

**Attachment 2      Environment – Non-Technical Description**

# **EIA Vinkovci (excluded) / Tovarnik - state border section: non-technical summary**

## **1. Description of the project comprising information on the site, design and size of the project**

The project is part of TEN Corridor X, which is of a high importance for both the Republic of Croatia and the European Community. A part of this corridor still is out of the appropriate operation (signalling) due to damages from the war.

Two sections compose this environmental summary: Vinkovci – Jankovci and Jankovci – Tovarnik (state border). Provisions apply to both sections, except wherever specifically mentioned for individual section(s). Key details of the sections are:

Section Vinkovci (excluded) – Jankovci (included) comprises:

- The left track from km 155+427,831 (turnout 2 in Vinkovci) to km 144+750,769 (turnout 1 in Jankovci).
- The right track from km 155+468,114 (turnout 6a/b in Vinkovci) to km 144+794,293 (turnout 2 in Jankovci).

Section Jankovci (excluded) – Tovarnik – state border comprises:

- Left Track from km 144+750,769 (beginning of turnout No. 1 at Jankovci) to km 121+950 (State Border). Total length: 22,800769 km
- Right Track from km 144+794,293 (end of turnout No. 2 at Jankovci) to km 121+950 (State Border). Total length: 22,844293 km

The railway line will be capacitated for permissible axle load of 225 kN/axle and 80 kN/m, at the speed of max. 160 km/hour. The railway will remain on the same track formation and existing overhead contact line poles will be kept. The distance between the two tracks will increase from 3.8m to 4.0 m.

The project does not comprise the reconstruction of the stations Jankovci, Đeletovci and Tovarnik since it is subject of an additional separate project.

Works will require permanent gauge closing. The project comprises:

- rehabilitation of the railway line to increase the speed to 160 km/h and to increase traffic safety; this will include replacement of existing ballast, rails and sleepers with new ones;
- widening of distance between tracks;
- refurbishment of electrification and signalling;
- construction and protection of level crossings (railway lines – road);
- all level crossings: laying synthetic flooring and asphalt for 3m from the flooring; the longitudinal road profile on both sides of each level crossings shall be arranged according to Art. 4 of Rules on Criteria and Determination and Securing of Level Crossings (Official Gazette of the Republic of Croatia «Narodne Novine» No. 32/94),

at level crossings where the track formation is changed (to be included into transversal profiles).

- ❑ drainage along the railway line (channels and drainages)
- ❑ drainage within railway stations (attention to be paid to cable routes!)
- ❑ arrangement of water ducts in accordance with the Railway line survey report;
- ❑ construction of platforms or arranged areas for entrance/ exit of passengers from/ into trains;
- ❑ due to the increased distance between tracks, existing platforms in railway halts will be damaged; they shall be refurbished afterwards, but their level shall be 55 cm above top of the rail. The length of the platform is 100 m, width is 3.0 m with side-space of 0.5 m;
- ❑ Construction of parallel roads

### **Overhaul**

The overhaul will be made of rails 60 E1, of strength 880 N/mm<sup>2</sup>, laid upon new pre-stressed concrete sleepers with elastic fastening accessories on the ballast bed made of railway gravel at least 30 cm thick below sleepers.

The existing ballast bed together with the sub-layer will be completely removed and re-used for widening side spaces, filling of ditches by the railway line and construction of parallel roads to the railway line. A sub-layer will be built-in under the ballast bed; its thickness is to be determined on the basis of geo-technical researches, in any case not less than 20 cm (Item: Substructure of the track within this project). Rails will be welded into a continuous weld along the whole track section.

Turnouts in railway stations will be replaced with new ones of the same type (60 E1 rails), on concrete sleepers. Turnouts with radius of 200 m will be replaced with turnouts with radius of 300 m; the latter turnouts may be second-hand, taken from passing tracks or new ones, made of rails 49 E1. Insulating rail joints will be built-in at points foreseen by security and signalling devices design.

The railway line track formation will be lowered as much as required by the overhead contact line, taking into consideration relevant limitations (railway stations, level crossings and railway facilities). Rail equipment shall be refurbished and adjusted to new conditions of the railway line.

### **Substructure of the track**

The width of the track shall be 3.5 m from the centre of tracks, with lateral inclination of 5% towards the embankment edge.

A geo-technical inspection shall be performed to determine the thickness of the sub-layer, type of geo-textile and geo-net. Compactness of the track formation shall be at least 20 MN/m<sup>2</sup>, and 50 MN/m<sup>2</sup> in the sub-layer. Special attention shall be paid to the track formation under rails in relation to compactness and drainage.

Places for disposal of surplus of dig-out material that is not going to be re-used shall be foreseen; said material will be used for construction of parallel roads. Sections from which said material will be removed and transported shall be foreseen as well. The railways foresee no cutting/ fill along its alignment.

### **Adjustment with overhaul and reconstruction of the overhead contact line**

Following a survey of the overhead contact line facility it was acknowledged that the overhead contact line facility was refurbished and those foundations, supports, portals and other equipment is in satisfactory condition.

Adjustments of the overhead contact line will follow the increased distance between the two alignments, including adjustments to signalling, safety and telecommunication devices. Works will comprise replacement of the existing devices for automatic centenary tensioning with devices for separate tensioning of the carrying cable and the contact wire. The overhead contact line network shall be prepared for the running speed up to 160 km/h.

### **Adjustment of Safety and Signalling devices and Telecommunication devices**

There are the following safety, signalling and telecommunication devices at the following stations, halts and level crossings.

- Stations at Jankovci, Đeletovci and Tovarnik: there are destroyed safety, signalling and telecommunication infrastructures.
- Halts at Srijemske Laze, Slakovci, Orolik, Vinkovački Banovci, Šidski Banovci and Ilača. There are STKA track cables and PNK feeding cables. APB, auto stop and local line telephone system are destroyed. The track section is electrified by a mono-phase system 25 kV 50 Hz.
- Level crossings: several level crossings present sufficient safety conditions (Srijemske Laze, Slakovci, Orolik, Đeletovci, Vinkovački Banovci, Šidski Banovci, Ilača, and Tovarnik).

During the last war safety, signalling and telecommunication devices were destroyed, and shall be refurbished completely to allow speed of 160 km/hour.

## **2. Description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.**

The EIA studies have divided the requested mitigation measures for final design, construction and operational phases, presented separately. This with to the view to merge mitigation measures as far as possible and effectively into the project's engineering and financial components. Monitoring requirements are also necessary for noise measurements and final tailoring of noise barriers. Section 2.4 present the overall costing of mitigation measures proposed.

### **2.1 During final design**

1. It is necessary to ensure that environment protection measures are included in the project, so the rehabilitation project and environmental protection measures overlap fully.
2. It is necessary to identify locations for parking and turning of civil engineering machines, to reduce negative impacts to habitats as far as possible.
3. To define the green belt along the railway to decrease the negative visual impact from the railway itself brought about by the embankments. The green belt will act at the same time as a noise barrier, representing a joint landscape-noise mitigation measure. Special

attention shall be paid to create the green belt near housing facilities and settlements in Mirkovci and Jankovci. The belt shall be composed only of autochthonous species from the project area.

4. Identifying sites for temporary storage of construction waste; max. 3 shall be foreseen (see construction phase, item 3 for further information).
5. It is necessary to calculate level of noise for legally constructed houses jeopardised by noise exceeding 65 dB (daytime) or 50 dB (nighttimes). Houses requiring noise protection are located at:

Section Vinkovci – Jankovci:

1. Km 145+650, left and right, the settlement of Jankovci
2. Km 150+780 left, the settlement of Mirkovci
3. Km 153+400, by the level crossing
4. Km 153+800, left, suburban settlements (Vinkovci)
5. Km 154+160, left, suburban settlements (Vinkovci)
6. Km 154+360 – km 154+620, right, suburban settlements (Vinkovci)
7. Km 154+580 – km 155+190, left, Vinkovci

Section Jankovci – Tovarnik:

The foreseen position and arrangement of barriers are shown on the railway layout, at a scale 1:5000. All barrier segments will be parallel with the railway alignment. It is proposed that noise barriers shall be made of two-layer concrete (a construction layer and a sound-absorbing layer), and combined with wooden sound-absorbing panels. However, whenever possible old sleepers shall be used in a sequence sleeper-inert material (even construction waste)-sleeper to build noise protection barriers.

The actual length and height for each noise barrier will be determined following acoustic calculations, in particular in sites where the level of 65 dB (daytime) or 50 dB (nighttimes) is exceeded. Calculations will be made once rehabilitation is completed, so noise barriers will be installed where actually necessary.

The precise dimension and kind of barriers will be determined in compliance with the requirements of the following Croatian legislation/ standards:

- Law on civil engineering and construction (NN 52/99 and 75/99)
- Law on noise protection (NN 20/03);
- Law on standards and norms (NN 55/96);
- Rule Book on the highest noise levels permissible in spaces where people live and work (NN 37/90);
- Rule book on standards for acoustics in civil engineering (Official Gazette No. 67/89);
- Rule Book on general measures and norms of protection at work against noise within the working premises (Official Gazette No 29/71);
- DIN 18005 - *Schallschutz im Staedtebau* (1987).

## 2.2 During construction

1. Unused material resulting from digging out the existing ballast bed up to the newly designed elevation of the track formation ground should be deposited exclusively within sites for temporary storage of construction waste – item 4 above (as described in the technical description of the intervention), to prevent potential spreading of damaging adventive species such as amorphous (*Amorpha fruticosa* L.) or wormwood like kind of plant (*Ambrosia artemisiifolia* L.) to new locations.
2. All civil engineering materials left over in general terms shall be deposited in locations specifically prepared for this purpose. See item 4 above.
3. Dispose of non-hazardous and hazardous waste according to the best technical practice and legal requirements. Waste shall be transported immediately to a specifically designed temporary deposit area(s) (see item 4 of the previous section) in the wait for their final destiny; avoid any temporary or permanent disposal of said waste into any other area, in any case. Specific requirements, all to be matched before commencement of works:
  - ❑ Rails: transport and re-use for secondary lines shall be officially agreed upon; Croatian Railways shall clearly identify secondary lines.
  - ❑ Ballast: timing and location for washing it up and re-use shall be officially agreed upon.
  - ❑ Sleepers: a hazardous landfill site must be identified and shall authorise delivery for sleepers not re-used as noise/landscape mitigation measure.
4. To drive heavy equipment across agricultural areas as less as possible, to avoid damaging agricultural surfaces and the associated network of canals. Where this is unavoidable restoration measures shall be implemented in close contact with farmers.
5. To apply strictly necessary measures to ensure traffic safety and protection of workers, especially when dangerous goods are transported. This shall include a contingency plan in case of accidents/ spills to reduce soil and water pollution at the minimum.
6. Works shall be executed during daytime only. Only when it is really necessary works can be performed during evening hours or at night.
7. In the case of discovering of an archaeological site works will be stopped, the competent authority informed in order to take adequate protection measures.

## 2.3 Environmental monitoring requirements

With regard to houses to be protected against noise it is necessary to measure noise once rehabilitation is completed prior to, and upon installation of noise protection measures to tailor these to the effective needs.

It is necessary to select representative housing facilities; measurement shall be performed at the side of the facility exposed to the noise from the railway during the period of peak traffic. In case that measurements show that noise levels exceed permitted levels (65 dB during

daytime; 50 dB during nighttimes) it is necessary to improve noise protection measures to decrease noise below legal values.

## **2.4 Cost estimate for noise protection measures**

By and large it is estimated that the total costs of noise protection measures for the full project accounts to € 680,000 (exchange rate 1EUR = 7,5 HRK); this amount is expected to cover the cost of all noise and noise/ landscape barriers. However at the present stage in view of what reported in Section 2.3 here the precise number cannot be determined; therefore an overall financial allocation is proposed.

In case the actual budget for mitigation measures exceeds the estimated one Croatian Railways will provide additional internal funding.

## **3. Data required to identify and assess the main (direct and indirect) effects, which the project is likely to have on the environment on the following factors:**

### **3.1 Human beings**

#### Section Vinkovci – Jankovci:

According to Census of year 2001 the town of Vinkovci has a total of 35,912 inhabitants, while the municipality of Jankovci has 5,216 inhabitants. Local population however is all concentrated in urban settlements. There is a very limited number of scattered houses along the railway (housing max. 100/ 150 people overall) and all located at a minimal distance of 200m off the railway, where noise level is significantly reduced; some of them appear illegal. For this reason noise impacts are negligible; where this is not the case the EIA study foresees mitigation measures.

#### Section Jankovci – Tovarnik:

Local population is lower than section Vinkovci – Jankovci and practically absent. For this reason noise impacts are negligible; where this is not the case the EIA study foresees mitigation measures (see Section 2.1, item 3 above).

### **3.2 Fauna and flora (including those environmentally sensitive areas which might fall in future under the protection of the Birds (79/409/EEC) and Habitats (92/43/EEC) Directives)**

#### Section Vinkovci – Jankovci:

Section B.5 of the EIA study addresses this subject area. The project area is composed mainly of flat agricultural land, although rich in flora and fauna. The alignment runs parallel to some woodland and crosses a limited portion of a E31 Habitat (Illyrian oak-hornbeam forests *Erythronio – carpinion*, Natura 2000 code: 91Lo). Section C.1.4 of the EIA study explores in more detail this situation. The habitat is located at km 146+920 and 148+000 (approx.).

At present the railway in that section does not generate significant impacts upon the natural environment; being it operational since more than 100 years, and before the requirement of the Directive, allows to conclude that negligible impacts are generated. It is concluded that changing the alignment would cause more impacts than the present situation, due to the need to deviate and:

- cross additional land for engineering reasons;
- affect the settlement of Jankovci; and
- be closer to a portion of E22 Habitat exacerbating the situation.

#### Section Jankovci – Tovarnik:

No significant impacts upon flora are expected. With regard to fauna it is possible that the overhaul may have a very moderate negative influence due to:

- animals may have reduced possibility to migrate in case of construction of noise protection barriers;
- Jeopardising of strictly protected and protected animal species, especially during performance of works.

At present there are no recorded sections affecting Natura 2000 or Habitats sites.

### **3.3 Soil, water, air and the landscape**

Soil ranges from scarcely to fully permeable; thus it protects water aquifers from eventual pollution, which in any case could be generated in very limited extent only during construction. It is expected in fact that no hazardous/ potentially polluting materials will be used during construction.

Since only electrically-powered trains will operate (a part from a very modest number of diesel locomotives for internal movements only within Vinkovci station) no air pollution will be generated. Rather as in overall terms trains are more energy-effective than road traffic and it will contribute to increase freight transport, the project is expected to contribute to reduce air pollution in a broader area than the project one.

As the railway operates since long time, this it is now part of the existing landscape. In addition the project concerns only rehabilitation works with no change of alignment of other visual characteristics, therefore no additional landscape impacts are generated.

### **3.4 Material assets and the cultural heritage**

There is no record of this kind of assets in the project area. If this will be the case Section D.2 (2.2) (item 7) of the EIA studies details basic protection measures.

### **3.5 The interaction between the factors above**

Not expected in overall terms. Noise calculations demonstrate that the railway and road noise affecting houses close to the railway do not generate significant cumulative impacts, and that remain in any case below legal thresholds for day and nighttimes levels.

### **3.6 Any further information which might derive from any of the obligations deriving from Annex IV of the EIA Directive.**

Not applicable in general terms. The EIA studies have investigated the selection of alternatives, which are not foreseen due to three reasons:

- ❑ the project rehabilitates an existing railway, with no change of its layout; impacts from the present status of the railway are practically negligible;
- ❑ the railway, once rehabilitated, is not expected to generate significant additional environmental impacts in respect to the situation before rehabilitation;
- ❑ section 3.2 above (section Vinkovci – Jankovci) concludes that if any alternative would be implemented it would be more detrimental for the environment, thus it is not considered a viable solution and was abandoned.