

**APPROVED BY:**

K. A. Turdukozhoev

Vice President, KGC CJSC

  
, 2024

### **Request for Commercial Proposals**

**for engineering services for the development of feasibility study and design documentation  
(Project stage) of the KGC Mill Historical Tailings Processing Complex**

	<b>Full name</b>	<b>Position</b>	<b>Signature</b>	<b>Date</b>
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	S. Djuraev	Process Engineer		
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**January 2024**

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## INTRODUCTION

**Project:** Feasibility Study and Design Documentation (Project stage) of the KGC Mill Historical Tailings Processing Complex.

Kumtor Gold Company CJSC expresses its interest in cooperating with you and informs you about the request for commercial proposals for engineering services for the development of the following as part of the project for construction of the KGC Mill Historical Tailings Processing Complex:

### Stage 1.

- Trade-Off Study
- Control test work (pilot tests)
- Technological Regulations
- Feasibility Study (FS)

### Stage 2

- Design and estimate documentation (Project stage).

Stage 2 work shall be conducted after the Feasibility Study has been approved by the Client.

The commercial proposal shall be submitted not later than 05.05.2024, considering the separate completion of Stages 1 and 2.

Bidders shall submit a commercial proposal which shall contain:

- Description of scope of services
- Terms of payment
- Schedule of services by types of Stage 1 and 2 works (milestones)
- Total cost of the proposal, considering the separate completion of Stages 1 and 2.
- Company's presentation
- References for engineering services in the field of the Client's activity
- Registration/statutory documents, licenses, certificates.

Please send documents (commercial offer) to the email address: [tailingsdump@kumtor.kg](mailto:tailingsdump@kumtor.kg) in an archived document (.rar)

All questions regarding this competition should be sent by email to [aigerim.maksatova@kumtor.kg](mailto:aigerim.maksatova@kumtor.kg) with the subject line “Development of a feasibility study and design documentation (Design stage) for the Complex for processing stale tailings.”

## **SECTION I - GENERAL INFORMATION ABOUT THE PROJECT**

### **1.1.Introduction**

Kumtor Gold Company CJSC (hereinafter referred to as the Client) manages the project for construction of the KGC Mill Historical Tailings Processing Complex:

To implement this project, Kumtor Gold Company CJSC is in search of a contractor for engineering services to develop Trade-Off Study, Technological Regulations, Feasibility Study (FS) and Design Documentation (Project stage) as part of the project for construction of the KGC Mill Historical Tailings Processing Complex.

### **1.2.Objective of the Company**

Construction of the historical tailings processing complex with a throughput of 12,000,000 (12 million) tones per year.

### **1.3.Full name of services**

Conduct and submit to the Client under the Acceptance Certificate the following: Feasibility Study and Design Documentation as part of the project for construction of the historical tailings processing complex.

### **1.4. Purposes**

- Evaluate the most economically, technologically, and environmentally optimal method of tailings processing based on the results of metallurgical research conducted based on advanced technology, international environmental requirements and considering local conditions.
- Determine the technical and economic feasibility of the project, analyze, and calculate the economic indicators of the investment project being created.
- Estimate the costs of the optimal option of the investment project and analyze the payback period.
- Develop design and estimate documentation for the Historical Tailings Processing Complex.

## **SECTION II - QUALIFICATION REQUIREMENTS FOR THE CONTRACTOR**

### **2.1. Qualification requirements for the Contractor**

- At least 5 years of practical experience in engineering services in the development of feasibility studies and project documentation.
- The portfolio shall include at least 3 successfully implemented engineering projects, design, and construction of industrial plants in the mining and processing sector.
- Availability of a resource base (designers by area with at least 3 years of experience, economists, office equipment, necessary software, etc.).
- The Contractor shall coordinate its activities with the Client at all stages of the services as part of these Terms of Reference.

### **2.2. Commencement and completion of the services**

- The work shall commence no later than 3 days from the effective date of the contract.
- Total duration of Stage 1 and Stage 2 work shall be no more than six months.

- Stage 1 work - Trade-off study, pilot tests, development of Technological Regulations and Feasibility Study - shall be conducted in parallel as much as possible to meet the overall deadline.
- Stage 2 work shall be conducted after the Feasibility Study has been approved by the Client.

### **2.3. Procedure for handover and acceptance of services rendered.**

Procedure for handover and acceptance of services rendered: the services shall be accepted based on the submission to the Client of Trade-Off Study, Report on Control Test Work (pilot tests), Technological Regulations, Feasibility Study of the project and Design and Estimate Documentation (Project stage) in printed and electronic form, and the Service Acceptance Certificate.

### **2.4. Requirements for the services**

The work plan shall be developed and agreed with the Client during the Kick-Off Meeting (KOM) by completing the KOM Protocol signed by the parties within 6 business days from the commencement of the services.

Deadline to eliminate the Client's comments on the work plan shall not exceed 5 business days.

The Contractor shall comply with the following requirements when documenting the completed work:

- format - Microsoft Word
- font - Times New Roman
- main font size - 11-14 pt
- alignment of the main text - widthwise
- page size - A-4
- main text: one-color print
- graphs and charts - A4-A1: color print.

The result of the services rendered shall be a ready bound document of at least 50 pages in the form of printed materials in 3 hard copies and information on a USB flash drive.

The results of the completed work shall be used to develop a pptx presentation with brief excerpts with diagrams and visual illustrations.

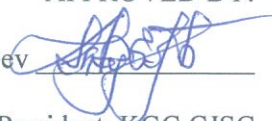

The content of hard copy and soft copy of the report shall be identical, the soft copy shall be available in two versions:

1. PDF version
2. Editable version - in original formats (Microsoft Word, Excel, AutoCad, etc.), stitched into an album by sections.

AGREED WITH:

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 \_\_\_\_\_  
 \_\_\_\_\_, 2024

APPROVED BY:

K. A. Turdukozhoev   
 Vice President, KGC CJSC  
, 2024

**TERMS OF REFERENCE**

**for engineering services for the development of feasibility study and design and estimate documentation (Project stage) of the KGC Mill Historical Tailings Processing Complex**

Item №	Basic data and requirements	List of basic data and requirements
1	Client's organization	Kumtor Gold Company CJSC (KGC)
2	Contractor's organization	To be selected by the Client on a tender basis
3	Basis for Feasibility Study and Design	<ul style="list-style-type: none"> <li>- Concession Agreement dated June 6, 2009, between the Government of the Kyrgyz Republic and KGC CJSC.</li> <li>- Order of the Cabinet of Ministers of the Kyrgyz Republic dated December 6, 2021, No. 313-r (amended by Order of the Cabinet of Ministers of the Kyrgyz Republic dated October 10, 2022, No. 548-r).</li> <li>- Materials of metallurgical research.</li> </ul>
4	Name and location of the facility	KGC Mill Historical Tailings Processing Complex (hereinafter - the Complex), Kumtor Mine, Jeti-Oguz District, Issyk-Kul Oblast, Kyrgyz Republic.
5	Type of Construction	<p>New Construction</p> <ul style="list-style-type: none"> <li>• It is planned to construct the Tailings Processing Complex with its own infrastructure.</li> <li>• The body of the existing tailings storage facility will remain in place.</li> <li>• The existing gold processing plant (Mill) will operate in parallel with the tailings processing plant until the end of open pit mining operations, including future underground ore extraction.</li> <li>• The Mill's tailings, 6-6.5 mln tones per year, will be fed to the tailings processing plant mixed with the historical tailings from the existing tailings storage facility.</li> <li>• For the first few years, the processed tailings will be stored in the new tailings storage facility, and a portion of the existing tailings storage facility will gradually be emptied.</li> <li>• The processed tailings will then be stored in the emptied portion of the existing tailings storage facility. Barrier shafts will be arranged between the still unprocessed tailings and the processed tailings.</li> </ul>
<b>STAGE 1</b>		
<b>Trade-off study</b>		
6	Purpose of the Trade-off Study	<ul style="list-style-type: none"> <li>• Select the most economically, technologically, and environmentally optimal method of tailings processing based on</li> </ul>

		<p>the results of metallurgical research conducted based on advanced technology, international environmental requirements and considering local conditions.</p> <ul style="list-style-type: none"> <li>• Preliminary calculation of capital (CAPEX) and operating (OPEX) costs.</li> </ul>
7	Requirements for the composition of work at the <b>Trade-off Study</b> stage	<p>The following pretreatment options shall be considered:</p> <ul style="list-style-type: none"> <li>- Autoclave leaching technology</li> <li>- Bioleaching technology</li> <li>- Roasting technology</li> </ul> <p>The following documentation shall be submitted:</p> <ul style="list-style-type: none"> <li>- Process design criteria</li> <li>- Process description</li> <li>- Process flow chart</li> <li>- Material &amp; thermal balances</li> <li>- List of equipment</li> <li>- Estimate of capital costs (+-30%)</li> <li>- Estimate of operating costs (+-30%)</li> </ul>
<b>Control test work (pilot tests)</b>		
8	Purpose of the control test works	<ol style="list-style-type: none"> <li>1. Conduct grinding tests to select and determine the proper grinding technology.</li> <li>2. Conduct thickening, filtration, and other necessary process parameters tests to select and determine the proper technology.</li> <li>3. Conduct pilot tests of the selected technology to ensure process guarantees.</li> <li>4. Pilot tests of the selected technology will confirm the results of the metallurgical research and ensure the proper selection of the sizes of flotation equipment and concentrate and tailings thickeners required for the design purposes.</li> <li>5. Produce concentrate from historical tailings samples for pilot tests. The Client shall provide the required volume of the historical tailings samples.</li> <li>6. Pilot tests shall be completed prior to the commencement of the Project stage.</li> </ol>
<b>Technological Regulations</b>		
9	Purpose of the development of the Technological Regulations	Description of the main technological indicators, parameters, processes for further development of the feasibility study and engineering documentation of the Complex.
10	Requirements for the composition of Technological Regulations.	<ol style="list-style-type: none"> <li>1. Material composition of the historical tailings (based on representative samples).</li> <li>2. Review of the conducted enrichment studies and metallurgical tests.</li> <li>3. Processing Technology.</li> <li>4. Material composition and physical and mechanical properties of processed products.</li> <li>5. Control and testing of the technological process.</li> <li>6. Automation, process monitoring and control systems.</li> </ol>

		<p>7. Mechanization of technological operations, repair, and auxiliary works.</p> <p>8. Environmental aspects of industrial production.</p> <p>9. Health, safety, and industrial hygiene.</p> <p>10. Measures to ensure the safeguarding of gold.</p> <p>11. Qualitative-quantitative, water-slurry diagrams, apparatus circuit diagrams and specification of the main process equipment.</p> <p>12. Recommendations for the Mill operations and storing of processed tailings.</p>
11	Regulatory references for the works	<p>Conducted research on the work subject and generally accepted international standards and requirements.</p> <p>Application of the Regulatory Legal Acts of the Kyrgyz Republic and other regulatory documents in force in the Kyrgyz Republic would be an asset.</p>
<b>Feasibility Study</b>		
12	Design stages	Feasibility Study (FS)
13	Purpose of the FS	Determine the project content, production parameters and design criteria for cost-benefit assessment.
14	Requirements for the FS composition	<ol style="list-style-type: none"> <li>1. Main types of design documents required for the feasibility study development.</li> <li>2. Composition and content of sections of design documents.</li> <li>3. General provisions.</li> <li>4. Summary of the investment project.</li> <li>5. Introduction.</li> <li>6. Technological section.</li> <li>7. Environmental section.</li> <li>8. Project management schemes.</li> <li>9. Section of economics of construction production and main technical and economic indicators.</li> <li>10. Section of selecting the area and construction site.</li> <li>11. Utilities section.</li> <li>12. Social section.</li> <li>13. Suggestions based on the data obtained.</li> <li>14. Appendices.</li> <li>15. Procedure for development and approval of design documents.</li> </ol>
15	Regulatory references for the works	<p>Developed technological regulations and generally accepted international standards and requirements.</p> <p>Application of the Regulatory Legal Acts of the Kyrgyz Republic and other regulatory documents in force in the Kyrgyz Republic would be an asset.</p>
16	Complex of tasks to be solved by construction	<p>Technical and economic assessment of gold extraction shall be conducted, and engineering documentation for the Complex shall be developed.</p> <p><b>The Contractor shall conduct the following types of work.</b></p> <ul style="list-style-type: none"> <li>• The method for processing the historical tailings shall be selected considering the physical and mechanical properties of</li> </ul>



		<p>the technogenic mineral deposit (TMD), permafrost, seismicity, hydrogeology, waste disposal, equipment and personnel requirements, high altitude, energy supply, access to the technogenic deposit, occupational safety, and fire safety.</p> <ul style="list-style-type: none"> <li>• The technological process shall be described, including design criteria, process flow diagrams, volumes of technogenic mineral deposit to be processed, equipment layout plans, maintenance, and supply requirements, as well as requirements for reagents and other consumables.</li> <li>• Locations for buildings and structures, communication routes (tailings pipelines, water pipelines, access roads, etc.) of the Complex shall be selected.</li> <li>• Utility requirements shall be determined including power supply, water supply, fuel supply, access roads to estimate capital and operating costs.</li> <li>• Environmentally acceptable and effective methods for disposal, storage of processed tailings, processing of industrial effluents shall be developed.</li> <li>• The impact on the physical and economic environment shall be studied and mitigation measures shall be developed. Generally accepted international standards and requirements shall be considered. Application of the Regulatory Legal Acts of the Kyrgyz Republic and other regulatory documents in force in the Kyrgyz Republic would be an asset.</li> <li>• Preliminary requirements for the construction of foundations shall be determined.</li> <li>• Conceptual solutions for the Mill/plant, water supply system, method of disposal and storage of processed tailings, management and maintenance system, household plant, warehouse facilities and camps for construction and operations personnel.</li> <li>• End-of-life closure and reclamation plan in accordance with generally accepted international standards and requirements. Application of the Regulatory Legal Acts of the Kyrgyz Republic and other regulatory documents in force in the Kyrgyz Republic would be an asset.</li> <li>• Optimal plans for logistics, work organization and transportation of materials to the technogenic deposit shall be developed.</li> <li>• Construction and operation plan shall be developed, including implementation schedules, determining labor requirements, considering their qualifications, and creating normal working and living conditions.</li> <li>• Capital and operating costs shall be estimated <b>with an accuracy of up to 10%</b>.</li> <li>• Sensitivity analyses of the impact of changes in inventories, productivity, prices, revenues, and financial conditions shall be conducted.</li> </ul>
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		<ul style="list-style-type: none"> <li>• The degree of technical and financial risk of the project shall be assessed.</li> <li>• Environmental Impact Assessment (EIA).</li> <li>• A final report shall be prepared to make a final construction decision and to submit it to financial institutions.</li> </ul>
17	Specific requirements for the document to be developed	<ul style="list-style-type: none"> <li>• The composition and content of the Investment Justification materials shall be sufficient to select the main technical and economic characteristics and make an informed decision on investing in the project.</li> <li>• If the data obtained indicate insufficient profitability of the investment project, it is necessary to review and adjust the project parameters, the production program, and the adopted technology in agreement with the Client to improve the efficiency of the project.</li> <li>• The final documents shall contain recommendations on the procedure for further design and construction of the facility, providing the investor with maximum and stable profit over time, achievement of positive social results and other positive effects.</li> </ul>
18	Development requirements (to be specified during the feasibility study development)	<ul style="list-style-type: none"> <li>• The work shall be conducted in accordance with global industry best practice for the processing of historical gold-bearing tailings.</li> <li>• All technical decisions shall be agreed with the Client.</li> <li>• Risk assessment (technical, technological, environmental, financial, etc.) shall be conducted.</li> <li>• etc.</li> </ul>
19	Feasibility study development period	The Feasibility Study shall be developed, if possible, in parallel with pilot tests and the development of Trade-off Study and Technology Regulations.
Stage 1 work - Trade-off study, pilot tests, development of Technological Regulations and Feasibility Study - shall be conducted in parallel as much as possible to meet the overall deadline.		
<b>STAGE 2</b>		
<b>Design and estimate documentation (Project stage).</b>		
20	Design stages	Design and estimate documentation (Project stage).
21	Purpose of the Project stage development	Design and estimate documentation of the Complex shall be developed, based on the Feasibility Study developed and agreed by the Client.
22	Regulatory references for the works	Developed technological regulations and generally accepted international standards and requirements. Application of the Regulatory Legal Acts of the Kyrgyz Republic and other regulatory documents in force in the Kyrgyz Republic would be an asset.

23	Preliminary (not final) composition of the Project stage facilities (to be specified during the feasibility study development)	<p>The project shall provide for construction of the Complex, which includes the following main facilities:</p> <ul style="list-style-type: none"> <li>- historical tailings processing area</li> <li>- pulping and pumping of raw materials (tailings) to the Complex</li> <li>• The Building Complex, including the areas: <ul style="list-style-type: none"> <li>- grinding area</li> <li>- flotation area</li> <li>- slurry thickening area</li> <li>- tailings biological oxidation area</li> <li>- slurry neutralization and decantation area</li> <li>- carbon sorption and cyanide leaching area</li> <li>- desorption area</li> <li>- melting area</li> <li>- slurry detoxification area</li> <li>- tailings filtration area</li> <li>- reagents mixing area</li> <li>- process laboratory</li> <li>- equipment mechanical and plumbing repair area</li> <li>- generator room</li> <li>- compressor room</li> <li>- instrumentation area.</li> </ul> </li> <li>• Tailings pond (new) and tailings management facility</li> <li>• Ponds, basins, tanks for recycled water: (process water of different quality, reagent make-up water, washing water, drinking water, rainwater, other water required for the selected technology, etc.)</li> <li>• Warehouses: <ul style="list-style-type: none"> <li>- Highly toxic materials warehouse</li> <li>- Spare parts and equipment warehouse</li> <li>- Sulphuric acid storage warehouse</li> </ul> </li> <li>• Access roads to all facilities of the Complex</li> <li>• 110 kW substation</li> <li>• Assay lab</li> <li>• Residential camp with administrative infrastructure: <ul style="list-style-type: none"> <li>- Administrative and household building for _____ people - 1 pc.</li> <li>- Dining room for _____ seats.</li> </ul> <p>Cooking cycle is complete. 1-month supply of food shall be provided.</p> <ul style="list-style-type: none"> <li>- Residence hall for workers and engineers, for _____ people. In the amount of _____ pieces.</li> </ul> <p>Staffing shall be determined by the project.</p> </li> </ul>
24	Operating mode of the enterprise, number of employees	<ul style="list-style-type: none"> <li>- Operating mode of the Complex: 365 days a year, continuous working week, 2 x 12-hour shifts with 1-hour break.</li> <li>- Rotational work.</li> <li>- Number of employees of the projected facilities.</li> </ul>

25	Design throughput of the Complex	Ore processing: - 12 mln tons of ore per year. - Average gold grade in technogenic mineral deposit (TMD) 0.799 g/t. - Total ore processed over the entire period of operation - more than 160 mln tones. Note: All figures are in terms of dry weight.
26	Nomenclature of the products produced	The final product of the processing complex is doré alloy.
27	Operating mode of the Complex process equipment	Equipment utilization factor - 0.9 Equipment availability factor - 0.9
28	Specific conditions of the construction site	The facility is located in a high-altitude area in permafrost conditions, the altitude above sea level is 3,700-3,800 m. Geotechnical and geocryological factors, seismicity and climatic data of the construction site shall be accepted according to the engineering survey report submitted by the Client.
29	Basic requirements for engineering and technological equipment	The use of modern engineering technological equipment shall be provided in accordance with the functional purpose of the premises and applicable regulations that meet the requirements for the given climatic zone. Modern energy-saving technologies shall be used when conducting the project works.
30	Requirements for the content of the design and estimate documentation (Project stage) (to be specified during the feasibility study development)	<p><b>1. General information:</b></p> <ul style="list-style-type: none"> <li>- natural conditions</li> <li>- geological structure and engineering-geological conditions</li> <li>- topographic study</li> <li>- brief climatic characteristics</li> <li>- hydrogeological conditions</li> <li>- etc.</li> </ul> <p><b>2. Technological solutions:</b></p> <p>2.1 Information about metallurgical studies conducted on tailings processing.</p> <p>2.2 Initial data for design, operating modes, and throughput of the Complex.</p> <p>2.3 Characterization of raw materials, auxiliary materials and finished products.</p> <p>2.4 Description of the technological process and technological scheme of tailings processing.</p> <p>2.5 Standards of the technological process of the Complex.</p> <p>2.6 Process control.</p> <p>2.7 Basic rules for the safe introduction of the technological process.</p> <p>2.8 Principal process, water-slurry, and qualitative-quantitative schemes.</p> <p>2.10 Calculation of metallurgical balance of the Complex.</p> <p>2.11 Material calculation for the entire process, showing yields of final and intermediate products.</p>

		<p>2.12 Recommendations on the value of process losses.</p> <p>2.13 Develop a process instrumentation diagram (PID).</p> <p>2.14 Progressive specific consumption rates of technological materials, fuel, and energy resources.</p> <p>2.15 Develop a method for processing and a system for supplying raw materials (historical tailings) into the Complex.</p> <p>2.16 Develop a method of transportation and methods of storage of processed tailings of the Complex.</p> <p>2.17 etc.</p> <p><b>3. Architectural and constructional solutions:</b></p> <p>3.1 General data</p> <p>3.2 Selection of sites</p> <p>3.3 Main building of the Complex including the areas: grinding, flotation, thickening, sorption, drying and roasting of raw materials and other areas.</p> <p>3.4 Area of the station for pulping and pumping of raw materials</p> <p>3.5 Desorption and electrolysis area</p> <p>3.6 Highly toxic materials and reagents warehouse and reagents mix areas.</p> <p>3.7 Sulphuric acid storage</p> <p>3.8 Assay lab</p> <p>3.9 Administrative and household building</p> <p>3.10 Residential camp area with infrastructure</p> <p>3.11 Production and fire water supply tanks</p> <p>3.12 Pump station</p> <p>3.13 Domestic sewage treatment plants</p> <p>3.14 Surface water treatment plants</p> <p>3.15 Sewage pump station</p> <p>3.16 Determine and justify the composition, parameters and layout of mechanical equipment and steel structures in terms of mechanical, lifting and transporting equipment and metal structures.</p> <p>3.17 etc.</p> <p><b>4. Tailings Pond and tailings management facility</b></p> <p>4.1 General data</p> <p>4.2 Selection of sites</p> <p>4.3 Tailings management facility complex</p> <p>4.4 Initial data for design</p> <p>4.5 Tailings storage capacity</p> <p>4.6 Enclosing dam</p> <p>4.7 Main scope of earthworks</p> <p>4.8 Technical characteristics of the dam</p> <p>4.9 Construction stages</p> <p>4.10 Drainage arrangement</p> <p>4.11 Infiltration control measures</p> <p>4.12 Design and technical characteristics of the screen</p> <p>4.13 Water balance of the tailings management facility</p> <p>4.14 Tailings hydraulic transport system</p> <p>4.15 etc.</p>
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		<p><b>5. Water recycling system:</b>  5.1 Recycling water basin  5.2 Pump station and hydromechanical equipment  5.3 Recycled water supply pipelines  5.4 Main tailings pipeline  5.5 Tailings distribution pipeline  5.6 etc.</p> <p><b>6. Power supply system:</b>  6.1 Industrial site of the Complex  6.2 Tailings management facility  6.3 Warehouses of the Complex  6.4 Justification of the adopted power supply scheme  6.5 etc.</p> <p><b>7. Water supply system:</b>  7.1 Water supply sources  7.2 Water supply system  - Drinking water supply system  - Hot water supply system  - Industrial and fire water supply system  7.3 Automatic fire suppression  7.4 Water flow rates and heads  7.5 etc.</p> <p><b>8. Water diversion systems:</b>  8.1 General provisions  8.2 Water diversion systems  8.3 Sewerage facilities  8.4 Rainwater drainage systems  8.5 Wastewater treatment system  8.6 Surface water treatment plants  8.7 Internal sewerage system  8.8 etc.</p> <p><b>Heating, ventilation, and air conditioning, heating networks:</b>  9.1 Information about heat supply sources, heating system coolant parameters, fans.  9.2 Justification of the adopted systems and principal systems for heating, ventilation, and air conditioning of premises.  9.3 Justification of optimal placement of heating equipment, characteristics of ducting materials.  9.4 etc.</p> <p><b>10. Gas and dust treatment system.</b>  10.1 Justification of the selected gas and dust treatment system, methods of controlling the efficiency of air treatment facilities and pollutant emissions.  10.2 Technology for processing captured and neutralized substances.  10.3 Measures to ensure fire safety of the Complex facilities.  10.4 Assessment of the environmental impact of the construction.</p>
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		<p>10.5 Recommended measures on nature protection and elimination of factors having negative impact on the environment and sanitary situation, prevention of emergency situations and elimination of consequences of their impact on the environment.</p> <p>10.6 etc.</p> <p><b>11. Construction costs.</b></p> <p>11.1 Efficiency of the investment project.</p> <p>11.2 Economic efficiency of the project.</p> <p>11.3 Financial analysis and determination of the financial efficiency of the project.</p> <p>11.4 Determine the need for labor resources by categories of employees (workers, engineers, officers), passenger and service transport.</p> <p>11.5 Perform sensitivity analysis (in terms of IRR or NPV) on the cost of commercial products, capital, and operating costs.</p> <p>11.6 etc.</p>
31	Requirements for the composition of the design and estimate documentation (Project stage) (to be specified during the feasibility study development)	<p><b>Sections of the project:</b></p> <ul style="list-style-type: none"> <li>- General Explanatory Note</li> <li>- Master Plan</li> <li>- Architectural and construction part</li> <li>- Hydrotechnical solutions</li> <li>- External power supply networks, on-site power supply networks</li> <li>- Power Electrical Equipment</li> <li>- External Electric Lighting</li> <li>- Heating and Ventilation</li> <li>- Technological part</li> <li>- Water Supply and Sewerage</li> <li>- External water supply networks</li> <li>- External sewerage networks</li> <li>- Environmental Protection</li> <li>- Fire Suppression</li> <li>- Automatic Fire Alarm System</li> <li>- Dust Removal</li> <li>- Estimates</li> <li>- Roadways</li> <li>- Low current systems</li> <li>- Complex Automation</li> </ul>
32	Commencement of the Project stage development	Upon approval of the Feasibility Study by the Client.
<b>STAGES 1 and 2</b>		
33	Requirements for submission of work results	<p>Results of the work shall be provided in Russian and English (by agreement):</p> <ul style="list-style-type: none"> <li>• in 4 hard copies.</li> <li>• in electronic Word, Auto CAD, and PDF format (stitched into an album by sections).</li> </ul>

		<ul style="list-style-type: none"> <li>• pptx presentation with short extracts with diagrams and visual illustrations.</li> </ul>
34	Basic initial data to be provided by the Client to the Contractor (if available)	<p>Initial data to be provided by the Client:</p> <ul style="list-style-type: none"> <li>- KyrgyzGIIZ report on engineering surveys on the facility: "Engineering-geological surveys at the site of production and infrastructure facilities of the Kumtor Mill historical tailings processing complex".</li> <li>- KGC Exploration Department Reports "Kumtor TSF Resource Estimate (as of 01.01.2022).</li> <li>- Blue Coast Research (BCR) report on metallurgical studies conducted on the KGC Mill historical tailings samples.</li> <li>- Metso Outotec report on metallurgical tests on the KGC Mill historical tailings samples.</li> <li>- Other documentation and materials shall be provided as necessary upon separate request of the Contractor.</li> <li>- Draft requests, applications for Terms of Reference shall be provided by the Contractor.</li> </ul>
35	Total duration of Stage 1 and 2 works	No more than six months.
36	Personnel training	During the development of Stage 1 and 2, the possibility of participation and training of young specialists of the Kyrgyz Republic in this work shall be considered. A training program shall be developed, both at head office and remotely.

The Terms of Reference drafted by:

K. Adygaziev  
Project Manager, Tailings Processing

S. Djuraev  
Process Engineer

M. Mamytkanov  
Process Engineer