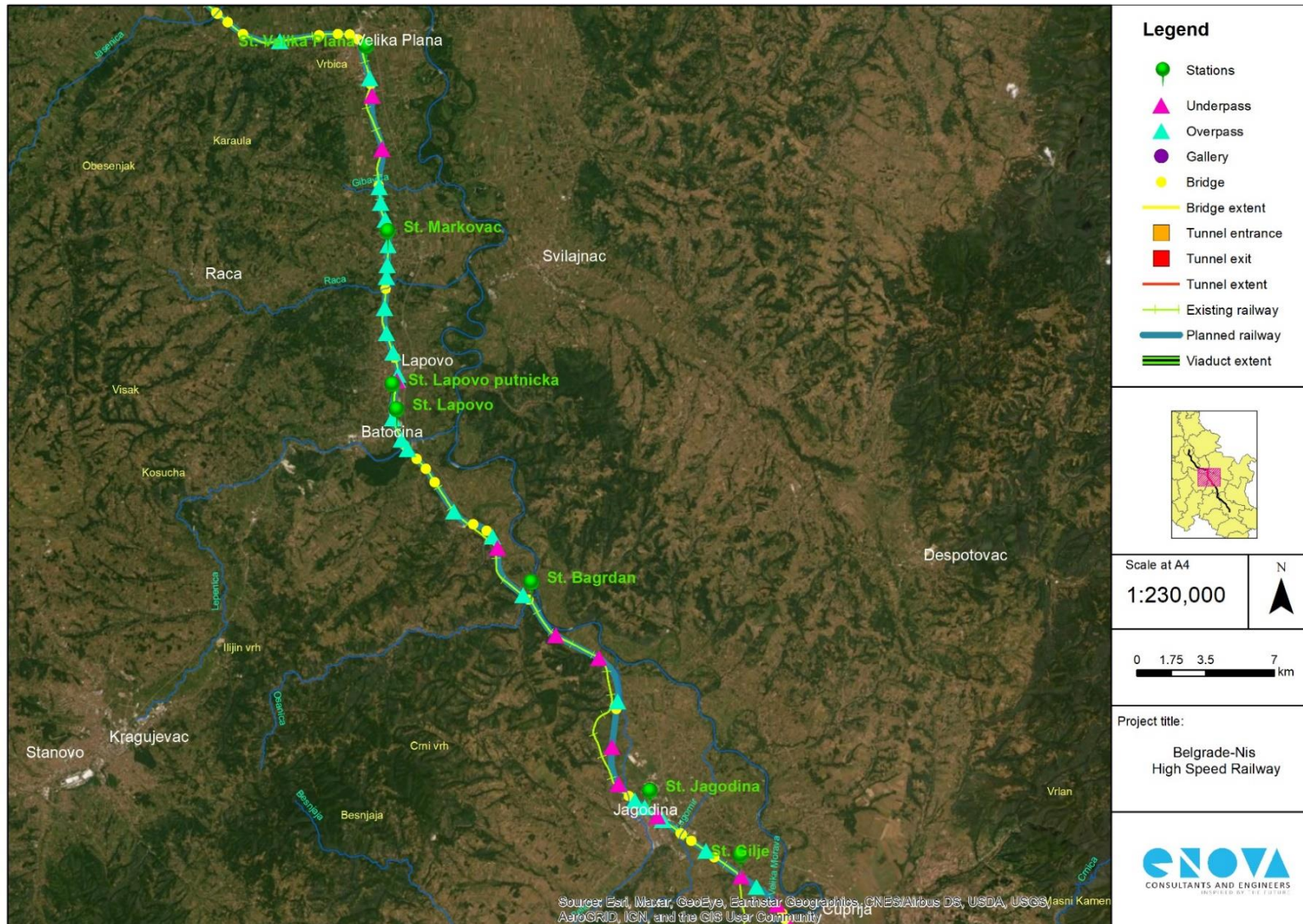


Figure 5: Existing and planned railway with ancillary structures (Velika Plana-Gilje subsection)



Figure 6: Existing and planned railway with ancillary structures (Gilje-Paracin subsection)

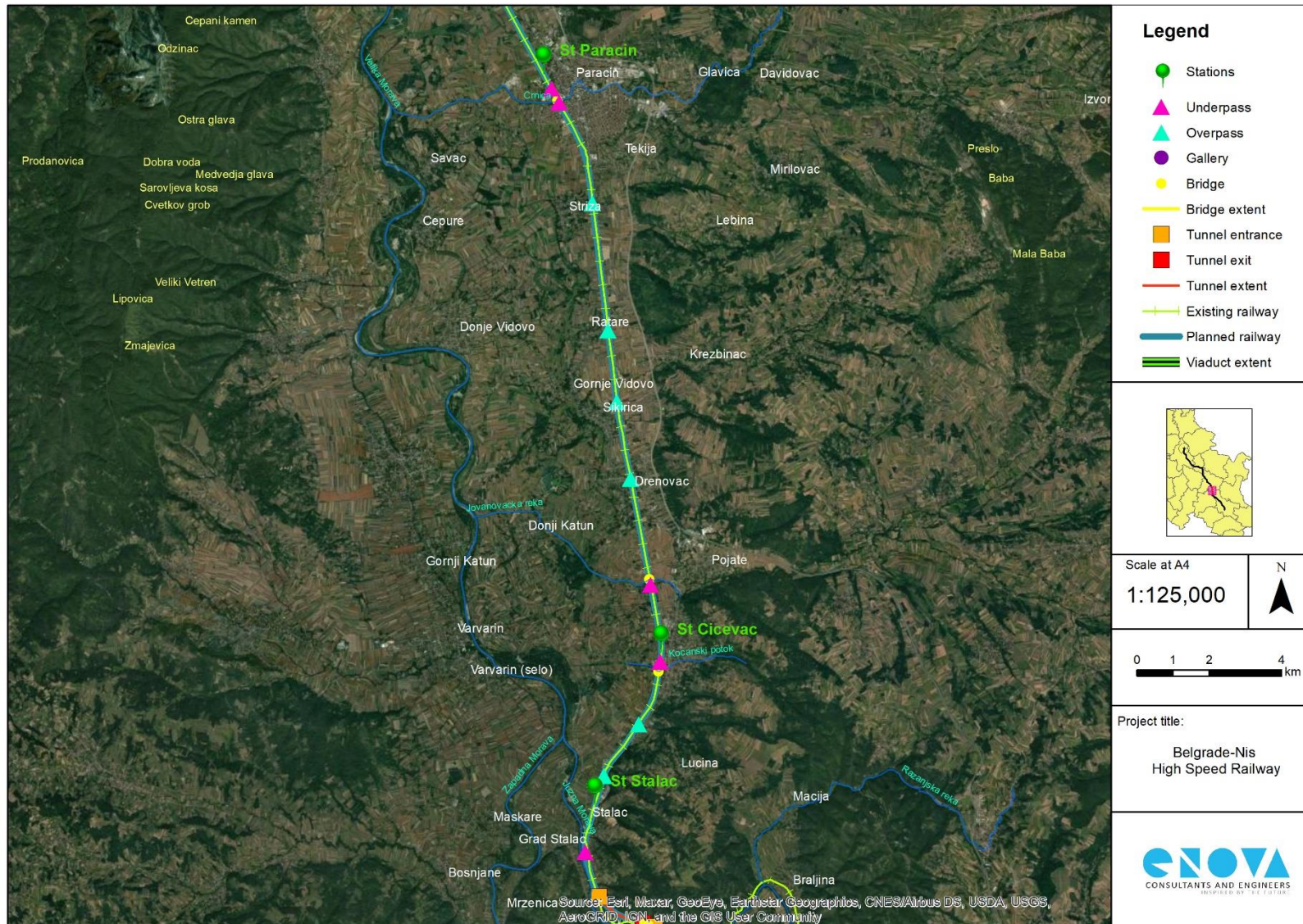


Figure 7: Existing and planned railway with ancillary structures (Paracin-Stalac subsection)

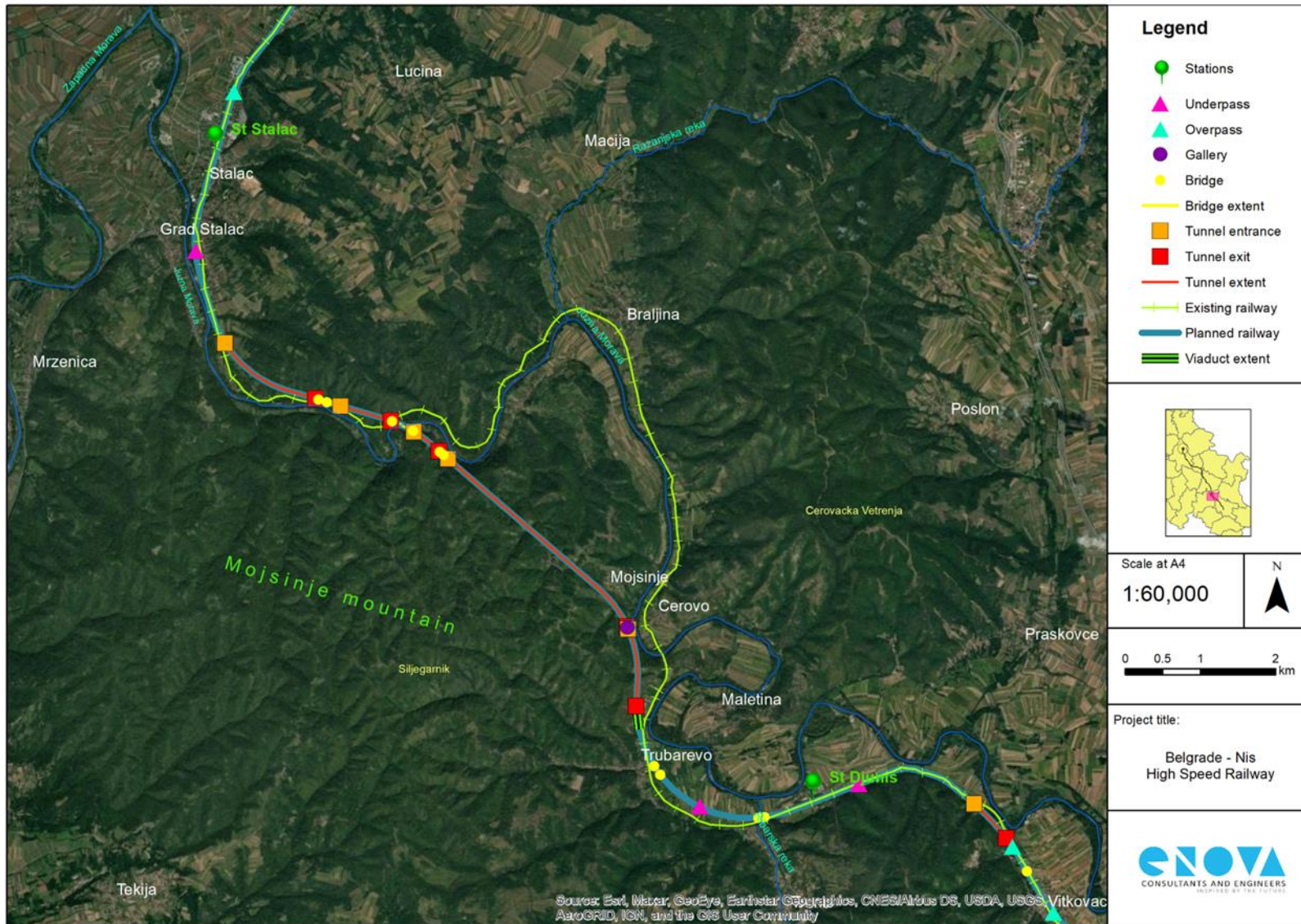


Figure 8: Existing and planned railway with ancillary structures (Stalac-Djunis subsection)

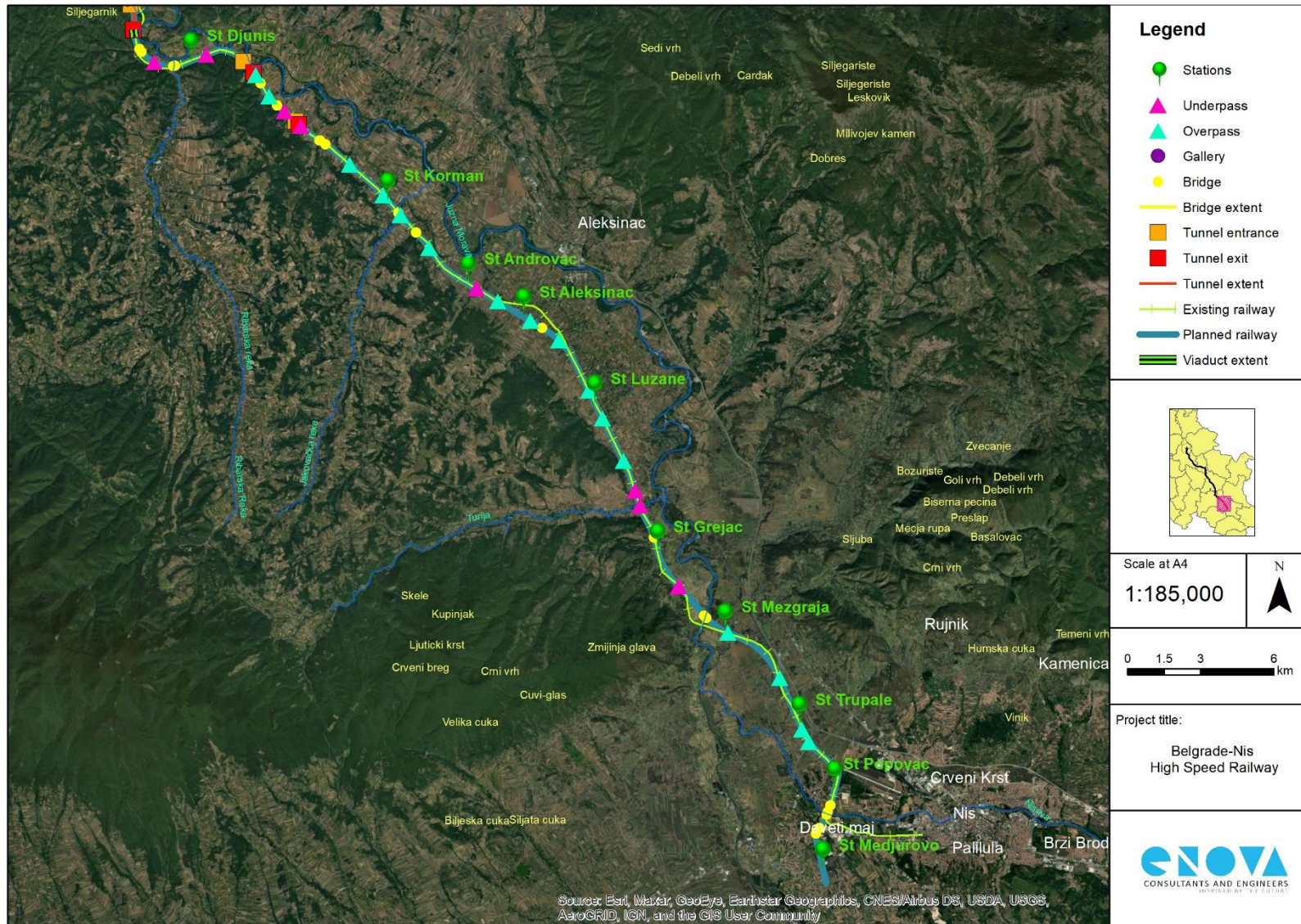


Figure 9: Existing and planned railway with ancillary structures (Djunis-Medjurovo subsection)



Figure 10: Resnik-Ostruznica subsection (part of the Belgrade railway node)



Figure 11: Crveni Krst-Nis Center-Nis Marshalling yard subsection (part of the Nis railway node)

4 Legal Aspects and Compliance with Relevant Laws and Policies

National Strategies. The **Spatial Plan of the Special Purpose Area of the Infrastructure Corridor of the Belgrade-Nis Railway Line (section Velika Plana-Nis)** was developed in 2020 for speeds up to 160 km/h. The Government adopted the Spatial Plan in 2020. Given that the maximum speed on the Belgrade-Nis section has been increased to 200 km/h, the Plan is currently being updated and a new Plan for the Resnik-Velika Plana section is being developed⁵. For the subsection Stalac-Djunis, a **Spatial Plan of the Special Purpose Area of the Infrastructure Corridor of the Railway Line Stalac-Djunis and accompanying Strategic Environmental Assessment (SEA) Report** were adopted in 2017 by the Government, with a planning horizon up to 2036.

National Requirements. The implementation of the Project requires compliance with a set of national laws and bylaws in the areas of railway safety, environmental protection, water protection, air pollution, nature protection, solid waste management, etc. With regard to **railway design and management**, the key relevant laws are the *Law on Planning and Construction*, the *Law on Railways*, the *Law on Safety in Railway Operations* and the *Law on Interoperability of the Railway System*. Since Corridor X is a project of particular importance to RoS, **procedural matters** (such as preparation of documentation and obtaining permits) are regulated by the *Law on Special Procedures for the Implementation of Construction and Reconstruction Projects of Linear Infrastructure of Particular Importance for Serbia*.

With regard to **permitting requirements**, the *Law on Planning and Construction* defines that the Location Conditions must be obtained for the railway project. The Location Conditions are issued on the basis of a Conceptual or Preliminary Design. After obtaining the Location Conditions, a Design for Construction Permit is prepared. The design is based on the conditions from the Location Conditions, relevant regulations, measures for a facility prescribed in different studies developed at this stage (e.g. EIA) and rules of profession. The Design for Construction Permit is submitted together with an application for the Construction Permit. After construction is completed, a Use Permit is issued based on the Technical Acceptance of the project and its components.

The key laws related to the **national EIA procedure** are the *Law on Environmental Protection* and the *Law on EIA*. EIA is mandatory for projects with significant E&S impacts. The EIA Study must be approved by the competent authority.

Environmental protection is ensured through a set of laws which define the standards for quality of air, water, noise and soil, waste management and other environmental guidelines. In addition, a range of legislation covers other issues such as **labour, health and safety**, protection of **cultural heritage** and **land acquisition**.

EBRD Requirements. EBRD's Environmental and Social Policy 2019 (ESP) details the commitments of the Bank to promote environmentally sound and sustainable development. The Bank has defined specific Performance Requirements (PRs) for key areas of E&S issues and impacts as listed below:

- PR 1: Assessment and Management of E&S Risks and Impacts*
- PR 2: Labour and Working Conditions*
- PR 3: Resource Efficiency and Pollution Prevention and Control*
- PR 4: Health, Safety and Security*
- PR 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement*
- PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources*
- PR 7: Indigenous Peoples (not applicable to this Project)*
- PR 8: Cultural Heritage*
- PR 9: Financial Intermediaries (not applicable to this Project)*
- PR 10: Information Disclosure and Stakeholder Engagement*

⁵ Note: The new Spatial Plan must be adopted before EIA submission.

EIB Standards. EIB requires that all the projects it is financing are acceptable in E&S terms by applying appropriate safeguards to all its operations. The EIB Environmental and Social Standards (2022) provides an operational translation of those standards grouped across 11 thematic areas, as follows:

Standard 1: Environmental and Social Impacts and Risks
Standard 2: Stakeholder Engagement
Standard 3: Resource Efficiency and Pollution Prevention
Standard 4: Biodiversity and Ecosystems
Standard 5: Climate Change
Standard 6: Involuntary Resettlement
Standard 7: Vulnerable Groups, Indigenous People and Gender (Indigenous People – not applicable to this project)
Standard 8: Labour Rights
Standard 9: Health, Safety and Security
Standard 10: Cultural Heritage
Standard 11: Intermediated Finance (not applicable to this project).

EU Requirements. EU requirements applicable to the Project include⁶:

- > Directive on establishing a single European railway area
- > EIA Directive on the assessment of the effects of certain plans and programmes on the environment
- > Directive relating to the assessment and management of environmental noise
- > Waste Framework Directive
- > Water Framework Directive
- > Flood Directive
- > European Climate Law
- > Birds Directive
- > Habitats Directive
- > Directive on railway safety
- > Directive on the interoperability of the rail system within the EU
- > Regulation on the EU Agency for Railways
- > OHS Directive

The implementation of this Project will therefore enable RoS to meet national requirements, as well as EBRD, EIB and EU requirements. The Environmental and Social Action Plan (ESAP) which has been approved by SRI and the Lenders includes a set of comprehensive mitigation measures to bring the (re)construction of the Belgrade-Nis section into compliance with all these requirements.

⁶ The list is not exhaustive and includes only the most important EU requirements applicable to the Project.

5 Summary of Environmental and Social Baseline

5.1 Biodiversity

Biodiversity assessment included desktop and field surveys of habitats, flora, invertebrates, fish, amphibians, reptiles, birds and mammals. Survey of habitats in the Project area has shown that there are no habitat types listed in the Annex I to the Habitats Directive. A total of 212 plant species was recorded. None of the encountered species are protected, endemic nor listed in the Red Book of Flora of Serbia. However, a number of invasive species is high as they often form large stands near the railway and human settlements.

A total of 114 invertebrate species were registered but only seven are of conservation concern. *Coenagrion ornatum* is listed in Annex II to the Habitats Directive and its habitat could be directly impacted by the Project. Fish survey included desktop survey of rivers and streams that will be crossed by the new railway, while three were selected for field visits. According to the findings of a complete literature analysis of all reliable sources and field observations, the researched area is home to 31 fish species belonging to nine families. Five species are invasive, non-native. Herpetofauna surveys have shown that the Project area is inhabited by (at least) 16 species of amphibians and 15 species of reptiles. The majority of recorded species are widespread and numerous in Serbia. The most numerous are individuals from genus *Pelophylax*, *Rana dalmatina*, *Podarcis muralis*, *Lacerta viridis*, *Natrix natrix*, *N. tessellata*. A total of 1017 data entries was collected, with 2163 specimen of 85 bird species, 76 species are considered to be nesting birds of the researched area. Locality Vrtiste was recognized as an important bird habitat - it was created artificially by relocating the Nisava river, but few years later, after the semi-natural vegetation occupied the area, it has become an oasis for birds in context of nesting and migration. In just one day of field research 29 species of birds were recorded, some of which very rare in southern Serbia and the entire country. During the survey, a total of 15 species of mammals were registered. Records of nine species were collected during field work and records for 15 species were collected during interviews with local population and hunting associations. The habitats along the railway are not suitable for large mammals, but smaller species such as European hare, red fox and red squirrel are very common.

5.2 Protected Areas

A review of all areas of conservation in Serbia: officially protected areas, areas in the process of designation, ecological network of Serbia, Emerald sites, Ramsar sites, Important Bird Areas (IBAs), Important Plan Areas (IPAs), Prime Butterfly Areas (PBAs), proposed Special Protection Areas (pSPAs), proposed Sites of Community Importance (pSCIs), Biosphere Reserves (UNESCO) and UNESCO World Natural Heritage sites has shown that the Project will pass through the following areas:

- > Ecological network area Kosutnjak, Subsection 1
- > Ecological network area Mojsinje Mountains and Stalac Gorge, Subsection 6
- > Ecological corridors Juzna Morava, Velika Morava
- > pSPA Barajevo, Subsection 2
- > pSPA Gornje Pomoravlje (also IBA, code RS044), Subsections 3, 4 and 5
- > pSPA Dobric-Nisava (also IBA, code RS048), Subsection 7
- > pSCI Velika Morava, Subsection 3
- > pSCI Juzna Velika Morava, Subsections 4, 5 and 6
- > pSCI Avala sume, Subsection 2
- > pSCI Nis, Subsection 7

Areas of concern located within the Project's area of influence (1 km-wide buffer zone) are: Natural Monument Kosutnjak Forest, Natural Monument Rogot, Special Nature Reserve Brzansko Moraviste, Natural Monument Miljakovacka Forest, Environmental network site Gornje Pomoravlje (the railway will pass through the pSPA/IBA

site of the same name but the boundaries of these two sites are not the same), pSCI Rogot, pSCI Kosutnjak and pSCI Guberevacke sume.

5.3 Water

The main and largest watercourses in the Project area are: Topciderska River, Velika Morava River, Juzna Morava River and Nisava River. The waters in the immediate catchment area of the Velika Morava River are highly polluted as the area is densely populated, as well as industrially developed. Based on the data of the Environmental Protection Agency of the RoS (2020), exceedance of the limit concentrations of dissolved oxygen throughout the year have been recorded indicating pollution by communal and industrial wastewaters.

There are no precise data on the abundance and territorial distribution of groundwater sources in the Project area. On the territory of central Serbia, the largest part of groundwater reserves is located in the areas of alluvial springs, primarily in the valley of the Velika Morava.

Urban Project area is mainly covered by organised water supply systems (city water supply network), while in rural areas water supply is mainly provided by local networks and individual water wells.

5.4 Air Quality

The areas of Belgrade, Kragujevac and Nis⁷ are in the third (III) category (excessively polluted air in which limit values are exceeded for one or more pollutant), while the rest of the Project area is in the first (I) category (pure or slightly polluted air in which no limit values are exceeded for any of the polluting substances).

The results of air quality monitoring conducted by the Environmental Protection Agency in 2020 indicate that the suspended particles are dominant pollutant. In the period 2016 to 2020, Belgrade had an extremely polluted air, mainly due to the increased concentration of PM₁₀ and PM_{2.5}.

The Belgrade-Nis railway is electrified, so it has a minimal effect on air quality. As a main source of air pollution in the investigated corridor are some industrial plants that represent the source of emissions of harmful pollutants into the atmosphere, as well as individual pollution caused by the combustion of solid and liquid fuels and other substances.

5.5 Climate and Climate Change

The Project area has a continental to moderate continental climate, characterised by warm and dry summers and cold winters. Based on the values of average annual temperatures on monitoring stations in the Project area in 2021, the year is assessed as warm in Krusevac and Nis and very warm in Belgrade and Cuprija; while based on the values of average annual rainfall, the year is assessed as normal in Belgrade and Cuprija, and rainy in Krusevac and Nis compared to the reference period 1981-2010.

The analysis of mean temperature for the 1998-2017 period and the 2008-2017 period shows an increase in temperature (between 1.0°C and 2.5°C) compared to the mean temperature values for the 1961-1990 reference period. By the end of 21st century, a continuous increase in average annual temperature in the Project area is expected.

The recorded amounts of precipitation show an increase from 5% to 10% in the period 1998-2017 and from 5% to 20% in the period 2008-2017 compared to the reference period 1961-1990. On the other hand, the Project area is characterised by a decrease in the amount of precipitation in the summer period from 5% to 30%. Precipitation is predicted to increase by 10% according to the RCP4.5 scenario and stay the same or decrease by 15% according to the RCP8.5 scenario by the end of the century. It is expected that changes in precipitation will be more seasonal than annual, with more frequent heavy precipitation events and higher precipitation accumulation.

⁷ Belgrade and Nis are in the narrower project area, while Kragujevac is in the wider project area.

The most dominant climate change impact in the wider area are floods, especially in the vicinity of the Velika and Juzna Morava Rivers. The entire watercourse of the Juzna Morava River and Velika Morava River, as well as the course of Nisava from the mouth to Dimitrovgrad are assessed as a flood prone area. The municipality of Cuprija has been designated as an area under significant impact of flood.

The possibility of landslides occurrence is assessed as 'likely' to 'very likely' in Belgrade and central Project area, while going towards Nis it decreases and is assessed as 'unlikely'. The RoS ranks fifth in the risk of drought globally, while it is among the three European countries with the highest risk of drought. An increase in the number of fires in the RoS is expected. According to the RCP4.5 scenario, the expected increase in the number of fires is between 10-15%, while according to the RCP8.5 scenario the expected increase in the number of fires is 20%.

5.6 Noise

Strategic maps are mandatory for agglomerations for major railroads with average annual traffic flow higher than 30,000 trains. The existing railway line Belgrade-Nis does not meet the traffic volume requirement, so the strategic noise maps are not prepared. Background noise measurements are not conducted. However, the Contractors have an obligation to perform baseline noise monitoring before start of construction works. An increase of noise levels is expected in the construction and operation phases for sensitive receivers such as residential building positioned along the railway.

5.7 Vibration

No baseline vibration and/or low frequency noise measurements are available. However, the Contractors have an obligation to define construction vibration and low frequency noise monitoring plan and to perform vibration and/or low frequency measurement before start of construction works.

In the construction phase, the increase in vibration and low frequency noise is expected as a result of use of tools, equipment and machines during the execution of works. In the operational phase, a negative vibration impact can be expected (i) on open tracks at distances up to 30 m, (ii) in stations' switch areas at a distance up to 40 m from the switch, and (iii) in tunnels at distances up to 30 m.

5.8 Geology

The Project area spreads over several sheets of basic geological maps: Paracin, Krusevac, Aleksinac, Nis, Belgrade, Pancevo, Smederevo, Pozarevac and Lapovo. Throughout the Project area, formations of different geological ages are represented: (i) the old Proterozoic sediments, (ii) the Mesozoic formations, (iii) the Tertiary consists mainly of Neogene deposits, but Paleogene sediments also occur, (iv) youngest Quaternary sediments, which are of Quaternary age. Based on the seismological hazard map (RSZ 2010) for a return period of 475 years, the Project area is located in zone VII-VIII^o MSK scale, with seismicity coefficient between 0.10 and 0.20.

5.9 Soil

A large number of soil types in the Project area is a consequence of the geological base, the richness of flora and fauna, climatic and hydrological diversity, as well as the human activities. The Project area is mainly characterised by fluvial and fluvioglacial soils. Typical soils, found in the Project area, are cambisol and vertisol, while pseudogley occurs in the area of the city of Belgrade, and chernozem in the area of Nis. Regarding land use, the Project area is mostly covered by agricultural land (arable land, sown crops and fields), followed by forests. The Project area is predominantly lowland-agricultural areas and hilly (orchards and vineyards).

SRI does not conduct regular soil quality monitoring, but it does perform monitoring in case of accidents (e.g., spillage of hazardous substances) at the request of the Ministry of Environmental Protection.

5.10 Landscape and Visual

The terrain from Belgrade to Nis is slightly undulating, from the valley to the hilly areas. The Project area landscape is characterised by (i) the valley of the Velika Morava River and the hills on the left bank of the Velika Morava River, Bagrdan George and the Juzna Morava valley, (ii) arable land used for agricultural purposes, and (iii) urbanised populated areas. Altitude varies between 120 and 500 m above sea level. Four groups of visual receptors are identified: (i) residential receptors, (ii) people that work in the countryside, (iii) recreational receptors, and (iv) people traveling along the railway.

5.11 Materials and Waste

Waste collection is organised in urban areas, while rural areas are less covered. Regional sanitary landfills are used for the disposal of non-hazardous waste. Also, there are more than 120 municipal landfills that do not comply with environmental standards and that accept municipal waste that is collected in an organised manner. The locations of improperly disposed construction and municipal waste were observed along the entire route of the Corridor, especially near railway stations and stops.

The main types of waste generated during the railway (re)construction will be waste generated from terrain preparation for the construction of the new railway and the dismantling of the existing railway. The SRI will require from the Contractors to develop a Construction Waste Management Plan and implement it throughout the construction phase. Wooden sleepers will be separated from track accessories. The Contractors will be responsible for separating the wooden sleepers, while SRI will be responsible for their final disposal. The metal components of the track accessories will be reused/recycled. Waste sleepers will be stored on hard surface and covered against rainfall and fire.

SRI develops three-year Waste Management Plans (WMP) for its operations in line with national regulations. The Plans define the procedures for waste identification and managing, prevention of waste generation, rational use of natural resources, elimination of dangers and its harmful effects, as well as procedures and methods for waste disposal. The final disposal of (hazardous) waste is organised in cooperation with licenced waste management companies or the waste is sold on the market through tendering procedure. The wooden sleepers that will be replaced during reconstruction are considered as hazardous waste. The current practice is to temporarily store wooden sleepers on a solid stable base with equipment for collecting spilled liquids and degreaser. The options for their final disposal have not yet been defined, and SRI is working together with the Ministry of Environmental Protection to find the best option.

5.12 Cultural Heritage

No cultural heritage sites have been identified on the route of the planned railway itself but there are some sites in the vicinity of the railway line. The following sites have been identified in the Project area (a distance of approx. 1 km to the left and right from the axis of the proposed route):

1. **Belgrade-Resnik subsection:** Ministry of Social Policy and Public Health Building in Belgrade, Steam mill, the building of the State Printing Office, Milan Vapa's Paper Mill in Belgrade, Museum of Toma Rosandic, Dusan Tomic's Villa, Monastery "Vavedenje Presvete Bogorodice", Doctor's Tower, Karadjordjev Park and Monument and the Cemetery of The Liberators of Belgrade in 1806, "Kuca Flasar" in Belgrade, House of Architect Momir Korunovic, "Fiat" auto repair Building in Belgrade, Dragomir Glisic's Endowment, Church of the Holy Archangel Gabriel, Museum of 4th July 1941, Branislav Nusic's House, Building of illegal party publications, Topcider park (within which there are also located at a distance of 1000m from the route: Prince Milos's Residence - Immovable Cultural Property of Exceptional Importance, Church of Topcider - Immovable Cultural Property of Exceptional Importance, Church Inn Topcider - Immovable Cultural Property of Exceptional Importance), Stevka Milicevic's Villa, Steric Villa, Dr. Aleksandar Belic's House, Olga Moss' Villa, Merchant Dusan Lazic's

House in Belgrade, The Royal Dedinje Compound (within which there is also Church of “Svetog Andreja Prvozvanog”).

2. **Resnik-Velika Plana subsection:** Church of the Holy Trinity in Ripanj, Archaeological Site in Ripanj, Radosavljevic Inn in Donja Ralja, Pantic’s Inn in Gornja Ralja, Church “Svetog Preobrazenja Gospodnjeg”, National Museum Building in Smederevska Palanka, Gymnasium Building in Smederevska Palanka, Memorial workshop "Josip Broz Tito", Building in which Josip Broz Tito resided.
3. **Velika Plana-Gilje subsection:** Old Slautherhouse Building, Building at Milosa velikog Street no. 79, Church of “Vaznesenja Hristovog”, Church of “Sveti Georgije”, The Temple of “Sveta Paraskeva”, Railway station of Lapovo, Church of “Uspenje Presvete Bogorodice”, Church of “Svetih apostola Petra i Pavla”.
4. **Gilje-Paracin subsection:** Church of “Svetog Preobrazenja Gospodnjeg”.
5. **Paracin-Stalac subsection:** Memorial to the Fallen Warriors in the First World War, National Library "Dr Vicentije Rakic".
6. **Stalac-Djunis subsection:** Archaeological site Medieval Town of Trubarevo – wider protection zone, Church of “Sveti Pantelejmon”, Archaeological site “Nikoljac”, Church of “Sveta Nedelja”, Church of “Svetih Arhangela”.
7. **Djunis-Medjurovo subsection:** Monastery of “Sveti Nestor”, Temple of “Sveti Arhangel Gavrilo” in Zitkovac, The new orthodox church in Zitkovac, Church of “Sveti Arhangel Gavrilo” in Luzane, Church of “Sveti Ilija”, Archaeological Site Bujanj.
8. **Resnik-Ostruznica subsection:** No cultural heritage facilities were identified along the railway route.
9. **Crveni Krst-Nis Center-Nis Marshalling yard subsection:** There are many cultural heritage sites near this Project section. However, since a conceptual design including technical specifications and future railway alignment for Crveni Krst (Red Cross)-Nis Center-Nis Marshalling yard have not yet been developed it is not possible to identify with certainty all the cultural heritage monuments and impacts on them at this stage of the project assignment.

None of the local communities identified any significant traditional practices that could be affected.

5.13 Population and Communities

Belgrade-Resnik subsection. This subsection is the most densely populated subsection. Both the existing and planned railway lines are located within the municipalities of Savski Venac and Rakovica – both within the City of Belgrade. As this area is highly developed, there is hardly any agricultural land within this subsection (only sporadic and very small-scale farming along the existing railway line). No Roma settlements have been identified along the railway line.

Resnik-Velika Plana subsection. Both the existing and planned railway lines are located within the City of Belgrade (city municipalities of Rakovica, Vozdovac, Cukarica, Sopot and Mladenovac) and the Municipalities of Smederevska Palanka and Velika Plana. The existing railway route passes through and/or near the following 11 settlements: Resnik, Ripanj Kolonija, Ripanj, Ralja, Djurinci, Vlaska, Mladenovac, Kusadak, Glibovac, Smederevska Palanka and Velika Plana. All planned route deviations affect agricultural or forest land. Higher population density is present in the largest settlements/towns, while sparsely distributed settlements are mainly in the vicinity of other railway stations. No Roma settlements have been identified along the railway line in these settlements.

Velika Plana-Gilje subsection. Both the existing and planned railway lines are located within the municipalities of Velika Plana, Lapovo, Batocina, Jagodina and Cuprija. The new railway route will avoid and/or will be moved away from 4 settlements: Staro Selo (partially), Milosevo (partially), Novo Laniste and Ribnik. The most populated settlements are: Markovac, Lapovo, Milosevo and Jagodina. Roma population lives in some of the settlements but not along the railway line. In addition to the Roma people, the ethnic minority of Vlachs is also present in the City of Cuprija and the surrounding villages.

Paracin-Stalac subsection. Both the existing and planned railway lines are located within the municipalities of Paracin and Cicevac. The existing and the planned railway route passes through and/or near the following 8 settlements: Paracin, Striza, Ratara, Sikirica, Drenovac, Cicevac, Lucina and Stalac. The highest proportion of population is in Paracin, while Cicevac and Stalac are less densely populated. From Cicevac to Stalac, arable land is again the dominant type of area.

Stalac-Djunis subsection. Both the existing and planned railway lines are located within the Municipality of Cicevac and the City of Krusevac. The Project plans almost complete abandonment of the existing railway route and use of a new corridor. The existing railway route passes through and/or nearby the following 7 settlements: Stalac, Stalac Town, Braljina, Mojsinje, Cerovo, Trubarevo and Djunis. The new railway route will be moved away from Braljina and Cerovo. The local population is mostly Serbian; Roma people make up around 2% of the population in Stalac and Djunis, but there are no Roma settlements along the railway. There are some industrial activities in Stalac (companies for construction materials and metals, and transport companies) and some small-scale industrial activities in Djunis (small metal workshops). Farming is the dominant economic activity in the Project area.

Djunis-Medjurovo subsection. Both the existing and planned railway lines are located within the Municipality of Krusevac, Municipality of Aleksinac, Municipality of Crveni Krst (City of Nis) and Municipality of Palilula (City of Nis). The new railway line generally follows the existing corridor. The existing railway route passes through and/or near the following 19 settlements: Djunis, Vitkovac, Donji Ljubes, Srezovac, Gornji Ljubes, Korman, Trnjane, Donji Androvac, Zitkovac, Moravac, Luzane, Tesica, Grejac, Veliki Drenovac, Supovac, Mezgraja, Vrtiste, Trupale and Nis. As the subsection passes mostly through rural areas, the most common economic activity is small-scale farming. There are also some beekeeping activities along this subsection.

Resnik-Ostruznica subsection. This single-track subsection is part of the Belgrade railway junction. This section separates in the Resnik settlement and goes towards the Ostruznica settlement. In Resnik, the railway line passes near the Topciderska river, and then towards the Ostruznica settlement it mainly follows the route of the existing highway A1 and the motorway E75. After passing through the village of Resnik and before entering the village of Zeleznik, the railway line passes through 2 tunnels. The railway alignment goes through the densely populated urban settlement of Zeleznik. There are several residential and commercial buildings near the railway station in Ostruznica. The Sava River is near the railway station.

Crveni Krst-Nis Center-Nis Marshalling Yard subsection. From Crveni Krst to Nis Centar, the subsection passes through a densely populated area and crosses the Nisava River. From Nis Center to Nis Marshalling yard, the subsection passes through a business/industrial area, near sporadic and linear type of settlements, and again crosses the Nisava River. On the stretch from the Nis Marshalling yard to Crveni Krst, the railway line passes near a significant number of agricultural land plots and business facilities on the left and "Konstantin Veliki" airport on the right.

6 Summary of Environmental and Social Impacts and Mitigation Measures

This section provides a summarised description of impacts and mitigation measures for construction and operation of the planned railway line based on the results of the due diligence process conducted in 2022 for needs of developing the Corridor-level E&S Assessment Report. Where applicable, it highlights the need to conduct additional assessments or implement mitigation measures, included within the ESAP and ESMP as implementable actions.

6.1 Impacts on Biodiversity

Some impacts expected in construction phase may arise due to inadequate design and planning of works in the pre-construction phase. Therefore, such impacts are classified as pre-construction impacts as they can be mitigated during that phase.

The main potential impacts in the construction phase are habitat loss and alteration, mortality of fauna, noise and vibration, pollution, soil erosion, spillage and spread of invasive species. The most sensitive receptors are (small) waterbodies, wetland and riparian habitats. Aquatic fauna, as well as birds and other organisms that find shelter and resources in the vegetation depend on the water level of this habitats, which might be affected during construction by drying out or disruption of connections between the rivers and the ponds. Fauna mortality may appear as well due to the constant movement of large machinery. Construction works will cause significant noise and vibration of temporary nature; however, it can impact fauna and cause their dispersal and avoidance of construction areas. The already high level of organic waste due to the intensive agriculture in the project area will likely be increased by the construction works. While it is certain that this impact will be adverse for the natural species of the project area, species with high tolerance of unstable conditions, such as invasive species, will benefit from vegetation clearance and widen their distribution.

In the operational phase, habitat fragmentation, fauna mortality, fauna disturbance by noise, vibration and light, and contamination caused by inadequate use of herbicides, pesticides and other harmful chemicals used during maintenance. On the other hand, some invertebrate species such as *Zerynthia polyxena* and *Z. cerisy*, and their host plants belonging to the genus *Aristolochia*, prefer habitats along railways and the construction will result in minor habitat gain.

The measures for mitigation of pre-construction, construction and operation related impacts on biodiversity are defined in the ESMP. In the pre-construction phase, detailed surveys of biodiversity must be done by biodiversity experts engaged by the Contractors. On the basis of those surveys and data collected to date, Project design should be reviewed and revised if necessary. The Contractors must develop and implement a *Construction Biodiversity Management Plan* that must include measures mitigating identified impacts such as: clear demarcation of vegetation clearance areas and areas designated for movement of machinery, waste disposal and similar, eradication and control of invasive species, fencing of the construction site, adjust timing of works so that fauna during sensitive times of day and periods of year (during breeding, nesting, roosting...) is affected the least, limit the use of herbicides and pesticides, manage organic waste. In the operation phase, the SRI shall develop and implement *Operational Biodiversity Management Plan*. The Plan will address the identified impacts with mitigation measures such as: installation and maintenance of bird panels, bird deterrents, bird and bat boxes, guidelines for maintenance of railway right-of-way and adjacent areas in a way that will prevent contamination, monitoring of fatalities to identify problematic sections and improve mitigation.

6.2 Protected Areas

Considering the conservation values of these areas based on which they were designated, it is very unlikely the project will have any impact on the functioning of the areas and their status. The majority of the projected areas

were established based on the woodland values. As there will be no vegetation clearings in those areas, no impact is expected. However, precaution must be of importance as reasons for designation not the only value those areas have and e.g. woodlands support a variety of species. No loss of habitats or species in these areas is permitted. Currently, the impact on these areas is comparable to the impacts already identified for the habitats, flora and fauna as they can only be observed as a whole ecological network at this stage. The magnitude of impacts is smaller, but the sensitivity is equal or higher due to the status of these areas.

The *Law on Nature Protection* states that the areas considered as a part of this assignment constitute the ecological network and that it will become a part of Natura 2000 upon Serbia's accession to the EU. Therefore, these areas should be treated as potential Natura 2000 sites and in accordance with the Habitats Directive. In order to fully assess the potential impacts the Project may have on the protected areas and other areas of concern, a separate Appropriate Assessment process will need to be performed in the future for each area separately.

As the impacts on protected areas identified at this stage are impacts expected on habitats, flora and fauna as a whole, they have been addressed as a part of mitigation for these groups as well.

6.3 Impacts on Water

The main identified potential impacts in the construction phase are related to temporary decrease of groundwater levels and reduction in surface water and groundwater quality due to earth works and uncontrolled discharge of effluent or harmful substances into waters. Tunnel construction can impact the ground water quality, flow and recharge, as well as springs yield. If drainage water from tunnel tubes is directly discharged, the quality of surface waters can be reduced. Sediment release into river and disposal of municipal and other special waste categories into the rivers can also reduce the water quality.

In the operational phase, groundwater contamination can possibly occur due to drainage of water from the railway structures, discharge of wastewater from the railway stations, potential accidental spillages or leaks from freight trains or accumulation of heavy metals from herbicides along the railway line, as well as minor leaking of oil, grease, and other chemicals from the rolling stock. Natural flood plain capacity can be reduced due to the embankment passing along the low-lying flood plains. Accumulation of sediment around bridge piers can also impact the river morphology.

Measures for minimising construction and operation related impacts and risks on waters are defined in the ESMP. In the pre-construction phase, the Contractors will undertake a detailed geotechnical investigation to understand terrain geological and hydrogeological conditions. The Contractors will also conduct baseline surface and ground water monitoring. In the construction phase, the Contractors will be responsible for development and implementation of a *Construction Water and Soil Management Plan* and a *River Crossing Plan* to mitigate construction impacts on both water and soil. Some of the measures that will be included in the Plan are: suitable construction site drainage system will be provided, fuels and potentially hazardous construction materials will be stored in special enclosed facilities, construction equipment will be regularly checked and maintained etc. In the operational phase, the responsibility of SRI is to develop and implement an *Operational Water and Soil Management Plan* to prevent water and soil pollution. The focus of the Plan is on control of use of herbicides in the maintenance of right-of-way and harmful substances for maintenance of bridges (paints, de-icing fluids, track grease), regular control and maintenance of drainage structures, sediment traps, basin, and treatment system. Monitoring of water quality in case of spills will be required in accordance with the national Law on Waters.

6.4 Impacts on Air Quality

The main potential negative impacts on air quality in the construction phase are related to reduction in air quality due to: (i) emissions of construction dust as a result of demolition works, earthworks, transport and disposal of

excavated materials, (ii) emissions of exhaust gases from combustion processes in construction equipment and vehicles. Since the railway will be fully electrified, the potential negative impacts on air quality during the operation phase are not expected. In case of reconstruction and maintenance works the same impacts as in the construction phase are expected.

The measures for mitigation of construction and operation related impacts on air quality are defined in the ESMP. In the construction phase, the Contractors will develop and implement a *Construction Air Quality and Dust Management Plan*, which will include set of measures to mitigate the negative impacts of railway construction on air quality. The plan will be focused on measures to control dispersion of dust from the construction activities to the nearby receptors, emissions for the machinery and measures for stockpile management. Beside good construction practices, regular daily visual monitoring of dust deposition will be required especially on locations where higher levels of dust are likely. In the operational phase, the SRI will develop and implement an *Operational Air Quality Management Plan*, which will address maintenance and reconstruction works that may include demolition and reconstruction activities. Similar mitigation measures as in the construction phase are foreseen. In case SRI subcontracts reconstruction and maintenance activities, it should transfer the obligation to the Contractors to prepare an *Operational Air Quality Management Plan*.

6.5 Project Impacts on Climate and Impacts of Climate Change on the Project

In construction phase, the main negative impact of the Project on climate change is emissions of GHG gases from construction equipment, vehicles, and materials. The following potential negative impacts of climate change on the Project during the construction phase have been identified: (i) flooding of the construction area and consequent damage to infrastructure and construction equipment, as well as construction delays (ii) land subsidence can cause damage to construction equipment, machinery, and materials (iii) droughts, heat stroke and increased risk of fire may temporarily suspend Project activities and cause damage to construction equipment. To mitigate negative impacts, the Contractors will develop and implement a *Construction Emergency Preparedness and Response Plan* to eliminate hazards and reduce potential negative impacts including those arising from extreme weather conditions. The Contractors will review the Plan after any emergency situation or training exercise to provide opportunity for its continual improvements.

Since the railway will be fully electrified, it is expected that the railway operation will have **positive impacts** on climate change. Minor negative impacts of the Project on climate change (GHG emissions from equipment and vehicles) are expected during reconstruction and maintenance activities. However, potential negative impacts of climate change on the railway infrastructure are: (i) physical damage of railway infrastructure as a result of floods, landslides and fires, (ii) reduced visibility in case of fire; fire also generates GHG emissions, (iii) trains damaged by floods and fires, and disruption of railway flow, (iv) and subsidence in case of droughts can lead to damage of railway infrastructure. To mitigate these potential negative impacts, SRI will prepare a detailed *Operational Emergency Preparedness and Response Plan* to achieve appropriate and effective emergency preparedness and response activities for foreseeable emergency events should they arise. Also, the Project design foresees appropriate measures in order to prevent the negative impact of floods on the railway infrastructure.

6.6 Noise Impacts

Potential noise related impacts in the construction phase are impacts to workers, residents (“human receptors”) and fauna (“ecological receptors”) as a result of tunnelling, earthworks, piling or potential blasting. In the operational phase, nearby sensitive receivers (workers, residents, fauna) may be impacted by noise from the passing trains and machinery during maintenance activities.

The mitigation measures for all identified noise related impacts in the construction and operation phase are summarised in the ESMP. In the construction phase, the Contractors will develop a *Construction Noise and Vibration Management Plan*, which will include the best construction practices to mitigate the negative impacts

of noise. These will include activities like management of noisy construction equipment, implementation of adaptable working protocol and working hours in line with national legislation on working hours and non-working day (holidays), as well as appropriate communication with public. Generally, the construction working hours will be limited during day according to national legislation, especially in the vicinity of the noise sensitive objects. In the case that the (re)construction works will cause less E&S disturbances, then, if needed, they can also take place at night. The Contractors will conduct measurement of baseline noise levels of the site and the surrounding area, as well as periodical measurements of noise in case of local residents' and workers' complaints.

In the operational phase, SRI will develop an *Operational Noise and Vibration Management Plan*. The Plan will include annual noise monitoring in zones of residential and other sensitive buildings located in the immediate vicinity of the railway as well as technical and visual control of noise barriers in accordance with relevant standards. Noise monitoring will be performed in the zones of residential and other sensitive buildings located in the immediate vicinity of the railway. In case of excessive values, the SRI shall take additional passive protection measures. Visual control of noise barriers shall be carried out at least once a calendar year. Location of the noise barriers will be determined in the next stages of the technical documentation (Preliminary Study and section(s) specific ESIA, Main Design (so-called Design for Construction Permit), and based on the locations of the noise sensitive objects which are exposed to the exceeded noise levels (by the Law) and need to be protected

6.7 Vibration Impacts

The potential vibration related impacts in the construction phase are: (i) impact on residents in nearby residential buildings and cultural heritage sites due to ground-borne vibration induced by blasting and movement of heavy vehicles when there are irregularities in the road surface, (ii) impact on workers during construction activities and (iii) impact on local fauna. In the operational phase, negative impact on residential receptors is connected with vibrations caused by the train movement. Also, some micro-pressure effects in tunnels may occur.

Mitigation measures for all impacts in the construction and operational phase are summarised in the ESMP. In the construction phase, the Contractors will develop and implement a *Construction Noise and Vibration Management Plan*, which will include measures to mitigate negative impacts of vibration. These will include activities like use of low or non-vibratory piling equipment, use of static force compaction, managing the blasting process to reduce blasting vibration and selection of demolition methods not involving vibration impact, where possible, monitoring of the high-risk structures (e.g., houses located very close to the works, cultural heritage objects) etc. In the operational phase, the SRI will develop an *Operational Noise and Vibration Management Plan*. The Plan will include the vibration monitoring in residential and other sensitive building areas. To mitigate micro-pressure effects in tunnels, some measures are also proposed such as: installation of a tunnel hood at the tunnel entrance, use of side branches in the tunnel etc.

6.8 Impacts on Soil

The construction phase is more intensive in terms of potential disturbance of soil quality during construction activities. The potential impacts/risks on soil are related to (i) permanent loss of soil, (ii) soil dewatering and destabilisation, (iii) soil degradation, (iv) temporary disturbance to local land use and (iv) soil contamination. Considering the nature of the Project, negative impacts on soil during the operation phase are mainly expected in case of reconstruction and maintenance activities. The impacts/risk from soil erosion and soil contamination are identified as a result of leakage of oil, grease and other chemicals from the roiling stock and during freight transport, as well as usage of herbicides.

The measures for mitigation of construction and operation related impacts on soil are defined in the ESMP. In the pre-construction phase, the Contractors must conduct soil quality monitoring along the railway alignment

to determine the baseline conditions before starting the construction works. In the construction phase, the responsibility of the Contractors is to develop and implement the *Construction Water and Soil Management Plan*. The focus of the Plan will be on prevention of erosion and preserving the soil quality. In the operational phase, the responsibility of SRI is to develop and implement an *Operational Water and Soil Management Plan* focused on appropriate application of herbicides to reduce unnecessary overuse and to reduce the risk of leaching to soil and groundwater, erosion prevention and monitoring of soil quality in case of spills. In case of dismantling the existing railway (at locations where the new route deviates from the existing one) and land reuse for agricultural or sports-recreational purposes, it is first necessary to examine the soil quality to determine the possible level of contamination, and then conduct soil decontamination activities, if needed.

6.9 Impacts on Landscape and Visual

Construction phase of the railway will have a temporarily effect on the landscape of the Project area. Potential impacts/risks on landscape and visual values include: (i) clearance of localised areas of tree and shrub vegetation and removal of land cover, (ii) increased level of “urbanisation” due to construction mechanisation, (iii) adverse changes in land use along the railway route. The visual receptors include residents situated in the Project area, local people working in outdoor occupations (such as farmers) and users of nearby infrastructure. In the operational phase the impacts are not expected. The existence of railway in general can generate negative sensation for the observer due to overall landscape change due to land cuts for tunnel structures and introduction of vertical structures in the rural environment and nature designated area. However, railway users might be positively impacted and enjoy scenery and the landscape around the railway.

The measures for mitigation of construction related impacts on landscape are defined in the ESMP. In the construction phase, the Contractors will develop a *Construction Planting Management Plan* to cover landscaping actions and restore the construction site to its original state. Planting activities will be implemented during, or as soon after construction in order to keep the construction site clean after the completion of the construction works. Planting measures will be designed to provide enhancement to local landscape character, as well as connectivity within the wider landscape where possible. Landscape plans, including proposed habitat creation areas and species lists will be agreed with the Ecological Clerk of Works (Contractors), Environmental Expert (Supervision Engineer), and Environmental/Biodiversity Specialist (PIU).

6.10 Waste and Materials Impacts

The main negative impact in the construction phase is generation of larger amounts of inert, non-hazardous and hazardous waste such as excavated material, dismantled railway tracks and sleepers, construction and demolition waste from reconstruction of station buildings, municipal waste etc. The risks for the environment are related to inadequate waste handling, transportation and disposal. In the operational phase, municipal waste generated at stations and waste from maintenance activities that is similar to that in the construction phase is expected. Negative impacts on the environment can occur as a consequence of improper waste handling and temporary storage arrangements for materials that are dismantled during maintenance activities.

The measures for mitigation of risks related to of improper waste management in construction and operation phases are defined in the ESMP. In the construction phase, the Contractors will prepare a *Construction Waste Management Plan* to cover all activities associated with the production of wastes during construction and maximise reuse and recycling. A Decommissioning Waste Management Plan will be requested for the existing railway line. An asbestos survey will be conducted to identify the presence of any asbestos-containing materials in station building that are subject to reconstruction. Where identified, removal by licensed asbestos removal contractor and managing in accordance with the national requirements on asbestos-containing waste will be requested. In the operation phase, the SRI will update and continue to implement its three-year *Operational Waste Management Plan* in accordance with the national Law on Waste Management. Appropriate collection and disposal of waste products including oil from railway maintenance activities is prescribed. Public waste bins inside the stations’ facilities will be provided.

6.11 Land Acquisition and Resettlement

At this Project development stage, the magnitude of impacts associated to land acquisition is still unknown. For this reason, a Corridor-level Resettlement Policy Framework (RPF) was developed at a very early stage of the Project (pre-feasibility and scoping stage) to define the key resettlement principles, procedures and organisational arrangements. The RPF is part of the Project's Disclosure Package. Detailed land requirements of the Project will be known only once the final designs and detailed expropriation studies have been prepared for each sub-section, after which specific resettlement instruments (Resettlement Action Plans) will be prepared based on a detailed census and socio-economic survey which will be conducted in line with EBRD's and EIB's requirements.

Note: A Resettlement Action Plan has been developed to date for the Stalac-Djunis subsection only, and is part of the Disclosure Package for this subsection.

6.12 Impacts on Cultural Heritage

In the construction phase, cultural heritage sites can be affected by: (i) generation of noise, vibration and dust, (ii) access roads leading to cultural heritage sites could potentially be affected, (iii) potential for encountering previously unknown heritage during construction works. In the operation phase, the possibility of chance finds during maintenance works is recognised as potential impact.

Measures for protection of both known and previously unrecorded heritage for the construction and operation phases are provided in the ESMP. The Contractors will be required to develop a *Cultural Heritage Management Plan* which will include the following: all the requirements of the relevant institute for protection of cultural monuments (as part of the Location Conditions to be issued for each subsection), actions and measures to manage risks and impacts to any additional cultural heritage sites identified, actions and measures to manage risks and impacts to local cultural events in the Project area by liaising with local authorities and plan the works in accordance with important dates. For the operation phase, SRI will develop an *Operational Cultural Heritage Management Plan* to ensure that any maintenance activities with the potential to impact known cultural heritage assets are planned carefully and in liaison with the relevant institute for protection of cultural monuments as required by national legislation.

6.13 Social Impacts and Risks

In the pre-construction phase, local communities will be negatively affected by the Project implementation by: (i) closure of some stations and halts, (ii) closure of level crossings, (iii) acquisition of private land and relocation of households/businesses.

In the construction phase, negative impacts and risks are related to: (i) temporary occupation of land, and land use/access restrictions, (ii) labour and working conditions, (iii) OHS risks, (iv) worker influx and gender-based violence and harassment (GBVH), (v) traffic safety risks and damage to local roads. Construction is expected to generate temporary local employment as contractors will likely need low skilled workers to be employed on the construction sites, which would have a positive impact for the local population.

During the operation phase, maintenance works may lead to similar impacts as in the construction phase. Additionally, gender related risks and impacts include effects of closure of stations/halts on women in rural areas since they often depend on transport service providers; and risks of potential GBVH against women when using underpasses as pedestrians, especially at night.

Measures for these social impacts and risks are provided in the ESMP. Municipal/city authorities will be consulted on the issues of closure/upgrading of level crossings and underpass/overpass sufficiency, dimensions, and safety considerations. In addition, meetings will be held in local communities along the Project footprint in the final design stage, to clearly present all planned underpasses and overpasses, hear the views of local residents in relation to access to their land and make changes, if possible, to accommodate their needs. Before

the start of construction, the same process will be organised to ensure that people affected by the Project are informed of design decisions including explanation of rationale for such decisions (from technical, financial, safety and other aspects) and that they have information about how and where they can access their land on the other side of the railway (construction site) and the contact details of the Contractors for any grievances.

The Contractors will be required to develop the following plans, among others:

- > *Construction Traffic Management Plan* to ensure all construction works, logistics and travel movements are planned to enable them to be delivered safely and in a manner that minimises congestion, road safety risks and disruption to all road users and local access.
- > *Workers' Accommodation Management Plan* to be in compliance with IFC/EBRD Guidance on Workers' accommodation: processes and standards (2009) and national requirements and permits.
- > *Construction Health, Safety and Security Plan*, which sets out the measures to manage occupational and community health and safety risks, as well as measures for the prevention of unauthorised access to construction sites, construction compounds and construction workers' accommodation.
- > *Construction Labour and Employment Plan* which will include (i) employment opportunities for locals; (ii) how employment opportunities will be advertised; (iii) the recruitment process which will be transparent and fair, non-discriminatory and provides equal opportunities for both men and women; (iv) the training opportunities which will be provided for graduates and employees on technical, health and safety and manual work where suitable. The Plan will include requirement that all workers (including sub-contractors) have employment contracts and access to human resources policy and procedures.
- > *Construction Workers' Code of Conduct* which will be clearly displayed at different Project areas and posted in the Contractors' vehicles and machinery driving cabs.

The Contractors will be responsible for ensuring the acquisition of temporary land needed during construction works in case publicly owned land is not available. The Contractors will in such cases acquire the right to temporarily use land through negotiations and amicable agreements with landowners, and regularly notify the Supervision Engineer about this process.

In the operational phase, the responsibility of SRI is to develop and implement the following plans, among others:

- > *Operational Health, Safety and Security Plan* to mitigate any health and safety risks, which will include provisions on risks and measures for regular railway workers (such as drivers) and maintenance workers as required by the EU Railway Safety Directive and provisions of ISO 45001.
- > *Gender Plan* to include the recommendations of the national legislation, the European Transport Workers' Federation (ETF) and Community of European Railway and Infrastructure Companies (CER) on integration of women in the railway sector.

6.14 Cumulative Impacts

Cumulative impacts are analysed in relation to construction of other projects developed or planned in the Project area. The following projects are identified:

- > Construction of the Belgrade bypass, as a part of the planned state motorway
- > Construction of the Belgrade metro
- > Construction of the Pojate-Preljina motorway (so-called Morava corridor) with access roads
- > Reconstruction and electrification of Lapovo-Kragujevac-Kraljevo-Raska-Novi Pazar and Stalac-Krusevac-Kraljevo-Pozega railway lines
- > Construction of small hydropower plants on Velika Morava River and Zapadna Morava River – Construction of small hydropower plants in the settlement of Stalac
- > Reconstruction of the municipal road Stalac-Trubarevo
- > Construction of a chicken farm near Merdare

- > Construction of the Nis-Pristina (Kosovo) motorway
- > Implementation of the project "Clean Serbia"
- > Development of the Belgrade tourist economy
- > Increasing the competitiveness of agricultural production in RoS
- > Development of industrial production
- > Development of regional water supply systems
- > Development of the gas economy
- > Construction of the airport in Krusevac
- > Construction of the Nis railway bypass
- > Reconstruction of the Nis airport

The assessment of cumulative impacts has identified several negative impacts with moderate sensitivity. However, their probability of occurrence is very low. These include:

- > *Air quality impacts* in the construction phase resulting from increased emission of exhaust gases generated during the simultaneous work of construction machinery engaged on this Project and other projects in the Project area of influence, and dust when two or more projects use the same local infrastructure.
- > *Noise and vibration impacts* in the construction phase generated by simultaneous use of construction machinery, especially in case of nearby road/motorway construction and increased traffic through local settlements, when two or more projects use the same local infrastructure.
- > *Water quality impacts* in construction phase due to (i) increased concentration of hazardous substances in water due to accidental spills on construction sites active at the same time and (ii) increase leakage from inappropriately disposed waste/spoil from construction activities.
- > *Soil quality impacts* and *water quality impacts* in the operation phase caused by increased concentration of hazardous substances in soil due to simultaneous use of pesticides in agriculture and maintenance of railway right of the way or in case of simultaneous accidental spillage of hazardous substances from trains and vehicles on the motorway.
- > *Biodiversity and nature* in the construction phase due to simultaneous implementation of several linear projects that will require fencing and negative impact on natural movement of animals, and habitat fragmentation and fauna disturbance in operational phase.
- > *Landscape impacts* in both construction and operation phase caused by increased frequency in use of construction equipment and possible deforestation and removal of vegetation and personal sensibility to changes in the rural landscape.
- > *Impacts from waste* in the construction phase caused by inappropriately handled/disposed waste/spoil from multiple construction activities and increased generation of municipal waste in workers camps that are active at the same time.
- > *Impacts on community health and safety* in the construction phase due to simultaneous development of several projects in the observed area, which can lead to more frequent and prolonged interruptions in traffic flow and access to facilities especially in the summer months when more tourists visit the Project area, as well as during religious holidays when the frequency of vehicles is increased.

With implementation of measures given in the ESMP all cumulative impacts will be appropriately mitigated. No significant residual impacts are expected.

7 Disclosure and Communications

Previous stakeholder engagement. A series of stakeholder engagement activities were undertaken during the preparation of the Pre-Feasibility Study and E&S Scoping Report for the Project in 2021 and 2022 with national stakeholders (including Institute for Protection of Cultural Heritage of Republic of Serbia, Ministry of Finance, etc.) and local stakeholders (including municipalities, local community offices, Institute for Nature Conservation, etc). Additional consultations were organised during the development of the Corridor E&S Assessment Report through March to June 2022, which included consultations with municipal/city authorities and local communities. A detailed description of all engagement activities is provided in the Corridor E&S Scoping Report and Corridor-level E&S Assessment Report, which are both part of the Project's disclosure package.

Planned disclosure and engagement activities. SRI intends to provide all relevant Project information to the public in Serbian language and English (where appropriate). A detailed **Stakeholder Engagement Plan (SEP)** in line with national and Lenders' requirements has been developed. The SEP identifies the Project's stakeholders and outlines the stakeholder engagement and communication programme, including access to the Project's Grievance Mechanism.

The contact point for any enquiries or grievances related to the Project is given below:

Contact information for enquiries and grievances:

Media Centre of SRI
Attn: Nenad Stanisavljevic
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Tel.: + 381 11/3618443
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Detailed information on disclosure channels and other information is provided in the SEP.

Note: Since this is a Category A project, the disclosure package will be available for public review during a period of 120 calendar days prior to the consideration of the Project by the EBRD's Board of Directors. During the disclosure period, SRI will encourage stakeholders to comment on the Project. Following the 120-day period, after the public review process is completed, a Public Consultation Report will be prepared and the disclosure package (including this NTS) updated as necessary.