



The Arab Republic of Egypt Kafr El Shiekh Water and Sanitation Company

Kitchener Drain Project - Wastewater Component

Response to Contractors Clarifications

for

Design and Build of El Nassrya Wastewater Treatment Plant 10,000 m³/day

Ref. No./ Contract No.	2/KAS/KP/Works/2022
Implementing Entity	Kafr El Shiekh Water and Sanitation Company
Loan Operation No.	N° FI 87454 Serapis No 2017/0090
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Response to Contractors Clarifications- EI Nassrya WWTP Design & Build Tender Documents

Q#	Question	Answer
Technical Clarifications		
1.	Geotechnical Investigation Report: • please identify the following data: - Finish ground level of STP "	<p>The average existing plant level is (+2.5), the paved external road level is (+4.6), and the required plant finished level is (+3.6). The Contractor shall raise the plant site level using imported and compacted sand.</p>
2.	"Volume 3: Drawings & EI Nassrya Final Survey" "Drawing No. 5, it's mentioned ""finishing floor level of the WWTP (+0.80)"" While in EI Nassrya Final Survey drawing. Notice that the finish ground for the plant is between 2.31 to 2.66" Kindly advise the finish ground level for the plant site	
3.	We noticed that there is a level difference between the external road and the average level of the site. Will a ramp be made to enter the site land and determine the final level, or will the site land be raised and elevated at this value?	
4.	The soil surveys report did not include recommendations for establishing treatment units and various buildings. Please explain	<p>The detailed soil investigation shall be conducted by the awarded contractor as stipulated in the tender documents. This investigation is an essential step to provide accurate and comprehensive data for the construction stage.</p> <p>In addition, during the tender stage, it is allowed to perform soil investigation at your own cost prior to submitting your offer. However, please make sure to follow the relevant guidelines and regulations outlined in the tender documents to ensure that your investigation aligns with the project requirements.</p>
5.	In the soil investigation and foundation recommendation report we never got the recommendation of the foundation system required. Kindly we need your advice	
6.	Geotechnical Investigation Report Please advise us with the foundation recommendations for the process and non-process buildings	

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7.	Instrumentation & Control "Volume 1: - Technical Specification "4.12.1 Control and Monitoring System Item A General /P14 "It's mentioned that Redundant PLC &HMI units to be installed in the control room Please Confirm our understanding for the following items: - Redundant (Power supply - CPU) Located in the main PLC room connected to three remote IO Panels each panel will be provided with HMI those panels will be Located in the following buildings (Headworks, Biological Treatment, Chlorination)	The supplier may propose a SCADA system without the two PLCs (specified in Item 4.12.1) installed in the control room as per his system design to interface the site PLCs with the SCADA. Each PLC in the site should have a redundant power supply. Any other modules redundancy is optional to support the system availability.
8.	Instrumentation & Control "Volume 1: - Technical Specification "4.12.14.5 SCADA/PLC Hardware Configuration /P152 , 4.12.14.5 System Backup/Redundancy Requirements /P155 "Reference to redundancy requirements in tender document, please note that he is a discrepancy between item No. (4.12.14.5 SCADA/PL Hardware Configuration) and item No. (4.12.14.5 System Backup/Redundancy Requirements) Please Confirm our understanding that historian server for SCADA system is not required	SCADA & Historian Servers are required. Both SCADA and Historian functions may be combined in one server or two separate servers The system design should include a redundant server for both SCADA and Historian.
9.	Please clarify if the SCADA system is required or not	SCADA system is required.
10.	Please confirm that the Complete Scada system is required at this station	
11.	Instrumentation & Control "Volume 1: - Technical Specification "4.12.5.1.1 Item C.1 General /P144 It's mentioned That Main Control Panel in each pump substation in the plant for remote and Auto control functions, this panel shall include the PLC • Please Confirm our understanding for the following items: - 1-Local Control panel installed Beside the equipment's (Local/Remote) 2-MCC Panel located in the electrical room (Manual/Automatic) 3-PLC Panel installed in the PLC room for automatic operation only (this is the only panel included PLC)	Please follow item 4.12.5.1.1 The supplier may propose the functions for Local/Remote & Manual/Automatic as per his system design.
12.	Please determine number of control panel including PLC needed to be supplied or it will be according to contractor design	Confirmed, the required control system is redundant PLC. Please follow the SCADA specifications
13.	Please confirm that the required control system is Redundant PLC system not Hot-standby PLC system	
14.	Please determine the UPS needed capacity	

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15.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.1 General" Redundant PLC &HMI units to be installed in the control room, the tenderer may propose a SCADA system without PLCs installed in the control room as per his system design. "Please advise if the redundant required or not? And if required, please advise which of the following will be redundant: -</p> <ul style="list-style-type: none"> a- CPU b- Power supply c- Communication card d- IO's card. e- UPS. f-HMI" 	<p>The SCADA design and no. of units in the control room will be designed by the contractor.</p> <p>Refer to item 4.12.14 for the system configuration and redundancy. In general, each PLC should have a redundant power supply, any other modules redundancy is optional to support the system availability.</p>
16.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.6.1.3 Programmable Logic Controller PLC" Analogue I/O modules shall be with minimum resolution of 18bit channel to channel isolated. In case of PLC malfunction, the state of the PLC outputs shall turn to a safe condition. This condition shall be programmable to either high, low or keep last state. The PLC digital I/O modules shall be high density 24VDC. Please confirm no need to have an analog input module with 18 bit resolution as minimum however the 12/16 bit resolution will be standard, available and applicable for our applications. Please advise, and also note that 18 bit /conformal coating is manufacturing by one supplier only (Allen Bradley), and 16/12 bit is available for Schneider/Siemens/Allen Bradley.</p>	<p>Standard modules can be used.</p>
17.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.6.1.3 Programmable Logic Controller PLC" PLC environmental conditions as per (IEC1131-2). The attention of the contractor is drawn to the fact that wastewater station is a highly polluted with corrosive gases. The contractor shall take protective actions to ensure long service life of the components proposed, and to use conformal coating to PLC modules located in harsh environments only. Please confirm that we can use PLC & HMI component's to be standard type instead of conformal coating type which will be installed in building far away from biological treatment area.</p>	<p>All components in corrosive areas should be protected against the environmental conditions, so conformal coating is required.</p> <p>The protection type and degree should be provided for each component.</p>
18.	<p>Automation, Level status will be shown on the HMI and no need to add pilot led for second indication. Please confirm.</p>	<p>Pilot let is required.</p>
19.	<p>Automation, please advise, the PLC System will be modular or rack type?</p>	<p>Modular.</p>

Q#	Question	Answer
20.	Automation, Please confirm contractor can use master plc and RTU.	Please refer to system design which can be subjected to supplier design.
21.	"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.14.2 SCADA/PLC System Architecture" The importance of the Waste water control center requires a high degree of system availability. In order to meet this requirement, redundant hardware and software support systems shall be provided and the system shall be designed to ensure that no single points of failure exist which may significantly degrade the availability of any of the basic SCADA/PLC functions. "Please advise if the redundant required or not? And if required, please advise which of the following will be redundant :- A-Scada server B-Historian Server C-operator workstation"	Please refer to Q13. All items shall be redundant.
22.	Instrumentation & Control "Volume 1: - Technical Specification "4.12.11 Item A Tanks and Sump /P149 "It's mentioned that Each tank and sump shall be equipped with Ultrasonic level Transmitter (anti-foam type) and level electrode (LSLL-LSL-LSH-LSHH). Each dewatering pit shall be equipped with level electrode (LSL-LSH). Please confirm that every Sump will be equipped with ultrasonic level transmitter it's analogue signal will be transmitted to PLC and low-level switch Float type will be installed for pumps Dry run protection	Please follow item 4.12.11.
23.	What is the preferred type of transducer chosen such that the emitted beam covers an area that avoids obstacles and reflections to prevent spurious readings?	The narrow beam angle is a 5-degree.
24.	Please provide information about the nature of the fences for the site. Will they be buildings or plastic-lined wire fences? Please provide information about the internal and external finishes of the fences.	The permanent plant fence will be constructed from reinforced concrete foundations, columns, and beams with a brick wall, cement plaster, and paints.
25.	Please confirm the WWTP fence shall only cover the used part of the available area and not total available area.	The temporary fence during the construction period will be constructed based on section 14 of volume 2: Civil Works Specifications of the Tender Documents.
26.	Please confirm the understanding that the construction of all civil and electromechanical works shall satisfy the requirements of phase 1 only including but not limited to inlet works, primary clarifiers, aeration tanks, Final Clarifiers, distribution chambers, CCT, pumping stations, Electrical building,... etc., and Phase II to have a complete separate structures and units.	Confirmed.

Q#	Question	Answer
27.	<p>PART 1 – 1. Tender Documents Open Procedures one stage Nassrya Plant-YB-Nassrya WWTP works "The Construction of all civil and electromechanical works shall satisfy the requirements of phase 1 (2037) as indicated in the Table above."</p> <p>Please confirm the understanding that the construction of all civil and electromechanical works shall satisfy the requirements of phase 1 only including but not limited to inlet works, primary clarifiers, aeration tanks, Final Clarifiers, distribution chambers, CCT, pumping stations, Electrical building, etc., and Phase II to have a complete separate structures and units</p>	Confirmed.
28.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works: 2.25.15 Contact Tank" "In item B. Preliminary Design Parameters, it's mentioned: ""1. No. of Tanks – 1 for each plant."</p> <p>Please confirm that chlorination dosing system building shall be constructed only for phase I and other separated building shall be designed for phase II requirements.</p>	Confirmed.
29.	<p>Please advise the following electrical work will be designed for phase-01 (10,000 m3/day) or for phase-01&02 (15,000):-</p> <ul style="list-style-type: none"> a- Ring main units. b- Medium voltage switchgears. c- Transformers. d- Generator. e- Low voltage switchgears. f- PLC/SCADA systems. 	The Contractor shall design the treatment plant based on the requirements of the first phase (2037). The design of the 2nd phase shall only show the layout and sizing of the treatment units that will be needed for this phase. The Contractor shall also provide a general layout of the WWTP indicating all pipelines for required capacity (target year of 2037) and show in dotted lines the units needed for year 2057 (not included in this Contract).
30.	<p>Please advise the following civil building for electrical work will be designed for phase-01 (10,000 m3/day) or for phase-01&02 (15,000 m3/day): -</p> <ul style="list-style-type: none"> a- Ring main units. b- Medium voltage switchgears. c- Transformers. d- Generator. e- Low voltage switchgears. 	<p>Please follow specifications item 3.3.8 General Specifications of Switchboards</p> <p>All civil works shall be designed for Phase 1 (2037).</p> <p>The electrical works shall be designed and supplied for Phase 1 (2037) except for the following:</p>
31.	Kindly confirm that all civil structures (tanks, buildings, sumps etc.) & electro-mechanical works shall satisfy phase 1 only	<ul style="list-style-type: none"> – Medium voltage switchgear and building – Transformers and building
32.	Kindly confirm that any civil structure related to phase 2 shall be separated from phase1.	

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33.	please advise the required civil for 1st stage for example (head works, distribution chamber for P.S.T, Air Blower building for grit tanks 'chlorination buildings, Return & WAS pump station, Raw sludge pump station, Transformer buildings and Generator building) design and constructed for 1st & 2nd stage for civil works only because these buildings are common for all stages but constructed for 1st stage for electromechanical works	The scope of the current contract is limited to phase 1- year 2037.
34.	Confirmation that what is required is to design the station and submit a general plan board based on the capacity of the second phase (15,000 m3/day), and only the first phase works (civil and electromechanical) will be carried out with a capacity of 10,000 m3/day	
35.	Please confirm, that it is required to implement the civil works for chlorine building to be sufficient for electromechanical equipment in 1st & 2nd stages.	
36.	"Volume 1 Technical Specification – Process & Electromechanical Works: 2.25.15 Contact Tank" "In item B. Preliminary Design Parameters, it's mentioned: ""1. No. of Tanks – 1 for each plant." Please confirm that the chlorine contact tank will be constructed as one tank for Phase I (current phase) and other separate CCT tank for Phase II (Future Phase- Which is out of scope of construction and supply)	
37.	PART 2 – Tender Procedures: Section VII. Employer's Requirements: PERFORMANCE SPECIFICATION "It's mentioned in Scope of Services/ Supply/ Management ""The Contractor is requested to design the WWTP general layout indicating all units and buildings for final Stage. The minimum number of treatment streams shall be TWO, and the total average flow capacity is 10,000 m ³ per day for phase 1 (2037). The Contractor shall ensure the proper distribution of the raw wastewater flow between the treatment lines (two or more) is accomplished." • Kindly confirm that we can design the plant 2 streams for Phase I & 3 streams for Phase I & II Kindly confirm that the average flow capacity is 5,000 m ³ /day for each stream for Phase I	
38.	Confirmation that the entrance building, refineries, and sand removal rooms are designed and implemented based on the capacity of the second phase, 15,000 m3/day	
39.	Would you please clarify the details of the required project mobilization?	

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40.	Regarding the dry sludge storage areas, will they be made of regular concrete slabs, or will the storage be done on the site's land adjacent to the drying beds?	Dried sludge storage areas will be on the concrete slab located adjacent to the drying beds (Slab on Grade).
41.	Please kindly specify the locations of the entry gates and provide details of the gates, whether for equipment or individuals.	The location of the entry gates will be determined by the Contractor's design.
42.	For metal works for stairs, covers and balustrades, please advise and specify the specifications of the required works.	All covers and grating shall be GRP.
43.	In tender drawings there are aluminum handrail around the tanks, but there are not any specifications for it in the Tender Documents, Please clarify / confirm that it is a local production and its required specifications	All handrails and the separate access stairs or ladders will be made of aluminium. The stairs to the treatment units will be made of reinforced concrete as part of the facility structure.
44.	Please inform us that there are electricity poles on the site that conflict with the construction of some facilities	Kafr El Shiekh WSC will remove electricity poles.
45.	Survey Drawing "Reference to tender drawings, please note that two transmission lines (high voltage & medium voltage) are crossing through the plant boundary. Please confirm that moving and rerouting the transmission lines is included the power supply feeding provisional sum."	If Kafr El Sheikh WSC does not remove the transmission lines crossing through the plant boundary, moving and rerouting these lines will be included in the power supply feeding provisional sum.
46.	During visiting the WWTP site it was noticed that there is a high-voltage power line, medium-voltage power line and covered agricultural drainage line passing through the site's land. - Please clarify who is responsible for the cost of moving these facilities off site	If Kafr El Sheikh WSC does not remove the transmission lines crossing through the plant boundary, moving and rerouting these lines will be included in the power supply feeding provisional sum.
47.	Please advise about the possibility of using HDPE pipes as an alternative to ductile pipes.	Please refer to Volume 1, and Volume 2: Specifications of the Tender Documents.
48.	Volume 1 Technical Specification – Process & Electromechanical Works 2.16 Hydraulic System Design. Kindly confirm that the interconnecting pipes can be of material of construction HDPE, GRP or concrete	Interconnecting pipes shall be HDPE
49.	Confirm that HDPE pipes can be used between processing units instead of flexible cast iron	
50.	Confirmation that HDPE pipes can be used between treatment units for buried parts and flexible cast pipes can be used for exposed parts	
51.	Please provide us with the quantities, diameters, and directions of the pipes entering the station.	The number of inlet mains will be determined by the detailed network design to be made by the Engineer. However, tenderers can assume that the inlet

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52.	Please confirm the number & diameters of influent force main to WWTP.	chamber of the plant shall accommodate 6 forcemain lines with a diameter of 500 mm (4 lines for phase 1 and 2 for future service).
53.	Volume 3: Drawing Layout. Kindly mention the number, the diameters and orientation of force main pipes	
54.	Kindly provide us with the number & the diameters of the incoming force main pipes.	
55.	It is required to determine the number and diameters of the ejection lines entering the treatment plant, and to sign the directions of these pipes on the station site coordinates board	
56.	Please provide us with the approximate date of operation of the lifting stations associated with the station.	The collector networks of the villages in the WWTP service area will be implemented at the same time as the WWTP so that the WWTP will be tested and commissioned with the completion of the villages.
57.	It mentioned in the tender drawing that the water level in drain is -0.79 please confirm.	The water level in the drain should be checked by the awarded contractor who is responsible for conducting a detailed surveying and accordingly, shall develop the detailed design.
58.	Volume 3: Drawings "Hydraulic Profile Drain Level mentioned as follows: Finish Ground level: +1.75 Max Water level: -0.79 Drain Bottom level: -2.49" "As per contractor survey, some contradictions which will impact the hydraulic design for the plant which as follows: Water level of -0.25 Drain Bottom level -1.46 Please Advise "	The average existing plant level is (+2.5), the paved external road level is (+4.6), and the required plant finished level is (+3.6). The Contractor shall raise the plant site level using imported and compacted sand.
59.	Kindly provide us with the water level in the drain	The water level in the drain should be checked by the awarded contractor who is responsible for conducting a detailed surveying and accordingly shall develop the detailed design.
60.	Kindly confirm the treated effluent pipeline shall discharge at the discharge point (with coordinates: E= 320319.433, N= 3450985.014) shown in survey drawing included in tender documents, this discharge point is located on the drain adjacent to the WWTP "مصرف الجنازية الغربية"	Please refer to the survey drawing attached to the tender documents and the general layout drawing. As the receiving drain runs along the WWTP boundary, precise final disposal point shall be determined by the contractor in coordination with Directorate of Drainage in Kafr El-Sheikh.
61.	Regarding the path of the treated water discharge line for the Nasiriyah Treatment Plant, the guidance drawings did not indicate this path	Subject to the contractor design and the Engineer's approval.
62.	Please confirm the distance between WWTP and final disposal point (drain)	Please refer to the survey drawing attached to the tender documents and the general layout drawing. As the receiving drain runs along the WWTP

Q#	Question	Answer
63.	Please confirm the effluent outfall location of the drain and the effluent line length.	boundary, precise final disposal point shall be determined by the contractor in coordination with Directorate of Drainage in Kafr El-Sheikh.
64.	Kindly confirm that the storm water shall be discharged to open green areas	Rejected.
65.	Please confirm that a rainwater drainage network is not required and that rain can be drained surface-wise onto open and green spaces on the general site or outside the station site	Rejected.
66.	Please confirm that a rainwater drainage network is not required at the site and that the rain will be drained superficially on the open and green spaces in layout.	In accordance with the tender documents, the rainwater should be collected from the WWTP site through a combined network.
67.	Please confirm that all pipes' diameter will be designed to accommodate peak flow.	The contractor should adhere to the Egyptian Code.
68.	PART 2 – Tender Procedures: Section VII. Employer's Requirements, WWTP Facilities Requirements" In Miscellaneous Specific Requirements, it's mentioned "The maximum height of any part of the Permanent Works shall be 7m above the finished ground level for the part of the site where the treatment plant unit, building or any other part of the Permanent Works is located." Kindly confirm that the maximum water level for the quieting chamber is 7 from the Finish ground level	Confirmed
69.	It is required to report the maximum allowable water level in the station entrance room	The contractor is responsible for designing the hydraulic profile of WWTP, considering that the maximum allowed concrete structure is 7m above finished ground level.
70.	PART 2 – Tender Procedures: Section VII. Employer's Requirements "It's mentioned in PERFORMANCE SPECIFICATION: in Table 1 (Page 197): Average, peak, and minimum flow rates for the Al Nassrya WWTP ""Qmin = 0.3 Qav" While It's mentioned in Specific Requirements (Page 210) ""However, the Contractor shall take into consideration during design that the minimum flow rate could be about 50% of the average flow at year 2037."" Please note that it is mentioned in same volume -Specific Requirements "However, the Contractor shall take into consideration during design that the minimum flow rate could be about 50% of the average flow at year 2037" Please advise the minimum flow as a percentage the Average flow to be considered	$Q_{min} = 0.3 Q_{av}$.

Q#	Question	Answer
71.	PART 2 – Tender Procedures: Section VII. Employer’s Requirements: Specific Requirements. It's mentioned in Flow and Loads (Page 209) "The influent wastewater characteristics in Table 2 are daily averages and the WWTP must be capable of treating normal variations and peaks of at least 15% above the daily average loading. This means that during the day four (4) hours of peak flows might come with a concentration of 15% more than the average concentration of pollutants as stated in Table 2." - Please confirm that requested load peak shall be applied on average daily flow including supernatant and as per following calculation for BOD (as Example not limited to) BOD=500 ppm X10,000 m ³ /day *1.15=5,750 Kg BOD/day"	Confirmed.
72.	""Slow Down Chamber Design flow = 1.2 x peak flow rate"" Kindly clarify that the design flow of all inlet works = 1.2 or it is only for the Peak flow for slow down chamber & mechanical screens	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
73.	""Mechanical screen Design flow = 1.2 x peak flow rate"" Please confirm the need for fine screen	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014. Fine screen is required.
74.	""Slow Down Chamber Design flow = 1.2 x peak flow rate"" Kindly confirm that the design flow = 1.2 * peak flow without the supernatant flow returned from the thickener, drying beds, scum pit for primary & secondary clarifiers & Grease pit	Confirmed.
75.	""Mechanical screen Design flow = 1.2 x peak flow rate"" Kindly confirm that there is no need to implement a manual screen dedicated for the by pass line	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014. Rejected.
76.	DESIGN CRITERIA "Volume 1: Technical Specification " Mechanical screen "Design flow for manual and mechanical screen = 1.2 peak flow rate" "Please confirm to stick to Egyptian code for design capacity for mechanical screen to be designed at peak flow.	Confirmed. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
77.	At section VII (Employer’s requirements) referring the specifications of “Automatic mechanical screen (Coarse and fine)” and drawing No.7 (Head works) it was mentioned that one type only of Mechanical Screens. Kindly advise and confirm the required type of mechanical screens coarse or fine	Both coarse and fine screens are required.
78.	Kindly confirm that no need to use fine screens as we are going to use primary sedimentation prior to the aeration tank	Rejected.
79.	Regarding determining the type of mechanical strainers (fine - medium - coarse), is it up to the contractor to determine what he deems appropriate according to the processing technology	Coarse screens followed by fine screens are required.

Q#	Question	Answer
80.	Please confirm that fine screens are required.	
81.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works: 2.28 (Biological Aeration Tanks- Conventional Activated Sludge System)"</p> <p>"It's mentioned in 2.28.1 System Description:</p> <p>""Mixing Parameters: The aeration/mixing system selected shall provide the propelling force for circulation and mixing of the basin contents. The aeration/mixing unit(s) shall be sized to maintain a uniform mixed liquor suspended solids (MLSS) concentration throughout the basin at MLSS concentrations up to 3500 mg/L, with one-third aeration/mixing devices not operating (Minimum 50% spare of aeration/mixing devices).""</p> <ul style="list-style-type: none"> • Please be noted as the aeration required via surface aerators which in turn each one has specific area to cover which also result that all aerators shall be in duty to cover all tank's area. Accordingly, the concept of standby or spare can't be implemented. Kindly advise 	50% spare capacity shall be provided as spare parts to be used as replacements in the event of breakdown of the duty units.
82.	please confirm the surface aerators for aeration tank will be erect with 50% spare	
83.	For the drainage system of drying basins, confirm that it is permissible to use perforated UPVC pipes with an internal diameter of no less than 100 mm, and only one pipe can be used if the width of the basin is less than 6 meters	Confirmed.
84.	Please specify the minimum permissible width for the internal roads of treatment plants. Please also confirm the type of internal road finishing (concrete slabs - asphalt)	The minimum permissible width for the internal roads is 5 m. The internal road finishing is made of concrete slabs (slab on grade).
85.	Please confirm if the design attached to the tender document is binding on the contractor or not.	The design attached to the tender document is for a guide only, and the Contractor shall design his system and include it in his technical and financial proposals.
86.	It's mentioned in the tender document that it's required to supply tank & pumps for the firefighting system, please confirm and if it's please provided us with its specs.	Confirmed. Please refer to Volume 1, and Volume 2: Specifications of the Tender Documents.
87.	Is it required to approve the fire extinguishing system (including fire pumps and tanks) inside the general location of the station from the competent civil defense department	Confirmed.
88.	Please confirm that a full firefighting site network (fire water tank-pumps-fire hydrants) is mandatory.	Confirmed.
89.	Volume 1 Technical Specification – Process & Electromechanical Works Please confirm that pumps specs as per ECP or provide pumps specific specifications	Pumps specifications are provided.

Q#	Question	Answer
90.	Kindly provide us with the specifications of the pumps or kindly confirm that we shall stick to EG code	Please refer to Annex 1, attached with this sheet.
91.	Please confirm that an air blower for grit removal will be installed outdoors.	Air blowers shall be installed in the blower room.
92.	Please confirm that the blowers for inlet no need to equip a variable frequency drive (VFD).	Rejected. Air Blowers should be equipped with VFD.
93.	Please determine the electrical load needed to be operated via VFD starter	Air Blowers should be equipped with VFD, other loads are subject to contractor design.
94.	Kindly confirm that the Gravity Thickener driving unit with variable speed control & electrical equipment	Confirmed.
95.	Confirm that it is not necessary to supply VFD units for either pumps or air crystals	Rejected.
96.	Please provide us with required technical specification of air blowers required for grit chamber.	Please refer to Volume 1- Electromechanical Specifications of the Tender Documents and for more details please refer to attached annex (3).
97.	Please confirm that the isolation gates in the headworks, grit & grease removal tanks, primary sedimentation tanks distribution chambers, aeration tanks distribution chamber & the final sedimentation tanks distribution chambers & chlorine contact tank and bypass line isolation gate will be operated manually	All gates, valves, penstocks of size greater than 500 mm at screens, grit removal, aeration process, air blowers, and pumps (wastewater & sludge) shall be motorized type as recommended in the tender specifications.
98.	Regarding sluice gates & valves: - Please confirm that all sluice gates are manually operated. - Please confirm that the valves that will be installed on the pump suction lines are manually operated, while the valves that will be installed on the pump discharge lines are electrically (ON / OFF) for diameters greater than 200 mm	Valves on pumps discharge lines greater than 200 mm (wastewater & sludge) shall be motorized. Valves and penstocks in all other locations shall be manually operated.
99.	"Volume 1 Technical Specification – Process & Electromechanical Works: 4.12.5.1.2 Motorized Gates, Valves (Process Design Recommendation)" It's mentioned: "A. Penstocks of width and valves of size greater than 500 mm at screens, grit removal, aeration process, air blowers and process pumps (wastewater/sludge) shall be motorized type." Please confirm that any penstock or valve with a size equal or smaller than 500 mm in the mentioned locations only shall be manual, and motorized penstock or valves only shall supplied where the two condition exists to be bigger than 500mm and at the specified locations	

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100.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works: 4.12.5.1.2 Motorized Gates, Valves (Process Design Recommendation)" It's mentioned: "A. Penstocks of width and valves of size greater than 500 mm at screens, grit removal, aeration process, air blowers and process pumps (wastewater/sludge) shall be motorized type." Please confirm that any penstock or valve located in the WWTP other than the mentioned locations, shall be manual or according to the contractor design requirements.</p>	
101.	<p>"Volume 1 Technical Specification – Process & Electromechanical Works: 4.12.5.1.2 Motorized Gates, Valves (Process Design Recommendation)" It's mentioned: "A. Penstocks of width and valves of size greater than 500 mm at screens, grit removal, aeration process, air blowers and process pumps (wastewater/sludge) shall be motorized type." Please confirm that the location of the isolation penstocks is according to the contractor's design, if not please specify the required locations for isolation penstocks.</p>	
102.	<p>It's mentioned in tender specs that spare parts are required to be sufficient for two years. Please confirm, or will the spare parts be supplied according to the supplier's recommendations?</p>	<p>The spare parts are required for 2 years of operation and shall be supplied according to the supplier's recommendations & considering the list of spare parts provided in the TDs.</p>
103.	<p>"PART 2 – Tender Procedures & Volume 1 Technical Specification – Process & Electromechanical Works "PART 2 – Tender Procedures: Section VII. Employer's Requirements: Specific Requirements, it's mentioned in Spare Parts & Tools: ""All items of the Plant and Works shall be supplied with sufficient initial spares, spare parts, and consumable items to last for a full 2 years from the Completion of the Works at the rate set out in the manufacturer's standard maintenance instructions or as necessary for the proper preventative maintenance of the Plant."" While in Volume 1 Technical Specification – Process & Electromechanical Works, 2. MECHANICAL WORKS it's mentioned: ""2.25.21 Spare Parts and Maintenance tools A. The tenderer shall quote in a separate schedule itemized prices for spares and tools for all the machinery and equipment offered which the recommends as being necessary for maintenance purposes for THREE years and with due regard for local conditions and the availability of such spares." Please confirm that the required spare parts is for only 2 years as per suppliers recommendation from the Completion of the Works (including minimum requirements mentioned in the technical specifications-Volume-1 Page 223)."</p>	

Q#	Question	Answer
104.	<ul style="list-style-type: none"> • Please confirm that Item 1-1.5 is for the contractor to supply 2 years spare parts upon starting the DLP. • To Clarify Item Duplication in spare parts provisional sum during the Optional Additional O&M Year on schedule 1 and schedule 13 please confirm that what required in Schedule-1 item 1-6.3 is related for the required O&M year and Schedule 13 is for the additional one-year o&m • Please confirm provisional sum as mentioned Schedule 13 of 350,000 Euro 	
105.	<p>"PART 2 – Tender Procedures & Volume 1 Technical Specification – Process & Electromechanical Works PART 2 – Tender Procedures: Section VII. Employer’s Requirements: Specific Requirements, it’s mentioned in Spare Parts & Tools: ""All items of the Plant and Works shall be supplied with sufficient initial spares, spare parts, and consumable items to last for a full 2 years from the Completion of the Works at the rate set out in the manufacturer’s standard maintenance instructions or as necessary for the proper preventative maintenance of the Plant."" While in Volume 1 Technical Specification – Process & Electromechanical Works, 2. MECHANICAL WORKS it’s mentioned: ""2.25.21 Spare Parts and Maintenance tools A.The tenderer shall quote in a separate schedule itemized prices for spares and tools for all the machinery and equipment offered which the recommends as being necessary for maintenance purposes for THREE years and with due regard for local conditions and the availability of such spares." Please confirm that the required spare parts is for only 2 years as per suppliers recommendation from the Completion of the Works (including minimum requirements mentioned in the technical specifications-Volume-1 Page 223)."</p>	
106.	<p>General Spare parts and optional spare parts Please confirm that tender scope of supply includes 2 years spare parts to be supplied with each equipment, in addition to the provisional sum mentioned in schedule "1" item "1-6.3" Other Provisional Sums</p>	
107.	<p>General Spare parts and optional spare parts Please confirm that tender scope of supply includes 2 years spare parts to be supplied with each equipment, in addition to the provisional sum mentioned in schedule "1" item "1-6.3" Other Provisional Sums.</p>	
108.	<p>Please confirm that no tests or training is required outside of the Arab Republic of Egypt.</p>	<p>This should be indicated in the technical offer submitted by the bidders. If factory tests are required outside Egypt, tenderers should allow for 5 persons for a duration of 5 days.</p>

Q#	Question	Answer
109.	Please confirm that the disposal of waste and sludge is out of the contractor's contractual scope, and it will be the responsibility of the owner. However, if it is within the scope of the contractor's contractual scope, please specify the disposal location of the waste and sludge.	<ul style="list-style-type: none"> The disposal of the screenings separated grit to the approved landfill is included in the Contractor's scope of work. The disposal of the O&G, PST scum, and FST Scum wastes to the dedicated drying beds and the transportation of dried sludge from the drying beds to the storage area inside the WWTP are included in the Contractor's contractual scope of work. The transportation of dried sludge from the storage area to outside the plant is out of the Contractor's scope.
110.	Emphasis that the owner is fully responsible for removing sludge from the drying beds and transporting it outside the station, and is also responsible for removing refinery waste and sand and also transporting it outside the station	
111.	Please confirm that the costs of transporting the refinery waste products and removing sand and slag to sanitary landfills during the operating period (12 months) are borne by the owner	
112.	Please confirm that the O&M period is 12 months by the contractor's technicians and engineers as well as the training of the owner's technicians and engineers; or will it be a period of 12 months by the owner's technicians and engineers only.	The O&M period is 12 months by the contractor's technicians and engineers.
113.	Please confirm that all consumables (oils, grease, chemicals, electricity) cost used within the O&M period will be covered by the owner and it will not be included in the contractor prices.	<ul style="list-style-type: none"> All consumables (oil, grease, chemicals, and potable water) costs within the DLP and the additional O&M year will be at the Contractor's expense. The electricity costs will be paid directly by the Employer. The transportation of dried sludge from the storage area to outside the plant is out of the Contractor's scope.
114.	Please confirm that the electricity cost and sludge disposal shall be excluded as it will be paid by Kafr El Sheikh Water & Wastewater Company.	
115.	Please confirm that the operating costs of electricity and chemicals during the operating period (12 months) are borne by the owner	
116.	PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices: 6. SCHEDULE OF PAYMENTS In Schedule 25: Operation, Maintenance, and Training for the Plant for DLP (one year) OPEX <ul style="list-style-type: none"> Please confirm that payment shall be on monthly bases for operation and maintenance works required. 	Confirmed.
117.	Kindly provide the required workshop equipment.	Please refer to page 220 of the "Request for Tenders for Construction of Nassrya Wastewater Treatment Plant" for the minimum required tools. The list of tools and equipment shall be subject to technical evaluation. Please refer to attached annex no. (2).
118.	Kindly provide us with the specifications of workshop equipment	
119.	As for the warehouse and workshop buildings, do they have specific specifications in terms of area and internal division? Or is it left to the contractor's discretion	Please refer to the scope of work and schedules of the TDs.

Q#	Question	Answer
120.	Please provide us with the workshop BOQ because of that not exit at the technical specification.	Please refer to the scope of work and schedules of the TDs.
121.	In tender prices schedules – schedule 19: (workshop building) line No. 19-2 page 180, - Please clarify the minimum requirements of the workshop equipment For ex. Lathe machine, milling machine, mechanical shaping machine or less	Please refer to page 220 of the “Request for Tenders for Construction of Nassrya Wastewater Treatment Plant” for the minimum required tools. The list of tools and equipment shall be subject to technical evaluation. Please refer to attached annex no. (2).
122.	General Workshop equipment list "Please provide workshop equipment list specifications. Also advise if existing buildings shall be demolished or be reused. "	
123.	Workshop and Store Buildings as per Annex 2, Volume (2)A of Tender Doc is missing, kindly provide us with the required workshop equipment and tools. الورشنة ومباني المخازن حسب المرفق 2، المجلد (2) أ من وثيقة المناقصة غير موجودة، يرجى التكرم بتزويدنا بمعدات وأدوات الورشة المطلوبة.	
124.	Kindly provide us with the minimum accepted area for Workshop and store building	Please refer to tender drawings.
125.	It's mentioned in tender specs and drawing that it's required workshop kindly provide us with its equipment & tools.	Please refer to page 220 of the “Request for Tenders for Construction of Nassrya Wastewater Treatment Plant” for the minimum required tools. The list of tools and equipment shall be subject to technical evaluation. Please refer to attached annex no. (2).
126.	Regarding tender drawings: Please provide us with the drawings of the following units (aeration tank – return & excess sludge pump- transformer - generator - blower room – supernatant pumping station).	The provided drawings and layout are for guidance only, with the mandatory condition that the identified treatment processes must not be altered. The contracted Company shall develop the detailed design, layout, and drawings. The contracted Company shall develop the detailed design, layout, and drawings. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014. <u>It is a mandatory condition that the identified treatment processes must not be altered.</u>
127.	Consultant Conceptual Design data. Please confirm that consultant drawings are not obligatory for the tenderers, and each tenderer shall implement his own design and drawings as per Egyptian code and tender requirements	
128.	As per the mentioned point, please confirm that the consultant basic design is for guidance only and not obligatory to follow especially for Biological Treatment	
129.	Please confirm that tenderer shall follow ECP -17 for limits for biological treatment to provide the best technical and economical solution complying with ECP 17	
130.	Volume 3: Drawings Layout Please confirm that the mentioned drawings are for guidance only and not obligatory for the contractor	

Q#	Question	Answer
131.	Volume 3: Drawings Kindly provide all the drawing mentioned in Volume 3: drawings in AutoCAD format	CAD drawing won't be provided.
132.	The general plan plate attached to the tender documents (Folder 3), please confirm that it is provided for guidance only and that the design and planning of the entire station is the responsibility of the contractor	The provided drawings and layout are for guidance only, with the mandatory condition that the identified treatment processes must not be altered. The contracted Company shall develop the detailed design, layout, and drawings.
133.	The number and sizes of drying beds mentioned in the tender documents (Folder 3), please confirm that it is provided for guidance only and that the design of the entire station is the contractor's responsibility	The provided drawings and layout are for guidance only, with the mandatory condition that the identified treatment processes must not be altered. The contracted Company shall develop the detailed design, layout, and drawings.
134.	The number and sizes of the chlorine contact basin mentioned in the offering documents (Volume 3), please confirm that the chlorine	
135.	contact basin is designed and implemented on the basis of a single basin with a second phase capacity of 15,000 m3/day	All works related to Phase II are outside the scope of the current contract.
136.	The tender drawings pdf is not clear please provide us with the CAD copy.	CAD drawings won't be provided.
137.	"Volume 1 Technical Specification – Process & Electromechanical Works: 5.12 Performance Testing of the Solids Streams" In item 5.12.1 Sludge Thickening & Dewatering, it's mentioned "The picket fence thickener performance will be assessed against the minimum requirement of the discharge thickened sludge having 3% dry solids (DS) and 95% solids capture." Please confirm that the dryness of thickened sludge is 3% as per mentioned in the tender documents	Confirmed. Please note that the design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
138.	Confirm that the solids content in dry sludge is acceptable starting from 20%	
139.	The mechanical sludge dewatering system is accepted. please confirm.	Rejected.
140.	Kindly clarify, the hydraulic drawing for aeration tank is showed that the tank depth is 5.32 m, and the required aeration system is Vertical surface aerator, which is the allowable water depth in this case shall be lower than the mentioned depth, Is it obligatory to commit with the mentioned water depth (5.32 m) or not.	The provided drawings and layout are for guidance only, with the mandatory condition that the identified treatment processes must not be altered. The contracted Company shall develop the detailed design, layout, and drawings.
141.	Please confirm that the laboratory equipment listed in the specifications is all that is required from the contractor and no extra equipment is required.	Confirmed.
142.	For laboratory equipment and tools, please confirm that only the technical specifications in the tender documents are adhered to and that upon implementation there will be no requirement to adhere to the requirements of the Holding Company for Potable Water and Wastewater or the National Authority for Potable Water and Wastewater	Please refer to the TDs. - Laboratory Section.

Q#	Question	Answer
143.	As for the administrative building and the laboratory, do they have specific specifications in terms of area and internal division? Or is it left to the contractor's discretion	Please refer to the scope of work and schedules of the TDs.
144.	Please confirm that thickened sludge pump type of progressive cavity and it will be installed in DRY well.	Progressive cavity pumps are accepted. The thickened sludge pumps will be installed in DRY well
145.	Please confirm that primary sludge pump type of progressive cavity will be installed in DRY well.	
146.	Kindly confirm that there is no objection to installing thickened pump under shade and without any crane.	Rejected.
147.	Item 2.30.2 – D. Thickened sludge pumps: The specs mentioned the progressive cavity pump fitted with motors rated IP68 that does not apply to the working conditions and the pump manufacturers do not offer or recommend. Kindly amend the motor IP to IP55 as recommended. – "د. مضخات الحمأة المكثفة": ذكرت المواصفات المضخة تكون مزودة بمحرك بدرجة حماية 2.30.2 البند والتي لا تنطبق على ظروف العمل ولا يقدمها مصنعي المضخات أو يوصون بها. يرجى تعديل درجة حماية IP68 على النحو الموصى به IP55 المحرك إلى	IP 68 is available worldwide and shall be used.
148.	Please confirm if it is acceptable to connect a bypass pipe to a treated pump station.	The bypass pipe should be directed to the nearest drain.
149.	Please confirm that the number of standby pumps is 50% of the number of duties pumps.	The contractor should adhere the Egyptian Code and the Conditions provided in the Tender Documents.
150.	Please confirm that the design of (inlet chamber, bypass chamber, screen, grit removal will be 1.2 of peak flow and peak flow equal 1.8 of average flow	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.

Q#	Question	Answer
151.	<p>PART 2 – Tender Procedures: Section VII. Employer’s Requirements "In WWTP Facilities Requirements, item 12. Bypass, it's mentioned:</p> <p>""• A bypass pipe shall be provided. This shall be used in emergency situations, high levels of wet weather wastewater flow or prolonged power cuts and shall not be considered for use during normal operations.</p> <ul style="list-style-type: none"> • The bypass shall be provided directly at the influent screening. The bypass shall operate under differential static head / gravity at all conditions and shall be capable of passing the maximum wet weather flow to the drain outfall. The design of the bypass pipe can be considered as a full pipe"" <p>Please confirm the understanding of the required Bypass pipe is to be used in emergency situations only, high levels of wet weather wastewater flow or prolonged power cuts and shall not be considered for use during normal operations via penstocks and shall be sized for phase I only</p>	Confirmed.
152.	Please confirm that the number of standby pumps is 50% of the number of duties pumps.	The contractor should adhere to the Egyptian Code and the Conditions provided in the Tender Documents.
153.	Please provide us with required technical specification of air blowers required for grit chamber.	It is confirmed that the air blower flow rate is 225 m ³ /h, 2 meters head, and working hours are 24 hrs.
154.	<p>"PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices Schedule 17 Effluent Facilities & Outfall including Pipeline, Pumping station, force main, Drain Effluent Protection at Effluent Point, etc." In item 17 - 4, it's mentioned " Pipework's including all necessary pipes from the contact chlorination tank to the treated effluent outlet pumping station, and outfall pipe to the Drain (550 m)" As per mentioned item in tender specs, the mentioned 550 m length of the effluent drain contradicts with the data obtained from site visit and the location of discharge point at the drain given in tender documents, as the drain is adjacent to the WWTP location, please clarify.</p>	It is confirmed that the air blower flow rate is 225 m ³ /h, 2 meters head, and working hours are 24 hrs.
155.	Regarding HVAC system: It was mentioned in specs & BOQ. Please confirm, and if requested, please provide us with the technical specifications required for this system.	Please refer to Volume 1- Electromechanical Specifications of the Tender Documents.
156.	Please confirm that supernatant flow will be added starting from inlet chamber while RAS will be added to distribution chamber of primary sedimentation tank.	The RAS should be added before the aeration tanks.

Q#	Question	Answer
157.	Please confirm, that what is required is to design the chlorinators on the basis of peak flow of each stage so that only the devices for the 1st stage are supplied and installed, taking into consideration the availability of sufficient space for the chlorinators in 2nd stage.	All chlorination devices shall be supplied for the 1st stage only.
158.	Item 2.25.3 – Chlorinators: The specs mentioned the chlorinators shall be provided with an evaporator of suitable capacity, but according to the Egyptian code ECP 101 - 2017 Clause “B- Chlorine Evaporators”; the evaporators shall only be needed when the chlorine flow rate reaches 75 kg/hr which does not apply to this project capacity - أجهزة الكلورة: ذكرت المواصفات أن أجهزة الكلورة يجب أن تكون مزودة بمبخرات ذات سعة 2.25.3 البند بند “ب- مبخرات الكلور”؛ “تستخدم المبخرات عندما تصل ECP 101 - 2017 مناسبة، ولكن وفقاً للكود المصري كمية الكلور المطلوب سحبها من الاسطوانة الى 75 كجم/ساعة... الخ” وهو ما لا ينطبق على سعة هذا المشروع	Confirmed. Chlorinators without evaporators are acceptable.
159.	PART 2 – Tender Procedures: Section VII. Employer’s Requirements: Employer Specific Requirements "7. The use of chemicals shall be limited to chlorine gas or hypochlorite solution for disinfection of the treated effluent." Please confirm that liquid chlorination system (Hypochlorite) is accepted	Only chlorine gas is accepted.
160.	Please confirm that a storage period of 10 days can be used when calculating the number of chlorine cylinders	The contractor is responsible for preparing the detailed design. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
161.	Please confirm that the storage period for chlorine cylinders if using the Gas System is 15 days.	Confirmed.
162.	Regarding the dose of chlorine, confirm that it is permissible to set an average dose of no less than 7 mg/l	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
163.	At the Chlorination building he referred that the chlorinator including with Evaporator so are Evaporator be putting with any capacity for chlorinator even If this capacity is low? please clarify.	The contractor is responsible for preparing the detailed design. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
164.	DESIGN CRITERIA UV disinfection "Please confirm that UV disinfection technology is permitted	Rejected. UV disinfection is not accepted.
165.	Please confirm that there is no need for screens in the chlorine contact tank.	Screens should be provided in chlorine contact tank.
166.	Please confirm that the type test will be for MDB & main MCC but for services systems i.e. (chlorine, etc.) shall be as suppliers standard.	

Q#	Question	Answer																																	
167.	Please, confirm that MDB and Low voltage Switchgear which has a current capacity equal or more than 500 Amp, shall be a Type test, and the LV panel less than 500 A shall be as suppliers standard.	Confirmed, the MDB and LV switchgear of more than 500 A will be type tested and the other LV panel will be standard type.																																	
168.	Please Confirm that The Medium Voltage Switch Boards in specifications considering The MDB "Main distribution Board"?																																		
169.	PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices "6. SCHEDULE OF PAYMENTS-Schedule 8 Chlorine Contact Tank 8 - 3: Electrical Works and Control a/. Delivery and installation of electrical equipment (this means that each item of plant is linked to its power supply/MCC and all necessary transformers and switchgear are in place." Please clarify the electrical Item requested in the chlorine contact tank	Only connection to control system and provision of electrical supply is required as set out in Specification item 2.25 Chlorination Plant.																																	
170.	The influent and effluent wastewater characteristics is needed.	<p>Design Influent Wastewater Characteristics</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Unit</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>pH-Value</td> <td>-</td> <td>7</td> </tr> <tr> <td>BOD</td> <td>mg/L</td> <td>500</td> </tr> <tr> <td>COD</td> <td>mg/L</td> <td>800</td> </tr> <tr> <td>TSS</td> <td>mg/L</td> <td>360</td> </tr> <tr> <td>VSS</td> <td>mg/L</td> <td>288</td> </tr> <tr> <td>NH₄-N</td> <td>mg/L</td> <td>36</td> </tr> <tr> <td>TKN</td> <td>mg/L</td> <td>60</td> </tr> <tr> <td>TP</td> <td>mg/L</td> <td>15</td> </tr> <tr> <td>Min. Temperature</td> <td>°C</td> <td>12</td> </tr> <tr> <td>Max. Temperature</td> <td>°C</td> <td>32</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Based on the HCWW recommendations, the standards outlined in Law 48 of 1982 are considered the sole reference for the treated effluent limits of Nassrya WWTP. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014. 	Parameter	Unit	Value	pH-Value	-	7	BOD	mg/L	500	COD	mg/L	800	TSS	mg/L	360	VSS	mg/L	288	NH ₄ -N	mg/L	36	TKN	mg/L	60	TP	mg/L	15	Min. Temperature	°C	12	Max. Temperature	°C	32
Parameter	Unit	Value																																	
pH-Value	-	7																																	
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TKN	mg/L	60																																	
TP	mg/L	15																																	
Min. Temperature	°C	12																																	
Max. Temperature	°C	32																																	
171.	It is required to report on the specifications of the raw water entering the station, as well as the treated water	The contractor must verify this during the data collection and surveying phase prior to commencing the detailed design.																																	

Q#	Question	Answer
172.	<p>PART 1 – Tender Procedures: Section IV. Tender Forms: WWTP Performance Guarantee: Effluent & Sludge Quality "Test on Completion, Test after Completion, and Handover Test.</p> <p>The treated effluent quality must adhere to Law 48, and the sludge %DS should comply with the Egyptian Code."</p> <ul style="list-style-type: none"> Kindly Confirm that the effluent Quality Guarantee is according to Egyptian Environmental Law 48/1982 - as per the common applied for secondary treatment in <p>Which guarantee the following :</p> <p>COD = 80 PPM BOD = 60 PPM TSS = 50 PPM</p> <p>No effluent guarantee mentioned for nitrogen in the law, other parameters than the law shall be qualified inlet = outlet</p> <p>And For Sludge to be as per Egyptian Code "</p>	<p>Correct.</p> <p>Treated effluent quality shall comply with the standards outlined in Law 48 of 1982 and subsequent amendments i.e.</p> <p>COD = 80 PPM BOD = 60 PPM TSS = 50 PPM</p> <p>Guarantee for nitrogen is not required.</p> <p>Please refer to Vol.1 "Process & Electromechanical Technical Specifications – Section 5: Testing Requirement".</p>
173.	<p>"The following Egyptian Laws and Regulations should be complied with during installation and start-up of the treatment plant:</p> <ol style="list-style-type: none"> Law 4/1994 concerning protection of environment. Law 48 of 1982 for the protection of the Nile River and its waterways from pollution. Ministry of water resources and irrigation"" <ul style="list-style-type: none"> Please confirm that tender shall follow: Law 48 of 1982 for discharge municipal wastewater for Non fresh surfaces. Eight successful combined samples (24H) shall start the DLP and initial handing over as per law 48 of 1982. And successful trial operation for three months complying with Law 48 of 1982 shall deemed successful trial operation, please confirm. 	
174.	Please confirm that neither turbidity nor ammonia measurement is required	Please refer to Vol. 1: Process and Electromechanical Specifications.

Q#	Question	Answer
175.	DESIGN CRITERIA "Volume 1: Technical Specification " "1.2 Process Design Criteria. /P-4 & 2.25 Chlorination Plant/P-33 " "kindly be noted that, tender documents (Page-4) states that ""DO concentration: 2-4 mg/L"" and tender documents (Page-33) states that ""free residual chlorine of range from 0.5 mg/L to 1.0 mg/L according to The Egyptian Law 48." While Performance Guarantee states that "" The treated effluent quality must adhere to Law 48"" bringing to your kind attention that it is technically not applicable for treated water to contain any residual chlorine or oxygen before oxidizing all ammonia (full nitrogen removal). So, we ask you to confirm cancelling limits on chlorine and oxygen otherwise confirm that the bidder has to consider full nitrogen removal in his proposal.	Rejected: The following conditions should be considered: 1. The treatment process is only for BOD removal. 2. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014. The tender conditions should be kept unchanged.
176.	"PART 1 Tender Procedures-Section III. Evaluation, Qualification and Eligibility Criteria." 5.1 Guarantee for Process Performance "Please confirm the following: A minimum of (8) sets of consecutive flow proportional 24-hour composite samples in the outlet of the plant shall be taken and analyzed for the parameters BOD5, COD and TSS. Settled Only. Samples shall be used for analyzing the BOD5 and COD in the outlet to avoid the manipulation of the BOD content by excess sludge contained in the sample (settling time: 60 min). These sampling are the only ones required to be performed for the Completion of Construction Works and Initial Hand over, and to identify the starting date of the Defect Liability Year by the success of its results". "يرجى التأكيد أن هذا البند هو المرجعية الوحيدة للتسليم الابتدائي وبداية سنة الضمان ونجاح تجارب التشغيل"	Please refer to detailed Tender Procedures - Section III. Evaluation, Qualification and Eligibility.
177.	Kindly confirm that the inlet TDS is not more than 2000 mg/l as per the law 48.	There is no requirement in law 48 for the inlet TDS, however the outlet TDS should not exceed 2000 mg/l as per the law.
178.	Please confirm that Nitrate measurement is no included in this contract	Confirmed.
179.	The Load for NH4-N is given, effluent concentration for NH4-N is given and required. kindly confirm that the nitrogen removal (denitrification) process is required or not	Confirmed.
180.	confirm that Nitrogen removal is considered in this contract	Confirmed.
181.	Confirm that it is not necessary to remove nitrogen, as the law does not specify the total nitrogen concentration in secondary treated water	Confirmed.
182.	Please confirm that the nitrogen and phosphorus removal is not required.	Confirmed.

Q#	Question	Answer
183.	At section VII (Employer's requirements) it was mentioned that "The influent water is primarily domestic from hotels, restaurants and small commercial industrial activities". So please confirm if there is no any industrial drainage influent to STP.	The contractor must verify this during the data collection and surveying phase prior to commencing the detailed design.
184.	Please confirm that panel form is 3b for main distribution panel, 2b for sub panels and distribution boards.	Confirmed, the panel form is 3b for the main distribution and MCC panels, and 2b for sub-panels and distribution boards.
185.	Page 75 – Item 3.3.8 General specifications of switchboards "the low-tension switchboard should be Form 3b to allow easier maintenance and better dismantling of apparatus" Q. Regarding Low Voltage Panels/MCCs please confirm using panels form 2b as it's most commonly used	
186.	Please advise if the Sub-MCC's should be provided with one incoming circuit breaker or two.	We confirm that the Sub-MCCs should receive two incoming circuit breakers.
187.	Please advise if the Sub-MCC's should be provided with one incoming circuit breaker or two?	
188.	Page 75 – Item 3.3.8 General specifications of switchboards. The low-Tension Switchboard bus bar should be sectionalized type made from tinned electrolytic copper with maximum current density of 1.5 A/mm ² Q. Regarding LV panels and MCCs please confirm it's busbars current density to be 2A/mm ²	Please follow specifications item 3.3.8 General Specifications of Switchboards.
189.	Page 75 – Item 3.3.8 General specifications of switchboards. The low voltage circuit breaker inside low Tension Switchboard should be AIR Circuit Breaker for current rating starting from 630 A and for lower than 630A MCCB is used Please confirm use ACB for current starting from 1000A, as it's most commonly used and supplier's standard	
190.	Please confirm that the ground system resistance for all equipment is 5 ohm and for the control system is 1 ohm	Please follow Specification item 3.19.
191.	Please clarify if a common earthing pit for LV system is accepted	Please follow Specification item 3.19.
192.	Earthing, please confirm to provide us with the soil resistivity to be able to design the earthing network.	It is contractor responsibility to design earthing system including soil resistivity measurements, Section VII (soil investigation report) can be used for guidance.
193.	Please confirm that the contractor shall not be responsible for the feeding M.V cable from national electrical grid and the contractor responsibility is to coordinate with the electrical company for feeding the plant with MV cables according to the provisional sum mentioned on BOQ (schedule 1), item NO. (1-6.5).	The Contractor is responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.

Q#	Question	Answer
194.	Mentioned in BOQ (schedule 1) item (1-6.5) provisional sum for electrical medium voltage scope, is the scope include KIOSK transformers & transformers with MV cables.	The Contractor is responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.
195.	Please confirm that we can supply 2 Kiosk transformers and there is no need for MV switchgear & transformer building.	It is contractor responsibility for approval/coordination with electrical authority to Contract, Procure, install, test, and guarantee medium voltage system.
196.	Please confirm that the generator can be under shed with Sound & weatherproof canopy, and there is no need for generator building.	Please follow specifications item 2.31 Diesel Stand-by Electric Generating Unit.
197.	Please Confirm that electrical scop work doesn't include MVSG?	The Contractor shall be responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.
198.	Please clarify if using MVSG where it will be located inside or outside of the plant?	The Contractor shall be responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.
199.	Please Confirm that electrical work (Trans, RMU, Generator) will be designed for phase-01 (10,000 m3/day) (2037) only?	The electrical work will be designed and supplied for Phase 1 (2037).
200.	Please Confirm that Feeding for phase-02 (15,000 m3/day) (2057) will be from MVSG out cells?	The Contractor shall be responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.
201.	Please confirm that the transformers are kiosk type and not inside rooms	Subject to contractor design and Electrical Authority recommendations.
202.	Please Confirm if the Generator & Transformer will be designed with ambient temperature 45°C?	Confirmed.
203.	Please Confirm if the Generator will be outdoor type in canopy Weatherproof?	Please follow specifications item 2.31 Diesel Stand-by Electric Generating Unit.

Q#	Question	Answer
204.	Please Confirm if the incoming medium voltage power feeding cables in contractor scope or not? as in tender Doc. "Section VII. Employer's Requirements" page No. 194	The Contractor shall be responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum).
205.	"Volume 1 Technical Specification – Process & Electromechanical Works: 3.1.3 Main Electricity Supply" It's mentioned "two different electric power sources are required for the operation of Nassrya WWTP" "Please advise the transformer capacity for phase-01 and there are 2 scenarios for phase-02 A-Two new incoming feeders dedicated for phase-02 only will be available. B-Add medium voltage switchgear to be able to connect ph-01&02 transformers. if Scenario B Medium voltage switchgear in contractor scope or not, and if yes, will a separate civil building require."	The electrical work will be designed and supplied for Phase 1 (2037).
206.	Transformer, please advise if the transformer capacity calculations shall be based only on phase 01 or phase 01 and 02. the increase in loads in phase 02 will not be that much, that it will need its own transformer.	The electrical work will be designed and supplied for Phase 1 (2037).
207.	For Item (1.6.5) at BOQ tables which refer to provide electrical source and medium voltage works, please confirm that the providing price include all medium voltage works such as (ring main units, M.V switch gear and M.V Cables or not?	The Contractor shall be responsible to coordinate with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per the contractor design.
208.	In Case of the transformer capacity being account for the first stage only, are M.V Switchgear will be supply including transformer feeder cells for the future stage or not?	The Contractor shall be responsible to coordinate with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum).
209.	Are the transformer capacity being account for the first stage only or for the two stages?	The electrical work will be designed and supplied for Phase 1 (2037).
210.	Please confirm that when calculating the capacity of the transformer and generator, whether consumed power or rated power is used	Transformer capacity shall depend on rated power while Generator capacity shall depend on consumed power.
211.	Medium Voltage Section Medium Voltage Ring Main Units (RMU) > Please confirm that we can use air load break switches instead of SF6.	Please follow Specification item 3.2.1 Medium Voltage Ring Main Units (RMU).
212.	Please confirm that we can use CU, XLPE/STA/PVC cables instead of CU, XLPE/SWA/PVC cables in case of external cables & the method of laying	Outdoor cables shall be as following: 1. Directly buried Cables (SWA) 2. Cables laid in Pipes (Cable Duct) (unarmored)
213.	Page 78 – Item 3.15 Power cables Outdoor cables laid directly in ground shall be steel wire armoured while indoor cables shall be unarmored. Q. For Outdoor cables laid directly in ground Steel Tap armored cables type are applicable to be used instead of Steel wire armored, please confirm.	Please refer to technical specifications item 3.15.

Q#	Question	Answer
214.	Please Confirm that the incoming medium voltage is 11 or 22 KV?	The Contractor shall be responsible for coordinating with Electricity Company to secure the permanent medium voltage supply and M.V. cables from nearest source to the new RMU or MV switchgear inside the treatment plant (Provisional Sum). All other equipment shall be as per contractor design.
215.	Please Confirm if the quantities of the power transformers, will be only (one duty) or (one duty + one standby)?	Transformers shall be (one duty + one stand-by).
216.	Please Confirm if the transformer capacity calculation will depend on total rated power or total absorbed (consumed) power?	Transformer capacity shall depend on rated power.
217.	Please Confirm if the Generator capacity calculation will depend on total rated power or total absorbed (consumed) power?	Generator capacity shall depend on consumed power.
218.	Please confirm that generator & transformer sizing will be according to the consumed power and not according to the rated power for all items.	Transformer capacity shall depend on rated power while Generator capacity shall depend on consumed power.
219.	<p>Page 64 – Item 2.31.1 Design Criteria</p> <ul style="list-style-type: none"> • Easy in control: Enclosure is equipped with a window to in front of the control panel t observation. <p>The Diesel electric stand-by generator shall include the following:</p> <p>Q. There is a Discrepancy between such item and the Gen. unit requirements as mentioned above the Gen. shall be prime power while at this point mentioned it's a standby Gen. please clarify</p>	There is no discrepancy, generator will be for standby usage & will be rated for prime power rating.
220.	Please confirm that the generator will be for standby usage & will be rated for prime power rating.	The diesel generating plant shall be designed to cover the basic plant load under emergency condition excluding non-continuous loads comprising of cranes, normal ventilation, and dewatering pumps (stand-by use) to ensure continuous operation of the plant that meet the required of the treated effluent criteria and sludge thickening and dewatering as per the Functional Guarantee. The diesel generator shall be designed on Prime use basis.

Q#	Question	Answer
221.	Generator Please advise the generator will cover 100 % of plant loads as a prime or standby.	The diesel generating plant shall be designed to cover the basic plant load under emergency condition excluding non-continuous loads comprising of cranes, normal ventilation, and dewatering pumps (stand-by use) to ensure continuous operation of the plant that meet the required of the treated effluent criteria and sludge thickening and dewatering as per the Functional Guarantee. The diesel generator shall be designed on Prime use basis.
222.	Page 63 – Item 2.31.1 Generating Set B. The generating unit shall be Prime Power, Sound & Weatherproof Enclosure Type Q. If the Gen. will be installed inside building (Indoor) no need to provide sound and weatherproof enclosure, please confirm	Please follow specifications item 3.31 (2.31) Diesel- Driven Stand-by Electric Generating Unit
223.	Please clarify if power factor meter is needed in motors feeders or not.	Please follow specifications item 3.3.8 General Specifications of Switchboards.
224.	Regarding Thickener, please confirm, that the required retention time of the sludge over the bed is 7 days according to Egyptian code.	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
225.	Pipes for pumping sludge to concentration and drying basins, confirm that it is permissible to use pipes with an internal diameter starting from 100 mm	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
226.	Please confirm regarding the average flow it will be increase by value 10 % to consider the return filtrate water from sludge treatment processes.	Confirmed.
227.	Please confirm that regarding Influent Wastewater Quality (BOD, COD...etc.) it will be increase for load by value (10 %)	Confirmed.
228.	Please accept material of skips for screening and grit removal is steel epoxy coated instead of st.st 316L.	Rejected.
229.	At (Employer's requirements) it was mentioned that there will be a tractor-mounted horizontal auger to regularly Mix, Aerate and collect the sludge from drying beds please explain.	These are required.
230.	Please confirm that pump type for supernatant, return & excess sludge pump is submersible.	Rejected. Pump type shall be Dry-Pit or Dry-Mounted Pumps.
231.	Please confirm the possibility of using submersible pumps for returned and excess sludge, and the possibility of using jib crane type cranes	Please refer to Vol. 1: Process and Electromechanical Specifications.
232.	Require technical specification for all Pumping Units.	Provided in Annex 1.

Q#	Question	Answer
233.	Require technical specification for air blower and diffuser.	Please refer to Vol.1 of the TD's (Process & Electromechanical Specifications). Surface aerators are the only aeration system for aeration tanks of the activated sludge units.
234.	Please confirm that layer thickness of drying beds 10 – 15 cm and no. of layer is (2) with total thickness 30 cm.	The permissible number of layers and thickness in sludge drying beds can vary based on the detailed design of the drying beds and the characteristics of the sludge.
235.	Please confirm that for drying basins, the height of the walls above the surface level of the sand layer starts from 40 cm according to the code	The contractor is responsible for preparing the detailed design. The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
236.	The design of drying beds, is it permissible to design taking into account that the thickness of one layer is 15 cm, with a drying period of only 4 days, and taking an area increase factor of only 1.25	
237.	Please confirm the possibility of using a single layer of sludge thickness of 20 cm in the design of drying beds in accordance with what is stated in the Egyptian Code annexes.	
238.	As for the drying beds, the filtration layers specified in the technical specifications (a gravel layer of 3-6 mm) are topped with (a sand layer of 0.5-0.75 mm). We see that it is likely that sand will escape from between the gravel grains. As for the method of perforating the perforated pipes Below the layer of gravel, if the hole is 6 mm in diameter (according to the requirements of the code), the gravel grains will escape into the drainage network. Please confirm to the specifications presented or modify what you deem appropriate	
239.	As per pretender meeting, please confirm that schedule name to be changed to conventional Drying beds	
240.	Please Clarify the Electrical Works and control required for the sludge drying beds	Confirmed. None. No mechanical equipment is provided.
241.	Kindly confirm that the type of drying beds is conventional type instead of paved type	Confirmed.
242.	Sludge drying beds Please confirm that conventional sludge drying beds is acceptable	Confirmed.
243.	Item 1.2 Process Design Criteria of Nassrya Wastewater Treatment Plant, Conventional sand drying beds Paved drying beds Q. Please confirm that both options are accepted based on area availability in site	Conventional drying beds are accepted.

Q#	Question	Answer
244.	DESIGN CRITERIA " Volume 1: Technical Specification " Sludge dewatering " Referring to the discussion held in the pre-tender meeting regarding the paved drying beds, please be informed that traditional type drying beds is more common in Egypt. Please confirm that traditional type drying beds are accepted."	Confirmed. Conventional drying beds are accepted.
245.	Please confirm that the dry beds are accepted as well as the paved drying beds.	The conventional drying beds are accepted.
246.	Please clarify if cathodic protection is needed or not.	Needed.
247.	Please confirm that the ambient temperature is 45°c	Please refer to the technical specification of the TDs.
248.	Please clarify the required height of the exterior lighting poles.	The exterior light poles are of 6-meter height.
249.	Please confirm that the payment for local suppliers such as (KIOSK transformers, transformers, LV panels, Generator,) can be in EURO	Imported items will be paid EURO.
250.	Please confirm the understanding that local equipment and services shall be priced in Euro currency and will be paid in Egyptian Pound according to the exchange rate declared by central bank of Egypt on the date of each Invoice.	Please refer to Tender Data Sheet, Section II, ITT 18.1.
251.	Please Confirm that All items shall be priced in EUR. This includes the prices of all local and civil works will be priced and the imported Electro-mechanical equipment.	Please refer to Tender Data Sheet, Section II, ITT 18.1.
252.	Please clarify the earthing rings needed for electromagnetic flowmeter	Please follow Specification item 3.19.
253.	Please clarify if a telephone system inside the plant is needed or not	Please follow specifications item 3.22 Telephone System.
254.	Please determine numbers of wall screen to be supplied if needed	Subject to the supplier system design, but at least one.
255.	Please determine size of wall screen to be supplied if needed	Subject to the supplier system design.
256.	Please confirm that we can use insertion type electromagnetic flowmeter	Please follow the specs considering the process condition and flow measuring range required
257.	Please confirm that we can use float level switches instead of electrode level switches as its periodic maintenance is easy	Float switches are acceptable.
258.	Please confirm that we can supply a multichannel Analyzer that can measure Ph, Conductivity, and Temperature. Instead of supplying each Analyzer individually	Confirmed.
259.	Please confirm that the multichannel transmitter enclosure may be NEMA 4x or IP.65	Confirmed to be IP65 as a min.
260.	Please confirm that we can use ultrasonic level to measure level inside water treatment process	Confirmed.

Q#	Question	Answer
261.	Please Confirm the DLP period of 12 months starting from taking over certificate.	Confirmed.
262.	Please confirm the contractor scope for this item shall be the provision of O&M manpower (for supervision Only as per contractor Selection) and Kafr El sheikh Water& Wastewater Company will provide full staff for operation and maintenance works. Please confirm that the contractor scope shall also include the provision of genset fuel, oil and grease, chemicals and chlorine, excluding the electricity cost and sludge disposal but for spare parts it shall be from the provisional sum mentioned in Schedule 13 with 350,000 Euro	Rejected. Please refer to the scope of work and the schedules.
263.	Please confirm that training period (6 months) starting with the beginning of the Defects Liability Period.	Please refer to Employer Requirements.
264.	Please define and clarify the required scope for O&M support for 3 months in item 25-5 -price schedule	Please refer to the Scope of Work and Employer Requirements.
265.	Please confirm that the period of 3 months operation and maintenance support lies within the 12 months Operation, Maintenance, and Training for the Plant for DLP (one year), OPEX	Please refer to the Scope of Work and Employer Requirements.
266.	Please clarify the difference between Item 25-2 "Supervise the operation and maintenance activities " and Item 25-5 "Period 2: (3) month operations and maintenance support for the Kafr"	Please refer to the Scope of Work and Employer Requirements.
267.	Please confirm the understanding that local equipment and services shall be priced in Euro currency and will be paid in Egyptian Pound according to the exchange rate declared by central bank of Egypt on the date of each Invoice.	Please refer to Tender Data Sheet, Section II, ITT 18.1.
268.	Please Confirm that All items shall be priced in EUR. This includes the prices of all local and civil works will be priced and the imported Electro-mechanical equipment.	Please refer to Tender Data Sheet, Section II, ITT 18.1.
269.	PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices 6. SCHEDULE OF PAYMENTS There is no schedule for gravity sludge thickeners, please advise	Thickener should be added to Schedule 11.

Q#	Question	Answer
270.	<p>"Tender Procedures "Part 1: Section III. Evaluation, Qualification and Eligibility Criteria C. Financial Tender (a) Time Schedule Time to complete the Plant and Installation Services from the effective date specified in the Contract Data for determining time for completion of pre-commissioning activities is: 22 Months. No credit will be given for earlier completion.</p> <p>While in PART 3: Section IX. Particular Conditions (PC): Part A -Contract DATA, Time for Completion of the Works, In Sub-Clause 1.1.3.3 C, it's mentioned:"550 days""</p> <ul style="list-style-type: none"> • Please advise the required time for completion of the works, also kindly provide the required time for commissioning. 	<p>The time of completion of the works is 550 days, see Part A Contract Data clause 1.1.3.3.</p>
271.	<p>Kindly explain / clarify the following:</p> <ul style="list-style-type: none"> • In section IV. TENDER FORMS part C-2.1 a (Time schedule) page 63, "Time to complete the plant and installation services ...etc. is 22 months" • In section IX. PARTICULAR CONDITIONS part a – contract data – page 234, "The time for completion of the work is 550 days" 	<p>The time of completion of the works is 550 days, see Part A Contract Data clause 1.1.3.3.</p>
272.	<p>PART 2 – Tender Procedures: Section VII. Employer's Requirements: Employer Specific Requirements 4. All electro-mechanical equipment shall be of heavy-duty performance, and to standards applied in North America, Europe, Japan, or local manufacturing origin.</p> <ul style="list-style-type: none"> • Please confirm the understanding that specified origins mentioned are related to standards Only, and other equipment's origin other than mentioned are accepted 	<p>Please refer to Section VII. Employer's Requirements: Employer Specific Requirements.</p>
273.	<p>In Table A: Tenderer's Committed Consumption Values for Hydraulic Load, it's mentioned Flow at 100% hydraulic load is 7,300,000 m3/year</p> <ul style="list-style-type: none"> • Please confirm that the mentioned yearly flow at 100% hydraulic load 7,300,000 m3/year is for example only, and we shall consider the yearly average flow for phase I of the WWTP at 100% hydraulic load to be as calculated below: $Q_{avg} \text{ (m3/day)} \times 365 \text{ (days per year)} = 10,000 \times 365 = 3,650,000 \text{ m3/year}$ 	<p>Confirmed. This is just an example.</p>

Q#	Question	Answer
274.	<p>In Table B Tenderer's Committed Consumption Values for Organic Load, it's mentioned Inlet organic load (at the plant inlet) at 100% organic load is 8,760,000 kg COD/year</p> <ul style="list-style-type: none"> Please confirm that the mentioned Inlet organic load (at the plant inlet) at 100% organic load 8,760,000 kgCOD/year is for example only, and we shall consider the yearly Inlet organic load for phase I of the WWTP at 100% organic load to be as calculated below: <p>$Q_{avg} \text{ (m}^3\text{/day)} \times \text{Inlet COD (mg/L)} \times 365 \text{ (days per year)} / 1000 = 10,000 \times 800 \times 365 / 1000 = 2,920,000 \text{ kg COD/year}$"</p>	Confirmed. This is just an example.
275.	Kindly confirm that the consumed power of the Aerators shall be included in the organic load table (Opex)	Confirmed.
276.	<p>In Table A: Tenderer's Committed Consumption Values for Hydraulic Load, it's mentioned interior and outdoor lighting and any other small consumptions: Nil</p> <ul style="list-style-type: none"> Please confirm as per mentioned all cranes, penstocks, fans and miscellaneous item shall be zero 	Confirmed.
277.	Please confirm that yearly actual consumption to be calculated based on average values before it is compared with committed value.	Confirmed.
278.	Please provide the sludge load template list to be filled, as tender only provided Hydraulic and organic lists only	The current design is a conceptual design. The sludge loading will vary based on local conditions and the characteristics of the sludge. The detailed design phase will outline the accurate sludge loads.
279.	Kindly please provide the design/process calculation and hydraulic calculation for the conceptual design to be taken as guide and reference for tenderer's design	Hydraulic calculation for the conceptual design shall not be provided.
280.	Please provide the relative humidity and ambient temperature to be considered in our design.	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy, 5th Edition, 2014.
281.	As plant sides are not on a main road, please confirm the acceptance to plot the electrical rooms away from the plant fence wall	Confirmed.
282.	Please confirm to make secondary gate for the plant to let effluent pipeline to get through to drain	Confirmed.
283.	Please confirm that penstocks /weirs /weirs penstocks for second phase are not required in any common structures/units for the two phases and can be done in the first phase by brick wall for the second phase isolation.	Confirmed.
284.	Please confirm that the contractor will construct one treated effluent pipeline for phase 1 only under this contract, and a new separate treated effluent pipeline shall be constructed in the future for phase 2.	Confirmed.
285.	"Aeration Tanks with surface aerators- Activated sludge and all associated mechanical and electrical equipment." Please confirm that diffused air aeration system is acceptable	Diffused aeration system is not accepted.

Q#	Question	Answer
286.	PART 2 – Tender Procedures: Section VII. Employer’s Requirements <ul style="list-style-type: none"> Please confirm that no odor treatment system is required 	Confirmed.
287.	Confirmation of the absence of an Odor Control System	Confirmed.
288.	Please confirm that the Odor control system for head work – thickeners-and supernatant pump station is not required.	Confirmed.
289.	Kindly confirm that odour control is not required	Confirmed.
290.	Grit Removal Chamber – Aerated Chamber Type <ul style="list-style-type: none"> Please confirm that circular Grit Removal Chamber –Aerated Type is accepted 	Please refer to the scope of work, the schedules, and the technical specifications of the TDs.
291.	Volume 1 Technical Specification – Process & Electromechanical Works: 2.24.4 Lifting Equipment <ul style="list-style-type: none"> Please confirm that monorail and jib required cranes are manually operated, and type selection shall be as per tenderer design 	Rejected.
292.	Volume 1 Technical Specification – Process & Electromechanical Works: 2.27.3 Aerated Grit Removal System Sand and Silo (Hydrodynamic Separator): <ul style="list-style-type: none"> Please confirm material of construction of the silo to be galvanized carbon steel. 	Please refer to the scope of work, the schedules, and the technical specifications of the TDs. Rejected.
293.	Please confirm that the sand classifier is accepted instead of the sand silos.	Rejected.
294.	Kindly confirm that the Vortex Grit Removal is not accepted	Confirmed.
295.	For sand suction pumps, please confirm whether submersible or air lift type pumps can be used	Please refer to Vol. 1: Process and Electromechanical Specifications.
296.	"Volume 1 Technical Specification – Process & Electromechanical Works: 2.28 (Biological Aeration Tanks- Conventional Activated Sludge System)" 2.28.3 Surface Aerators <ul style="list-style-type: none"> Please confirm that the impeller material of surface aerators can be carbon steel. 	Rejected.
297.	"3. Aeration Tank Outlet Wiers: ""Tenders shall include for the provision of electrically actuated weir operating and position indicating capstan for outlet wire"" <ul style="list-style-type: none"> Please confirm that manual adjustable weir is accepted. 	We confirm that the Aeration Tank Outlet Wiers have to be equipped with Electrical Actuators-
298.	Volume 1 Technical Specification – Process & Electromechanical Works: 2.29.9 Ancillary Equipment "It's mentioned in Valves for Inlet Water to Reach of Final Settler Tank ""A. Penstocks for water outlet of the sedimentation tanks: Flat type, with taper seat and inside stem screw. Body with reinforcing ribs, provided with hand-wheel."" <ul style="list-style-type: none"> "Please accept that unit isolation concept can be applied from the final settler tank's distribution chamber penstock and substituting the mentioned penstock 	Please refer to Vol.1 of the TD's (Process & Electromechanical Specifications).

Q#	Question	Answer
299.	Volume 1 Technical Specification – Process & Electromechanical Works: 2.29.9 Ancillary Equipment " It's mentioned in Valves for Inlet Water to Reach of Final Settler Tank ""B. Valves for sludge discharge: Each sludge discharge pipe shall be controlled by two valves installed in succession, a telescopic valve, and a quick opening sluice valve." <ul style="list-style-type: none"> Please accept that telescopic and quick release valves system can be substituted by manual penstocks for sludge extraction for clarifiers and thickeners 	Rejected.
300.	Volume 1 Technical Specification – Process & Electromechanical Works Please confirm that working hours for all equipment shall be as per tenderer's design	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
301.	Page 66 – Item 2.31.6 Unit performance , Voltage regulation shall be within ± 2 % of rated Voltage Q. Please note that it's not standard to provide Gen. with Voltage regulation ± 2 % of rated voltage the standard is ± 5 % please confirm ± 5 %.	Please refer to the Tech. Specifications item (2.31) Diesel- Driven Stand-by Electric Generating Unit.
302.	Please confirm to use low voltage circuit breaker inside low Tension Switchboard withdrawable Circuit Breaker for current rating higher than 1000 A.	Please follow specifications item 3.3.8 General Specifications of Switchboards.
303.	Please confirm to use low voltage circuit breaker inside low Tension Switchboard motorized Circuit Breaker for current rating higher than 630 A	
304.	Low tension Switchboards > L. > the requirements in this point are too much to achieve such as: (Over current/earth fault/Short circuit/earth leakage/Under/over voltage/phase sequence/failure/unbalance/over temperature/locked rotor/Number of starter/Hour counter/PT100) for all motors specially it will not add values for the small motors (0.18, 1.1, 2.2 KW and etc...), so kindly confirm that this point should be achieved for motors more than 50 KW, or please advise the accepted range. Note that all motors will be protected from over current and short circuit.	
305.	"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.6.1.3 Programmable Logic Controller PLC" The CPU shall be equipped with a built memory of at least 4Mbytes of RAM according to IEC1131-3. Please advise if we can use CPU with a built memory of 2Mbytes of RAM which will be sufficient to this application, instead of 4Mbytes.	Please follow item 4.12.6.1.3.
306.	"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.11 Tanks And Sump" Each tank and sump shall be equipped with Ultrasonic level Transmitter (anti-foam type) and level electrode (LSLL-LSL-LSH-LSHH). Each dewatering pit shall be equipped with level electrode (LSL-LSH). Please confirm float level switches could be enough in sumps, except RAS&WAS sump we can use ultrasonic level.	Please follow item 4.12.11 in Volume 1 Technical Specification – Process & Electromechanical Works.

Q#	Question	Answer
307.	"Volume 1 Technical Specification – Process & Electromechanical Works 4.12.12 Pumps" The pressure on each delivery line of pumps and delivery shall be measured by using pressure transmitter and pressure gauges. Please confirm Pressure indicator + (pressure switch or limit switch at valves) could be enough small pumps.	Please follow item 4.12.12 in Volume 1 Technical Specification – Process & Electromechanical Works.
308.	Instruments, please confirm contractor committed instruments in specs or can commit instruments which serve the process design station and presented in the documents that he will submit later.	Please refer to Vol.1 of the TD's (Process & Electromechanical Specifications).
309.	Kindly provide us with the nearest dumping location and how far is it from our project site.	Tenderers should identify the most suitable dumping location nearby to suit their requirements.
310.	Kindly confirm that the submitted technology shall be conventional activated sludge only.	Confirmed.
311.	MECHANICAL WORKS "Volume 1: Technical Specification " 2.28 (Biological Aeration Tanks- Conventional Activated Sludge System) Aeration System / P48 Please confirm that diffused air system in biological aeration tank will be accepted.	Rejected. Diffused air system is not accepted for the is contract.
312.	At section VII (Employer's requirements) it was mentioned that surface Aerators for conventional activated sludge. Can you confirm if we can submit Air Blower with diffused Air system?	Rejected.
313.	Please confirm that the conventional wastewater treatment is the only accepted process and extended aeration is not required.	Confirmed.
314.	Kindly confirm that the inlet Mechanical fine screening system (screens, conveyors and containers) & Mechanical coarse screening system (screens, conveyors and containers) is mandatory.	Confirmed.
315.	Emphasizing that it is possible to provide more than one alternative for the treatment system and submitting the technical and financial offer for each alternative separately	Rejected.
316.	Confirmation that the treatment system can be provided with one of the modern systems other than the traditional system such as (SBR - ASBR - MBR - MBBR - IFAS), extended ventilation system, or oxidation channels	Rejected.
317.	Confirm on the possibility of using surface ventilation and compressed air ventilation in biological treatment	Please refer to Vol. 1: Process and Electromechanical Specifications.
318.	Please confirm that all Liquidated Damages- LDs -(Delay + power and chemical consumption) are capped at 10 % of the contract price.	The maximum amount of delay damages is 10% of the final Contract Price. The Engineer still has the right to fine the contractor in case of having specific violations as per the contract conditions Example: Section IX. Particular Conditions, Part B – Specific Provisions, Safety Procedures article 4.8.

Q#	Question	Answer
319.	Please confirm that there are no other liquidated damages other than mentioned above	The maximum amount of delay damages is 10% of the final Contract Price. The Engineer still has the right to fine the contractor in case of having specific violations as per the contract conditions Example: Section IX. Particular Conditions, Part B – Specific Provisions, Safety Procedures article 4.8.
320.	Kindly confirm that the Air and sludge calculations shall be based on BOD	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
321.	Kindly confirm that the aeration tank shall be designed based on 1.1*BOD only as per EC.	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
322.	Kindly confirm that the final effluent shall be discharged by gravity to the existing drain and there is no need for treated pump station.	Confirmed. Outfall pumping station is required.
323.	Please confirm that the ambient temperature is 45°c	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
324.	For Air pipes, kindly confirm that all submerged air pipe branches from transmission mains shall be made of UPVC	Please refer to Vol.1 of the TD's (Process & Electromechanical Specifications).
325.	Please confirm the use of galvanized iron air piping starting from the crystal building up to the treatment basin from above, and the pipes in contact with the sewage shall be St. St. 304	Please refer to Vol. 1: Process and Electromechanical Specifications.
326.	Kindly confirm that any deviation from design parameters and EG code, we shall stick to EG code	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
327.	Kindly confirm that we shall add Scum sump to the FST Tanks for Scum removal	Confirmed
328.	Kindly confirm that the thickener bridge shall be made of concrete instead of steel structure	The thickener bridge shall be in concrete.
329.	Kindly confirm that the diffusion drum of final Sedimentation bridge shall be made of concrete instead of steel structure	The diffusion drum shall be in concrete.
330.	Kindly confirm that a multichannel analyzer is required to measure pH, conductivity, and temperature instead of supplying each device separately	Confirmed.
331.	DESIGN CRITERIA Section VII. Employer's Requirements A) Scope of Supply / P-193 "Reference to mentioned tender document that mentioned that "It shall be the Contractor responsibility to tie in with the old and new force mains from the new/rehabilitated pump stations". Please clarify number, size of each raw wastewater force mains and residual pressure."	This is a new project and there are no existing facilities or force main to connect.

Q#	Question	Answer
332.	DESIGN CRITERIA Section VII. Employer's Requirements A) Scope of Supply / P-194 "Reference to mentioned tender document "the employer shall be responsible to provide water piping to the WWTP at the contractor's cost."" Please confirm that the cost of drinking water supply piping to WWTP site to out of the contractor's scope and will be funded as a provisional sum.	The cost of the pipe water supply to the nearest point of the WWTP is covered by Kafr El Sheikh WSC. All water supply piping within the WWTP site is the responsibility of the Contractor.
333.	DESIGN CRITERIA "Volume 1: Technical Specification " 1.2 Process Design Criteria of Wastewater Treatment Plant states that "Solids retention time (SRT): 7-20 d" "Please confirm following SRT criteria in the Egyptian code for Complete Mix to be from 3 to 15 day	The design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
334.	DESIGN CRITERIA "Volume 1:Technical Specification " "Dissolved oxygen at effluent. 2.28 (Biological Aeration Tanks- Conventional Activated Sludge System)" "Reference to Tender Forms "WWTP Performance Guarantee: Effluent & Sludge Quality"", which state that DO concentration in treated effluent shall be greater than or equal 4 PPM. While volume 1 ""technical specifications states that ""The aeration/mixing system selected shall be capable of maintaining a dissolved oxygen concentration of not less than 1.5 mg/L"" Please advise the value of DO in aeration tank and effluent to be considered in design."	The DO concentration in the aeration tank should be kept above 1.5 mg/L. Additionally, all design criteria should adhere to the Egyptian Code, and the Wastewater Engineering Book, Metcalf & Eddy,5th Edition, 2014.
335.	Kindly clarify the following: <ul style="list-style-type: none"> In section IV. TENDER FORMS part 2.3 (working permits) page 140, This paragraph shows that the contractor is responsible and on his expense for getting all permits. In section VII. EMPLOYER'S REQUIREMENTS (permits' approval' and associate fees) page 216, This paragraph shows that acquisition of permits required for the discharge of treated wastewater lies under the responsibility of the employer. - Please confirm that the cost of the discharge of treated wastewater permit will carry out by the employer.	The contractor is responsible at his own expense for getting all working permits. please refer to general conditions Sub-Clause1.13 Compliance with Laws. The permits required for the discharge of treated wastewater are the responsibility of the employer.
336.	Please confirm that the costs of obtaining various permits during implementation are borne by the owner, and the contractor must coordinate with the various authorities to obtain permits	
337.	Is the Ministry of Irrigation's permit to connect to the drain the owner's responsibility (the Kafr El-Sheikh Drinking Water and Sanitation Company) or is it the contractor's responsibility	The permit to connect to the drain is the responsibility of the Kafr El-Sheikh WSC.

Q#	Question	Answer
338.	Page 95 – Item 3.11 Electric motors general M. Electric motors shall be fitted with anticondensation heaters embedded in the motor windings Q. Please confirm that the motor anti-condensation heaters will be used Only for motors which installed at Outdoor.	Anti-condensation heaters will be used for Indoor and outdoor motors, please follow specifications item 3.11 Electric Motors General.
339.	Eligibility criteria "Volume I - Section III Evaluation and Qualification Criteria " Item 4- Construction Experience 4.2 (b) Kindly confirm that form EXP-4.2 (b) is not applicable as it's not reflected in section III. Evaluation, Qualification and Eligibility Criteria	Confirmed.
340.	Regarding the work of obtaining licenses, approval, and licenses for the final line on the water drain, and whether they will be charged to the works for the station.	The contractor is responsible at his own expense for getting all permits. please refer to general conditions Sub-Clause 1.13 compliance with Laws. The permits required for the discharge of treated wastewater are the responsibility of the employer.
341.	Please confirm there is not dumps at septic tanks from trucks into the S.T.P.	The Tenderer shall take into consideration that some of the satellites will be served by the Evacuation Trucks and the Tenderer shall design and implement a connection tank or sump in the plant or pumping station to receive the water from the trucks and pump it to the plant inlet facilities. The tenderer shall include these works in his technical and financial proposals.
342.	Confirm that it is possible to design on the basis of using two batteries, each with a capacity of 5,000 m3/day, during the first phase (the scope of the contract) and considering implementing the same battery with a capacity of 5,000 m3/day during the second phase (outside the scope of the contract) to reach the capacity of the second phase, 15,000. m3/day	Confirmed.
343.	Confirm that the treatment system does not need to include balancing basins, and that it is the contractor's responsibility	We confirm that the Contractor is not required to construct a balance basin.
344.	Concerning the measurement of behavior on entering the station, confirm that it is permitted to use a Parshall flume or an Ultrasonic measuring device on open channels	Please refer to Vol. 1: Process and Electromechanical Specifications.
345.	Emphasis that if there is a need to empty the treatment tanks for washing or maintenance, portable drainage pumps can be used	Rejected.
346.	Please confirm to use portable drainage pump for any tank drainage in the plant.	Rejected.
347.	For final sedimentation basins (if any), is it required	Confirmed. Final sedimentation tanks are required.
348.	For sludge concentration ponds, are they required to be circular reinforced concrete tanks? Can GLS round sinks be used? Is it permissible to implement square basins of reinforced concrete without the need for sludge sweepers	Rejected.

Q#	Question	Answer
349.	Please confirm that the responsibility and costs of obtaining a civil defense license are outside the scope of the contractor's work and that the contractor is only committed to implementing what is stated in the technical specifications and scope of work for the fire control and alarm items	The permit cost is the owner's responsibility (the Kafr El-Sheikh Drinking Water and Sanitation Company).
350.	Is it required to arrange cars for the transportation of the consultant or client, and the number required, and if requested, to whom will their ownership transfer after the end of the project	Please refer to the TDs.
351.	Please confirm that the air distribution network at the bottom of the ventilation basins can be made of UPVC	Please refer to Vol. 1: Process and Electromechanical Specifications.
352.	Please specify the type of concentrated sludge pumps? It can be connected directly to the outlet pipes from the bottom of the concentration basin without the need for a drain	Connecting sludge thickening pumps directly to the outlet pipes from the bottom of the concentration basin without a separate drain is acceptable.
353.	Please confirm that air lift pumps can be used instead of the submersible pumps in grit lifting in the grit and grease removal tank.	Rejected.
354.	Please confirm that the blowers/diffusers system is accepted as well as surface aerators.	Rejected.
355.	Flow measurement on each of the incoming force main is required to measure the plant inlet flow rate. Please confirm.	The Tenderer shall take in his design the supply and install flow measurement equipment for each of the incoming (5) force mains. The SCADA system shall be designed and equipped to receive the data from a (8) force mains, (5) of them will be installed within the Contractor's scope of works and (3) for future expansion.
356.	Please confirm that the thickened sludge sump-pump is mandatory.	Confirmed.
357.	The technical specification refer that the chemical setting settling tank, the part which touch the water should be S.S 306 L so are possible to be S.S.304 or Not? Please confirm.	Rejected.
358.	In the event that there is Joint Venture of companies when submitting the technical offer, is it required to submit the forms separately, and is it required to submit the financial forms for each company submitted for the Tender each company	Yes, in case of JV, all members must submit the required forms and the needed supporting documents as per the tender documents.
359.	Contract "Volume I - Section IX Particular Condition " "Sub Clause 2.1 Time to Access to Site " Kindly accept that access to site could be granted to the Contractor prior the Commencement Date to allow the Contractor to perform any mobilization, geotechnical investigation works, surveying works, etc.	Access to the site will be 28 days after the commencement date, earlier dates must be approved by the Engineer.

Q#	Question	Answer
360.	3.4 Annual construction turnover "Minimum annual construction turnover of 15 million EUR or equivalent (Thirty Million euro) for the last 5 years, calculated as total' certified annual payments received for contracts in progress and/or completed Q . Please confirm that 15 million EUR is the correct Confirm turnover figure for the last 5 years	The average annual turnover required is 15 million EURO or equivalent (Fifteen million euro), it will be calculated for the last five years.
361.	3.3 Financial Capabilities: Financial Position: (iii) The audited balance sheets for the last five years, shall be submitted and must demonstrate the current soundness of the Tenderer's financial position based on the following criteria: a) Liquidity ratio ≥ 1.1 <i>Crrent Assets</i> ----- ≥ 1.1 <i>Current Liabilities</i> b) Indebtedness ratio $\leq 80\%$ <i>Total Liabilities * 100</i> ----- $\leq 80\%$ <i>Total Assets</i> The Client is kindly requested to reconsider the values given for liquidity ratio and the indebtedness ratio (1.0 & 85% respectively).	The applied ratios are recommended and used by the international Financing Institutions IFIs. They indicate the financial status of the tenderers. Please exert your efforts to submit all the necessary documents to achieve them as it will be considered within the preliminary evaluation.
362.	Kindly clarify the following: <ul style="list-style-type: none"> In tender prices schedules – schedule 1: (other provisional sum) line No. 1-6.4 page 162, The furniture and A/Cs for the administration building and other plant offices determined by unit rate = 5000 EUR In tender prices schedules – schedule 18: (administration building) page 179, The title of the table was followed by (all with complete furniture) statement. - please clarify if the administration building price schedule includes all the furniture and A/Cs or not. 	Confirmed. Schedule 18: Administration Building consisting of two stories, each with an area of 350 m2. The building is to include offices for the Manager, O&M Staff, Chemists, Lab, and Monitoring Rooms, as well as a Mess Room and Kitchen, all furnished completely. Air conditioning is to be provided for the Manager and staff rooms, as well as the Lab. The other provisional sum of 5,000 Euro would not be used.
363.	kindly clarify what is meant by the following expressions in prices tables: <ul style="list-style-type: none"> Miscellaneous other works. Other items (tender to list). 	Any other expenses rather than stated.
364.	Kindly confirm that Prices shall not include customs duties, VAT and withholding tax on imported equipment (costs with official receipts from Customs Authorities), also Prices shall not include VAT on local equipment	Confirmed. Please refer to ITT 17.5 (b) & (d).
365.	Please confirm that all prices will include all taxes, stamp & fees including VAT.	

Q#	Question	Answer
366.	Kindly confirm that Employer shall provide all necessary documentation, authorizations & declarations that will guarantee smooth customs clearance procedures and will fulfill any customs requirements whenever needed.	The Employer will exert the required efforts to support the Contractor in issuing the tax exemption letter soon after the contract signature. Moreover, the Employer will provide the Contractor with the supporting documents (where possible and needed) in order to support the contractor in the customs clearance process.
367.	Kindly confirm that Employer shall provide the project exemption codes that are registered in the VAT & customs authority that confirms that the project is exempted and recorded in the customs authority system as official Exemptions letters only from VAT & Customs duties are not accepted from customs authority to apply the exemptions as these letters should be used to register in customs system (Nafeza) and the system extract a project code to apply the exemption with supporting letter from the Employer to the customs authority . The above procedures are the sole responsibility of the Employer.	
368.	Kindly confirm that Payment of official receipts (customs duties & VAT) should be done by the employer in a timely manner without any delays.	
369.	Kindly confirm that any extra storage or demurrage costs incurred by the contractor resulted from the delay of the employer in issuing the required documentations (mentioned above) for customs clearance or payment of official receipts will be charged back to the employer.	
370.	- Kindly Confirm that this contract will be exempted from the following taxes, fees and levies. a. VAT applicable on contract amount. b. VAT applicable on the local supplies (steel reinforcement, Cement, Pipes, etc..). c. VAT applicable on the custom duties for imported project supplies. d. Custom duties and levies. e. Income taxes. f. Governmental stamp duties (ordinary and additional). g. Engineering syndicate stamp duties. h. Tahya Misr.	Please refer to Tender Data Sheet, Section II, ITT 17.5(d).
371.	Kindly confirm that Contractor will be responsible for local transportation & custom clearance for the imported equipment till delivery to site.	Please refer to the incoterm stated in Instructions to Tenderers Section I, item 17.5, and Tender Data Sheet Section II., item 17.5 (a) & (d).
372.	Kindly provide values/percentage for any deduction will be applied on the invoices (Governmental fees, stamps ...etc-if any)	Please refer to Tender Data Sheet, Section II, ITT 17.5(d).
373.	Please confirm that no deductions for end user to be considered in the prices.	
374.	Please provide values /percentage for any deduction will be applied on the invoices (Governmental fees, Stamps...etc -if any)	
375.	Regarding Tax and customs exemptions, do they only apply to imported materials, or do they include local supplies, and what are the procedures followed to implement this?	Please refer to Section II. Tender Data Sheet ITT 17.5(d).

Q#	Question	Answer
376.	Please confirm that the project value includes all vat, fees and value added taxes or not?	
377.	Contract "Volume I - Section IX Particular Condition " 14.1 (B) Contract Price Please confirm our understanding the Value Added Taxes will be exempted from the taxes	
378.	Section IX. Particular Conditions (PC) Part A - Contract Data " Plant and Material No payment shall be made for Plant and Materials when shipped. Payment shall be made for Plant and Materials when they are delivered to site" Q. Please specify the amount of payment (percentage) after equipment is delivered to site.	Please refer to FIDIC 1999 Yellow Book General Conditions clause 14.5(c).
379.	Kindly Confirm the following payment terms: - 20% advance payment. 75% after delivery of materials / equipment to the project site. 90% after installation of the equipment. 100% after the successful commissioning and testing	Payment will be based on submission of interim payment as per the tender conditions. Please refer to Section IX. Particular Conditions (PC) Part A-Contract Data clause 14.5(b)(i) and 14.5(c)(i). The contractor may submit an on-demand retention bond (bank guarantee) before the submission of the second interim payment.
380.	Please accept the following payment Terms: 20% down payment To be completed to 75% after delivery at the project site To be completed to 90% after equipment on erection To be completed to 100% after the successful commissioning and testing and issuance of the completion certificates	Payment will be based on submission of interim payment as per the tender conditions. Please refer to Section IX. Particular Conditions (PC) Part A-Contract Data clause 14.5(b)(i) and 14.5(c)(i). The contractor may submit an on-demand retention bond (bank guarantee) before the submission of the second interim payment.
381.	Kindly provide the required types of insurance shall be provided by tenders and its values or percentages	Please refer to the Section IX. Particular Conditions 18.2(d) and 18.3.
382.	Please confirm that overall liability is at 100 %.	Please refer to Section IX. Particular Conditions, Part A – Contract Data, Maximum total liability of the Contractor to the Employer, 17.6.
383.	PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices Price Schedules Kindly modify any changes may be applied as per clarifications answers in the price Schedule, or confirm the contractor is permitted to apply the modification as per the clarification answers	Clarification answers are part of the TDs.
384.	Kindly Confirm that in case of the consortiums, it is allowed to submit two separate bid bonds in the name of each consortium member	Tenderers can submit two individual tender securities. The consortium's data should be mentioned in the tender securities.

Q#	Question	Answer
385.	<p>Regarding the payment terms and Due to: - The former acceptance of the European investment bank. The former acceptance of the contracting authority by kafr el sheikh water and wastewater company. The former acceptance of the contracting authority by Fayoum water and wastewater company. Implementing this contract under the same loan and grant agreement with the same conditions for the whole current ongoing projects and tenders with Fayoum water and wastewater company and Kafr el sheikh water and wastewater company. Kindly confirm that payment for local works and supplies under this contract, which shall be priced in Euro in our financial proposal, will be paid directly in Euro instead of being paid in EGP equivalent of the amount in Euro.</p>	<p>The payment conditions were approved by the project promoter and will not be altered.</p> <p>For the currency of payments, please refer to Tender Data Sheet, Section II, ITT 18.1. and Section IX Particular Conditions sub-clause 14.15.</p>
386.	<p>Regarding the company's documents, such as (the commercial register, articles of incorporation, tax returns, financial statements, previous business certificates, etc.), is it required to be translated into English by an accredited office, or must it be approved by the issuing authorities?</p>	<p>It is mandatory to submit a proper and correct translation for all the documents written in other language, the translation should be revised and approved by the tenderer.</p>
387.	<p>In Percentage of Retention, In Sub-Clause 14.3 C, it's mentioned:"5%" • Please confirm that tenderer allowed to provide LG with the same value and percentage to cover the mentioned point</p>	<p>The contractor may submit an on-demand retention bond (bank guarantee) before the submission of the second interim payment. This bank guarantee must be issued from an Egyptian Bank or any Bank with a correspondent Bank in Egypt.</p>
388.	<p>Please confirm that performance (Power and chemical consumption) damage mentioned are related only to 100% load unit rates which shall be used for the calculation of One Year Operation Cost (OPEX)</p>	<p>Confirmed.</p>
389.	<p>PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices: 6. SCHEDULE OF PAYMENTS "In Schedule 1 Preliminary and General: it's mentioned in items: 1-6.7 ""Inspections / Testing by 3rd Party"" 1-6.7 ""Witness performance tests at place of manufacture"" "Please confirm that the provisional sum of 5,000 euro and 10,000 euro for the mentioned items shall cover all costs regarding those 2 items and no additional cost shall be considered by the tenderer for Inspections / Testing by 3rd Party and Witness performance tests at place of manufacture and tenderer shall not consider any additional price for the items requirement</p>	<p>Confirmed.</p>

Q#	Question	Answer
390.	PART 1 – Tender Procedures: Section IV. Tender Forms: Tender Prices: 1. PREAMBLE TO SCHEDULES OF PAYMENTS In Item 1.2 General, it's mentioned: "Tenderers are required to submit Schedule of Payments for itemized works for the new constructions works. Tenders shall be compared both on Capital investment (CAPEX) and upon operating costs (OPEX)." Please confirm our understanding that financial evaluation of tenderers will involve OPEX for only one year operation	The financial evaluation of tenderers will include both CAPEX and OPEX (for only one year operation).
391.	PART 1 – Tender Procedures: Section IV. Tender Forms: WWTP Performance Guarantee: Annual Operating cost (Opex) Tenderer Unit price (EGP /UNIT), Annual cost Euro per year Please provide the unit rates in euro currency in order to avoid any conflicts on the exchange rate	Please use the official exchange rate of the Egyptian Central Bank.
392.	PART 1 – Tender Procedures: Section IV. Tender Forms: WWTP Performance Guarantee: Annual Operating cost (Opex) Mentioned in Page 157, Commitment on Annual operating Cost, Spare parts to be 1 % of the total investment cost (Sum of schedules 1 to 21 X 1 %) Please Confirm that the mentioned table shall only inserted in the commercial offer	Confirmed. However, it should be clearly indicated in the technical offer that the table is enclosed in the financial offer envelope.
393.	PART 1 – Tender Procedures: Technical tender Evaluation System "Mentioned in page 61 & 62: C.9 performance guarantee on effluent a, sludge quality, hydraulic, organic and sludge load calculations D.9 performance guarantee on effluent a, sludge quality, hydraulic, organic and sludge load and operational cost calculations " Please confirm that the required in point D1, shall be provided by contractor in the commercial offer as the table mentions prices	All prices should be enclosed in the financial offer envelope. For the technical offer, tenderers should use percentages only.

Attachments:

Annex No. (1): Pumps Specifications

Annex No. (2): List of Tools

Annex No. (3): Air Blowers Station

Annex No. (4): Mobilization



ANNEX 1

Pumps Technical Specifications

General

- A. Pumps supplied shall be capable of satisfying the performance requirements specified and starts per hour shall be according to electrical motor rating power.
- B. Low maintenance costs, reliability, and trouble-free operation will be prime considerations when selecting pumps.
- C. Pumps shall be quiet in operation and free from vibration. Preference will be given to pumps with lower speeds in operation.
- D. Pump impellers shall be manufactured from single castings, shall be positively located onto the pump shaft, and secured in a manner to prevent them working loose whilst rotating in either direction.
- E. Pumps shall be fitted with packed gland or mechanical seals. The seal manufacturer shall be consulted regarding the selection of the seal faces for a specific application. The pump casing shall be designed to collect and run to drain any seal leakages. Where necessary for satisfactory seal operation, provision shall be made for connection to a water supply for seal flushing.
- F. Pump casings shall be subject to a hydrostatic pressure test prior to any coating or painting taking place. The hydrostatic test pressure shall be 1.5 times the casing design pressure, where the casing design pressure is taken as the 'closed valve' head generated by the maximum diameter impeller at the maximum running speed, plus the maximum suction head, all multiplied by 1.2. The test pressure shall be maintained for a period of at least 30 minutes without detectable loss of pressure or visible leakage.
- G. On fixed speed installations the pump impeller diameter for the guaranteed duty shall not exceed 95% of the maximum impeller diameter for the standard design. For spiral vane type impellers, the requirements of this Clause will not apply.
- H. The guaranteed duty shall preferably be in the range of 80 to 110% of the duty head for the selected impeller diameter. However, for multi-pump installations the run-out conditions shall be considered such that the run-out flow for any pump shall not exceed 200% of the duty flow rate for the selected impeller diameter.
- I. At maximum speed there shall be a +30% margin of NPSH (available) over NPSH (required) over the operational envelope of the pump.
- J. For both fixed and variable speed duties, the motor shall be rated to allow for excess of power above the maximum absorbed power by the pump across the full range of operation. According to max. absorbed power of motor ranging from 15% for motors ≥ 100 kW to 30% for motors ≤ 7.5 kW.



- K. NOTE: Two submersible dewatering pumping units shall be supplied & installed in dry pumps rooms complete with all accessories, valves, pipes...etc., one in duty & one in standby

Vertical Pumps

- A. Pumps shall be suitable for vertical dry chamber installation and shall be fixed on stools or plinths above the floor of the pump chamber. The drive motors shall be direct close coupled to the pump.
- B. Pumps shall be fitted with soft packed glands designed for grease lubrication, glands and lantern rings shall be split to facilitate easy packing. The pump casing shall be designed to collect and run to drain any seal leakages. Where necessary for satisfactory seal operation, provision shall be made for connection to a water supply for seal flushing.
- C. The pumps shall be of the non-clogging single vane centrifugal type and shall run unattended for long periods. They shall be capable of passing solids at least up to a specified sphere size corresponding to their discharge capacity.
- D. The critical speed of the pumps shall occur at not less than 150% of maximum rated speed.
- E. The shut off head shall be as low as possible, preferably around 160% of duty head.
- F. Net positive suction head (NPSH) required for the pumps when pumping singly, or in any combination as specified, shall satisfy the NPSH available. The calculations are to be submitted with the Quotation. Any deviation in the NPSH of the pumps shall be corrected at the Contractor's expense.
- G. Rotating parts of pumps shall be statically balanced during manufacturing, and dynamically balanced after assembly.
- H. Copies of pump performance curves and anticipated system hydraulics, it is the responsibility of the contractor to verify this information and to provide with his quotation the proposed pump hydraulic performance details.

Casings:

- A. Casings shall be designed such that the withdrawal of the impeller and drive end cover assembly can be affected without disturbing the pump casings.
- B. Hand holes shall be provided, close to the eye of the impeller and near the delivery branch on the volute, to facilitate inspection and the clearance of blockages. The covers of the hand holes are to be bolted and shaped internally to match the internal contours of the casing and to minimize disturbances to the flow.
- C. Renewable internal 'wear plates' shall be fitted, or the casing shall be arranged for replaceable suction and gland plates.
- D. Casings shall be grey cast iron to BS 1452 grade GG25 or better and shall have sufficient metal thickness in the volute, where not protected by wearing plates, to compensate for corrosive and abrasive action of the sewage.



Impellers

- A. Impellers shall be constructed of grey cast iron to BS 1452 grade GG25 or better they shall be smooth, well-finished, free from blow holes and imperfections, and statically and dynamically balanced.
- B. The impellers shall be of heavy construction capable of passing solids, designed, and filed smoothly so that rags and stringy matter will not adhere to them, and shall be capable of passing a sphere of at least 50 mm through the impeller without choking.
- C. The velocity through the eye of the impeller shall not exceed 4 m/s when the pump is operating at the duty point.
- D. The impellers shall be securely fitted to pump spindles in such manner that they do not loosen or become detached when the pump is in operation, or when the impeller is rotated in the wrong direction by reversed flow or reversed motor connections.
- E. The impellers shall be provided with means to prevent abrasive matter getting to the glands/seals and, in fully shrouded impellers, to prevent the collecting of matter between the outer shroud and the pump casing.
- F. Pump spindles shall be of stainless steel, and fitted with renewable stainless steel or bronze sleeves to protect the spindles against wear over the distance it passes through.

Casing Wearing Rings

- A. All surfaces of the casing with fine clearance to the impeller shall be provided with renewable wear parts, which shall have a minimum hardness differential of 50 HB below that of the impeller wear ring surfaces.
- B. Casing wearing rings shall be of best quality, close-grained cast iron or nickel iron in a full circle, and fully concealed and machined.
- C. Casing wearing rings shall be deep and of adequate section to prevent sag and distortion when not in the seating and when stored.
- D. Casing wearing rings shall be a light drive fit in the casing and be located in suitable recesses machined in the casing.
- E. Casing wearing rings shall form a continuous and smooth surface without gaps or steps with the adjoining surfaces of the pump casing.

Suction Arrangements

- A. The suction bend leading to the eye of the impeller:
 - Shall be of adequate thickness to provide for the abrasive and corrosive action of the liquid.
 - Shall be tested to the same pressure as the pump casing.
 - Shall be fixed to the pump casing and horizontal suction pipe with bolts and nuts.
- B. The suction arrangements shall avoid perforation in the suction pipe work and present a good flow pattern at the entrance to the impeller.



C. The suction pipe work shall not be less in diameter than the eye of the impeller.

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Pump Bearings

- A. All bearings shall be according to BS 5512, S1 unit dimensions where practicable.
- B. Pump bearings shall be external to the pump casing and be removable with the rotating element. They shall be adequately rated ball or roller type and shall be arranged to take all radial and axial loads during start-up and running conditions.
- C. Pump bearings shall be mounted in dust-proof housing and provided with accessible lubricating points for grease gun greasing. The lifetime of pump bearings shall be at least 100,000 continuous operating hours.

Name Plate

- A. The bearing housing shall accommodate both the manufacturer's rating plate and the Authority's university identification plate.
- B. The manufacturer's rating plate shall contain at least the following information:
 - 1. Manufacturer
 - 2. Pump Serial No.
 - 3. Pump Direction of Rotating
 - 4. Duty Generated Head
 - 5. Duty Flow Rate
 - 6. Pump Absorbed Power at Duty Point
 - 7. Pump Running Speed
 - 8. Pump Casing Design Pressure

Intermediate Shafting

- A. The pump shaft shall be made of stainless steel 316. It shall have cross section & number of bearings enough to avoid having any critical speeds occurring at or near the normal speed and strong enough to absorb any forces at any condition of loading and adequate stuffing box with split-type gland be applied. The shaft rotating train weight and geometry should not generate, when rotating at the rated operating speed, vibration amplitude more than 2.5 mm/sec as stipulated in the API 610 standards.
- B. The shaft shall be protected against wear at the stuffing box and from contact with sewage by using renewable sleeves. The weight of impeller & shaft shall be carried by an ample size thrust bearing & shall be guided by ball or roller bearings preferably self-aligning type.

Pressure Gauges

- A. Pressure and compound gauges shall be fitted to the respective delivery and suction branches of each pump. The gauges shall comply with the requirement of the specification.

Motors

- A. Motors shall be provided suitable for the application and shall be squirrel cage induction motors of the totally enclosed fan cooled type suitable for variable speed starters. The motors shall be a minimum of IP 54 with insulation to class F and temperature rise to class B. Motor output to be a



minimum of 20% more than shaft power required by the pump at maximum duty point. The motor shall be of 380 volts, 50 Hz type and speed shall not be more than 1500 r.p.m.

Submersible Pumps

- A. Pump shall be suitable for operation in a dry well or wet well installation. They shall be designed to give non-overloading characteristics over the complete operable range of the pump. Dry installation submersible pump type be provided by motor cooling jacket of approved type.
- B. Pumps shall be fitted with cartridge-type mechanical seals. The seal manufacturer shall be consulted regarding the selection of the seal faces for a specific application. An oil chamber shall be incorporated between the pump and motor units to lubricate the seal rings.
- C. Motors shall be of the submersible cage rotor induction type. Motor shall be of IP68 insulation.
- D. The units shall be supplied with at least 20m of suitably sheathed flexible cable which shall pass through a watertight gland on entry to the motor body.
- E. The motor windings shall incorporate thermal switches as a safeguard against overheating, these shall be connected into the control circuit for hand reset only.
- F. Wet well installations shall be provided complete with guide rails, automatic location pump discharge branch, cable guides and holders and lifting chains to allow the pump to be raised and lowered without entry to the sump. Lifting davits and equipment shall be provided for this purpose.
- G. Pump Maximum speed is 1500 r.p.m
- H. The pump's best efficiency point shall be at working range (close to duty point) of the pump curve.

Pump Construction

- A. Major pump components shall be grey cast iron GG25, with smooth surfaces devoid of blow holes and other irregularities. Where watertight sealing is required, an O-ring made of nitrile rubber shall be used. All exposed nuts and bolts shall be of stainless steel. All surfaces coming into contact with sewage, other than stainless steel, shall be protected by an approved sewage resistance coating.
- B. The impeller shall be of grey cast iron GG25 and coated with PVC epoxy primer. The pump exterior shall be sprayed with PVC primer, with chloric rubber paint finish seal. The pump shaft shall be of stainless steel 316L and shall be completely isolated from the pumped liquid. Shaft sealing between motor and hydraulic section shall be accomplished by means of high-quality mechanical seal independent of direction of rotation and resistant to thermal shocks.

Pump Motor

- A. The pump motor shall be a squirrel cage induction motor of shell type design, housed in an air – filled, watertight chamber. The stator winding stator lead shall be insulated with moisture resistance class “F” insulation which will resist a temperature rise of class “B”. The stator shall be dipped and baked three times in class “F” varnish. The motor shall be designed for continuous duty, capable of sustaining a minimum of starts per hour according to the Egyptian Code in



corresponding to the motor rating. The rotor bars and short circuit ring shall be made of aluminium. At design point the motor shall not draw more than the kw value at nominal voltage at utility quality. The motor shall be of 380 volts, 50 Hz type and speed shall not be more than 1500 r.p.m.

- B. The junction chamber containing the terminal board shall be sealed from the motor by elastomer compression seal (O-ring). Connection between the cable conductors and star leads shall be made with threaded compressed type binding.
- C. Post permanently affixed to a terminal board and thus perfectly leak proof. Thermal sensors shall be used to monitor stator temperatures. The stator shall be equipped with three (3) thermal switches, embedded in the end coils of the stator winding (one switch in each stator phase). This shall be used in conjunction with the supplemental to external motor over current protection and wired to the control panel.

Progressive Cavity Pumps

- A. The pumps shall be of the horizontal rotary progressive cavity type having a helical rotor operating in a resilient synthetic stator suitable for handling the media to be pumped. These types of pumps shall be used to transfer the thickened sludge from sludge thickeners to the drying beds.
- B. The pumps shall be of grey cast iron casing, polyurethane or rubber stator, stainless steel 316 L rotor and anti-friction bearings.
- C. The rotor speed shall be limited to 300 rpm. Each pump shall be electrically driven through a reduction gearbox. The pump, gearbox and motor shall be mounted on a common rigid baseplate and the drive shall be transmitted through shaft couplings.
- D. All rotating parts shall be completely protected by suitable guards, easily removable for inspection and maintenance.
- E. Each pump shall be provided with a spring-loaded pressure relief valve of the plate type specifically designed for the medium the discharge shall be separately piped back to the pump suction. The valve shall be of the type with external spring, adjusting handle and locking device and shall be set to the maximum safe working pressure of the pumps.
- F. Pressure and compound gauges shall be fitted to the delivery and suction branches of each pump.
- G. Pumps shall be tested on site to prove their performance over the full operating range of the pump.

Pump Control

- A. Pumps shall be controlled by use of ultrasonic level sensors in the wet well. Pumps shall be arranged to start and stop automatically at predetermined levels in the sumps. Duty, standby and sequence operation switches shall be provided for pump operation to be alternated, this control shall be provided for all pumps and shall be included in a separate electrical contract only if specified in the Particular Specification.

Pipe Work, Valves and Supports

- A. The Contractor shall include for all pipe work, valves, and supports within the treatment plant. The Contractor shall be responsible for all interconnections pipework. Valves, pipe work, and supports shall be in accordance with the specification with working pressure of not less than PN10 for both valves & pipes.

ANNEX 2

Minimum List of Equipment

1. General Tools and Equipment:

- Workbenches with vices
- Tool cabinets and storage racks
- Hand tools (hammers, screwdrivers, wrenches, pliers, etc.)
- Power tools (drills, grinders, saws, etc.)
- Welding equipment (arc welder, gas welding kit)
- Air compressor with accessories
- Safety equipment (helmets, gloves, goggles, ear protection, etc.)
- Portable lighting and extension cords.

2. Maintenance Tools:

- Pipe wrenches and cutters
- Valve and pump maintenance kits
- Bearing pullers and presses
- Alignment tools
- Lubrication equipment (grease guns, oil dispensers)
- Vibration analysis and balancing equipment.

3. Electrical Tools and Equipment:

- Multimeters and clamp meters
- Insulation resistance testers
- Portable generator
- Circuit testers and continuity testers
- Electrical wiring tools (strippers, crimpers, etc.)
- Spare electrical components (fuses, relays, switches, etc.)

4. Mechanical Tools and Equipment:

- Hydraulic jacks and lifting equipment
- Gear pullers and bearing extractors
- Torque wrenches
- Chain hoists and slings
- Workshop crane or gantry crane
- Welding and cutting equipment

5. Instrumentation and Calibration Equipment:

- Pressure and temperature calibration instruments
- Flow meter calibration tools
- pH and conductivity meter calibration kits
- Portable gas detectors and analysers.

6. Surface Aeration Equipment:

- Maintenance kits for aeration systems
- Oxygen measurement and monitoring devices

7. Pumping Equipment:

- Pump repair kits (seals, bearings, gaskets)
- Suction and discharge hoses
- Pump alignment and balancing tools

8. Safety and Emergency Equipment:

- Fire extinguishers and safety showers
- First aid kits
- Spill containment kits
- Emergency communication devices (radios, alarms)

9. Cleaning and Utility Equipment:

- High-pressure washers
- Industrial vacuums
- Cleaning chemicals and supplies
- Portable heaters and fans.

10. Documentation and Office Equipment:

- Computer and software for maintenance management
- Printer and scanner
- Technical manuals and spare parts catalogues
- Office furniture (desks, chairs, filing cabinets).

This list outlines the essential tools required for the workshop to support the operation and maintenance of the WWTP. Contractors may adjust the list based on specific equipment needs and standards.

Annex 3:

Air Blower Station

- A. The air blower station is provided for the oxygen needs of the aerated Grit removal tanks. The rotor shall be suitably sized for the process requirements.
- B. The blowers serve to take in and pressurise ambient air so that it can be transported to and diffused into the grit tanks.
- C. The blowers for air diffuser system shall be positive displacement (roots) type. The head for blowers shall be decided considering the losses between the governing point of delivery (diffusers) and the blowers.
- D. The number of standby blowers shall be minimum 50% (fifty percent) of the number of working blowers.
- E. Blowers shall be complete with motor and accessories like base frame, anti-vibratory pad, silencer, non-return valve, air filter etc as per requirements.
- F. Vibration due to operation of blowers shall be minimum to avoid damage to structures. Further, blowers shall have acoustic enclosures to ensure that the noise level at 3 m from blowers is below 50 dB level. The blower room shall have sufficient ventilation, lighting and working space.
- G. The blowers are frequency controlled to maintain the required pressure in the main air header with changing air demand.
- H. The blower station should be fitted with ventilators to remove the heat dissipated from the motors of the air blowers.
- I. All materials shall be protected against corrosion.
- J. Each blower package shall include the following components:
 - Complete air blower system.
 - Motor with swing base.
 - V-Belt drive.
 - Sound, & Weatherproof Enclosure.
 - 380V enclosure ventilation fan.
 - Discharge flexible expansion joints.
 - Drive guard.
 - Base frame with integrated discharge silencer
 - Inlet silencer with integral filter.
 - Pressure relief valve
 - Swing type check valve
 - Discharge pressure gauge
 - Filter differential pressure indicator
 - Temperature gauge (discharge)
 - Vibration isolators
 - Spare parts
 - PTC Thermistors.

Guarantee and Warranty

- A. The manufacturer shall warrant the bare blower being supplied against all defects in workmanship and materials for a period of twelve (12) months from date of start-up.
- B. All other package components shall be warranted for a period of twelve (12) months from date of start-up.
- C. The contractor shall be responsible for proper storage of the equipment so as to remain in "as shipped" condition. If the equipment remains in storage at the job site for longer than six (6) months before installation, the contractor shall provide factory service personnel for a complete inspection of the equipment. Any work necessary to restore the equipment to "as shipped" condition shall be the responsibility of the contractor.

Blower Construction

- A. Blower shall be vertically mounted, positive displacement rotary type with top inlet and bottom outlet.
- B. Blower shall be V-belt driven by a motor.
- C. All four rotor shaft support locations shall incorporate large, heavy-duty, full complement, cylindrical roller bearings with PEEK cages, designed with at least 5-times the dynamic capacity of ball bearings. Ball bearings shall not be allowed.

Blower Casing

- A. The casing shall be made of high strength, close grained, cast iron, and shall be adequately ribbed to prevent casing deflection and facilitate cooling. Casing shall be of EN GG 25 material.

Rotors and Shaft

- A. The rotors shall be precision machined out of a one-piece casting made of EN GGG 50 material. Stub shafts or two-piece impellers shall not be allowed.
- B. The rotor assemblies shall be statically and dynamically balanced to ISO standard 1940/1- Q2.5 (turbine rotor). Modifications to the face of the rotors for balancing purposes are not acceptable.
- C. The rotors shall be a tri-lobe design in order to minimize pulsation and noise.

Gears

- A. The rotor timing gears shall be precision machined and ground from alloy steel made from case hardened 16 MnCr5 material.
- B. Each timing gear shall be straight cut and bevelled to quality standard 5f 21, which will eliminate axial bearing loads and ensure long life as well as quiet operation. Helical gears, which cause axial loading, shall not be allowed.
- C. Each timing gear shall be manufactured in accordance with:
 1. DIN 3960, Specifications for Spur Gear Sets
 2. DIN 3961 & DIN 3962, Tolerances for Spur Gear Mesh
 3. DIN 3964, Specifications for Shaft Centering
- D. The timing gear set shall be taper mounted on the rotors. Keyed, hub mounted, taper-pinned, or splined shaft timing gear mounting designs are not acceptable.

Lubrication

- A. Both the gear end and the drive end of the blowers shall be oil splash lubricated via a disc slinger for minimal maintenance and long service life. Grease lubricated bearings in the blower are not acceptable.

- B. The lubrication design shall ensure adequate lubrication of the timing gears and bearings.
- C. The drive-end and gear-end oil chambers must not be interconnected, and each oil chamber shall have a domed design sight glass to allow visual inspection of oil level and oil condition, viewable from the front of the blower.
- D. Blower to be factory filled with a synthetic lubricating fluid that is rated for the design conditions specified.

Rotor Seal Assembly

- A. Each rotor shall include one labyrinth seal assembly on each end, four assemblies in total per blower. Each seal assembly shall consist of the following:
 - Oil splash guard ring.
 - Shaft guide wear sleeve with vent holes located between the dual air and oil ring seals. Wear sleeve shall protect the blower casing.
 - Four piston ring type labyrinth seals made from heat treated GG/42CrMo4 material. Two seals located on the air side and two seals located on the oil side of the grooved rotor sleeve. The use of rubber lip seals shall not be allowed.
 - Grooved rotor sleeve which will protect the rotor shaft and be used to hold the four piston ring seals.

Input Shaft Seal Assembly

- A. The input drive shaft seal shall be a high temperature radial lip type seal made from Viton elastomer. The seal shall prevent oil leakage from where the input shaft goes thru the drive end covers.
- B. The seal design shall incorporate a replaceable wear sleeve on the input drive shaft.

Drive System

- Motor shall be designed, manufactured, and tested in accordance with the latest revised editions of NEMA MG-1, IEC, DIN, ISO, IEEE, ANSI, and AFBMMA standards as applicable and shall be capable of continuous operation. Motor must meet or exceed Energy Independence and Security Act (EISA 2007) standards for NEMA Premium efficiency. It shall also be marked with a Department of Energy Certification Compliance Number to assure compliance. Motor shall comply with Low Voltage Directive 2006/95/EC or equivalent.
- Air blowers' motors shall be driven via VFDs.
- Motor shall confirm to the following:
 - Motor voltage: 380v/ 3ph/ 50hz.
 - Type: Squirrel cage induction.
 - Speed: Single
 - Torque: Constant
 - Service factor: 1.15~1.30
 - Enclosure: TEFC.
 - Mounting: Horizontal
 - Speed: up to 3000 rpm @ 50 hz (maximum).
 - Design: A
 - Duty cycle: continuous (24 hours a day)
 - Winding insulation: F
 - Temperature rise: B
 - Thermal motor protection: Positive Temperature Coefficient (PTC) thermistors (one per winding) wired in series. The use of thermostats is not allowed.
 - Connection of the PTC thermistors to the control system and signal processing is not part of the blower manufacturer's scope of supply.
 - Conduit box location: Top
 - Wiring Connection: Terminal strip inside conduit box. Use of wire nuts for connection of motor wiring to power source shall not be allowed.
 - Bearing lubrication: Grease
 - Bearing type: a. \leq 40HP: Permanently greased b. \geq 50HP: Regrease able, c. Lubrication fittings

must be located towards the front of the blower package so that both bearings can be safely lubricated while the blower package is running.

- Grease drains holes to be closed for protection of the environment. A spent grease cavity in the bearing cover should be large enough to hold spent grease required for 40,000 operating hours.
- Bearing design: Cantilever forces (belt drive).

Sound Enclosure Ventilation Fan Motor

- A. Motor voltage: 380V/3ph/50Hz
- B. Motor starter/ overload protection is the responsibility of the control system provider.
- C. The fan motor should turn “on” when the main motor starts and turn “off” 10 minutes after the main motor stops. Controlling the fan motor via a thermostat shall not be allowed.
- D. Accessories:
 1. Pressure Relief Valve:
 - The relief valve(s) shall be factory installed within sound enclosure. Relief valve may not be shipped loose for field installation in the discharge piping.
 - The relief valve(s) shall be spring type and must be sized for 100% of the design flow specified. Weighted relief valves shall not be used.
 - The relief valve(s) shall be set to protect the blower from excessive differential pressure based on the design conditions specified. A seal shall be affixed that must be broken if set point is changed.
 - The relief valve(s) exhaust shall be vented out of the sound enclosure. Exhaust vented into the sound enclosure shall not be allowed.
 - The relief valve shall be ASME Section IIIV, UV, CE, and PED certified.
 2. Check Valve:
 - A check valve to prevent back flow through the blower shall be factory installed and not shipped loose for field installation in the discharge piping.
 - The check valve flapper shall be swing type made from a steel disc embedded in a high temperature silicone elastomer. The valve shall be designed so that, in the event of failure, the valve element is retained in the valve housing. Split disc or centre hinged designs shall not be used.
 - The check valve capacity shall exceed the blower package’s maximum discharge pressure and temperature.

Flexible Connector

- A. An elastomeric compensator/flex connector shall be provided to isolate the connection of the blower package to the self-supporting system piping. Restraining rods shall not be used. Flex connectors located between the bare blower and silencers shall not be allowed.
- B. The flexible connector capacity shall exceed the blower package’s maximum discharge pressure and temperature.
- C. Discharge connection:
 - 4” and smaller connection, a web reinforced silicone rubber sleeve with corrosion resistant clamps shall be provided.
 - 6” and larger connection, an ANSI/DIN flanged arch-type EPDM web reinforced connector shall be provided.

Blower Instrumentation Gauges

- A. Discharge pressure gauge:
 - The discharge pressure gauge shall measure the pressure at the discharge of the blower.
 - The discharge pressure gauge shall be dual unit (English – PSI / Metric – Bar) with a range of 0 – 23 psi (0 – 1.6 bar). Minimum dial diameter shall be 2 ½”, made with a stainless-steel case and be glycerine filled for pulsation dampening.
- B. Discharge temperature gauge with adjustable switch:
 - The discharge temperature gauge shall measure the temperature at the discharge of the blower

package.

- The discharge temperature gauge shall be single unit (Metric - °C) with a range from (0 – 200°C) and include an adjustable set point dial. Minimal dial diameter shall be 2 ½", made with a black plastic case and have a liquid filled measuring system that is converted by a Bourdon tube into a rotary movement of the pointer. The rotary movement of the pointer spindle shall operate a SPDT microswitch through a lever system. Voltage rating up 220v, 5amps.
- The high temperature set point shall be as recommended by the blower manufacturer.
- Connection of the switch to the control system is not part of the blower manufacturer's scope of supply. The switch shall be wired to shut down the blower package when actuated.

C. Filter differential pressure gauge:

- The filter differential pressure gauge shall measure the pressure difference from ambient to the back side of the filter that is integral to the blower package's inlet silencer. When the filter starts to become dirty, the resistance shall be shown on a resettable red dial indicating when the filter shall be changed.

Oil Drains

- A. An oil drain from the blower drive-end and gear-end lubricating oil sumps shall be separately piped to the front of the blower base with flexible tubing. Common fill and drain shall not be allowed.
- B. Each oil drain shall include a drain valve installed for ease of maintenance. The drain valves shall be 90° stainless steel ball valves and include a fully retained gasketed threaded cap to prevent accidental discharge of the blower lubricant.

Vibration Isolators

- A. Vibration isolators shall be provided between the base frame with integrated discharge silencer and sound enclosure skid to prevent transmission of vibration to the foundation.
- B. A ground wire shall be installed between the blower base and the sound enclosure base to allow for grounding of the complete blower package.

Spare Parts

- A. The equipment supplier shall deliver the following spare parts for each blower size:
- Two-year supply of oil/grease (under normal operating conditions)
 - Three (3) set of V-belts of each size.
 - Three (3) filter element for each size air intake filter.
- B. All the above parts shall be provided as spare parts and shall be packaged for potential long-term dry storage.

Installation, Start-up, and Training

- A. The blower manufacturer will furnish services of a factory-based engineer for one (1) eight (8) hour day to check the blower installation, make any field adjustments necessary to insure proper mechanical operation, and instruct plant operations personnel on equipment supplied.
- B. The blower manufacturer shall submit a written report for record certifying that equipment has been satisfactorily installed and lubricated.
- C. Furnish the services of a manufacturer's authorized representative, who will instruct plant personnel in the operation and maintenance of the blower package. All procedures shall be covered including preventive maintenance, method of controlling the blower package and troubleshooting.

Factory Tests

- A. Parts must be inspected as part of a strict ISO 9001:2008 quality control program.

- B. All critical dimensions of the blower components provided by the manufacturer shall be verified and documented prior to assembly.
- C. Each blower provided by the manufacturer shall be tested per ISO 1217.
- D. Each blower provided by the manufacturer shall be operated at its maximum rated speed and differential pressure for fifteen (15) minutes.
- E. On completion of final assembly of the packaged blower and prior to shipment, each packaged blower shall be mechanically run for a minimum of thirty (30) minutes.
- F. Each blower package provided by the manufacturer shall be guaranteed to provide performance to ISO 1217.
- G. Certified slip test results shall be submitted for the engineer's review.

Air Pipes for Grit Removal

- A. All interconnecting pipework between the blowers' expansion joints and the main header to the Grit Removal with the necessary isolating valves shall be supplied by the Contractor. Main headers from air blowers to Grit Removal/Aeration tanks shall be of galvanized steel. Transmission main pipes from main headers down and along each tank shall be of st.st 316. All submerged air pipe branches from transmission mains shall be made of UPVC Class C minimum treated to prevent degradation by ultra-violet light. The contractor shall submit detailed drawings of the fixation of the air pipes inside the tanks.
 - Stainless steel piping shall conform to ASTM A312/A312M, Type 316, Schedule 10.
 - Plastic piping shall conform to ASTM D1785, Class PVC 1220, Schedule 80. Fittings shall be the same type and grade as the pipe and conform to ASTM D2467.
 - All pipes shall be with flexible joints to ease the moving up for maintenance

Attachment (1)

Mobilization Details

Mobilization shall include the following items:

- Preparation of all required plans and schedules;
- Mobilization to the site;
- Installation of all offices and facilities as described in this attachment;
- Installation/preparation of all storage and supply areas and facilities;
- Installation of project sign boards;
- Making good and all necessary measures to the satisfaction of the Engineer;
- Obtaining any other land for purposes related to the work or for any other purpose; and
- Preparation of temporary access roads at the required widths and lengths.

The mobilization includes the temporary utilities, support facilities, and security and protection facilities incl. the Contractor's field office(s) and Engineer's/Employer's field office at the Site of Work, and furnishings, as specified by the Engineer and provided by the Contractor. The Contractor and the Engineer/Employer shall be housed in separated field office. Offices may be in existing buildings, rented or owned by the Contractor for the duration of the project.

1. Contractor's field office(s): During the performance of this Contract, maintain suitable offices at or near to the Site of the Work which shall be the headquarters of a representative authorized to receive drawings, instructions, or other communication or articles. Any communication given to the said representative or delivered to the Contractor's Field Office in his absence shall be deemed to have been delivered to the Contractor. Copies of the drawings, specifications, and the Contract shall be kept at the Contractor's Field Office available for use at all times. The Contractor's Field Office shall include a large, air-conditioned meeting room suitable for holding progress meetings with a minimum of twenty people in attendance.
2. Engineer's and Employer's field office: Provide, within one month of Notice to Proceed and no later than the end of mobilization period, completely furnished and operational field office for the Engineer and the Employer. The Engineer's and Employer's office shall be provided with all necessary electrical, water, sewer, and telephone connections and located at or near to the site of the Work and near to the Contractor's office. This office shall be maintained by the Contractor until Engineer's issuance of the Taking-Over Certificate. Upon issuance of Tanking-Over Certificate, the contents of the office shall remain the responsibility of the Contractor until turned over to the Employer within three months after issuance of the Taking-Over Certificate.
3. The Contractor shall pay all required fees or consumption costs for water, electricity, telephone, etc. for the project site.

TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading or may be in existing buildings, rented or owned by the Contractor for the duration of the project.
- B. Engineer's and Employer's Field Office: The Engineer and Employer office shall be as specified herein. The Engineer's office shall have at least 60 Square Meters of useable space and the Employer's office shall have additional at least 30 Square Meters of useable space to

accommodate needs of Employer, Engineer, and construction personnel office activities and to accommodate Project meetings. The Employer office shall be 30 square meter. Furnish and equip offices as follows:

1. The Engineer's field office shall have four closed rooms, and one conference room, one restroom for men and one restroom for women, one kitchen, and two exterior doors.
2. The Employer's field office shall have at least two rooms and one restroom.
3. The restrooms shall include toilet, sink and faucet, hot and cold water medicine cabinet, vanities/mirrors, and exhaust fan and shall be either piped to sanitary sewers or a holding tank that is pumped out periodically.
4. The conference room shall include suitable plan table for 16 person.
5. The field offices shall be weather-tight construction with floor, walls, and ceiling completely insulated. Each room shall have at least one operating window and shall be lockable. Each window shall have a venetian blind and full insect screen. Furnish two sets of keys for each exterior door. Provide fully insulated skirting on all sides of the field office trailer. Provide steps, platforms, handrails, and boot scrapers for each exterior door.
6. Furnishings:
Provide the following furnishings for the Engineer's and Employer's temporary field office through issuance of the Taking-Over Certificate. All furnishings shall be new subject to approval of the Engineer. All furnishings in the Engineer's/Employer's field office provided by the Contractor will be turned over to the Employer within three months of issuance of the Taking-Over Certificate.
 - 1) Engineer's offices:
 - a) Four flat top desks (1600 mm x 800 mm) with file drawer and 5 disk drawers, all lockable
 - b) Five pneumatic executive chairs.
 - c) Four swivel type office chairs.
 - d) Five side tables to match the desks (1000 mm x 600 mm).
 - e) Five coffee tables.
 - f) Five sets of visitor chairs (two for each office).
 - g) Five bookcases 2000 mm (height) x 1000 mm (width) (6 shelves).
 - h) Five 4-drawer (high) legal file cabinets with lock.
 - i) Ten metal wastebaskets.
 - j) Five white marking board (1200 mm x 600 mm) with markers, etc.
 - k) Two plan file racks for vertical holding of plans.
 - l) Three laptop 15.4 inch, Core i7, 8 GB Ram, 64-bit (x64), Hard Desk (2) TB
 - m) Two A4 B/W printers and One Color Inkjet Printer A3.
 - n) Fax and Scanner machines
 - o) Copier machine of 30 page/ minute with sorter.
 - 2) Engineer's conference room:
 - a) One set conference room table(s) with fabric chairs to seat 16 people.
 - b) One white marking board (1200mm x 1000mm) with markers, etc.
 - c) One set data show and portable screen.
 - 3) Employer's office:
 - a) Two flat top desks (1600mm x 800mm).
 - b) Two pneumatic executive chairs.
 - c) Two side tables to match the desks (1000mm x 900mm).
 - d) Two coffee tables.

- e) Two set of visitor chairs (two for each office).
 - f) Two 4-drawer (high) legal file cabinets with lock.
 - g) Two metal wastebaskets.
 - h) Two white marking boards (1200mm x 600mm) with markers, etc.
 - i) Two plan file racks for vertical holding of plans.
 - j) Two laptops 15.4 inch, Core I7, 8 GB Ram, Hard Desk (2) TB
 - k) One A4 B/W printer.
- 4) One digital telephone answering machine.
 - 5) One electric bottled water dispenser with hot and cold outlets and refrigerator nit. Adequate water bottles shall be provided (and paid for by the Contractor) until Taking-Over Certificate.
 - 6) One wall-mounted first aid kit, McMaster-Carr 9501T1 or equal.
 - 7) Two smoke detectors, with batteries.
 - 8) The Engineer's kitchen shall be complete to serve the Engineer and guests, including glasses, cups, plates, ... etc and silverware to accommodate offices and meetings.
 - 9) At least two fire extinguishers to meet local codes.
 - 10) One first aid kit, OSHA (1910.151.b) and ANSI (Z308.1-2003) compliant, suitable for ten people.

Services:

- a. Provide the following services for the duration of the project. Services shall include all costs for installation, use, maintenance, and removal of all products, services and equipment billed by each provider for each service specified herein.
- b. HVAC System: Provide heating and air conditioning system with programmable thermostat. System shall be capable of maintaining an interior temperature of 21°C when the exterior temperature is -17°C and an interior temperature of 24°C when the exterior temperature is 37°C.
- c. Bottled water service: Provide bottled water service complete with dispenser with hot- and cold-water taps and regular bottle and cup replenishment as directed by the Engineer.
- d. Daily cleaning attendance and office boy, exclusively for the use of the Employer's and Engineer's staff full time.
- e. One tea boy exclusively for the use of the Employer's and Engineer's staff full time.
- f. Sanitary service: Provide regular pumping of waste holding tank, if applicable, as needed.
- g. Communications: The Contractor shall, after the facility is set up, provide the Engineer's facilities with a telephone system that includes two individual lines: one voice grade line and with line extensions and telephone sets in each room, a second line for a dedicated fax line.
- h. Internet Access: Provide ADSL internet connection with a minimum of 4 megabytes per second (mbs) speed. Pay all costs for installation, maintenance, and removal of the telephone and internet service and instruments, including cellular phone service. The monthly cost of all calls made and received by the Engineer, shall be paid for by the Contractor for the duration of the project.

Operation Supplies: Provide the following supplies for the duration of the project: copier machine toner, printing paper A4 & A3, toilet paper, paper towels, soap, light bulbs, and other consumables as required by the Engineer.

Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.