Modernization of the Track Veselí nad Lužnicí – Tábor, Part 1, Doubí u Tábora Tábor Section

The construction "Modernization of the Track Veselí nad Lužnicí – Tábor, Part 1, Doubí u Tábora – Tábor Section" is one of the construction set of modernization of the 4th transit railway corridor, which includes the track section from the state border with the Federal Republic of Germany vie Prague, Tábor to České Budějovice to the state border with Austria. The purpose of the construction is putting the railway track and related structures and equipment to the technical condition complying with European parameters and standards. These parameters are based on the international treaties AGC and AGTC, which the Czech Republic accepted. As regards international passenger and freight services, the Prague – Tábor – České Budějovice track section represents an important connection with Austria and other countries in southern Europe. In inland long-distance passenger service, the track provides connection with major centres of settlement in the Central Bohemian and Southern Bohemian regions. In passenger service, this track fulfils an important function by connecting the capital Prague. According to specifications, the railway track is designed for modernization with an emphasis on the smooth traffic flow of carriages with tilting box. In accordance with the Act No. 244/1992 Coll. (EIA), documentation on assessing the environmental impact of the construction has been worked out for the section of the 4th railway corridor Veselí nad Lužnicí – Tábor, whose part the construction "Modernization of the Track Veselí nad Lužnicí – Tábor, Part 1, Doubí u Tábora – Tábor Section" is. Based on this documentation, the Ministry of the Environment issued, in accordance with Section 11 of the act of the Czech National Council No. 244/1992 Coll., a positive statement, ref. no. NM700/2649/4577/OPVŽP/02 e.o. to the construction.

ZONING AND PLANNING DECISION:

The construction is situated on the territory of the Southern Bohemian Region. It includes the cadastral areas of Roudná nad Lužnicí, Doubí nad Lužnicí, Planá nad Lužnicí, Sezimovo Ústí, Měšice u Tábora, Tábor, Čekanice u Tábora, Chýnov u Tábora, Kloužovice, Dobronice u Chýnova, Náchod u Tábora, Nasavrky u Tábora, Svrabov, Balkova Lhota, and Meziříčí. The zoning and planning decision on the construction "ČD DDC, Modernization of the Track Veselí nad Lužnicí – Tábor, Part 1, Doubí u Tábora – Tábor Section" was issued by the Building Office in Tábor on 14 May 2004 under ref. no. SÚ 355/04-Ad.

BUILDING PERMIT:

The next stage is a building permit that is issued based on approved design documentation; this documentation was worked out in 02/2006. It clearly specifies both the technical solution and compliance with the environmental protection requirements (monitoring, protective measures, etc.). The building permit was issued by the Railway Authority on 26 July 2006.

SCOPE AND SUBJECT OF CONSTRUCTION:

Track modernization is a set of measures that enable to achieve the track load class D4 UIC up to the speed of 160 km/h, to introduce a space capacity for the loading gauge UIC GC and to make adjustments for using the highest track speed including traffic of units with tilting boxes. In other words, the construction includes operations from reconstructions of a small extent to reconstructions of whole structures or construction of new structures and process equipment. The aim of the construction being prepared is improving the railway track parameters, making the line a double-track line, modernizing the construction and

technological parts and increasing the speed and reliability of railway traffic. The construction "Modernization of the Track Veselí nad Lužnicí – Tábor, Part 1, Doubí u Tábora – Tábor Section" solves modifications of the existing railway track and, for this reason, it is situated mainly on railway land of the Railway Infrastructure Administration, s.o. (state organization), and Czech Railways a.s. (joint-stock company). The construction starts at km 71.700 before the railway station of Planá nad Lužnicí from the direction of České Budějovice and ends at km 83.470 (new station) after the railway station of Tábor.

Construction concept:

Current state:

The existing railway line is a single-track line along the entire section. In 1985 it was electrified with an alternating current traction of 25 kV. The line is currently operated with a speed of 100 km/h with local limits to 50 km/h at the station gridiron of České Budějovice of the railway station Tábor, to 80 km/h at the railway station Tábor.

Designed state:

Modernization includes all professions related to the railway line. In connection with the complex of operations related to the reconstruction of the track alone, also the parameters of other equipment with which railway traffic customers come into contact will be improved. The scope, content and technical design of the construction is based on the previous documentation level for which the zoning and planning decision was issued. The main part of the construction includes making the line a double-track line, reconstructing the track superstructure, substructure, artificial structures, platforms, contact lines, communication and security equipment, and power current within the entire range of inter-station sections of the railway line. An important part of the construction includes building structures eliminating adverse of noise from the railway traffic on the surrounding area.

Construction capacity data

Capacity data	Project 2005
Ground speed for classical trains for trains with tilting boxes	85 to 160 km/h 110 to 160 km/h
Track building UIC 60 new with mounting without rail bearing plates S 49 used with rigid mounting	22 541 m 5 234 m
Point switch building UIC 60 new on concrete sleepers S 49 new (preferably used)	29 pcs 14 pcs
Adjustment of level crossings Reconstruction / Cancellation	3 / 3 pcs
Track substructure improvement - total	147 530 m^2
Island platform at station new reconstructed	1 x 220 m 2 x 350 m 1 x 350 m
Outer platform at station new	1 x 220 m 1 x 60 m

Capacity data	Project 2005
Outer platform at stop new reconstructed	1 x 220 m 1 x 220 m
Railway bridges, culverts and subways railway bridges foot bridges signal cantilevers signal bridges culverts revetment walls supporting walls flyover	 19 pcs 2 pcs 0 pcs 0 pcs 16 pcs 4 pcs 3 pcs 1 pcs
Noise control Noise barriers	 6 137 m
Station interlocking equipment Electronic interlocks	9
Track interlocking equipment Electronic automatic block system Automatic gate	along the entire length of construction 2 track sections
Crossing interlocking equipment adaptation	2 (connecting lines) 3 (main line)
Contact line construction total length	30.8 km
Saving of labour	37 persons
Construction extent New stationing Section length	71,700 – 83,470 11.770 km
Power current equipment New transformer station	1 structure

Description of the area of interest

The area of interest is situated in the Třeboň and Bechyně bioregions.

TŘEBOŇ BIOREGION

Location

The bioregion is situated in the south-east of southern Bohemia and is comprised of a basin filled with acid sediments, with extensive waterlogged depressed areas and transition peat bogs. The bioregion includes the Třeboň Basin geomorphologic unit and spurs of the Křemešnická Highland and Táborská Upland.

Rocks and relief

The bioregion is comprised of the former river basin of a relatively large extent, filled mainly with Upper Cretaceous and Tertiary unconsolidated sediments – clays, sands and gravels. The relief is of a tectonic depression character with a very flat bottom and stepped edges. The bioregion is one of the flattest in the Czech Republic, the bottom with floodplains, low terraces and depressions with peat bogs has a character of flat upland with an altitude division from 30 to 50 m.

Climate

By Quitt, it is a mild warm area with average temperatures between 7 and 8 °C. Avarage rainfall is 630 mm. The local climate is influences by the large areas of waters and marshes.

Soils

In the bioregion, primary pseudogleys of various types prevail, all soils are void of calcium. Histosols have the largest relative representation of all bioregions (except for Šumava).

Biota

Potential vegetation is strongly dependent on edaphical conditions. On a larger area, fir-oak groves have been spread, rarely acidophilic beech-groves. The current flora is rich, with a number of exclave elements and, to large extent, it differs from the common Hercynian flora of medium altitude locations. The presence of boreal continental species is most characteristic. The bioregion's fauna is significantly Hercynian, with western influences.

BECHYNĚ BIOREGION

Location

The bioregion is situated in the north of southern Bohemia and it largely corresponds to the Táborská Upland geomorphologic unit. The bioregion is comprised of plains and ridges cut by the fault gap of the Vltava and its tributaries.

Rocks and relief

The sub-base is comprised to large extent of migmatites and migmatized gneiss, in the north also of paragneiss, in the Lužnice river with smaller inserts of lime stones and erlans. The relief is hilly with variable energy, the contrast feature is sharply cut, canyon-type valleys of the Vltava, the Otava and the Lužnice, 60 to 160 metres deep.

Climate

The climate is relatively homogenous, by Quitt the lower northern parts fall to the mild warm area MT 11, the rest to MT 10, only the highest parts fall to colder, mild warm areas MT 7 and MT 5. This means that the climate is mildly warm and rather drier.

Soils

Typical Cambisoils prevail in the valleys of major rivers and their tributaries, in the surrounding plateaus, typical acid Cambisoils are quite dominant. In the depressions of non-segmented plateaus, large areas of primary pseudogleys are developed on polygenetic soils.

Biota

The bioregion is situated in the mesophytic environment, the vegetation degree by Skalický is supra-colinous to sub-montaneous. In the warmest locations of the region, oak-hornbeam groves (*Melampyro nemorosi-Carpinetum*) are developed. The prevailing part of the regions falls to the area of acidofilic, probably fir oak-groves (*Genisto germanicae-Quercion*). Natural supplementary vegetation is represented by meadows of the *Arrhenatherion* and *Molinion* unions, more rarely also by some other types of meadows and pastures. The region's flora is mainly of the character of Hercynian flora of medium altitude locations, while its fauna is represented by impoverished and strongly changes animal associations of Hercynian origin, with western influences.

ENVIRONMENTAL IMPACTS OF THE TRACK MODERNIZATION PLAN

The following impacts may be regarded as direct impacts of the assessed track modernization plan: air-pollution impact, noise condition impact, impact on fauna, flora and ecosystems along the track route, soil impact, some impacts on population. Most of the expected impacts (particularly of those adverse) will be relatively low or little significant and will only have a local character shown in the track location or its near surrounding. Conversely, it can be expected that positive effects on population and other environmental components will be more significant and will have a favourable influence on the overall ecological load of the affected region. However, in no case can it be considered that any impacts could occur that would go across the state borders of the Czech Republic. The possibility of an occurrence of across-border impacts on the environments of neighbouring countries can be clearly eliminated.

Impacts on population

The population in the settlements along the line and its surroundings may be affected in the period of the modernized track traffic and in the period of its reconstruction during construction work. The expected impacts will be both favourable and adverse and it can be presumed that favourable impacts on both the population and environment will prevail. The main types and ways of impacts include, for example:

During traffic:
- Noise effects from the traffic of trains on the modernized track, noise load reduction;
- Impacts on the scenery, appearance and aesthetic values of the surrounding area due to the construction of designed noise barriers or other structures;
- A temporary accentuated exposure of the track bed (including culverts and bridges) in the landscape after cutting down the existing greenery (especially outside forests) along the track;
- Improvement in the culture and comfort of travelling for the public;
- Improved security during traffic on the track;
- Improvement in conditions for people with impaired mobility.

During construction work:
- Traffic restrictions during construction work (closings on the line);
- Possible substituted bus transport during closings in individual sections;
- Impairment of conditions for people with impaired mobility;
- Lower comfort of service for passengers;
- Adverse effects related to performing construction work (increased dust formation, noise, increased intensity of road haulage).

Individual adverse effects on population will be eliminated to the maximum extend by the technical solution of construction and a suitable schedule of construction work (maximum shortening of the time of construction work, reduction of the construction site space, etc.). Possible adverse effects will be relatively small, they will be of an irregular and time limited character and they cannot affect the health condition of the population in the surrounding. Compared to the current state, a significant favourable effect on the population in the surrounding of the track will be a lower noise load from railway traffic by adhering to the set health limits so no adverse effects of the health condition of population can be expected. The modernized track will have favourable effects in the social and economic areas. Travelling comfort and passengers handling will be improved, an increased frequency of trains on the

line will improve the service for the villages along the line, an increase in the travelling speed will mean shortening the travelling time and time saving for passengers. The track modernization will have also an economic benefit, because local companies (building, transport and others) may participate in the construction work as subcontractors or cooperating organizations.

Air-pollution impacts

With regard to the fact that the assessed track section Tábor – Doubí is already electrified, it is not a source of emissions of pollutants during traffic. The air quality along the railway line may only be affected by emissions of pollutants from operations during the track reconstruction which will include, among others, reconstruction of the track superstructure and substructure, repairs of bridges, construction work on buildings, railway stations and crossings, new noise barriers, relaying of cable routes, etc. During these operations, mainly building machinery with diesel engines will be used. At the same time, a certain amount of waste will be produced (excavated soil, gravel from the track, building and demolition waste, railway sleepers, iron scrap, trees and bushes from clearance, etc.) and it must be removed and, conversely, lots of materials must be brought in. This transport will be provided, to larger extent, the railway company alone and, to smaller extent, it will be provided by trucks of the companies performing the reconstruction. The source of air pollution during the track reconstruction will be, apart from the recycling line, building machinery and trucks. Their diesel engines will emit, in particular, NO_x, CO and dust – particles with PM10. The source of air pollution, particularly with dust particles, will be the operation of the recycling line of aggregate from railway bedding, which will be located in the cargo area of the Tábor railway station, to the right of the track, at km 82.973 to 83.053, near track no. 60. It is a railway plot of land in the cadastral area of Čekanice u Tábora. The estimated area of the recycling base is located outside the residential areas. Due to water protection (the designed area is located in the protective zone of grade II water source), the recycling base area and the area for depositing siftings from recycling will be hardened by panels with sealed joints and weathered to a blind drainage intercepting trap with a sufficient capacity. After finishing the ballast bed recycling, the area will be cleared and put to original state. In accordance with the Act No. 86/2002 Coll., on air protection, and its implementing regulations, machines for the processing of aggregates are classified as medium sources of air pollution. For the above-mentioned machines, it is necessary to reduce or eliminate all places and operations where solid pollutants are emitted to the air directly at the source. Or, with regards to technical possibilities, the source of pollution should be equipped with a water curtain, spraying, dust-collecting or misting equipment (taking measures must be approved and regularly evaluated by inspection). At the border of the land where the ballast bed will be recycled by a machine for the processing of aggregates the dustfall deposition limit acc. to the Decree of the Government No. 350/2002 Coll. must not be exceeded. However, the recycling line is located outside the residential area of the village and will be started quite occasionally for the processing of material. With regard to the above stated, the recycling line operation will only have a small or very limited impact on the residential area or the environment, because air pollution drops with the quadrate of distance from its source, i.e. the nearest settlements or natural features of landscape will be hit from a large distance and in a limited manner. The yards of dusty building materials at the construction site installations will be limited sources of air pollution by dust.

Noise load

The determination of noise emissions from the operating area of building machinery was

based on the Decree of the Government No. 9/2002 Coll., which sets technical requirements for products as regards noise. An analysis of the set of machines used for reconstruction work has shown that demolition work using demolition and pneumatic chippers falls to the category of the noisiest operations. When they are used, it can be expected that the limit value equivalent to sound pressure level A for the construction period L_{Aeq} = 60 dB (in the daytime between 7:00 and 21:00) will only be reached by a noise reduction by distance already at the distance of approx. 50 to 60 m from the place of operation. During the subsequent construction work, the loading of the outside space will be lower. Noise load can also be expected from the transport of materials on access roads and from transport on by-pass routes. It is therefore necessary – according to the possibilities of the contractor – to relocated the maximum of transport to non-residential areas and to the railway line axis. The number of traffic routes must be reduced as much as possible by a good organization of construction work. ZS with the possibility of a permanent occurrence of noisy operations, such as concrete plants, recycling bases, etc., are not designed near the residential area. ZS established in villages will minimize their noise levels by the designed measures (the construction manager is responsible). Where this is not possible, it is necessary to take suitable measures to reduce noise from construction work. Also where temporarily exceeding the external noise level can be expected, the noise limits for internal space will be, in most probability, kept (the considered sound insulation of common windows is 25 dB, which is sufficient for keeping the daytime internal limit 40 dB even at the external noise of 65 dB. However, such situation will only occur sporadically. We consider essential also the psychological moment, when individual operations will be consulted with the local people in advance and all measures for eliminating the noise load will be communicated.

Measurements taken at reference points in the surroundings of the track have shown that due to the operation of the assessed railway, the maximum permissible values for night (stricter limits than for daytime) are only exceeded at points lying in locations immediately along the track. At points lying in a large distance from the track, values under the limit are measured or the exceeding values are totally caused by noise from other sources (e.g. road traffic) and the railway increases them only slightly. At present, no measures are taken on the track to reduce noise emitted to the surrounding; the track superstructure is in the average technical condition. Based on a computation evaluation of the perspective state, it can be expected that after modernization sound conditions in the assessed locations will change considerably. A significant noise load reduction will be made at the nearest located residential area protected by designed noise barriers (a total of approx. 6 000 m). For structures where it is not possible to install noise barriers for technical reasons (flyovers etc.) or where such a barrier would not be sufficiently effective with regard to the configuration of ground, individual noise measures are proposed that will guarantee values under the limit within the internal spaces of affected structures.

Vibrations

Vibrations were measured to find the current state of vibrations. The range of measurements was set based on a consultation at the Regional Hygiene Station of the Southern Bohemian Region. Based on the measurements, a study of vibration effects was worked out. The result is a proposal for anti-vibration measures in Planá nad Lužnicí in Nad Hejtmanem Street and in Tábor in Milíčova Street.

Water impacts

The entire area of interest falls to the Lužnice river basin, specifically to 1-07-04 "Lužnice from Nežárka to the mouth". The designed construction crosses the Kozský and Borecký streams. Apart from that, there are a number of tributaries, watercourse arms including periodical watercourses that cross the railway track. From the hydro-geological view, the section falls to the hydro-geological region 632 – Crystalline complex in the river basin of the Middle Vltava. The track does not lead through any protective zones of water sources, with the exception of the protective zone of the Jordán water source. It is protective zone III from approx. km 82.0 to km 83.0 and protective zone IIb from approx. km 83.0 to km 83.5.

From the view of surface water protection as a whole, the construction does not represent a real threat to its quality. Apart from the reconstruction of bridge structures, the construction does not affect surface waters, nor does it handle them in any way. The current discharge conditions will not be changed by the construction. During the reconstruction of bridge structures, no essential interventions in the courses or adaptations of the river bed are designed, with the exception of the Kozský stream, where the bed will be piped temporarily for the period of construction and after the bridge work is completed, the bed will be put to original state. The above-mentioned reconstructions and constructions, with the exception of bridge structures and possible culverts, should not intervene with the ground water circulation. A permanent change in the flow mode is not designed during construction work. The planned reconstructions of culverts should contribute to a faultless drainage of reconstructed structures, an easy discharge of rainwater and securing of watercourse passages by a railway filling. A certain complication for the quality of water could be the risk of escape of oil products from building machines. Therefore, a greater attention and daily inspection should be paid to the condition of vehicles in the construction sections in the protective zones of water sources. During the track reconstruction, an increased risk of threatening the quality of waters and rock environment will not occur if the protective measures are taken.

Sewage water

Production of sewage water can be expected in connection with the operation of sanitary installations of construction sites during the construction of roads and installations of construction site. The current stage of construction preparation does not specify its amount (the numbers of workers or their dwelling at construction sites are not known), nor the way of disposal of this water (mobile chemical toilets and sanitary installations will be used in the places where building workers will change clothes). The way of disposal of this water must be designed in the next project documentation level in such a way that neither surface, nor ground waters are contaminated. Sewers and septic tanks (sumps) for toilets and sanitary installations will be built at those construction site installations where the social background of the construction site will be located. In the areas of railway stations, the sanitary installations of the Czech Railways will be used. The construction and connection of site sanitary installations are part of the contractor's preparations. It is possible to connect to the current sewerage system in the current gully holes. Chemical and mobile toilets will be used in places where it is not possible to connect to the current sewerage system and the building of septic tanks is unacceptable from the ecological or economical point of view.

Process waste water

At the stage of implementation, the construction will only produce a minimum amount of process waste water, e.g. from spraying concrete, cleaning machine equipment, dust-removal

at some operations. The amount and quality of this waste water cannot be now specified (the contractor has not been chosen) and the problems will be solved additionally in the next project documentation of construction. At the operation stage, the construction will not produce any process waste water, unless we include spring washing and cleaning of tanks and a possible winter application of de-icer during impaired weather conditions at railway stations, etc. Neither can be sufficiently estimated as the consumption of process water will only known during operation.

Waste:

During construction work, a certain amount of waste of different nature will be produced – both "other" and "dangerous" waste. The construction employer's obligation is to provide all waste disposal in accordance with the relevant legislative regulations. These laws must be followed during waste disposal, i.e. the way of its storage, transport, depositing and possible removal must be solved. The construction projects includes a summary of the expected amount of materials gained by construction work. Their possible utilization within the construction or their further use in accordance with the applicable legislation is specified. Also, proposed are the possibilities of disposal of potential waste and there is an orientation list of companies engaged in waste disposal in the given region. The character of construction shows that prevailing types of waste will be materials excavated during adaptations of the track superstructure and substructure. The rate of its contamination was determined within the geo-technical survey. With regard to the sources of contamination, the key excavated materials were divided to ballast bed, soil from sleeper subsoil under rails with a certain degree of contamination and to soil without contamination, excavated outside ground plain under rails. The excess of excavated soils will be transported to designated dumps, the ballast bed will be recycled according to the construction procedure at the recycling base in the freight area of the Tábor railway station. The transport of ballast bed material to the recycling line is expected by rail, the location is also accessible by road. Based on experience at other construction sites it is estimated that after recycling, approx. 80% of excavated volumes of ballast bed can be utilized as building materials. Disassembled technical equipment for which there will be no utilization in railway traffic or there will be no possibility or interest to retain it, will be scrapped. In the project, the amount of potential waste is recorded overall for the entire construction by individual operating sets (PS) and building structures (SO) and the way of its utilization or disposal is proposed. This includes, in particular, excavated soil, ballast bed of track superstructure, waste after the recycling of track superstructure ballast, building and stone rubbish from demolitions, demolished concrete, disassembled metal structures, cut down trees and cleared bushes from the construction site, remains of wooden structures, and others.

Within the preparatory documentation (zoning and planning decision documentation), worked out in 2003, a total of 18 samples of structural layers of sleeper subsoil were taken in the Doubí u Tábora – Tábor section, including the railway stations Planá nad Lužnicí and Tábor. During chemical analyses, the detected concentrations of analysed substances from samples taken at the track reconstruction place were compared to the limit concentrations of organic harmful substances in solid matter according to the Decree of the Ministry of the Environment of the Czech Republic No. 383/2001 Coll., on waste disposal details, and to the limit values of extraction rate classes acc. to Annex No. 6 to the above-mentioned decree.

Soil impact

The construction will be performed mainly on railway land. Larger permanent appropriations of plots of land that are not in the possession of the Czech Railways or the Railway Infrastructure Administration are brought about by making the current line a double-track line. The overall permanent appropriation of the agricultural land resource (hereinafter referred to as ZPF) brought about by the construction is 2.9016 hectares, no temporary long-term appropriation is required. As regards of soil forming substrates, geological conditions at the places of permanent appropriations are not changed significantly. The pre-Quarternary sub-base is built here mostly by Pre-Cambrian rocks with penetrations of Paleozoic rocks and, in the narrow strip at the very beginning of the route in Doubí u Tábora, also by Tertiary sediments. These rocks are covered with Quarternary soils of deluvio-fluvial and fluvial origin of a variable, mainly very low depth. The main soil-forming substrate is thus totally decomposed rocks (paragneiss) or Quarternary deluvio-fluvial sediments of the same grain and mineralogical composition. Agricultural land in the area of interest is represented particularly by Cambisoils and gleys. They are shallow, skeletal to strongly skeletal soils. Withdrawn areas are situated from 38.85% of ZPF permanent appropriation on arable land. The representation of meadow culture is 1.21%, permanent grassland is 42.08%, gardens are 17.86%. By implementing the construction, no agricultural land will become inaccessible and no land that cannot be cultivated will occur.

On the whole area of the permanently withdrawn soil from ZPF, a removal of cultural horizon will be carried out in the extent stated according to a pedological survey. Records will be kept on removal and its utilization. Removed arable soil from the permanent appropriations of ZPF (3 835 m^3) is proposed for spreading on the remaining parts of affected plots of land. This proposal is based on the character of permanent appropriations brought about by extending the current track bed and in most cases it is the appropriation of a smaller part of land adjacent to the track bed. Sub-soil, or unclassified humus horizon, (5 206 m^3) is recommended to be used for humus removal from slopes within the said construction.

For the track modernization, also appropriations of land designed to fulfil the forest function will be necessary (hereinafter referred to as PUPFL): These include a total of 0.33 hectares of permanent appropriation of forest land and also 0.16 hectares of temporary appropriations of forest land (due to construction site installations and access roads). These are mainly spruce or pine monocenoses, without a greater ecological value. After the end of construction, the areas for construction site installations during the track construction will be reclaimed and put to original state.

Flora and fauna impacts

In relation to the construction, no endangered and rare animal and plant species will be affected. The construction is situated outside natural complexes and protected parts of landscape, it leads through a long-time agriculturally and industrially utilized area (the urban area of Tábor and Sezimovo Ústí) with a large deprivation of biota in the landscape and a larger number of secondary and ruderal areas of extra-forest greenery. The value of growths in the route of the designed railway line rerouting is low and it shows a low level of growth maintenance in the open landscape in the present time. An actual liquidation of valuable biotopes (including natural complexes or biotopes important as regards Natura 2000 as such) is not threatened due to the construction. No fundamental impacts on natural ecosystems are

recorded in the construction surroundings. A limited adverse effect on ecosystems is represented by felling extra-forest vegetation with regard to the extension of the corridor by another track. In some places, full-grown oaks, alders and lindens will be felled; in all cases it was considered whether these trees could not be protected against destruction.

Impacts on NATURA 2000 locations

The construction does not extend to any European significant location or to a bird area. The nearest European significant location is "Lužnice and Nežárka"; at km 73 and at km 76 it approaches the railway line to a distance of 100 metres. This European significant location will not be affected by the construction or operation itself. Its only possible adverse effect is represented by a potential accident on the track related with a massive escape of oil products.

Impacts on cultural and archaeological landmarks:

In the Doubí u Tábora – Tábor section, there are two cultural landmarks listed in the Central List of Cultural Landmarks. These include St. Barbora's alcove-type chapel and the Jordán reservoir. The chapel is situated in Strkovská Street, not far from the railway crossing at km 73.95. The chapel is in a sufficient distance from the track that adding the second track or other construction work within the designed construction will not affect it.

The conglomeration of the towns of Tábor and Sezimovo Ústí was settled as early as the Middle Ages (for example, the Hussite movement was important) and with regard to this fact, this area must be regarded as an area with archaeological findings in accordance with Section 22, paragraph 2, Act No. 20/87 Coll., on state preservation of monuments, as amended. During construction work, some archaeological findings may be uncovered and, therefore, it is necessary to provide archaeological supervision of construction work. The investor's obligation is to meet the requirements set in Sections 22 and 23, Act No. 20/1987 Coll., as amended, specifically:

- to notify the Archaeological Institute of the Academy of Sciences of the Czech Republic of the plan to perform earthwork from the time of construction preparation,
- to report archaeological findings, if any,
- to enable a salvage archaeological survey,
- payment for the salvage archaeological survey is governed by the provisions of Section 22, paragraph 2, Act No. 20/1987 Coll., as amended.

Description of measures proposed for the prevention, elimination, minimizing and compensation of environmental impacts:

CONSTRUCTION STAGE

- Within completion work, the unused areas and slopes of track bed will be provided with humus and greenery;
- During construction work, the movement of machinery and heavy-duty equipment near residential areas will be minimized, noisy stationary equipment will be shielded by mobile noise barriers;
- The contractor shall ensure that noise limits will be kept during construction work in accordance with the Decree of the Government No. 148/2006 Coll.;

- In order to reduce dust formation, it is necessary to perform spraying during the demolition of structures and during operations causing dust raising;
- The roads used will be cleaned regularly;
- Vehicles will be cleaned regularly before accessing the road;
- Loose and powder materials will be loaded and secured on trucks in such a way that they do not fall onto the road;
- Catch containers (of sheet metal, with a pad of suitable absorbent) against oil products leakage will be installed under standing building machines;
- Refuelling in the construction site installation area is inadmissible;
- In the construction site installation area, there will be a mobile oil emergency unit with a minimum capacity of 90 l containing absorption mats, retaining devices, cushions, emergency putty for sealing, warning tape, and protective gloves;
- All maintenance operations or repairs will be performed outside the construction site installation area;
- No fuels may be stored on the construction site installation surfaces;
- Waste water will be drained to an intercepting trap and pumped out;
- No loose or floating materials may be stored on the construction site installation areas near watercourses;
- Chemical toilets for the respective number of workers will be installed at the construction site;
- Cut down trees will be chipped;
- If necessary, the builder will enable a salvage archaeological survey in accordance with Section 22, Act No. 20/1987 when performing earth and excavation work; Archaeological surveys acc. to Section 22, Act No. 20/1987 Coll., is paid by the investor and a contract regarding it must be concluded in advance;
- The existing woods will be protected acc. to ČSN 83 9061 – Technology of vegetation adaptations in landscape – Protection of trees, growths and vegetation areas during construction work;
- After the end of construction, the ground will be landscaped in grass plots acc. to ČSN 83 9031 – Technology of vegetation adaptation in landscape – Lawns and their planting;
- Dust formation will be minimized by catching dust collection at the place of origin (if enabled by technical and organizational conditions), secondary dust formation will be reduced by regular, sufficient spraying or misting of the construction site and roads used during construction;
- All noisy building operations will only be performed in the daytime, specifically from 8 am to 4 pm; other suitable operations may be performed from 7 am to 7 pm;
- Requirements for night work, if any, must be consulted in advance with the hygiene service authorities that will set further conditions;
- Machines to be selected with a guaranteed lower noise level;
- Stationary building machines (noise sources) must be enclosed by a mobile noise barrier with acoustic surface (attenuation approx. 4 – 8 db/A/);
- Noisy operations to be combined with operations with low noise levels (equivalent level reduction);
- If possible, machines to be placed as far from residential areas as possible;
- Operation of significant sources of noise to be shortened on a day, work to be divided to several days by shorter period of time (equivalent level reduction);
- If possible, construction site traffic to be organized outside residential areas;
- Affected population to be informed in time on planned operations to enable them to adapt their day mode;

- During work in municipalities, mobile noise barriers to be placed along the construction, if possible;
- Noise barriers will be greened with climbing plants.

OPERATION STAGE

- After completion, it is necessary to perform control measurements of noise and efficiency of designed noise measures.

Provision of forecasting methods:

- When working out the noise study, the software SoundPlan HighPerf 6.3/2005 from Braunstein+Berndt GmbH was used. Its application for acoustic calculations was verified by the National Reference Laboratory for Noise in Communal Environment at OHS Ústí nad Orlicí in July 1997. The Schall 030 standard is used for the rail traffic noise calculation.
- Waste water contamination calculation.
- Evaluation of literature sources, studies and regulations relating to the assessed location.
- Evaluation of the field survey of contamination of the track superstructure, ballast bed.

Provision of deficiencies in knowledge and uncertainty

- Forecasting methods used in the field of noise and vibrations are not and cannot be an absolutely precise forecast – they are based on the present state of knowledge.
- Also, access and temporary built roads, handling areas and construction sites will be specified.

OUTLINE OF A MONITORING AND CONTROL PROGRAMME AND POST-PROJECT ANALYSIS PLANS

- During construction work, the quality of the ballast bed and parts of substructure which will be handled during construction will be continuously checked. Analyses of ballast bed samples will be carried out and based on reports from an accredited laboratory, the method of disposal of this material will be specified.
- During operation and after completion of the construction, the quality of ground and surface waters and soil around the recycling bases will be monitored.
- For the period of construction work in the area of important areas as regards water management – protective zones, there will be a professional supervision of adhering to safety measures by persons from the respective water management organizations.
- In the request for approval of the construction, the type and amount of waste produced during construction will be specified and the method of its disposal will be documented.
- When the traffic on the modernized track begins, control measurements of noise will be carried out, particularly in places where noise barriers have been built.

Conclusion:

During evaluating the impacts of the "Modernization of the Track Doubí – Tábor" project, no significant adverse environmental impacts were found. The project will not adversely affect, in a significant way, the current overall ecological load of the given region and, conversely, it will reduce the current load in some aspects. The project can therefore be considered acceptable in the given locality and its realization can be recommended if the measures and conditions for the protection of individual components of the environment and population are observed.