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**DEVELOPMENT OF THE SZOLNOK (INCL.) – SZAJOL  
(EXCL.) RAILWAY LINE**

**(SZOLNOK (EXCL.) – SZAJOL (EXCL.))  
IMPLEMENTATION PLAN**

**E1. ENVIRONMENT PROTECTION PLAN**

**ENVIRONMENTAL IMPACT ASSESSMENT DOCUMENTATION**

**ENVIRONMENTAL PERMIT APPLICATION**

**COMPREHENSIBLE SUMMARY**



Nemzeti Infrastruktúra Fejlesztő Zrt.

FEBRUARY 2013

## 1. Introduction, history

### 1.1. Applicant Data

- Official name (full name): Nemzeti Infrastruktúra Fejlesztő Zártkörűen Működő Részvénytársaság
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### 1.2. History

The environmental permission of the Szolnok-Szajol railway section is valid until 31st October 2013.

During the preparation of the implementation plans it was revealed that, especially in the case of the Tisza Bridge, the authorized construction method is to be modified.

Because of the above, NIF Zrt. - in concert with National Inspectorate for Environment, Nature and Water (hereinafter: OKTVF) - thinks it necessary to prepare an environmental impact assessment for the entire affected railway section.

The planned investment is of prominent significance from national economic aspects under Government Decree 75/2008 (IV.3) on declaring public administration authority matters related to the implementation of certain railway investments as matters of prominent significance.

## 2. Technical characteristics and basic data of the facility

### 2.1. Short description of the planned facility

MÁV Zrt started the reconstruction works of railway line Budapest – Szolnok – Debrecen – Záhony in 2002, and the section between Szolnok and Szajol is one of the most important and most loaded section of this line.

The aim in the Szolnok-Szajol line section is to reduce the travel time, to ensure safe railway traffic on the open line narrowing to 2 tracks, and to construct a modern, high quality railway track with low operational costs.

### 2.2. Description of the railway line under survey

The approximately 6.7km long, double-track railway line section between Szolnok and Szajol is located in the administrative area of the town of Szolnok and the village of Szajol, in Jász-Nagykun-Szolnok County. Its actual track speed is 120 km/h, and its axle load is 210 kN. The distance of the track centres is 4.10 metres, or 4.0 metres at the river bridges. The track-centre distance is 5.00 at the station of Szolnok, 4.70 at the passing connection 2-4 of the Szajol station, and then it is 4.75 metres.

The track goes on a high embankment in the flood-basins of the rivers Zagyva and Tisza.

In this line section there is system-54 crashed stone structure, on LM bases, with mixed geo and Skl 3 fastening, and with jointless design. The existing structure of the Szolnok station is system-54, and jointless. The existing structure of the Szajol station is system-60. The railway line crosses both the built-up area and the external area of the town of Szolnok. The railway line crossing the built up areas is adjoining mainly residential buildings and outhouses, and in the external areas typically protection forest areas and water management territories. The railway line under modernization is not crossing the built-up areas of Szajol.

### **2.3. Description of the planned investment, volumes of the activity**

The section under the planned modernization starts in the segment 1030+45 km of Szolnok station, and connects to the existing track at passings 2-4 in Szajol station.

#### **Increase of speed and axle load**

With the planned modernization, the speed of the railway track will increase to 160 km/h, and the axle load to 225 kN.

#### **Embankment widening, structure modernization**

The outgoing connections of Millér Station will be built between segments 1043-1045 and 1060-1064, so the distance between the current tracks will increase to 5.0 m, and shunting rail bench will be built, therefore the embankments will be widened in these sections.

The distance of the tracks will increase to 6.6 m on the Tisza Bridge (river bridge and flood-basin bridges), so the embankment has to be widened in the affected areas, too. Due to the reconstruction of the Tisza bridges, the level of the rail crown will be elevated.

From segment 1092+64, on the right and left side of the railway track, a flood-protection embankment will be built.

The backfills of the Zagyva Bridge will be entirely reconstructed in the length of 30m.

The modernization also includes the renovation of the track structures between the stations.

#### **Structure modernization**

During the planned modernization, most of the existing structures will be renovated, others will be reconstructed or demolished, and new structures will be built as follows:

##### *1. Table*

<b>Existing segment</b>	<b>Planned segment</b>	<b>Name of the existing structure</b>	<b>Name of the structure to be built</b>	<b>Note</b>
1031+18	1031+18,27	61.60 m Zagyva steel bridge	-	reconstruction
1040+95	-	1,20 m culvert	-	demolition
-	1041+05,50	-	1.40 m ROCLA culvert	construction
1048+39	1048+39	12.00 m steel bridge, Besenyszögi Street road subway	12.00 m rc. plate bridge	reconstruction
1048+57	1048+57	1.50 m culvert	-	reconstruction
1057+00	1057+00	1.40 m ROCLA culvert	-	reconstruction
1070+76	1070+76	37.72 m. Tisza flood-basin steel	-	reconstruction

Existing segment	Planned segment	Name of the existing structure	Name of the structure to be built	Note
		bridge (1.)		
1071+16	1071+16	37.62 m. Tisza flood-basin steel bridge (2.)	-	reconstruction
1071+56	1071+56	37.60 m Tisza flood-basin steel bridge (3.)	-	reconstruction
1071+96	1071+96	37.76 m. Tisza flood-basin steel bridge (4.)	-	reconstruction
1073+13	1073+13	92.61 m. Tisza steel river bridge	2 pcs of single-track 92.61 m steel plate bridge	reconstruction
1074+31	1074+31	93.07 m Tisza flood-basin steel bridge (5.)	-	reconstruction
-	1075+74,00	-	40 m Tisza flood-basin steel bridge	construction
1088+07	1088+07	6.00 m trough bridge	2.00x2.00 m rc. frame bridge	reconstruction
1092+65	1092+65	6.00 m trough bridge	10.50 m rc. trough bridge	reconstruction

The currently double-track structure of the Tisza river bridge located in segment 1073+13 will be changed to two separate river bridges. Due to the change of the upper structure and the lower-track structure-type, track will get farther from each other by 1.3 metres respectively, so the distance between the track centres will change from the current 4 m to 6.6 metres. The flood-basin bridges connecting from the Szolnok side between segments 1070+76 and 1073+13 are upper-rail, single-track girder bridges with four openings, cross-ties and new orthotropic track plates, and the bridge on the Szajol side in segment 1074+31 is a new upper-rail, single-track girder bridge with one opening and cross-ties. The distance of the track centres, in accordance with the river bridge, will change to 6.6 metres (with the stretching of the existing structures). The height of the railway track will also be corrected during the reconstruction.

#### ***2.4. Expected date of construction and opening of the railway***

The construction will last from October 2013 to December 2015, the end date of the construction is forecasted to 15 December 2015.

#### ***2.5. Location and space need of the installation***

Compared to the existing path, there will be no curve correction in the line section under reconstruction, but at some places the widening of the embankment will be necessary in order to develop shunting rail benches for the outgoing connection and appropriate slope grade (1:2), and in the area of Szajol also flood protection embankment will be built along the railway track for water management purposes (slope grade is 1:2, and 1:3 respectively).

The planned modernization and the organizational area demand of the railway will be located in the existing operational area of the railway, using the existing transport roads, if possible.

The additional area use necessary for the widening of the embankment is affecting the cultivated areas closest to the territory of the railway, not in the ownership of MÁV Hungarian Railways.

The temporary area occupation and area use affected by the organization during the reconstruction will terminate as soon as the modernization is finished.

In case of the territories affected by embankment widening and organization, some additional metres of occupied areas can be expected. Neither the areas owned by MÁV, nor the areas to be occupied belong to Natura 2000 sites or any other areas under natural protection.

The river bed of Tisza, land registry no. 0522/1 and 016/1, not in the ownership of MÁV, but registered as Natura 2000 site and belonging to the Central Tisza Landscape Protection Area, is not affected by expropriation, but temporary area occupation is necessary for the duration of the modernization works. A temporary wall-plate system will be built in the Natura 2000 area. The expected area occupation in the river bed will be in a 20 to 30-meter wide area in the south-most area of the Natura 2000 and the landscape protection territory, the area closest to the river bridge.

## 2.6. Traffic data following the reconstruction of the railway line

2. Table

### Daytime(from 6 AM to 10 PM)

Train type	Train class	Traffic (daytime) pcs	Disc brake %	Average speed km/h**	Average length m***
Local passenger train	International passenger train	24		160	280
	Domestic long-distance passenger train	38		120	150
	High-quality domestic passenger train	28		160	280
	Train of a company offering passenger transport services used for their own purposes			-	-
	Regional passenger train	36		120	100
	Deadhead train	6		120	116
Freight	International freight train	16		90	540
	Domestic freight train	18		75	600
	Train offering traction services	-		-	-

3. Table

### Night-time (from 10 PM to 6 AM)

Train type	Train class	Traffic pcs	Disc brake %	Average speed km/h**	Average length m***
Local passenger train	International passenger train	2		160	280
	Domestic long-distance passenger train	2		120	150
	High-quality domestic passenger train	3		160	280
	Train of a company offering passenger transport services used for their own purposes			-	-
	Regional passenger train	5		120	100

Train type	Train class	Traffic pcs	Disc brake %	Average speed km/h**	Average length m***
	Deadhead train	2		120	58
Freight	International freight train	14		120	560
	Domestic express freight train	3		100	600
	Domestic freight train	5		100	600

The future railway traffic will not significantly differ from the current traffic.

### **3. Effects, effect factors, effect processes, subjects of the effects**

Following the reconstruction works, the railway track will be opened for traffic. Similarly to the current situation, the electrified railway line will mainly be used by electronic traction vehicles, but some diesel-fuelled traction vehicles will also carry out passenger- and freight transport. As no significant changes are expected in the traffic data, the transport vehicle fleet, and the operation of the railway line, the effects will not be different from the current ones.

The only exceptions are surface waters and noise, where the situation will improve compared to the actual situation as a result of the modernization and the planned actions.

Surface water:

With the change of the upper structure of the Tisza river bridge to closed, fine-meshed carriageway structure, and the reconstruction of the track structure of the flood-basin bridges to closed, fine-meshed carriageway grids, the precipitation water discharge of the track will also be reconstructed. Any possibly contaminating precipitation water getting on the track will be discharged to water traps, where, according to the professional plans, filter inserts are to be placed. The filters will catch from the precipitation any oil, hydrocarbons and other organic liquids other than water, so the precipitation waters discharged from the bridge will be drained into the receiving waters in cleaned form.

Noise:

Based on the calculations, with the construction of noise protection walls in the planned situation, noise reduction is to be expected compared to the current situation. Compared to the actually valid permissions, the noise reduction owing to the bridge reinforced with continuous flexible supports is minimal in case of the buildings to be protected farther from the Tisza, because of the distance of these buildings.

Effects on the environmental elements will mainly be experienced during the modernization works, so below we give a detailed description of these.

#### ***3.1. Air***

During the operation of the diesel-fuelled railway, road and water vehicles, and other equipment (e.g. aggregates etc.) used by the planned construction and reconstruction works typically CO, NOx and soot-containing smoke gases, CO<sub>2</sub>, as well as dust - owing to the possible dust-off of the used construction materials (especially soil) - may be emitted into the air.

In addition to that, the diffuse sources must also be taken into account, such as the evaporation of the volatile components of the paint used during the anticorrosion and painting works of the flood-basin bridges and the Zagyva bridge, as well as the dust formation during the removal of the old anticorrosion coating (abrasive blasting process), and the metal-containing aerosol formation during the mounting and demolition works (e.g. flame cutting, edge grinding, welding etc.). The health effects of these materials are expected to be greater than the environmental effects, therefore it is obligatory for the workers to wear personal protection equipment.

The quantity of the air polluting materials during the construction works can be minimised using the appropriate measures, and following the works the emissions affecting the air will terminate.

Subject of the effect

The human and animal population living in the direct and indirect affected area can be identified as subjects of the effect.

Affected territories

Air pollutants will be emitted during the reconstruction works along the railway line under modernization.

Due to the sectional implementation, the place, degree, time of the appearance of the effects will change, so no concrete affected area can be specified. It can be estimated that, during the works, the affected area of the air pollutants emitted into the ambient air from the dust-off of the machinery and the applied materials will be at most some 10 metres around the railway line.

**3.2. Subsurface water, soil**

During the reconstruction of the Tisza bridge, in case of bridge base structures, the necessary basic structure reinforcement, the removal of the cinder backfill at the Zagyva bridge, the temporary closing of the subsurface construction areas, and the embankment widening may affect the soil and the subsurface medium.

The flat foundation necessary for the wall-plates to be built in the operational area of the flood-basin railways involve temporary area occupation, but it does not affect the subsurface mediums.

During the anticorrosion and painting works of the flood-basin rivers, duct and paint particles may get into the air, indirectly on the ground, and these can be washed in the subsurface medium. The emission of these materials must be limited with the appropriate closing of the construction area.

Observing the relevant measurements, the constructions works cannot cause any permanent adverse environmental effects from soil protection and subsurface water quality protection aspects.

Subject of the effect

Arable lands and inland water in the direct neighbourhood of the railway track can be identified as subjects of the effect.

Affected territories

The additional arable land used in the direct neighbourhood of the railway track can be identified as affected territories from soil and subsurface water aspects.

**3.3. Surface water**

Technology-type water usage and formation of technological waste-water cannot be expected during the construction and reconstruction works.

It is to be taken into account during the works that the water flow of the affected waterways (Zagyva, Tisza) is not hindered, appropriate flow of the water must be ensured.

The construction of flood-basin Tisza bridge (segment 1075+74) is necessary for the increase of flowing width, and from flood protection point of view.

After the renovation of the existing culverts and the construction of the new culvert the flowing conditions will be more beneficial.



The air polluting materials formed and demixing during the anticorrosion works of the bridges may affect the surface water, therefore appropriate delimitation and local exhaust must be provided. In the case of the river bridge this effect is not to be taken into account (owing to factory-made anticorrosion coating).

. The planned reconstruction of the Tisza bridge cannot be considered as unusual bridge construction technology. Hazardous materials will not be used in this technology. It does not endanger the water-offtake construction on surface river piers providing potable water to Szolnok and 6 other settlements, located at 336.3 km on the right side of urban section of the river Tisza within Szolnok.

#### Subject of the effect

The permanent waterways (Zagyva, Tisza) crossed by the railway track can be identified as subjects of the effect.

#### Affected territories

The directly affected territory is the railway track itself. In the future more and more passenger trains will have closed waste-water collector (independently from this planned modernization), therefore direct waste-water emission will gradually decrease. In this case the area of the affected territory (typically railway track) will gradually decrease.

Any possible contaminating precipitation water falling on the bridges will get into the rivers Zagyva and Tisza following their preliminary cleaning, but nevertheless, the rivers can be identified as affected areas in the direct neighbourhood of discharge.

### **3.4. Wastes**

A large quantity of construction and demolition type waste is expected to develop during the construction processes of the modernization works, but if the regulations are followed, the no environmental endangering or contaminating effect of the wastes are to be expected.

#### Subject of the effect

The direct natural environment of the railway track can be identified as subject of the effect.

#### Affected territories

As MÁV Zrt. plans to continue its waste management practices in an unchanged form following the modernization, from waste point of view affected territories will continue to be the areas affected by waste development and waste collection.

### **3.5 Noise and vibration**

Based on the planned construction technology, the works will be carried out in several phases, based on the detailed organizational plan made by the contractor.

During the modernization, reconstruction, and the necessary track corrections of the railway line, rapid reconstruction machine chain developed and normalized for the site-replacement renovation of railway tracks will be used.

Noise load is caused by the movements of the construction, transportation and the loading machinery. The noise of the machinery may cause problems only in the buildings located close to the railway, but only temporarily.

Special care must be applied during the track renovation/track reconstruction works near the residential areas, therefore the construction plan must be so prepared (appropriate schedules, noise protection covers) that the buildings to be protected do not suffer any noise load above the threshold values.

During the construction/implementation phase, the additional traffic will influence the noise emission of the affected roads, and the noise load resulted by the noise emission in an imperceptible way.

#### Subject of the effect

The human population and natural environment living in the affected area.

#### Affected territories

Based on the expansion calculations (assuming free expansion and with  $C=12.5-15.0$  coefficient), the curve of the affected territories equal to 50 dB(A) is to be fulfilled in the distance of currently 300-460 m, in the future situation 330-510 m, and the curve of the affected territories equal to 55 dB(A) is to be fulfilled in the distance of currently 145-200m, in the future situation 160-225 m.

Location of the planned noise shielding walls:

- Between sections 1031+65 – 1037+70, planned on the right-hand side, 4 m high noise protection wall above the rail crown
- Between sections 1032+64 – 1034+00, planned on the left-hand side, 3 m high noise protection wall above the rail crown
- Between sections 1034+00 – 1036+50, planned on the left-hand side, 2.0 m high noise protection wall above the rail crown
- Between sections 1064+00 – 1068+31, planned on the left-hand side, 2 m high noise protection wall above the rail crown

### **3.6 Biota**

During the interventions in connection with the reconstruction of the Szolnok-Szajol railway line, with regard to the flora and fauna, varying intensity effects can be expected.

The area of the investment has basically been a disturbed area for decades now due to the extremely busy railway line crossing this area, and this is an important factor for the biota. Owing to the limited management of this area, very strong expansion of some invasive plant species (especially desert false indigo) can be seen.

The reconstruction works of this 7-km long railway line and the Tisza Bridge and Zagyva Bridge will result in considerable intervention for the biota.

The reconstruction works will only slightly affect the Natura 2000 site and the landscape protection area, and only in the river bed of the Tisza, during the construction and area occupation of the temporary wall plates (the southern parts of Szolnok 0552/1 land registry no. and Szajol 016/1 land registry no. areas reaching the Tisza, in about 30 metres).

From the investment period of more than two years (28.10.2013 to 15.12.2015), works will be carried out in the Central-Tisza Natura 2000 area for about 14 months (28.10.2013 to 08.01.2015), and for about 12 months (05.10.2014 to 02.10.2015) in the neighbourhood of the nature conservation area of outstanding significance of the Alsó-Zagyva foreshore.

The planned construction works in the currently abandoned, disturbed area contaminated with different wastes will have an effect mainly on the poor flora and fauna of the investment location and the construction area (directly affected area), but the indirect effects may partially spread from the railway track to the somewhat farther Natura 2000 biotope as well ("J4" ÁNER category willow-poplar-ash-tree park forests). Taking into account the forest environment and the local landscape features, the (directly and indirectly) affected areas of biota-protection in the implementation phase with regard to the machinery works of the site preparation, development of construction routes, demolition and construction of bridge structures, and the reconstruction of the railway track will cover, under our estimation, 200 to 300 metres from the track.

Based on our site examinations we can conclude that the flora and the fauna of the construction areas directly affected by the reconstruction of the railway track and the bridge structure are rather poor. There are only two protected plant species (Pannonian Knapweed and Summer Snowflake) in the directly affected area of the Tisza Bridge, and two more in the farther indirectly affected area (*Leucanthemella serotina* and *Armoracia macrocarpa*).

#### Subject of the effect

The reconstruction works of the railway section between Szolnok and Szajol affect protected natural areas of national significance only in the case of the Central-Tisza Landscape protection area (Tisza river-bed). The construction area to be used for organization is directly adjacent to two Natura 2000 areas (Alsó-Zagyva foreshore SCI, and Central-Tisza SCI+SPA area), but only the Central-Tisza area is directly affected, and only for temporarily and for a low degree. These two areas and the railway area located between them is also part of the ecological corridor system of the National Ecological Network.

### **3.7 Landscape**

The effect of the construction from landscape protection aspects usually causes temporary changes.

The construction of the facilities usually involve changes in the ground features, and temporary deterioration of the surface during the construction period. The interference and area occupation resulted from the changes of the ground surface, the construction areas necessary for the construction works, and the collection of wastes may expand to areas outside of the expropriation borders. The same applies to the appearance of the unfavourable landscape elements (machines, transport vehicles) having a temporary disturbing effect. Following the construction, rehabilitation of the destroyed surfaces will be necessary.

### **3.8 Environmental health**

#### Effects expected during the implementation (modernization works)

During the renovation works, the combustion products, and smoke gases coming from the vehicles transporting the necessary materials and the diesel-fuelled railway vehicles may be affecting agents. All other equipment emitting combustion products must also be taken in consideration here (aggregates). The dust raised by the vehicles must also be mentioned, as its fractions (flying dust, subsiding dust) are also important factors.

Noise is an important factor in connection with transport and the construction works.

From environmental health aspects, the population of the towns and villages along the entire track section can be considered as subjects of the effect.

Given that the environmental aspects are fulfilled, the renovation does not have any adverse effects on the health conditions of the population.

#### Subject of the effect

Human population living in the neighbourhood of the railway track.

#### Affected territories

The farthest point of the area of railway transport cannot be specified optimally from environmental health aspects, as the railway line is crossing the towns and villages. Any additional risk is minimal from air pollution aspects, but the health norms specified with regard to noise protection cannot be fulfilled without protection, therefore preventive measurements are necessary. The protection method is described in the section about Noise protection.

### **3.9 Social-economic impacts**

In case of any infrastructure development the effects on the socio-economic area are usually positive (economy boost, reduced travel time, increased convenience grade of transport), but sometimes their effects can be neutral on the development.

#### Subject of the effect

The human population of the area.

### **3.10 Built environment**

The planned reconstruction of the railway line does not endanger any historical monuments.

The construction of the wider embankments involves the use of additional areas not owned by the MÁV. The area under expropriation is about 3 to 5 metres, and another 5 to 10 metres in the holiday resort area on the left-hand side of the railway track.

## **4. Recommended environmental measurements to be observed during the construction**

### **Air**

During the anticorrosion work (grinding, painting), the emission to environment can be minimized with the appropriate delimitation of the working area. In order to ensure this, it is reasonable to delimit the abrasive blasting working area with a foil, and a high capacity dust exhaust or dust separation equipment must be used for the suction of the dust developed in the working area. This measure is also important from the soil, subsurface water and surface water aspects.

The following air-cleanness protection measurements should be requested from the constructor during the works:

- In all working phases during the implementation dust-off and irregular emission of the machines must be avoided. Any dust-off resulted by the transport of the machines or generated during the ground works must be decreased using watering and the cleaning of the roads.

- In the working areas not open for public traffic, the operators of the construction machines must observe the traffic rules, and during the site transport all large-scale air- and dust-load related to the transport of the vehicles must be avoided.
- It must be prohibited that machines with unusual emission or technical conditions enter the construction site!
- Dust-protection shall be assured during the construction phase also in case of material deposits and material transport on public roads.
- In case of building temporary facilities causing air load or emission of air polluting materials, the approval of the environmental authority is necessary.

### **Soil, subsurface water**

In the area affected by the embankment widening, the humus cover must be removed and used for the humus-filling of the embankment (it must be stored in separate deposits until backfilling).

During the operation and the maintenance of the machines and transport vehicles used for the modernization and development works it must be ensured that no fuel or lubricant get on the surface of the soil. In order to prevent contamination, regular control and maintenance of the machines must be carried out in an area reserved for this purpose and equipped with appropriate technical protection (temporary service division).

### **Surface water**

The professional collection of the communal liquid waste (mobile WC) developed in the open track and its transfer to the treatment company must be ensured.

It is to be taken into account during the works that the water flow of the affected waterways (Zagyva, Tisza) is not hindered, appropriate flow of the water must be ensured.

It must be avoided that the used materials and the developed wastes endanger and contaminate the surface waters. The materials used in the construction should be environmental-friendly, if possible.

During renewal and maintenance works in the line sections, attention should be paid that from trucks, work machinery and during other works in the course of materials handling and implementation, oil or water polluted by oil products or other chemical substance harmful to living organisms may not be released into the environment. The above points shall be taken into account even more where work is near water spaces (habitats in still water or river water, channels, pits, seasonal ponds).

### **Waste**

It must be ensured that any useful waste generated during the implementation is handed over for further processing purposes.

Appropriate collection and transport of the wastes, and their utilization, if possible, must be taken care of. The collection and appropriate storage of wastes during the construction is the task of the Constructor.

Separate collection, and appropriate disposal of the construction and demolition waste - if this exceeds the threshold values specified in Attachment 1 of BM-KvVM Joint Regulation no. 45/2004 (VII.26) on the detailed rules of the generation of construction and demolition waste - must be taken care of by the construction company under the regulation.

With regard to the generating hazardous waste (e.g. stones contaminated with oil, cross ties soaked in wood-protection material and contaminated with lubricants, paint and thinner residues, packaging and wastes, any waste generated during the operation of the transport vehicles etc.) the prescriptions of Government Regulation no. 98/2001 (VI.15) (Vhr.) must be observed, with special regard to the separate, safe collection of the hazardous wastes generated during the construction works, in a way that prevents environmental pollution.

Following the termination of the works, the collected hazardous waste can only be handed over to an entity entitled to take it over and having the appropriate permissions.

With regard to the (demolition) construction waste generated during the construction of the planned facilities, the prescriptions specified on BM-Kv.VM Joint Regulation no. 45/2001 (VII.26) on the detailed rules of the management of construction and demolition waste must also be observed to the full.

In addition to the registration obligation of the construction and demolition wastes prescribed in the joint regulation mentioned above, the prescription of Government Regulation no. 164/2003 (X.18) on the registration and data provision obligations must also be observed.

Under Government Decree no. 290/2007 (X.31) on the construction implementation works, construction logs and implementation documentation, it is the responsibility of the constructing contractor and subcontractor to continuously register in the construction logs the quantity and type of the waste generated in the construction area. The content elements of the registration are described in Government Decree no. 440/2012. (XII. 29.).

Should any construction waste/material be generated during the construction, which could be used or built in for construction purposes, then the responsible technical manager can make the decision on this - if necessary, asking the professional opinion of a professional expert. This decision must be recorded in the construction logs. In case of a positive decision on the usability, the waste materials can be used in the construction area of their generation.

Waste generated in large quantities must be collected separated from other waste groups in order to facilitate further utilization. Any materials (wastes) excavated from the area and not used later must be transported from the affected area of the construction.

Construction and demolition waste can only be handed over to organizations/entities having valid environmental authority permission.

## **Noise**

The construction noise may be reduced using the following options:

- use of machinery and equipment of lower noise performance,
- limiting the extension of the generating noise (e.g. temporary noise protection structures),
- reduction of noise emission with work organization solutions.

Special care must be applied during the track renovation/track reconstruction works near the residential areas.

## **Nature conservation**

The greatest caution along the railway must be applied during the works near the two Natura 2000 areas (Zagyva Bridge and Tisza Bridge renovation). As for the latter, the key measures are described in the organization plan, such as appropriate timing of the work phases involving considerable noise and

human interference (e.g. construction of vibration wall-plate base), and the impact minimizing. As a result, the effects affecting the highly protected bird species (Ferruginous Duck, Black Stork, Sea Eagle, Black Kite) nesting in the neighbouring territories can be reduced to the minimum.

In order to minimize any impacts beyond this - knowing the stock of the protected species to be estimated in a preliminary monitoring - the following measurements may be necessary:

- beating back the invasive plant species (especially desert false indigo) in the construction areas and the directly affected areas located in the Natura 2000 areas;
- relocation of protected plants and amphibian reproduction sites to be destroyed during the works to safe locations;
- informing the people/constructors working on the Natura 2000 sites about the essential nature protection regulations;
- taking care of the old, blighted woods located in the working area, and if they are cut down, the habitation of the nests must be checked (birds, bats);
- preliminary monitoring, and monitoring, survey during the implementation phase (see section 5.3);
- mowing and bush cutting following the implementation works in order to beat back invasive species;

### **Landscape**

During the works, the conservation of the forests, water management areas, residential areas along the railway must be taken into consideration. The destroyed surfaces must be recultivated and organized.

## **5. Trans-boundary effects**

There are no trans-boundary environmental effects identified in connection with the implementation, operation and abandoning of the examined railway section.

## **6. Cumulative affected area**

The cumulative affected area of this activity is determined by the noise protection affected area covering the largest area.