

STANDPOINT OF THE NATIONAL HERITAGE INSTITUTE ON THE COMPETITION WORKSHOP OF SPRÁVA ŽELEZNIC s.o. FOR REPAIR / RECONSTRUCTION OF THE EXISTING BRIDGE AND ADDITION OF THE THIRD TRACK TO THE EXISTING SET OF RAILWAY BRIDGES ON THE PRAHA HL. N. - PRAHA SMÍCHOV ROUTE

The Výtoň railway viaduct consists of several types of bridge structures arranged one behind the other; and the whole set of bridges consisting of five parts is protected as cultural heritage. The planned reconstruction of the existing set of railway bridges and the addition of the third track is accompanied by a number of conflicting requirements, the unification of which in one functional solution turns out to be very challenging. This is why the National Heritage Institute welcomes the planned competition workshop and considers this workshop a suitable tool of finding an acceptable solution. As part of searching for this solution, it is necessary to respect several basic points, from which any functional reconstruction of the bridge must start. These are the key facts:

- The set of railway bridges enjoys protection as a cultural heritage (immovable cultural heritage reg. No. ÚSKP 101315, Prague urban conservation zone, protective zone of a national cultural heritage - the Vyšehrad Fortress - does not apply to the space where the third track will potentially be laid on the bridge) The Ministry of Culture has repeatedly declared that it would not declassify the bridge as culture heritage site.
- The analysis of the Institute of Planning and Development concerning the location of a railway stop in Prague in Výtoň in the immediate vicinity of the bridge over the Vltava and in connection to the public transport on the embankment.
- The requirement of the Ministry of Transport to lay another (third) track over the Vltava river on the lower (from the river flow perspective) side of the existing bridge. The requirement is also included in the applicable zoning plan of the settlement unit of the capital city of Prague.
- The service life of the existing constructions is limited; otherwise put, there are clear time constraints.
- The cultural heritage of the set of railway bridges is an integral part of the core railway infrastructure. This fact must necessarily be reflected in the individual approach to the matter by the heritage conservation authorities.

The heritage value of the structure consists of several aspects which need to be carefully considered given the necessity to preserve the heritage value of the bridge as broadly and completely as possible.

- **Authentic material** - made of malleable steel, i.e., of steel processed using a modern method still in use today.
- **Authentic form** - subtle riveted steel lattice construction of the supporting arches.
- **Icon, symbol** - part of the Prague skyline, an important urbanistic element, part of the Prague urban conversation zone.
- **Authentic function** - the historical construction still serves its original purpose.

It is important to remember that these types of steel riveted bridge constructions are gradually disappearing, and there is an undisputable interest in preserving at least some of them, for which purpose the unique historical environment of Prague is a clear choice.

The National Heritage Institute issues the following standpoint regarding the possibilities of repair / reconstruction of the heritage site:

1. Restoration of the cultural heritage site of the bridge set while keeping its maximum integrity is the preferred option. Not only the preservation of the original shape and division but also the authentic material and the original construction approach (riveted construction). From the heritage conservation perspective, an exchange or adaption of the existing bridge deck and exchange of the

construction elements past their useful life is conceivable. Besides the replacement, cleaning and application of suitable anti-corrosion protection, technical deficiencies of the original construction (slit, pockets etc.) could also be addressed. By performing this kind of repair of the given part of the structure, all the five heritage values mentioned above will be preserved.

2. In this option, we recommend the bridging necessary for the placement of the third track to be solved with a new construction using current technical possibilities and a contemporary architectural concept. The competition entry for the third track was assessed by heritage conservation authorities in accordance with Government Regulation No. 66/1971 “on conversation zone in the capital city of Prague”, specifically in accordance with Section 3 (1) (b). To quote this regulation: “in new development and external modifications of non-protected buildings, architectural relationships with cultural heritage sites and their sets must be respected, they must be in line with the sites’ volume and spatial composition and environment and complete their sets using adequate means of current architecture.”
3. If professional agreement is reached that the current structure is unrepairable, we see execution of a copy as the first substitute option. Through this form of reconstruction of bridge structures, the original shape division will be kept, including the structural design procedure. The overall authentic form of the bridge as well as its iconographic role in the image of the city will be kept. The specific form of the copy execution will be adjusted to the current requirements for railway traffic in the corridor (load capacity, passage profiles, safety distances, etc.). At the same time, a modern anti-corrosion protection may be applied ensuring longer service life of the given elements. From the viewpoint of heritage conservation, three out of the five above-mentioned basic heritage values of the given part of the structure will be maintained by the execution of this option.
For the solution of laying the third track on the bridge, we recommend considering this in accordance with point 1.
4. We consider the possible approach to the matter in the 3 + 0 format (a new bridge with no use / moving the old bridge) as not suitable from the heritage conservation perspective, as it leads to a significant reduction of the existing bridge, a cultural heritage, limited only to the preservation of the historical bridge piers. Such significant transformation of the existing form of a cultural heritage is not acceptable from the viewpoint of heritage conservation.
However, in discussing the matter, the option of building a new two-track or three-track bridge in the place of the old bridge (using the original piers) and moving the original steel structure to new supports situated on the (original) side of the new bridge exposed to view in the direction from the city centre to Vyšehrad was also mentioned. The steel structure placed and repaired in this way could be used in case of building a new two-track bridge for one track with a small bridge for pedestrians and cyclists; in the case of a three-track bridge, only for pedestrians and cyclists. We recommend checking the feasibility of this mentioned option.
5. Regarding the form of repair or reconstruction of the railway bridge, the option of constructing a copy with roughly the same shape of the three current semi-parabolic bridge spans using the existing technologies (e.g., welding) was also discussed. From the heritage conservation perspective, this option is highly problematic, as it keeps, from the above-mentioned values, only the iconic shape and the overall impression in the environment of Prague urban conversation zone. This solution is an extreme solution and may be tolerated only in circumstances when a broad consensus on the clearly preferred options cannot be found. The newly created structure should be a successful copy of the existing spatial organisation of the individual lattice structural elements created to maintain the existing visual effects of the whole. For the original construction, new use must be found, or it may be safely deposited for the future.

We recommend considering the solution of laying the third track on the bridge as part of this bridge reconstruction option in accordance with point 1.

Conclusion

Given the above, the method of construction of the bridge structure for the third track in the 2+1 mode should therefore be the subject-matter of the competition; the railway stop will be built, and the third track incorporated in the existing bridge structure near Svobodova street while keeping the predetermined new height levels of the top of the track. The remaining solutions bear great risks for the heritage site itself and its immediate vicinity in the Prague urban conversation zone.

The overall wording of the Competition Terms should respect the requirement of heritage conservation for the execution of the matter in the outlined areas.

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