SUMMARY OF REPORT ON IMPACTS ON ENVIRONMENT

FOR ELECTRIFICATION, RECONSTRUCTION AND UPGRADING OF THE RAILWAY LINE

PRAGERSKO - HODOŠ

Maribor, November 2010 (updated September 2012)

1 SUMMARY FOR PUBLIC

1.1 BASIC DATA ON THE HOLDER OF ACTIVITY AND REPORT ON IMPACTS ON ENVIRONMENT

Title of the measure:	Electrification, reconstruction and upgrading of the railway line from Pragersko to Hodoš
Purpose:	It deals with electrification, reconstruction and upgrading of the existing railway line from Pragersko to Hodoš, which runs partially on the line No. 40 Pragersko-Središče- state border with the Republic of Croatia on the section from Pragersko to Ormož and on the line No. 41 Ormož-Murska Sobota-Hodoš – state border with the Republic of Hungary. The electrification of the 109 km of the existing railway line means the continuation of the development of the public railway infrastructure in the South-East part of Slovenia and the modernisation of the V^{th} traffic corridor. The foreseen measures of electrification (placing of poles for the supply) will run on the existing alignment. To assure the technical standards the line will be reconstructed on five places, namely in front of Ormož, in Pavlovci and Ivanjkovci as well as on stations Ptuj and Hodoš. Within electrification also the construction of five electrical substations is foreseen for the supply of traction with electricity.
Holder:	The holder of the activity is Republic of Slovenia, Ministry of Transport, Agency of the Republic of Slovenia for the management of public railway infrastructure investment, Kopitarjeva 5, Maribor.
Responsible person of the holder:	Maksimiljan Dolinšek, u.d.i.e.
Valid spatial document:	National spatial plan for electrification and reconstruction of the railway line Pragersko–Hodoš (Official Gazette RS, No. 51/09)
Data on realised procedure SEA:	Decision MPP No. 354-09-159/2005 dated 23. 5. 2005, that in the procedure of preparing the National spatial plan for the reconstruction and electrification of the railway line Pragersko – Hodoš it is necessary to realise the procedure of the complete environmental impact assessment, Environmental report for the reconstruction and electrification of the railway line Pragersko – Hodoš (DDC svetovanje inženiring d.o.o. and Imos Geateh d.o.o., Project No. 004/2006, February 2007, completion December 2008); The revision of the Environmental report for the reconstruction and electrification of the railway line Pragersko-Hodoš (Elaborated by Mrs. Mojca Hrabar, M.Sc. No.: 751/07, 20. February 2007, Oikos, svetovanje za razvoj, d.o.o.); Statement of the reviser on suitability of the environmental report (Mojca Hrabar, Oikos d.o.o., 20. February 2007). Decision MOP No. 35409-159/2005 dated 31.3.2009, that the impacts of the activity on the environment, stated in the procedure of the complete environmental impact assessment for the National spatial plan are acceptable by considering the mitigation measures and the monitoring, which are the constituent part of the Decree on the National Spatial Plan.

1.2 TYPE AND CHARACTERISTICS OF THE ACTIVITY

The basic aim of the electrification and reconstruction of the railway line Pragersko - Hodoš is increasing of the capacity of the line with the exchange of the existing Diesel traction with the electrical traction on the whole line, at the upgrading of the line and the partial reconstruction of the catenary, which shall enable better line capacity. From the environmental point of view the establishing of the electrical catenary represents the most suitable measure for improvement of the condition, which shall contribute to reduction of emissions of air pollution and noise emissions from the railway line.

The foreseen activity includes the next complexes or regulations:

1. Electrification of the line and the construction of catenary alongside the existing line in the length of 109 km, including with the stations. For placing of standard steel poles special train compositions will be used and all necessary material will be transported on the line. Because of the electrification of the line five electrical substations (ESS) will be constructed: Ptuj, Pavlovci, Ljutomer, Murska Sobota and Gornji Petrovci. All ESS will be standard constructions, formed as the auxiliary energetic structure, as the electrical working place of closed type, without permanent occupation. On the fenced plateau there will be a 3kV junction for the connection of the ESS to the catenary. The electrical equipment will be placed in the building. Under transformers there will be a catching oil pit.

2. Reconstruction of the line and single stations:
   - Reconstruction of the line in front of Ormož, total length 3 km, with the reconstructed curve, which moves from the existing line for maximal 6m;
   - Reconstruction of the line in Pavlovci between the railway stopping places Pušenci and Pavlovci. The line will run mostly in a cut (to7m) and partially in embankment (to 3m). The new course of the line requires the demolition of structures, regulation of the Pavlovski brook on two sections in the total length of 1km, the construction of the new stopping place Pavlovci and the out-of-level crossing of the regional road R1-230 (overbridge) with the reconstruction of the crossing R1-230 with R3-726 and the deviation of the regional road R1-230 in the length 940m and the regulation of the bus stopping place;
   - Reconstruction of the line in Ivanjkovci in the length 1,2 km with the cross shift of the alignment to 40m. On the new alignment also a new bridge over the brook Lahonščica is foreseen as well as the regulation of the level crossing PR 49 together with a shorter reconstruction of the road;
   - Reconstruction of railway stations Ptuj, Murska Sobota, Hodoš, Ivanjkovci and Ljutomer due to extension of the useful length of tracks and increasing of the speed and new platforms;
   - Reconstruction of stopping places Šikole, Strnišče, Hajdina, Ormož mesto, Ljutomer mesto and Veržej with side platform of the length 150m.

   Within all stated regulations the reconstructions of bridges, culverts, are foreseen as well as the regulations of water streams in the area of bridging structures and planning of the noise protection measures and other regulations.

3. The upgrading of the line will be realised to increase the allowed axle and length load. The measure refers to reconstruction of the substructure and superstructure of the line on the next sections: Pragersko – Cirkovce (from km 1+037 – 6+445), Cirkovce – Kidričevo, Kidričevo – bridge over the river Drava in Ptuj (from km 11+855 – 17+100), station Ptuj, section Mekotnjak – Ljutomer (from km 15+000 – 20+526), Ljutomer – Lipovci (from km

21+634 – 32+530) and Lipovci – Murska Sobota. All works will be implemented during blockades, exclusively in the area of the railway line. The building-in of the blanket course will follow with a special train, which moves on the line and excavates continually the bed and the old blanket material and builds-in at the same time the new blanket material, than laying of sleepers follows and the assembly of new rails. All material will be delivered in each case, the rails and the sleepers will be displayed alongside the alignment of the railway line. Within the upgrading of the line also the reconstruction of structures on the line will follow with improvement and protection of the concrete part of the structure, improvement of the steel part of the structure and corrosion protection of steel parts, exchange of sleepers and rails and the renewal of drainage. The measures are foreseen on bridges in km 16+497 in Hajdina, in km 16+820 over the brook Studenščica, in km 17+205 over the river Drava in Ptuj, in km 19+787 over the river Ščavnica, in km 20+332 over the river Ščavnica and in km 28+565 over the river Mura.

The upgrading of the line will be implemented by individual sections of length varying from 450 to 550 m, during the temporary closure of the railway line during weekends, from Saturday, 2:00, to Monday, 24:00. The following works will be performed in this period:

- dismantling of the rail by transporting tracks and sleepers to a temporary depot within the scope of the construction site, i. e. at the nearest railway station;
- machine excavation of railway ballast and planum by dumping them on the right side of the line, immediate upload and transport to a permanent depot;
- implementation or rehabilitation of all passages, crossings of infrastructure etc.;
- installation of the tampon layer and railway ballast;
- laying of the track on concrete sleepers;
- finishing works for the initiation of traffic.

Construction sites, temporary depots, temporary storage of new tracks, sleepers etc. will be organised at the nearest stations. The reconstruction near Ormož will be implemented in the same manner, since the deviation of the tracks from the existing axis is max. 2 m. Within the scope of the upgrading and reconstruction, the foundations for the catenary will be implemented (hammered), which presents the first phase of the line electrification. After the upgrading and reconstruction have been completed, the catenary will be set up on the entire length, including the installation of weight-bearing pillars (screwing) and execution of fittings - catenary. All these works will be performed from the railway line using the train set, which will carry the necessary material. The material will be partly transported by rail, in the first phase to the individual stations where construction sites will be organised, and in the second phase by rail to the site where the upgrading or reconstruction will be performed. Gravel for the needs of building dykes in the Pavlovci and Ivanjkovci areas of reconstruction will be transported by road and from existing gravel pits near-by (Bakovci at Murska Sobota, Krapje in Ljutomer and Pleterje in Kidričevo, Dornava and Videm). Chipped stone used to prepare ballast will be delivered from the Verd quarry and transported by rail by dumper wagons, which will strew the chipped stone along the line or deliver it to the temporary deposit within the railway station. The train will also deliver new tracks and concrete sleepers immediately from the producer or from the central depot in Ljubljana. Excessive land material and existing ballast will be transported from construction sites to the construction material depot, which is located in Gorišnica and Puconci.

1.3 ALTERNATIVE SOLUTIONS

The works are determined as public infrastructure works and as such have an important role in the railway transport. By building the Puconci-Hodoš new line, the state border with Hungary and, consequently, the Pragersko-Puconci line gained even more importance. Since the elements of the Puconci-Hodoš line enable relatively high train speeds, the existing part of the line will also be modernised, thus giving the Puconci-Hodoš line approximately equal direction and inclination elements as, for instance, the new Puconci-Hodoš line. From the aspect of technical and technological solutions, several projects were implemented during the review of the most important alternatives, during which environmental impacts were also assessed.

- The Decree on the Detailed Plan (Official Gazette of the RS, No. 29/97) was adopted for the section of the Puconci-Hodoš-state border railway line. 29/97). The detailed plan was prepared by ZEU – Družba za načrtovanje in inženiring d.o.o. Murska Sobota (project no. 20/95-LN/MS, April 1997). The detailed plan also included the Report on Environmental Impacts
- SŽ – projektivno podjetje Ljubljana d.d. company prepared a Feasibility Study for the development of the Ormož-Ljutomer-Murska Sobota-Puconci railway line (project no. 3397, May 1999) in 1999. Within the scope of this study, the company also prepared a preliminary report on environmental impacts and a proposal for an optimum version (prepared by ZEU - Družba za načrtovanje in inženiring d.o.o. Murska Sobota).
- In 2002, within the scope of the Feasibility Study, the Idea Design for the project TEN railway corridor no. 5 - Pragersko-Ptuj-Ormož railway line, the Analysis on environmental impacts was also prepared by Tractebel Development Engineering, ScanRail Consult, Uniconsult, February 2002.
- In December 2003, SŽ - projektivno podjetje Ljubljana d.d. prepared a Design for the Building Permit and Execution Design for the renovation of the Pragersko-Ptuj-Ormož railway line (Phase I) (project no. 3501), which was the basis for the preparation of the Report on environmental impacts for the renovation of the Pragersko-Ptuj-Ormož railway line (Phase I), which was implemented by DDC svetovanje inženiring d.o.o., Ljubljana (project no. PVO-104/2003, December 2003).
- The Idea Design for the electrification and reconstruction of the Pragersko-Hodoš railway line, prepared by SŽ – projektivno podjetje Ljubljana d.d., project no. 3518, November 2004, also included versions for reconstructions in the area of Ptuj, Velika Nedelja, Ormož, Pavlovci and Ivanjkovci, and the solutions for speeds of 120 km/h and 140(160) km/h.
- The Idea Design for the electrification and reconstruction of the Pragersko-Hodoš railway line, prepared by SŽ – projektivno podjetje Ljubljana d.d. (project no. 3518, May 2005) anticipated the reconstructions of the line in the area of Ptuj (exit from the Ptuj railway station, version for the speed of 120 km/h), in the area of Ormož railway station (speed 100 km/h), Pavlovci (version for the speed of 120 km/h), and Ivanjkovci (version for the speed of 120 km/h), as well as the construction of the track, platform and underpass in Hodoš, and the construction of five electrical supply stations: Ptuj, Pavlovci, Ljutomer, Murska Sobota and Gornji Petrovci.

Within the elaboration of the National spatial plan for electrification and reconstruction of the railway line Pragersko–Hodoš the procedure of the complete Environmental impact assessment has been elaborated and the decision of the Ministry of environment and spatial planning has been obtained, that the impacts on environment are acceptable by considering the mitigation measures and the monitoring. In the environmental report, which served as the base for the implementation of the procedure of complete assessment of impacts on environment (DDC svetovanje inženiring d.o.o. and Imos Geateh d.o.o., Project No. 004/2006, February 2007, completion December 2008) also the possible development of the environmental condition without the implementation of the activity was evaluated. With increasing of the traffic and without the implementation of

electrification and the planned reconstructions, because of the emissions, caused by Diesel traction the emissions of dangerous substances in air would increase as well as noise and this would mean the increasing of negative impacts on environment.

The increased capacity of the line could be reached also without the electrification but only with the reconstruction. From the point of view of protection from noise this possibility is essentially worse, as in this case the emission of noise would additionally increase because of the Diesel traction and would be after a rough estimation for 4 to 8 dB (A) bigger as at the contemporary implementation of electrification. Also regarding the air protection this possibility is less suitable, as in this case the emission of substances into air would additionally increase due to Diesel traction.

The report on impacts on environment thus deals only the variant of increasing of capacity of the line with electrification. The treated activity belongs to measures on public infrastructure and has as such an important role in railway traffic. Therefore at the survey of the most important alternatives that the holder of the treated measure has to research according to definitions of article 54 of the Environment protection act, the requirements for the construction, maintenance and the operation of the railway infrastructure must be considered. From the point of view of the Safety of railway transport act and the executive acts regulating this field, the selected technical solution represents the detailed examined variant of electrification and the reconstruction of the railway line, which includes also the components of the environmental protection legislation.

The alternative construction solutions were also studied. The entire project is conditioned by the goal that traffic would be halted on the existing line to the minimum extent possible, since there is no alternative route where traffic would be enabled. Due to this fact, the upgrading and the major part of the reconstruction anticipates a method that involves construction works at weekends, and on sections from 450 to 550 m, as well as construction works done outside the tracks. The alternative construction works "along the tracks" are slightly more negative with regards to environmental impacts, since these require a more complex organisation of construction sites along the entire line (due to the narrow area and limitations of space), and with the help of lorries and machinery along the tracks, construction would cause greater environmental impacts.

In order to construct the catenary, two alternatives are possible, i.e. construction outside the tracks, where the foundations for the catenary would be laid, and construction along the tracks, where the foundations for the catenary would be concreted on site. In this latter case, construction outside the tracks would be more favourable from the aspect of environmental impacts, although it would be more expensive and would limit the selection of contractors qualified for such a construction method.

In parts where the line is to be reconstructed, two versions were studied for the section in Pavlovci. The reconstruction for speeds of 140 or 160 km/h would demand extensive earthmoving works, the construction of a covered dam, and the transposition of large quantities of material, which is the result of the poor geological conditions in this area. Therefore, a decision has been made that the reconstruction would be performed for a speed of 120 km/h, since this requires significantly less extensive interventions in the environment and space, and also meets the requirements of railway traffic. An analysis has shown that the reconstruction for a speed of 160 km/h would make no sense, since the section before and behind the reconstruction cannot offer a higher standard than for the speed of 120 km/h (stations in Ormož, Žerovinci).

Based on this, we estimate that the optimum construction method was selected, i.e. in individual phases limited to short periods (weekends). The minimum possible intervention in the environment was chosen for reconstruction works, since it still ensures the appropriate level of services provision. The electrification works will be implemented outside the tracks, which will ensure the minimum possible impacts on the environment. From the aspect of environmental impacts, the

electrification of the line will be a rehabilitation measure for reducing emissions of noise caused by diesel trains.

The time table has been prepared on the basis of the assessment of the time needed to carry out the work comprising the preparatory works, delivery of material, execution of all works and finishing work. Firstly, the upgrade and reconstruction of the line will be performed, followed by the catenary.

The upgrade will be performed in permanent blocks of traffic during weekends, for 55 hours, and by sections from Pragersko to Murska Sobota in a total of 104 weeks or 2 years:

- Pragersko - Cirkovce (from km 1+023 to 6+445): 15 weeks
- Cirkovce (Polje) - Kidričevo (from km 7+359 to 10+810): 11 weeks
- Kidričevo – bridge over the Drava River in Ptuj (from km 11 +855 to 17+100): 15 weeks
- Mekotnjak - Ljutomer (from km 15+000 to 20+527): 19 weeks
- Ljutomer - Lipovci (from km 21+634 to 32+535): 32 weeks
- Lipovci - Murska Sobota (from km 33+850 to 38+298): 12 weeks.

The railway line reconstruction before Ormož will be performed in the same way as the upgrading, with permanent closures from Friday to Sunday for 55 hours during 28 weeks. The reconstructions of the line (newly built) in Pavlovci and Ivanjkovci will take approximately 7 or 6 months and can be performed simultaneously. The reconstruction of the Ptuj, Ljutomer, Murska Sobota and Hodoš stations will be performed during traffic; the time for implementation will be 6 - 12 months. Works can be performed simultaneously.

The foundations for electrification will be laid during the upgrade or reconstruction of each individual section. The implementation of the catenary (assembly of poles and conductors) will be performed on the entire line from Pragersko to Hodoš; the anticipated time for implementation is 25 months.

1.4 EXISTING SITUATION OF ENVIRONMENT

The existing railway line Pragersko–Hodoš (section of the main railway line No. 40 Pragersko – Ormož and the main line No. 41 Ormož - Murska Sobota – Hodoš) starts in Pragersko in km 0,0 with the connection to the line No. 30 Zidani Most – Šentilj – state border. The line runs in the whole length in the prevailing direction west – east. In the beginning part (to Ptuj) the line runs on the Drava field and in the continuation on the Ptuj filed. The human settlement alongside the line is mostly in groups of houses with closed settlements Gaj, Šikole, Cirkovce, Kidričevo and Hajdina. Behind Ptuj and to Ormož the areas of groups of houses are the settlements Moškanjci and Mihovci. In Ormož in km 40,7 the line No. 41 Ormož – Hodoš – state border branches off. Alongside the line some administrative and industrial centres as Ljutomer and Murska Sobota developed, and to them also some smaller settlements are connected. For transit purposes on the line intensive freight traffic operates in direction from the Adriatic coast and the valley of the river Po towards the Central and the East Europe (Hungary, Ukraine), mostly in night time.

The existing situation is described on the base of data from literature, elaborated experts basis and data obtained on the base of measurements and the survey of the area. With the aim to describe the space the report on impacts on environment summarises the most important geological, geo-morphological, hydrological and climate characteristics. They are given only as information about the treated space, but there will be no changes on this part of environment, therefore also the impacts are not evaluated. The whole treated area belongs to continental climate zone. The whole

section of the railway line Pragersko-Hodoš runs in the most part on the ground that were formed on alluvial sediments of the rivers Drava and Mura. The heavier, more clay sediments of smaller water streams had a big impact to development of the ground, what influenced on the formation of poorly aerial ground with the appearance of water stagnation in the ground profile.

According to data of the Cultural heritage real properties register in the area of the railway line there are more units of cultural heritage – archaeological heritage, settlement heritage, profane buildings heritage and garden architecture heritage. The wealth of the archaeological heritage shows most of all the importance of the area for settlements already in the past. On the area the agricultural use of land prevails. There is more wood in the hills, while on the flat, from time to time flooded areas there is the wood of oak and white beech tree. On shady sides of hills where the ground is sourer and dry the wood consists of beech trees. On silicate gravel, deep Pleistocene clay and argillaceous earth in the lowland, for instance on Drava field white beech tree grows, while the much degraded flat ground and the ridges mostly in the central part of the Drava field and on Goričko are overgrown with the red pine tree. The often flooded gravel pits alongside the river Mura and its affluent are overgrown with alder and ash trees.

Among the mammals, which are potentially present on the treated area of the river Drava between Ptuj and Ormož the otter is exposed. Also all types of hedgehog, shrewmouse, moles, bats, rabbits, squirrel, voles, muskrat, mice, dormice, fox, ermine, weasel, polecat, marten, boar, doe and deer are present. Between the reptiles the sand lizard, lizards, ringed snakes, vipers, horned vipers are present and among the amphibians the toads, tree frogs, newts and salamander. In the main riverbed of the river Drava on this area also some types of fish are present, which in general are very rare in Slovenian and endangered by water pollution and the change of the water regime in bigger water streams. The lethargies and the river branches are important habitats for some rare types of dragonflies, beetles and butterflies, which are directly or indirectly bound to such environments. On the area we estimate the presence of minimal 245 types of birds; of that 97 types of birds are present on the area in winter time and 111 types in time of nesting. Other types appear on this area only by coincidence.

The planned measures within the electrification and reconstruction of the line are mostly limited to the area within the existing alignment of the line. The municipal spatial plans defined the area of the railway line and the direct zone alongside the railway line as the area of the infrastructure or the area of the railway line and the area of stations. The planed works only on three areas extend out of the area of the existing alignment of the railway line and the railway stations, namely in front of Ormož (works into the steep slope of the river Drava, which is overgrown and exchanges with rare grassy surfaces), in Pavlovci (the area is intensively used for agriculture purposes) and in Ivanjkovci (where the land is used as pastures and the fields, which are not used for agriculture purposes anymore). By adopting of the National spatial plan for the electrification and the reconstruction of the railway line Pragersko–Hodoš (Official Gazette RS, No. 51/09) the municipal spatial plans are exchanged and completed.

1.4.1 Data on protective, protected, secured, degraded and other areas of special regime

1.4.1.1 Nature conservation

Irrespective that on the wider area there are many protected nature conservation areas, the most part of the wider area represent the agriculture surfaces and the degraded surfaces, with small nature conservation value. The alignment crosses the so called »Natura« areas: SPA and SCI Drava, SPA Mura, SCI Mura, SCI Pavlovski brook (Libanja) and SPA and SCI Goričko (Decree on special

protection areas - Natura 2000 areas, Official Gazette RS, No. 49/04, 110/04, 59/07, 43/08 and 8/12).

In the direct vicinity of the railway line there are the protected areas: Ormož, Castle park, Dob at the outflow of the brook Lešnica, the promenade planted with horse chestnut alongside the Kolodvorska road at the railway station and the habitat of buckthorn in Središče ob Dravi, which are protected with the Decree on publication of natural sights in the municipality of Ormož (Official Gazette of municipalities Ormož and Ptuj No. 37/92). Directly at the railway line there is also the Landscape park the Ponds of Ljutomer and the vineyards of Jerusalem, protected with the Decree on publication of natural areas and nature sights in the municipality of Ljutomer (Official announcements Pomurski vestnik No. 14/76), the Landscape park Vineyards of Jeruzalem and Ormož, protected with the Decree on publication of natural heritage in the municipality Ormož (Official Gazette of municipalities of Ormož and Ptuj No. 37/92) and the Landscape park Goričko, protected with the Decree on the Goričko Landscape Park (Official Gazette RS, No. 101/03), crossed by the railway line alignment between Puconci and Hodoš. Between Ormož and Puconci the railway line crosses the proposed protected area – the Landscape park Mura in the length of about 1,9 km. The railway line approaches directly to natural worth: the Lake of Ptuj, Sejanca – old riverbed, Ormož – dob, the Lake of Ormož. The expected natural worth do not appear on the treated area.

The railway line crosses also the ecological important areas Drava field, Drava – lower, Strejaci, Libanja, Mura – Radmožanci and Goričko, according to Decree on ecologically important areas (Official Gazette RS, No. 48/04).

1.4.1.2 Protection of natural sources

Regarding the underground water the areas of special regime are defined with Decree for water protected areas on the national level and with regulations on the level of local communities. The regulations, which define the water protected regimes of water reservoirs, used for public water supply are:

- Decree on determining the drinking water protection area for the Dravsko – Ptujsko polje aquifer (Official Gazette RS, No. 59/07);
- Ordinance on protected areas of water sources and measures for the water protection in the Community of Ormož (Official Gazette of municipalities Ormož and Ptuj, No. 27/87, 21/90, 11/92, 21/93);
- Ordinance for determining of water protected area and the measures for the protection of water reservoirs of drinking water for the water supply of Ormož (Official Gazette of the municipality Ormož, No. 5/00)
- Ordinance of defining of water protected zones and measures for the protection of water reservoirs of drinking water on Mota (Official announcements of municipalities : Gornja Radgona, Lendava, Ljutomer and Murska Sobota, dated 27.10.1983);

1.4.1.3 Cultural heritage

The cultural heritage of the treated area is protected with municipal ordinances of the present (or former municipalities, in case that the new municipality did not adopt a new one) municipalities of Slovenska Bistrica, Kidričevo, Hajdina, Ptuj, Dornava, Gorišnica, Ormož, Ljutomer, Križevci, Veržej, Beltinci, Murska Sobota, Puconci, Gornji Petrovci, Šalovci and Hodoš. In the direct proximity there are the units of:

- **Heritage**: EŠD 690169 - Zgornje Jablane – Archaeological site Praponce, EŠD 13356 Cirkovce – Prehistoric settlement, EŠD 27930 Zgornja Hajdina – Archaeological site Srednica, EŠD 21028 Ptuj – Archaeological site Ob železnici, EŠD 9155 Ptuj – Archaeological site left bank, EŠD 6512

Ptuj - Rimska cesta Poetovio-Savaria, EŠD 29505 Podvinci – Archaeological site Klince, EŠD 29504 Mezgovci ob Pesnici – Prehistoric settlement, EŠD 29509 Moškanjci – Archaeological area Čreta, EŠD 29517 Zmušani – Prehistoric settlement Štuki, EŠD 29514 Cvetkovci – Archaeological area Dobrava, EŠD 10665 Mihovci pri Veliki Nedelji - Rimska cesta Poetovio-Savaria, EŠD 6039 Mihovci pri Veliki Nedelji – Neolithic settlement, EŠD 29228 Mihovci pri Veliki Nedelji – Archaeological site Spodnje Polje, EŠD 6033 Hajndl - Archaeological site , EŠD 500 Ormož – Archaeological site Mestno jedro, EŠD 10667 Pušenci – Rimska cesta, EŠD 6062 Žerovinci - Rimska gomila, EŠD 29756 Žerovinci – Archaeological site Pod Hujbarom, EŠD 29515 Noršinci pri Ljutomeru – Archaeological area Prednjice, EŠD 29513 Grlava – Archaeological area Dolge njive, EŠD 1186 Veržej – Archaeological site Železniška postaja, EŠD 29507 Markišavci – Archaeological area Njiva, EŠD 29512 Puconci – Archaeological area Pri križi, EŠD 29511 Puconci – Archaeological area Podrastek.

- **Settlement heritage:** EŠD 580 Ptuj – City centre, EŠD 499 Ormož – City centre and EŠD 6774 Murska Sobota – City centre.
- **Profane building heritage**: EŠD 6577 Ptuj – House Ormoška 1, EŠD 29524 Ptuj – building at the switching point, EŠD 6632 Ptuj – House Ulica heroja Lacka 13, EŠD 6631 Ptuj – House Ulica heroja Lacka 11, EŠD 6288 Ormož – Castle, EŠD 24984 Libanja – House Libanja 10, EŠD 24961 Ivanjkovci – House Ivanjkovci 5, EŠD 14824 Ljutomer - House Kolodvorska 12, EŠD 23019 Ljutomer - House Kolodvorska 13 and EŠD 23836 Puconci – House Ciglenska hiša.
- **Sacral profane building heritage:** EŠD 589 Ptuj – the Monastery of the Minorites.
- **Sacral building heritage**: EŠD 3292 Ptuj – St Peter and Paul Church, EŠD 4153 Puconci – Evangelist Church.
- **Garden architectural heritage**: EŠD 16239 Ptuj – City Park and EŠD 14347 Ormož – Chestnut promenade.

1.4.1.4 Other areas of special regime

The railway line Pragersko – Hodoš runs on the area of communities of Slovenska Bistrica, Kidričevo, Hajdina, Ptuj, Dornava, Gorišnica, Ormož, Ljutomer, Veržej, Beltinci, Murska Sobota, Puconci, Gornji Petrovci, Šalovci and Hodoš. In spatial plan documents of municipalities, where the railway line Pragersko – Hodoš runs, the areas of noise protection are not defined, thus they are estimated on the base of the eligible use of space in the spatial plans of these municipalities. The railway line runs mostly on agricultural surfaces without buildings, partially on areas with a mixed – business and residential use of space and the areas of the dispersed construction. According to the Decree on limit values of environment noise indicators the residential areas are classified into the third area of noise protection. Into the third area of noise protection also all institutions of education and schooling and the institutions of health in the influential area of the railway line are classified. The agricultural and wooded areas and the industrial areas are classified into the fourth noise protection area. There are no areas of settlement in the influential area of the railway line after the valid spatial plans. According to Decree on limit values of environment noise indicators the area Nature 2000 in the zone 1000 m from the railway line Pragersko – Hodoš, does not belong to quiet free areas.

According to decision on determining of areas and the level of pollution due to sulphur dioxide, nitric oxide, particles, lead, benzene, carbon monoxide and ozone in the external air the whole area is classified into the area of the second level of air pollution. The reconstruction works on the area with the second level of air pollution will not cause increasing of air pollution. If the air is not immoderate polluted, it is necessary to assure with measures for prevention of the quality of air that the concentrations of pollution do not exceed the prescribed limit values and that the existing quality of air does not get worse. Alongside the railway line Pragersko – Hodoš there are no areas, where a special regime of air protection will be prescribed.

1.4.2 Settlement and conditions of residence

The area, where the railway line runs, is mostly the agriculture land; the line runs through a dense settlement only on the area of Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota. To other settlements (Šikole, Cirkovce, Velika Nedelja, Ormož, Puconci, Mačkovci and Šalovci) it only comes closer or crosses them in a smaller part. On the whole length directly alongside the line there is a bigger number of single buildings, more exposed are the former railway buildings, which were mostly sold and now serve as residential buildings. In the present condition due to the railway traffic more buildings and residents are exposed to noise pollution, mostly in night time. Nearly all constructed areas serve to mixed – business and residential purposes and are classified into the third area of noise protection. In the existing situation, though small density of railway traffic, the charge with noise due to the railway traffic is relatively big mostly due to Diesel traction of trains. The noise protection is implemented only on the area between Puconci and Hodoš, on the part of the settlement Ljutomer and on the area of the home for old-age pensioners in Ormož.

1.4.3 Description of condition and quality of environment

1.4.3.1 Eco systems, flora, fauna and habitats

The area of the planed measure is comprehensive, therefore on this area a number of different habitat types appears, which offer the living space to many animal and vegetal types. The area of the measure crosses the protected areas: SPA and SCI Drava, SPA and SCI Mura, SCI Pavlovski brook (Libanja), SPA and SCI Goričko and the Landscape Park Goričko. The area of the measure will cross also the EPO (ecological : EPO Drava field, Lower Drava, Strejaci, Libanja and Mura – Radmožanci and the natural wealth: Ivanjkovci – wet meadows, Mura – lethargy 4, Mura – meadow 1, Veržej – habitat of daffodils 3, Mura – river 1 and Peskovski brook.

For the area of the planed reconstructions of the line and the foreseen regulations in Ivanjkovcih and in Pavlovcih the mapping of habitat types was elaborated. The biggest nature protection value have the priority HT, which on the area of EU are in danger that they will disappear and are according to prescriptions of EU, which regulate the protection of free living vegetal and animal types defined as priority types. On the area of the reconstruction of the line in Pavlovci thirteen HT are registered, but the field and wet meadows prevail (HT 82.11, 37.21 and 38.222). On the wider area of reconstruction in Ivanjkovcih fourteen HT is registered, the central european beech trees and low meadows on wet soil with predominant oat prevail (HT 41.11 and 38.222).

According to data of the Institute for fishing of Slovenia in Pavlovski brook more types of fish appear (roach, bleak, whiting and some other), which are listed on the so called Red list as endangered types. In the sample of invertebrates from Pavlovski brook there were only the sorts which are charactristical for less burdened water.

1.4.3.2 Quality and the characteristics of the ground

The majority of the planned works is limited to the area of the railway line, only on three sections the works are planed outside this area. On the area of the reconstruction at Ormož there are no agricultural grounds with intensive agricultural production, as this is not possible due to the configuration of the terrain (narrow space between the river bank, the railway line and the slope). The quality of agricultural ground on the area of reconstruction in Pavlovci exceeds the limit 56 points, what ranges the grounds between the good and the very good agricultural grounds. At Ivanjkovci the majority of the production potential of grounds is lower than 43 points; the average potential of the area is about 25 points.

1.4.3.3 Underground water

The evaluation of conditions in underground water on the area of the railway line Pragersko - Hodoš is elaborated on the base of data obtained from the monitoring of the underground water, which is performed within the programmes MOP-ARSO. Based on the results of the monitoring the next has been stated:

- The Drava field is a water carrier with very high degree of vulnerability. For the underground water on the area of Brunšvik, Rače, Šikole and Kidričevo the charge with pesticides and nitrates are characteristically. The trends of reduction of the charge of the underground water with pesticides are in general very suitable. The chemical condition of the underground water is evaluated as »bad chemical condition«, also due to not suitable trends of increasing of the charge nith nitrates;
- The Ptuj field is like the Drava field the water carrier with very high degree of vulnerability. The underground water of the Ptuj field is charged with pesticides and nitrates, the measuring point Sobetinci is very exposed. Regarding the condition of the charge of the underground water with pesticides and nitrates the chemical situation of the underground water is estimated as »bad chemical condition«;
- The Prekmurje field is a shallow alluvial water carrier of high general vulnerability. The underground water is charged with nitrates and the rests of pesticides (mostly from the group of herbicides), atrazine and its decomposited product desetil-atrazine, metolachlorine and its decomposited products and from time to time also with other active substances. On the area of Murska Sobota the charge with easily vaporizable halogenated hydrocarbon appear. The underground water is the most charged on both measuring points in Rakičan. Noticeable is also the trend of gradualy reduction of the content of nitrates, atrazine, desetil-atrazine and the sum of pesticides, but the concentrations did still not fall to limit values, therefore the chemical condition of the underground water is evaluated as »bad chemical condition«;
- The Mura field is a shallow alluvial water carrier of high general vulnerability. In Vučja vas the underground water is regarding the other two measuring points of good quality. The underground water is the most polluted with pesticides and nitrates with the trend of reduction of atrazine and desetil-atrazine. From time to time the increased content of mostly metolachlorine and its metabolites and other pesticides from the group of herbicides appears. The chemical condition of undergrund water is therefore estimated as »bad chemical condition«, also due to not suitable trends of the charge with nitrates.

1.4.3.4 Surface water

The hydro morphological condition of the surface water carriers, which are located in the influential area of the alignment of the railway line Pragersko – Hodoš is adopetd from the data MOP-ARSO. The alignment crosses the next water streams:

- partially natural water streams (class 1-2): Pavlovski brook
- partially natural water streams to nature friendly regulated water streams (class 1-2 to 2): brook Kostanjevica
- nature friendly regulated water streams (class 2): brook Lešnica, brook Lahonščica, brook Kozarica and Mačkovski brook
- nature friendly regulated to partially nature friendly regulated water streams (class 2 to 2-3): Mačkovski brook, V. Krka
- technically regulated water streams (class 3): brook Reka, river Pesnico, Pušenski brook, brook Libanja, brook Trnava, river Ščavnica, the brook Puconski potok and the brook Dolenski potok,
- partially rigid regulated water streams (class 3 - 4) river Drava and its left affluent, the Grajena brook, and the brook Bresniški potok,
- rigid regulated water stream (class 4): brook Sejanca

For the surface water streams within the influential area of the reconstruction and upgrading of the railway line Pragersko – Hodoš, the Pannonian or the continental partially fresh water regime is characteristically. The basic characteristic of the water regime (with the exception of rivers Mura and Drava) is the dependence of the hydrological condition from the quality of precipitation on the local area. The evaluation of conditions on water streams is evaluated on the base of the research of Pavlovski brook and the visit of the terrain. The basic characteristic of the surface water streams of the treated area is the dependence of the condition with oxygen from hydrological conditions and from the charge with waste material from the communal infrastructure and the plants of the agricultural economy. Therefore the conditions in time of increased air temperatures are worse and reach on some sections of water streams the condition of anaerobity. It is estimated that the ecological situation of water streams is changeable and as a rule does not reach the situation »very good«. This shows also in the increased charges of surface water streams with the organic substances, expressed with total organic carbon (TOC) and the chemical need after the oxygen (KPK). At the same time in the surface water streams the ammonium is present, which occasionally makes fishing impossible. In the mentioned surface water streams the content of heavy metal does not represent a problem. From time to time the content of adsorbable organic halogen compounds (expressed as AOX), phenol compounds and mineral oils can be increased. The important characteristics of the surface water streams of the whole area where the alignment of the railway line Pragersko - Hodoš runs, are the charges with pesticides. The last can be very increased and assessment and monitoring of the charge of the surface water streams with pesticcides is from the point of view of the railway line Pragersko - Hodoš very important as for the treatment of the railway line also the chosen herbicide formulations are used for removing of the weed and for the maintenance of the suitable bearing capacity of the gravel bed and the blanket course of the railway line.

The saprobe index of the sample of Pavlovski brook is 1,62, this classifies the brook into the oligo to mezosaprobe class (class I – II) and means that the brook is relatively little charged with organic substances.

The necessary hydraulic profiles (bridgings and the trough on the area of regulation) within the electrification and reconstruction of the railway line Pragersko – Hodoš, on the line No 40 (E69) Pragersko-Središče-state border and on the line number 41 (T69) Ormož – Murska Sobota-Hodoš-state border, require mostly the realisation of culverts or bridgings and the regulations only on critical sections. On the whole treated area the danger of flood upstrem from the railway line will be improved, as the culverts are mostly bigger, dimensioned to 100-years high water with the safety height, this means that due to to small permeability there is no barrage upwards the stream and the water level is lower. On the downstrem sections the danger of flood is not worse as the regulation is foreseen in the minimal volume – on the shortest possible distance and prevents the existing situation (we do not increase the profile and thus there is also not a bigger outflow downstream from the regulation).

1.4.3.5 Quality of air and climate conditions

The area belongs to the area with typical Sub-Pannonian climate characteristics, this reflects in the annual temperature regime with the characteristically relative big annual amplitude or with warm summers and cold winters. Especially on wet ground and in the proximity of water surfaces in autumn and in winter time fog appears more often. The average annual quantity of precipitations in Murska Sobota is 806 mm. The annual regime of precipitations shows two peaks: the primary in June as the result of convective precipitations and the secondary in October or November as the result of frontal precipitations. The local winds prevail, which are stronger at passing of fronts and reach the maximal speed at single storms. The frequency of wind directions shows the most often

south-west winds, also the north and the north-east wind and calm weather originate. The wind speed after directions is the highest at south-west wind (3,5 m/s) and the south wind (3,0 m/s).

The steady measuring point of air quality is on the main Meteorological station Rakičan at Murska Sobota. On this measuring point the concentrations of nitric dioxide, nitric oxide, particles PM_{10} and ozone are measured uninterrupted. According to data of the Report on air quality for the year 2009 (MOP ARSO) the level of the measured pollution on this measuring point was under the estimated threshold (nitric dioxide and particles) or the maximal estimated threshold was exceeded (ozone); at none measured polluter the limit value was exceeded.

The railway line runs through the areas of settlements Hajdina, Ptuj, Moškanjci, Ljutomer and Murska Sobota and only comes closer to other settlements (Šikole, Cirkovce, Kidričevo, Velika Nedelja, Ormož and Puconci). In time of the heating season from time to time the concentration of polluters increases, which are the result of the operation of heating devices (nitric oxide). In general we can say that the railway line Pragersko – Hodoš runs on the area, where in the existing situation the air pollution is small.

1.4.3.6 Existing environmental burden

The sources of air pollution on the wider area alongside the railway line are the road traffic, heating points and industrial processes. The road traffic has the important role at total emissions of nitric oxygen, nitric monoxide and vaporizable organic compounds. The heating devices for the production of technological and heating warmth contribute important to emissions of nitric oxides. The heating devices for the production of technological heat are active during the whole year, while the heating devices for the production of heat for the households are working only during the heating season. On the wider area alongside the railway line there are many persons liable to IPPC, who partially emit the an-organic substances into air from technological processes (Talum Kidričevo, Silkem Kidričevo, Brickworks Tondach Ljutomer, Wienerberger Ormož) but mostly these are the plants for the intensive breeding of poultry (Perutnina Ptuj), pigs (Panvita, Rakičan, Ljutomerka), the processing of communal biological and animal waste (Čisto mesto Ptuj, Komunala Ormož, Saubermacher Murska Sobota), for which the emissions of organic substances and smell are characteristically. The emissions of the railway traffic do not represent an important part of total emissions of organic substances and smell. The emissions of the railway traffic do not represent an important part of emissions on the wider area.

Though in the existing situation the density of traffic is relatively small, the charge with noise due to the railway traffic is relatively high, mostly because of the Diesel traction of trains. The noise protection with walls is realised on the section of the line between Puconci and Hodoš, on the part of the settlement Ljutomer and in a small part in the settlement Ormož. Within the reconstruction of stations and sidings Kidričevo, Ptuj, Cvetkovci and Ormož and within the improvement of the noise protection on the area of the city of Ljutomer, the improvement of sound insulation of windows on single buildings has been worked out. On the influential area of the railway line, besides the railway traffic, the important noise source is also the road traffic on the national road network and on the area of dense settlements also the traffic on local roads. The environmental burden with noise due to the production is locally limited and the environmental burden with noise because of the agricultural production is only temporary. The estimation of the existing environmental burden with noise is elaborated on the base of traffic data for the year 2008, calculated according to Directive RMR. In the existing situation the majority of buildings and residents is impacted with noise in night time. Regarding the indexes of limit values of noise in the year 2008 alongside the line in total 663 buildings with protected rooms were overburdened with noise, the critical levels of noise were exceeded at 358 buildings. The burden with noise is the most problematic in night time and less during the day. The biggest number of overburden buildings was

on the area of settlements Šikole, Cirkovce, Strnišče, Hajdina, Ptuj, Moškanjci, Mihovci, Pušenci, Ivanjkovci, Žerovinci, Ljutomer, Bratonci, Lipovci, Murska Sobota and Dankovci.

In the whole length directly alongside the railway line there is a bigger number of single buildings, the most exposed are the former railway structures. The majority of the structures was sold and serve now as residential buildings. In the zone 10 m from the railway line there are totally 34 buildings, 23 of them are residential buildings (3 abandoned) and 11 outbuildings. There are no data on the burden of the nearby buildings and population with vibrations due to railway line operation in existing situation.

The existing railway line is not electrified, therefore at present there are no impacts of electromagnetic radiation or impacts as the result of electrical train traction on this line. In the protected line zone, which is 200 m from the axle of the utmost tracks on each side, there are the existing electrical energetic structures, which belong to the important radiation sources: overhead power line (DV) 110 kV Maribor – Cirkovce I and II, DV 2 x 110 kV Maribor – Zlatoličje, DV 110 kV Ormož – Ljutomer I and II, DV 2 x 110 kV Ormož – Formin, DV 110 kV Ljutomer – Murska Sobota, DV 110 kV Ljutomer – Lendava, DV 110 kV Murska Sobota – Radenci and DV 2 x 400 Maribor – Krško, Podlog. On the base of the implemented operating monitoring and statements of the research work it is estimated that the environmental burden in the protected line zone of the railway line Pragersko – Hodoš is not immoderate.

On the area of Pavlovci, on the grassy surface between the Pavlovski brook and the railway line the sampling of the ground was performed – the soil granulometry and the mechanical and chemical soil analysis. In the sample the silty-clay soils prevails with bad acidity (pH 6,0 do 6,9). Regarding the content of organic mass the soil contains the humus (4 to 8 %C). The measured contents of sodium are within the expected natural values (to 1 % Na). In the measured chemical elements the contents of cadmium and lead do not exceed the limit value. The measured concentrations of mineral oils do also not exceed the limit values. In the soil also the organic halogen substances are present (measured as EOX and expressed as chloride, Cl), evaluated according to Holland list (where the value 1 mg/kg Cl is defined as the value characteristically for not burdened soil). On the base of single research on the researched area it was not possible to define the source of organic halogen compounds.

1.4.3.7 Characteristics and the particularities of the landscape

The section of the railway line Pragersko – Hodoš runs over five bigger agricultural landscape units: the Drava field, Ptuj field, Slovenske gorice, flat land of Mura and Goričko. The Drava and in the Ptuj field are defined by the level of the relief of the river Drava sediment and the gravel terraces as well as the low hilly edge. At Ormož the alignment of the railway line turn towards the north, crosses the region of Slovenske gorice, which are composed by low mountain ridges and hills, with characteristically vineyards and ridge settlements. In the continuation the alignment at Ljutomer passes into the flat land of Mura. In the last part, on the section between Puconci and Hodoš, it runs over the hilly country of Goričko.

After the appearance and structure of the space the treated area can be divided to the flat land composed by the Drava field, the filed of Ptuj and the flat land of Mura and the hilly area of Slovenske gorice and Goričko. For the whole area the expressive agricultural use of land is characteristically, which creates the characteristically landscape with bigger surfaces of intensive cultures and meadows, which are interrupted by irregularly formed lowland forests, single groups of trees and single bigger expressive trees and bushes. At houses there are the gardens with some decorative planting of trees and the fruit gardens. For the landscape picture on the hilly land the vineyards on sunny slopes are characteristically.

Two bigger water streams are noticeable, the river Drava and the river Mura and the presence of numerous water streams on the flat areas, which are stressed in the landscape image by the characteristic water vegetation. Besides bigger towns as Ptuj, Ormož, Ljutomer and Murska Sobota, for this area the rural settlement with numerous small villages, which reach up to the edge of the railway line, are characteristically. Besides the church and the structures of the buildings for services (stores, co-operatives, fire stations and alike) the settlements consist also of one to two-storey residential houses with gardens. It deals with the mixture of old, not well maintained houses and new buildings with facades and roof of very intensive colours. In the proximity of towns also some industrial and serviceable areas appear (plants of Perutnina Ptuj, shopping centre in Ptuj). Among the expressive space elements also the line infrastructure elements belong (overhead power lines), which are noticeable mostly on the area of the Drava field.

Besides Ptuj and Velika Nedelja there are no space dominating features, the most orientation is given by the hilly hinterland. On the whole area the railway line runs mostly in a low embankment, not more than one to two meters raised above the surrounding terrain, except on some places for instance in front of Ptuj and in the proximity of Ljutomer. Mostly the embankment is planted with grass, thus the railway line is not distinctive and visible in space.

1.5 POSSIBLE IMPACTS OF THE ACTIVITY TO ENVIRONMENT

The evaluation of impacts on environment proceeds from the basic goals and principles of the environment protection, preserving of nature, protection of natural sources and the protection of the cultural heritage. The regulations are considered, which define the limit values of emissions, the level of reduction of environment pollution and thus related measures, the regulations, which regulate the treatment of waste and other regulations for preventing and mitigating the environmental burden, other restrictions and treatment connected with the allowed burden of environment or the allowed measures connected with the changes and the special legal regime on protected areas. The impacts on environment for single segments of environment were estimated with regard to consideration of the given mitigating measures. According to the principle of prevention at planning and implementing of the activity it is necessary to consider all in the report stated mitigating measures. The evaluation of the importance of single impact depends on the condition of the environment component before the mesure, the size and the quality of single change and the relations of the society or the judge to this compnent or its change.

1.5.1 Expected impacts during the construction

The planned activities within the electrification and the reconstruction of the railway line are mostly limited to the area inside the existing alignment of the railway line, only on three areas (on the area of the settlement Pavlovci, Ivanjkovci and Ormož) the planned works reach outside the area of the alignment of the railway line or the railway station. The electrification will follow completely in the area of the line. For the works special train compositions will be used. Also the transport of the whole material, necessary for the implementation of works, will be transported on the railway line.

1.5.1.1 Noise

The basic purpose of electrification and the reconstruction of the railway line Pragersko - Hodoš is the increasing of the capacity of the line with the exchange of the existing Diesel traction with electrical traction and the upgrading of the line and the partial reconstruction of the catenary between Pragersko and Murska Sobota. These are the measures, which will contribute to the reduction of noise emissions of the railway line.

The burden with noise will be increased in short time intervals on all areas of electrification. The environmental burden with noise during the electrification and the reconstruction of the railway line will be the biggest at residential houses, which are located in the proximity of areas, where the reconstruction is foreseen and on areas, where the reconstructions of buildings are planned. In time of intensive construction or maintenance works on these areas it would come to temporary exceeding of the boundary limits for noise. From time to time the environmental burden with noise is expected also on areas of reconstructions of stations Ptuj, Ljutomer, Murska Sobota and Hodoš and the regulation of stopping places.

1.5.1.2 Air

During the electrification and the reconstruction the pollution of air with hard particles will be exceeded from time to time at residential houses, which are located in the close proximity of areas where the reconstruction of the line is foreseen in bigger extend, such as in Pavlovci and Ivanjkovci and on areas, where the reconstructions of structures are foreseen. From time to time the increased environmental burden is expected also on areas of reconstructions of stations Ptuj, Ljutomer, Murska Sobota and Hodoš and the regulation of stopping places.

1.5.1.3 Electromagnetic radiation

There will be no sources of electromagnetic radiation during the works.

1.5.1.4 Vibrations

During the works, the near buildings will be burdened with vibrations for short periods, mostly due to the use of machinery for the foundations works of supply poles and anti-noise fences, removal of the existing upper structure of the line, foundation works, placement of material, spreading and hardening of new railway ballast, setting new railway sleepers and tracks. Due to the implementation of construction works, there will be an increased burden on individual buildings in the areas of the reconstruction of the line in Pavlovci and Ivanjkovci.

1.5.1.5 Nature

We expect a bigger impact on nature on both areas of reconstruction of the railway curves in Pavlovci and in Ivanjkovci. Also the regulation of the Pavlovski brook is foreseen. During the construction the existing flora and fauna on the area of works will be destroyed. The works could impact on temporary reduction of population, mostly on wetland and water. With not appropriate selected time and type of works we can expect the negative impact on some types of birds.

1.5.1.6 Land and its use

In the area near Ormož, the impact on agricultural land will be small; the major intervention on agricultural land and agricultural activity will be performed in the area near Pavlovci. The intervention is anticipated for more than 4.5 ha of fields; 10 farmers will lose part of their agricultural land, of which 4 are large agricultural establishments. On the section near Ivanjkovci, there will be a small negative impact caused by the loss of high quality agricultural land during the line reconstruction, which will increase the need for the establishment of an alternative habitat, which to a large part interferes on arable land with a slightly higher productive and harvest potential. The anticipated scope will affect four agricultural establishments, two of which are quite large.

1.5.1.7 Underground water

In time of construction no direct impacts on condition of the underground water is expected. Because of the inseparable mutual connection of environmental elements, ground and the underground water, the changes in the ground can reflect also in the changed conditions of the underground water (regarding the fact that the alignment of the railway line Pragersko - Hodoš runs on areas of alluvial water streams, which due to the sandy and silty structure also have bigger permeability, the impacts are expected). Direct impacts are expected as the result of additional burden of the ground and than consecutive washing of the ground with precipitation water, where for the treatment of the stated impacts mostly the implementation of the reconstruction of the line in front of Ormož could be important.

The most important possible impacts are:

- the increase in emissions of dust deposits from open parts of the construction site, transportation and other manipulative areas;
- emissions of dust particles will greatly increase during earthmoving works (removal of cover layers of land, excavation to the retaining layers of land, transposition or transportation). The substances from the existing land load are physically and chemically connected to dust particles (e.g. protective and impregnation means used for the processing of railway sleepers, remains of fuels, lubricating oils and grease, remains of protective means which are used for processing the routes of railway lines, or protective means which are used for processing agricultural land);
- removal, transport and depositing of waste material removed on parts of the route where reconstruction works are foreseen, or the transfer of the railway line (sections near Pavlovci and Ivanjkovci). The mentioned waste materials include wooden sleepers, chipped stone and inappropriate material from the upper layer of the substructure with regards to the most critical waste material. The mentioned waste materials can contain the remains of fuel, motor and lubricant oils, protective means and other hazardous materials. Removed or waste railway tracks are the source of emissions of hazardous substances (polycyclic aromatic hydrocarbons); therefore the transportation of waste sleepers for combustion at uncontrolled locations is unacceptable;
- pollution of soil with hydro-insulation materials and other protective materials during their use or due to the leaching of the remains of these materials caused by inappropriately deposited or stored packaging.

1.5.1.8 Surface water

The works in time of construction can additional impact on surface water streams. On parts of the alignment, where the alignment of the railway line Pragersko - Hodoš crosses the water protected zones of capturing systems for the supply with drinking water, the works represent also the direct impacts on conditions in the underground water (regardless the hydrological condition of the surface water stream). From the point of view of impacts of the reconstruction and upgrading of the railway line Pragersko - Hodoš on conditions of the surface water streams mostly the next works can have the influence : regulation of the Pavlovski brook on two sections in total length of 1 km, construction of the new bridge over the brook Lahonščica and the reconstruction of railway bridges over the brook Studenščica in km 16+820, over the river Drava in Ptuj in km 17+205, over the river Ščavnica in km 19+787, over the river Ščavnica in km 20+332 and over the river Mura in km 28+565.

From the point of view of possible negative impacts on chemical and biological condition of water streams, consecutively on ecological condition, all construction works are important, which on the influential area of the water body include the use of concrete cement, asphalt and other material (for instance artificial bitumen) as well as the hydro insulating material and other surface active

substances (for instance colours and protective coats). The impacts of implementation of construction works, which interfere into the system of surface water streams are short (temporary). In time of direct interventions into the riverbeds, for instance in time of regulation of water streams the conditions in water streams are such, that they can not be evaluated on the base of criteria of chemical and ecological condition. As a rule the chemical and ecological condition in the surface water stream can be improved in the mid term period but normally not to the stage before the beginning of the construction.

During the works, we do not expect any impacts on the water regime, except in the case of sudden floods. The implementation of construction works on the parts of the route where the route itself intervenes in the system of surface watercourses can directly impact the morphological characteristics of watercourses (e.g. the Pavloski potok brook, the Lahonščica brook).

1.5.1.9 Cultural heritage

Because of construction it could come to permanent or temporary damages of areas or structures of cultural heritage. The conditions of intervention into registered units of cultural heritage were harmonised in time of elaboration of the national spatial plan.

Due to the construction, permanent or temporary damage to cultural heritage areas and buildings could occur. During the works, immediate impacts could emerge on archaeological heritage units which are located directly near the existing railway line (EŠD 690169 Zg. Jablane – Archaeological site Praponce, EŠD 13356 Cirkovce – Prehistoric settlement, EŠD 27930 Zgornja Hajdina – Archaeological site Srednica, EŠD 21028 Ptuj – Archaeological site Ob železnici, EŠD 9155 Ptuj – Archaeological site left bank, EŠD 6512 Ptuj - Rimska cesta Poetovio-Savaria, EŠD 29505 Podvinci – Archaeological site Klince, EŠD 29504 Mezgovci ob Pesnici – Prehistoric settlement, EŠD 29509 Moškanjci – Archaeological area Čreta, EŠD 29517 Zmušani – Prehistoric settlement Štuki, EŠD 29514 Cvetkovci – Archaeological area Dobrava, EŠD 10665 Mihovci pri Veliki Nedelji - Rimska cesta Poetovio-Savaria, EŠD 6039 Mihovci pri Veliki Nedelji – Neolithic settlement, EŠD 29228 Mihovci pri Veliki Nedelji – Archaeological site Spodnje Polje, EŠD 6033 Hajndl - Archaeological site , EŠD 500 Ormož – Archaeological site Mestno jedro, EŠD 10667 Pušenci – Rimska cesta, EŠD 6062 Žerovinci - Rimska gomila, EŠD 29756 Žerovinci – Archaeological site Pod Hujbarom, EŠD 29515 Noršinci pri Ljutomeru – Archaeological area Prednjice, EŠD 29513 Grlava – Archaeological area Dolge njive, EŠD 1186 Veržej – Archaeological site Železniška postaja, EŠD 29507 Markišavci – Archaeological area Njiva, EŠD 29512 Puconci – Archaeological area Pri križi, EŠD 29511 Puconci – Archaeological area Podrastek). Within the scope of the reconstruction of the railway line in Pavlovci, an intervention in the registered cultural heritage unit EŠD 6053 Pavlovci—Rimska stavba is anticipated. The conditions for the implementation of works from the aspect of cultural heritage protection were already harmonised during the preparation of the national spatial plan.

1.5.1.10 Landscape and its character

Because of electrification of the railway line no bigger changes in the landscape picture are expected, locally some changes of visual characteristics of the area are possible, which refer mostly to organisation of the building site, additional traffic and temporary depots of material. These impacts will be bigger in the area of reconstructions as they mean also bringing-in of new substances and thus changing of the characteristically image of the space, removal of vegetation, excavations, planning, construction of new traffic regulations, presence of depots of material, temporary structures, working machines, transport vehicles and works on the building site, etc.

1.5.1.11 Waste

Because of the foreseen construction bigger quantities of waste will originate, namely as the result of removal of the existing gravel bed and the blanket course, removal of existing sleepers and railway tracks, including the fastening material. Therefore about 100.000 m^3 of waste stone material will originate, 5.6 million kg of iron and steel (rails and fastening material) and about 5.5 million kg of wood (sleepers). All material will be removed from the area. The ballast and the excavated material of the superstructure is not a dangerous material. Its use or storing will be defined on the base of previous research works that have to be implemented before the beginning of removal. The waste iron and steel will be recovered in ironworks, the usable parts will be taken over by the Slovenian railways for the reconstructions on other sections and the same is valid for railway sleepers.

Other removed material on the area does not represent important quantities and will be removed and deposited in accordance to valid regulations. In time of construction on the area of the building site it is necessary to assure also the collecting and removal of waste packaging and special waste, which appears at the use of building mechanisation.

1.5.2 Expected impacts in time of operation

1.5.2.1 Noise

In time of operation the environmental burden with noise alongside the railway line will be considerable smaller due to electrification and improving of driving characteristics of the line. The electrification and upgrading of the line are the basic and the most effective improvement measures for noise as the source of pollution. Because of the modernisation of the line and due to inclusion of the line into the European traffic corridors in the future mostly increasing of freight traffic is expected, therefore the emission of noise of the railway traffic will gradually increase with the years. Despite of electrification the impact of the railway line at the nearest buildings will still be immoderate, therefore in the project documentation the noise protection of all overburdened residential buildings with protected rooms, is foreseen.

1.5.2.2 Air

After the completed electrification the impact of operation of the railway line on air and on the quality of air will not be important.

1.5.2.3 Electromagnetic radiation

The railway line will be electrified with direct system voltage 3.000 V, except of a part of the railway station Hodoš, which will be electrified with the Hungarian system of electrical traction, this is the alternating system 1 x 25 kV 50 Hz. The connection of single electrical substation to distribution network 20 kV will be realised with underground electrical wires 20 kV. For the increased reliability of the supply of the electrical substation for each electrical substation the parallel cable lines 2×3×N2XS(FL)2Y, 12/20 kV, 1×150 RM/25 will be worked out. The normal supply will follow on both cable lines; in case of the damage of one of them the whole burden will be taken over by one single cable line.

The calculative procedure of evaluation of electromagnetic fields of electrification and reconstruction of the railway line Pragersko – Hodoš represent the calculative procedures of evaluation: direct electromagnetic field for the open line, direct electromagnetic field for the

railway stations, alternating electromagnetic field for electro energetic lines and direct and alternating electromagnetic field of the ESS. Considering the calculations of electrical and magnetic fields, an analysis of the impacts of electrical and magnetic fields and evaluation of the environment load by electromagnetic radiation, we establish that the expected environment load with electromagnetic radiation will not have cross-border impacts.

1.5.2.4 Vibrations

The expected burden of buildings and residents with vibrations after the completed reconstruction, upgrading and electrification of the railway line will, regarding the existing situation, remain unchanged or be slightly improved.

1.5.2.5 Land and its use

The loss of agricultural land in the areas of line reconstruction near Ormož, Pavlovci and Ivanjkovci will have a permanent impact on land. Indirect impacts are connected with the economy of agricultural production, since the physical dispossession of agricultural land and/or modified accessibility can decrease the economic aspect of production.

1.5.2.6 Nature

Because of the increased number of trains the possibility of collision with free living animals exists, until they will get used to the new conditions. At incorrect use of pesticides, mostly in proximity of wet habitats, the impact on flora and fauna types can be big and possible also destroyable. Eventually also the impact of electrical wires to flying over of birds at worse visibility can be higher, mostly on the area, where the birds fly over the area in large numbers.

1.5.2.7 Underground water

With regard to stated hydro geological conditions of the underground water the impacts on conditions of the underground water can be expected mostly due to the use of means for the maintenance of the railway line. The impacts could be controlled with the adequate realisation of maintenance works (selection o adequate means, time and dynamics of application and quantities) and restricted use of means on water protected areas.

1.5.2.8 Surface water

In time of operation the impacts of the railway traffic on conditions in surface water streams are possible, namely on areas of reconstructions or on sections of direct crossings and also on areas of single surface water streams, mostly due to the use of means for the maintenance of the railway line. The impacts could be controlled with the adequate realisation of maintenance works (selection o adequate means, time and dynamics of application and quantities).

The flood risk on sections upstream from the railway line is improved over the entire area where works will be implemented, since the passages are mostly larger, dimensioned to one-hundred-year flooding with a safety height, meaning that due to insufficient water conductivity, there is no impoundment upstream and the surface is lower. On the sections downstream, water safety does not worsen; minimum regulation is anticipated, and the existing situation is preserved (the profile is not increased and higher outflow downstream the regulation is also not anticipated).

1.5.2.9 Cultural heritage

During the operation of the electrified and reconstructed railway line the impacts on structures and areas of cultural heritage are not expected.

1.5.2.10 Landscape and its characteristics

The impacts in time of operation have been caused already in time of the construction, mostly in the sense of placing and extension of the constructions into space. Considering that it deals with the supplementation of the already existing infrastructure in space, smaller changes are expected. The reconstruction works are limited to a close area alongside the existing railway line; therefore there will be no bigger changes of landscape elements and the landscape image.

1.6 MEASURES FOR PREVENTION, REDUCTION OR ABANDONING OF NEGATIVE IMPACTS ON ENVIRONMENT AND HUMAN HEALTH

1.6.1 Measures for prevention, reduction or abandoning of negative impacts on environment and human health

1.6.1.1 Noise

Mitigation measures for protection against noise during the implementation of works: the use of working machinery and construction machinery which are manufactured in accordance with standards on emission, considering the time restrictions on construction and decreasing noise load in the evening and at night, decreasing emissions of noise due to material transportation and mitigation of noise caused by the operations of construction sites. The measures regarding the protection against noise during works must be specifically determined in the construction site's organisation project. The subject that is responsible for performing such measures during works is also the contractor that performs construction works.

For the purposes of protecting all overloaded areas and buildings with protected premises, the project documentation anticipates anti-noise measures that consist of reducing emissions at noise sources (electrification of the line and modernisation of the train fleet, upgrade of line), and the reduction of noise expansion in the environment by constructing anti-noise fences and reconstructing windows in buildings where the protection of the environment with fences is not anticipated or insufficient. Protection is planned for residential land where critical values of noise indicators are exceeded. The project documentation for the DBP anticipates a total of 29 sets of anti-noise fences with a total length of 13,522 m, with the heights of fences between 2.0 and 3.0 m. There are 166 buildings with protected premises anticipated for passive anti-noise protection; the implementation of protection depends on the settlement, the actual purpose and sound insulation of existing windows of such buildings.

1.6.1.2 Air

On the areas of reconstruction the preventive measures are foreseen for the prevention of the immoderate rising of dust as are the use of technically perfect building mechanisation, moistening of the open parts of surfaces, covering of the freight during the transport outside the areas of works. The measures of air protection during the construction have to be defined in detail in the project of ecological regulation, which should be elaborated within the project PZI and submitted to confirmation to inspection services before the beginning of works. The liable person for the implementation of measures during the construction is the contractor of construction works, who

has to assure that during the construction on the nearby residential areas the limit values of concentration of polluters in air will not be exceeded.

After the reconstruction the railway line Pragersko – Hodoš will be completely electrified; therefore there will be no Diesel traction anymore. The emission of polluters into air during the operation of the railway line will be unimportant; therefore the mitigation measures are not necessary.

1.6.1.3 Electromagnetic radiation

The mitigation measures for the electromagnetic radiation are not necessary, as the most unsuitable environment burden is estimated as negligible. In the future the electrical separation of the track from the ground is also expected, because of the reduction of the impact of stray currents, thus consecutively also the electromagnetic radiation of the catenary will be smaller.

1.6.1.4 Vibrations

The measures of the protection from vibrations during the reconstruction and electrification refer to the use of working devices and building machines, which are produced according to emission standards for vibration time limited works, which cause the emission of vibrations in the evening and the night time. Special measures of protection from emissions of vibrations into environment of the railway line after the completed reconstruction and electrification are not foreseen. Special measures connected with protection against emissions of vibrations in the environment of the railway line are not anticipated after the concluded reconstruction and electrification.

1.6.1.5 Nature

In time of construction the next mitigation measures have to be considered:

- The rivers Drava and Mura represent the winter quarters for water birds. In the area of up to 100 m on both side from the crossing over the river Drava and Mura the construction works must be executed in March and in the period from July to October.
- The clearing of trees and bush vegetation must be executed in time outside the vegetation. The clearing of trees and bushes can be executed in autumn or in winter time from October to February.
- The regulations of the Pavlovski brook and Lahonščica should be executed in time outside the spawn time of fish therefore the works in water steams should not be executed from the beginning of March to the end of June.
- For the protection of the crayfish the regulation works in Pavlovski brook and Lahonščica should not be executed in time of low water level, in time of shedding and at high temperatures of water, thus in summer time. As much crayfish as possible should be caught and temporary removed from the brook. After the finished construction works they should be put back into regulated water streams or removed to places, where the works were not implemented.
- At the execution of works the existing vegetation on the area of execution of works should be completely prevented. Only the vegetation can be removed, which directly obstructed the implementation of works.
- The investor or contractor must inform the Fishing club Ormož about the time plan of works, mostly of the works, where despite the protection measures the impacts on water are possible. Before the realisation of construction works on water streams the manager should be informed at least 7 days before the beginning of the construction and to perform with his representative the survey of locations and to agree upon the eventual measures for the protection of water

organisms. If needed also the intervention catching of fish should follow and they should be moved into not effected parts of the water stream.

- Works should be planned and performed in such way that no interventions would be performed in the area between the railway line and the Drava River or the outflow part of Sejanski potok and Pesnica, and that no mechanisation movements or deposition of construction material shall be performed here (the construction site should be organised on the north part of the existing railway dyke).
- No works should be done on escarpments and the current vegetation on the escarpments of the Drava River, Pesnia or Sejanski potok, or any interventions should be restricted to the minimum possible extent.
- No interventions are allowed in the outflow part of Lešnica brook.
- Intervention in waters should be limited in space and time, and the input of substances into water should be minimal. It should be guaranteed during construction works along and in the water course that no continuing turbidity conditions emerge. During construction, no interventions are allowed in the riverbed by using materials that contain dangerous compounds; concreting in the water course is not allowed, and the spillage of mixtures of lime or cement in the water should also be prevented. Works should be planned and implemented in such a way that the connectivity and integrity of the water area is preserved the entire time, thus enabling the passage of aquatic organisms.
- Construction machinery on the construction site and transport vehicles for the supply and removal from the site should be technically flawless, so that the pollution of soil and water due to spillage of fuel or oil does not occur. Dangerous substances may not be stored on site.
- The transport of construction mechanisation and supply of construction material should be implemented by existing infrastructure to the maximum extent possible. Additional supply roads to the construction site, deposit of construction material, parking space and turning areas for cargo vehicles should be set up outside nature protection areas of high value habitat types and protected areas (Natura 2000 and protected areas). Waste and construction material may not be deposited in these areas.
- In cases of soil removal, it should be guaranteed that the humus layer is carefully removed and deposited on the intervention location separate from the other material, and that it is used for coverage immediately after the construction works are finished.
- The initial state should be re-established on the entire construction site after the works are finished. All newly regulated land should be planted with grass or with locally indigenous trees and bushes. In the area of meadows, wet meadows should be re-established and re-cultivated.

The following mitigation measures should be considered during operations:

- The regulation of Pavlovski potok requires a plan for the co-natural regulation of the new riverbed of Pavlovski potok; expert biologists should cooperate on preparing the plan. The plan should determine the manner of transposing the ecosystem and preserving the image, function and biodiversity. Willow and black alder must be planted along the new riverbed. The method of catching and transposing aquatic organisms upstream should be determined in the plan. The plan for co-natural regulation should be confirmed at the Institute for Nature Conservation, Maribor branch unit. Brook regulation should be planned in such a manner that the hydrologic/hydraulic situation of the brook is not changed significantly.
- When planning the bridge over Lahonščica and Pavlovski potok, on both sides of the riverbed under the bridge, a small berm approx. 1 m wide should be anticipated, since it will enable the passage of small animals.

- Riparian protection, where the anticipated implementation is stone in concrete, should be performed in such a way that the concrete shall not cover stones or rocks on the exterior side. There should be deep cracks between rocks to provide places for water organisms to hide.
- In the event of interventions in the embankment and riparian vegetation of the Drava River, Pesnica or Sejanski potok, the riparian vegetation shall be appropriately replaced and the embankment planted with locally characteristic vegetation.
- Reconstruction area in Pavlovci:
- In the area of the old riverbed of Pavlovski otok, which will be covered, extensive meadows should be established, or the use of land as it is currently established in the area of the anticipated new railway dyke and in the area of the anticipated new riverbed of Pavlovski potok should be established (e.g. HT Mezotrophic water meadows and Central European mezotrophic to eutrophic lowland meadows). The dyke should extend no farther than the limits of the existing terrain.
- The old railway dyke should be removed.
- Reconstruction area in Ivanjkovci:
- The old railway dyke in the reconstruction area in Ivanjkovci should be removed and a substitute habitat of HT Mezotrophic water meadows x Central European mezotrophic to eutrophic lowland meadows should be established in the area between the old and new railway dykes.
- Land plots no. 53/2, 57, 83/2 and 54, all in cadastral municipality Ivanjkovci, should be purchased and a substitute habitat of type HT Predominantly land reeds x Weeping sedge biocenoses should be established in their place.
- The construction site should be organised from the west side of the anticipated railway dyke (all access should be from the west side), and the construction site should be fenced along the east part of the anticipated new railway dyke, so that access will not be possible to the area of the remaining part of the natural asset.
- A special project should be prepared within the project documentation for establishing substitute habitats.
- Weeds along the railway line should be controlled by using exclusively eco- and bio-degradable phytopharmaceuticals.
- If bird mortality on a section of the line is significantly increased due to collisions with conduits, an additional steel strand should be mounted between the pillars and equipped with hanging tables of 0.5 x 0.5 m, which will increase the visibility of electrical conduits. The boards should be painted, so that they are easily visible in all weather conditions (either red, or with a black and white pattern) and installed on the braid at 5-metre intervals.

1.6.1.6 Quality of the ground and its use for agriculture

In time of construction in the most extend the driving of mechanisation and transport vehicles on agriculture grounds outside the transport ways should be prevented. Besides the measures for prevention of contamination of the ground it is necessary to take care for the correct use of the fertile soil. All excavated layers of the ground should be deposited separately according to the previous evidencing of the suitability of single layers (horizons) of soil types. It is important that the layers of soil will not be mixed with the dead river branch or not suitable soil. The fertile part of the ground should be priority used for the areas of the planed recultivations of the ground. The programme of recultivation of the ground should be exactly defined in the PZI plan. At establishing of the field grounds the profile of the ground should be adequately deep (at least 60 to 70 cm), while at meadows it could be more shallow (at least 40 cm). At planning of the recultivating works the correct sequence of horizons should be considered, as they were before excavations.

In order to reduce the permanent loss of land and to preserve agricultural production, it is necessary to salvage the loss of the best land in the entire area of works if this is required by

farmers, i.e. by providing substitute land. If substitute solutions are deemed impossible or inappropriate, the investor is obliged to pay the affected farmers adequate real value compensations, which will enable them to continue their agricultural production.

1.6.1.7 Underground water

The basic mitigation measures that have to be performed directly on the building site and the manipulative surfaces are:

- Interventions into the ground (for instance during the construction of cuts, renewal or construction of shafts or drainages) should be executed on such way that as small surfaces of ground as possible will be effected;
- For temporary traffic and construction surfaces as priority the existing infrastructure and other manipulative surfaces should be used;
- The removed material, which remains between the earth works, must be before depositing to temporary or permanent depot researched according to Decree on management of waste arising from construction works. With the examination before the beginning of construction works the correct way of depositing or other removal is defined. The examination is performed by the adequate institution, authorised by the Ministry of environment and spatial planning. Before the beginning of removal also the location of the temporary depot should be defined;
- After the same procedure also the polluted ground is treated in case of pouring of the engine fuel, lubricating and other oils and other material;
- On the whole area of the construction of alignment, the transport ways and other manipulative surfaces it is necessary to assure the collecting and removal of waste water (in case that they arise). This is specially valid for the case of the accident with pouring or strewing of dangerous material;
- On the whole area of the building site, transport and manipulative surfaces the collecting and removal of waste packing material should be assured, which contains the rests of hydro insulating material, used for the construction works;
- During the implementation of construction works it is necessary to prevent the dust emissions (inadmissible emissions of dust from construction and especially transport surfaces). The possible measure is moistening of these surfaces in dry and windy weather;
- On the area of the building site, transport ways and other manipulative surfaces, where the transport of the removed and construction material will run only the technically suitable vehicles can be used;
- In case that the supply of transport vehicles and other devices will follow on the building site, transport or other manipulative surfaces, these surfaces should be stabilised.

During operations, the negative impacts of operations or the maintenance of Pragersko-Hodoš railway line will be restricted or prevented with regards to underground water with the following measures:

- The removed material that emerges due to polluted soil in the case of engine fuel, lubrication and other oils spillage should be reviewed in accordance with the provisions of the Decree on Waste Management (Official Gazette of the RS, No. 34/08) and the Decree on the management of waste arising from construction work (Official Gazette of the RS No. 34/08) prior to depositing such material at a temporary or permanent depot. 34/08). The review shall be performed by an appropriate expert institution authorised by the Ministry of the Environment and Spatial Planning. Before the removal of material is initiated, a temporary deposit site should be determined;
- accumulation and removal of waste waters (if they emerge) should be ensured on the construction area of the line, transport trails and other land. This applies especially in cases of spillage or the scattering of hazardous substances;

The process of removing weeds and other vegetation from the railway ballast may be performed only with phytopharmaceuticals (PPM), which are used for the subject purposes in accordance with the provisions of the Act on Phytopharmaceuticals (Official Gazette of the RS, No. 11/01, amendments: OG RS, No. 2/04-ZZdrI-A, 37/04, 98/04-UPB1, 14/07, 35/07-UPB2).

1.6.1.8 Surface water

It should be considered in the implementation of planned works that the area of line reconstruction in Pavlovci and Ivanjkovci is located in a flood area. Deposits of material, construction facilities etc. should be planned outside the flood area. The spreading of excessive land material on the flood area in such a way that the volume of flood retention is decreased, or the flood risk of embankment land is decreased, is not permitted. Work must be organised and performed in daily sections. After the work is finished each day, all construction machinery, equipment and material should be removed from the flood area. In the case of an unfavourable weather forecast or forecast floods, works may not be performed (except the most urgent works that are required to protect open excavations etc.). The most important measures which can help limit or prevent negative impacts on the situation in surface waters are:

- construction interventions in the riverbed and escarpments of water courses are limited to the minimum required scope and implemented in such a way that continuing turbidity does not emerge in the water courses;
- direct interventions in the riverbed with materials that contain dangerous compounds such as chlorine organic compounds, toxic metals and other substances that can modify the basic features of water and impact the permanent modification of chemical and ecological state of water should be prevented during construction. There must be no spillages of cement or lime mixtures in water (washing construction machinery with water from the river is not allowed);
- in cases of spillage of hazardous liquids, the polluted material (e.g. polluted soil) should be reviewed and measures determined. Reviews should be performed by the appropriate institution authorised by the Ministry of the Environment and Spatial Planning in accordance with current regulations.

The most important measures which can limit or prevent the negative impacts of the operation of the Pragersko-Hodoš railway line on the condition of surface watercourses are connected with the implementation of maintenance works on the railway route. With regards to the method of implementation, the measures are the same as those that must be implemented during construction works:

- direct interventions in the riverbed with materials that contain dangerous compounds such as chlorine organic compounds, toxic metals and other substances that can modify the basic features of water and impact the permanent modification of chemical and ecological state of water should be prevented during construction. There must be no spillages of cement or lime mixtures in water (washing construction machinery with water from the river is not allowed);
- in cases of spillage of hazardous liquids, the polluted material (e.g. polluted soil) should be reviewed and measures determined. Reviews should be performed by the appropriate institution authorised by the Ministry of the Environment and Spatial Planning in accordance with current regulations.

1.6.1.9 Cultural heritage

The general measures for the protection of buildings and areas of cultural heritage from damaging and destroying during the construction are:

- The construction and access ways to the building site should not lead over the areas or structures registered as cultural heritage and archaeological sites on the wider area of the railway line;
- The areas and structures registered as cultural heritage and archaeological sites on the wider area of the railway line should not be used for depositing of the surplus of material;
- On areas and structures registered as cultural heritage and archaeological sites on the wider area and structures registered as cultural heritage on the wider area of the railway line the necessary regulations, utility and energetic infrastructure should not be displaced because of the modernisation (electrification and reconstruction);
- During construction works, no direct or indirect impacts on cultural heritage units may emerge. On the section of the new route in the area of Pavlovci, where interventions on the archaeological area are planned, strict archaeological supervision must be performed during land and construction interventions for the reconstruction and electrification of the railway line by documenting possible archaeological layers and remains;
- during the implementation of construction works (mostly in transportation to the construction site), no direct or indirect impacts on chapels or protected buildings in the wider area should occur;
- all works, including modified land, must be restricted to the area of the railway line, and temporarily affected areas shall be rehabilitated;
- permanent archaeological supervision must be ensured for all land works during reconstruction and electrification, especially on registered archaeological heritage units;
- the execution of protective excavations of located sites, if any, including all post-excavation procedures, shall be enabled;
- prior to the initiation of works, the competent authority for the protection of cultural heritage, i.e. the Institute for Cultural Heritage Protection of Slovenia, branch unit in Maribor, must be informed at least ten days in advance;
- the intended purpose of profane urban heritage building EŠD 14824 – Ljutomer – house Kolodvorska 12 shall be modified due to the worsening of housing conditions, whereas, its exterior cannot be modified.

During the operation of the railway line Pragersko – Hodoš special measures for the protection of structures and areas of the cultural heritage are not necessary.

1.6.1.10 Landscape and its character

The adequate regulation of the surrounding of the new structure and the improvement of degraded areas reduce the negative impact of the railway line on the visible environment. Preserving of the existing vegetation in the most possible extend and new planting, which corresponds to the characteristics of the nearby landscape and the autochthon vegetation as well as the soon re-cultivation of abandoned parts of the line are foreseen.

During operations, regular maintenance and mowing of embankments as well as maintenance of vegetation are required in the railway corridor in order to ensure appropriate safety distance and visibility. The maintenance of the riverbeds and vegetation along brooks or embankments should be performed by directing the desired succession processes towards the natural image of the watercourse.

1.6.2 Monitoring

1.6.2.1 Noise

Noise monitoring during works involves supervision of the compliance of the construction mechanisation and machinery used with the Rules on the emission of noise of machinery used outdoors, control of observation of the time restrictions on construction and the implementation of noise measurements in buildings with protected premises which are closest to each individual construction site. Noise measurements in the vicinity of construction sites should be implemented during preparatory and intensive construction works at construction sites. Monitoring must comprise several short-term measurements during the day or, if necessary, during other parts of the day, and of the noise load assessment for individual areas. Noise load monitoring during the implementation of works is foreseen for 6 locations. The entity that will implement noise monitoring during the implementation of works is the contractor for construction works, who is also obliged to ensure that the first assessment and monitoring operations are performed during the time when the intensity of works is at the maximum.

During the operation the comprehensive monitoring of noise is proposed, which includes calculative evaluation of the impact of noise on the complete area alongside the line and measuring of the complete noise burden on 15 measuring places. The responsible person for the implementation of monitoring is the railway line manager.

1.6.2.2 Air

Excessive impact on the quality of air during the electrification and reconstruction of the railway line in residential areas is not expected. Observational monitoring during construction works must involve supervision of the fulfilment of measures for the restriction of dust on construction areas and supply transport roads as well as the regulation area.

In time of operation the railway line will not be important source of air pollution, therefore the monitoring of the impact of the railway line on the quality of air is not foreseen.

1.6.2.3 Electromagnetic radiation

According to requirements of article 16 of the Decree on electromagnetic radiation in natural and living environment after the electrification and reconstruction of the railway line Pragersko – Hodoš it is necessary to perform the first measures of electromagnetic radiation, which is the result of the operation of the railway line Pragersko – Hodoš. Regarding the definitions of article 17 of this Decree the periodic monitoring of the electromagnetic impact on environment, which is the result of the operation of the railway line Pragersko – Hodoš, is not necessary.

1.6.2.4 Vibrations

During construction works, it is proposed that the monitoring of the construction state of buildings is performed in a 10-metre zone along the railway line (34 buildings), and if necessary, measurements for the determination of load on residential premises should be implemented.

After the reconstruction and electrification the monitoring of the impact of vibrations on buildings and residents is not foreseen.

1.6.2.5 Nature

During the construction:

- spremlja vplive na naravo v času intenzivnih gradbenih del v Pavlovskem potoku in Lahonščici - mesečni nadzor nad kvaliteto vode ter vplivi na vodne organizme izvaja strokovnjak – biolog, ki ga najame investitor
- In time of reconstruction in Pavlovci and in Ivanjkovci temporary control will be performed by the expert from the Institute for nature protection, administrative unit Maribor.
- At least 14 days before the beginning of works the investor or the contractor of works should inform the Institute for nature protection, Administrative unit Maribor about the intended works.

During the operation:

- The possibility for potentially increased collision of birds with lines is small, the length of electrification is big, and therefore we estimate that special monitoring of the condition of birds is not reasonable. We propose that the contractor obliged itself that he will place on his own account the additional warning tables on all sections, where later it will show and confirm without doubt that the mortality of birds due to the collision with wires is much bigger as on other sections.
- We propose the registering of birds each four years on the wet land at Ivanjkovci. The registering should be performed a year before the implementation of works and afterwards three years after the implementation of works. The monitoring should be implemented by the expert ornithologist.
- Registering of the fauna of the Pavlovski brook should be realised three years after the regulation of the brook. All registering should be implemented in the same time of the year (beginning of autumn). The monitoring is performed by the expert– biologist.
- Three years after establishing of substitute habitat types the monitoring is necessary twice a year. The monitoring should be performed by the expert - botanist.

1.6.2.6 Land and its use

Situation monitoring is not anticipated.

1.6.2.7 Underground water

Considering the assessments of possible impacts of the works and operations, the construction of additional measuring sites - piesometers for the implementation of the target programme of underground water monitoring - is not planned. Regardless of this fact, during the implementation of reconstruction/construction works, it is rational to monitor the condition of underground water and the quality of drinking water at Mihovci water catchment; for these purposes, it is appropriate to use the results of the internal control performed by the public drinking water supply system manager – KP Ormož. The parameters which are of key importance for the assessment of impacts of emissions from traffic on the Pragersko-Hodoš railway line on underground water and, consequently, on drinking water, include heavy metals, compounds from the group of polycyclic aromatic hydrocarbons and pesticides. The chemical state of underground water and the hydrological situation in the geographical area where the Pragersko-Hodoš railway line is situated must be harmonised with the programme of Underground Water Quality Monitoring MOP-ARSO and the programme of drinking water monitoring executed by the Ministry of Health.

1.6.2.8 Surface water

Besides the monitoring of the surface water of Slovenia, implemented by MOP ARSO also the monitoring of the condition during the implementation of preliminary works and during the construction on the building site and surfaces, which are connected with the implementation of works, is foreseen and includes:

- Monitoring of waste management (sleepers, rails and other metal parts, removed crushed stone);
- Monitoring of the management of building material and other material for instance hydro insulating coats;
- Monitoring of conditions with regard to technical capability of devices and transport vehicles and the management of machine and other oils;
- Monitoring of waste packing material management.

With regard to the stated existing situation of surface water streams and the volume of foreseen construction works monitoring of conditions in surface water streams is reasonable, which in the existing condition are classified to 1 to 2 morphological class, for instance the Pavlovski brook, the brooks Lahonščica, Kostanjevica and Kozarica) and on water streams, where the regulation works are foreseen (Pavlovski brook, brook Lahonščica). The programme of monitoring should include the physically – chemical and biological parameters, defined with the Decree on the condition of surface water, which will serve for the definition of the chemical and biological condition of water streams before the beginning of the implementation of construction works, after their completion and during the operation of the railway line.

For the implementation of the programme of monitoring of the condition of the surface water streams the responsible contractor of construction works is completely responsible (if there is only one contractor) or the contractors of construction of single complexes of works (in case that there are more contractors of construction works). In time of operation of the railway line Pragersko – Hodoš for the implementation of the programme of monitoring the railway line manager is responsible (if there is only one manager) or the manager of single sections (if there are more managers). The programme of monitoring, the dynamics and contents should be prepared according to valid legislation by the contractor of monitoring, authorised by the Ministry of environment and spatial planning.

1.6.2.9 Cultural heritage

Permanent archaeological control over all earth works at reconstruction and electrification should be assured. At least 10 days before the beginning of works the responsible institution, this is the Institution for the protection of cultural heritage of Slovenia, Administrative unit Maribor should be informed. On the part of alignment through Zgornja Hajdina, Pavlovci, Ivanjkovci and Zgornji Petrovci, where we interfere into the archaeological area, it is necessary to perform the strong archaeological monitoring of earth and construction works for the reconstruction and electrification of the railway line, with registering and documenting of eventual archaeological layers and rests.

Situation monitoring is not required during operations.

1.7 DEFINITION OF THE AREA WHERE THE MEASURE CAUSES AN ENVIRONMENTAL BURDEN WHICH IMPACTS HUMAN HEALTH AND PROPERTY

The area where the intended works could cause environmental burdens that have an impact on public health and property is stipulated by the provisions of the Act on Environment Protection.

When defining impacts on public health and property in areas due to the intended intervention, the envisaged impacts on individual parts of the environment caused by the electrification, reconstruction and upgrading as well as operations of the existing railway line Pragersko-Hodoš were considered.

Impacts that burden the environment to such an extent that they have an impact on public health and property which were assessed in the report served as the starting point for determining the area of influence. By considering the findings, the area of influence can be determined by considering: the construction area for the implementation of planned regulations, the emissions of pollutants in the air and their impact on the quality of air, the noise load on the environment, electromagnetic radiation and vibrations.

The total area of influence is determined by all the established impacts on the relevant segments of the environment, whereby the widest border of the area of influence of each individual segment is integrated in the total area of influence. A detailed analysis of impacts has shown that the expected environmental burdens by considering the defined mitigation measures will not exceed the statutory border values in the area of residential buildings. The planned modernisation and electrification are acceptable, given the mitigation measures and monitoring (situation monitoring) of the environment. The assessments of individual impacts show that the electrification, reconstruction and upgrading of the Pragersko-Hodoš railway line will not impact public health. The area of influence during construction and operations will comprise land plots that are within the borders of the planning zone of the national spatial plan for the electrification and reconstruction of the Pragersko-Hodoš railway line (Official Gazette of the RS, No. 51/09). The area of influence is smaller than the planning zone of the national spatial plan, since the latter also comprises the regulation of existing level passages, the regulation of grade-separated crossings with the railway line and accompanying regulations of the existing road networks which will be planned with special project documentation; additionally, it includes some other buildings where the verification of the necessity of passive anti-noise protection is anticipated.

With respect to the nearby border with the Republic of Croatia, potential cross-border impacts were also evaluated when environmental segments were considered and the area of impact was determined. It has been established that also in this area electrification of the line is mostly a rehabilitation measure for reducing the noise load, since after such intervention is implemented the use of diesel engines will practically be discontinued, due to which the emission of noise will be reduced by approx. The 5 dB(A) limit noise values during the day and at night will not be exceeded. We can conclude that the project will cause no cross-border impacts.

The planned modernisation and electrification are acceptable, given the mitigation measures and monitoring (situation monitoring) of the environment. From the assessment of individual impacts, it is evident that the construction and operation will not impact public health, but only public property, since the purchase of land plots within the borders of the NSP is foreseen for the needs of construction.

Below is the list of land plots in the area where the planned works could cause an environmental burden that could impact public health and property; the list is presented by cadastral municipalities (c. m.):

- c. m.2661-GAJ: 669/2, 669/8, 669/13, 669/14, 701/2, 723, 886
- c. m. 435-ŠIKOLE: 512/4, 638/4, 638/5, 641, 886/1, 886/2, 951, 952, 979, 981, 982, 984, *67, *103
- c. m. 434-PONGRCE: 490
- c. m. 433-ZGORNJE JABLANE: *33, 349/2, 436
- c. m. 432-SPODNJE JABLANE: 951, 1014

- c. m. 430-CIRKOVCE: 917
- c. m. 429-DRAGONJA VAS: 703
- c. m. 428-MIHOVCE: 1137, 1200
- c. m. 427-PLETERJE: 891/3, 891/4, 891/6, 891/7
- c. m. 426-ŽUPEČJA VAS: 752/1, 752/2, 754, 755/3, 755/4, 756/4, 757/4, 758/3, 891/1, 891/5, *60, *61, *62
- c. m. 425-LOVRENC NA DRAVSKEM POLJU: 1011/94, 1190/1
- c. m. 394-GEREČJA VAS: 769/5, 769/6, 769/7, 769/11, 769/12, 793/2, 794/4, 797/8, 801/11, 801/12, 801/13, 804/4, 823/4, 824/2, 824/6, 825/4, 826/2, 827/3, 827/4, 827/6, 828/4, 830/4, 855/16, 857/5, 896/5, 896/6, 901/1, 903/3, 905/2, 907/1, 907/4, 907/6, 992/2, 997/4, 997/6, *230, *231, *156
- c. m. 397-HAJDINA: 621/14, 621/25, 670/7, 746/3, 787/1, 788/1, 789/1, 789/4, 790/1, 791/1, 791/4, 791/10, 793/1, 793/2, 793/3, 793/4, 794/1, 795/2, 795/8, 795/9, 805/33, 1138/1, 1138/2, 1141/2, 1145/1, 1145/2, 1145/4, 1145/5, 1160, *111, *279, *277, *236, *259, *307, *335, *405, *416, *447
- c. m. 400-PTUJ: 383/30, 383/34, 385, 386, 428/11, 450/1, 450/8, 450/9, 453/2, 453/5, 453/6, 455, 457/1, 448/2, 448/5, 474, 476, 478/1, 545/21, 548/1, 548/5, 548/6, 1116/1, 1116/2, 1117, 1120/2, 1121, 1124, 1127/1, 1127/2, 1128/2, 1128/3, 1407, 1452/4, 1458/1, 1458/2, 1497/3, 1497/4, 1497/6, 1497/7, 1503/1, 1667, 1674/1, 1674/2, 1674/3, 1669, 1670, 1692/7, 1803, 2317, 2400/1, 2402, 2409, 2414, 2898/2, 3964/2, 3966/19, 4014/2, 4014/3, 4049, 4089/1, 4090/1, 4092/4, 4093, 4094, 4095, 4096, 4098, 4099, 4103, 4112, 4113, 4114, 4115, 4116, 4117, 4120/4, 4124, 4126, 4129, 4130, 4131, 4132/1, 4132/2, 4133, 4134, 4135/1, 4135/2, 4137, 4140, 4141, 4142, 4143, 4169/1
- c. m. 388-ROGOZNICA: 586/2, 697/2, 789/24, 786/25, 789/10, 856/3, 884/1, 886/2, 886/7
- c. m. 385-PODVINCI: 792/2, 796, 819, 938/1, 939/1, 939/2, 941, 942, 973, 974, 975/1, 975/2, 1082/2, 1085/2, 1085/3, 1085/5, 1085/6, 1085/7, *10/3, *66/4, *142, *143
- c. m. 384-DORNAVA: 543, 562, 809/8, 817/5, 817/6, *44/3
- c. m. 383-MEZGOVCI: 166/2, 167/2, 168/2, 169/2, 170/4, 170/5, 171/2, 172/2, 173/2, 174/2, 175/1, 175/2, 176/1, 235/1, 235/4, 397/1, 405/2, 406/1, 406/2, 411/2, 411/3, 411/4, *42
- c. m. 407-MOŠKANJCI: 273, 274/2, 276/9, 304, 305, 309/1, 309/3, 309/4, 314/1, 314/3, 314/5, 314/6, 314/7, 314/8, 314/14, 314/15, 709/4, 711/1, 782, *75, *76, *77/1, *111, *134, *135
- c. m. 408-GORIŠNICA: 566/43, 628/1, 628/2, 743, 748, 749
- c. m. 381-TIBOLCI: 1113, 1114
- c.vm. 409-ZAMUŠANI: 113, 115/4, 115/5, 850/4, 850/13, 858, 859, 861, 862, 886, 888, 957, 958, 970, 971, 972/1, 1038, 1039, 1040, 1044, 1045, 1052, 1053, 1054, 1058, 1062, 1063, 1066, *18
- c. m. 328-OSLUŠEVCI: 7/1, 7/2, 7/3, 18, 27/1, 77, *36, *38
- c. m. 327-PODGORCI: 338/3, 378, 839/1, 840
- c. m. 329-CVETKOVCI: 392/3, 392/4, 504, 514, 1175/1, 1178/2, 1178/4
- c. m. 330-TRGOVIŠČE: 44, 45, 48/1, 48/2, 92/1, 92/2, 94/2, 99/1, 99/2, 99/3, 209/1, 210/1, 210/2, 212/3, 213, 214/1, 226, 228/2, 229/3, 229/4, 246, 664/5, 664/6, 664/7, 664/8, 664/9, 667/1, 668/2, 668/5, 673/1, 679/7, 692, 693/1, *71
- c. m. 331-VELIKA NEDELJA: 35/3, 40/4, 42/1, 43/18, 43/20, 54/3, 64/6, 66/9, 66/18, 66/19, 66/20, 816/2, 850/2, 852/1, 870/11, 870/16, 870/17, 1029/4, 1063/1, 1063/3, 1063/4, 1063/5, 1063/6, 1296, 1297, 1299, 1529, 1585, 1590/3, 1591/2, 1591/5, 1599, 1600, 1601/2, 1605, 1606, 1607, 1608, 1609, 1615, 1686, 1693/2, 1694, 1697/3, 1703/1, 1703/2, 1705
- c. m. 332-ORMOŽ: 591, 610, 935, 1001, 1002, 1003/1, 1004, 1005, 1006/1, 1006/2, 1007, 1008, 1009, 1010, 1011, 1012/1, 1014/1, 1023/2, 1228, 1235/9, 1265, 1276/2, 1277, 1278, 1279, 1281, 1282, 1283/5, 1284, 1287/3, 1287/4, 1296, 1297, 1302/2, 1307, 1316/10, 1325/1

- c. m. 333-PUŠENCI: 27/3, 27/5, 33/3, 33/4, 45/11, 49/4, 52/1, 52/2, 53/2, 62/7, 63/4, 75/3, 78, 79/1, 79/2, 89, 96/3, 103/4, 241/5, 242/5, 360/7, 362/1, 363/6, 363/7, 377/4, 378/2, 379/3, 385, 386, 387, 388, 389, 390, 391, 392/1, 392/2, 393, 395, 396, 398/1, *19, *39, *57
- c. m. 371-PAVLOVCI: 29/1, 29/2, 151/1, 151/2, 151/3, 151/5, 152, 153/1, 158/1, 158/3, 158/4, 158/5, 159, 160/1, 160/2, 161, 162, 163/1, 163/2, 164, 165/1, 165/2, 165/3, 165/4, 166/1, 166/2, 167, 178, 179, 181/2, 182, 185/1, 185/2, 185/3, 185/4, 185/5, 185/6, 185/7, 185/8, 185/9, 188, 190/1, 190/2, 192, 193/1, 193/2, 194, 200/1, 203, 206/1, 206/2, 206/5, 206/6, 206/7, 207/1, 207/2, 207/3, 208/1, 208/2, 208/4, 211/2, 211/6, 211/7, 211/8, 211/9, 212/1, 213/1, 213/2, 214, 216/1, 217/1, 217/2, 221/3, 221/5, 222/1, 222/2, 228/1, 228/2, 229/1, 229/2, 231/1, 232/1, 232/2, 237/1, 237/2, 237/4, 241/1, 241/5, 241/6, 280/1, 280/3, 280/5, 282/1, 282/2, 283, 285/1, 285/5, 287, 288, 289/1, 289/2, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, *13/2, *20, *29, *35, *36
- c. m. 316-LIBANJA: 338/4, 350/4, 473/3, 476/3, 479/3, 482/7, 482/18, 484/2, 484/15, 732/3, 732/5, 732/8, 745/3, 747/1, 755/1, 776/1, 776/5, 778, 779, 780, 781, 782, 784, 785, *5, *6, *7
- c. m. 298-MIHALOVCI: 553/15, 610/3, 610/14, 623/8, 623/9, 623/10, 623/11, 623/12, 641/1, 641/2, 641/3, 641/4, 642
- c. m. 294-IVANJKOVCI: 20/14, 24/5, 36/6, 36/7, 38/2, 38/3, 40, 53/2, 54/3, 55/6, 55/8, 57/1, 57/2, 57/3, 58/8, 61/10, 61/11, 61/13, 61/15, 61/17, 61/19, 61/21, 61/23, 61/24, 61/25, 62/3, 62/5, 62/7, 74/2, 83/2, 83/4, 83/6, 83/8, 257/6, 257/7, 258/3, 258/4, 258/7, 262/2, 264/1, 264/3, 265/3, 265/5, 383/6, 384/4, 384/5, 385, 386/1, 386/2, 386/3, 387, 389/2, 390/2, 391/2, 392/4, 393/3, 394, *6, *83, *84, *85, *86, *94
- c. m. 295-ŽEROVINCI: 65/6, 65/7, 65/9, 68/6, 68/9, 71/7, 80/1, 80/2, 81/1, 81/2, 82/6, 82/7, 82/8, 82/11, 82/12, 186/2, 186/4, 191/1, 191/2, 197/4, 197/5, 198/1, 198/2, 199/2, 205/1, 205/2, 238/2, 293/4, 419/3, 434/3, 675/1, 675/5, 675/12, 675/13, 675/14, 677/2, 677/5, 681, 682, 683, 685, *166
- c. m. 263-MEKOTNJAK: 392/1, 392/3, 392/4, 392/6, 392/7, 392/8, 392/9, 392/10, 392/11, 392/12, 421/4, 421/7, 496/1, 496/2, 501/1
- c. m. 260-KAMENŠČAK: 273/7, 273/8, 275/4, 297, 300/2, 302/1, 306/4, 321/1, 328/5, 333/7, 333/8, 333/10, 418/2, 608/2, 609/2, 609/4, 613/1, 703/2, 704/2, 707/4, 716/2, 742/2, 742/5, 744/2, 744/4, 744/5, 755/1, 755/2, 755/3, 757, 758/4, 759, 763/1, 764
- c. m. 259-LJUTOMER: 179/5, 179/6, 179/7, 179/8, 181/3, 181/4, 409/2, 594/4, 597/4, 600/4, 1087/2, 1090/2, 1280/1, 1302/1, 1368/1, 1408/1, 1499/4, 1507/1, 1509, 1576, 1568/6, 1599/3, 1602/2, 1604/2, 1605/41605/6, 1692/1, 1692/2, 2766/2, 2767/2, 2772/2, 2787/1, 2794, 2795, 2796, 2801, 2803, 2804, 2805, 2806, 2808, 2809/1, 2812/1, 2822, 2824, 2830/1, 2830/2, 2831, 2832, 2833, 2837/2, 2844, 2849/2, 2856/2, 3118, 3137, 3172, 3175
- c. m. 243-NORŠINCI: 63/4, 173/3, 191/1, 194/3, 492/4, 500/12, 500/14, 507/1, 510, 511, 515/3, 519, 520, 521/2, 554, 610, 611, 612, 618/2, 622, 629, 630, 633, 635, 636/1, 636/2, 640, 733, 734, 762, 805, 813/1, 813/2, 819/1
- c. m. 244-LUKAVCI: 970, 992/1, 994/1, 995/1, 1035/1, 1037/1, 1039/1, 1040/2, 1041, 1064
- c. m. 238-KRIŠTANCI: 600, 603, 607, 608, 672, 790/2, 791/2, 845, 848/2, 849, 850, 851, 851/2, 852/1, 852/2, 853, 855/2, 858/2
- c. m. 237-GRLAVA: 176/3, 205/1, 205/2, 430/5, 430/7, 440/4, 440/6, 441/3, 443/3, 560/4, 566/3, 577, 579/1, 579/2, 657/1, 657/2, 775/1, 1047, 1048/2, 1049, 10501053/2, 1058/1, 1070/4, 1071, 1081, 1082, 1083, 1084/1, 1088
- c. m. 234-VERŽEJ: 505/426, 859, 865, 866/2, 867, 898/131, 1222/1, 1227/1, 1477, 1481
- c. m. 135-IŽAKOVCI: 1/2, 34, 36, 38, 40, 42, 44, 149, 152, 153, 3265/2, 3281, 3282, 3283, 3284, 3287, 3299
- c. m. 132-BRATONCI: 209/3, 457/1, 579/2, 727/2, 727/3, 814/4, 815/6, 815/7, 819/2, 924/5, 925/5, 927/2, 928/2, 936/1, 1035/5, 1036/5, 1038/1, 1065/10, 1096/7, 1099/2, 1102/4, 1102/6, 1104/2, 1104/6, 1105/4, 1106/5, 1106/7, 1108/4, 1108/5, 1108/6, 1108/7, 1109/1, 1109/2, 1112/2, 1746, 1778/2, 1839

- c. m. 133-LIPOVCI: 908, 1242/3, 2875/1, 2877, 2878/1, 2881/1, 2894, 2895, 2897/1, 2897/5, 2899/1, 2901, 2913/1, 2914, 2915, 2926
- c. m. 104-RAKIČAN: 1209, 1210, 1245/4, 1245/5, 1872/9, 1924, 2199/2, 2202/1, 2202/2, 2202/3, 2202/4
- c. m. 105-MURSKA SOBOTA: 1405/4, 1410/4, 1421/3, 1450/1, 1453/1, 1456/1, 1459/1, 1478/2, 1480, 1482/4, 1625/1, 1973, 1985/1, 3155/7, 3155/11, 3156/1, 3175/1, 3177, 3198/1, 3198/3, 3198/5, 3202/2, 3203/1, 3203/2, 3203/4, 3203/5, 3203/7, 3204, 3205, 3208, 3209, 3210, 3213, 3214/1, 3214/2, 3215, 3217, 3218, 3219, 3829/2, 3831, 4601/5, 4609, 5345, 5348/1, 5349/1, 5349/2, 5349/3, 5361/3
- c. m. 109-MARKIŠAVCI: 148, 173/2, 174/2, 215/1, 285/1, 285/2, 286, 287/2
- c. m. 77-PUCONCI: 1716, 1717, 2512, 2514, 2529, 2530, 2772/1, 2772/2
- c. m. 60-VANEČA: 1963, 2005, 2019, 2020, 2063
- c.m. 59-MOŠČANCI: 2045, 2048, 2102, 2151, 2224
- c. m. 55-DANKOVCI: 1643, 1651, 1656, 1667, 1671, 1881, 1882
- c. m. 41-MAČKOVCI: 212, 329, 330, 331, 332, 720, 723, 724, 988/12, 1011, 1062/1, 1070, 1078, 1103, 1154, 1156, 1262, 1264, 1265
- c. m. 13-STANJEVCI: 2521, 2528/1, 2769, 2770, 2779, 4699/2, 4721, 4722, 4795
- c. m. 14-GORNJI PETROVCI: 3150, 3195, 3196, 3287, 3288, 3290
- c. m. 20-KRIŽEVCI: 9057
- c. m. 16-PESKOVCI: 2817/3, 2835, 2845, 2887
- c. m. 17-ŠALOVCI: 7719, 7872, 7904, 7970, 7971
- c. m. 1-HODOŠ: 3483

1.8 SUMMARY OF EVALUATED IMPACTS ON THE ENVIRONMENT

Impacts were assessed by considering the current environmental burden and expected impacts resulting from the planned works and the use of natural sources and burdening of the environment connected with such works. The impacts on individual environmental components during the works and during operation were assessed both with and without the consideration of foreseen mitigation measures. The assessment of impacts does not entail a direct transformation of the expected scope of modifications of individual environmental components, but the appropriate interpretation of expected modifications with consideration of the situation prior to the works, the modification of the current state and the vulnerability of the elements of the environment in the area where works will be implemented. Legally determined border values of permissible burdens apply to some parts of the environment (e.g. air pollution, noise load); for others, the assessment of impacts is submitted on the basis of a professional assessment. A 5-level scale (from 0 to 4) was used for assessing the expected modification of individual environmental components. Joint criteria for the assessment of impacts are presented in the following table:

Table 1: *Scale of assessment of expected impacts on the environment*

Impact	Note	Description of measure
There is no impacts or the impact is positive	0/+	There are no changes of environmental components or the changes are negligible or positive (in case that the effect is positive, the impact marked with +)
The impact is small	1	Insignificant and/or less important quantitative and/or qualitative change of the environmental component
The impact is moderate	2	Quantitative and/or qualitative change of the environmental component is considerable but it does not exceed the legally prescribed limit values
The impact is big	3	Quantitative and/or qualitative change of the environmental component exceeds the legally prescribed limit values but the impact can be mitigated and the values can be assured under the allowed limit values by using the defined mitigation measures
The impact is very big	4	Quantitative and/or qualitative change of the environmental component exceeds the legally allowed burden and changes the environmental components inadmissible; the impact can not be mitigated with the adequate measures and the values under the allowed can not be assured or the loss can not be replaced

A summary of the assessment of impacts on individual environmental components is presented in the table below:

Table 2: *Assessment of expected impacts on individual environmental components by considering defined mitigation measures*

Environmental component	*Impact during works*		*Impact during operations*	
	Without mitigation measures	**With mitigation measures**	**Without mitigation measures**	**With mitigation measures**
NOISE	Minor to moderate impact (1-3)	Moderate to significant impact (2-3)	Minor to very significant impact (1-4)	Moderate to significant impact (2-3)
AIR	Moderate to significant impact (2-3)	Moderate impact (2)	Insignificant impact (0)	MEASURES NOT DEFINED
ELECTROMAGNETIC RADIATION	-	-	Minor impact (1)	MEASURES NOT DEFINED
VIBRATIONS	Large impact (3)	Moderate impact (2)	Moderate impact (2)	Moderate impact (2)
NATURE	Significant impact (3)	Moderate impact (2)	Significant impact (3)	Moderate impact (2)
LAND AND ITS USE	Moderate impact (2)	Moderate impact (2)	Moderate impact (2)	Minor impact (1)
LAND AND ITS USE	Moderate impact (2)	Moderate impact (2)	Moderate impact (2)	Minor impact (1)
UNDERGROUND WATER	Minor impact (1)	Minor impact (1)	Minor impact (1)	Minor impact (1)
SURFACE WATER	Moderate impact (2)	Minor impact (1)	Minor impact (1)	Minor impact (1)
CULTURAL HERITAGE	Very significant impact (4)	Moderate impact (2)	Insignificant impact (0)	MEASURES NOT DEFINED
REGION	Moderate impact (2)	Moderate impact (2)	Minor impact (1)	Minor impact (1)

Concluding evaluation of acceptability of the measure regarding the impacts on environment

The electrification of the railway line is the most efficient measure for the reduction of emissions of noise and emissions of polluters into air because of the Diesel traction.

Regarding the pollution, devaluation and damages of the environment, risks and danger for the environment and the use and exploitation of natural goods with regard to the valid legislation is completely acceptable by considering the mitigation measures and monitoring (accompanying of the condition) of environment. Therefore the planned electrification, reconstruction and upgrading of the railway line Pragersko – Hodoš, by considering the defined mitigation and protection measures and monitoring (accompanying of the condition),is evaluated as acceptable from the point of view of impacts on environment.