Request for Quotation

Request for quotation (RFQ)
ZOA Liberia aim to improve the health and nutrition of school children in Margibi County. Part of the Home-Grown School Meals programme includes an element of Water, Sanitation and Hygiene, to improve the health of school children. Zoa Liberia requests for quotations for the following WASH services:

ZOA COMPETITIVE BIDDING (ZCB)
IFB No: ZOA/WASH/2019/002

For the Construction of 7 manually drilled tube wells and 2 school latrine blocks

ZOA is a Dutch-based international organization that has worked in Liberia since 2003 and provided WASH services since 2003. ZOA is providing technical and administrative support for a WASH in School project in Margibi County.

Summary

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Well construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To construct a safe drinking water supply point by means of a manually drilled tube well with an Afridev hand pump installed on it.</td>
</tr>
<tr>
<td>Quantity</td>
<td>Seven (7) wells are required in total, but the bid is split into LOTs so contractors can bid for fewer than 7 wells if they wish.</td>
</tr>
<tr>
<td>Location</td>
<td>Margibi County (See below for details).</td>
</tr>
<tr>
<td>Duration</td>
<td>2 Months</td>
</tr>
<tr>
<td>Start and End Dates</td>
<td>1st August 2019 until 1st October 2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 2</th>
<th>Latrine construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To construct school latrine blocks, according to government standards</td>
</tr>
<tr>
<td>Quantity</td>
<td>Two (2) latrine blocks are required, but the bid is split into LOTs so contractors can bid for fewer than 2 latrine blocks if they wish.</td>
</tr>
<tr>
<td>Location</td>
<td>Margibi County (See below for details)</td>
</tr>
<tr>
<td>Duration</td>
<td>1 Month</td>
</tr>
<tr>
<td>Start and End Date</td>
<td>1st October 2019 to November 1st 2019</td>
</tr>
</tbody>
</table>

ZOA now invites qualified and eligible companies to submit sealed bids for works. Bidding will be conducted through a Competitive Bidding (CB) as specified by ZOA Guidelines.

Bidders can bid for more than one lot with reference to bids mentioned below:
Objective, LOTs & Scope of work:

Project Objective
Reduce disease outbreaks related to poor sanitation and hygiene and improved health conditions by constructing School latrines and establishing a sustainable and safe drinking water points in Margibi County, Liberia

Item 1: LOTS- Construction of new manually borehole in Margibi County

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>LOCATION/LOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot 1</td>
<td>Cinta community school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 2</td>
<td>Saykloh community school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 3</td>
<td>Grace community School</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 4</td>
<td>Child care development school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 5</td>
<td>Larkay-ta public school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 6</td>
<td>Jayebaye public school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>Lot 7</td>
<td>Francis Lewis School</td>
<td>Kakata district, Margibi County</td>
</tr>
</tbody>
</table>

Item 2: LOTS- Construction of school latrine blocks

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>LOCATION/LOT</th>
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</thead>
<tbody>
<tr>
<td>LOT 1</td>
<td>Saykloh community school</td>
<td>Kakata district, Margibi County</td>
</tr>
<tr>
<td>LOT 2</td>
<td>Gwepolosue public school</td>
<td>Kakata district, Margibi County</td>
</tr>
</tbody>
</table>

The scope of work
For the full technical specifications please refer to the appendixes of this bid form. However, an overview of the scope of work is outlined below. While bidders may bid for any or all of the LOTs outlined above the bids must meet the technical specifications outlined below and in the appendixes.

Item 1: Tube well construction

(i). Construct a tube well that supplies safe drinking water including:
   - Siting of the most favorable drilling location within the school compound;
   - Drilling of a well, installation of casings, gravel packs, sanitary seals, top seals, well development and all other necessary steps to ensure the quality of the drinking water.

(ii). Equip the boreholes in Schools with a hand pump including:
   - Casting of base slabs, supply and installation of a hand pump, the construction of an apron around the borehole;
   - Well disinfection during pump installation.

(iii). Instruct/train and sensitize the future users on the safe use of the water point;
(iv). Perform all necessary measures to facilitate a quality control check by a trained government controller during the critical steps as detailed in the Quality Control Agreement. This includes timely communication and logistical support.

(v). Correctly finalize and submit all administrative duties as determined by the responsible Ministries of Liberia. This includes at least submission of the following documents to ZOA.
- Well completion form
- Water quality analysis
- AKVO flow

(vi). Complete and submit the Manual Drilling Data Set survey in M-Water including the uploading of pictures from the following documents:
- Drill log approved by ZOA Liberia (name + stamp)
- Quality control sheet signed by government controller
- Well completion form
- Water quality analysis

Item 2: Latrine block construction

(vii). Complete the construction of two latrine blocks in line with the standards laid down by the government of Liberia in appendix 2
- Must be done in line with GOL guidelines by selecting a suitable site, the location of wells and surface water sources, for example ponds, swamps, creeks, rivers etc. must be clearly established.
- Blocks must have, four flushing toilets in separate cubicles (2 male and 2 female), supplied by a rainwater harvest tank on the roof and lead to a septic tank. Each cubical must have a lock on the door.
- The location of food markets, kitchen, cook shops and restaurants must be clearly identified.
- A latrine must not be located over a surface water body and should be at least 96 feet (30 m) from the edge of the flood plain of a surface water body.
- Copies of detailed latrine drawing can be picked up at ZOA office.
Bid submission, details and requirements (all copies should be in colour)

The following documentation will must be submitted in a sealed envelope to the ZOA Liberia office:

<table>
<thead>
<tr>
<th>Details</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Submission date and deadline</td>
<td>12 July 2019 3pm</td>
</tr>
<tr>
<td>Submission address</td>
<td>ZOA Procurement 12th Street/ Payne Avenue, Sinkor Monrovia, Liberia</td>
</tr>
<tr>
<td>Public bid opening date and time</td>
<td>15 July 2019 3pm</td>
</tr>
<tr>
<td>Clarifications</td>
<td>No clarification requests or supplier briefing will be provided</td>
</tr>
</tbody>
</table>

NB: Late bids will not be accepted.

**Required technical and financial documentation**
- Cover letter outlining which LOTs the contractor wishes to apply for and a total cost of the bid. Please give a detailed explanation should the total cost varies from the sum outlined in the BoQs.
- Detailed Bill of Quantities (BoQ) stating the cost (in USD) of one manually drilled borehole constructed according to the conditions and quality standards specified in this document. Different BoQs can be established indicated above. The following budget lines should be specified separately:
  - Labour cost;
  - Drilling materials
  - Ground work materials
  - Transport;
  - Overhead and taxes.
- Detailed Bill of Quantity (BoQ) for the construction of a school latrine block in line with the Government of Liberia’s standards, outlined in Appendix 2.

**Required supporting documentation**
- List and status of assets including equipment to perform construction works and transport
- Day to day work plan for period of water point construction
- List of staffs, position, years of experience of key technical staff and trained drillers, including the name and CV of experienced Engineer/site supervisor to be based on site
- Evident (photo) of similar previous construction works completed for private companies/individuals and or international organizations similar to ZOA
- Track record of completed and committed manual drilling works in the last three years; including project name, client reference and contact, location and expected completion date of works still under way.
- Valid Business Registry Certificate
- Valid Wash Clearance certificate
- Valid Tax Clearance
• Extra: Online Track record in M-Water of all manually drilled wells constructed so far for any client other than ZOA.

Failure to comply with the required submission requirements with all documents listed, may disqualify your pre-selection. ZOA will not accept changes to technical or financial documents, by the bidder. However, ZOA may negotiate amendments with selected bidders. In addition, ZOA may seek clarifications regarding supporting documentation within 48 hours of the public bid opening.

Selection criteria
Selection will be based on ZOA’s internal scoring methodology which balances, technical, financial and administrative competencies, of each of the submitted bids. The winning bidder will be notified within two weeks of the public opening.

Conditions of payment
ZOA will issue the contract once the winning bidder confirms their acceptance of the work. The following payment conditions apply:
- First payment of 50% on signing
- Final payment of 50% on satisfactory completion of 100% of work and turnover to ZOA.

Force majeure
In case the end date of the project cannot be met due to external factors such as instability or conflict, a later deadline will be agreed upon between ZOA and the contractor. It is the responsibility of the contractor to contact ZOA timely in case a delay is foreseen.

ZOA shall have a reasonable time after completion of the work to inspect performance of the work and reject and refuse acceptance of services not conforming the contract. ZOA will inspect work at two defined point in the process:

1. At the point the contractor will start the casing installation. The contractor will inform ZOA when the borehole has reached its final depth, before the installation of the casing and backfilling to allow inspection during casing installation. All work will need to stop until the arrival and approval of the inspector. During this inspection the contractor:
   a. Will have to be able to show the complete set of soil samples clearly stating the depth of each sample;
   b. Has a complete well design on paper ready so ZOA can approve this;
   c. Has all needed hardware ready to start the casing installation.
2. At the point of the completion of work as defined in this request.

ZOA has the right to inspect the work during construction at any time. Payment for services pursuant to the contract shall not be deemed an acceptance of the services. Inspection prior to completion of the work does not relieve the contractor from any of its obligations under the contract until final clearance from ZOA.
The documents will need to be handed by 3pm on 12 July 2019. Bids delivered after this specified time and date will be automatically disqualified.

**APPENDIXES**

1. Technical standards of manually drilled boreholes for communal wells
2. Latrine block specifications

**Appendix 1**

**Technical standards of manually drilled boreholes for communal wells**  
(Exceptions only allowed in exceptional hydro-geological situations)

This ‘draft’ document is intended to support the relevant ministries in Liberia as well as enterprises and involved stakeholders with standards for communal boreholes. Exceptions only allowed in exceptional hydro-geological situations and after consultation of the responsible department) as explained below.

**General**

- Good quality of work should be maintained at all times;
- During drilling operations sufficient safety precautions for staff and bystanders are arranged;
- Contamination of the aquifer should be prevented by all reasonable means;
- A bore-log according to the standards is maintained for all boreholes.
- Using polymer as a drilling fluid/mud in the water bearing layers is not allowed.

In addition to the general technical requirements the following specifications on boreholes and slabs should be attached to the tender documents:

**Borehole**

- Drilling technique: All drilling techniques are allowed as long as technical standards are being reached.
- Diameter: at least 6-inch (preferably not more than 8-inch)
- Straightness: The casing and filter can be lowered smoothly and without force to the bottom of the borehole.
- Depth: The borehole depth should be at least 5 meters inside the aquifer and at least 8 meters below the static water table in the dry season.

**Note**

In exceptional cases, such as those with high iron bearing strata, deep wells are not preferred. In this case it is not necessary to drill to the second aquifer as long as the filter is placed in a suitable aquifer that is productive and can be sealed properly.

**Yield**

Minimum of 1.000l/hr being 1, 0 m3/hr continuously for minimum of 1 hour

**Drilling log**

For each drilled well, a complete drilling log should be maintained and provided at all times.

**Casing pipe**

- Material: uPVC casing for deep wells. Casing pipes must be certified according to international standards (for example DIN-casing, or IS 12818, CM series)
- Inside nominal diameter: minimum of 100 mm (India Mark II, III, Afridev, Vergnet or any other standard pump types have to fit in the casing)
- Outside nominal diameter: maximum of 125 mm
- Wall thickness: minimum 5-6 mm
- Joints: Preferred: screw joints. Also accepted: glued joints.
Notes: In practice a 100 or 125 nominal diameter PVC casing pipe can be used as long as the inside and outside limits are observed. The minimum spacing between the nominal bore diameter and the casing is 19.5 mm on both sides.

**Screen**

**Remarks**
Preferred: factory fabricated screens with the below specifications can be used. Also accepted: “homemade” and/or manual cutting of casing pipes into a screen.

**Screen length**
Screen over the full length of the filter with interval of 10-15 cm of plain pipe

**Material**
Same as casing pipe.

**Diameter and wall thickness**
Same as casing pipe.

**Slot size, (maximum)**
1.0 mm (for normal and coarse sands, standard use).

**Slot size, (minimum)**
0.5 mm (used for very fine sands). Slot size 0.5 mm is used in combination with special gravel (smaller) for the gravel pack.

**Slot direction**
Horizontal slots.

**Screen position**
Depends on geological site condition and soil samples. Screen preferably below first impermeable layer. Screens are only placed in aquifers and screens are never in an impermeable layer or within a distance of 0.5 m of an impermeable layer. It is possible to place several screens in different confined aquifers.

**Screen length**
Depends on geological site condition. In general a minimum 6 meter filter screen in good aquifers, in thin aquifers a screen of 3 meter is allowed only after approval of the quality controller.

**Notes:**
For hand pumps with a production of 0.5 to 1 m³/h a correct position is more important than creating a maximum length.
In these situations where these standards do not allow a well installation, a hydro-geologist can decide to overrule the standards so to provide water where it is needed.

**Centralizers**
Centralizers are installed over the full length of the casing and screen with intervals of 3 m.
The diameter of the centralizer matches with the diameter of the borehole and casing.

**Blind end or sump**
Below the lowest screen a blind end of 1.0 m (same material as casing pipe) for sand collection is used. In fine sands (screen slot size is 0.5 mm) the length of the blind end is increased to 3 m where possible, except for when geo-textiles are used.
The bottom of the sump must be sealed so that sand cannot enter the borehole. This is done using a PVC cap.

**Gravel pack**

**Filter gravel size**
Standard gravel size between 1.5 – 3.0 mm for screens with a slot size of 1.0 mm. For screens with a slot size of 0.5 mm the gravel size is between 1.0 and 2.0 mm.

**Filter gravel material**
Best quality filter gravel (silica, quartz, basalt). Preferably well-rounded river gravel.
Schist, scale, mica or clay material is NOT allowed.

**Thickness of pack**
Minimum of 19.5 mm. Actual thickness depends on bore size and outer diameter of casing.

**Height**
Minimum 1 m above the screen, maximum 2 m above screen.
Notes: The gravel is first washed several times with clean water, then sieved (between 1.5 and 3.0 mm in general, between 1.0 and 2.0 mm in the very fine sand conditions).

**Sanitary seal**
**General purpose** A surface sanitary seal prevents contamination of the aquifer from the surface around the borehole. A seal above the filter screen prevents possibly contaminated water from the first (phreatic) aquifer to flow to a lower water producing aquifer.

**Surface seal**
**Material** Grout mix of cement: sand with mix-ratio 1:3
**Position** Starting at ground level
**Height** 3 meter

**Seal above filter screen**
**Material** Clay seal of locally available swell clay or bentonite swelling pellets. Alternatively cement grout (1:2) can be used mixed with clean water (22 liter per 50 kg cement)
**Position** Placed at the level of the best impermeable layer(s). If no impermeable layer is present the seal is placed 1 to 2 meter above the top of the screen.
**Height** Minimum 2 meter. In case the screen is placed in the first aquifer a height of 3 to 5 meters is used.
**Notes:** If cement or grout is used as seal material then the first half meter above the gravel pack is of clay to prevent the cement from entering the gravel pack. The precise location of the sanitary seal above the screen is an expert decision and depends on the actual hydro-geological situation.

**Rest of the backfilling**
Between the surface seal and the seal above the filter cuttings (drilling material) can be used.

**Development**
**Purpose** Borehole development is done to remove drilling fluid and fine particles from the pores. It will compact and stabilize the gravel pack, and improve the permeability of the aquifer around the screen.
**Notes:** Development can be done by compressor or submersible pump.

**By compressor:** The compressor must have a minimum working pressure of 4 bars, and a sufficiently big air flow that must be regulated with a valve. The air outlet will be placed just above the screen and development will be done for at least 2 hours for a 6m screen and 1 hour for 3m screen. Develop until water is clear and free from most particles.

**By submersible pump**
(i) Remove the sediments at the bottom of the well by injecting clean water with a motor pump or using a bailer. (ii) Place the submersible in the well. Suction depth is just above the highest screen and well should be pumped at high discharge (preferable multiple times the design discharge rate if the well allows) until water becomes clear. (iii) Use a surge block to further develop the well. These techniques should be used complimentary and repeated (at least 3 times) until the water is free of small particles and until the maximum safe yield no longer increases as a result of these techniques.

After development the borehole should be pumped clean with a submersible pump with a flow of at least 2.0 m³/h (if the well allows) for at least 2 to 3 hours.

**Yield test**
**Basic procedures** See annex 5 of the guidelines of WASH standards of Liberia.
### Hand pump position

The hand pump cylinder should be placed at least 6 m below the static water level measured at the end of the dry season. If the seasonal fluctuations are unknown and the static water level is not measured at the end of the rainy season then the pump cylinder should be placed 8.0 m below the static level at that moment. The cylinder must be placed at least 1.0 m above the screen.

### Above ground works

According to the guidelines of WASH standards of Liberia.