The related data sheet for the Terms of Reference described above are as follows.

**Bid Data Sheet (BDS)**

**A. Introduction**

|  |  |
| --- | --- |
| **1** | The Employer is: **SNV Netherlands Development Organisation** |
| **2** | The name of the bidding process is shown below:

|  |
| --- |
| Lot D1: Drilling, construction and installation of hand pump on 7No. Boreholes in Lambussie District (Suke, Samoa, Sentu, Piina, Kukuwor, Bulli and Billaw) |
| Lot D2: Drilling, construction and installation of hand pump on 7No. Boreholes in Nandom Municipality and Lambussie District (Dahile, Mouteng, Bangwon, Bu, Kokoligu, Puffien and Tantuo) |
| Lot D3: Drilling, construction and installation of hand pump on 9No. Boreholes in Lawra and Nandom Municipalities (Tolibiri, Zambo-Baagagn,, Kusele, Sonne, Domaje, Daalbogagn Ketuo, Tampelle and Tuopare) |

 |
|  |  |
| **3** | Name of the Project: **Building Climate Adaptation Capacities** |
| **4** | The individuals or firms in a JV **SHALL BE** jointly and severally liable. |

**B. Bidding Documents**

|  |  |
| --- | --- |
| **5** | For **Clarification purposes** only, the Employer’s address is:**The Country Director****SNV Netherlands Development Organisation****No. 10 Maseru Street, East Legon****P. O. Box KA 30284 Airport, Accra -Ghana** |
| **6** | A Pre-Bid meeting **SHALL NOT** take place.Bidders are advised to visit proposed sites to better inform costing |

**C. Preparation of Bids**

|  |  |
| --- | --- |
| **7** | The language of the bid is: **ENGLISH** |
| **8** | The following schedules or documents shall be submitted.1. Letter of Bid
2. Equipment holding with proof of ownership (as detailed in bid requirements above)
3. Methodology (describing approach to deploy all materials and labour / method statement / material schedule)
4. Completed, signed and stamped bill of quantities (BoQ)
5. Detailed Program of works with specific start and completion dates
 |
| **9** | Alternative times for completion **SHALL NOT BE** permitted. |
| **10** | The prices quoted by the Bidder **SHALL NOT BE** subject to adjustment during the performance of the Contract. |
| **11** | The prices shall be quoted by the bidder in: **GHANA CEDIS** and nationality of bidders shall be Ghana. |
| **12** | The evaluation shall consider any discounts offered by the bidder |

**D. Submission and Opening of Bids**

|  |  |
| --- | --- |
| **13** | Bidders **SHALL** be submitted electronically through ghanaprocurement@snv.org |
| **14** | Bidding Documents:Bidders should ensure documents are submitted in 2 separate **PDF files** named **“Technical proposal”** and **“Financial proposal”** accordingly. The subject of the email should take this format; “*Name of bidding company \_Lot number\_ HF4A”*.The body of the email shall contain the lot number and details of the works.Deadline for the bid submission is **April 2nd, 2025**, at 16:00 hours GMT |
| **15** | **Bid opening and review.**SNV will evaluate bids with an internal committee without the presence of Bidders. Therefore, the Bidder's initial offer should contain the Bidder's best proposals in terms of price and technical submissions. |
| **16** | A Contract award will be executed, and the conditions and terms will be the final binding document. |
| **17** | Bidders CAN bid for maximum of two (2) Lot but are advised to bid for works for which they have proven experience.***SNV however reserves the rights to award a maximum of one (1) Lot regardless the number of bids submitted by a firm*** |

|  |
| --- |
| **Letter of Bid** |
| *INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT**The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder’s complete name and business address.* |

**Date of this Bid submission**: [*insert date (as day, month and year) of Bid submission*]

**Request for Bid No**.: [*insert identification*]

To:

**The Country Director**

**SNV Netherlands Development Organisation**

**No. 10 Maseru Street, East Legon**

**P. O. Box KA 30284 Airport**

**Accra -Ghana**

We, the undersigned, declare that:

1. We have examined and have no reservations to the Bidding Documents, including Terms of Reference issued.
2. We offer to execute in conformity with the Bidding Documents the following Works: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;
3. The total price of our Bid, excluding any discounts offered in item (d) below is: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;
4. If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
5. Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities from eligible countries.
6. We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest.
7. We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process.
8. We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive, and evaluation shall be done by your Bids Committee without our presence.
9. If awarded the contract, the person named below shall act as Contractor’s Representative:

|  |  |
| --- | --- |
| Name: |  |
| In the capacity of: |  |
| Signed: |  |
| Duly authorized to sign the Bid for and on behalf of: |  |
| Date: |  |

**TECHINCAL SPECIFICATIONS FOR WORKS**

**Site Preparation**

**1.2 Site Clearance**

This includes removing bushes and trees to allow access and undisturbed construction work. The Contractor shall prepare the site or other areas where indicated on the drawings or ordered by the Hydrogeological Consultant’s Representative by carrying out a general clearance of the ground and by moving trees to permit the proper execution of the works.

Stumps and major roots shall be grubbed out and all combustible material arising shall be gathered into windrows and burnt. The Contractor shall take precautions to prevent the spread of fire to adjacent land/property.

**1.3 Contractor’s Base Camp**

If the need arises, at the start of the contract, the Contractor shall establish a temporary base camp in the drilling area. The Contractor shall install radio communications between the drilling rig and the base camp for easy communication between the office and the field staff of the Contractor.

**1.4 Inspection of Materials and Equipment**

The Contractor shall present to the Consultant on each base camp site the list of materials, equipment and spare parts to be used during the Contract. The Contractor is not allowed to start the work until the Consultant has checked and approved the list of materials, equipment and spare parts to be used during the Contract.

**1.5 Personnel, Drilling Equipment and Safety Equipment**

The Contractor shall provide capable and experienced personnel and suitable down-the-hole hammer, drilling bits and water/mud drilling equipment to perform this work.

The Contractor shall take all reasonable precautions to prevent any death or injury to persons. These precautions shall include but not be limited to fencing of the work sites, providing his employees with safety helmets, hard-toed boots, eye-protector, ear plugs and gloves, ensuring that all plant, tools and equipment are in safe condition and ensuring that his employees adopt safe working methods. No personnel shall be allowed to work without safety paraphernalia.

The Contractor shall ensure that his workmen have access to first aid equipment, protective clothing and safety helmets all to the reasonable satisfaction of the workmen and approved by the Consultant.

The Employer shall not be liable for any damages or compensation as a result of accident or injury to any workers employed by the Contractor or any sub-Contractor unless such accidents or injury is caused by an act or default of the Employer or of nominated representatives of the Employer.

**1.6 Storage of Fuel and Lubricants**

The Contractor shall comply with local authority regulations applicable to the use and storage of diesel, petrol, paraffin fuel and lubricating oil used at the work site or stored at the base camp, and shall ensure that adequate precautions are taken against fire and environmental contamination.

**1.7 Mobilization and Demobilization**

The item for mobilization to the drilling area includes moving the drilling unit and all other equipment, materials and stores from the point of origin to the base camp and setting up the base camp. The item for mobilization between drilling sites includes moving the drilling unit and setting up the rig and equipment at the new site and rigging down the rig and equipment, and cleaning up the site on completion of the borehole.

The item for demobilization includes striking the base camp, cleaning the site of the base camp and moving the drilling unit and all other equipment, materials and stores from the base camp to the next base camp or to the place of origin.

**2.0 BOREHOLE**

**2.1 Site Identification**

The Consultant or his representative shall confirm to the Contractor the location at which each borehole is to be drilled and shall allocate a temporary number to each borehole. The Contractor is not allowed to commence drilling unless the Consultant has confirmed that the drilling point is located correctly. If it has become necessary to drill a borehole at a point other than the marked geophysics site, it shall not be drilled more than 1m away from the marker except this has been approved by the Consultant. The Contractor shall mark the identification number on the borehole casing. A location map shall also be drawn by the Contractor.

**2.2 Borehole Drilling**

A suitable rotary rig capable of drilling boreholes of finished diameters 165/176mm, to a maximum depth of 100 meters shall be employed. The rig has air/water/mud flush facilities for drilling through the over burden and down-the-hole hammer facilities for drilling in hard rock.

Rock types to be encountered during drilling include sedimentary rocks such as sandstones, conglomerates, mudstones and siltstones, metamorphic and volcanic rocks such as phyllites, schists, quartzites, gneisses and granites. The rig must have the necessary accessories including sufficient working casings to drill through the various rock types. Drilling shall be carried out through the over-burden and highly weathered rock using a bit with diameter between 125mm (i.e. 5in) for the installation of protection casings up to average depths of 10 - 30 meters and then through the moderately weathered rock and the fresh rock using a bit with diameter of 125mm up to an average depth of 50 meters.

If direct circulation rotary is used, the flushing medium should be air, water or stable foam. If, at any stage the use of mud is considered necessary either as a primary fluid or as an additive to create “stiff foam”, only degradable high-quality polymer will be acceptable. Bentonite is specifically prohibited.

The Contractor shall take every precaution to ensure that the verticality and alignment of the borehole is commensurate with good drilling practice. The borehole shall be sufficiently straight and plumb to permit the installation and operation of the pumping equipment without causing excessive wear of the pump components.

**2.3Sampling**

During drilling samples of unwashed drill cuttings shall be collected at 1m interval or at every change of rock type or colour of weathered material. The samples shall be logged by the Driller and the record kept on a daily log sheet. The record should indicate:

a) Lithology

b) Degree of consolidation or hardness

c) If unconsolidated, nature of grounder material, i.e., subjective description of grain size, degree of rounding, clay content, color.

A representative sample of every distinct horizon or change of rock type to be directed by the Consultant shall be prepared in polythene bags and accurately labeled with the name of the village, borehole number, date and depth of sampling.

**2.4 Rate of Drilling**

Accurate records of penetration rate per meter shall be maintained and included on the daily log sheet.

**2.5 Interim Yield Tests**

Interim yield tests shall be carried out at the first struck of water and at each stage during drilling when the flow of water increases (or decreases). The depths of measurement and the yield of water shall be recorded on the daily log sheet. Interim yield tests shall be carried out for at least 30 minutes to establish the optimum yield at the final depth of drilling.

**2.6 Final Drilling Depth**

The Consultant or his representative has the responsibility for determining the final drilling depth, being aided by indications provided by the geophysical survey and the analysis of the drill cuttings on site. A maximum of two (2) attempts shall generally be allowed for each proposed successful borehole. Any deviation from this would require the Consultant's prior approval.

**3.0 BOREHOLE CONSTRUCTION**

**3.1 Design**

All boreholes shall be designed by the Hydrogeological Consultant. The design of borehole is site specific and the Contractor shall be required to follow the design procedure and process outlined by the Consultant. All boreholes shall be constructed by the Contractor as per the Consultant’s design and all linings installed plumb and true to line such that all pumping plant can be easily installed.

**3.2 Borehole Lining**

All boreholes shall be lined completely with high impact-resistant Poly Vinyl Chloride (uPVC) plastic casings and screens specifically manufactured for boreholes. The uPVC shall have uniform colour and shall not have been directly exposed to the sun for long periods or damaged in any form. All borehole lining materials shall be on site before drilling starts.

3.2.1 Plain Casings

The casings shall be uPVC of new stock and have an inner diameter of 126mm (5ins.) and a wall thickness of 7.0mm that is 126/140mm.

3.2.2 Screens

All screens shall be slotted uPVC of new stock. The inner diameter and wall thickness shall be the same as for the plain casing. For all types, the screen shall have a slot size of 0.5mm to 1mm depending on the aquifer material. The open area of the screens shall be at least 10% of the surface area of the pipe.

3.2.3 Joints

All casings and screens shall have screwed flush joints. The threads must be sturdy, either curved or angular with no eccentricity, to allow for easy handling.

3.2.4 Centralizers

Centralizers of suitable size (certified by the Consultant) shall be fitted to both casings and screens at 6m intervals.

3.2.5 Bail Plugs

Bail plugs measuring not more than 2m in length, as in design, shall be fitted at the bottom of each string of pipes.

**3.3 Gravel Pack**

All boreholes shall be gravel-packed as in designs with clean, well rounded quartz gravel of 1-2mm grading for sedimentary formation and 2-4 grading for basement aquifer. The gravel shall be placed within the annulus using approved methods and the level measured accurately before grouting. Other material to be used as gravel pack should be approved by the Consultant.

**3.4 Grouting**

Grout seals shall be placed as follows;

1. 1m thick grout seal above the gravel pack. A layer of sand about 300mm shall be placed on top of the gravel pack before grouting.
2. 4m thick grout seal above the back-filled material.

**3.5 Back Filling**

*(i)* The annulus between two grout seals of successful boreholes shall be filled with drill cuttings or other suitable material approved by the Consultant.

1. All unsuccessful boreholes shall be filled with drill cuttings or other suitable material to 1m below ground surface and a grout seal placed on top to properly cover the hole. For boreholes with marginal yields (less than 10l/min), the Consultant may instruct the Contractor to backfill them or leave them as open wells to be hydro fractured at a later time.

**3.6 Borehole Capping**

All permanent borehole linings will be completed 0.8m above ground surface and be temporary capped if necessary with a suitable capping device approved by the Consultant. The capping should be well secured to avoid vandalizing the borehole by children.

**4.0 BOREHOLE DEVELOPMENT**

Development of completed boreholes will be carried out initially by surging with compressed air and air-lifting. If the development is not complete, that is free from sand and clay, after 3 hours, further development will be carried out by horizontal jetting with suitable jetting tools and air-lift pumping for at most 3 hours. The borehole shall be declared poorly designed by the Consultant if the water is not clear (that is free from sand and clay) at the end of the 6 hours development.

**5.0 PUMPING TESTS**

Each borehole completed for handpump installation shall be tested, a minimum of 6 hours of after completion of development, to determine the borehole and aquifer characteristics. A 3-hour step drawdown tests will be applicable for this contract. A suitable submersible pump approved by the Consultant shall be used.

A 12 hour Constant Discharge Test at a suitable rate approved by the Consultant shall be carried out after the borehole has been rested for at least 24 hours after the drilling.

Water levels in the pumped borehole shall be measured as follows:

* Every one minute for the first 10 minute of pumping
* Every two minutes for the next 20 minutes of pumping
* Every 5 minutes for the next 30 minutes of pumping
* Every 10mins for the next 60mins of pumping
* Every 20mins for the next 120mins of pumping
* Every 30mins thereafter for the rest of the pumping period.

Recovery Test: Immediately on cessation of the constant discharge test, the Contractor shall commence measuring the water level recovery in the pumped borehole according to the same schedule as for the constant discharge test.

The actual time each reading is taken should be recorded.

**6.0 WATER QUALITY TEST**

A sample of water from the borehole shall be taken at the end of the constant rate test for both physico-chemical and bacteriological analyses. The physico-chemical and bacteriological analysis would determine the parameters shown in the table below;

**Table 6.1 – Water Quality Basic Parameters**

|  |  |  |
| --- | --- | --- |
| **SN** | **PARAMETER** | **STANDARD** |
| **PHYSICO-CHEMICAL PARAMETERS** |
| 1 | Temperature | N/A |
| 2 | pH | 6.5 – 8.5 |
| 3 | Free Residual Chlorine | 0.0 |
| 4 | Colour | 0 - 15 |
| 5 | Turbidity | 5.0 |
| 6 | Conductivity | N/A |
| 7 | Total Dissolved Solid | 1000 |
| 8 | Total Hardness | 500 |
| 9 | Calcium Hardness | N/A |
| 10 | Magnesium Hardness | N/A |
| 11 | Alkalinity | N/A |
| 12 | Chloride | 250 |
| 13 | Nitrite | 3.0 |
| 14 | Nitrate | 50 |
| 15 | Ammonia | 0 – 2.5 |
| 16 | Fluoride | 2.00 |
| 17 | Iron | 0.3 |
| 18 | Zinc | 3.0 |
| 19 | Copper | 2.0 |
| 20 | Potassium | 30 |
| 21 | Aluminium | 0.2 |
| 22 | Sulphate | 250 |
| 23 | Sulphide | 0.05 |
| 24 | Manganese | 0.4 |
| 25 | Phosphate | N/A |
| 26 | Arsenic | 0.01 |
| **BACTERIOLOGICAL** |
| 1 | Total Viable Count | 500 |
| 2 | E. coli | Not detected |
| 3 | Total Coliform | Not detected |
| 4 | Clostridium | Not detected |
| 5 | Streptococcus | Not detected |
| 6 | Pseudomonas | Not detected |

The Contractor shall bear all the cost associated with the water quality examination. The Contractor is required to price accordingly as clearly defined in the Bill of Quantities (BoQ).

Tool Kits

|  |  |
| --- | --- |
| Tool | Quantity |
| Fitching tool | 1 |
| Installation plate | 1 |
| Open end 17/19’’ spanner | 2 |
| Sucket spanner 24’’ | 1 |

**7.0 BOREHOLE DISINFECTION**

The Contractor shall disinfect the borehole as the last exercise after borehole Development and before borehole capping. Disinfection must be carried out using Calcium hypochloride in powder or in tablet form.

During the disinfection process it must be ensured that the concentration of available chlorine in the well and filter pack is at least 50 mg/l and that it remains for at least two (2) hours.

**8.0 WORK-ON-SITE JOURNAL**

The Contractor shall maintain a work-on site journal in which all the information concerning the works would be recorded. This would enable the Consultant or his representative to be precisely informed on the drilling on arrival at site. The information to be recorded would include:

* site name (name of village)
* borehole number
* time and date of arrival and departure of the rig
* number of kilometres indicated on the rig truck when the leaving
* compressor time counter at the beginning and end of drilling, and similarly for development and pump testing.
* time at which the rig was set up and the start of the drilling
* drilling time for each rod
* diameter and technique used with each rod.
* depth reached with each rod.
* description of drilled formation indicating as well whether it is soft, hard etc.
* shut down period due to breakdown
* length of casings, screens, gravel pack etc.
* duration of development, yield and state of water.
* any other information considered technically necessary

**9.0 SUCCESSFUL BOREHOLE**

The minimum acceptable yield of a successfully completed borehole for handpump installation shall be **10litres/min** after pump test unless otherwise agreed with the Consultant.

**10.0 BASE PAD CONSTRUCTION**

The Contractor may propose an approved sub-contractor to construct a superstructure for each successful borehole, embracing a concrete well pad with a platform around and provided with a 20cm concrete dwarf wall. A drainage channel leading to a soak-away shall also be provided. The Contractor shall also supply and install a set of anchor bolts for the fixing of the hand pumps and a brass plate with the borehole number. The whole construction shall be carried out according to specifications.

The well pad, the platform, the dwarf wall and the drainage channel shall all be made of concrete, reinforced with plain mild steel bars. The surfaces of the superstructure shall be provided with sufficient slopes to channel spilled water towards the soak-away as indicated on the figures.

The soak-away shall consist of a pit with sidewalls lined with 100mm (4") sandcrete blocks with weep holes. The depth of the pit shall be between 0.8m and 1.0m. The pit shall be filled with hard stones of 50-75mm diameter.

The pump stand will be fixed on 4 bolts anchored into the concrete well pad. The bolts shall have a diameter of 16mm and a length of 160mm with at least 30mm thread at the top end. The bolts shall be made of stainless steel (AISI 304 or better). The four steel bolts are welded to a frame of steel rods in order to ensure that the correct position of the bolts is maintained during the construction of the concrete pad. The four bolts shall be spaced exactly 9 inches square (centre lines) i.e. 228.6mm. The bolt frame has to be fixed in position in the fresh concrete, so that at least 40mm of thread remain out of the concrete.

A brass plate 40mm x 100mm with the borehole number punched into it shall also be cast into the concrete pad so as to be visible when the pump has been installed. The Consultant provides the borehole numbers.

**10.1 QUALITY OF MATERIALS**

Aggregates

Aggregates shall be hard, clean and free of all organic material. Samples of all aggregates to be used shall be brought to the Engineer for approval before delivery to the site. Coarse aggregates shall be comprised of clean, unweathered, hard, well graded material of between 9.5mm and 20mm in size.

Sand shall contain grains with a maximum size of 9.5 mm. It shall be free of soil, clay, organic matter and other impurities and shall contain no more than 5% silt.

Water

Water used for mixing concrete and for curing shall be clean and free from injurious amounts of oil, acid, alkali, organic matters or any other deleterious substance. It shall be equal to potable water in physical and chemical properties.

Cement

Cement shall be normal Portland cement delivered in 50kg bags. The bags 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 is not permitted.

Steel Reinforcement

The steel reinforcements shall be prepared using 8mm mild steel bars free from loose rust (rust has to be removed with a steel brush). The steel bars have a spacing of 9" in horizontal and vertical directions.

Formworks

Formworks shall have a maximum deviation from straightness of 10 mm, measured over a length of 2m. Form works shall be made in such a way that surfaces will present smooth and clean features. Sharp edges should be chamfered.

**10.2 CONCRETE MIX**

The concrete used for the pad shall be prepared using normal Portland cement with a mixture of coarse and fine aggregate. The concrete shall meet the following specifications:

Fine aggregate: 0.15mm to 9.5mm

Coarse aggregate: 2.4mm to 40.0mm

Minimum cement content: 320kg/cubic meter

Compressive strength at 28 days: 25N/mm2

The concrete shall have a ratio of 1:2:4

Water used for mixing concrete and for curing shall be clean, and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substance. It shall be equal to potable water in physical and chemical properties.

The concrete works shall be protected from rapid drying for fourteen (14) days by covering with polyethylene sheets or similar and watered daily.