

## TERMS OF REFERENCE

For the Preparation of Technical Documentation of Conceptual Design, Design for Construction Permit and Main Design for Protection from Erosion and Torrents in the Jablanica River Basin

### 1. INTRODUCTORY NOTES AND ISSUES

The Jablanica River is a left tributary to the Južna Morava which it joins at the village Pečenjevac. It is fed by the Golema and Tularska rivers' that merge at the village Maćedonci, springing from the foot of Mountain Goljak. The largest tributaries to the Jablanica River are the Šumanska River, Gajtanska River and Lapaštica.

- The river basin's area covers  $A = 895 \text{ km}^2$
- The main watercourse length is  $L = 83,2 \text{ km}$
- Typical discharges are as follows:
  - $Q_{1\%} = 293 \text{ m}^3/\text{sec}$
  - $Q_{2\%} = 257 \text{ m}^3/\text{sec}$
  - $Q_{5\%} = 209 \text{ m}^3/\text{sec}$

The formative tributaries are running through mountain land and have a big fall, gorge-like ravines and numerous rapids. Jablanica itself has similar features in its course to Lebane, i.e. to the entrance to the Leskovac Basin. In the Leskovac Basin it runs through a wide and shallow valley, with a slight fall and many a meander. Jablanica is a torrent carrying an enormous amount of material. It is the largest drying river (completely dries up over the summer and wintertime) in Serbia, and one of the biggest in Europe. The discharge itself is pretty unequal.

The Jablanica River used to overflow its bed quite often (1986, 1976, 1966...) and flood arable land, destroy carriageways, bridges, causing considerable material damage. The biggest, the most disastrous flood on this river took place in 1976, and it is believed that the discharge approximated the discharge of a hundred-year high waters. A defensive embankment was penetrated, in the vicinity of the Čenovački Bridge, where large areas were flooded and a number of facilities torn down.

The general condition of the Jablanica river basin is characterized by the following:

- a prominent intensity of erosive processes in higher basin's segments,
- an unfavourable pluviometric regime,
- a scarce autochthonous vegetation,
- a torrential character of the main watercourse and its tributaries.

### 1.2. Works performed on arranging the bed and basin of the Jablanica River

Regulation of the Jablanica riverbed was done in parts, on several occasions, according to the following documentation:

- a part of regulation downstream from the Niš-Skoplje motorway, approximately 900 m long was completed in 1963/64 for the purpose of protecting the motorway and the tower of power line located at the beginning of the regulation. This regulation was done completely (minor riverbed and defensive embankments). The minor riverbed is 30 m wide at the bottom, the inclination of banks 1:1.5 and the height to the foreland 2.1m, the width of foreland 20 m, the fill-in height in foreland 1 m and reinforcement of the embankment crest 0.60 m.
- for the needs of SIZ of the water management “Main Design of Regulation of Južna Morava from the bridge on the route Brestovac-Gadžin Han to the confluence of Jablanica and Jablanica from the confluence to the existing regulation“ was done in December 1984 by the designer VO “Velika Morava“ Belgrade. The regulation was designed to receive high waters  $Q_{5\%}=220 \text{ m}^3$  and reference waters  $Q_{2\%}=263\text{m}^3$ . The profile with the bottom width of 30 m was approved, inclination of banks 1:1.5 and height to foreland 2.1m, width of foreland 20 m, fill-in height in foreland 0.80 m and reinforcement 0.15 m, or 3.1 m. Embankments are about 1m high, with the inclination of banks 1:2, width at the top 2.5 m. The friction coefficient (the Manning’s one) for this section was approved at  $n_{gl}=0.03$  i  $n_i=0.035$ . A transitional section was envisaged for the embankment over 100 m length, for the purpose of adjusting to the existing regulation. A longitudinal fall of regulated riverbed was approved at 1.3 ‰. Regulation of Jablanica was made from the railway bridge to the Vinarce bridge (relative survey mark from 0+000 to km 12+210 (the Vinarce bridge) under the “Main Regulation Design“ made by VRO “Velika Morava“ Belgrade, in May 1990. According to this documentation, the riverbed was expanded, with stone linings of riverbed slopes, pilot holes and security concrete works in the area of KCM bridges were made (railway bridge, the bridge in Pečenjevaca (1+038-1+172), Živkovo (3+415-3+440 i 5+073-5+103), Priboj (7+180-7+200), Zalužnje (7+884-8+033) and Vinarce (12+094-12+210) whereby high water level was lowered. A trapezoidal profile was approved with reinforcement 0.25-0.30m. The regulation was designed to receive high waters  $Q_{1\%}=268 \text{ m}^3$  with reinforcement 0.25-0.3 m, and riverbed slopes lining for  $Q_{10\%}=169 \text{ m}^3$  at the places of minor riverbed linings. A profile with the bottom width of 26m was approved (with concrete banks) and 28 m with secured beaching. The depth of riverbed is 3.5 or 3.80 with reinforcement. The falls of regulated riverbed differ by section, and they equal 0.92 ‰ in the farthestmost upstream section, 1.17 - 1.44 ‰ in the midstream section, and 1.17 ‰ in the farthestmost downstream one. Minor riverbed had linings placed at more than 60 sites, and some 35 cut-offs were constructed.
- Regulation from Vinarce to Turekovac was made at some 8 km length, in 1980, where fortified embankments were made of broken stone, beaching and cut-offs.
- "The main design of protecting the City of Leskovac from torrential waters of the Jablanica River“ was prepared by the designer - Centre for Water Supply Technologies "Hidrosanitas“ Belgrade, in June 1977. According to this documentation, a minor riverbed is around 30 m wide, and from the axis of the riverbed regulation to the axis of embankment around 60 m.

The information about referential discharges from the said 1977 design are as follows:  $Q_{sr}=4.47 \text{ m}^3/\text{s}$ ,  $Q_{2\%}=257 \text{ m}^3/\text{s}$ , and  $Q_{1\%}=293 \text{ m}^3/\text{s}$ .

- A right-bank embankment was constructed at Gornje Stopanje, at the confluence of new Hisar Channel 1 km long, width at the top of embankment 2 m, inclination of riverbed slopes 1:2. There is a tube-like outlet  $\varnothing$  800 mm with a mica flap. There is also a belt along the embankment of 4m width, from the outer side. Alongside the new Hisar Channel there are reinforcement embankments on both sides  $2 \times 2.7 \text{ km}$ , inclinations of riverbed slopes from the outer side 1:1.5 and from the inner side 1:1,3m wide at the top of embankment.
- A right-bank embankment was constructed from Vojlovac to Čenovački Bridge of 4,735 km length, width at the top 2m and inclination of riverbed slopes 1:1.5. This embankment was overflown in 1965, after which its partial reinforcement was made only along the top, and based on the high water trails. After the big flood of 1976, when a disastrous flood afflicted Lebane and Leskovac, this embankment was reinforced again (in 1986) from the foot of outer and inner riverbed slope, about 0.5 m on average, so that the embankment reached the width at the top of 1.5 m, and inclination of riverbed slopes 1:1. This reinforcement was made only from km 0+000 to 1+500.
- After a disastrous flood in June 1976, regulation works were executed under the "Main design of regulation of the Jablanica River through Medveđa". The design was made by VRO „Velika Morava“, Belgrade, the Erosion and Torrent Waters Department in June 1982. Under this design, regulation was made from km 0+837.10 to cut-off at km 2+240.62 i.e. about 200 m upstream from Bogdanovački (Gvozdički) creek in the period 1982-92. Typical discharges for the Jablanica River, computed by the method of predominant factors, in the documentation equal  $Q_{1\%}=258 \text{ m}^3/\text{s}$ ,  $Q_{2\%}=219 \text{ m}^3/\text{s}$  for the section from the confluence of the Lapašnička River downstream, or  $Q_{1\%}=209 \text{ m}^3/\text{s}$ ,  $Q_{2\%}=177 \text{ m}^3/\text{s}$  for the upstream section. Under this project, regulation of the Jablanica River was envisaged from km 0+000 to km 3+505.77 (relative survey mark) and it is divided in two sections. The first section covers the Jablanica riverbed from the confluence of Lapaštica downstream, where the discharge profile was approved for  $Q_{1\%}=258 \text{ m}^3/\text{s}$ , designed regulation fall  $J=0.004$ , the width of the minor riverbed bottom 20 m, depth of minor  $h=1.2 \text{ m}$ , width of foreland 4.3 m, depth of foreland  $h=1 \text{ m}$ , inclination of riverbed slopes 1:1, total width of regulated riverbed 33 m. At this section, 6 belts were designed, without useful height, at the beginning and end of curves. The second section covers the riverbed from the confluence of Lapaštica upstream where a discharge profile was approved for  $Q_{1\%}=209 \text{ m}^3/\text{s}$ , the designed regulation fall  $J=0.004$ , width of the minor riverbed bottom 20 m, depth of minor  $h=1 \text{ m}$ , width of foreland 3 m, depth of foreland  $h=1 \text{ m}$ , inclination of riverbed slopes 1:1, total width of regulated riverbed 30 m. 9 belts were designed in this section, without useful height, at the beginning and end of regulation curves.
- The works on regulation of the Lapašnička River were executed under the "Main design for arranging river basin, riverbed and regulation of lower course of the Lapaštica River from km 0+000 to km 1+270,80“, prepared by SOUR "Srbijavode“, VO "Velika Morava“, the Erosion

and Torrent Arrangement Department from Belgrade, in April 1982 and these works were performed from the junction with Jablanica to PR 20 i.e. to the kindergarten. Typical discharges for the Lapašnička River are computed by the method of predominant factors and equal  $Q_{1\%}=74.36 \text{ m}^3/\text{s}$ , or  $Q_{2\%}=61.16 \text{ m}^3/\text{s}$ . A discharge profile was approved for  $Q_{1\%}=74 \text{ m}^3/\text{s}$ , the designed regulation fall  $J=0.008$ , the width of the minor riverbed bottom 6 m, depth of minor  $h=1\text{m}$ , width of foreland 3 m, depth of foreland  $h=0,7 \text{ m}$ , inclination of riverbed slopes 1:1, total width of regulated riverbed 15.4 m. The distance between the belts and cascades is  $L=100\text{m}$ .

- The spring for water supply of Medveđa is situated some 400 m upstream from the end of regulation (Batakovići settlement). For the needs of protecting the spring, or the facility, regulation works were executed in the length of some 250 m on the left bank of Jablanica. The executed works were adjusted to the regulation elements approved in the aforementioned "Main design of regulation of the Jablanica River through Medveđa". The design was developed by VP "Velika Morava" in 2001, Beograd.
- After a disastrous flood in June 1976, the "Main design of regulation of the Jablanica River through Lebane" was developed. The design was prepared by VO "Vranje" of Vranje, in 1977. According to this design, regulation was made along nearly the entire section envisaged by the design, i.e. around 2 km. The designed and executed regulation is a biconvex riverbed, with the designed regulation fall  $J=2.85 \text{ ‰}$ , with the inclination from the bank towards the axis of regulation 1:3, the width of the minor riverbed bottom 30 m, the depth of minor  $h=15 \text{ m}$ , the width of foreland 5 m, the depth of foreland  $h=2 \text{ m}$ , the inclination of riverbed slopes 1:2 both in minor and foreland, total width of regulated riverbed 52 m. Typical discharges for the Jablanica River, according to this documentation are  $Q_{1\%}=270 \text{ m}^3/\text{s}$ ,  $Q_{2\%}=200 \text{ m}^3/\text{s}$ ,  $Q_{sr}=4,0 \text{ m}^3/\text{s}$ .
- Due to large width of the minor riverbed and low speeds, the river meanders and a large amount of sediments is accumulated. Therefore, in 2000, the design for the preparation of channel was made in minor riverbed between two main bridges, i.e. from km 44+861 to km 45+212. The works on this design have not been executed. This documentation suggested a construction of torrential barriers on right tributaries to the Šarački creek, Poroštički creek and the Lapaštička River.
- In the "Main design with a prior justifiability study, of arranging Južna Morava from Grdelica to the junction with Zapadna Morava" made by the Institute for the Development of Water Resources "Jaroslav Černi" a.d. Beograd, in December 2005, maximum annual discharges for the Jablanica River were provided :  $Q_{0.01\%}=390 \text{ m}^3/\text{s}$ ,  $Q_{0.1\%}=328 \text{ m}^3/\text{s}$ ,  $Q_{1\%}=250 \text{ m}^3/\text{s}$  and  $Q_{2\%}=224 \text{ m}^3/\text{s}$ .
- Among significant works on the tributaries in the Jablanica river basin regulation of the Banjska River in Sijarinjska Banja was performed. In the middle and upper watercourse section, biological works were performed such as afforestation and grassing of eroded areas.
- The Šumanka riverbed, passing through Lebane, is regulated from its confluence to Jablanica, further upstream in the length of some 800 m.

- In the Šarački creek, barriers from double wattle works were made in 2015, in the length of 30m`.

### 3. GOALS AND TERMS OF REFERENCE

- The designed works aim to protect the river basin from erosion and prevent the torrential floods with the application of the *Concept of Integral Development of Torrential Sub-river Basins*. The designed works should include biological, bio-technical and technical works.
- The biological works should involve the combination of the basic elements of vegetation: grass, shrubs and tall vegetation in order to prevent the erosion of the surface layer, reduce the surface runoff and increase the forest coverage coefficient.
- Bio-technical works, depending on topographic conditions and geo-mechanical characteristics, should involve the possibility to terrace the sides of valleys, to make steps, contour trenches, wattle-works etc.
- Technical works should involve the construction of depository-consolidation barriers, gabion barriers, thresholds, cascades, line regulation structures etc. In case there is a need to design technical works in the river bed itself, the planned structures should be tied up to the existing regulations and structures, and the project documentation should be harmonized with the existing technical documentation for the development of the Jablanica river-bed.
- Terms of reference involve the production of technical documentation for the Main Design for Protection from Erosion and Torrents in the Jablanica river basin. Before the Main Design there should be the production of technical documentation for the Conceptual Design in order to obtain the location requirements and then comes the Design for Construction Permit for Protection from Erosion and Torrents in the Jablanica river basin in order to get the construction permit.

### 4. MAPS FOR DESIGN

#### 4.1. Existing technical documentation

- “Main design of regulation of Jablanice from the Railway Bridge to the bridge in village Vinarce, from km 0+000 to km 12+210”, designer VRO “Velika Morava” Beograd, May 1990
- “Main design of regulation of Južna Morava from the bridge on the Brestovac-Gadžin Han road to the confluence of Jablanice, and Jablanica from the confluence to the existing regulation”, designer VRO “Velika Morava” Beograd, December 1984.
- “Main design of regulation of the Jablanica river through Lebane“, designer VO “Vranje“ from Vranje, 1977.
- “Main design of regulation of the Jablanica River through Lebane“, designer VO “Vranje“, 1977, Vranje.
- “Main design for arranging river basin, riverbed and regulation of the lower watercourse of the Lapaštice river from km 0+000 to km 1+270,80“, designer SOUR “Srbijavode“, VO “Velika Morava“, Department for erosion and torrents from Belgrade, April 1982.

- “Main design for the protection of the City of Leskovac from torrential waters of the Jablanica River and waters from the Hisar Mountain slopes”, designer – Centre for Water Supply Technologies “Hidrosanitas” – Beograd and Utility Business Company “Kompred” – Leskovac, June 1977.
- “Main design of regulation of the Jablanica River through Medveđa“, designer - VP “Velika Morava" 2001, Belgrade.
- “Conceptual design of a complex use of water of the Šumanka river, designer – Institute for the Development of Water Resources “Jaroslav Černi“ a.d, 1995, Belgrade.
- “Preliminary design, dams and accumulations Ključ, designer the Institute for the Development of Water Resources “Jaroslav Černi“ a.d., 1999, Belgrade.
- “Main design, dam and accumulation – Key Phase I – pre-dam“, designer the Institute for the Development of Water Resources “Jaroslav Černi“ a.d., 2000, Belgrade.
- “Main design for the protection from erosion and arrangement of torrential courses of the Poroštički creek and Lapaštica river Lebane“, designer the Institute for the Development of Water Resources “Jaroslav Černi“ a.d., 2000, Belgrade.
- “Main design of regulation of the Grbički creek on the section through the town of Lebane“, designer the Institute for the Development of Water Resources "Jaroslav Černi“ a.d., March, 2007.
- “Main design for the anti-erosion protection and arrangement of torrential course of the Šarački creek Lebane“, designer the Institute for the Development of Water Resources “Jaroslav Černi“ a.d., June, 2006.

## **4.2. Survey maps**

Survey maps should be made in accordance with the current regulations in order to provide the data for the design and execution of works on the structures. For production of technical documentation in question the cadastral and topographical plans will be used at the appropriate scale, to show the position of the structures: technical, bio-technical and biological and the detailed layout drawings for the design of structures.

### *4.2.1. Survey maps for designing technical works*

In designing technical works (longitudinal and cross-section ones) it is necessary:

- to set an operative polygon along the right or left bank (according to the situation on the ground) of the treated river section, whose breaking points should be linked to the network of state-made surveying.
- to survey, from polygon points, approximately vertically relative to the existing watercourse, cross-section profiles at 20m distance by breaking point of the terrain, water indents, the largest riverbed depths and by high banks, including the width of some 40 m (20 m to the left and to the right of the axis of the existing watercourse).

- based on the data about recorded detailed points to draft a layout plan, i.e. to map the surveyed detailed points and to form a detailed layout showing the riverbed by water indents and banks for positions, for all riverside facilities.
- The layout plan must involve cadastre lots. In particular, the layout should feature the water land. All points should be linked to the state-made survey.
- elevation points of water system, sewerage, ptt cables and any other installations, if any, must be drawn on the layout and cross-section profiles. The following facilities should be surveyed in detail: local and forest road, ducts etc.

#### 4.2.2. *Survey maps for designing bio-technical works*

When designing bio-technical works, it is necessary to provide the exact location (xy-coordinates) for the planned facilities on the layout plan (cadastre-topographic map).

#### 4.2.3. *Survey maps for designing biological works*

While designing the biological works it is necessary to show the surface area on which the protective biological works of afforestation and grass cultivation are planned on the layout drawing (cadastral-topographic map). For designing the biological works on the state-owned land (forest and agricultural land) the planning documents should be used (The Fundamentals of Forest Management and Agricultural Land Management Plans).

### 4.4. Geological maps

For preparing technical documentation, at the places of future barriers, a drill or excavated pitfall should be made, of up to 3m depth from the existing bottom of the riverbed. For separated lots – layers, samples should be taken and the same should be examined in a laboratory. Interpretation of the received results on geo-technical features of the relevant lots, should be presented in a separate study as an integral part of the erosion and torrent protection documentation in the Jablanica river basin. Geotechnical study should contain:

- a layout and explanation of the research works program
- a detailed overview of the lab examination results,
- an overview of geological and hydro-geological terrain characteristics,
- an overview of geotechnical terrain characteristics on the locations of designed facilities,
- a calculation of static and filtration soil stability and defining conditions for foundation engineering and the construction of technical facilities for erosion and torrent protection.

### 4.5. Hydrological maps

For the needs of preparing technical documentation, it is necessary to make a hydrological calculation of high waters of various reversion period for the water courses within the Jablanica river basin. This calculation should be made by latest methods for non-studied basins by using a

solid set of data from the closest precipitation measuring stations, for  $Q_{1\%}$ ,  $Q_{2\%}$  and  $Q_{5\%}$ . For the computed water  $Q_{1\%}$  should be approved. The obtained results require the opinion of the Republic Hydro-meteorological Service (RHMZ) of Serbia.

#### **4.6. Hydraulic maps**

Based on the developed surveying, geological and hydrologic maps, as well as the obtained and required opinions, terms and consents from the competent institutions, a hydraulic calculation should be made, along with a prior analysis of the existing terrain and facilities on the route concerned, for the computed high water. Based on the calculated level of water and longitudinal falls, facilities for retaining bed load should be designed, as well as stabilization of the river bottom, bearing in mind the features of the Jablanica River, the damages caused by torrential waters and sediments.

### **5. ACTIVITIES ON DRAFTING DESIGNS AND THE CONTENT OF DESIGNS**

#### **5.1. Conceptual design**

Conceptual design for the erosion and torrent protection in the Jablanica river basin should comprise the following:

- Main book of conceptual design consisting of the main content from Attachment 1, *the Rules on the content, method and procedure of preparing and controlling of technical documentation as pre the class and purpose of facilities* (“Official Gazette of RS“, no. 23/2015):
  - Information regarding the name and address of the Investor carrying out the facility construction
  - Abstract from the court register for the company that produced the design
  - Design authorizations for the persons who took part in the preparation of the design
  - A decision on determining chief and responsible designer
- General documentation of the Conceptual Design consists only of the mandatory content as determined in Article 28, Schedule 9, of the *Rulebook*.
  - Textual documentation of the Conceptual Design contains a technical description of designed facilities
  - Numeric documentation of the Conceptual Design contains a layout of areas of facilities indicating purpose and number of functional units
  - Graphical documentation of the Conceptual Design contains graphic schedules in a relevant scale:
    - a layout plan including the position of facilities on a location, shown size, dimensions, typical elevation points, distance from neighbouring lots and facilities (1:1000–1:200),
    - bases, typical cross-sections and appearance of facilities (1:500–1:200).

- Graphic documentation of conceptual design for linear regulation facilities contains graphic schedules in relevant scales:
  - site plan and longitudinal route profile (1:25000–1:2500),
  - general dispositions of large facilities,
  - typical cross-section profile (1:100–1:25).
- Conceptual design for engineering facilities contains such parts that are required for issuing location requirements, according the rules of profession.
- Obtaining the entire documentation (location-related information, copies of the plan, certificates of title, cadastre and topographical plans, etc.) required for issuing location requirements.
- Obtaining of location requirements.

## **5.2. Design for Construction Permit and Main Design**

Design for construction permit is developed in order to obtain the decision on construction permit. The design for construction permit has to contain the statement of the main designer, responsible designer and the person executing technical control, confirming that the design was done in accordance with the location requirements, regulations and rules of profession.

Main project is developed for executing the construction works. The main design is a set of harmonized designs determining construction, technical, technological and exploitation features of the structure with equipment and installations, technical, technological and organisational solutions for the construction of structure, investment value of the structure and conditions for maintenance of the structure. The main design has to contain the statement of the main designer and responsible designers confirming that the design was done in accordance with the location requirements, construction permit, design for construction permit, regulations and rules of profession.

Design for Construction Permit and Main Design for Protection from Erosion and Torrents in the Jablanica river basin should contain:

- General documentation for the design,
- Terms of reference verified by the Investor,
- Textual documentation:
  - Technical report:
    - Description of river basin and river bed
    - Basic parameters of the river basin
    - Overview of the main problems in the river basin, on the main watercourse and tributaries
    - Hydrographic features of the river basin (hydrographic map)
    - Geological features of the river basin (geological map)
    - Pedologic features of the river basin (pedologic map)
    - Manner of soil usage (Map of soil usage)
    - Erosion in river basin (Map of erosion)
  - Bill of quantities - BoQ

- Estimated BoQ
- Technical conditions for execution of works
- Numerical documentation:
  - Coordinates and levels of geodetic points that will be used during the construction
- Workplace safety measures
- Measures for prevention of negative impacts on the environment in the period of works execution
- Survey maps (topographic - cadastral maps)
- Clear map of the area at the scale of 1: 25 000
- Hydrologic calculation (maximum water discharge)
- Calculation of production and carrying through the sedimentation
- Concept of designed solutions with explanation for adopted solutions for protection from sedimentation
- Order of executing works
- Graphic annexes:
  - Layout drawing, scale of 1:1000
  - Longitudinal section, scale of 1:100/1000
  - Cross section, scale of 1:100
  - Drawings of transverse structures scale of 1:100
  - Structure details, scale of 1:20

**NOTE:**

- The investor does not possess other technical documents set forth in section 4.1. of the existing technical documentation. **The investor had an insight into the said technical documents during his work on specific matters. It is presumed that technical documents are held with local governments and competent public enterprises in charge of the tasks from this scope.**
- Based on the referenced designs, technical works have not been executed thus far, but only a part of biological protective works of afforestation in the basin and preparation of bio-technical protective works – wattle works. The basin of the Šarački creek, Grbički creek, Poroštički creek and Lapaštička River, represent torrential sub-basins of the Jablanica River. Given that anti-erosion protection designs have already been developed for these basins, novation of the existing technical documents will be done for these basins through newly designed works for the Jablanica River. Technical audit was performed for the subject designs, and Reports can be taken over from the Investor. For the ‘*Main design of protection from erosion and arrangement of torrential courses Poroštički creek and Lapaštička river Lebane*‘ a negative Report on technical audit of the design was delivered. For technical documents of the ‘*Main design of regulation of the Grbički creek on the section through the town of Lebane*‘ and ‘*Main design for anti-erosion protection and arrangement of torrential course Šarački creek Lebane*‘ a positive Report on Technical Audit was delivered, accompanied with a note that it is necessary to make some minor amendments.

- All necessary requirements for design stipulated in the Law on Planning and Construction, will be obtained by the designer on behalf of Public Water Management Company “Srbijavode” at his own expense, which involves the preparation and submission of request and production of offprints and documents needed to get the requirements, opinions and consents that they will obtain with authorization (proxy) issued by the PWMC “Srbijavode”. The costs of the document preparation will be calculated in the price of production of technical documentation through the specification of works compliant with the terms of reference.
- The financier is obliged to perform the technical control of project documentation after the production of technical documentation for the Design for Construction Permit so that after the commission for technical control provides a positive opinion the designer may continue to obtain other acts (water consent) and construction permits and start with production of the Main Design.

The Design is made in 6 printed copies and 2 digital copies on CDs. The digital copies are submitted so that one copy is in PDF format and the other contains the text in Word, tables in Excel, databases in Access, drawings in DWG and spatial data in Shape format. The design is accompanied by submitted originals of all collected requirements, consents, opinions, solutions and maps (copies of plans and certificates of title) during the production of technical documentation.

Deadline for the production of design is one year from the day of mutual signing of the contract for the production of design.

Niš,  
December, 2015

**Investor**  
Public Water Management Company  
“Srbijavode”, Belgrade

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