CB No: MCA-M/CF/WRA/W-01

Invitation for Bids for the Wastewater Recycling Plant Design-Build

ANSWERS TO CLARIFICATION QUESTIONS – ISSUE No. 8 (Question 139-165)
December 03, 2021

Questions and Answers 1-32 were issued to all registered Bidders on August 24, 2021 Questions and Answers 33-35 were issued to all registered Bidders on August 27, 2021 Question and Answer 36 was issued to all registered Bidders on September 6, 2021 Questions and Answers 37-69 were issued to all registered Bidders on September 17, 2021 Questions and Answers 70-85 were issued to all registered Bidders on September 24, 2021 Questions and Answers 86-90 were issued to all registered Bidders on November 04, 2021 Questions and Answers 91-138 were issued to all registered Bidders on November 23 2021	
Question 139:	We understood that surge system shall be priced by the contractors (bidders) under this contract and a technical data will be provided from your side. Kindly advise when technical data for surge system will be available as in December / January many suppliers will have vacation due to Christmas seasonal holiday and it will be difficult to get any quotation.
Answer 139:	Please refer to answer to question # 81 and #106. The addendum related to the surge system will be issued by MCA-M to all Bidders in December, 2021. Bidders shall assume with a wide-range of reserve for the design of surge protection vessels considering basic information provided in the drawings indicated in Annex 3.1 of the Employer`s Requirements and the information indicated in Table 2-12 (Transfer Pump Station #2 Design Criteria), such as the pump flow capacity, Total Dynamic Head (TDH) and Estimated Pump motor.
Question 140:	Kindly advise if electrical works shall be priced under item 1.08 of schedule of prices and if breakdown is requested for electrical works.
Answer 140:	All electrical works described under ER section # 2.21 (General Electrical Requirements) and # 2.22 (Project Specific Electrical Requirements) which relate to the internal electrical systems of WRP shall be priced under item 1.08 of schedule of prices. Bidders shall provide break down of lump-sum price for the Schedule of Prices item 1.08, inclusive of all electrical work items. Please refer to Section IV of Tender Documents (Bid Submission Form # 32, "Breakdown of Rates and Prices Schedules". Design and electrical works related to the construction of Power Supply facilities (extension of NPTG's (National Power Transmission Grid) substation by two 10kV outlet feeders, 10kV double power cable line , 10/0.4kV substation with 2x1250kVA capacity at the WRP site) shall be priced under item 1.10 of schedule of prices. No breakdown for this item is required. Item 1.10 shall be an all-inclusive, fixed-price, lump-sum item for the design and construction of power supply facilities. The power demand was estimated by Tetra Tech (the company conducted the Feasibility Study) during the Feasibility Study which needs to be estimated again by the Bidders based on the power consumption of equipment proposing to install at the WRP and other relevant power consumption. If the power demand exceeds from the estimated level stated in the ER (the Power supply technical condition was based on the power demand estimation made during the FS stage) then, the later the Design-Build Contractor will be required to apply again to the Ministry of Energy for the power supply technical condition for the actual estimated total power demand of the WRP.

	Kindly note that design drawings prepared by the Contractor shall be managed jointly by the Contractor's local licensed design company in accordance with Article 3.6 of the Rule on Performing Designer's Supervision on Construction approved by the order #178 of the Minister of Construction and Urban Development in 2018. Costs of licensed design company shall be included in Item 1.08 and 1.10 respectively.
Question 141:	Kindly advise if breakdown is requested for civil works and it shall be priced under item 1.08.
Answer 141:	Bidders shall provide break down of lump-sum price for the Schedule of Prices item 1.08, inclusive of all civil work items. Please refer to Section IV of Tender Documents (Bid Submission Form # 32, "Breakdown of Rates and Prices Schedules".
Question 142:	Referring to clause ER 2.18 SCADA AND INFORMATION TECHNOLOGY (IT) SYSTEMS; it is requested "Distributed controller hardware systems will be provided throughout the facilities at major unit processes, such as the Transfer Pump Stations #1 and #2, MBBR basins, mixers, flocculation tanks, chemical feed systems, clarifiers, filtration, blower systems, sludge and backwash wasting, as well as all other processing facilities" Kindly advise if Common PLC system considered for complete process units is acceptable or the contractors shall propose Distributed controller hardware systems as requested in Clause ER 2.18.
Answer 142:	Bidders shall follow the requirements of section #2.18 of the ER, including the provision of distributed controller hardware systems.
Question 143:	If common PLC system is acceptable then we suggest not to consider HMI as common PLC system will be proposed with two operator workstations, server station and an engineer station. Kindly advise if that suggestion is acceptable or the contractors shall propose HMI as requested in the ER.
Answer 143:	Please follow the requirements for HMI and PLC hardware requirements (inclusive of SCADA server, operator and Engineer stations) stated in section # 2.25 of the ER as well as PLC and HMI Programming requirements stated in section # 2.26 of the ER.
Question 144:	Arrangement of Junction box inlet from CWWTP channel provided in P&ID and drawing number D-101 is not matching. Kindly elaborate this arrangement for our understanding.
Answer 144:	Please refer to answers to questions # 130 and #136. The Bidder shall propose in his/her Design Proposal (preliminary design and drawings) an optimal solution. The arrangement of Junction box inlet from the channel as indicated in the referred P&ID and drawings are for base case. Bidders can decide one or the other option (or even propose his own solution).
Question 145:	MBBR settled water and filter overflow going back to junction box / Tull river. We could not understand how this water will go back to River from the junction box. Kindly advise
Answer 145:	The intention is that the overflow and drain from the and the overflow from the filter should be directed back to the CWWTP effluent channel and which flows to the Tuul river. The intent is that the junction box also overflows to this effluent channel so the Bidder may route these overflows and drains back to either the junction box or directly to the CWWTP Effluent channel.

Question 146:	As per drawing D-101, Junction box is split into two compartments separated with sluice gate, this arrangement is not clear. Why there is two compartments? also it is not matching with P&ID and Hydraulic profile provided. Kindly advise
Answer 146:	Please refer to answer to question #144. Bidders shall propose their own arrangement for the junction box, in one, two or more compartments (as per their own solution given in their Preliminary Design proposal).
Question 147:	Launder for lamella outlet is shown separate in P&ID however as per drawing number D-104 is common at lamella outlet. Kindly advise.
Answer 147:	P&ID G-009 shows separate lines from each of the two lamellas to the dual media filters. These lines combined on G-011 prior to the filters. Drawing D-104 read in conjunction with D-502 shows how the launders from each of the lamella settlers enter into a common trough and then two lines from those troughs pass to the filters. The Lamella plate settlers (2 nos.) each have a sludge line outlets that connects to the sludge transfer pumps as shown on various drawings.
Question 148:	We understand that there is one administration building with operation room from where the operation shall be controlled and also SCADA system shall be placed on the operation room of admin building. Kindly advise if our understanding is correct.
Answer 148:	Your understanding is correct.
Question 149:	We understand that there is one administration building that shall include one office, one laboratory, one operation room with washroom. Kindly advise if our understanding is correct.
Answer 149:	The administration building shall cover a surface of about 500 square meters but not limited to. Function must include: • Offices for following administrative staff: Director and Chief Engineer Procurement Specialist Accountant Secretary to Director HR Manager • Offices and locker room for following technical workers: Operation & Maintenance Engineer Process Engineer Instrument & Control Technician Electrical Equipment Technician Mechanical Equipment Technician Chemical Laboratory Engineer Room for technical workers operating by shift (WRP operators, etc.) • Laboratory • SCADA control room incl. operator room with separate server room • Washroom facilities • Kitchen/pantry • Power room (for the main Motor Control Center (MCC) (if decided by the Bidder) • Telecommunication/server room

	For more information on the laboratory facility/arrangement, please refer to answer to question #119. Kindly note that as per provision of section # 2.17.15 of the ER, the Bidders shall also consider the provision of adequate space for tools, spare parts, other storage, and supporting utility infrastructure and their Operation & Maintenance (which could be in form of a warehouse/workshop). These facilities should be located in close proximity to the administration/laboratory structure.
Question 150:	As per ER there is six PLC required for each process like Transfer Pump Stations #1 PLC, DCB/Transfer Pump Stations #2 PLC, MBBR PLC, RM/ flocculation PLC, Filtration PLC and EQ waste basin PLC. We want to know the location of these PLC. Where these PLCs should be located. Accordingly, we have to consider the JB / cabling requirement based on the location of PLCs.
Answer 150:	Each PLC shall be installed with an associated panel-mounted touchscreen HMI installed in each of the 6 facility/buildings (e.g. Transfer PS #1, MBRR PLC, etc.), and shall be linked via a fiber optic (Ethernet / Modbus TCP) ring network to the SCADA system.
Question 151:	As per ER, there are six MCC panel. One main MCC feeding power to other 5 MCCs of Process like Transfer Pump Stations #1, DCB/Transfer Pump Stations #2, MBBR, Filtration and EQ waste basin. There is no separate MCC for RM/ flocculation process (whereas PLC is considered separately), kindly advise if contractor shall consider power of this process from MBBR MCC or Filter/MCC dep
Answer 151:	Bidders shall design and be responsible for all Motor Control Centers (MCC) necessary to control the 'Plant' and the treatment processes. Bidders shall also assume responsibility for the design of the power and controls systems between them, and to and from the specified control and monitoring points. PLC from RM/ flocculation process can be powered from MBBR MCC or from MBBR/filter, considering the locations of the respective facilities or equipment as proposed by Bidders in their Preliminary Design Proposal. MCC panel drawings and power/control system diagrams shall be part their Preliminary Design Proposal.
Question 152:	In some of the diagram location of pump stations MCCs are shown above the pump house. What is the location of main MCC and other MCCs? Are these MCCs are located in Admin building?
Answer 152:	The MCCs (Motor Control Center) need to be installed close to the equipment (electric motors) in a separate building due to harsh environmental condition during the cold season. For PS #1 and PS#2 the MCCs can be installed inside the pumping station building at a higher level. For other equipment such as MBBR, Coagulation, Flocculation equipment, sludge handling facility the MCCs need to be installed close to the equipment (electric motors) in a separate building. The MCCs can be installed as a containerized solution - with an HVAC system that can be use both for heating and cooling and a section with installation of measuring devices and control system components. It may not be an appropriate solution to install the MCC inside the Administration Building which will far away from the technological equipment of the WRP (MBBR, Coagulation, Flocculation equipment, sludge handling facility, etc.).
Question 153:	Kindly advise if the contractor shall consider HVAC for the rooms above pump house where pump station MCCs are located and shown in some of the drawings.
Answer 153:	Please refer to ER section # 2.20.2 (Pumping Station Ventilation)

Question 154:	Kindly advise if heat tracing of piping is requested as the ambient temperature of site is -40 Deg C.
Answer 154:	The Bidder is required to propose a facility which is operable in the local climatic conditions and it is likely that the Bidder's design will require some heat tracing to be installed. The Bidder should prepare its design in a way that minimizes heat tracing requirements for example pipes should be installed sufficiently below grade to be below the freezing level where possible. Where heat tracing cannot be avoided it should be provided to industry standard and practical requirements. An addendum will be issued provided further definition of the heat trace requirements which are considered to be industry standard. In addition to heat tracing, please refer to ER section # 2.19.59 (Pipe Insulation), section # 2.19.59.1 for above ground insulation and section # 2.19.59.2 for above ground pipe insulation. Thermal insulation (field applied) using standard products are recommended. Bidders shall make their own proposal for insulation material and pipe insulation works as per these Specifications and the specified ASTM standards. Kindly note that as per Mongolian industrial practice specific instruments (such as bulk flow meters or pressure data loggers or transmitters) are installed indoor where feasible, and where not feasible installed outdoor with the necessary electrical heat tracing beside applying thermal insulation.
Question 155:	Kindly advise if heat tracing for instrument tubing is requested as the ambient temperature of site is -40 Deg C.
Answer 155:	Please refer to answer of previous question (# 154). If the Bidder estimates that instrument tubing requires insulation a proposal shall be made accordingly by the Bidder. For instance trace heating might be needed for the impulse pipe if installed under outdoor conditions.
Question 156:	Kindly advise if Utility water and potable water connections shall be part of this tender.
Answer 156:	Bidders shall quote for utility connections at connection point of water, wastewater & heating utilities with the New CWWTP as indicated in Drawing (see ER ANNEX 6 - Access road, drawings, effluent discharging channel's design and layout of the NCWWTP), Sheet No 2 indicates the connection points of heating, water supply and domestic sewage for the WRP utilities (interconnection with built or soon to be built utilities by other contractors in charge of the New CWWTP). For information: • The heat demand of the WRP has been included in the heat demand of the new CWWTP (design drawing document for heat supply to the New Central Wastewater Treatment Plant). The diameter of the heat supply pipeline on at the POC shown in the above-mentioned drawing is DN200. WRP will have its individual heating substation (with a heat exchanger) to prepare heating and domestic hot water for the facilities (administration building and possibly other facilities) • The diameter of the pipeline for supplying freshwater (potable) from the New Central Wastewater Treatment Plant is planning to be DN 200mm (from connection point shown in the drawing to the water network system of WRP to be designed by the Bidders) based on the estimation of potable water consumption done by the PMC. • The point of the WRP to discharge the administration building's wastewater to the New CWWTP's sewage discharging pipeline (POC is shown in the drawing) is planned to be in range of DN 200-250 mm diameter. By preliminary estimation water use at the office building is 1.92 m^3/hr (this amount shall be considered for removal of domestic wastewater from administration building to the interconnection point at the New Central Wastewater Treatment Plant). But the Bidder will be responsible for final calculation and designing the utilities until the POC.
Question 157:	Kindly advise if clarification system that combines the coagulation, flocculation and

	clarification stages into a smaller footprint system will be acceptable.
Answer 157:	Section # 2.17 of the ER describes a base case conceptual design with a coagulation, flocculation and clarification stages for the rapid mix/flocculation/lamella plate settling (incl. MBRR) which will provide additional settling of CWWTP effluent solids. If the Bidder's design meets and does not change the Employer's Requirements (e.g. it maintains the same minimum sizes and it is a change in configuration/layout only) it may be acceptable. If it would require a change to the Employer's Requirements, it is not acceptable at this time. MCA had allowed Bidders to provide summaries of proposed changes to the Employer's Requirements which would have created value but the timelines for these changes as described in the IFB has passed. After award, the successful Bidder will be able to propose value engineering ideas following the process described in FIDIC 13.2, but their Bid must be based on the requirements as specified in the IFB and not predicated on acceptance of changes..
Question 158:	At the date of issuance of the Taking Over Certificate, the Contractor shall leave all chemical tanks full and shall have provided all spare parts specified. Kindly advise if the contractor shall consider the price of filled chemical tanks under item 1.06 or 1.08 of schedule of prices and confirm that spare parts will be priced under item 1.08.
Answer 158:	Please refer to answer of question # 111. Item 1.08 covers the costs for the chemicals (all chemicals tanks to be full till successful Tests on Completion and Trial Operation, meaning till issuance of TOC) and other items (Laboratory equipment/consumables, spare parts, fuel lubricants, tools etc.).
Question 159:	Kindly confirm if ER 2.3 and ER 2.6 shall be priced under item 1.06 of schedule of prices.
Answer 159:	ER section # 2.3 relates to other project requirements (time for completion, permitting, qualification of contractor staff etc.). Same for answer 2.6 which covers general requirements. Question needs to be more specific (e.g. which sub-item, e.g. additional site investigation, Engineer`s vehicles etc.) to be answered.
Question 160:	Referring to Form TECH-1; it is requested to submit a chemical cost. Kindly advise what exactly should be submitted by the contractor. Is it a selling price / kg of each type of chemical?
Answer 160:	The Chemical Cost for Mongolian Conditions and Prices requested in TECH-1 shall be the annual cost based on the cost of supply of the chemicals in Mongolia and typical operating conditions (chemical dose, design flow rate, etc.). As with the annual power consumption that is also requested in TECH-1, the Bidder shall provide a simple summary calculation that shows the reasonable assumptions it has made to identify the estimated annual chemical cost.
Question 161:	Referring to MBBR tanks dimensions; kindly note that the dimensions in ER is 14 m x 18 m while in drawings it is 7 m x 18 m. kindly advise which dimensions shall the contractor proceed with.
Answer 161:	Each train is dimension to 7 m x 18 m meaning for the total MBBR tank area (14 m x 18 m). Kindly note the dimensions are indicative and correspond only to the base case described in section #2.17 of the ER?. Bidders shall develop their own conceptual design and pre-sizing of all WRP elements inclusive of MBBR (as part of their Preliminary Design Proposal)
Question 162:	Referring to DRW E-001; kindly confirm that OSG is referring to chlorine generator.

Answer 162:	The statement is correct: OSG means: On-Site Generated (OSG) Sodium Hypochlorite equipment. See drawing G-015 for the systems minimum requirements. The OSG system shall be of typical industry standard as used in municipal treatment facilities and comply with the standards and requirements identified generally for equipment in the Employer's Requirements.
Question 163:	Referring to the "Employer's Requirements - WRP and relevant infrastructure" - The MBBR and lamella clarifier design have been specified. The *(word missing from question amd MCA assumes missing word is "Design")* can meet the performance requirements, but the specifications are different (i.e., tank dimensions, HRT, filling rates, etc.). Please confirm if the bidders are allowed to deviate from the specification indicated in Sections 2.17.3 up to 2.17.7.
Answer 163:	Please refer to the response to Q157.
Question 164:	Do the design specifications indicated in the Employer's Requirement correspond to peak flow conditions?
Answer 164:	The project design specification is based on providing a net recycled water production rate of 50,000 m^3/day for both CHPPs combined. This is the maximum flow that the WRP is required to treat. Section 2.17 of the ER describes the turndown requirements of the WRP as "The new WRP shall be designed so that it can be operated with a minimum flow of 20,000 m^3/day which may be achieved by taking one of two treatment trains out of service and with another train operated at 80% capacity. Additional turndown is encouraged". At peak flow slightly more than 50,000 m^3/day of treated wastewater will be taken by the WRP from the effluent channel of the new central wastewater treatment plant (CWWTP) to account for losses in the WRP. Any flow from the CWWTP higher than the above value will not be treated at the WRP and will continue in the CWWTP effluent channel to the Tuul River. Kindy refer to section 4.4. of the Feasibility Study report to obtain more information on potential operational conditions and procedures related to normal and emergency flow as well as water quality and seasonal supply conditions.
Question 165:	Please provide CAD format of site location plan, including elevation information.
Answer 165:	The CAD drawings are not available.