

TERMS OF REFERENCE FOR A BOREHOLE (BH#4) DRILLING IN AZRAQ CAMP

Assignment	Borehole drilling and installation in Azraq Camp (BH#4)
Duration	Four months starting from the date of signing the agreement
Reporting to	WASH officer

Tender documents BH#4

Annex B

Terms of Reference

Azraq Camp

Borehole #4



Contents

1	Project Background	6
2	Objective of the assignment	6
3	Description of the Assignment	6
3.1	Scope of Work	6
3.2	Work Schedule	6
3.3	Mobilization	7
3.4	Inspection of Materials and Equipment	7
3.5	Traffic & Protection of Roads, Properties & Services	7
3.6	Drilling Contractor’s Personnel, Drilling Equipment and Safety Equipment	8
3.6.1	Personnel	8
3.6.2	Safety measures and equipment	8
3.6.3	Fuel and lubricants	8
3.6.4	Fire prevention	8
3.7	Borehole Drilling	8
3.7.1	Well construction sequence	9
3.8	Construction Inspection	9
3.8.1	Drilling Methods	10
3.8.2	Borehole Sampling	11
3.8.3	Final Drilling Depth	11
3.8.4	Daily Driller’s Report	11
3.8.5	Payment for drilling	11
3.9	Borehole Design	11
3.10	Depth	12
3.11	Borehole Development	12
3.11.1	Method of development	12
3.11.2	Pumping Test	12
3.11.3	Water quality test	12
3.11.4	Disinfection	12
3.11.5	Borehole completion report	13
3.12	Criteria for Successful Boreholes	13
3.12.1	Borehole minimum yield	13
3.12.2	Sand content	13
3.12.3	Turbidity	13
3.12.4	Verticality and alignment	13
3.12.5	Sealing of the toxic B3 oil shale layer	13
3.12.6	Lower Casing (screen) Installation	14

3.13	Abandoned boreholes	14
3.14	Construction of concrete platform, drainage channel and soak-pit	14
3.14.1	Site Cleanliness	14
3.14.2	Design of Concrete Platform, Drainage Channel and Soak Away/Soak-Pit	14
3.14.3	Quality of materials	14
3.14.4	Aggregates	14
3.14.5	Water	14
3.14.6	Cement	14
3.14.7	Quality of formwork	15
3.15	Demobilization, handing over and defects liability	15
3.15.1	Handing over	15
4	Deliverables	15
5	DESIRED QUALIFICATIONS, SPECIALIZED KNOWLEDGE OR EXPERIENCE	15
5.1	The bidder must have the following experiences	15
6	CALL FOR PROPOSALS	15
6.1	Guidance on Structuring Technical Proposal	15
6.1.1	Company Profile	15
6.1.2	Human Resources	16
6.1.3	Project Manager/ Drilling Engineer	16
6.1.4	Hydrogeologist	16
6.1.5	Methodology of Operation	17
6.1.6	Risk Assessment Matrix	17
6.1.7	Quality Assurance Plan	17
6.1.8	Health and Safety Plan	17
6.1.9	Supply and Procurement Plan	17
6.1.10	References	17
6.2	Tender Related Documents and Manuals	18
6.3	Site Visit for Bidders	18
7	UNICEF RECOURSE IN CASE OF UNSATISFACTORY PERFORMANCE	18
8	Contract Management	18
9	REQUEST FOR PROPOSAL EVALUATION AND WEIGHTING CRITERIA	18
9.1	Technical Proposal	19
9.2	Financial Offer	20
10	Reporting Requirements	20
11	Location and Duration	20
12	Project Management	20
12.1	Instructions	20
12.2	Designated Representative Decision	20
12.3	Delegation	21

12.4	Communication	21
12.5	Management meetings	21
13	CONDITIONS	21
14	Payment	22
15	ENQUIRIES	Error! Bookmark not defined.
16	SUBMISSION	Error! Bookmark not defined.
17	ESTIMATED EXPENDITURE - COST PROJECTION	Error! Bookmark not defined.
18	Evaluation committee	Error! Bookmark not defined.
19	APPROVAL	Error! Bookmark not defined.

1 PROJECT BACKGROUND

Azraq Refugee Camp is located in Zarqa governorate and is currently the second-largest refugee camp in Jordan. The current registered population is approximately 38,000 people. UNICEF is responsible for the provision of WASH services in the camp which includes the provision of water supply and wastewater desludging. Though water supply from the sources available within the camp is sufficient during winter however, additional water quantities are needed during the summer hot weather period. The current water supply system has been operational in Azraq camp since May 2017 and is comprised of 2 boreholes, 2 storage locations, distribution systems for each of the 4 villages within Azraq camp and all service areas with over 300 communal tap stands. Two Boreholes are connected to water storage locations J4 and J8, each with 16 water storage tanks (T-95 steel tanks), with a total capacity of 1,440 m³. Inside each village, several distribution lines serve the public tap stands, each with 4 taps/faucets in most cases.

The community of Azraq Refugee Camp is currently provided with 2100 m³/d of water, which is distributed via gravity to communal tap stands. Due to the increasing needs of the community, peak summer demand shortages and declining aquifers, there is a need to supplement the current system with a 3rd borehole within the camp vicinity to compensate for the additional water demand and to provide a sustainable and reliable water source to ensure equitable water supply to plot level.

2 OBJECTIVE OF THE ASSIGNMENT

The objective of this assignment is to drill, construct and develop a new borehole inside Azraq refugee camp, ensuring a minimum required safe yield and water quality parameters.

3 DESCRIPTION OF THE ASSIGNMENT

3.1 Scope of Work

The Contract to be established is for the drilling, construction and development of *one* borehole in *Azraq Camp*. The borehole, to be named BH-4, is tentatively 620 m deep, achieving a full penetration of the A7/B2 aquifer; drilled in 26" (15 m), 17" ½ (290 m) and 12" ¼ (310 m) diameters; equipped with 20", 14" and 10¾" API Carbon Steel, 5L Grade B casings and screens. Additionally, a pumping test (step-drawdown and constant-rate pumping test) is to be carried out and analyzed to determine the safe yield together with water quality analyses together with geophysical logging.

The location of the borehole is N 1144921.558° E 300457.7864° PGS (Palestine Grid System). Its relative location to J8 is shown in Annex D.

The Drilling Contractor shall be responsible for drilling, installation of casings and screens, **B3 toxic oil shale layer seal**, sanitary seal, borehole development, pumping tests, water quality testing required for obtaining an operating license, and construction of aprons, drainage and soak ways. Where access conditions are difficult, it is expected that the Drilling Contractor shall make allowances for this as part of the drilling cost.

The project is to start as soon as the contract is signed, tentatively in October 2022, and is expected to last for three months, including the period needed for the driller to obtain the permit.

The project shall be under the control of the Designated Representative appointed by the Client. The Designated Representative shall appoint one or more Supervisors who shall be responsible for the management and direction of the project on-site and shall approve all supplied materials, works, and measurements carried out by the Drilling Contractor and his team of workers on the project.

3.2 Work Schedule

The bidder shall submit a comprehensive work schedule within his proposal which should fall within the period specified in the Terms of Reference. The work schedule shall include **obtaining the necessary permits**, setting up the base camp, and moving the drilling units and support equipment to the drill site. It shall also include the premobilization meeting, and **site restoration and demobilization**.

Once the contract is awarded, and before the mobilization to the base camp, or drilling site the Drilling Contractor shall be required to submit the updated schedule for the completion of the works in a Gantt chart of weekly activities as specified in the Terms of Reference. This schedule shall be checked and approved by the Supervisor. The schedule is to be updated at least monthly.

3.3 Mobilization

Before the mobilization to the site, the representatives of the Drilling Contractor shall obtain:

- the camp entry permits for materials, machinery, and personnel from SRAD
- All necessary permits required for the drilling operation.

The contractor must submit a permit request to UNICEF within a week of awarding. UNICEF will assist with permit requests for SRAD and provide the borehole authorization letter from MWI. The Drilling Contractor shall be fully operational, with the drilling unit and installation crew working **within a week of obtaining the drilling permit for the borehole construction.**

Mobilization shall start with the Drilling Contractor establishing a base camp for housing the Drilling Contractor's staff, storage and maintenance of plant and machinery, supplies and all other equipment required to launch and execute the project. The Drilling Contractor shall make his own arrangement to occupy the **required land in J8**. However, the location of the base camp shall require the approval of the Supervisor and relevant parties.

The Drilling Contractor shall submit a plan and layout of the proposed base camp for the approval of the Supervisor with provisions for the following:

- Office and residential accommodation and catering facilities for the contractor's staff
- Sufficient storage for the Drilling Contractor's equipment and supplies including
 - fuel storage tanks
 - equipment repairs facilities
 - covered storage for casings and screens

The contractor can get 50m³/day water from the Client in a decent distance (a meter must be installed).

There will be now electrical power available for the contractor.

The contractor shall, with due care and diligence, execute and maintain the works and provide all labor, materials, equipment, transportation, and other facilities necessary to substantially complete the works by the planned completion date, and in accordance with the requirements, documents and the standards defined by it.

The contractor shall take full responsibility for the adequacy, stability and safety of all site operations and methods of drilling, construction and development of boreholes and pump installation and for the security of the site itself, including the security of all materials stored or used on the site.

3.4 Inspection of Materials and Equipment

The Drilling Contractor shall present to the UNICEF (Focal point) the list of equipment and samples of materials (material details in the design report) to be used on the project as well as relevant information, with sufficient time for the Client to complete a review of samples. Each item shall be labeled as to the origin and intended use in the works.

All materials used in the course of these works shall be new and proper for their use. No reusable materials coming from the site shall be used unless permitted by the Client in writing. Other materials shall be stored on-site until the end of the works.

All materials, equipment and products shall be installed in accordance with the written recommendations of the manufacturer/supplier. The Drilling Contractor is not allowed to start work until the Supervisor and Consultant have checked and approved the equipment and materials. Prior to the beginning of drilling operations, all equipment supplied by the contractor shall be certified by the contractor to be suitable for the specified drilling operation. The replacement of any equipment and materials later found to be unsuitable shall be at the contractor's expense.

3.5 Traffic & Protection of Roads, Properties & Services

The Drilling Contractor shall carry out all work in connection with the contract so as not to interfere unnecessarily or improperly with the convenience of the public and with access to, use and occupation of roads, footpaths, and public services or property not in the contractor's possession.

The Drilling Contractor shall use every reasonable means to prevent damage to roads, bridges, and services, and shall select routes and limit extraordinary traffic to avoid unnecessary damage or injury.

Where necessary to divert or control traffic, the contractor shall, in cooperation with traffic control authorities if required, provide all necessary facilities and resources at his own cost.

The contractor shall be responsible for and shall pay the cost of any strengthening or improvement of routes to the site, to facilitate movement to the site of the equipment, temporary works, materials, and personnel. This shall apply to all necessary relocation of services.

The contractor shall bear all costs and charges for special or temporary permits required in connection with access to the site.

3.6 Drilling Contractor's Personnel, Drilling Equipment and Safety Equipment

3.6.1 Personnel

The Drilling Contractor shall provide capable and experienced personnel to perform the work. In the camp Jordanian nationals are allowed only. The Drilling Contractor will appoint a **project manager/drilling engineer** with at least 10 years of drilling experience who shall be responsible for the drilling operations. The Drilling Contractor shall also provide a **hydrogeologist** with at least 5 years of experience in the field of water well drilling. Changes in personnel during the execution of the contract shall be done subject to the approval of the Supervisor or Designated Representative.

3.6.2 Safety measures and equipment

The Drilling Contractor shall take all reasonable precautions to prevent any injury to persons or death. These precautions shall include, but not be limited to, providing his employees with safety helmets, hard-toed boots and gloves, protection glasses during welding and ensuring that all tools and equipment are in a safe condition and that his employees adopt safe working methods. The Drilling Contractor shall further ensure that his workers have access to an adequate first aid kit.

The Drilling Contractor shall ensure that the site is not accessed by any unauthorized persons. **A perimeter barrier must be set up around the drill site to prevent unauthorized access to the drilling site.** The Drilling Contractor shall also ensure that children and other onlookers are not allowed to watch any welding, to prevent eye damage.

The Client shall not be liable for any damages or compensation as a result of accident or injury to any workers employed by the Drilling Contractor, any sub-contractor or any unauthorized persons unless such accidents or injuries are caused by any act or default of the Client or nominated representatives of the Client.

3.6.3 Fuel and lubricants

The Drilling Contractor shall comply with authorized regulations applicable to the use and storage of diesel, petrol and lubricating oil used at the worksite or stored at the base camp and shall ensure that adequate precautions are taken against fire and environmental contamination. No fuel or lubricant must be transported with any item to be installed in the borehole, in particular the gravel pack, the casings and screens. No leakage of fuel or lubricants that can contaminate surface or groundwater shall be permitted.

3.6.4 Fire prevention

The contractor shall be responsible for fire prevention on the site where the works are being performed. Firefighting equipment shall be always kept on-site and under the control of the contractor during the period when works are taking place on the site and during rest breaks. The contractor shall ensure that his employees and sub-contractors can operate the firefighting equipment. All firefighting equipment must be in good working condition. The contractor's employees and sub-contractors must carry out any operations requiring exposed flame or welding in a careful and safe manner.

3.7 Borehole Drilling

This ToR and the companion annexes have been prepared based on the most recent information available

regarding site conditions, drilling methods, and materials to be used.

However, should the contractor take exception to any part of these specifications or well design and is not prepared to follow the specifications as included herein, the contractor shall notify this within the offer. The Client will decide during the tender process if the changes are accepted or not. The contractor shall satisfy himself or herself by personal investigation of all local conditions affecting the work.

3.7.1 Well construction sequence

The well shall be constructed using the reverse circulation drilling method (the flooded reverse drilling method is not acceptable). Prior to the beginning of the drilling operation, all equipment supplied by the contractor shall be inspected by the hydrogeologist of the drilling company and the UNICEF-Consultant to be suitable for the specified drilling operation. The replacement of any equipment and materials later found to be unsuitable shall be at the contractor's expense.

The construction sequence of the well shall include but shall not be limited to the following:

1. Mobilizing a reverse rotary drilling rig.
2. Drilling, installing, and cementing a 20" conductor casing to a minimum depth of 15 mbgl within a 26" diameter borehole to serve as the sanitary seal,
3. Drilling and sampling the 17 ½ in. diameter hole to a total estimated depth of 310 mbgl, with deviation surveys being performed every 30m,
4. Conditioning and cleaning the borehole, as necessary, prior to running all the geophysical borehole logs, as specified, performing e.g., a caliper survey on the borehole less than 8 hours prior to the installation of the casing
5. Update of BH design to match site conditions and submittal for client's approval.
6. Installing the casing in the upper part of the borehole, with centralizers, concrete feed pipe and sounding tube.
7. Pouring a cement seal at the end of the borehole and in the space between the casing and the borehole wall above the cement seal up to the ground surface.
8. Drilling and sampling a 12 ¼" hole from 310 to 620 m bgl tentatively, until achieving full A7/B2 penetration (+20m), with deviation surveys being performed every 30m.
9. Conditioning and cleaning the borehole, as necessary, prior to running all the geophysical borehole logs, as specified, performing e.g. a caliper survey on the borehole less than 8 hours prior to the installation of the casing
10. Update of BH design to match site conditions and submittal for client's approval.
11. Installing the casing of 10.75 inch in the borehole, with centralizers and sounding tube. In the aquifer (A7/B2) the casing has to be slotted with 2% openings.
12. Performing initial development by airlifting and swabbing from between packers,
13. Removing fill material from the blank casing below the screened interval,
14. Demobilizing the drilling rig and associated drilling equipment,
15. Mobilizing the test pump and support equipment,
16. Installing a deep well turbine test pump with a variable speed engine,
17. Performing final development using a deep well turbine test pump,
18. Performing well and aquifer tests (including equipment test, step-drawdown test, constant-rate, and recovery tests, as well as conducting a spinner survey),
19. Collecting water quality samples
20. Removing the test pump from the well,
21. Performing plumbness and alignment surveys in the well,
22. Bailing the well to remove sediments that have accumulated during test pumping,
23. Performing a "dual-cam" video survey on the well,
24. Disinfecting the well using a sodium hypochlorite solution and securing the well against entry, then
25. Demobilizing all equipment, including site cleanup, restoration, and wellhead completion.

3.8 Construction Inspection

Due to potential changes encountered during drilling, the following decision points are established to ensure the quality of the project. **These decision/inspection points are mandatory, no work shall be undertaken by the contractor without prior authorization to continue in writing. Failing to do so may result in work not being paid by the Client. Additionally, the Client doesn't pay any waiting time if he is not informed upfront to inspect (see below) and if the decision is taken within maximal one day.**

- Well sitting. The Client shall mark physically the exact field location of the well before the mobilization. Under no circumstances shall the contractor begin operations prior to this marking and approval.
- Drilling depth of 17.5-inch drilling. The completion depth of the 17.5-inch diameters shall be as specified by the hydrogeologists (drillers and UNICEF-Consultant) based on the formation samples, geophysical borehole logs. It has to be approved by UNICEF.
- Final drilling depth. The final completion depth shall be as specified by the hydrogeologists based on the formation samples, geophysical borehole logs, and the results of the isolated aquifer zone tests ensuring that it achieves a full penetration of the A7/B2 aquifer.
- Approval of final design. Upon completion of each drilling stage, a suite of geophysical logs will be run on the borehole. At this point, all the information available will be assembled by the contractor in the end of the drilling phase report for the approval of the final borehole design and prior to the installation of the casings. This stage will happen twice during the works.
- Casing. Under no circumstances shall the contractor begin casing installation before receiving the final borehole design and the approval of the material, including the lead seal packer and the slots executed, intended to install. The casing installation and the concreting requires the physical presence of UNICEF technical staff.
- Sealing. The execution of the concrete sealing of the B3 Oil Shale and around the casing of the 17.5-inch drilling requires the physical presence of UNICEF technical staff. Prior to restart drilling through the seal requires again an authorization.

The contractor will be required to contact the UNICEF filed supervisor and focal point at various stages of construction for job inspection. The Drilling Contractor will perform no work until the Supervisor and Consultant have made such an inspection. A list of the required inspections is shown following, and an inspection checklist is included in these specifications. The Drilling Contractor will notify the Supervisor at least 24 h before each of the required inspections to assure that a representative will be available to conduct the inspection.

The following is a list of required inspection items. Inspection and approval of each item by the Supervisor and Consultant is required before proceeding to a subsequent stage of the project. These required inspection items include, but are not limited to, the following:

Mobilization: Equipment (drilling equipment and accessories), geograph, soundwall, and sanitary facilities	Construction materials Drilling fluid additives Casings and screens Annular seals Lead seal packer
Conductor casing installation Grouting	Borehole drilling Air-water-foam / Mud properties Deviation surveys Geophysical borehole logs Caliper log
Zone testing Verification of seal Static and pumping water levels Turbidity measurements Water quality sampling	Construction process Casing assembly installation Sealing materials
Well development Development tools Pumping equipment Discharge assembly	Well testing Sand tests Pumping tests Spinner survey Plumbness and alignment tests
Video inspection CCTV Final disinfection Wellhead construction security Site clean up	

3.8.1 Drilling Methods

The Drilling Contractor shall ensure that the rig is set up at the exact point indicated by the UNICEF Supervisor. The diameter of the drill hole is specified in the Borehole design. The drilling rig, drilling fluids and fluid additives are subject to the approval of the UNICEF Supervisor or as stated in the tender documents or national standards. **The Drilling Contractor is requested to use reverse circulation drilling with an air foam.**

3.8.2 Borehole Sampling

The Drilling Contractor shall collect representative samples of the formation penetrated at 1 m intervals except otherwise directed by the Supervisor and Consultant. Drilling shall be stopped when the bottom of the sampling interval (that is every 1 m) is reached for such time as is required for all the cuttings to move from the last drilled section of the hole to the sampling point. Samples shall be caught in a bucket placed in the drilling fluid flow at the top of the surface casing and the samples allowed to settle out.

The drill cuttings shall be placed in sample containers. Sample containers shall be steel boxes, divided into compartments approximately 100 mm by 100 mm and 100 mm deep. The Drilling Contractor shall have sufficient sample containers to accommodate all the samples

Alternatively, the samples may be laid out in rows of ten from left to right, packed and stored in thick polythene bags and accurately labeled with the name of the location, borehole number, date and depth of sampling.

3.8.3 Final Drilling Depth

The final depth of the borehole shall be approved by UNICEF from the results of the hydrogeological and geophysical survey and analysis of drill cuttings on-site. All these information has to be compiled to a report by the contractor.

Where the risk of drilling a dry borehole becomes apparent during the drilling, particularly from the output during hammer drilling and the recommended depth has been attained and possibly surpassed, the Supervisor and Consultant may elect to stop the drilling and declare the borehole unacceptable without installing casing and screens in the borehole. In such circumstances, the Drilling Contractor will be paid for items of work expended until the borehole was declared unacceptable based on the bill of quantities.

3.8.4 Daily Driller's Report

During the drilling, completion and development of the borehole, the Drilling Contractor shall maintain a detailed daily driller's report. The report shall give a complete description of all formations encountered, number of meters drilled, number of hours spent drilling, shut down due to breakdown, length and type of casing and screen set, and such other pertinent data as requested by the Supervisor or UNICEF-Consultant. **The Drilling Contractor shall submit a copy of the daily driller's report to the client** which shall be duly signed by both the contractor's project manager and the Supervisor him/herself. In addition, the Drilling Contractor shall measure and monitor during the drilling:

- the depth of the borehole as it progresses
- the static water or mud level in the borehole
- the different depths of water strikes and aquifers
- the penetration rates at various strata or change of tools

The Drilling Contractor's record keeper shall record all the required data. The data shall be presented in a format previously approved by the Supervisor and provided as they become available.

For site supervision of the drilling work, the contractor shall assign a drilling Supervisor (team leader/drilling engineer). He shall keep a "Daily Record of Progress", which will include the details of depth of reached, the materials used, the remaining work to be done and the expected date of completion.

3.8.5 Payment for drilling

The Drilling Contractor shall be paid unit prices per meter in accordance with the actual depth drilled on the ratios as set out in the bill of quantities. The unit prices per meter shall include all costs associated with the drilling, drilling water, drilling additives, surface casing and collection of drill cuttings, gravel packing and development, and preparation of daily drilling reports. **The depths given in the TOR and bill of quantities are indicative only. The unit prices are fix even if there are changes in the quantities and e.g., the Drilling Contractor has to drill deeper to fully penetrate A7/B2.**

3.9 Borehole Design

The tentative borehole design is provided in Annex D Detailed Well design, figure 2.

The borehole design is subject to on-site modification to suit the conditions encountered during drilling for accurate positioning of screens. The on-site design modifications shall be approved by the Supervisor and Client.

3.10 Depth

The final depth of the borehole **to achieve full A7/B2 aquifer penetration** and all other relevant depths involved in the design of the borehole shall be determined from measurements made by the Drilling Contractor and the Supervisor and UNICEF-Consultant. **The Supervisor, after consultation with the Consultant and the approval of the Client, shall instruct the Drilling Contractor on the depth at which to terminate the hole**, the intervals to be cased and screened and the appropriate screen slot opening to ensure the completion of a borehole which is free of fine materials.

3.11 Borehole Development

3.11.1 Method of development

The borehole development is described in Annex C.

3.11.2 Pumping Test

The borehole development is described in Annex C

During the pumping test, the Drilling Contractor shall make arrangements for disposal of all water arising from the tested borehole using an impermeable pipe, flume or lined trench to a point at least 300 meters downslope from the tested borehole to minimize the risk of recharging the well.

3.11.3 Water quality test

The Drilling Contractor shall provide portable on-site test kits and shall measure the pH, turbidity, conductivity, and temperature of the water sample on-site.

During the pumping test, the Drilling Contractor shall collect water samples in sterile, securely sealed and suitably labeled containers from the borehole, as indicated by the approved laboratory. The samples shall be collected from the pump flow directly into the container, without being allowed to settle first. All sample bottles shall be filled completely and closed tightly. Each label shall indicate the name of the Contractor, borehole name, and date and time of sampling. Blanks of sterile water should also be included in the samples sent to the laboratory as a check on the work of the laboratory.

The samples shall all be kept in a cool box or refrigerator at approximately 5 degrees Celsius until they are delivered at the laboratory. The samples shall be taken to the approved laboratory within the time stipulated. Where high arsenic content is detected the Drilling Contractor shall collect samples of the water which should be acidified and forwarded to the Client for subsequent laboratory analysis. The samples thus collected should reach the authorized water testing laboratory within 6 hours from the time of collection from the borehole and the analysis carried out within 24 hours. Otherwise, fresh samples shall be taken. A qualified chemist must certify the results of the analysis.

The Drilling Contractor shall have tests carried out in a laboratory approved by the Client to determine to make sure the sample complies with the JS 286 Jordanian drinking water standards

Water quality test results obtained in-situ and from the laboratory (both chemical and bacteriological) are required from the contractor in the specified format as approved by the Supervisor.

From the results of the water quality analysis, should initial tests highlight microbiological contamination above national standards the Drilling Contractor will be responsible for disinfection of the water point using shock chlorination. If subsequent tests still detect microbiological contamination, appropriate measures should be implemented by the relevant authorities. If tests highlight chemical contamination related to geological conditions (e.g., fluoride or arsenic contamination) beyond national standards, then the Supervisor and the competent authorities will decide on the temporary or definitive closure of the water point. Where high arsenic content is detected, the Drilling Contract may be requested by the Supervisor to collect additional samples which should be acidified and forwarded to the Client for subsequent laboratory analysis.

3.11.4 Disinfection

Based on the outcome of the certified water quality report, each successful borehole must be chlorinated following completion. The Supervisor shall provide the procedure for chlorination of the completed borehole and the concentration of chlorine-based on the volume of water in the borehole after completion. The contractor will disinfect the borehole using a chlorine solution to produce a minimum concentration of 100mg/l

of active chlorine within the borehole. Surging of the water should be carried out to ensure that the chlorine solution is evenly distributed throughout the borehole. At least 12 hours of contact time shall be allowed. The disinfection shall be undertaken immediately before the pump installation so that the disinfecting solution is removed from the borehole during the pump test.

3.11.5 Borehole completion report

After completion, the Drilling Contractor must submit a borehole completion report consisting, at the very least, of: Introduction, Equipment used, well summary, well operations, Lithology and Geological settings, Geophysical logging, Well development, pumping test with analysis of results and, water quality analysis.

3.12 Criteria for Successful Boreholes

If the borehole meets the following criteria, it shall be accepted as successful; if not it is declared abortive and abandoned. The Drilling Contractor may be requested to re-drill an abortive borehole if the reasons for being abortive are due to actions or inactions of the Drilling Contractor.

3.12.1 Borehole minimum yield

Based on the desk study and other similar boreholes in the area, the anticipated yield of the borehole is 75m³/h.

Provided the contractor has followed the appropriate procedures in the completion of the borehole and has been so certified by the Supervisor and UNICEF-Consultant, the Drilling Contractor shall not be held responsible for the abandonment of the borehole because of inadequate yield. However, if failure to obtain an adequate yield is caused by actions or inactions on the part of the Drilling Contractor, then the contractor will be responsible for correctly reconstructing the borehole at his own cost.

Where possible, the Drilling Contractor shall endeavor to maximize the yield from the borehole. Failure to properly exploit the aquifer potential through, for example, insufficient development or inadequate aquifer

penetration and screening even when the yield of the completed borehole exceeds the minimum may be cause for rejecting the borehole and requiring the Drilling Contractor to reconstruct the borehole at his/her own cost.

3.12.2 Sand content

The sand content of the water shall not be more than 10 parts per million (ppm) by volume. The Drilling Contractor shall be responsible for ensuring that the borehole meets the criteria for sand content. If a borehole must be abandoned because of excessive sand content, the Drilling Contractor shall be responsible for constructing another borehole at his/her own cost.

3.12.3 Turbidity

The turbidity of the water shall not exceed 5 Nephelometric Turbidity Units (NTU). In some circumstances, excessive turbidity may be due to the characteristics of the water-bearing formation and thus beyond the control of the Drilling Contractor. It may also be due to inadequate development, in which case the Supervisor in consultation with the Consultant will instruct the Drilling Contractor to re-develop the borehole.

3.12.4 Verticality and alignment

The borehole should be straight and vertical. It should not drift more than specified from the vertical. The Drilling Contractor shall furnish all labor, tools and equipment to carry out a test for verticality as may be instructed by the UNICEF field supervisor or hydrogeologist. If the borehole is found to be out of alignment that the pump cannot be installed or early damage is to be expected, the borehole shall be declared abortive, and the Drilling Contractor shall drill a replacement borehole at his/her own expense.

3.12.5 Sealing of the toxic B3 oil shale layer

The borehole should allow a 20 m concrete seal around the pumping casing to avoid the leaching of toxic substances from the B3 or other problematic layers into the aquifer A7/B2 happens. Therefore, the pump casing including a concrete seal around it, is to enter 20m into the A7/B2 aquifer.

This delimitation needs careful consideration in light of the drilling experience in Azraq to ensure safety while maximizing the potential of the A7/B2 aquifer.

3.12.6 Lower Casing (screen) Installation

During installation, the screen casing (10.75 inch) shall be suspended above the bottom of the borehole a sufficient distance but max.0.91 m (3 ft) to ensure that the casing will not be supported by the bottom of the borehole. Outside of the screen casing a 1 inch pipe has to be fixed in order to measure the water level. This pipe has to be fixed in a way, that it doesn't move during the lowering and fixation of the casing.

The contractor has to propose if he can safely and durably fix the lower casing at the bottom of the pump casing using a lead seal (option b) or if he prefers to extend the lower casing with plane casings up to the ground and fix it at the head of borehole (option a). In this case he has to prove that the casing can resist the weight of itself and if that the lifting capacity of this rig is sufficient. The proposal has to be explained in detail in the offer.

3.13 Abandoned boreholes

After the development of the borehole or the pumping tests, a borehole may be abandoned for reasons not resulting from any action or inaction of the Drilling Contractor. This may occur because of inadequate yield, poor water quality or excessive depth of the water level, inappropriate use or vandalism. Abandoned boreholes shall be backfilled and the site restored to its previous state or capped securely to be used as monitoring wells, depending on the case.

3.14 Construction of concrete platform, drainage channel and soak-pit

3.14.1 Site Cleanliness

The site shall be kept clean of debris at all times. Progressively and at the end of the works, the contractor shall, according to the instruction of the Client, clean and keep the site clean.

3.14.2 Design of Concrete Platform, Drainage Channel and Soak Away/Soak-Pit

The contractor shall construct a concrete platform around as per the design given in Annex E.

3.14.3 Quality of materials

Samples of all materials to be used for the concrete pad i.e., the aggregated, cement, formwork, and steel reinforcement shall be approved by the Supervisor and Consultant before delivery to the site.

3.14.4 Aggregates

Coarse aggregates shall consist of crushed rock or other approved materials of similar characteristics having clean, hard, strong, durable, uncoated grains free from dust, soft or flaky particles of shale, alkali and organic matter. The coarse aggregates shall be well-graded and have grain sizes in the range 9.5 mm and 40 mm.

Fine aggregates shall consist of grains in the size range 0.15 mm to 9.5 mm. They shall be free of soil, clay, organic matter and other impurities and shall contain no more than 5 % silt. The contractor shall locate the required material before the commencement of drilling.

3.14.5 Water

Water to be used for mixing concrete and for curing shall be obtained from borehole or well sources and shall be equal to potable water in physical and chemical properties.

3.14.6 Cement

Cement shall be normal Portland cement. The bag shall be in perfect condition when delivered to the site and shall be not more than 3 months old at the time of use. All broken bags or bags showing signs of dampness or caking shall be immediately removed from the site. Reuse of spilled cement shall not be permitted.

Only certified cement of known quality shall be used. If cement is sourced outside the established project area, proof of quality must be supplied before purchase and must be approved by the Supervisor.

3.14.7 Quality of formwork

Formwork shall have a maximum deviation from straightness of 10 mm, measured over a length of 2 m. Formwork shall be made in such a way that it presents smooth and clean surfaces. Sharp edges should be chamfered.

3.15 Demobilization, handing over and defects liability

3.15.1 Handing over

On completion of the works at the site, the Drilling Contractor shall remove all their equipment and materials from the site, cover all settlement pits, seal all abandoned boreholes, and as much as possible restore the site to its original state before construction started. An inspection of the works shall be carried out by the Supervisor and Consultant in the presence of the Drilling Contractor's representative. On being satisfied that the works carried out are in accordance with the contract agreement and technical specifications, and submission of all listed reports, drilling data and borehole completion log to the Client and relevant authorities, a substantial completion certificate shall be issued and signed by the Supervisor and Consultant, and the site handed over.

4 DELIVERABLES

- End of drilling phase report with the updated borehole design.
- Fully finished, developed, and certified borehole as per final design (tentative design adapted to the encountered conditions) including concrete platform.
- Pumping test and interpretation report with a declaration of safe yield.
- Borehole completion report.
- Operational license.

5 DESIRED QUALIFICATIONS, SPECIALIZED KNOWLEDGE OR EXPERIENCE

The bidder should have established credibility in working in the water sector and must have a good tracking record of Borehole drilling as a water source for the drinking water. The contractor must ensure the quality of work and hire qualified staff to achieve results. Qualifications of key experts are identified under these Terms of Reference.

5.1 The bidder must have the following experiences

- Experience in Borehole drilling and Operation and Maintenance of deep wells, pump stations, pipes, and all related electrical and mechanical components.
- Construction and management of water project projects including management of teams, procurement, documentation, supplies, information flow, inventory, safety and quality assurance.
- Experience in working with the UN system, other humanitarian agencies or governments in similar BH drilling and water project operations and ability to meet standards of international organizations and donors.

6 CALL FOR PROPOSALS

Interested bidders shall follow the guidance on structuring the technical proposal as per the below sections.

6.1 Guidance on Structuring Technical Proposal

The technical proposal will have to follow the following structure:

6.1.1 Company Profile

The bidder will have to provide the Company Profile.

The proposer must provide the following information and documents about the institution:

- Valid trade license from the Ministry of Trade and Industry. The contractor will not be eligible for the technical proposal review stage if the valid trade license is not submitted.
- Valid classification from Jordanian Contractors Association with the first or second grade of Borehole Drilling. The contractor will not be eligible for the technical proposal review stage if the valid classification from the Contractors Association is not submitted.
- Minimum 5 years of experience in BH installation and BH operation and maintenance.
- Has completed relevant projects with a value of 500'000 JD in the past five years.
- A complete copy of the latest audited financial statements with comparative figures for the two most recent years; preferably signed by the company's accounting firm/certified external auditor.
- The financial statements are to include, but not limited to, the following:
 - The Balance Sheet (mandatory)
 - The Income Statement/Profit and Loss Statement (mandatory)
 - Statement of cash flows.

6.1.2 Human Resources

The bidder will have to include the management structure of the operation team as per the requirements in the TOR and to present the resumes and qualifications of the proposed team members. This section should include the resumes of the Project Manager/Drilling Engineer and Hydrogeologist. The team structure will have to be also included indicating the number of field monitors, operators, guards, and technicians to drill the BH.

6.1.3 Project Manager/ Drilling Engineer

The project Manager/drilling engineer should have civil/water engineer or equivalent technical qualification. The Project Manager should have at least 10 years of experience in Borehole drilling, construction, management and operation of water projects.

The responsibilities of the Project Manager include:

- Coordination with UNICEF and all WASH stakeholders on all issues related to the Borehole drilling.
- Ensure quality of construction with arranging capable team, Inspection of materials and equipment, traffic and protection of roads, properties and services including properly follow the safety measures.
- Prepare risk and its mitigation plan for the works.
- Submitting daily drilling reports, weekly and monthly reports, datasheets, updates, summaries, invoices, quotations and drawings on time and as per UNICEF's agreements, requirements, and approvals.
- Ensure that all UNICEF and the camp and country codes, roles, and standards procedures, are all applied in the BH drilling operation and by all engineers, site supervisors, operators, and workers.
- Ensure adherence to the technical specifications makes all the required measurements, and keeps all the records, of drilling installation work.
- Track the installation progress and day-to-day record keeping of drilling. Performance of all necessary required any malfunctions or interruptions the drilling work.
- Monitor Borehole drilling, construction process with casing assembly installation, construction materials, pump and well testing. The drilling engineer must ensure the quality of the borehole drilling on-site and follow up on all reports and data related to the drilling.
- Lead borehole drilling construction site monitoring and supervision and reporting.
- Prepare and share daily and weekly drilling status including installation issues and problems.
- Liaise with the team including UNICEF technical team to analyze, issues and problems related to the BH installation and its mitigation measures.

6.1.4 Hydrogeologist

The hydrogeologist should have hydrogeology or equivalent technical qualification and experience in the engineering sector specially BH drilling in public water/wastewater utilities. At least five years of experience in the monitoring and supervision of BH drilling and day-to-day quality check, control and provide technical support to the successful BH implementation. The hydrogeologist will have the following responsibilities:

- Organize, plan, and supervise drilling operations jointly with the Ministry of Water and Irrigation.
- Update the borehole design to ensure that layers are correctly delimited and that the well construction matches the hydrogeological conditions revealed by the geophysical logs.
- Provide timely decision-making support during drilling, development, pump test operations, and certification.
- Water quality monitoring, including the investigation of the quality of the water to ensure that it is fit for drinking.
- Monitor the implementation/BH installation (construction and commissioning of BH) including collecting water and soil samples to test for certain properties, such as the pH or pollution levels, reviewing and providing input to technical sections of O&M manuals (BH – operation), supporting the certification and the handover of completed works (BHs).
- Compiling and filing a complete set of all the relevant design and construction documents for future reference.

If during execution the performance of the hydrogeologist doesn't satisfy the Client, it can request a replacement within 3 days of announcement.

6.1.5 Methodology of Operation

The bidder will have to present the methodology of drilling BH as per the required documents. The methodology will have to include a detailed plan for BH drilling.

Any deviations from the specifications (process, method, material...) must be mentioned and explained in detail here.

If the Contractor expresses no objection to the proposed method, the Contractor thereby warrants that the method/design described will enable the Contractor to produce a successful well in accordance with the specifications described.

In addition, following details has to be explained (not limited to these):

- What mitigation measures are planned in case of exceeded deviation.
- The concept how to avoid that cement enters the pumping pipe while concreting this section.
- The detail how it is planned that the lower casing is to be fixed (at the bottom of the pump casing (option b) / at ground level (option a)). There has to be added a sketch or design of the detail of the fixation.
- Planned design of the sloped pipe with 2% openings.

6.1.6 Risk Assessment Matrix

The bidder will have to provide a detailed Risk Assessment Matrix indicating all associated risks in relation to BH drilling. The Risk assessment Matrix will have to list all potential risks that are related to the BH drilling risk and how to mitigate them.

6.1.7 Quality Assurance Plan

The bidder will have to include a Quality Assurance Plan indicating the quality of BH drilling, data management, documentation, delivering all services as per the TOR and quality standards, and ensuring having a system in place to regularly monitor and assess the quality of the BH operation.

6.1.8 Health and Safety Plan

The bidder will have to include a detailed Health, Safety and Environmental Plan to present the procedures and measures that will be taken to ensure the health and safety of the operation team and community.

6.1.9 Supply and Procurement Plan

The bidder will have to provide a detailed plan for Supply and Procurement of all necessary spare parts and needed materials to install BH. The plan should show the process of procurement, time, and profiles of the main suppliers.

6.1.10 References

The proposer shall provide a minimum of three references to clients for whom the proposer has carried out similar projects within the last 5 years. UNICEF may contact references for feedback on services provided by your organization.

- Name and description of the client organization
- Names of senior individuals in the client organization who were involved in the project who are knowledgeable
- Scope and scale of the previous projects including the as built drawings of the water wells drilled and equipped.

6.2 Tender Related Documents and Manuals

The bidding document will include the following documents to guide the bidders on understanding the BH drilling in Azraq camp and to provide reasonable pricing accordingly.

The documents will be included in annexes as follows:

- ANNEX A General terms and Conditions
- ANNEX B Terms of Reference
- ANNEX C Drilling specifications 20220908
- ANNEX D BH-4 Hydrology Design 20220908
- ANNEX E Well head drawing 20220908
- ANNEX F BOQ 20220908

The above documents comprising this RFP are complementary of one another, but if there is any ambiguity or inconsistency between those documents, the list above also indicates their hierarchy (i) Annex B: Terms of Reference will take precedence over the other annexes. Likewise, the rest of annexes will take precedence over in the above order (i.e. ANNEX C: Drill Specifications will take precedence over ANNEX D: Well head drawing, ...etc.)

6.3 Site Visit for Bidders

UNICEF will arrange with the interested bidders to visit the camp and see the location of the proposed BH drilling. The date of the site visit will be communicated to the interested bidders. A pre-bid meeting will be arranged with all bidders on the same day of the site visit. A period of one week after site visit will be given to allow for questions and clarifications from the bidders.

7 UNICEF RECOURSE IN CASE OF UNSATISFACTORY PERFORMANCE

UNICEF will assess the contractor based on the submitted technical proposal. Only a borehole meeting the successful drilling will be accepted and those not meeting them declared abortive and abandoned. The Drilling Contractor may be requested to re-drill abortive boreholes if the reasons for being abortive are due to actions or inactions of the Drilling Contractor.

The contractor will receive an official notification if the performance is poor. Poor performance will result in financial and contractual implications including termination of the contract in accordance with the General terms and conditions stated in the tender document.

8 CONTRACT MANAGEMENT

The contract will be managed by the Chief of WASH Section from UNICEF side and the WASH Specialist/officer on the project management level.

9 REQUEST FOR PROPOSAL EVALUATION AND WEIGHTING CRITERIA

A two stages procedure shall be utilized in assessing the proposals, with an assessment of the technical proposal being completed prior to any price proposal being compared. Submitted proposals will be assessed using the Cumulative Analysis Method. All requests for proposals will be weighed according to the technical (70%) and financial (30%) considerations.

Financial proposals will be opened only for those applications that attained 49 points or above on the technical part.

The proposal obtaining the highest overall score after adding the scores for the technical and financial proposals together, that offers the best value for money will be recommended for award of the contract.

Financial score will be calculated using below equation:

- Score of proposal A = (Max. score for price proposal) * (lowest price) / price of proposal A
- The Contract shall be awarded to a bidder obtaining the highest combined technical and financial scores. Proposals not complying with the terms and conditions contained in this ToR, including the provision of all required information, may result in the proposal being deemed non-responsive and therefore not considered further.

9.1 Technical Proposal

The Technical Section of the proposal should be submitted in English languages. All other sections should be annexed. All sections (components) of the proposal will be evaluated and any omissions will weigh against the quote during the study. Applicants shall prepare a proposal as an overall response to ToR ensuring that the purpose, objectives, and deliverables of the assignments are addressed.

The evaluation criteria will be as per the below categories and points.

Category	Points (70 Max)
Company Profile <ul style="list-style-type: none"> • Company profile (8) • Trade license from the Ministry of Trade and Industry and have all necessary registration documents for the BH drilling (4) 	12 Points
Company Experience: Evidence of Company proven experience. <ul style="list-style-type: none"> • Details of contracts and references for works undertaken similar in drilling and BH operation: <ul style="list-style-type: none"> • Less than 2 years (0) • 2-5 years (4), • 5 years and more (8) 	8 Points
The company has previous experience in Refugee camps preferably in northeast Jordan (4)	4 points
Organization structure and Human resources: <ul style="list-style-type: none"> • Overall Organization structure (4) • Proposed structure for the project and composition of the team and their experience for the assignment • Project manage/Drilling engineer (5) • Hydrogeologist (5) 	16 Points
Methodology of Operation: Methodology of BH installation work, <ul style="list-style-type: none"> • Clearly demonstrated plan and methodology (8) (e.g. explanation of the fixation of the lower casing) • Quality of the proposed workplan with detail schedule of activities. Workplan in a Gantt chart (4) • Team mobilization and operation – including field team (2) 	14 Points
Organizational Commitment to Sustainability <ul style="list-style-type: none"> • Organization demonstrates significant commitment to sustainability (for example internal company policy documents on environmental protection, renewable energies ...etc.) 	4 points
Monitoring and quality assurance process in place	2 Points
Risk Assessment Matrix and mitigation measures	2 Points
Health and safety Plan	2 Points
References	4 Points
Summary sheet of Audit (Audit reports)	2 Points

The contractor should get a minimum of 49 points out of 70 to pass the evaluation of the technical proposal.

9.2 Financial Offer

- A separate Financial Offer detailing all requirements should be submitted under this section.
- The financial offer should be submitted through the proposed Bill of Quantities (BOQ) and in reference to the specification and O&M manuals. The client has the right to request of any price a price analysis, showing the following details: material costs, labor, Inventory, external costs (e.g. subcontractors),
- The Financial Proposal shall be submitted in a separate file, clearly named Financial Proposal. No financial information should be contained in the Technical Proposal.
- The contractor has to decide if he chooses the option 14a or 14b in the BOQ (and explain his choice in the technical report) but has to hand in a price for both options.
- The Financial Proposal has to be hand in as a signed hard copy and in a soft version using MS Excel. It is not allowed to change any item of the BOQ.

10 REPORTING REQUIREMENTS

The contractor shall provide regular reports detailing the progress of the works, costs incurred and estimate of time and costs to completion. Reports shall be submitted weekly in a format to be mutually agreed upon by the Parties within ten (10) days after signing of this contract.

The contractor shall maintain records and receipts for the purchase of all materials and remuneration of labor used in the works and shall make such records and receipts available for inspection by the designated representative, upon request.

- **End of drilling phase report.** Once the drilling has reached the final depth, this report by the Contractor compiles all the necessary information for the contractor's hydrogeologist to refine the tentative borehole design prior to the installation of the casing. It contains the proposed final design for the UNICEF focal person to approve.
- **Borehole completion report** (see relevant section). To be submitted by the contractor.
- **Substantial completion certificate.** The Substantial Completion Certificate is issued to the Drilling Contractor once the borehole is finished and the pumping tests are successful.
- **Final completion certificate.** The final completion certificate is issued at the end of the defects liability period provided that there are no defects. A final inspection will be made to verify the final project completion prior to issue the certificate.

11 LOCATION AND DURATION

The Drilling Contractor, on acceptance of the contract, shall submit a comprehensive work schedule which should fall within the agreed period of contract execution to the Designated Representative or Supervisor for approval before mobilization of staff, materials, and equipment to the site. The work schedule shall include:

- The pre-mobilization meeting.
- Setting up the base camp.
- Siting,
- Drilling, hydrogeological testing, installation of casing (each of the 3 stages has to be visible)
- Development and pumping tests
- Demobilization.

This schedule shall be subject to the approval of the Supervisor and has to be handed in within **one week after signing the contract**.

12 PROJECT MANAGEMENT

12.1 Instructions

The Drilling Contractor shall carry out instructions of the Designated Representative of the Client which comply with the applicable law where the project is located.

12.2 Designated Representative Decision

Except otherwise specifically stated, the UNICEF focal point shall decide contractual matters between the Client and the Drilling Contractor in the role of representing the Client.

12.3 Delegation

The Designated Representative may delegate any of her/his duties and responsibilities to other persons, particularly the Supervisor after notifying the Drilling Contractor, and may cancel any delegation after notifying the Drilling Contractor.

12.4 Communication

Communication between parties in the contract shall be in writing and is only effective when delivered.

12.5 Management meetings

Either the Designated Representative or the Drilling Contractor may require the other to attend a management meeting. The business of the management shall be to review the progress of the work and review plans for the remaining work and deal with matters raised in accordance with early warning.

13 CONDITIONS

The contractor shall be responsible and accountable to ensure that the behavior of its employees (including machinery operators, drilling operators, truck drivers etc) on-site will be at all times in line with Jordanian laws, the rules and regulations for working in Azraq Refugee camp and are in full compliance with the UNICEF code of conduct and the roles and regulations in the camp.

The contractor must provide a list of staff names, contact numbers and a copy of their identification cards after signing the contract.

The contractor should submit a performance bond to UNICEF (10% of contract value) as performance assurance and satisfactory implementation of the tasks here in this tender. A defect liability bond (5% of contract value) shall be required on substantial completion of the work of each institutional contract. UNICEF reserves the right to cash the bond if the contractor fails to perform the tasks under this contract caused due to a break in service delivery, labor disputes trouble, unsatisfactory implementation or negligence.

UNICEF will provide the selected contractor will all drawings, designs, and all related project documents after signing the contract.

The contractor shall confirm in writing in his offer the ability to send all the relevant documents to UNICEF to apply for the permits to work in the camp within **ONE WEEK** from the date of signing the contract. After having received the permits the contractor shall mobilize and commence the work within **TEN DAYS**. If the contractor fails to do so within the stated period, then the contract will be terminated, and UNICEF will not be responsible for any legal or financial expenses incurred due to contract termination. The bidder needs to submit a confirmation letter along with the technical proposal.

The successful bidder is expected to arrange all logistics including office space, transportation, stationery, computers with necessary software etc. The accepted bidder should include all remuneration involved in the contract as per the expected deliverables described above. This includes, but not limited to, travel costs, salaries, insurance(s) and per diem etc.

For all purposes, the staff of the contractor providing services under this contract will be strictly considered an employee of the contractor (not an employee of UNICEF). UNICEF shall not be liable for any omission, negligence, or misconduct of the Monitors or any sub-contractors under this agreement nor for any insurance coverage, nor any costs, expenses associated with any illness, injury, disability, or death of the monitors performing work under this contract nor from any third party.

The contractor shall not, under any circumstances, charge or receive payments for the provision of WASH services to refugees or institutions.

All the correspondences covered under this contract shall be communicated in English only.

In preparation for the implementation of the contract, the successful contractor will participate in a one-day orientation onsite with UNICEF WASH Specialists/officers.

The contractor is invited to submit alternative options. But these alternative options are only accepted, if a valid offer according to this TOR including all ANNEXES are submitted together.

14 PAYMENT

The price for the works shall become payable to the Drilling Contractor as per the below schedule. Four milestones will be adopted in associated with payment:

Payment Milestones
Mobilization and after major parts procurement (Based on the submitted invoice) – up to 20%
End of drilling and updated BH design – based on the progress and submitted invoice as per works completed and certified – up to a maximum of additional 30%
Successful handing over including all relevant documents e.g. as built drawings, final report, M&O... and issue of substantial completion certificate - 40%
Substantial completion certificate issued – 10%

No advance payment arrangement will be made.

The payment will be made after receipt of the invoice and acceptance of work. Payment will be effected by bank transfer in the currency of billing.