

VOLUME 3

TECHNICAL SPECIFICATIONS GENERAL

CONSTRUCTION SITE

FENCING AND SIGNBOARDS AT THE CONSTRUCTION SITE

The Contractor must maintain the security of its activities, including fencing of the construction site according to the regulatory requirements;

- 1) Construction site board prepared in accordance with the Law on Planning and Construction shall be placed on the temporary fence adjacent to the entrance gate to the site;
- 2) The Contractor shall provide the whole information concerning the regulations and procedures governing the use of local facilities for access, transport, storage facilities and in compliance with them to take measures for providing the necessary documents;
- 3) The Contractor shall be aware of existing restrictions and shall be responsible for their observance during construction;
- 4) The Contractor shall be liable for all damages on the existing infrastructure caused by him - they shall be repaired at its expense;
- 5) The Contractor will be responsible for ensuring the control of any access or the right to leave the boundaries of the construction site, so that it does not lead to interference with the locals or damage to public or private property as a result of the entry or exit of its employees and subcontractors;
- 6) The Contractor shall indemnify and hold harmless the Contracting Authority against any accusations arising from its failure to comply with the above point, including legal fees and costs.

TRAFFIC ARRANGEMENTS

The Contractor shall as far as required, comply with all requirements and recommendations of the Police and Authorities regarding traffic arrangements and road safety measures on public roads outside the construction sites.

The Contractor shall, where necessary, provide all barriers and traffic signs agreed by the Supervisor.

Traffic diversions, if necessary, shall be planned and arranged with the responsible Authorities by the Contractor and harmonized with the Supervisor. No diversion shall be implemented without a written consent of the responsible Authority and after given information to the Supervisor. Access to the site shall be available to vehicles of emergency services and residents in the areas.

All traffic signs and traffic control signals, as necessary and/or may be required by the Police Authority for the safe direction and control of the traffic shall be provided, placed and maintained by the Contractor on the appropriate sites and locations on the access to the sites. The location and size of all such signs and the lettering thereon shall be agreed by the Supervisor before placement of the signs.

The Contractor shall reposition, cover or remove signs as required during the progress of the works.

CONTRACTOR'S GENERAL RESPONSIBILITIES

MANAGEMENT OF THE PROJECT BY THE CONTRACTOR

- 1) The representative of the Contractor and its staff must possess experience and qualifications according to the contract, RS Law and type and scope of works;

APPROVAL AND INSTRUCTION BY THE SUPERVISOR

Where reference is made in this Specification, the Bills of Quantities or in the drawings for approval, instruction or direction, they shall be given by the Supervisor.

Approvals, instructions or directions by the Supervisor shall not relieve the Contractor from its liabilities and responsibilities under the Contract.

WORK PROGRAMME FORM OF SUBMISSIONS

The Work Programme presented by the Contractor shall consist of a detailed schedule of all construction works and phases. Once approved, the Work Programme shall be binding for the construction works on site.

WORK PROGRAMME

Pursuant to the requirements, the Work Programme to be submitted by the Contractor shall show the planned monthly rates of progress between the programme dates for commencement and completion of each major item or work for the various stages of construction, in accordance with the Conditions of Contract.

The Work Programme shall take into account climatic conditions, groundwater, geo-technical data, completion of critical components by the Contractor or other contractors, water supply service conditions and other conditions, to ensure the completion of the works in accordance with the Contract.

The Contractor shall not be permitted to commence any construction work on that part of the works until the Supervisor has no objection to the method statements, drawings and calculations. Sufficient time for approval of drawings materials and method statements must be allowed for in the Work Programme for each component.

CONTRACTOR'S DOCUMENTATION GENERAL

- 1) For design, works and supply use of metric units is compulsory.
- 2) All documents will be issued in English. Official documents, which are to be presented to state or municipality authorities, will be also issued in Serbian.
- 3) Works documentation (see Chapter 3.1.4.) will be in English and in Serbian, except Construction Log, which will be in Serbian.
- 4) Reports and correspondence documentation will be in English and in Serbian.
- 5) When submitted as computer files the documents shall be under Windows, compatible with following formats: texts in MS Word, Tables in MS Excel, drawings in ACAD, time schedules in MS Project.

WORKS DOCUMENTATION

The Contractor shall be liable to provide the Supervisor with due documentation as per local Regulations.

HEALTH & SAFETY AND ENVIRONMENT PROTECTION

HEALTH & SAFETY

GENERAL REQUIREMENTS

Without limiting the Contractor's obligations under the Conditions of Contract, the Contractor shall take all measures and precautions necessary to ensure the health, safety and welfare of staff, labour, and other persons authorised to be on the Site, as well as visitors and third parties. The Contractor shall prepare H&S Plan and develop detailed sequence and safety measures in the Organisational plan for the management and execution of the works.

The Contractor shall:

- 1) Fully comply with the *Law on Safety and Health at Work*.
- 2) Appoint a member of staff responsible for all matters related to health and safety for the duration of the Contract according to RS regulations.
- 3) Provide and maintain equipment in a safe working condition and adopt safe methods of work.
- 4) Adopt methods for the use, handling, storage, transport, and disposal of materials, and substances which are not injurious to health and safety.
- 5) Provide and maintain adequate lighting, signing, and fencing of the Works.
- 6) Provide adequate protective clothing and safety equipment, including such information, instruction, training and supervision as are necessary to ensure the health and safety of all persons employed on or entering on the Site in connection with the Works.

Safety equipment shall include but not be limited to:

- safety helmets,
- protective footwear with integral steel toe-caps,
- safety glasses, welding goggles and other eye protectors,
- ear defenders,
- safety harnesses,
- high visibility reflective vests,

– Fire extinguishers.

- 7) Provide and maintain access to all places on the Site in a condition that is safe and without risk of injury.
- 8) Provide and maintain adequate water, waste water and waste collection, for all offices, workshops, and laboratories erected on the Site.
- 9) Provide and maintain adequate sanitary units at locations where works are in progress.
- 10) Appoint a member of its staff to be responsible for the safety of the Works throughout any shutdown period and notify the Supervisor of the name and contact telephone number of the responsible person.
- 11) Report all accidents to the Supervisor and appropriate authorities at the time of occurrence or as soon as possible thereafter.

TESTING AND CERTIFICATION OF MECHANIZATION AND EQUIPMENT

- 1) The Contractor shall provide and maintain equipment for lifting, embedding and transporting materials and must comply with all relevant requirements of the standards in Serbia;
- 2) All equipment must be regularly maintained in accordance with the recommendations and standards of the manufacturer, according to local laws and recommendations of the relevant authority;
- 3) The Contractor shall prepare and update a register of certificates of testing of the equipment used on construction sites according to RS Law;
- 4) The Contractor must appoint competent personnel responsible for the operation of all kinds of equipment. They must provide evidence that they have passed training and have respective license for operating the specific equipment;
- 5) All the technological equipment (with test certificates) used on or around the site must be equipped with the necessary protective devices that will be in continuous readiness;
- 6) Should the Supervisor consider the Contractor's method of working unsafe or that there are insufficient or inadequate safety barriers or other devices or that there is insufficient safety or rescue equipment, the Contractor shall change its method of working or install or strengthen safety and rescue equipment if so instructed. Such instructions shall not relieve the Contractor of any of its responsibilities under the Contract.
- 7) The Contractor shall immediately notify the Supervisor about any accident that occurs, whether on site or off site, in which the Contractor is directly involved, and which resulted in any injury to any person whether directly concerned with the site or a third party. Such initial notification may be verbal and shall be followed by a written comprehensive report within 24 hours of the accident.
- 8) Transportation of any material by the Contractor shall be in suitable vehicles, which do not cause spillage when loaded, and all loads shall be suitably secured. Any vehicle shall be removed from the site, which does not comply with this requirement or any of the local traffic regulations and laws.
- 9) The Contractor shall ensure access to sites at all times to any authorised external institutes or experts carrying out safety inspections.

FIRE PROTECTION

During the performance of the Contract the Contractor shall make arrangements to the agreement of the Supervisor for the protection of the permanent works and any temporary works and any adjacent property from fire and, if required, it shall give the Fire Authority access to all facilities periodically to inspect the fire prevention arrangements.

Particular care must be exercised in connection with the operation of electric arc welding equipment, oxyacetylene cutting equipment and other processes involving the use of naked lights. Special arrangements will be necessary for the storage of highly flammable liquids on the site.

The Contractor shall remove all waste and material of a flammable nature and take other steps as the Supervisor may require but this shall not relieve the Contractor of any of its obligations under the Contract.

ENVIRONMENT PROTECTION

GENERAL

- 1) The Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the Works and all associated operations on or off site are carried out in conformity with statutory and regulatory environmental requirements.
- 2) The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Works. This shall be achieved wherever possible by suppression of the nuisance at source rather than abatement of the nuisance once generated.
- 3) The provisions of these Sub-Clauses shall only be disregarded in respect of emergency work required for the saving of life or property or the safety of the Works.
- 4) In the event of any spoil or debris or silt from the Sites being deposited on any adjacent land, the Contractor shall immediately remove all such spoil debris or silt and restore the affected area to its original state to the agreement of the Supervisor.

ENVIRONMENTAL PROTECTION DURING CONSTRUCTION PERIOD

The Contractor shall use such construction methods and shall maintain all borrow/stockpile/spoil disposal area so as to assure the stability and safety of the Works and any adjacent feature, to assure free and efficient natural and artificial drainage and to prevent erosion.

The Supervisor has the power to disallow the methods of construction and/or the use of any borrow/stockpile/spoil disposal area if in their opinion the stability and safety of the Works or any adjacent features are in danger, or if they disturb natural or artificial drainage, or if the method or use of the area will promote undue erosion.

Following excavation for the works, the Contractor shall take all steps necessary to complete drainage and slope protection works in advance of each rainy season. Erosion or instability or sediment deposition arising from operations not in accordance with the Specifications shall be repaired immediately by the Contractor at its expense. The Contractor shall also take all steps necessary to complete drainage in advance of each winter rainy season in the areas excavated for borrowing materials.

Notwithstanding approval of the intended method of working, the Contractor shall at all times be responsible for constructing the earth works in accordance with the Specifications, the Design and drawings.

PREVENTION OF POLLUTION

The Contractor shall ensure that its activities do not result in any contamination of land or water by polluting substances.

The Contractor shall implement physical and operational measures such as: oil and grease traps in drainage systems from workshops, and service and fuel ingress and kitchens, the establishment of sanitary solid and liquid waste disposal systems, the maintenance in effective condition of the same assures, the establishment of emergency response procedures for pollution events, and dust suppression, all in accordance with normal good practice and to the agreement of the Supervisor.

ENVIRONMENTAL CONSIDERATIONS

The following environmental protection measures shall be observed during the execution of the construction of the works:

- **Demolition material** - Reuse of demolition materials as backfill for trenches and excavations or/and hard fill for construction foundations and roadways is possible, unless contaminated or hazardous materials such as asbestos are identified. The Contractor will be responsible for environmentally safe disposal of any material resulting from the demolition and other site materials with approval from the relevant local Authorities at a designated licensed disposal facility.
- **Excavated soil** - Reuse of excavated natural soil, which is free of cohesive components, salt, sulphate and/or clay materials, may be used as backfill for trenches and excavations. The Contractor will be responsible for environmentally safe disposal of surplus materials with approval from the relevant local Authorities at a designated licensed disposal facility.

- **Ground water** - Temporary and/or permanent groundwater lowering may be required. The Contractor shall apply appropriate dewatering measures as required and shall also ensure that adequate measures are implemented to control surface water discharge.
- **Air pollution** - Construction may give rise to dust and construction equipment exhaust emissions. Due note shall be taken of the proximity of residential housing to the works. The normal health and safety controls will be required to safeguard the residential and passing population.
- **Noise pollution** - Construction works may cause annoyance caused by noise. The normal health and safety controls will be required to safeguard the residential and passing population.
- **Maximum noise levels** - During construction works the Contractor shall comply with the local and national requirements. The Contractor shall be legally responsible and financially liable to observe Serbian environmental legislation.
The noise levels shall be in accordance with the relevant Serbian noise environmental legislative.
Noise and disturbance shall be kept to the reasonable minimum as far as required for this project. The Contractor's attention is drawn to the close proximity of some residential areas. All plant and tools used at such sites above or near ground level shall be silenced or of a silent type. The Contractor shall take all necessary steps to ensure that its workmen carry out their duties in a quiet manner particularly when working at night.
- **Pollution prevention** - The Contractor shall not pollute or unnecessarily disturb lands, roads and other places on and around the Site. No trees or other vegetation shall be removed except to the extent necessary for the Works.

AIR QUALITY

- 1) The Contractor shall devise and arrange methods of working to minimize dust, gaseous or other air-borne emissions and carry out the Works in such a manner as to minimize adverse impacts on air quality.
- 2) The Contractor shall utilize effective water sprays during the delivery and handling of materials when dust is likely to be created, and to dampen stored materials during dry and windy weather.
- 3) Stockpiles of materials shall be sited in sheltered areas. Stockpiles of friable material shall be covered with clean tarpaulins, and sprayed with water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement, except where this is contrary to the Specification.
- 4) Any vehicle transporting no coherent material shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend at least 300 mm over the edges of the side and tail boards.
- 5) In periods of high wind, dust generating operations shall not be permitted within 200 m of residential areas having regard to the prevailing direction of the wind.
- 6) Construction vehicles and machinery shall be kept in good working order and engines turned off when not in use. Appropriate measures shall be taken to limit exhaust emissions from construction vehicles, machinery and plant.
- 7) An advance warning shall be given to potentially affected persons, so that some measures can be taken by them before commencement of works, especially before dismantling/demolition.

NOISE

- 1) The Contractor shall consider noise as an environmental constraint in its planning and execution of the Works.
- 2) The Contractor shall take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environment requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.

MEASURES FOR DECREASING THE NEGATIVE ENVIRONMENTAL IMPACT

In order to mitigate negative environmental impact, the Contractor should propose necessary actions in its Environmental Management Plan (EMP), such as:

- 1) to create adequate organisation for execution of construction works which shall comply with local construction regulations;
- 2) to provide water sprinkling of the construction site
- 3) to create organisation for control on the facilities storing fuel and lubricants and on the technical condition of the machines in order to avoid accidental oil spills;
- 4) along the construction site, waste water should be treated and sedimentation tanks and oil separators should be placed if needed;
- 5) to foresee the necessary maintaining and drainage measures for the construction site, access roads and service roads, in order limiting the erosion processes;
- 6) to specify the quantity and type of waste and how its disposal is intended to be transported and removed from the site area;
- 7) Measures for fast conservation of unfinished works at unfavourable conditions.

MATERIALS

GENERAL

- 1) All materials used shall be of the best quality as specified and described in the Specification, Design, Drawings and the Bills of Quantities. Where in the Design Drawings and/or BoQ the products are brand named, this should be understood as supplemented by 'or equivalent'. These materials shall be procured from approved manufacturers or suppliers.
- 2) The Contractor must secure the compliance with the Specification of materials or plant to be provided under this Contract before the supplier or manufacturer is proposed for approval to the Supervisor.
- 3) The Contractor shall take into consideration the local climatic and other environmental conditions when selecting and proposing the materials. The quality of the material has to be confirmed by the attests and suppliers certificates, all according to TS and RS regulations.
- 4) Whenever possible, the Contractor shall provide equipment of a similar nature from the same manufacturer, e.g. electric motors;

The Contractor shall note that particular attention will be paid to these requirements. In cases where the proposed equipment is not standardized with regard to manufacturer and type, the Contractor shall be required to provide conclusive technical justification; considerations of price alone will not be accepted. Equipment and components that have not been standardized will not be accepted.

ORIGIN

Certificates of origin have to accompany the products proving that supplies originate from an eligible country as stated in GC of the Contract.

CONFORMITY OF MATERIALS

All materials implemented during construction shall be in compliance with the requirements of:

- Requirements of the local legislation;
- Requirements of the design documentation.

All materials applied shall be accompanied with quality certificates to prove their concordance with the requirements set out in the design, the Specification and the Code for Civil Construction Works.

The Contractor shall make diligent efforts to procure the specified materials. Where, due to different reasons, the materials required by the Contract are not available, substitute materials may be used but with the prior approval by the Supervisor and the Designer.

TECHNICAL REQUIREMENTS FOR EXECUTION OF WORKS

TECHNICAL REQUIREMENTS

PURPOSE OF THE TECHNICAL REQUIREMENTS

The purpose of the technical requirements is to provide quality performance of works to comply with technical regulations and standards. Therefore, the Contractor is obliged to adhere strictly to them and to

perform all the works that are the subject of this project, in accordance with technical requirements, design documentation, accompanying drawings and Bill of Quantities.

In addition, technical requirements define the method of measurement. Therefore, bidders are required to include all costs for not separately analysed and measured items in the unit prices of the existing ones.

GENERAL TERMS

NOTICE OF COMMENCEMENT

The Contractor shall give a written notice to the Supervisor of its intention to commence works (Notice of Commencement).

The works shall not be commenced until written approval has been received from the Supervisor.

TECHNICAL SPECIFICATION FOR WORKS

Technical Specifications are an integral part of the Tender Documentation, and are annexed to the Works Contract.

The Contractor is fully familiar with all details of the provided design documentation, as well as with all local regulations, local standards (SRPS), common practice of trade and circumstances for their execution. Nevertheless, it is understood that, whenever local regulations, local standards (SRPS), or any common practice of trade, are subject to any interpretation, clarification, ambiguity, or dispute, a ruling by the Supervisor will prevail, always provided that such ruling will be fully in compliance with and will be based on the subject local regulations, local standards (SRPS), as well as in accordance with common practice of trade, and any such ruling by the Supervisors and subsequent instruction in that respect, will not constitute any ground for variation order and/or any additional payment.

Communication between the Contractor and the Beneficiary (also Designer), during the works will be carried out exclusively through the Supervisor.

All works must be carried out precisely and professionally. Prior to application, the Supervisor must examine all material and all his comments referring to material and quality of work will be obligatory for the Contractor. The agreed prices include all fully completed works and final products ready for use.

The Contractor will be responsible for any and all damages caused by the Contractor during any works, to any third party, structure, main building or adjacent buildings, and any and all repair works and compensations of any kind will be at the Contractor's expense.

Prior to the commencement of the works, and also in the course of the execution of every work item, the Contractor will ask the Supervisor for any explanations and clarifications required, therefore, the Contractor will solely bear full material responsibility for all works not completed in accordance with the concept and details of this specifications.

The Contractor will be responsible to keep records on the progress of works in the measurement book and have it controlled and verified by the Supervisor.

Upon the completion of the works the Contractor will remove from the building site and other used areas all its tools, machinery, surplus material, etc. so as to have the site neatly arranged as defined in the investment-technical documentation, and all other areas restored in same condition as before the construction.

All construction works must be carried out under the conditions and in the manner prescribed by RS Law on Construction and Planning.

For all works, applicable Serbian regulations and standards shall prevail.

MATTERS NOT COVERED BY THE STANDARDS

Any materials and workmanship not fully specified herein or covered by the Standards, Codes or Manuals shall be of such type and quality so as to produce a required quality of work. In such circumstance the Supervisor shall determine whether all or any of the materials offered or delivered to the site are suitable for use in the Works and the Supervisor's decision in this respect shall be final and conclusive.

CONTRACTOR'S EQUIPMENT

Details of all Contractors' Equipment to be used in the execution of the Works shall be submitted to the Supervisor prior to its use.

The Supervisor's consent to use such Equipment will not be unreasonably withheld, but if, in the Supervisor's opinion, circumstances arise which make it desirable that the use of the said Equipment should be suspended either temporarily or permanently, the Contractor shall change the method of performing the work affected and it shall be deemed to have no cause for claims against the Supervisor on account of having to carry out the work by another method, nor it shall be deemed to have cause for claim if any order issued by the Supervisor results in the Contractor's Equipment having to stand idle for a period of any duration whatsoever or having to be removed.

SUBCONTRACTED WORKS

The Contractor shall appoint subcontractors for the work for which the Contractor is not experienced, recognized or approved.

The Contractor shall submit for consent, the names of all proposed subcontractors and suppliers of special manufactured items with full details of the company, reference list and all other documentation needed for approval of the subcontractors and shall indicate the precise sections of the work for which each will be responsible.

The Contractor shall be solely responsible for the overall co-ordination of the Contract. Direct formal communication between its sub-contractors and the Supervisor will not be allowed.

METHOD STATEMENTS

The Contractor shall provide, in writing, a description of the arrangements and methods it intends to apply for the execution of the Works.

Method Statements (MS) shall show in detail the methods proposed by the Contractor for carrying out the principal activities of construction in full safety. In particular, the Contractor shall indicate the resources (plant, personnel, materials) to be allocated, timing and sequencing, emergency/contingency measures, and any other information required to clearly detail the proposed methods. All necessary health and safety and environmental measures required shall be clearly indicated.

This will be supported by calculations for temporary works for supporting excavated faces and shuttering of concrete. Flowcharts, sketches and drawings shall be included if necessary.

Proposed MS will be submitted to the Supervisor (also to the Beneficiary) for approval. The Supervisor (in cooperation with the Beneficiary's representative) will review and provide its comments within 10 days. The Contractor shall make final corrections (if any) and submit them to the Supervisor for final approval, 15 days before the commencement of relevant work. Written agreement shall be obtained before any work is commenced.

PROVISIONAL TIME SCHEDULE

The Defects Notification Period (DNP) shall be twelve (12) months under the Contract and shall commence after completion of the Works.

The duration and sequence of the various activities constituting the Works may be varied by the Contractor to suit its own proposals for carrying out the works, subject to the approval of the Supervisor, but no consideration will be given to any request by the Contractor to extend the Contract completion dates.

STANDARDS ON THE SITE

The Contractor shall purchase and keep on Site at least one copy of each of the relevant Standards, Codes and Manuals or approved National Standards which are referred to in the Specification. In addition, the Contractor shall keep on Site a copy of any other Standard, Code, Manual, or National Standard, which applies to materials supplied.

Copies of the standards shall be made available for reference at all times at the office of the Supervisor.

Should the Supervisor require an English or Serbian translation of any of the Standards or Manuals, the Contractor shall provide a translation within 7 days of receiving a written request from the Supervisor.

VOLUME 3.1

TECHNICAL SPECIFICATIONS

Maintaining Works in the Southern Part of the Siga–Kazuk System

The works include the following:

1. Jug Canal: cleaning of the canal side slopes, desilting, disposal and spreading of dredged material within the canal zone, as well as an as-built geodetic survey. The works will cover one location on Jug Canal.
2. Improvement of the Siga–Kazuk system – area surrounding Jug Canal: cleaning, vegetation removal, desilting, installation of culverts, cleaning of existing culverts, and geodetic surveys before and after the works. The works will cover 14 locations in the vicinity of Jug Canal.
3. Čustatovo Pond: cleaning, vegetation removal, desilting, and geodetic surveys before and after the works.

Before the works commence, the Contractor shall carry out a geodetic survey of the selected locations so that the quantities and scope of works can be precisely defined.

Before the works commence, the Investor shall define the locations for disposal of excavated material and vegetation, as well as the haul routes.

The works shall be executed to the required quality and within the specified timeframe, which requires all participants in the execution of the works to comply with the technical requirements. All quantities of works shall be verified by geodetic survey and certified by the Supervising Engineer appointed by the Employer.

1. JUG CANAL

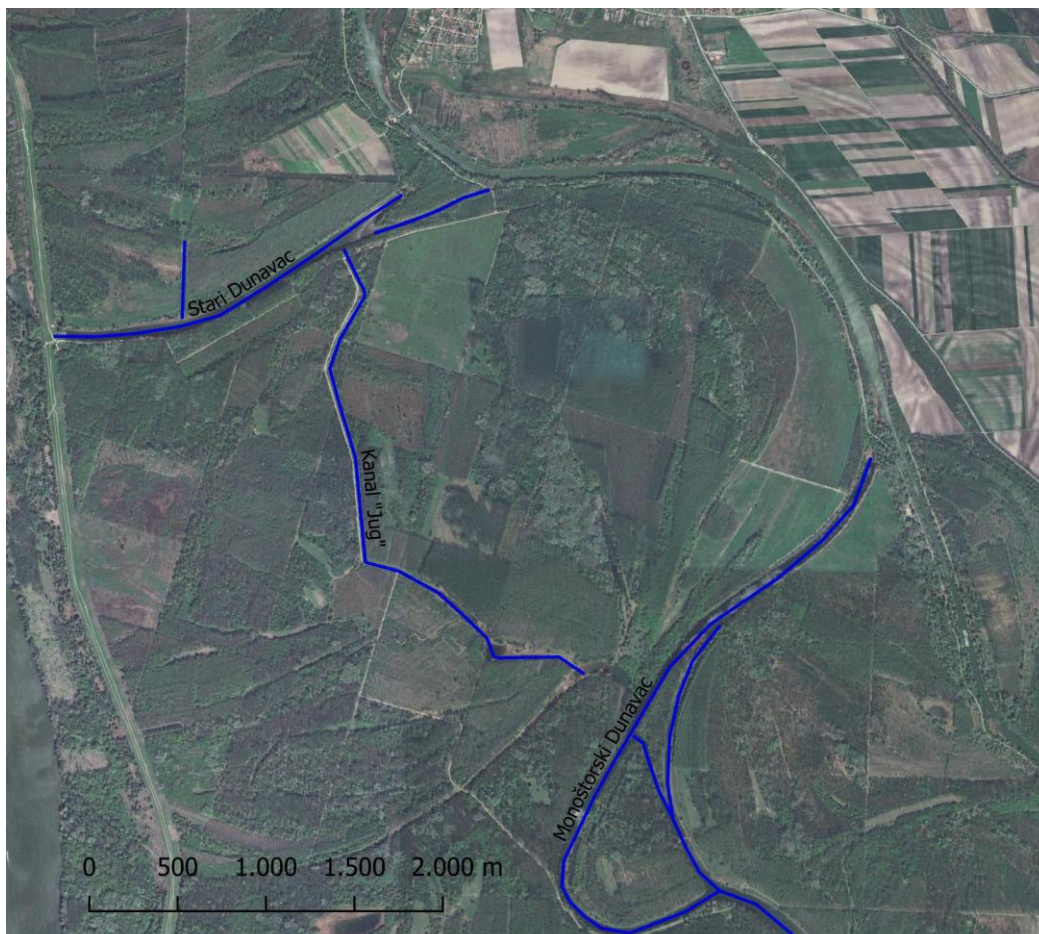


Figure 1. Location of Jug Canal

Jug Canal forms part of the system used to convey water to and inundate remote areas of the southern part of Monoštor Marsh. The canal begins at Stari Dunavac and extends deep into the southern part of Monoštor Marsh, where it effectively discharges into a depression (Figure 1).

The design bed elevation adopted for the canal is 80.60 m a.s.l. This will ensure the removal of at least the minimum accumulated silt layer even in the least silted sections, where the existing bed elevation was measured at 80.70 m a.s.l.

Desilting works on the relevant section of Jug Canal will comprise the following activities:

1. preparatory works – carried out directly by the Employer;
2. earthworks;
3. finishing works.

Before commencing the earthworks, the canal shall be set out by a surveyor. The planned canal alignment shall be marked in accordance with the design, including the canal centreline, characteristic points and cross-sections.

For the improvement of Jug Canal from the Jug sluice gate to the point where the canal spreads into the depression (approximately chainage km 2+200), only limited excavation at a single location is envisaged.

D.1.1. Location 1 – Kakica Bridge

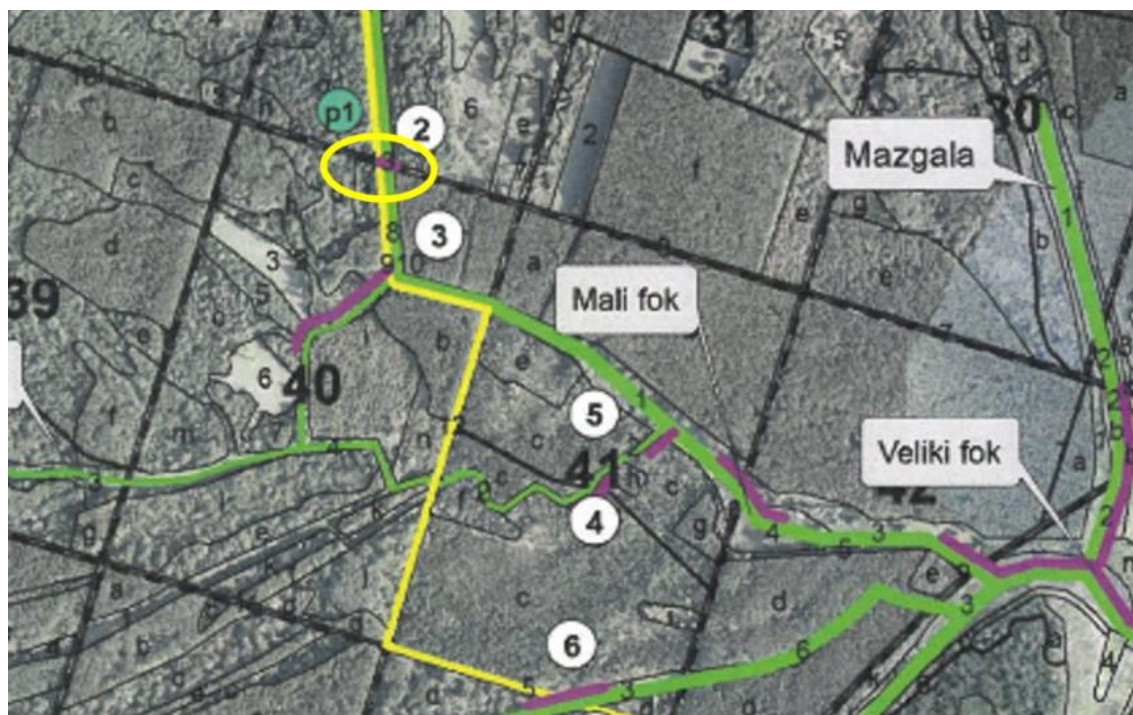


Figure 2. Map showing the location under consideration (outlined in yellow)



Figure 3. Location 1 – Culvert viewed from the upstream and downstream sides

The technical solution includes the construction of a bypass at Kakica Bridge to ensure culvert functionality at higher water levels in the canal. The works involve removing part of the existing culvert to install a new pipe with a diameter of 1,000 mm. The works include preparation of the foundation, specifically a bedding layer of MB 15 lean concrete, followed by installation of a 1,000 mm diameter reinforced-concrete pipe. After installation, the pipe shall be backfilled with naturally graded gravel.

The improvement works include repair of the upstream and downstream reinforced-concrete headwalls of the pipe culvert, including the installation of reinforcement and reinforced concrete at the pipe penetration points. This item includes procurement and transport of the pipe to the installation site.

The canal shall be cleaned for a length of 10.0 m both upstream and downstream of the culvert, over an area of approximately 200 m².

According to the Bill of Quantities and cost estimate, the works constitute a single technological unit, comprising the complete set of activities required to restore the site to a functional condition.

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

2. LOCATIONS AND WORKS FOR THE IMPROVEMENT OF THE SIGA–KAZUK SYSTEM IN THE AREA SURROUNDING JUG CANAL

The works in the vicinity of Jug Canal cover the following locations (Figure 4):

D.2.1. Channel towards “Pavkova Bara”

D.2.2. Bridge

D.2.3. Canal network from Kakica to Kazučki Dunavac:

- Area between “Kakica” and Mali Fok
- Area between Mali Fok and Veliki Fok
- Area between Veliki Fok and Kazučki Dunavac

D.2.4. Blockage from “Tromeđa” to “Ketin prolaz”; “Džindža” entrance from Kazučki Dunavac to the M bridge

D.2.5. I Klupe Bridge

D.2.6. M bridge on “Zajednička Džindža”

D.2.7. M bridge on compartment line 57/58 near “Ribolov”

D.2.8. Bridge at “Bebina Bara”

D.2.9. Channel from “Franjina Skela” to “Ribolov”

D.2.10. Entrance from “Franjina Skela” to “Crna Bara”

D.2.11. Entrance to the “Široki Rit” supply side arm, downstream end to bridge

D.2.12. “Vajš” Channel – “Kazučki Dunavac” – “Crna Bara”

D.2.13. “Kazučki Dunavac” – bridge zone

D.2.14. Section along “Mazgala”

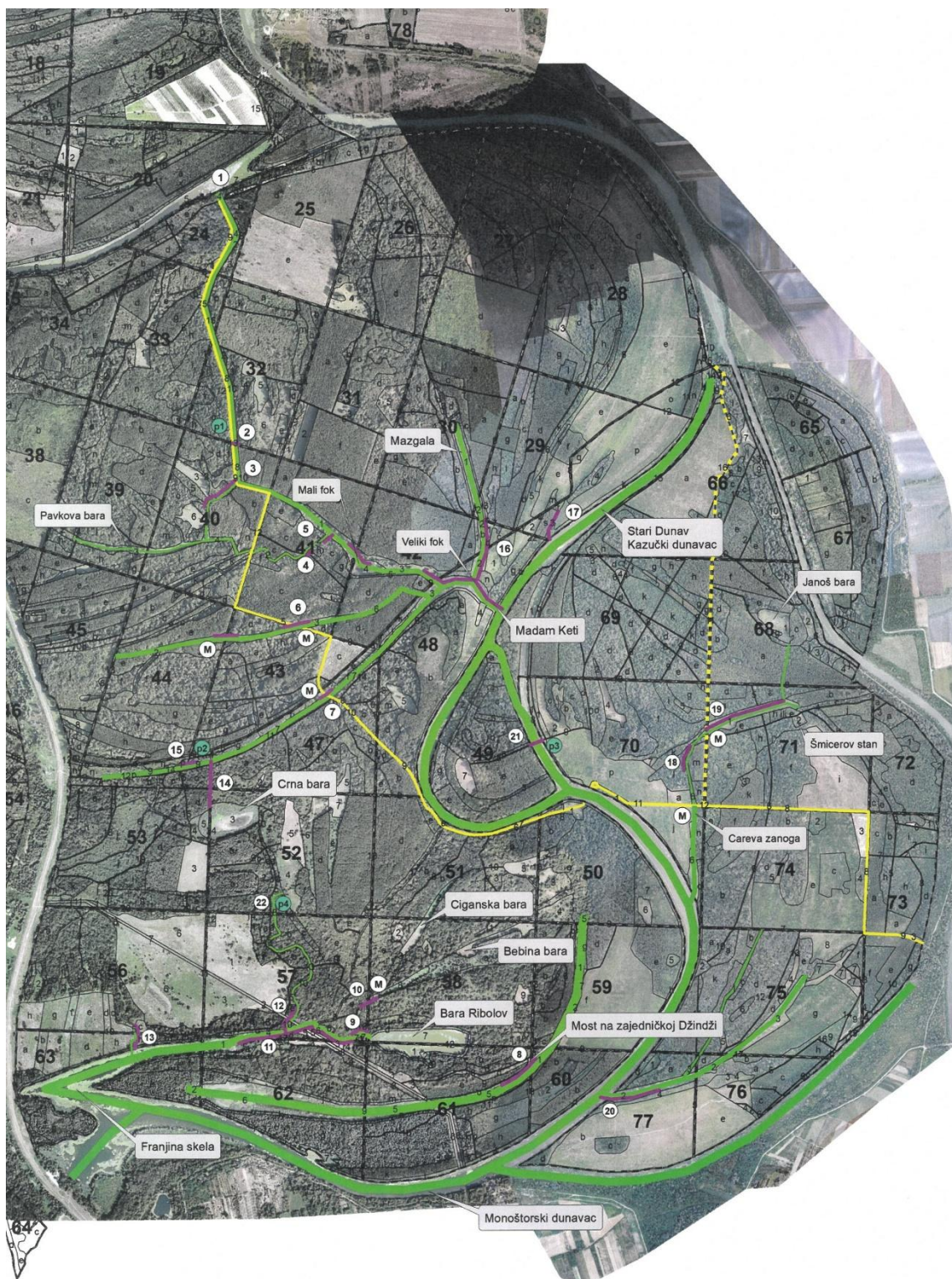


Figure 4. Sites subject to improvement works in the vicinity of Jug Canal

D.2.1. Location 2 – Channel leading to Pavkova Bara

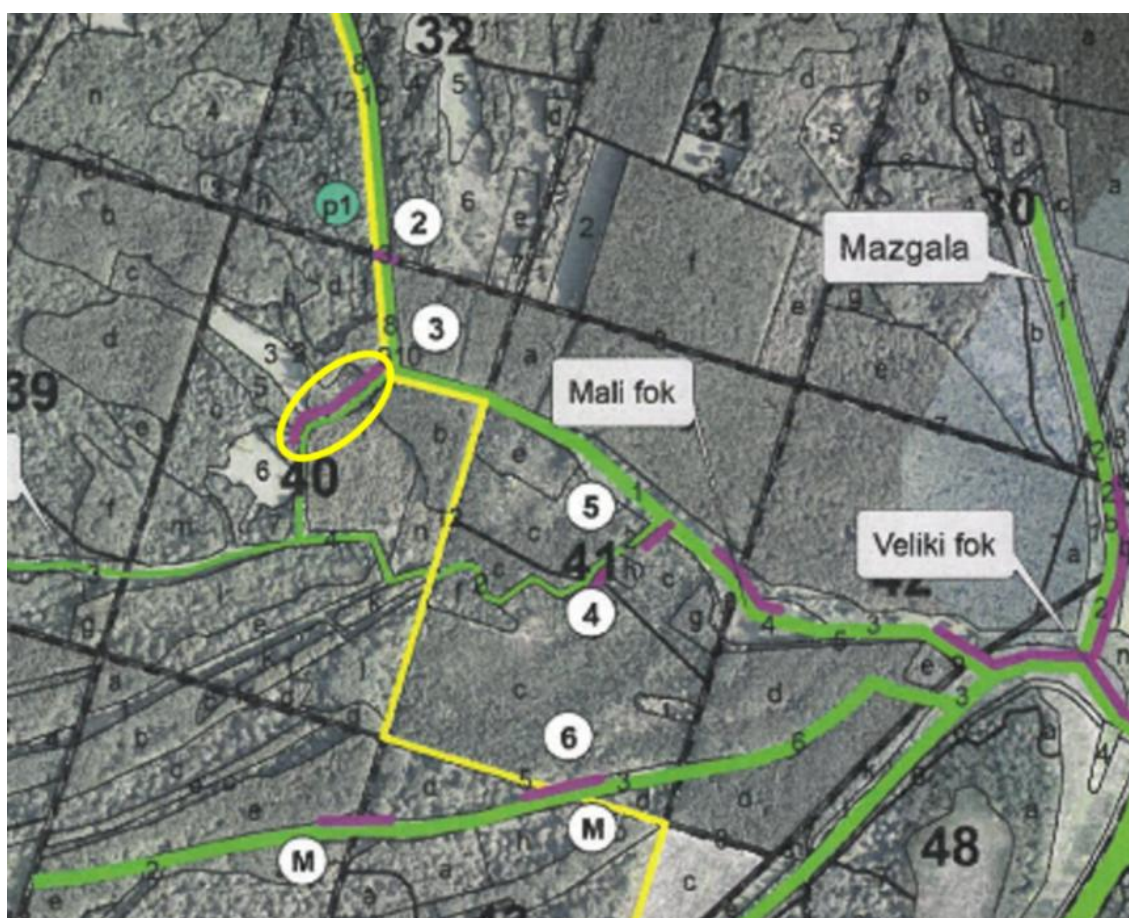


Figure 5. Map showing Location 2 under consideration (outlined in yellow)

Improvement of the connecting channel between Jug Canal and “Pavkova Bara” at two locations where the channel flow cross-section is constricted.

This item includes a geodetic survey of the channel at two locations, each over a length of 20 m, before the works commence.

This item also includes removal of reeds and other vegetation at the two locations, loading onto a truck, transport to the disposal site (up to 3.0 km away), and unloading at the disposal site. It also includes additional excavation of the channel bed over a length of 10 m at each location (5.0 m wide), to a depth of 20–30 cm. The channel bed shall be excavated at two locations. Excavated material shall be placed on the canal banks. The approximate canal-cleaning area is 100 m².

This item also includes an as-built geodetic survey of the completed works.

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.2. Location 3 – Bridge

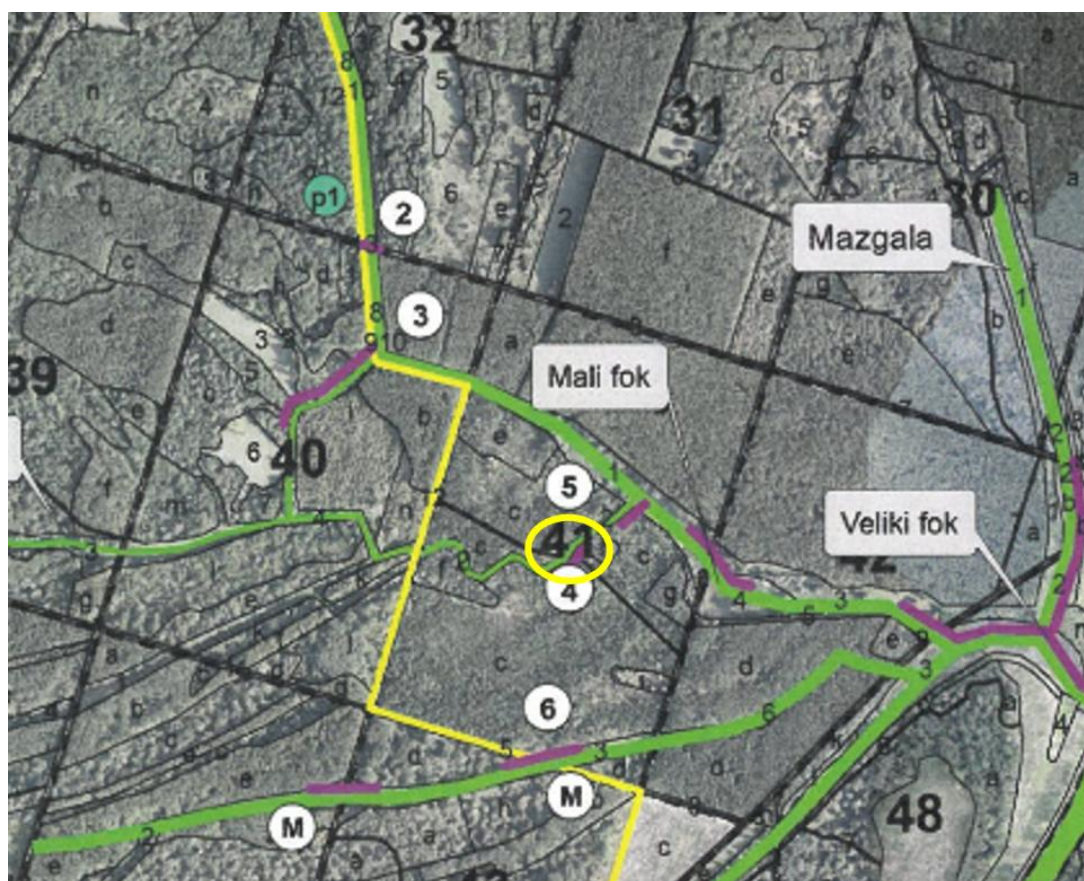


Figure 6. Map showing Location 3 under consideration (outlined in yellow)

Improvement of the connecting channel between Jug Canal and “Pavkova Bara” in the bridge zone. This item includes deepening the channel bed over a length of 20.0 m upstream and 20.0 m downstream of the existing bridge across the connecting channel. The channel bed shall be deepened over a total length of 40.0 m, a width of 5.0 m and a depth of 20–30 cm. Material excavated from the channel bed shall be placed beside the channel and spread and levelled. This item also includes geodetic surveys before the works commence and after completion. The approximate canal-cleaning area is 200 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.3. Location 4 – Canal network from Kakica to Kazučki Dunavac (Veliki Fok section, section between Veliki Fok and Mali Fok, and Mali Fok section)

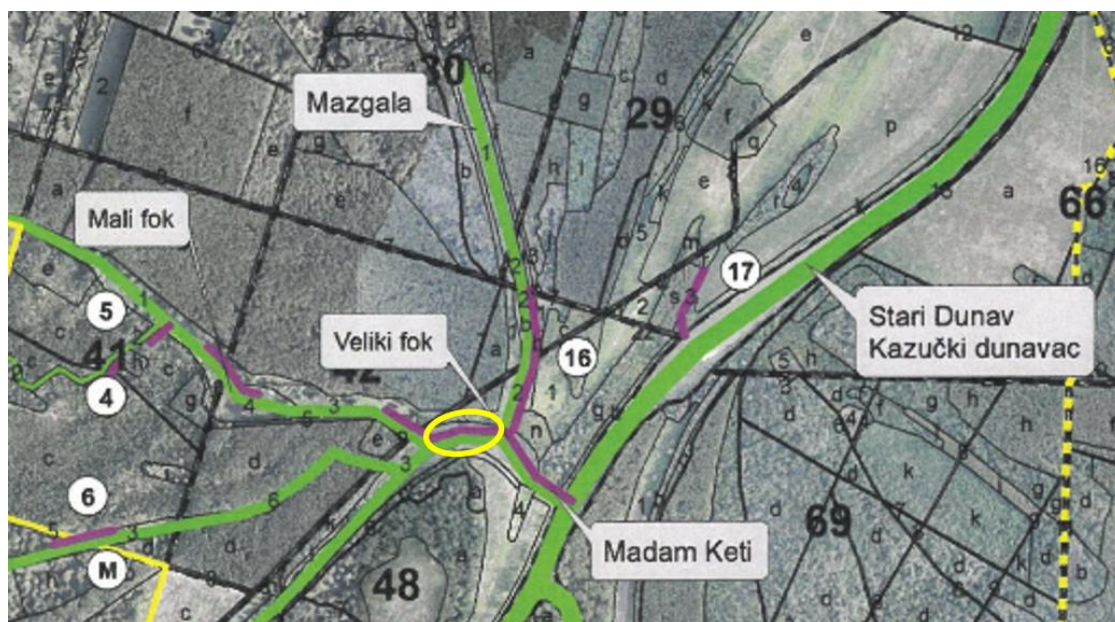


Figure 7. Map showing the inspected section of Veliki Fok

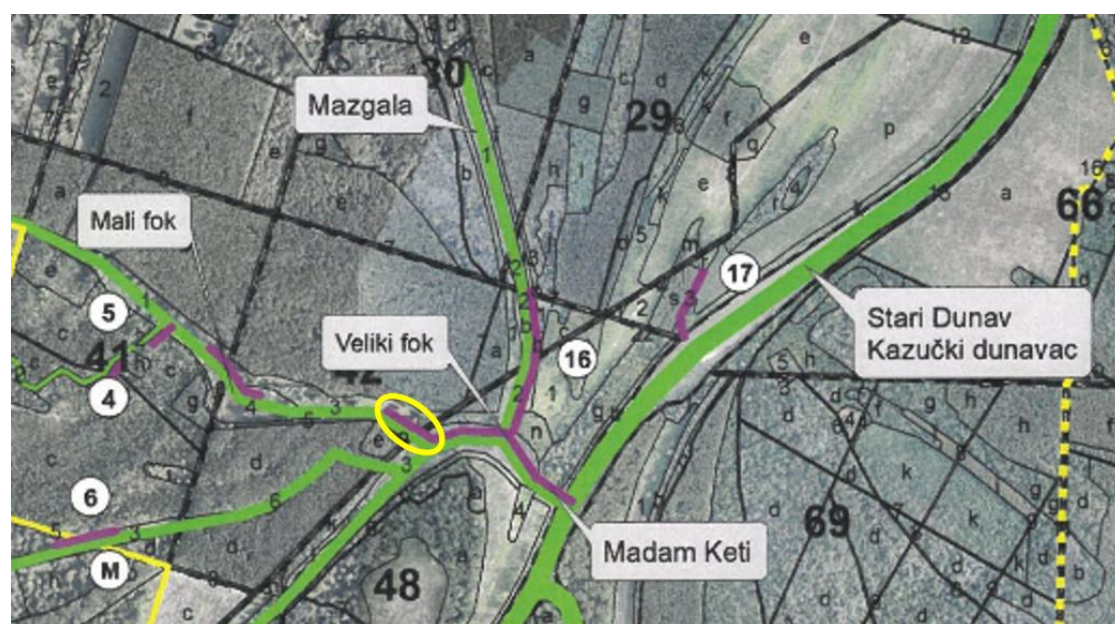


Figure 8. Map showing the inspected section between Mali Fok and Veliki Fok

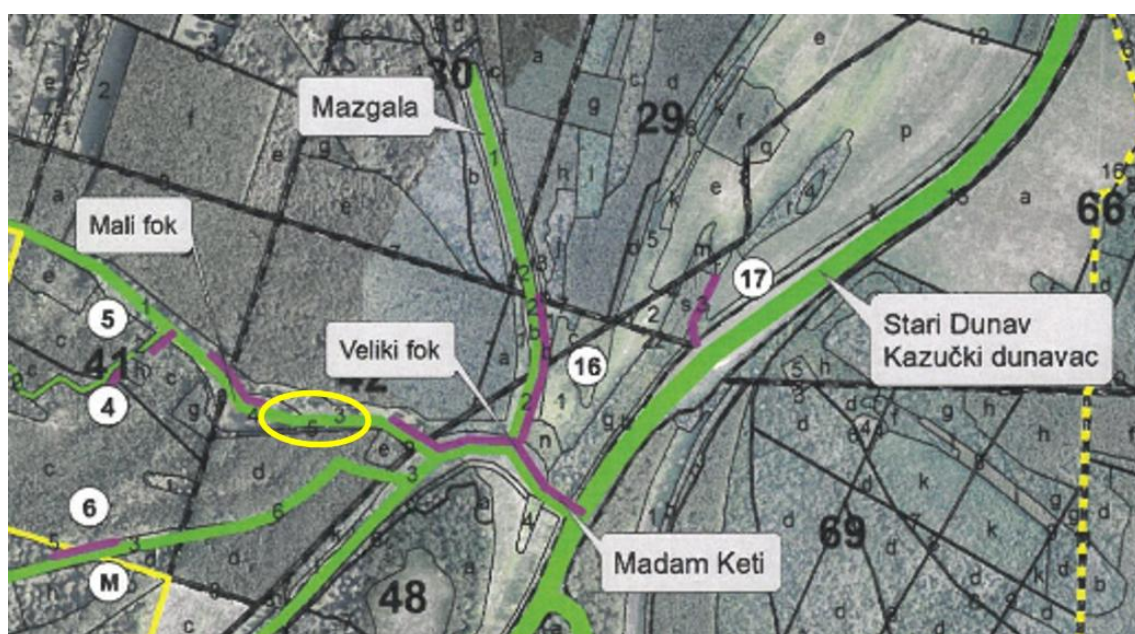


Figure 9. Map showing the inspected section of Mali Fok

The works involve cleaning the canal network from “Kakica” to Kazučki Dunavac. Cleaning is divided into three sections: “Kakica”–Mali Fok, Mali Fok–Veliki Fok, and Veliki Fok–Kazučki Dunavac. Before the works commence, a geodetic survey of the canal bed shall be carried out in order to identify the micro-locations where bed cleaning is required. The survey shall also establish the indicative number of locations or blockages requiring cleaning. The length of channel bed to be cleaned is 800 m and its width is 20 m. In addition to the accumulated material, the channel bed shall be excavated to a depth of up to 20 cm in order to remove silt. This item includes placing the excavated material on the ground beside the canal and spreading and levelling it. It also includes an as-built geodetic survey after completion of the works. The approximate canal-cleaning area is 16,000 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.4. Location 5 – Blockage from “Tromeda” to “Ketin Prolaz”; entrance to “Džindža” from Kazučki Dunavac to the M bridge

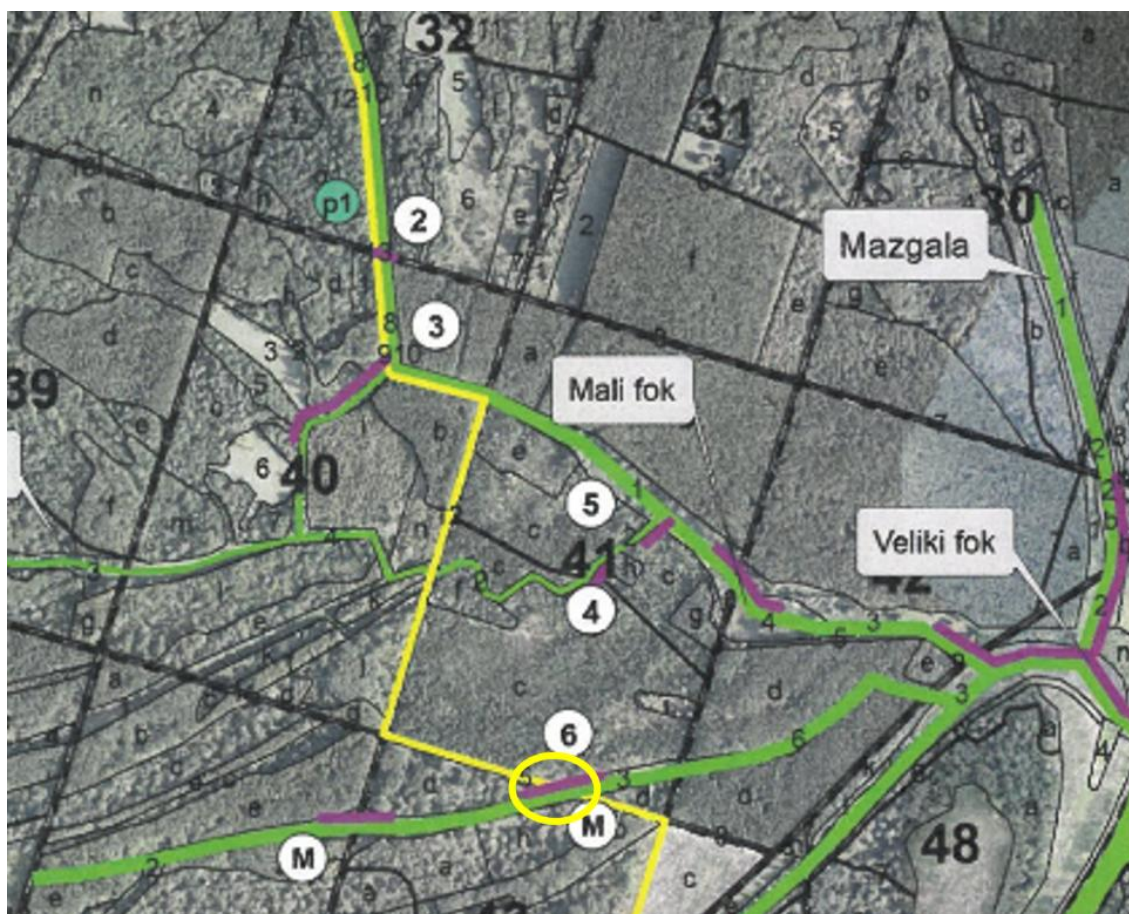


Figure 10. Map showing Location 5 under consideration (outlined in yellow)

Removal of the blockage from “Tromeda” to the “Madam Ket” passage, at the entrance to Džindža from Kazučki Dunavac. Within “Džindža” itself, tree removal and deepening of the channel bed in the bridge zone are envisaged over a total length of 20.0 m (channel width up to 10.0 m). This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 200 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.5. Location 6 – I Klupe Bridge

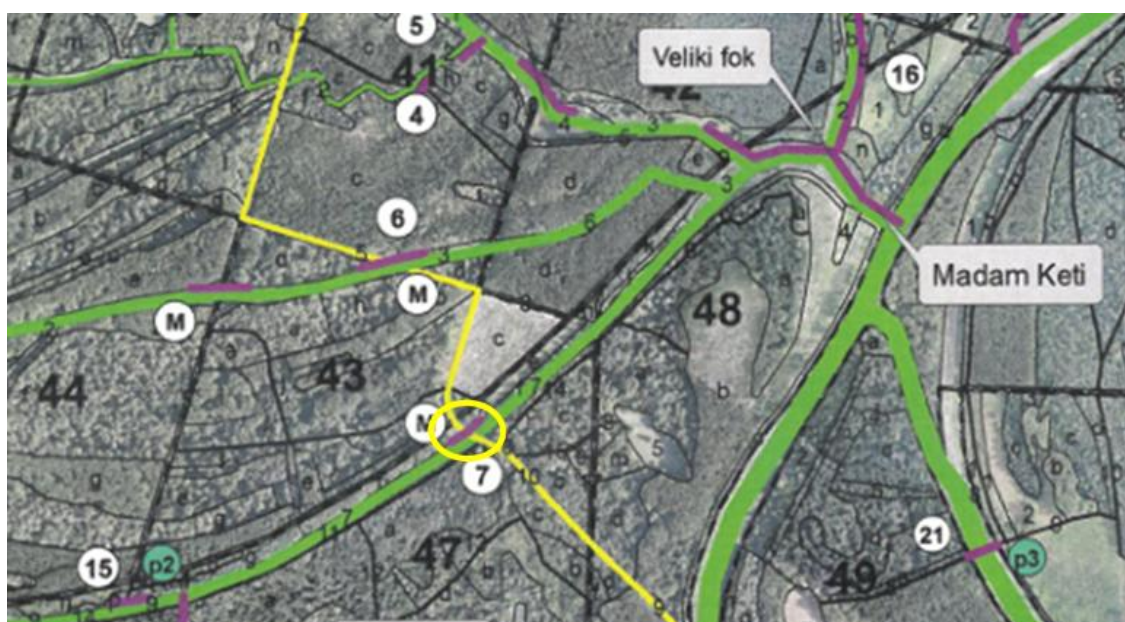


Figure 11. Map showing Location 6 under consideration (outlined in yellow)

The canal at I Klupe Bridge shall be cleaned over a length of 20 m upstream and 20 m downstream of the bridge. The width of the channel bed to be cleaned is 20.0 m. Before the works commence, a geodetic survey of the channel bed shall be carried out (the indicative width of the channel bed to be cleaned is 30.0 m). This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 600 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.6. Location 7 – M bridge on “Zajednička Džindža”

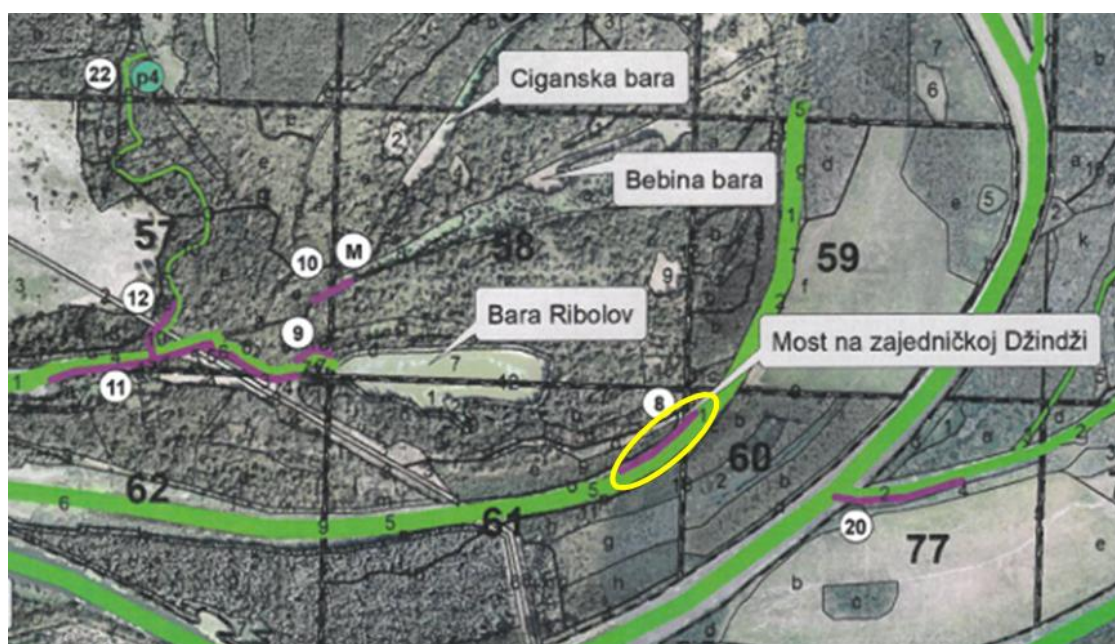


Figure 12. Map showing Location 7 under consideration (outlined in yellow)

The “Zajednička Džindža” channel shall be cleaned in the M bridge zone. This item includes excavation over a length of 20 m upstream and 20 m downstream of the bridge. The width of the channel bed to be cleaned is 20.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 400 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.7. Location 8 – M bridge on compartment line (57/58) near “Ribolov” Bara



Figure 13. Map showing Location 8 under consideration (outlined in yellow)

The connecting channel between “Ribolov” Bara and the “Franjina Skela” site shall be cleaned in the M bridge zone. This item includes excavation over a length of 20 m upstream and 20 m downstream of the bridge, to a depth of up to 30 cm. The width of the channel bed to be cleaned is 20.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 400 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.8. Location 9 – Bridge at “Bebina Bara”

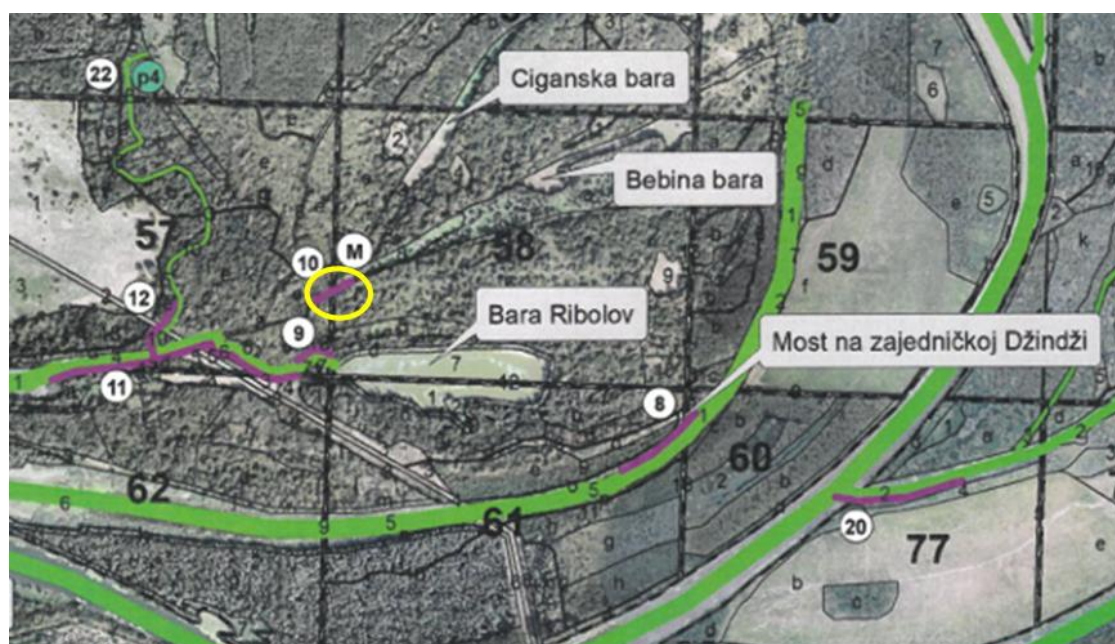


Figure 14. Map showing Location 9 under consideration (outlined in yellow)

The connecting channel between “Bebina Bara” and the “Ciganska Bara” site shall be cleaned in the M bridge zone, upstream and downstream of the bridge. This item includes excavation over a length of 100 m on each side, to a depth of up to 30 cm. The width of the channel bed to be cleaned is 10.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 2,000 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.9. Location 10 – Channel from “Franjina Skela” to “Ribolov”

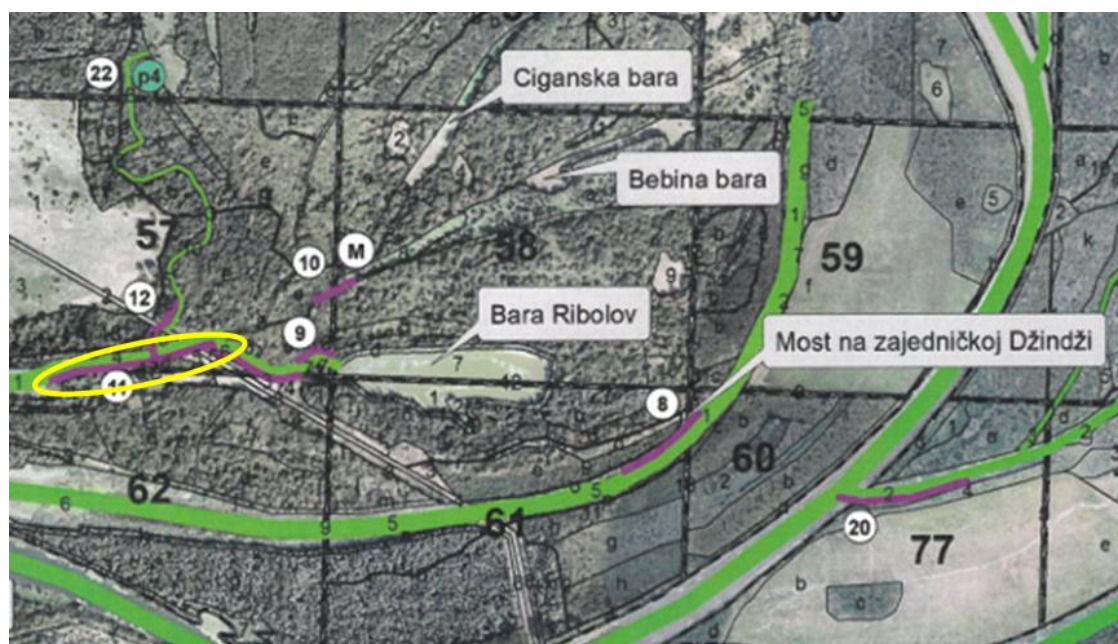


Figure 15. Map showing Location 10 under consideration (outlined in yellow)

The channel from the entrance at “Franjina Skela” to “Ribolov” shall be cleaned over a length of 400 m. This item includes excavation to a depth of up to 40 cm. The width of the channel bed to be cleaned is 10.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 4,000 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.10. Location 11 – Entrance from “Franjina Skela” to “Crna Bara”

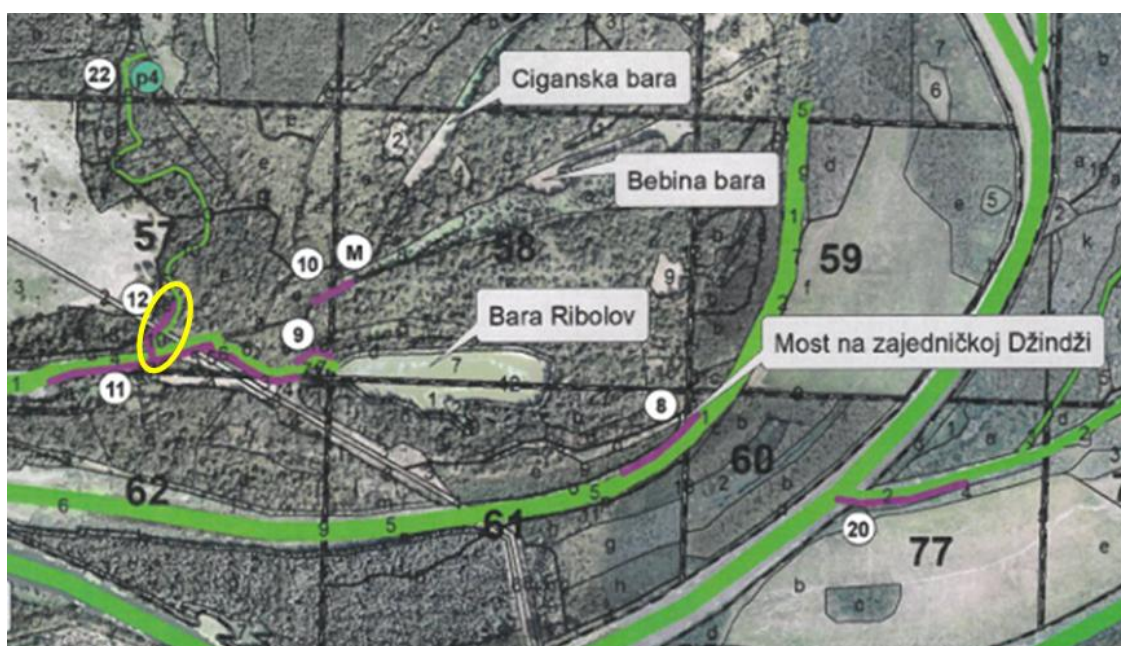


Figure 16. Map showing Location 11 under consideration (outlined in yellow)

The channel at the entrance from “Franjina Skela” to “Crna Bara” shall be cleaned over a length of 50 m. This item includes excavation to a depth of up to 30 cm. The width of the channel bed to be cleaned is 5.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 250 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.11. Location 12 – Entrance to the side arm supplying “Široki Rit”, from the downstream end to the bridge



Figure 17. Map showing Location 12 under consideration (outlined in yellow)

The entrance to the side arm supplying “Široki Rit” shall be cleaned up to the bridge. The approximate length of channel to be cleaned is 120 m. This item includes excavation to a depth of up to 40 cm. The width of the channel bed to be cleaned is 5.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 600 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.12. Location 13 – “Vajš” Channel – “Kazučki Dunavac” – “Crna Bara”

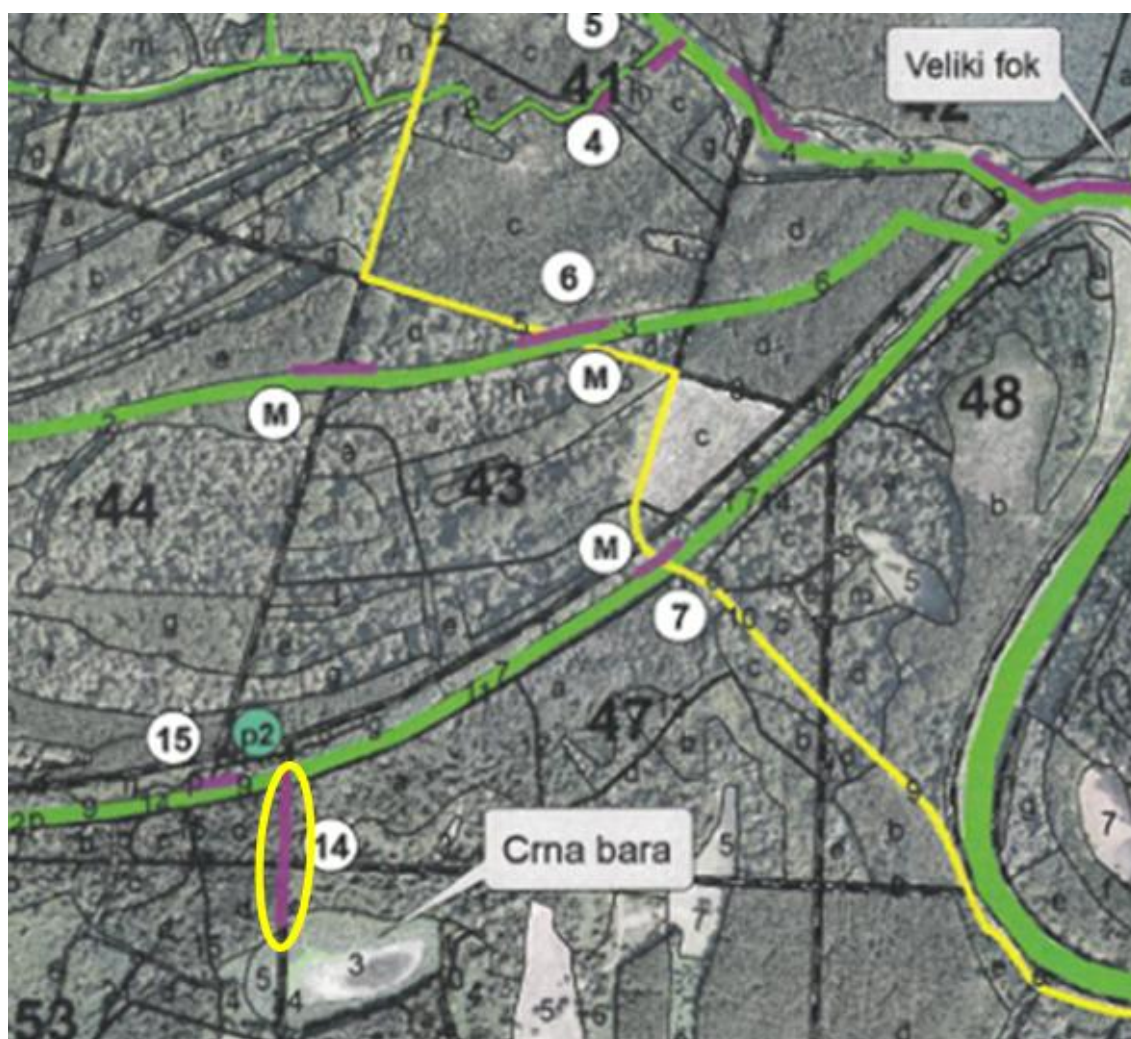


Figure 18. Map showing Location 13 under consideration (outlined in yellow)

The “Vajš” Channel shall be cleaned along the “Kazučki Dunavac”–“Crna Bara” section. The approximate length of channel to be cleaned is 280 m. This item includes excavation to a depth of up to 30 cm. The width of the channel bed to be cleaned is 5.0 m. This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 1,400 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.13. Location 14 – “Kazučki Dunavac” bridge zone

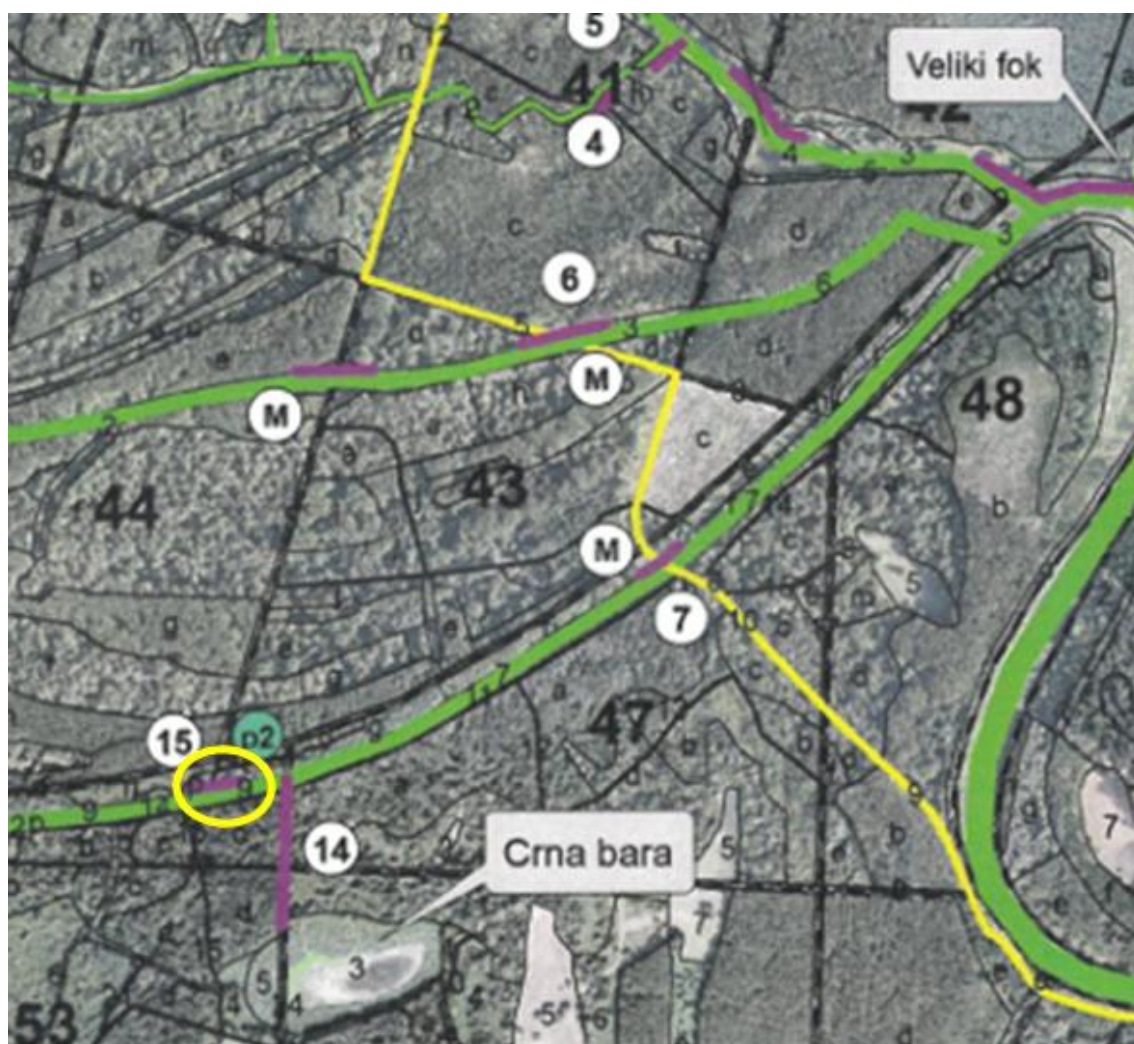


Figure 20. Map showing Location 14 under consideration (outlined in yellow)

The technical solution includes cleaning the “Kazučki Dunavac”–“Crna Bara” channel in the zone of the existing bridge, with the aim of improving its conveyance capacity and ensuring unobstructed water flow around the structure.

The works include cleaning the channel over a length of 50.0 m upstream and 50.0 m downstream of the bridge, corresponding to a total approximate length of 100 m. Excavation shall be carried out to a depth of up to 30 cm, over a channel-bed width of 5.0 m.

This item includes geodetic surveys before commencement and after completion of the works. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 500 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

D.2.14. Location 15 – Section from the “Madam Ketī” channel/passage along “Mazgala”

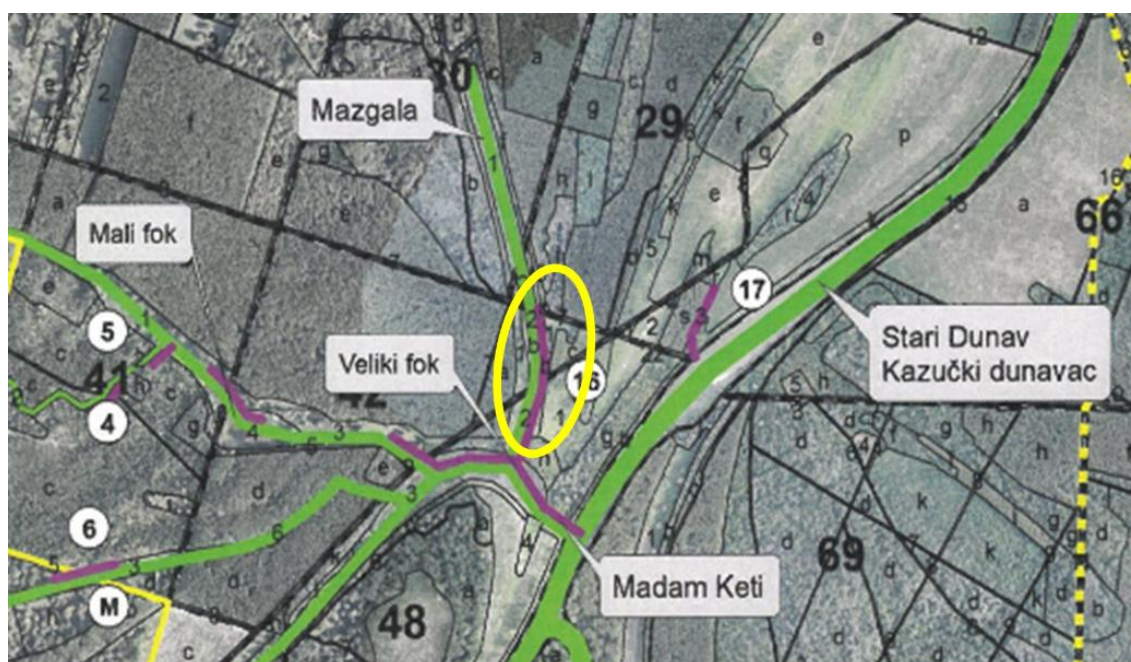


Figure 21. Mazgala area under consideration (Location 15)

The “Mazgala” Channel shall be cleaned over an approximate length of 400 m. This item includes excavation to a depth of up to 30 cm. The width of the channel bed to be cleaned is 10.0 m. This item includes geodetic surveys before commencement and after completion of the works. It also includes cleaning the channel from “Jama” to “Tromeđa” over a length of 200 m. Excavated earth material shall be removed from the canal alignment, placed on the banks, and spread and levelled. The approximate canal-cleaning area is 4,000 m².

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1

3. ČUSTATOVO POND

D.3.1. Čustatovo Pond

Čustatovo Pond is located in the southern–southeastern part of Monoštor Wetland, adjacent to Monoštorski Dunavac (Figure 2). It is a permanent water body with a variable water level, generally higher than that of Monoštorski Dunavac, indicating that there is no hydraulic connection between the two water bodies. The width of the pond in the Monoštorski Dunavac zone is 62 m, and its length is approximately 1,250 m.



Figure 22. Location of Čustatovo Pond

The upstream end of the pond in the Monoštorski Dunavac zone is overgrown with reeds and marsh vegetation. As a result of the pond's natural evolution, sediment has accumulated on the bed in a layer of varying thickness.

The design shall define the bed elevations of the outlet from Čustatovo Pond into Kazučki Dunavac so that, at mean water levels, water from the pond does not discharge into Kazučki Dunavac. Inspection tracks shall be formed along both banks of the pond, following the shoreline, over a length of 140 m, and in the central part of the pond over a length of 50 m. Dredged material shall be deposited alongside the inspection track within a strip 10 m wide. Once drained, the sediment shall be spread and levelled. The pond shall be cleaned from the inlet section over a length of 140 m and in the central part over a length of 50 m, working from the inspection tracks within the reach of the excavator bucket (approximately 15 m). The side-slope gradient shall be designed at less than 45 degrees.

Description	Unit	Qty.
Payment on a lump-sum basis for all works executed under this item.	lump sum	1