



## CONSTRUCTION OF FIVE BOREHOLES KAPOETA (REF IRSS-KP-07/004-22)

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### **BACKGROUND/INTRODUCTION**

Islamic Relief is an independent humanitarian and development UK-based organization, with an active presence in over 40 countries across the globe, we strive to make the world a better and fairer place for people still living in poverty. Islamic relief began its humanitarian operation in South Sudan in 2004 focusing on providing lifesaving aid and implementing developmental Programmes to support people affected by the flood, drought, and Conflict establishing three sub-offices in Narus (Kapoeta East), Wau, Warrap. A satellite office in Yei and the Main office in Juba.

### **Our vision:**

Inspired by our Islamic faith and guided by our values, we envisage a caring world where communities are empowered, social obligations are fulfilled and people respond as one to the suffering of others.

### **Our mission:**

Exemplifying our Islamic values, we will mobilize resources, build partnerships, and develop local capacity, as we work to:

Enable communities to mitigate the effect of disasters, prepare for their occurrence and respond by providing relief, protection and recovery.

Promote integrated development and environmental custodianship with a focus on sustainable livelihoods.

Support the marginalized and vulnerable to voice their needs and address root causes of poverty.

We allocate these resources regardless of race, political affiliation, gender or belief, and without expecting anything in return.

## INTRODUCTION

### 1. Background

With funding from IRUSA (DREEHA), IRSS is implementing a 12 months' multi-sector project that encompasses; FSL, WASH, Health and protection.

With outcome 2 of this project; increased access to adequate water for domestic and livestock consumption through improvement of water infrastructure, WASH sector is planning to executed drilling of 5 boreholes as stipulated in the first output of this outcome.

Therefore, with this ToR, IRSS is sourcing for a highly experience and competent borehole drilling company with experienced hydrologist to carry out the drilling activities in Kapoeta East and North Counties as displayed in the below table.

### 2. Scope of Work:

The drilling work is expected to be implemented in targeted bomas of Kapoeta East and North Counties respectively as presented below;

#### **The overall borehole drilling details:**

##### **(a) Geophysical Survey/Profile Taking**

The selected company is expected to carry out detailed geophysical survey before drilling commences, study is expected to use both secondary and primary data in the exercise; Secondary data will involve desk study of available information/data on existing boreholes, drill logs, reports and maps. The outcome of the study and recommendations is to be shared with IRSS before commencement of drilling work starts.

#### **The geophysical investigations will be carried out in a multi-step approach:**

- a) Desk study: Review of existing data, topographical maps, satellite images, existing studies and borehole site investigations in the area, geological reports and maps, borehole and surface water records, etc.
- b) Findings.
- c) Compilation, analysis, and evaluation of the gathered data and information.
- d) Site selection and reporting.

##### **(A) BOREHOLE SITING:**

The field investigations **MUST** be undertaken by highly qualified hydro-geologists, the geologist will be responsible for planning, execution and interpretation of all geophysical data, reporting and selection of the most suitable site for the drilling. The most promising site selected for drilling shall be marked with a concrete marker and indicated on a sketch map. The recommended site identified has to be well communicated to the community and the community should agree on the site through a community meeting. Should there's a total lack of ground water potential as indicated by the siting machine in the

proposed location by the community, the situation will be communicated to the community in order to find sites with promising ground water.

Note: the 5 proposed sites where the drilling activities will be conducted are very difficult locations as far as drilling is concerned. Therefore, any successful company will be required to hire a highly experience hydrogeologist with modern survey equipment to undertake the well siting activities.

### **(b) Bore Well Drilling Requirements**

The drilling of the borehole should be carried out according to the characteristics of the soil formation of the site using appropriate drilling technology, as per result of the hydro geophysical survey while using proper drilling tools, drill pipes, casing pipes with centralizers to ensure that casing string is central within the hole.

- The expected bore well diameter is 8.0'' to 10''
- The expected depth of the bore well ranges between 65 .00m- 120.00m
- The expected yield of the bore well minimum 2,500 liters/hour.

**Screen casing** – factory made UPVC slotted 5 inches' nominal internal diameter screens will be used throughout the aquifer zone. The slot size and screen length will depend on the aquifer materials and aquifer thickness placed at appropriate positions and depth. Screens should be of an ISO standard and having the specification UPVC class 9/10 drinking water standard non- toxic.

**Plain casing** – 5. Inches nominal internal diameter casing should be of ISO standard UPVC class 10 drinking water standard, 3 meters long with threaded joints, well screwed, appropriately placed in the correct positions in the well.

**Permanent casing** – plain casing of 8 inches' diameter Permanent casing must go up to 6 m or up to hard formation to ensure that it seals off all materials from surface runoff entering the well and sanitary grout is inserted to a depth of not less than 1.50m from ground level.

**Development** – on completion of drilling, an appropriate development method will be applied this will include continuous flushing for a period not less than 4 hours, meanwhile estimating the discharge rate. This is necessary to obtain the maximum yield of the well.

**Gravel packing** – Gravel packing material shall be supplied and install all along the filter (aquifer) section of the well. The material shall be 2mm – 4 mm diameter, clean, well rounded siliceous gravel with not more than 5% of non- siliceous materials. Sanitary seal should be installed at an appropriate depth using grout cement.

**Pumping test** - Pumping test will be for a period not less than 8 hours in which the first 4 hours is for step draw down while the 4 hours for continuous test. The discharge at this point will correlate to the discharge during flushing.

**Recovery test** – recovery test should be done for at least 2 hours or such time when there is at least 80% of the static water level noted.

**Water Quality Analysis** – water quality test to be conducted at the end of the drilling to determine the status of the water, considering the available parameters recommended for testing. Ensure borehole is chlorinated before opening to users

**Bore-hole Installation:**

Successful borehole will be installed with either Indian MK III hand pump will be installed as follows: < 50 m pump depth will be Indian MK II and > 51 m pump depth will be Indian MK III

- All platforms (aprons) should conform to South Sudan standards from Ministry of water resources and UNICEF.
- All drainage channels should be 6m long. Ensure boreholes are chlorinated and closed for 8 hours before use.

**3. Objectives:**

To ensure that, two (5) boreholes successfully constructed, hand pump well fixed and aprons are of good standard. Ensure the boreholes produces good amount and quality of

**DELIVERY DETAILS**

**Proposed sites/ distance/population size/GPS coordinate**

S#	Boma	Payam	Population Size	DISTANCE	Km	GPS Coordinates	
<b>KAPOETA EAST</b>							
1	Napusiriet	Jie	7000	Kapoeta South town	100	N	E
2	Chumameri	Jie	5000	Kapoeta South town	94	TBD	TBD
3	Muruangipi	Jie	6000	Kapoeta South town	98	TBD	TBD
<b>KAPOETA NORTH</b>							
4	Wokubu	Karkumuge	1500	Kapoeta South town	45	TBD	TBD
5	Lokoges	Karkumuge	2000	Kapoeta South town	45	TBD	TBD

All tenders are required to be submitted before **Monday 15<sup>th</sup> Aug 2022, 4.00 pm Local time** pursuant to the attached guidelines for submitting a quotation and be returned to; **HAND DELIVERY TO IRSS TENDER BOX** Hai Cinema, 2nd class, Plot no 52, Block B-XVI, South Sudan upon registration on the bid receipt form.

For any issues relating to the tender or its contents please email directly to; [IRSS.Tender@islamic-relief.com.ss](mailto:IRSS.Tender@islamic-relief.com.ss)

All quotation providers are requested to fill in Appendix 1 and 2 below when submitting their proposal to IRSS

**BILL OF QUANTITY FOR CONSTRUCTION OF WATER YARD:**

**Bill of quantities for drilling of one borehole**

ITEM NUMBER	ITEM DESCRIPTION	UNIT	QUANTITY	RATE - USD	AMOUNT -USD
(A)	<b>Borehole drilling</b>				
01	Preliminaries: Physical survey and assessment of the sites.	job	1		
02	Mobilization, transportation of drilling equipment to site, inter site and back from site, including setting of equipment and camping site.	job	1		
03	Carry out geophysical survey to identify the most potential site. At least two vertical and two horizontal VES.	survey	1		
04	Carry out drilling of 8-10 inches' diameter hole, throughout all types of strata (soil formations) using DTH hammer, as well as air-foam drilling whenever deemed necessary.	meter	<b>100-120</b>		
05	Allow for taking samples of drilling cuttings at 6.00m intervals	meter	20		
06	Supply and install 5 inches plain casing nominal internal diameter UPVC	meter	88		
07	Supply and install 5 inches nominal internal diameter UPVC slotted casing with end cap.	meter	12		
08	Gravel packing material shall be supplied and install all along the aquifer section of the well. The material shall be 2mm – 4 mm diameter, clean, well rounded siliceous gravel with not more than 5% of non-siliceous materials.	M <sup>3</sup>	2.00		
09	Sanitary seal should be installing at an appropriate depth, not less than 1.5m using recommended grout materials	M <sup>3</sup>			
10	Allow for flushing of the borehole for not less than six hours to assess the well yield	job	01		
11	Provide and install 8 inches diam. Permanent casing up to the rock/hard formation	Metre	06		
12	Allow to carry out water quality test from a recognized institution, both for physical	Sample	05		

	and chemical parameters as per the policy of the country.				
(B)	<b>Hand pump installation</b>				
13	Supply and install Indian MK III hand pump, complete set comprising head assembly, pedestal, water tank, and cylinder with G.I.Pipes 1/14". Pump depth determining factors, < 50.00m Indian MK II while > 50.00 pump depth is Indian MK III.	set	1		
14	General excavation of top soil to depth not exceeding 200 mm ( assume 3x2m channel )	M <sup>3</sup>	1.50		
15	Provision and placement of BRC wire mesh as reinforcement to the apron , provision and laying of grade 2 reinforced concrete 1:2:4 in plate form and drainage channel	M <sup>3</sup>	03.00		
16	Provision and laying of mortar screed (1:3) on the plate form as well as the drainage channels trowelled smooth.	job	1		
17	Installation of G.I. pipes 1/14", 12mm MS connecting rods, water tank assembly, cylinder assembly and head assembly, to depth 60.00 metres. .	job	1		
18	Allow but excavation of 1.50m diameter x 2.00m deep soak away pit filled up with recommended filling materials, well covered with plastic sheet and soil, in soak away pit well completed.	No	1		
19	Carry out general landscaping of the borehole site, restoring back the area to its original shape. 7.00 radius.	No	1		
20	Provide and allow for fixing in place metallic sign post as described in the TOR.	No	1		
21	Provide and install/cast metallic rails to protect the head assemblies from damage.	Pairs	5		
22	Supply and install street solar lights (150w) at each water points to prevent GBV rated occurrences at water points.	Pieces	5		
	Subtotal (01)				
Grand total: Subtotal (1) x 5 =					

Note: This bill of quantities provided is for one (01) complete borehole, which should be multiplied x 05 for overall cost.

Note: All the 5 sites are all accessible. The job is expected to be accomplished in 35 days, including mobilisation, decommissioning and handing over.

#### **4. Tasks and expected days of work**

The contractor is expected to carry out the job accordingly, while assigning specific and clear task of works to specific team group e.g. the hydrogeologist for geophysical survey, well logging and aquifer behavior, water engineer / technicians for test pumping and installation of hand pumps, drillers for good drilling operations. The whole work is expected to take 35 days including mobilization to and from the site.

#### **4 Reporting**

Contractor to report on each phase of work successfully completed, this includes: Phase (1) Preliminary report of geophysical surveys work conducted on the five proposed sites (2) drilling completed and test pumping done

Hand pump installation, apron construction and fixing of sign posts.

#### **5 Handing over**

Final inspection will be jointly conducted with the directorate of rural water supply and sanitation, community representatives' various components of the borehole will be inspected and verified, according to the check list. In case of defaults in any component, has to be rectified before final handing over is done.

After the facility is handed over, IRSS will carry out post construction monitoring for a period of three months before the liability (retention) money is settled.

#### **6 Visibility**

First, 0.80m height x 1.20m wide metallic sign post on 40mmx40mm hollow section frame, 21/2"x21/2" angled bar legs, 1.80m height stand (legs) shall be properly and appropriately placed and completed.

Second visibility, two (05) metallic plate to be fixed (riveted) on the borehole head assembly.

**SIGNPOST DESIGN FOR THE 5 WATER POINTS**

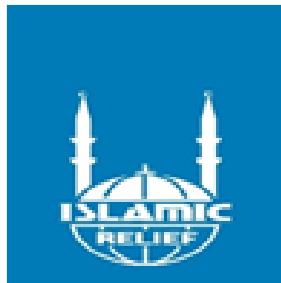
**Drought Response and Recovery in the Eastern  
Horn of Africa (DREEHA)**

**Increased access to clean and safe water**

Insert Boma/Payam.....

PROJECT FUNDED BY: ISLAMIC RELIEF USA

IMPLEMENTED BY: ISLAMIC RELIEF SOUTH SUDAN



120cm

180cm

**Metallic plate visibility for all the 5 BHs to be fixed on the borehole head assembly**





FUNDED BY: ISLAMIC RELIEF USA  
IMPLEMENTED BY: ISLAMIC RELIEF SOUTH SUDAN  
DRILLING PERIOD: .....2022

PAYAM:  
BOMA:

**DIMENSION:**

WIDTH: 10CM

HEIGHT: 14CM

**Summary of Bid Prices**

<b>No.</b>	<b>Description</b>	<b>Total Price in USD (\$)</b>
<b>1</b>	<b>Grand Total Bid Price</b>	
<b>2</b>	<b>Discount Ratio (if any) ... % and the amount</b>	
<b>3</b>	<b>Grand Total after Discount</b>	
<b>4</b>	<b>Delivery time scales (in days)</b>	
<b>5</b>	<b>Quotation Validity</b>	

We have carefully checked and examined all bid documents and we are offering the costs above on a fixed basis and they are not subject to any changes or alterations including those due to currency fluctuations.

Total Price **USD (\$)**

In words

[ \_\_\_\_\_ ]

Bidder's Signature

Stamp

Date

**Bidder is required to stamp this document with their legal company stamp no bid will be accepted without a genuine company stamp**

## APPENDIX 2 BILL OF QUANTITIES

Please also use our table when filling the prices. If you do not have the item just keep it empty. Your offer should be for the quantity that we request, not less and not more.

Please only use USD (\$) as the currency for your offers as per the guidelines.

### Supplier Code of Conduct

#### 1 Islamic Relief's Supplier Code of Conduct

#### 2 Islamic Relief Worldwide requires all suppliers to adhere to:

The Modern Slavery Act 2015

The International Labour Standards as defined by the ILO (International Labour Organisation).

The United Nations Global Compact's 10 principles as stated below:

#### Human Rights

**Principle 1:** Businesses should support and respect the protection of internationally proclaimed human rights;

and

**Principle 2:** Make sure that they are not complicit in human rights abuses.

#### Labour

**Principle 3:** Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

**Principle 4:** The elimination of all forms of forced and compulsory labour;

**Principle 5:** The effective abolition of child labour;

and

**Principle 6:** The elimination of discrimination in respect of employment and occupation.

#### Environment

**Principle 7:** Businesses should support a precautionary approach to environmental challenges;

**Principle 8:** Undertake initiatives to promote greater environmental responsibility;

and

**Principle 9:** Encourage the development and diffusion of environmentally friendly technologies.

#### Anti-Corruption

**Principle 10:** Businesses should work against corruption in all its forms, including extortion and bribery.