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Annex P01 - Task Specification

"Railway Bridges under Vyšehrad"

for the architectural and structural design of railway bridges under Vyšehrad

The capitalized terms listed in this document have the same meaning as stated in the definitions in the Tender documentation.

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CONTENTS OF THE TASK SPECIFICATION

1. SUBJECT MATTER OF THE COMPETITIVE DIALOGUE

1.1. Definition of the Subject Matter of the Competitive Dialogue

The subject matter of the Competitive Dialogue is to obtain a proposal for the design of the railway bridges across the Vltava River in Prague on the boundary between the cadastral areas of Vyšehrad and Nové Město and continuing to the left bank of the Vltava River in the cadastral area of Smíchov and both front zones of the bridges, including all pertinent earthworks in the area in connection with the newly required bridge across the Vltava River in this place with three tracks and while addressing all the connections in the area when constructing a new railway stop (tentatively named Praha-Výtoň) on the right bank of the Vltava River and preserving the walking paths and cycling routes across the Vltava River that use this new bridge. The railway bridges concerned include the following existing railway bridges: bridge at ref. km 3.390 Vyšehrad garáže I, bridge at ref. km 3.415 Vyšehradská, bridge at ref. km 3.470 Vyšehrad garáže II, bridge at ref. km 3.545 Výtoň, bridge at ref. km 3.706 Pod Vyšehradem ("**Railway Bridges under Vyšehrad**").

1.2. Key Starting Conditions and Purpose of the Competitive Dialogue

The Contracting Authority states that in preparing the Competitive Dialogue and compiling the Task Specification, it referred to the following key facts:

1) The steel structure of the bridge (bridge at ref. km 3.706 Pod Vyšehradem), which is in unsatisfactory condition, is at the end of its service life, as evidenced by the results of assessments of the existing structure (see **P04** of the Tender Documentation).

2) The aim of the Contracting Authority is to preserve the bridge function, which is to sustain the railway line across the Vltava River, and in order for the Contracting Authority to ensure that the railway bridges will provide safe railway traffic, it is necessary that the design proposed by the participant meets all binding conditions. in accordance with Section 2.3.2 of the Tender Documentation, including the basic parameters of all the railway bridges stated in Part 2.5.2 of the Task Specification.

With a view to the above facts, which the Contracting Authority took into account when compiling the Tasks Specification, the Contracting Authority deemed as the only solution possible to replace the existing unsatisfactory bridge structures.

The Contracting Authority and the Ministry of Transport of the Czech Republic still continue to prefer replacement of the existing steel structures.

However, the Contracting Authority does not exclude for the Participant to present in the Competitive Dialogue any other solution that will fully meet the binding conditions according to Section 2.3.2 of the Tender Documentation and address the starting conditions outlined in Point 1.2, paragraphs 1) and 2) of the Task Specification.

The purpose of the Competitive Dialogue is to assess and evaluate the submitted design proposals and to find a desing that best approaches and addresses the subject matter of the Competitive Dialogue within the scope of this Task Specification, and in particular the starting conditions outlined in Point 1.2, paragraphs 1) and 2) of the Task Specification, with a view to the evaluation criteria stated in Sections 5.8 and 5.11 of the Tender Documentation.

Participants should also take into account that the Railway Bridges under Vyšehrad

are the subject of monument protection as the Set of Railway Bridges on the Prague Main Railway Station - Prague Smíchov Railway Line (Reg. No. ÚSKP 101315). On this, the Contracting Authority points out the note of the Ministry of Culture of the Czech Republic issued under reference number 74750/2019 OPP of 13 November 2019, which states, *inter alia*, that the lattice structure(s) of the bridge across the Vltava River can be replaced with a free-form copy that meets modern-day parameters without the need to declassify the bridges as a cultural monument. It also points out the statement by the National Heritage Institute of the Czech Republic, which concerns possible solutions that may come out the Competitive Dialogue from the viewpoint of monument care; both the documents form Annex **P03** of the Tender Documentation.

1.3. Specification of Additional Requirements for the Design

In addition to the design of the railway bridges, including a new railway stop, a required part of the design is the design of the walking path and cycling route across the Vltava River from the Výtoň area towards the Smíchov area up to Hořejší nábřeží Street, with a possible continuation along the abandoned railway embankment to the area of the development site between the Smíchov railway station and Na Knížecí Street. At the same time, it is necessary to design a new layout of the Výtoň area in connection with the three-track railway line bridges, meaning enlargement of the area for the railway embankment. When drafting the design, in particular the requirements from the point of view of monument protection must be observed, and also from the perspective of public transport to ensure a sufficient underpass height for the tram route on Rašínovo nábřeží Street along the embankment.

2. TASK SPECIFICATION

2.1. Area Concerned

2.1.1. The area of interest contains the existing railway bridge across the Vltava River, including the adjoining sections of the railway line in the range from km 3.300 to km 3.900. The extension of the area of the railway bridge across the Vltava River is set in accordance with the valid zoning plan of the Prague metropolitan urban planning unit to be northwards of the existing bridge (downstream).

2.1.2. The area concerned outside the railway line is delimited on the left bank of the Vltava River by the edge of Hořejší nábřeží Street and the northern and southern limits of Plot No. 5030/28, cadastral are of Smíchov, with the necessary extension in the northward direction. The size of this extension must at most match the limits of the functional area according to the zoning plan and must be set in the proposed design so that any interference with plots of land outside of the railway properties is minimised.

2.1.3. Outside the railway line on the right bank of the Vltava River, the area concerned is delimited by the southern edge of the plot of Vnislavova Street up to the intersection with Neklanova Street (including the area of this intersection). Towards the bank of the Vltava River, the area concerned is delimited by extension of the line of this boundary. Further the area is delimited by the boundary of the development next to Svobodova Street up to the intersection with Na Děkance Street (including the areas of this intersection). In the place where there is no development at the northern edge of Svobodova Street, the boundary is set at a distance of 5 meters from the limits of the plot of this street towards Podskalská customs office, with the boundary line continuing to the bank of the Vltava River. The area concerned also includes Plot No. 284/9, cadastral area of Vyšehrad.

2.1.4. Should the proposed design exceed the specified limits of the area concerned due

to connections to the surrounding transport infrastructure, it is possible to exceed in the proposal the boundaries of the area concerned.

2.1.5. The boundaries of the area concerned are shown in Annex **P02** of the Tender Documentation.

2.2. Requirements of Monument Protection

2.2.1. The Railway Bridges under Vyšehrad are subject to monument protection as the Set of Railway Bridges on the Prague Main Railway Station - Prague Smíchov Railway Line (Reg. No. ÚSKP 101315). Due to the very poor technical condition of the steel structure of the bridge, the Railway Administration applied for the monument protection to be removed. This procedure was concluded with the reaffirmation of monument protection, with the proviso that more detailed terms can be set from the point of view of monument care that will ensure public interest in the provision of railway transport is observed. The decision on not removing the monument protection is attached as Annex **P03** of the Tender Documentation.

2.2.2. For proposing a solution to the unsatisfactory condition of the steel structure of the bridge, which is near the end of its service life and is unable to meet even the current capacity requirements of railway traffic any further, it is recommended to take into account the opinion of the National Heritage Institute as a professional organization in monument care. The statement of the National Heritage Institute is included in Annex **P03** of the Tender Documentation. The assessment of the existing structure is part of Annex **P04** of the Tender Documentation. Concerning interventions in other protected elements of the railway bridge, the draft design shall assess the necessity of such interventions and propose their appropriate scope.

2.2.3. The area concerned is subject to area monument protection as:

- Part of the UNESCO World Heritage Site Historic Centre of Prague (Reg No. ÚSKP 1);
- Part of the Prague City Monument Reserve (Reg. No. ÚSKP 1028);
- Part of the Smíchov monument zone (Reg. No. USKP 2210);
- Part of the protection zone of the Vyšehrad National Cultural Monument (Reg. No. ÚSKP 3477).

2.2.4. The Contracting Authority also reminds the participants that should a participant under the Modified Concept/Design suggest replacing the existing bridge structure, then it shall include in the costs on a mandatory basis also the cost of dismantling this bridge structure. The dismantled bridge structure will then be moved to another suitable location. The costs for relocating the bridge structure are not to be included by the participant in its bid price. The participant may under the Modified Concept/ Design recommend a suitable representative location within the Czech Republic in its opinion to place the dismantled bridge structure in. However, the final decision on the future location of the dismantled bridge structure will be contingent on the result of a search study commissioned after the Competitive Dialogue and will be made by the Contracting Authority. See also the note in paragraph 5.11.2 under the evaluation sub-criterion "Economic Criterion".

2.3. Requirements for Urban Design

2.3.1. The connections of the area concerned to the surrounding zones can be deemed stabilised. The establishment of a new railway stop in the Výtoň location may have some impact on the surrounding areas, however Výtoň lately already has been perceived as a transport hub, so the new stop will only reinforce this function of the area. Nevertheless, the proposed design should strive to moderate this

function accordingly as a cultured urban planning concept.

2.3.2. The design of the bridges must respect the existing nature of the development in the area, with a note that this nature is not changeable. All the provisions must be observed of the valid zoning plan of the Prague metropolitan urban planning unit, with the proviso that any more detailed adjustment of the extent of the functional areas related to the technical design of the railway bridges only is possible in the absolutely necessary (minimum) extent.

2.3.3. As for Výtoň, a new layout of the area will be proposed so that all its existing functions will be preserved and areas for cycling paths will be newly added in follow-up to the design of the railway line across the Vltava River using the proposed bridge. At the same time, the location will be proposed of the new railway stop tentatively named Prague-Výtoň, with all necessary connections to the surrounding areas addressed, including transfer links to public transport.

2.3.4. The design of the bridges will respect the major long-distance visual axes in the area so that the bridge design fits and complements the cityscape of the surrounding zone that is subject to area monument protection and connects to the protected elements of the Set of Railway Bridges on the Prague Main Railway Station - Prague Smíchov Railway Line (Reg. No. ÚSKP 101315), which the design will recommend to preserve.

2.3.5. The proposed design must respect the requirements for barrier-free access to structures as defined by Decree No. 398/2009 Coll., on the general technical requirements ensuring barrier-free use of structures. The design of the new railway stop must meet the requirements of Commission Regulation (EU) No 1300/2014 of 18 November 2014 on the technical specifications for interoperability relating to accessibility of the Union's rail system for persons with disabilities and persons with reduced mobility.

2.3.6. The participants are encouraged to include in the draft design the guardhouse (Plot No. 288, cadastral area of Vyšehrad) (note: this guardhouse is part of cultural monument Reg. No. ÚSKP 50534 / 1-2274, Vyšehrad Railway Station).

2.4. Requirements for Architectural Design

2.4.1. The design shall meet the requirements for good orientation of passengers in all types of public transport.

2.4.2. The design will address the layout and details of the new train stop with the necessary equipment according to Decree No. 177/1995 Coll., which defines the technical and construction rules for railways, as amended (see Section 21 (2) to (4)). Due to the requirements of monument protection, any roofing or overhang structures to protect the stop and access roads from weather will not feature a multi-storey design.

2.4.3. The design of the railway bridges across the Vltava River will fit and complement the nature of the area and observe the long-distance visual axes.

2.4.4. An important element of the proposed design shall also be taking into account the existing nature of the Vltava River embankment (in particular the right bank) and the impact of the three-track railway bridge on the quality of this area.

2.5. Requirements for Technical Design

2.5.1. The Contracting Authority provides that the following layout variants can be considered for the three-track bridging of the Vltava River:

- Variant 2 + 1 (two tracks on one bridge and one track on the other bridge);
- Variant 3 + 0 (three tracks on a single bridge).

The Contracting Authority further provides that only one of the above variants must always be worked with in a single draft design. The variant chosen must meet all the other requirements set by the Contracting Authority, including the requirement to preserve the substructure of the existing bridge across the Vltava River.

2.5.2. The Contracting Authority sets as the basic parameters of all railway bridges the following:

- The design and review of steel structures will be performed in accordance with the ČSN and ČSN EN 199x series of standards, in terms of bridges, the line is classified as a class 2 line (ČSN EN 1991-2 / Z4);
- Where bridges and their parts will be preserved, the Contracting Authority requires Zuic>=1,0 (according to the Czech Methodological Guidance for determining the load-bearing capacity of bridge structures, as amended, or, once published, compliant with the Czech Regulation SŽ S5/1 Diagnostics, load-bearing capacity and passability of railway bridge structures, without using reliefs in accordance with Chapter F and G), due to extraordinary transports;
- All details of the steel structure must allow proper implementation of corrosion protection with a service life of VV (more than 25 years) and its renewals, must facilitate smooth drainage of water and prevent the accumulation of dirt - the recommendations and requirements shall be observed of ČSN EN 15520 and ČSN EN ISO 12944-3;
- Residual service life of any retained structures at least 90 years;
- The bridge clearance will be determined in accordance with ČSN 73 6201 (VMP 2.5 for all bridges);
- Minimum distance between track centres on the bridge 4.0 m.

2.5.3. Of the existing bridge across the Vltava River, the current pillars must be preserved. They can be meaningfully extended or added in height as an option. The existing pillars in the Vltava River must remain part also of a new construction.

2.5.4. Part of the proposed design is also the construction phasing draft, with drawings and descriptions of the individual construction and transport phases, including the duration of all traffic restrictions in the area.

2.5.5. The proposed design must not interfere with the existing underground route of the Botič stream, which mouths the Vltava River south of the bridges.

2.6. Requirements for Railway Design

2.6.1. The railway line will be designed with three line tracks, with no connection to other railway lines within the area concerned. At the edges of the area concerned, the draft design will connect to designs according to documents for the adjoining construction projects ("Reconstruction of the Prague Main Station (outside) - Vyšehrad (inside) Railway Line" and "Reconstruction of the Prague-Smíchov Railway Station") - data from the documents currently under preparation concerning these construction projects are included in Annex **P05** to the Tender Documentation.

2.6.2. The proposed design must allow a track speed of at least 70 km/h. The expected frequency of trains is expected to be about 450 pairs of passenger trains daily, with freight trains being a marginal occurrence. The daily turnover at the new stop in the Výtoň area is expected at about 3,500 passengers.

2.6.3. The new stop will be located in the Výtoň area, and will have boarding edges at all tracks. Due to the needs of traffic control, one platform will be designed as an

island to the extent possible. The minimum length of the platform edge will allow traffic of trains of up to 220 metres in length. The width of the platform is defined by standard-based values (see ČSN 73 4959, Platforms and platform shelters on national and regional railways).

2.6.4. Access to the railway platform can also be designed with a pair of escalators in addition to a fixed staircase with sufficient capacity and a barrier-free/stepless path designed as a lift or as a sloping sidewalk with parameters set out in Decree No. 398/2009 Coll. There is a requirement concerning barrier-free access that it should not be provided with one lift only due to its possible failure. Access routes to the platform from public roads designed as stairs and escalators should be sheltered from rain. The requirements for the dimensions and other parameters of lifts and escalators are detailed in the regulation SŽ S10.

2.6.5. The bridge structure will allow routing cables on both sides of the structure (a cable tray is presumed with a total of 9 chambers). The routing of cables will be designed to protect them from damage and will comply with applicable regulations.

2.6.6. In recognition of the difficult conditions in the area, the Contracting Authority does not impose a requirement for a continuous gravel bed, a fixed track or direct fastening of the tracks on the bridge. Given the frequency of use of the track and its importance, only rail fastening systems approved in the Czech Republic and verified in operation can be used in the draft design.

2.6.7. The draft bridge design must allow compliance with the requirements for noise pollution in the area in accordance with the Czech Government Regulation No. 272/2011 Coll., Against the adverse effects of noise and vibrations. The Contracting Authority does not impose specific requirements for how to ensure noise protection and allows all technical solutions. The expected volume of railway traffic and the defined track speed requirement must be observed.

2.6.8. The long-welded rails will be designed as part of the proposed design.. The Contracting Authority prefers a solution without rail expansion devices. If necessary, it will be designed in accordance with applicable regulations.

2.6.9. The traction line will be designed for the existing 3 kV DC traction system and must allow prospective conversion to 25 kV 50 Hz AC traction. Insulation distances must be designed for the AC traction system.

2.7. Requirements for Tram Traffic Solution

2.7.1. The tram line in Svobodova Street will be modified according to the new layout of the Výtoň area in connection with the addition of the third track in the railway bridge across the Vltava River.

2.7.2. The minimum underpass clearance (separate lanes for trams and road traffic are considered) under the railway bridge is set at 4.5 meters in the lane for trams (see for more details ČSN 28 0318 and ČSN 33 3516). To observe this clearance height, it is not possible to lower the height of the tram track through earthworks (due to collision with the underground flow of the Botič stream).

2.7.3. The expectation is for the existing arrangement of tram stops to be retained; in connection with the proposed design, their positions may be adjusted.

2.8. Requirements for Road Design

2.8.1. The Task Specification includes a proposal for a change in the organization of road traffic within the scope of Svobodova and Vnislavova Streets so as to enable the tram line in Svobodova Street to be retained while at the same time accommodating the bridging of the Vltava River with three tracks.

2.8.2. The design will include a new proposal for the organization of road traffic within the area concerned on the right bank of the Vltava River.

2.8.3. Due to the needs of railway transport, the Contracting Authority requires that 3 to 5 kiss-and-ride parking spaces be created near the entrance to the railway stop. There are no other requirements concerning idle traffic for rail transport.

2.8.4. As part of the proposed design, compliance with underpass clearances according to valid standards is required - on Rašínovo nábřeží 4.20 meters (plus the standard-based reserve of 0.15 m) in the lane for road traffic, on Hořejší nábřeží as well and at the junctions of Vnislavova and Svobodova Streets according to the chosen traffic design so that at all times in at least one route in the Vyšehrad direction and in the direction of Na Slupi Street from Rašínovo nábřeží, an underpass clearance of 4.20 meters, plus a reserve of 0.15 meters, can be reached.

2.8.5. The Contracting Authority draws attention to the necessity to use standard road surface materials in the area due to the requirements of monument protection.

2.8.6. Cycling routes using the bridge should be designed without the need to dismount the bike to traverse height differences.

2.8.7. The proposed design must observe the requirement to keep the existing staircase from the embankment.

2.9. Requirements for Water Traffic Solution

2.9.1. The proposed design of the bridge structure must comply with statutory requirements concerning water traffic, and must not worsen the current situation.

2.10. Requirements for Construction Phasing

2.10.1. It must be possible to implement the proposed solution in a single construction project so that public transport disruptions are limited to the extent possible.

2.10.2. The Contracting Authority requires for the solution be designed in such a way that it is possible to maintain railway traffic on at least one track with the shortest possible traffic interruptions (i.e., with full exclusion of railway traffic only for connecting works between construction stages).

2.10.3. The Contracting Authority does not prefer the installation of a temporary railway bridge across the Vltava River.

3. LOCATION

3.1. General Characteristics of the Location

3.1.1. The location of the area concerned is on the historical boundary between the Nové Město and Vyšehrad districts. In 1871, a bridge was built here on the railway line between the then Emperor Franz Josef railway station (now Prague main railway station) and the Smíchov railway station. This line was later double-tracked and in 1900-1901 the original single-track bridge as well was replaced by the current structure. Later on, the track was electrified and on the occasion, adjustments were made to the bridge structure.

3.1.2. The location the area concerned is a part of is in terms of links to the surrounding areas stabilised. No changes in the links to the surrounding areas are expected, except a boost to the importance of the location as a transport hub with the new railway stop.

3.1.3. The location is subject to area monument protection as part of a UNESCO world

heritage site, as part of the city monument reserve and as a part of protection zone of the Vyšehrad National Cultural Monument.

3.1.4. In contrast, the areas on the left bank of the Vltava River are currently in terms of development in a state of flux, which must be seen not least within the context of the planned overall redesign of the Smíchov district in the zone of Na Knížecí Street - Smíchov railway station.

4. INTENTIONS

4.1. Urban Planning Documentation

In the valid zoning plan of the Prague metropolitan urban planning unit, the area for railway bridge across the Vltava River in the place of the Railway Bridges under Vyšehrad is delimited with the area of the existing bridge, with extension for a third track on the side downstream the river, i.e., northwards of the current bridge. Information on the zoning plan of the Prague metropolitan urban planning unit, including drawings of the zoning plan, is available at: http://www.iprpraha.cz/platnyplan.

4.2. Planned Developments in the Territory

Within the area concerned as defined above, the Contracting Authority is not aware of any other planned developments than the structures under the project connecting to the Railway Bridges under Vyšehrad. In close vicinity of the area concerned, on the left bank of the Vltava River, there are the premises of CIPA Store (international food store), which is planned for reconstruction, so this area needs to be accepted as is without the possibility of intervention. The aim of the municipal authorities of Prague is to create using the railway bridge across the Vltava River a new cycle route connecting both banks of the river with the possibility of a grade-separated crossing of Hořejší nábřeží, Svornosti and Nádražní Streets that uses the existing abandoned railway embankment between Svornosti and Nádražní streets, including the abandoned railway bridge across Nádražní street ("northern bridge" at km 3.155, "Hřebík", closer to U Železničního mostu Street).

5. SUMMARY

This is a Competitive Dialogue the result of which has a substantial impact on the UNESCO World Heritage Site Historic Centre of Prague (Ref. No. ÚSKP 1).

At the same time, it is a Competitive Dialogue that addresses the cultural monument Set of Railway Bridges on the Prague Main Railway Station - Prague Smíchov Railway Line (Reg. No. ÚSKP 101315) located in the zone of the city monument reserve Prague (Reg. No. ÚSKP 1028) and also in the area of the protection zone of the Vyšehrad National Cultural Monument (reg. No. ÚSKP 3477).

It is necessary to resolve the shape and connections of the three-track railway bridge across the Vltava River in the place of the existing double-track bridge, which is part of a protected cultural monument.

The proposed design must connect to the adjacent projected railway structures on the Prague main railway station - Prague Smíchov line.