COMPULSORY BID INFORMATION MEETING AND SITE INSPECTION

PLEASE TAKE NOTE THAT NO LATE BIDDER(S) WILL BE ADMITTED.

PLACE : A compulsory briefing session at
Northern Cape: Department of Agriculture. Land Reform and Rural Development
6236 Kgosi Mothibi Road
MOTHIBISTAD
NORTHERN CAPE

DATE : 16 OCTOBER 2018

TIME : 10H00

ENQUIRIES : Technical Enquiries: Ms. Mahlatse Phuthi
TEL NO: 012 309 5855

General Enquiries: Ms Dikeledi Mohlala
TEL. NO.: (012) 319 7129

FAILURE TO ATTEND THE COMPULSORY BID INFORMATION MEETING WILL RESULT IN THE BIDDER'S BID TO BE REJECTED.

CERTIFICATION BY BIDDER THAT THE COMPULSORY BID INFORMATION MEETING DESCRIBED ABOVE WAS ATTENDED:

I/We, _____

as representative of the company/firm _____

hereby declare that the compulsory site inspection was attended and that I/we am/are fully aware of the extent of the task.

_____ _____

SIGNATURE **DATE**

CERTIFICATION BY DEPARTMENTAL REPRESENTATIVE ON SITE AFTER THE BID INFORMATION MEETING

I _____ hereby confirm that the site inspection was attended by the above bidder.

_____ _____

SIGNATURE **DATE**

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (*NAME OF DEPARTMENT/ PUBLIC ENTITY*)					
BID NUMBER:	4.4.12.2/13/18	CLOSING DATE: 26 OCTOBER 2018		CLOSING TIME:	11:00
DESCRIPTION	APPOINTMENT OF A SERVICE PROVIDER FOR THE EQUIPPING OF BOREHOLES IN NORTHERN CAPE PROVINCE ADMINISTERED BY THE DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (*STREET ADDRESS*)					
Department of Agriculture, Forestry and Fisheries, Agriculture Place Main Entrance					
Tender Receipt Office, Room No : A-GF-06					
20 Steve Biko Road, Arcadia					
PRETORIA					

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		TECHNICAL ENQUIRIES MAY BE DIRECTED TO:	
CONTACT PERSON	Dikeledi Mohlala	CONTACT PERSON	Mahlatse Phuthi
TELEPHONE NUMBER	(012) 319 7129	TELEPHONE NUMBER	(012) 309 5855
FACSIMILE NUMBER	(012) 319 6888	FACSIMILE NUMBER	
E-MAIL ADDRESS	DikelediL@daff.gov.za	E-MAIL ADDRESS	MahlatseP@daff.gov.za

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX] ☐ Yes ☐ No	

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

1.4. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.

2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....
(Proof of authority must be submitted e.g. company resolution)

DATE: .....

PRICING SCHEDULE –FIRM PRICES

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED.

NAME OF SERVICE PROVIDER: ..... BID NO.: 4.4.12.2/13/18

CLOSING TIME 11:00 ON **26 OCTOBER 2018**

OFFER TO BE VALID FOR **90 DAYS (UNTIL 26 JANUARY 2019)** FROM THE CLOSING DATE OF BID.

ITEM NO	DESCRIPTION	BID PRICE IN RSA CURRENCY INCLUSIVE OF VALUE ADDED TAX

1. **Bid Description: Appointment of a service providers for the equipping of boreholes in the Northern Cape Province, administered by the Department of Agriculture, Forestry and Fisheries through its Directorate: Climate Change and Disaster Management**

2. **Bidders are required to indicate a total ceiling price of 15 boreholes together with their reservoirs to be equipped including all expenses for the project**

Borehole 1: Adderly Total price including vat and all cost R_____

Borehole 2: Bothetheletsa Total price including vat and all cost R_____

Borehole 3: Charlesdale Total price including vat and all cost R_____

Borehole 4: Churchill Total price including vat and all cost R_____

Borehole 5: Clifton Total price including vat and all cost R_____

Borehole 6: Dutton Total price including vat and all cost R_____

Borehole 7: Eiffel Total price including vat and all cost R_____

Borehole 8: Gasehubane Total price including vat and all cost R_____

Borehole 9: Glenred Total price including vat and all cost R_____

Borehole 10: Klein Eira Total price including vat and all cost R_____

Borehole 11: Lokaleng Total price including vat and all cost R_____

Borehole 12: Maphiniki Total price including vat and all cost R_____

Borehole 13: Morotobolo Total price including vat and all cost R_____

Borehole 14: Mapoteng Total price including vat and all cost R_____

Borehole 15: Mogonate Total price including vat and all cost R_____

- **TOTAL PRICE FOR ALL THIRTEEN (15) BOREHOLES: R...../TOTAL PRICE (INCLUSIVE OF ALL COSTS AND VAT) FIRM FOR A PERIOD OF SIX (6) MONTHS**

Period required for commencement of project after receipt of an official order .....

Name of Bidder: .....

Does the offer comply with the specification(s)	**Yes / No**
If not to specification, indicate deviation(s)	.....
Period required for delivery	..... *Delivery: Firm / Not Firm
Did you submit a Valid Certificate B-BBEE/SWORN AFFIDAVIT ?	.....
B-BBEE Status Level of Contribution	.....=.....
(A maximum of 10 points)	

Technical enquiries can be directed to:
Ms R.F. Phuthi
Tel: 012 309 5855

General enquiries
Dikeledi Mohlala
Tel. no. 012 319 7129
Email: DikelediM@daff.gov.za

ANNEXURE B

SBD 4

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state[1], or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes an advertised competitive bid, a limited bid, a proposal or written price quotation). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

   - the bidder is employed by the state; and/or

   - the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

2.1 Full Name of bidder or his or her representative: .....

2.2 Identity Number:.....

2.3 Position occupied in the Company (director, trustee, shareholder[2], member): .....

2.4 Registration number of company, enterprise, close corporation, partnership agreement or trust: .....

2.5 Tax Reference Number: .....

2.6 VAT Registration Number: .....

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / PERSAL numbers must be indicated in paragraph 3 below.

[1]"State" means –
(a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
(b) any municipality or municipal entity;
(c) provincial legislature;
(d) national Assembly or the national Council of provinces; or
(e) Parliament.

[2]"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

2.7 Are you or any person connected with the bidder presently employed by the state? **YES / NO**

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member: .....
Name of state institution at which you or the person connected to the bidder is employed : .....
Position occupied in the state institution: .....

Any other particulars:
.....
.....
.....

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1 If yes, did you attach proof of such authority to the bid document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

.....
.....
.....

2.8 Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? **YES / NO**

2.8.1 If so, furnish particulars:
.....
.....
.....

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

2.9.1 If so, furnish particulars.
.....

.....
.....

2.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other) between any other bidder and any person employed by the state who may be involved with the evaluation and or adjudication of this bid? **YES/NO**

2.10.1 If so, furnish particulars.

.....
.....
.....

2.11 Do you or any of the directors / trustees / shareholders / members of the company have any interest in any other related companies whether or not they are bidding for this contract? **YES/NO**

2.11.1 If so, furnish particulars:

.....
.....
.....

3 Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	Personal Income Tax Reference Number	State Employee Number / Persal Number

4 DECLARATION

I, THE UNDERSIGNED (NAME)……..

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT. I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

……..	……
Signature	Date
……..	……..
Position	Name of bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

---

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2

a) The value of this bid is estimated to not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable; or

b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.3 Points for this bid shall be awarded for:

(a) Price; and

(b) B-BBEE Status Level of Contributor.

1.4 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	**100**

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.6 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

(a) **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

(b) **"B-BBEE status level of contributor"** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

(c) **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;

(d) **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

(e) "EME" means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

(f) **"functionality"** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.

(g) **"prices"** includes all applicable taxes less all unconditional discounts;

(h) **"proof of B-BBEE status level of contributor"** means:

1) B-BBEE Status level certificate issued by an authorized body or person;

2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;

3) Any other requirement prescribed in terms of the B-BBEE Act;

(i) **"QSE"** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;

(j) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

5.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

6.1 B-BBEE Status Level of Contributor: = ...(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(***Tick applicable box***)

YES		NO	

7.1.1 If yes, indicate:

i) What percentage of the contract will be subcontracted.....%
ii) The name of the sub-contractor.....
iii) The B-BBEE status level of the sub-contractor.....
iv) Whether the sub-contractor is an EME or QSE
(Tick applicable box)

YES		NO	

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

Designated Group: An EME or QSE which is at last 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		

Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

Partnership/Joint Venture / Consortium
One person business/sole propriety
Close corporation
Company
(Pty) Limited
[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....
.....
.....
.....

8.6 COMPANY CLASSIFICATION

Manufacturer
Supplier
Professional service provider
Other service providers, e.g. transporter, etc.
[*TICK APPLICABLE BOX*]

8.7 Total number of years the company/firm has been in business:.....

8.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) disqualify the person from the bidding process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution.

WITNESSES 1. ..... 2.	..... SIGNATURE(S) OF BIDDERS(S) DATE: ..... ADDRESS ....

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Standard Bidding Document must form part of all bids invited.

2. It serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3. The bid of any bidder may be disregarded if that bidder, or any of its directors have-

   a. abused the institution's supply chain management system;
   b. committed fraud or any other improper conduct in relation to such system; or
   c. failed to perform on any previous contract.

4. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector? (**Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied.**)	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012)326-5445.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) .....
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

SBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1 This Standard Bidding Document (SBD) must form part of all bids[1] invited.

2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:

a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.

b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.

4 This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5 In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

[1] Includes price quotations, advertised competitive bids, limited bids and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

SBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Institution)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

    (a) has been requested to submit a bid in response to this bid invitation;
    (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
    (a) prices;
    (b) geographical area where product or service will be rendered (market allocation)
    (c) methods, factors or formulas used to calculate prices;
    (d) the intention or decision to submit or not to submit, a bid;
    (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
    (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

[3] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....	.....
Signature	Date
.....	.....
Position	Name of Bidder

Js914w 2

agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Bid invitation

BID NUMBER: **4.4.12.2/13/18**

SUBJECT: **APPOINTMENT OF A SERVICE PROVIDER FOR THE EQUIPPING OF BOREHOLES IN NORTHERN CAPE PROVINCE ADMINISTERED BY THE DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES**

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1. GENERAL BID CONDITIONS

1.1 Bidders who failed to complete the bid terms of reference/specification in all respects will automatically be disqualified.

1.2 Bidders who failed to complete and sign all the bid documentation and/or failed to submit all the required information/documentation as requested in terms of the bid documentation may be disqualified. The recommended bidder(s) may be requested to complete and sign all bid documentation within five (5) working days from date of request. Failure to submit will result in disqualification of the bid.

1.3 The bid must conform to the minimum requirements, as set out in this document, or it must be stated clearly how it deviates from these requirements and why. Offers exceeding the minimum requirements of the terms of reference/specification are acceptable.

1.4 Bidders must complete all the necessary bid forms and undertakings, which normally or otherwise accompany a government bid. The following forms and terms of reference/specification must be completed and submitted together with the bidder's response to this bid:

SBD 1	=	Invitation to bid
SBD 3	=	Pricing schedule
SBD 4	=	Declaration of interest
SBD 6.1	=	Preference points claim form
SBD 8	=	Declaration of bidder's past Supply Chain Management (SCM) practices
SBD 9	=	Certificate of Independent Bid Determination

1.5 No bid may be awarded to any bidder whose tax status has not been declared compliant by SARS. Bidders that are not tax compliant according to the CSD must resolve their tax matters with SARS within seven (7) working days from date of request.

1.6 All bidders must ensure that they are registered on the Central Supplier Database (CSD): www.csd.gov.za. Bidders are advised to ensure that their banking details are successfully verified on the CSD.

1.7 The CSD Registration Report must be attached to the bid document.

1.8 The Department will not award any bid to a bidder not registered as a prospective service provider/supplier on the CSD.

1.9 The successful bidder will be required to sign a written contract form (SBD 7). This document will be a binding contract between the successful bidder and the department. No service should be rendered without receipt of an official order issued by the department. No official order will be issued unless a successful bidder(s) has been successfully registered on the Central Supplier Database of the National Treasury.

1.10 The official forms as per paragraph 1.4 above and the bid terms of reference/specification must NOT be retyped. **To ensure authenticity of documents bidders must complete forms manually. Bidders who do not comply with this requirement and retype the bidding documentation will be disqualified.**

1.11 This bid is subject to Government Procurement: General Conditions of Contract, which may not be amended.

1.11.1 Failure to withdraw, waive and/or renounce the bidder's own bid conditions, when called upon to do so, may invalidate the bid.

1.12 During evaluation of the bids, information may be requested in writing from bidders. Replies to such requests must be submitted within five (5) working days or bids may be disregarded.

1.13 The department may **only accept a total ceiling price** for the entire project that must be inclusive of **all** costs (including travel and subsistence expenses). The bidders will not be entitled to claim for travel and subsistence expenses, such items must be included in the bid price.

1.14 The department will give preference to bidders that bid firm prices for the entire duration of the contract in terms of this bid. Non-firm prices (including prices that are subject to rates of exchange variations) may be considered if supporting documentation is submitted. **Should the bidder fail to indicate the bid price on the SBD 3 form (Pricing schedule), the bid may be regarded as invalid. No price increases will be considered by the Department in cases where firm bid prices have been agreed upon.**

1.15 The department will not be held liable for any expenses incurred by bidders in preparing and submitting bids.

1.16 The department reserves the right to appoint more than one bidder, depending on conditions of the bid.

The award of the bid may be subjected to price negotiation with the preferred bidders.

1.17 The department hereby chooses the following street address as its *domicilium citandi et executandi* for the purpose of serving notices and legal documentation:

Street address
Agriculture Place
20 Steve Biko Road
ARCADIA
Pretoria
0007

1.18 Bidders are required to submit proof of B-BBEE Status Level of contributor. Proof includes original and valid B-BBEE Status Level Verification Certificates or certified

copies thereof together with their bids or price quotations to substantiate their B-BBEE rating claims.

1.19 B-BBEE Status Level Verification Certificates submitted, must be issued by the following:

1.19.1 Bidders other than EMEs and QSEs
Verification agencies accredited by SANAS; or

1.19.2 Bidder who qualify as EMEs and QSEs
Sworn affidavit signed by the EME or QSE representative and attested by a Commissioner of Oaths.

1.19.3 Bidders who do not submit B-BBEE Status Level Verification Certificates or who are non-compliant contributors to B-BBEE do not qualify for preference points for B-BBEE.

1.19.4 A trust, consortium or joint venture (including unincorporated consortia and joint ventures) must submit a consolidated B-BBEE Status Level Verification Certificate for every separate bid.

1.19.5 Public entities and tertiary institutions must submit B-BBEE Status Level Verification Certificates together with their bids.

1.20 For joint venture to be considered and points allocated accordingly, the following documents are required:

1.20.1 Agreement between parties in joint venture;

1.20.2 Consolidated B-BBEE certificate (this is not a disqualification document, but a joint venture will not be allocated B-BBEE points if it is not submitted, except where it forms part of prequalification criteria in the evaluation of the bid; and

1.20.3 Both parties must be registered on the Central Supplier Database with a tax compliant status.

1.21 Bidder(s) may be requested to submit a valid company registration certificate issued by the Registrar of Companies and copies of the ID document(s) of active director(s).

1.22 Enquiries

Technical enquiries	Mahlatse Phuthi Kentse Setshedi	Tel. 012 309 5855 Tel. 012 309 5849
General SCM enquiries	Dikeledi Mohlala	Tel. 012 319 7129

1.22 The successful bidder must supply and deliver goods to the address as indicated in the bid documentation.

1.23 The validity period of this bid must be at least 90 days from the closing date of the bid.

2. CONFIDENTIALITY

2.1 This bid and all information in connection therewith shall be held in strict confidence by bidders and the use of such information shall be limited to the preparation of the bid. Bidders shall undertake to limit the number of copies of this document.

2.2 All bidders are bound by a confidentiality clause preventing the unauthorised disclosure of any information regarding the department or of its activities to any other organisation or individual. The bidders may not disclose any information, documentation or products to other clients without the written approval of the Director-General or the delegated official.

3. COPYRIGHT

3.1 Copyright of all documentation in relation to this bid belongs to the department. The successful bidder may not disclose any information, documentation or products to other clients without the written approval of the Director-General or the delegated official.

4. PAYMENTS

4.1 Payment shall normally be made within 30 days after receipt of an original invoice, subject to satisfactory delivery of the service as outlined in the Terms of Reference/Specification.

4.2 The bidder will not be entitled to claim for travel and subsistence expenses. If such expenses are applicable, these charges must be included in the bid price.

5. NON-COMPLIANCE WITH DELIVERY TERMS

As soon as it becomes known to the bidder that he/she will not be able to perform the services/deliver the goods within the agreed time/or delivery period and/or against the quoted price and/or as specified in the contract, the department must be given immediate written notice to this effect. The department reserves the right to implement remedies as provided for in paragraph 22 of the General Conditions of Contract.

6. RETENTION

6.1 On termination of this agreement, the bidder shall on demand, hand over all documentation, information, etc. to the department without the right of retention.

6.2 No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force and effect unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement of the agreement to amend or vary conditions shall be in writing.

7. EVALUATION TEAM

The department will appoint a bid evaluation committee to evaluate the bid submissions. The committee will make recommendations to the Bid Adjudication Committee.

8. EVALUATION OF BIDS

Bids will be evaluated on the following basis:

8.1 **Phase 1: Prequalification criteria**

8.1.1 The following prequalification criteria will be applicable to this bid:

(i) Service provider/supplier must have a B-BBEE Level of 1 to 4

8.1.2 Bidders that do not meet the pre-qualification criteria stipulated in paragraph 8.1.1 above will be disqualified from further evaluation. **Bidders must submit proof of B-BBEE Status Level of Contributor that complies with paragraph 1.18 above (sworn affidavits or B-BBEE Status Level Verification Certificates issued by SANAS accredited verification agencies)**.

8.2 **Phase 2: Compliance with minimum bid requirements**

8.2.1 All bids duly lodged will be evaluated to determine compliance with the bid requirements and conditions. Bids with obvious deviations from the bid requirements/conditions and not acceptable to the evaluation committee will be eliminated from the adjudication process, i.e. will not be shortlisted.

8.3 **Phase 3: Evaluation for price and preference point system**

8.3.1 Only bidders who met all the minimum requirements in terms of paragraph 8.2.1 above will be brought on a comparative price basis in terms of the applicable preference point system prescribed in the Preferential Procurement Regulations 6 and 7 of 2017 as indicated in the SBD 6.1 form.

8.4 **Phase 4: Awarding of bid**

8.4.1 The bid will be awarded to the bidder who scores the highest total number of points in terms of the preference point system (Price and B-BBEE points), unless objective criteria in terms of section 2(f) of the Act justify the award of the bid to another bidder.

9. LATE BIDS

All completed documentation must be returned to the Department of Agriculture, Forestry and Fisheries before 11:00 on 26 October 2018. The location of the drop off is: Agriculture Place, Tender Receipt Office, Tender Box, Room A-GF-06.

Bids received late shall not be considered. The bidding box shall be locked at exactly **11:00**. The closing time will be in accordance with Telkom time (1026).

Bidders are therefore advised to ensure that bids are dispatched allowing sufficient time for any unforeseen events that may delay the delivery of the bid and time to access the premises because of security arrangements when entering the department's gate.

10. COMPULSORY SITE INSPECTION/BRIEFING SESSION

10.1 Bidders not attending a compulsory site inspection/briefing session will automatically be disqualified.

10.2 No late arrivals by bidders for a compulsory site inspection/briefing session will be allowed.

11. FRAUD AND CORRUPTION

All prospective bidders should take note of the implications of contravening the Prevention and Combating of Corrupt Activities Act, Act No. 12 of 2004 and any other act applicable.

12. THE DEPARTMENT RESERVES THE RIGHT TO REJECT OR CANCEL BIDS

Bids may be cancelled for any of the following reasons:

12.1 If the bidder has committed a proven corrupt or fraudulent act in competing for a particular contract.

12.2 If the bidder or any of its directors have:

(i) Abused the SCM system of any government department.
(ii) Failed to perform any previous contract and the proof thereof exists.
(iii) Restricted from doing business with the public sector if such a bidder obtained preferences fraudulently or if such bidder failed to perform on a contract based on the specific goals.
(iv) If there is proof of fraud or any other improper conduct in relation to such system.

12.3 Due to changed circumstances, there is no longer a need for the goods or services requested.

12.4 Funds are no longer available to cover the total envisaged expenditure.

12.5 No acceptable bids are received.

12.6 Due to material irregularities in the bid process.

TERMS OF REFERENCE FOR THE QUOTATION FOR THE APPOINTMENT OF A SERVICE PROVIDER FOR THE EQUIPPING OF BOREHOLES IN THE NORTHERN CAPE PROVINCE, ADMINISTERED BY THE DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES THROUGH ITS DIRECTORATE: CLIMATE CHANGE AND DISASTER MANAGEMENT

1. INTRODUCTION AND BACKGROUND

Agricultural production is a risky business as it is very sensitive to extreme weather and climate conditions. Due to the frequency of extreme weather and climate events in the country, the agricultural sector has moved from one disaster to another. Some of the impacts were directly related to the extreme weather and climate events i.e. floods, droughts etc. while others were indirectly related i.e. outbreak of some diseases and pests etc. which were reported as the secondary impacts. These disasters were costly for the government and funds utilized for disaster relief and recovery could have been prioritized for other developmental needs in the country.

Disaster Management Act 57 of 2002 puts more emphasis on pre-disaster risk reduction phase where activities aimed at disaster risk avoidance, prevention, mitigation and preparedness are prioritized. The Department of Agriculture, Forestry and Fisheries (DAFF) through among other disaster risk management activities implements an early warning system in support of disaster risk management. This system disseminates monthly National Agro-meteorological Committee (NAC) Advisories and daily extreme weather warnings with suggested strategies aimed at disaster risk reduction, prevention, avoidance, mitigation and preparedness as per the Disaster Management Act (Act No. 57 of 2002). Disaster risk reduction measures suggested in the advisories and warnings were not always implemented by the farming communities due to lack of resources which led to more exposure to natural hazards.

Disaster Risk Prevention and Mitigation Fund is aimed at effective implementation of disaster risk reduction measures as required by the Disaster Management Act 57 of 2002.

2. SCOPE OF SERVICE

The Directorate: Climate Change and Disaster Management wishes to appoint a service provider for the equipping of boreholes on the Disaster Risk Prevention and Mitigation Fund that is administered by the Department of Agriculture, Forestry and Fisheries, Directorate: Climate Change and Disaster Management.

	COMPLY		
	YES	NO	REMARKS
3. SERVICE REQUIREMENTS 3.1 A total number of 15 boreholes together with their reservoirs and drinking troughs to be equipped in Northern Cape Province Department of Agriculture, Land Reform and Rural Development.			
3.2 The service provider must submit a detailed implementation plan together with the bid documents to show how the work will be completed within a period of six months. The service provider should also submit the cost breakdown per borehole. Failure to submit these documents will lead to the bid to be viewed as invalid and therefore rejected. (See Annexure A for an implementation plan example).			
3.3 The successful bidder will be expected to sign the implementation plan/schedule with time frames developed by the Department of Agriculture, Forestry and Fisheries (DAFF) in collaboration with the Provincial Northern Cape Department of Agriculture, Land Reform and Rural Development (NCDLR).			
3.4 The service provider will keep a construction book on site to record all technical instructions by the engineers/ technicians.			
3.5 The service provider will adhere to the inspection schedule in accordance with the agreed plan of phases/stages to be followed in equipping of boreholes.			
3.6 The service provider will only submit an invoice after the equipping of a borehole is complete and working, and monitoring and evaluation conducted by the engineers, DAFF and the provincial official. No payment will be made by DAFF before a borehole is finalised and signed off by the engineers/ technicians.			
3.7 The service provider will submit an invoice signed by him/her in line with the payment certificate per completed borehole.			
3.8 The successful bidder should submit a status report with every signed invoice by him/her together with the relevant			

T.B

	COMPLY		
	YES	NO	REMARKS
official from NCDLR. The service provider should further submit the final report in accordance with the template to be provided by DAFF as well as the construction book.			
3.9 The retention amount will be 10%. 5% of this retention money will be paid to the service provider following the issuing of the certificate of completion by the engineers. The remaining 5% will be paid 14 days after the end of Defect Liability Period. Defect Liability (Rectification) Period will be 3 months after completion of the last project site.			
3.10 The successful bidder should provide skills transfer (general maintenance of a windmill, reservoir and drinking troughs) to the project beneficiaries.			
3.11 Bidders must provide proof in the form of a declaration letter that they will be able to finalise more than one project of the Department simultaneously within the stipulated timeframe in case they have an existing project prior application to this bid. Failure to provide the declaration letter together with the bid document by the bidder who has work prior application to this bid on the closing date and time will invalidate the bid. The bidder who does not have any existing project does not need to submit any declaration letter.			
3.12 The service provider is expected to deliver materials and windmills to all borehole sites without additional costs.			
3.13 The bidder should have successfully executed a minimum of three contracts on equipping of boreholes with windmills and or repairing of windmills and construction reservoirs (two contracts of windmills and one of a reservoir). The bidder is expected to submit proof by means of completion letters/certificates from where the service was provided. The letters with an official letterhead must be signed and have references i.e. contact persons and telephone numbers must be included. In cases where the letters do not have letterheads they must be accompanied by affidavits from the South African Police Service. Relevant			

IB

		COMPLY		
		YES	NO	REMARKS
	experience should be clearly highlighted. Failure to submit the completion letters/certificates will invalidate the bid.			
3.14	Local community members must be prioritised for jobs during the implementation of the project.			
3.15	The service provider is expected to travel to the specified properties to attend site visits at no extra costs to the Department.			
3.16	The service provider must have someone in the company who is able to communicate in the official local languages in case the service provider is unable to.			
3.17	Work must be completed within six months after receiving the order number and signing of the implementation plan.			
3.18	The Department reserves the right to appoint more than one service provider to render the required service.			
4.	**DELIVERABLES**			
4.1.	Fifteen (15) boreholes together with their reservoirs and drinking troughs to be equipped in Northern Cape Department of Agriculture, Land Reform and Rural Development (NCDLR) as follows:			
Description				
Site establishment				
Office and storage shed (1 x Sum) Ablution and latrine facilities (2 x Sum) No water and electricity available				
Occupational health and safety measures				
Cost of health and safety measures required in terms of the Construction Regulations (2003) of the Occupational Health and Safety act (1 x Sum) Compilation and maintenance of a Health and Safety Plan, including Risk Assessments, Safe Work Procedures and Method Statements (1 x Sum) Compilation and maintenance of a Health and Safety File				

T.B

	COMPLY		
	YES	NO	REMARKS
(1 x Sum)			
PROJECTS SPECIFICATIONS			
4.1.1. Adderly (S- 27°10'21.2"; E 23°17'10.6")			
Windmill location: S- 27°10'21.2"; E 23°17'10.6" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment, materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod x 3 meter and force head. • 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (14 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (15 x Rod)			
Borehole specification (Pump depth = 42 meters) Borehole depth: 66.5 m Water level: Before test :14.5 m After test: 46.45 m Delivery: 2057 l/h Water abstraction limit at 60 % of delivery:1234.2 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir			

TB

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø brass foot valve (strainer)(1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F/head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1x Clamp) • 40 mm LDPE pipe (30 Meter)			
Repair and sealing of existing reservoir and drinking trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough need to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm, where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor, the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant. **Size of reservoir** • Diameter : 5.09 meter • Height: 2.4 meters • Circumference: 16 meters • Total m^2 to be sealed : 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** • Width : 40 cm			

I.B.

	COMPLY		
	YES	NO	REMARKS
◦ Depth : 50 cm • Circumference: 18 meters ◦ Total m^2 to be sealed : 35 m^2			
Construction of new apron around existing reservoir: (1 x apron) ◦ Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters ◦ Outer circumference of apron: 42 meters ◦ Thickness of apron: 15 cm • Width of apron: 3 meter ◦ Size of apron: 96 m^2 ◦ Concrete strength: 30 MPa ◦ Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) ◦ Provide concrete test cube result			
Inlet pipe fittings(40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1x Pipe) ◦ 40 mm Bend (galv) (3 x Bend) ◦ 40 mm male adaptor (galv) (2 x Adaptor) ◦ 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings(40 mm) ◦ 40 mm outlet screen (stainless steel) (1 x Screen) ◦ 0.5 meter x 40 mm standpipe (galv) (1x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) ◦ 40 mm bend (galv) (1 x Bend) ◦ 40 mm nipple (galv) (1 x Bend) ◦ 40 mm x 32 mm reducing bush (galv) (1x R/Bush) ◦ 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x Trough) • Drinking troughs specifications ◦ Concrete casted drinking troughs with cover to protect ball valve ◦ Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs ◦ Concrete strength: 30 MPa			

I.B

	COMPLY		
	YES	NO	REMARKS
• Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m ² (9.45 m ³ concrete) (2 x Slab) • Provide concrete test cube results for slab **(2 x Cube test)**			
The trench specification (240 Meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm brass gate valve (2 x Valve) • 32 mm ball valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			
4.1.2. Bothetheletsa (S - 27. 436460350; E 23. 838736774) **Windmill location:** S - 27. 436460350; E 23. 838736774 **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment, materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod x 3 meters and force head. • 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (13x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (14 x Rod)			
Borehole specification (Pump depth = 39 meters) Borehole depth: 78 m Water level: Before test: 2.6 m After test : 43.1m Delivery: 8000 l/h Water abstraction limit at 60 % of delivery : 4800 l/h			

I.B.

	COMPLY		
	YES	NO	REMARKS
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber (150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Reservoir location: *Approximately 5m away from the windmill* **Construction of concrete reservoir with the drinking trough around. (1 x reservoir and 1 x drinking trough)** Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m^3(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet.			

I.B.

	COMPLY		
	YES	NO	REMARKS
The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included. Provide concrete test cube results **(10 x Test cube)**			
Construction of new apron around reservoir: (1 x apron) • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter • Size of apron: 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cubes			
• **Inlet pipe fittings (40 mm)** • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm float valve (1 x Valve) • 40 mm T-piece (1 x T/piece) • 40 mm bend (galv (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION**: *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x trough) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve			

I.B

	COMPLY		
	YES	NO	REMARKS
• Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slab) • Slab specification for drinking troughs • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m ² (9.45 m ³ concrete) • Provide concrete test cube results for slab **(2x Cube test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adapter) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			
4.1.3. Charlesdale (S - 27° 13' 16.9"; E 23° 23' 07.1") **Windmill location:** S - 27° 13' 16.9"; E 23° 23' 07.1" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod x 3 meter and force heads. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (10 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (11 x Rod)			
Borehole specification (Pump depth = 30 meters) Borehole depth: 59.5 m			

I.B.

	COMPLY		
	YES	NO	REMARKS
Water level: Before test: 3.5 m After test: 26 m Delivery: 3 789 l/h Water abstraction limit at 60 % of delivery: 2 273 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 x Meter)			

J.B.

	COMPLY		
	YES	NO	REMARKS
Repair and sealing of existing reservoir and trough. **(1 x reservoir and 1 x trough)** The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking troughs needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant. **Size of reservoir** Diameter : 5.09 meter Height: 2.4 meters Circumference: 16 meters Total m^2 to be sealed : 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Width : 40 cm Depth : 50 cm Circumference: 18 meters Total m^2 to be sealed : 35 m^2			
Construction of new apron around existing reservoir: **(1 x apron)** • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter • Size of apron: 96 m^2 • Concrete strength: 30 MPa			

I.B

	COMPLY		
	YES	NO	REMARKS
• Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cube result			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
• **Outlet pipe fittings (40 mm)** • 40 mm outlet screen (Stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x valve) • 40 mm bend (galv) (1 x bend) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 40 mm nipple (galv) (1 x Nipple) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* ***2ND LOCATION**: Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x trough) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 litres per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cube)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T-piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend)			

I.B

	COMPLY		
	YES	NO	REMARKS
• 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			
4.1.4. Churchill 2 (S - 27°13' 43.9"; E 23°24'25.7") **Windmill Location:** S - 27°13' 43.9"; E 23°24'25.7" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials, transport and labour* required) • Install 6 m high windmill tower with a 2.5 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force head. • 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (7 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (8 x Rod)			
• **Borehole specification (Pump depth = 21 meters)** Borehole depth: 17 m Water level: Before test: 10 m After test :18 m Delivery: 1200 l/h Water abstraction limit at 60 % of delivery: 720 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: See attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3)			

JB

	COMPLY		
	YES	NO	REMARKS
Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)*(1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mmx 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			

I.B

	COMPLY		
	YES	NO	REMARKS
Repair and sealing of existing reservoir and trough. **(1 x reservoir and 1 x trough)** The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant **Size of reservoir** Diameter : 5.09 meter Height: 2.4 meters Circumference: 16 meters Total m^2 to be sealed : 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Width : 40 cm Depth : 50 cm Circumference: 18 meters Total m^2 to be sealed : 35 m^2			
Construction of new apron around existing reservoir: **(1 x apron)** Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa			

I.B.

	COMPLY		
	YES	NO	REMARKS
Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
• **Outlet pipe fittings (40 mm)** • 40 mm outlet screen (stainless steel) (1xScreen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 Mpa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cube test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			
4.1.5. Clifton (2) (S - 26.324222199; E 23. 040913445) **Windmill Location:** S - 26.32421; E 23.04096 **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 4.3 meter Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meters and force head. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (34 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (35 x Rod)			
Borehole specification (Pump depth = 102 meters) Borehole depth: 120 m Water level: Before test: 88.4 m After test: 101.3m Delivery: 382 l/h Water abstraction limit at 60 % of delivery: 229.2 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa			

I.B

	COMPLY		
	YES	NO	REMARKS
Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
• **Fittings from windmill to reservoir** • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Reservoir location: Approximately 5m away from the windmill **Construction of concrete reservoir with the drinking trough around (1 x trough and 1 x drinking trough)** Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m^3(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included. Provide concrete test cube results (10 x Test cube)			
Construction of new apron around reservoir: (1 x apron) • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter			

I.B.

	COMPLY		
	YES	NO	REMARKS
• Size of apron: 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cubes			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm Float valve (1 x Valve) • 40 mm T-piece (1 x T/piece) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 Mpa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 Meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			

I.B.

	COMPLY		
	YES	NO	REMARKS
Fittings for troughs • 32 mm inserts T-piece (Nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Pipe) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipples (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm brass gate valve (2 x Valve) • 32 mm ball valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			
4.1.6. Dutton (S - 26 .561173900; E 23 .032210107) **Windmill location**: S - 26°33'40.3"; E 23°01'55.4" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment, materials ,transport and labour required)* • Install 9 m high windmill tower with a 4.3m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (28 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (31 x Rod)			
Borehole specification (Pump depth = 84 meters) Borehole depth: 125 m Water level: Before test: 82 m After test: 84.25 m Delivery: 6000 l/h Water abstraction limit at 60 % of delivery: 3600 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa			

I.B

	COMPLY		
	YES	NO	REMARKS
Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended:..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant			

I.B.

	COMPLY		
	YES	NO	REMARKS
Size of reservoir Diameter : 5.09 meter Height: 2.4 meters Circumference: 16 meters Total m^2 to be sealed : 67 m^2 (floor 19.6 m^2, side wall 40 m^2top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Width : 40 cm Depth : 50 cm Circumference: 18 meters Total m^2 to be sealed : 35 m^2			
Construction of new apron around existing reservoir: (1 x apron) Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv)(1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			

I.B.

	COMPLY		
	YES	NO	REMARKS
Supply and installation of concrete casted drinking troughs (2 trough) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cube test)**			
The trench specification (240 Meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipples (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			

I.B.

	COMPLY		
	YES	NO	REMARKS
4.1.7. Eiffel (S - 26.574147436; E 22. 9075037827) **Windmill location:** S -26°34'27,1" ; E 22°54'27.0" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials transport and labour required)* • Install 9 m high windmill tower with a 4.3 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS(27 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (30 x Rod)			
Borehole specification (Pump depth = 81 meters) Borehole depth: 115 m Water level: Before test: 28 m After test: 83.7 m Delivery: 4000 l/h • Water abstraction limit at 60 % of delivery: 2400 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir, need to be cleaned, and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant **Size of reservoir** Diameter : 5.09 meter Height: 2.4 meters Circumference: 16 meters Total m^2 to be sealed : 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Width : 40 cm Depth : 50 cm Circumference: 18 meters Total m^2 to be sealed : 35 m^2			
Construction of new apron around existing reservoir: (1 x apron)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter • Size of apron: 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cube result			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1x clamp)			
• **Outlet pipe fittings (40 mm)** • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION**: *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2x Slab) • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cube test)**			
The trench specification (200 meters)			

TB

	COMPLY		
	YES	NO	REMARKS
Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fitting for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adapter) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe. (300 Meter) • Thread tape (20 Roll)			
4.1.8. Gasehubane (S - 27. 281436054; E 23 .272609812) (DOA 4852) **Windmill location:** S - 27. 28139; E 23.27257 **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials transport and labour required)* • Install 6 m high windmill tower with a 2.5m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force heads. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (9 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (10 x Rod)			
Borehole specification (Pump depth = 27 meters) Borehole depth: 33 m Water level: Before test: 23.10 m After test: 23.22m Delivery: 6 545 l/h Water abstraction limit at 60 % of delivery: 3 927 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			

I.B

	COMPLY		
	YES	NO	REMARKS
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mmx 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 x Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir on the site need to be cleaned, and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm.			

I.B.

	COMPLY		
	YES	NO	REMARKS
Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant. **Size of reservoir** Diameter: 5.09 meter Height: 2.4 meter Circumference: 16 meter Size to be sealed: 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Diameter: 40 cm Height: 50 cm Circumference: 18 meters Size to be sealed: 35 m^2			
Construction of new apron around existing reservoir: (1 x apron) Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron : 15 cm Length of apron : 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
• **Outlet pipe fittings (40 mm)** • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			

IB

	COMPLY		
	YES	NO	REMARKS
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Slab specification for drinking troughs • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cube test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adapter) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipples (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			

IB

	COMPLY		
	YES	NO	REMARKS
4.1.9. Glenred (S - 26°57'16.7"; E 23°54'40.7") **Windmill location:** S - 26°57'16.7"; E 23°54'40.7" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force head. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (20 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (21 x Rod)			
Borehole specification (Pump depth = 60 meters) Borehole depth: 78.3 m Water level : Before test: 44.7 m After test: 61.5 m Delivery: 3 600 liter/hour Water abstraction limit at 60 % of delivery: 2160 liter/hour			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1x F-head)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 x Meter)			
Reservoir location: *Approximately 5m away from the windmill* **Construction of concrete reservoir with drinking trough around.(1 x Reservoir and 1 x Drinking trough)** Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m^3(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included. Provide concrete test cube results **(10 x Test cube)**			
Construction of new apron around reservoir: (1 x apron) • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter • Size of apron: 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cubes			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm float valve (1 x Valve) • 40 mm T-piece (1 x T/piece) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of • 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4x T/piece) • 32 mm male adaptor (nylon) (2 x Nipple) • 32 mm x 0.8m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp)			

I.B

	COMPLY		
	YES	NO	REMARKS
• 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			
4.1.10. Klein Eira (S 27° 17' 35.4"; E 23° 25' 02.2") **windmill location:** S - 27° 17' 35.4"; E 23° 25' 02.2" **Supply and installation of Windmill (1 x Windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head. • 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (5 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (7 x Rod)			
Borehole specification (Pump depth = 15 meters) Borehole depth: 85 m Water level: Before test: 9 m After test: 15.4 m Delivery: 9000 l/h Water abstraction limit at 60 % of delivery: 5400 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø brass foot (strainer) valve (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 0 mm Male bend (galv) (2x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Reservoir location: *Approximately 5m away from the windmill* **Construction of concrete reservoir with the drinking trough around (1 x Reservoir and 1 Drinking trough)** Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m, wall thickness 225 mm, capacity 33.5 m^3 (33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included. Provide concrete test cube results **(10 x Test cube)**			
Construction of new apron around reservoir: (1 x apron) • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron: 23 meters • Outer circumference of apron: 42 meters • Thickness of apron: 15 cm • Width of apron: 3 meter • Size of apron: 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cubes			

I.B.

	COMPLY		
	YES	NO	REMARKS
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm float valve (1 x Valve) • 40 mm T-piece (1 x T/piece) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipples (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 32 mm ball valve (2 x Valve) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			
4.1.11. Lokaleng (S - 27. 235332025; E 23 .159988135) (DOA 4838) **Windmill location:** S - 27. 235332025; E 23 .159988135 **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meters and force heads. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (13 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (14 x Rod)			
Borehole specification (Pump depth = 39 meters) Borehole depth: 60 m Water level: Before test: 36.1 m After test: 36.1 m Delivery: 12 000 l/h Water abstraction limit at 60 % of delivery: 7 200 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)			

I.B

	COMPLY		
	YES	NO	REMARKS
Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (1 x Valve) • 40 mm Ø base plate (1x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant. **Size of reservoir** Diameter: 5.09 meter Height: 2.4 meters Circumference: 16 meters Size to be sealed: 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²)			

I.B.

	COMPLY		
	YES	NO	REMARKS
Size of drinking trough around reservoir Diameter: 40 cm Depth : 50 cm Circumference: 18 meters Size to be sealed: 35 m^2			
Construction of new apron around existing reservoir: • Three (3) meter apron should be constructed around the existing reservoir. • Inner circumference apron : 23 meters • Outer circumference of apron : 42 meters • Thickness of apron : 15 cm • Length of apron : 3 meter • Size of apron : 96 m^2 • Concrete strength: 30 MPa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Provide concrete test cube results			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs)			

I.B.

	COMPLY		
	YES	NO	REMARKS
◦ Concrete strength: 30 MPa ◦ Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) ◦ Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) ◦ Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs ◦ 32 mm inserts T-piece (nylon) (4 x T/piece) ◦ 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) ◦ 32 mm bend (galv)(2 x Bend) ◦ 32 mm M&F bend (2 x Bend) ◦ 32 mm ball valve (2 x Valve) • 32 brass gate valve (2 x Valve) ◦ 32 mm float valve (control water level) (2 x Valve) ◦ 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) ◦ Thread tape (20 Roll)			
4.1.12. Maphiniki (S - 27°01'40.8"; E 23° 13' 38.6") **Windmill location:** S - 27°01'40.8"; E 23° 13' 38.6" **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force heads. ◦ 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (5 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (6 x Rod)			
Borehole specification (Pump depth = 15 meters) Borehole depth: 77.4 m Water level: Before test: 3.8 m After test: 7.5 m Delivery: 10 285 l/h Water abstraction limit at 60 % of delivery: 6 171 l/h			

I.B.

	COMPLY		
	YES	NO	REMARKS
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir on the site need to be cleaned, and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:.....			

I.B.

	COMPLY		
	YES	NO	REMARKS
Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant **Size of reservoir** Diameter: 5.09 meters Height: 2.4 meters Circumference: 16 meters Size to be sealed: 96 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Diameter: 40 cm Height: 50 cm Circumference: 18 meters Size to be sealed: 35 m^2			
Construction of new apron around existing reservoir: (1 x apron) Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			

IB.

	COMPLY		
	YES	NO	REMARKS
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION**: *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) Drinking troughs specifications • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 Mpa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab (2 x Cube test)			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm brass gate valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamps (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			

I.B

	COMPLY		
	YES	NO	REMARKS
4.1.13. Morotobolo (S - 27°19' 25.4"; E 23°29'15.4") (T 10625) **Windmill location:** S - 27°19' 25.4"; E 23°29'15.4" **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head. • 40mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (21 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (22 x Rod)			
Borehole specification (Pump depth = 64 meters) Borehole depth: 95 m Water level: Before test: 12.5 m After test: 60 m Delivery: 1 200 l/h Water abstraction limit at 60 % of delivery: 720 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19 mm stone) Size: See attached specification in Appendix A Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12 mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1x Clamp) • 40 mm LDPE pipe (30 x Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant **Size of reservoir** Diameter: 5.09 meter Height: 2.4 meters Circumference: 16 meters Size to be sealed: 96 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Diameter: 40 cm Height: 50 cm Circumference: 18 meters Size to be sealed: 35 m^2			

I.B

	COMPLY		
	YES	NO	REMARKS
Construction of new apron around existing reservoir: (1 x apron) Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m2 Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 20m away from the windmill* **2ND LOCATION:** *Approximately 100m away from the reservoir* **3RD LOCATION:** *Approximately 100m away from the reservoir* **4TH LOCATION:** *Approximately 50m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (4 x troughs) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (4 x slabs) • Concrete strength: 30 Mpa			

J.B.

	COMPLY		
	YES	NO	REMARKS
• Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m ² (9.45 m ³ concrete) • Provide concrete test cube results for slab **(4 x Cubes test)**			
The trench specification (400 Meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (4 x Adaptor) • 32 mm x 0.8m standpipe (4 x Pipe) • 32 mm nipple (galv) (4 x Nipple) • 32 mm bend (galv) (4 x Bend) • 32 mm M&F bend (4 x Bend) • 32 mm ball valve (4 x Valve) • 32 mm brass gate valve (4 x Valve) • 32 mm float valve (control water level) (4 x Valve) • 32 mm clamps (wire type) (48 x Clamp) • 32 mm class 3 LDPE pipe (500 Meter) • Thread tape (20Roll)			
4.1.14. Mapoteng (S - 27° 22' 28.4; E 23° 30' 37.6") **Windmill location**: S -27° 22' 50.8"; E 23° 30' 23.8" **Supply and installation of Windmill (1 x windmill)** *(Includes all equipment , materials, transport and labour required)* • Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod and force heads. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (18 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (19 x Rod)			
Borehole specification (Pump depth = 54 meters) Borehole depth: 83.5m Water level: Before test: 10.5m After test: 51.9m Delivery: 960 l/h Water abstraction limit at 60 % of delivery: 576 l/h			

I.B

	COMPLY		
	YES	NO	REMARKS
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/hour Total head:..... meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A. Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate) • 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mmx 0.5 meter standpipe (galv) (1 x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (3 Meter)			
Repair and sealing of existing reservoir and trough (1 x reservoir and 1 x trough) The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m^2) and polymer anionic bitumen emulsion sealant. Specification type of matt:.....			

I.B

	COMPLY		
	YES	NO	REMARKS
Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt another two coats with sealant. **Size of reservoir** Diameter: 5.09 meter Height: 2.4 meter Circumference: 16 meters Size to be sealed: 67 m^2 (floor 19.6 m^2, side wall 40 m^2 top of wall and outside wall 9.6 m^2) **Size of drinking trough around reservoir** Diameter: 40 cm Depth : 50 cm Circumference: 18 meters Size to be sealed: 35 m^2			
Construction of new apron around existing reservoir: (1 x apron) Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron : 15 cm Length of apron : 3 meter Size of apron : 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results			
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			

T.B

	COMPLY		
	YES	NO	REMARKS
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm nipple (galv) (1 x Nipple) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION**: *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs with cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (2 x slabs) • Concrete strength: 30 Mpa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple) • 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm brass gate valve (2 x Valve) • 32 mm ball valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Roll)			

I.B.

	COMPLY		
	YES	NO	REMARKS
4.1.15. Mogonate (S - 26. 684836115; E 23. 318061683) **Windmill location:** S -26° 41' 04.2"; E 23° 19' 05.4" **Supply and installation of Windmill (1x windmill)** *(Includes all equipment, materials transport and labour required)* • Install 9 m high windmill tower with a 4.3 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head. • 40 mm Ø x 3.0m galvanized medium screwed/socket pipe SABS (30 x Pipe) • 12 mm Ø x 3.0m electro plated pump rods with socks and protectors (33 x Rod)			
Borehole specification (Pump depth = 90 meters) Borehole depth: 172 m Water level: Before test: 89 m After test: 91.6 m Delivery: 6000 l/h Water abstraction limit at 60 % of delivery : 3600 l/h			
Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **(1 x Cylinder)** Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/hour Total head:..... meters			
Windmill Tower Foundation (2.8 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: see attached specification in Appendix A. Provide concrete test cube results			
Supporting concrete block around casing (0.3 m^3) Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results			
Fittings from windmill to reservoir • 40 mm Ø brass foot valve (strainer) (1 x Valve) • 40 mm Ø base plate (1 x Plate)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 40 mm Ø brass non return valve (1 x Valve) • 40 mm Ø brass force head (1 x F-head) • 40 mm Ø inlet air chamber *(150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve)* (1 x Air chamber) • 40 mm nipple (galv) (3 x Nipple) • 40 mm T-piece (galv) (2 x T/piece) • 40 mm x 0.5 meter standpipe (galv) (1x Pipe) • 40 mm male adaptor (nylon) (1 x Adaptor) • 40 mm male bend (galv) (2 x Bend) • 40 mm pipe clamp (1 x Clamp) • 40 mm LDPE pipe (30 Meter)			
Reservoir location: *Approximately 5m away from the windmill* **Construction of concrete reservoir with drinking trough around. (1 x reservoir and 1 x drinking trough)** Construction of concrete reservoir with drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m, wall thickness 225 mm, capacity 33.5 m^3 (33.5 kl), The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included. Provide concrete test cube results **(10 x Test cube)**			
Construction of new apron around reservoir: (1 x apron) Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results			

I.B.

	COMPLY		
	YES	NO	REMARKS
Inlet pipe fittings (40 mm) • 2.5 meter x 40 mm standpipe (galv) (1 x Pipe) • 0.3 meter x 40 mm standpipe (galv) (1 x Pipe) • 40 mm bend (galv) (3 x Bend) • 40 mm male adaptor (galv) (2 x Adaptor) • 40 mm pipe clamp for LDPE pipe (1 x Clamp)			
Outlet pipe fittings (40 mm) • 40 mm outlet screen (stainless steel) (1 x Screen) • 0.5 meter x 40 mm standpipe (galv) (3 x Pipe) • 40 mm float valve (1 x Valve) • 40 mm T-piece (1 x T/piece) • 40 mm brass gate valve (brass) (1 x Valve) • 40 mm bend (galv) (1 x Bend) • 40 mm nipple (galv) (1 x Nipple) • 40 mm x 32 mm reducing bush (galv) (1 x R/Bush) • 32 mm male adaptor (1 x Adaptor)			
DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* **2ND LOCATION**: *Approximately 120m away from the reservoir*			
Supply and installation of concrete casted drinking troughs (2 x troughs) <u>Drinking troughs specifications</u> • Concrete casted drinking troughs **with** cover to protect ball valve • Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter • Capacity : 1000 liters per trough			
Slab specification for drinking troughs (1 x slab) • Concrete strength: 30 Mpa • Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) • Slab size : 9 meter x 7 meter x 0.15 meter • Size: 62 m^2 (9.45 m^3 concrete) • Provide concrete test cube results for slab **(2 x Cubes test)**			
The trench specification (240 meters) Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m			
Fittings for troughs • 32 mm inserts T-piece (nylon) (4 x T/piece) • 32 mm male adaptor (nylon) (2 x Adaptor) • 32 mm x 0.8 m standpipe (2 x Pipe) • 32 mm nipple (galv) (2 x Nipple)			

I.B.

	COMPLY		
	YES	NO	REMARKS
• 32 mm bend (galv) (2 x Bend) • 32 mm M&F bend (2 x Bend) • 32 mm brass gate valve (2 x Valve) • 32 mm ball valve (2 x Valve) • 32 mm float valve (control water level) (2 x Valve) • 32 mm clamp (wire type) (24 x Clamp) • 32 mm class 3 LDPE pipe (300 Meter) • Thread tape (20 Rolls)			

5. Did the service provider complete all the required documentation (Pricing schedule), specification and submitted all the required documentation/valid Tax Clearance Certificate/Cipro certificate?

   Ensure that all relevant documentation are completed in full or signed and submitted.

PLEASE NOTE THAT CONTACT DETAILS MUST BE ACTIVE THROUGH COMPLETION OF CONTRACT AND THE DEPARTMENT MUST BE NOTIFIED IMMEDIATELY IF THERE ARE ANY AMENDMENT OF THE CONTACT DETAILS. FAILURE TO DO SO WILL INVALIDATE YOUR QUOTATION.

I/we, the undersigned, declare that the information furnished is true and correct and warrants that he/she is duly authorised to sign on behalf of the company.

NAME AND CAPACITY: _____

SIGNATURE OF SUPPLIER: _____

DATE: _____

NAME OF COMPANY: _____

I.B

agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

SPECIFICATION FOR CONSTRUCTION OF NEW WINDMILL RESERVOIR AND REPAIR OF DRINKING TROUGHS IN NORTHERN CAPE

COMPILED

BY

RAMAGOSHI N.T

I8.

Table of Contents

I.B.

1. PRELIMINARY AND GENERAL

DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
Site establishment				
• Office and storage shed	1	Sum		
• Ablution and latrine facilities	2	Sum		
• No water and electricity available				
Occupational health and safety measures				
• Cost of health and safety measures required in terms of the Construction Regulations (2003) of the Occupational Health and Safety act	1	Sum		
• Compilation and maintenance of a Health and Safety Plan, including Risk Assessments, Safe Work Procedures and Method Statements	1	Sum		
• Compilation and maintenance of a Health and Safety File	1	Sum		

2. PROJECTS SPECIFICATIONS

2.1 Adderly (S- 27° 10'21.2"; E 23° 17'10.6")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1	**WINDMILL LOCATION:** S - 27°10'21.2"; E 23°17'10.6"				
	Supply and installation of Windmill *(Includes all equipment, materials , transport and labour required)* **Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail brake** system, fork rod, bucket rod (pitman), wood rod x 3 meter and force head.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	14	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	15	Rod		
	Borehole specification (Pump depth = 42 meters)				
	Borehole depth: 66.5 m Water level: Before test :14.5 m; After test : 46.45 m Delivery: 2057 l/h Water abstraction limit at 60 % of delivery: 1234.2 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		

IB

	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F/head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough need to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm, where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor, the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant				

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	Size of reservoir **Diameter :** 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Total m² to be sealed :** 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²)	1	Reservoir		
	Size of drinking trough around reservoir **Width :** 40 cm **Depth :** 50 cm **Circumference:** 18 meters **Total m² to be sealed :** 35 m²	1	Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		
	Inlet pipe fittings(40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm Bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings(40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Bend		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)	2	Slab		

I.B.

	Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m ^{2} (9.45 m ^{3} concrete)				
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm ball valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B.

2.2 Bothetheletsa (S - 27. 436460350; E 23. 838736774)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S - 27. 436460350; E 23. 838736774				
	Supply and installation of Windmill *(Includes all equipment, materials, transport and labour required)* Install 9 m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod x 3 meters and force head.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	13	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	14	Rod		
	Borehole specification (Pump depth = 39 meters) Borehole depth: 78 m Water level: Before test: 2.6 m; After test : 43.1m Delivery: 8000 l/h Water abstraction limit at 60 % of delivery: 4800 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		

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	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**RESERVOIR WITH DRINKING TROUGH LOCATION:** *Approximately 5m away from the windmill*				
	Construction of concrete reservoir with the drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m³(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included.	1 1	Reservoir Drinking trough		
	Provide concrete test cube results	10	Test cube		
	Construction of new apron around reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cubes	1	Apron		
	Inlet pipe fittings(40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings(40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm Float valve	1	Valve		
	• 40 mm T-piece	1	T/piece		
	• 40 mm bend (galv)	1	Bend		

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	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adapter		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	◦ 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B

2.3 Charlesdale (S - 27° 13' 16.9"; E 23° 23' 07.1")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S - 27° 13' 16.9"; E 23° 23' 07.1"				
	Supply and Installation of Windmill *(Includes all equipment, materials, transport and labour required)* Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod x 3 meter and force heads.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	10	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	11	Rod		
	Borehole specification(Pump depth = 30 meters) Borehole depth: 50.5 m Water level: Before test: 3.5 m; After test: 26 m Delivery: 3 789 l/h Water abstraction limit at 60 % of delivery: 2 273 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12 mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		

I.B.

	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking troughs needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant **Size of reservoir** **Diameter** : 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Total m² to be sealed** : 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²) **Size of drinking trough around reservoir** **Width** : 40 cm **Depth** : 50 cm **Circumference:** 18 meters **Total m² to be sealed** : 35 m²	1 1	Reservoir Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		

I.B.

	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (Stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	valve		
	• 40 mm bend (galv)	1	bend		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 40 mm nipple (galv)	1	Nipple		
	• 32 mm male Adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 litres per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T-piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B.

2.4. Churchill 2 (S - 27°13' 43.9"; E 23°24'25.7")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 27°13' 43.9"; E 23°24'25.7"**				
	Supply and installation of Windmill *(Includes all equipment, materials, transport and labour required)* Install 6 m high windmill tower with a 2.5 m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force head.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	7	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	8	Rod		
	Borehole specification (Pump depth = 21 meters) Borehole depth: 17 m Water level: Before test: 10 m; After test : 18 m Delivery: 1200 l/h Water abstraction limit at 60 % of delivery: 720 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		

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	• 40 mmx 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant **Size of reservoir** **Diameter** : 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Total m² to be sealed** : 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²) **Size of drinking trough around reservoir** **Width** : 40 cm **Depth** : 50 cm **Circumference:** 18 meters **Total m² to be sealed** : 35 m²	1 1	Reservoir Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		
	Inlet pipe fittings (40 mm)				

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	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings(40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Troughs		
	Slab specification for drinking troughs Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B.

2.5 Clifton (2) (S - 26.324222199; E 23. 040913445)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S – 26.32421; E 23.04096				
	Supply and installation of Windmill *(Includes all equipment, materials, transport and labour required)* Install 9 m high windmill tower with a 4.3 meter Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meters and force head.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	34	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	35	Rod		
	Borehole specification (Pump depth = 102 meters) Borehole depth: 120 m Water level: Before test: 88.4 m; After test: 101.3m Delivery: 382 l/h Water abstraction limit at 60 % of delivery: 229.2 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		

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	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**RESEVIOR WITH DRINKING TROUGH LOCATION:** *Approximately 5m away from the windmill*				
	Construction of concrete reservoir with the drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m³(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included.	1 1	Reservoir Drinking trough		
	Provide concrete test cube results	10	Test cube		
	Construction of new apron around reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cubes	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm Float valve	1	Valve		
	• 40 mm T-piece	1	T/piece		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		

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	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 Mpa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (Nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Pipe		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipples (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm ball valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B.

2.6 Dutton (S - 26 .561173900; E 23 .032210107)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 26°33'40.3"; E 23°01'55.4"**				
	Supply and installation of Windmill (*Includes all equipment, materials transport and labour required)* Install 9 m high windmill tower with a 4.3m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod and force head.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	28	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	31	Rod		
	Borehole specification (Pump depth = 84 meters) Borehole depth: 125 m Water level: Before test: 82 m; After test: 84.25 m Delivery: 6000 l/h Water abstraction limit at 60 % of delivery: 3600 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/hour Total head :.....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		

I.B.

	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the wall for 30 cm and where the matt is joined the overlap should be Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt 3 x coats with sealant **Size of reservoir** **Diameter** : 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Total m² to be sealed** : 67 m² (floor 19.6 m², side wall 40 m²top of wall and outside wall 9.6 m²) **Size of drinking trough around reservoir** **Width** : 40 cm **Depth** : 50 cm **Circumference:** 18 meters **Total m² to be sealed** : 35 m²	1 1	Reservoir Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		

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	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipples (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.8.

2.7 Eiffel (S - 26.574147436; E 22. 9075037827)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S -26°34'27,1" ; E 22°54'27.0"**				
	Supply and Installation of Windmill *(Includes all equipment , materials transport and labour required)* **Install 9 m high windmill tower with a 4.3 m Ø wheel with a gearbox, tail** brake system, fork rod, bucket rod (pitman), wood rod and force head.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	27	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	30	Rod		
	Borehole specification (Pump depth = 81 meters) Borehole depth: 155 m Water level: Before test: 28 m; After test: 83.7 m Delivery: 4000 l/h Water abstraction limit at 60 % of delivery: 2400 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **Cylinder make:**..... **Cylinder model:**..... **Cylinder size:** ..... mm **Specify delivery of cylinder :** ..... **Liters/ hour** **Total head:** .....meters	1	Cylinder		
	Windmill Tower Foundation **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: See attached specification in Appendix A** Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: 800mm diameter x 600mm high 4x12mm bolts and nuts** Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		

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	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir, need to be cleaned, and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the to the area and paint the matt 3 x coats with sealant **Size of reservoir** **Diameter** : 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Total m² to be sealed** : 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²) **Size of drinking trough around reservoir** **Width** : 40 cm **Depth** : 50 cm **Circumference:** 18 meters **Total m² to be sealed** : 35 m²	1 1	Reservoir Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		

I-B.

	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm Inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adapter		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	Total				

I.B.

2.8 Gasehubane (S - 27. 281436054; E 23 .272609812) (DOA 4852)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S - 27. 28139; E 23.27257				
	2.1 Supply and installation of Windmill *(Includes all equipment , materials transport and labour required)* Install 6 m high windmill tower with a 2.5m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force heads.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	9	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	10	Rod		
	Borehole specification (Pump depth = 27 meters) Borehole depth: 93 m Water level: Before test 23.10 m; After test 23.22 m Delivery: 6 545 l/h Water abstraction limit at 60 % of delivery: 3 927 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: ....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A. Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mmx 0.5 meter standpipe (galv)	1	Pipe		

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	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	REPAIR OF RESERVOIR WITH DRINKING TROUGH:				
	Repair and sealing of existing reservoir and drinking trough. The existing reservoir and drinking trough around the reservoir on the site need to be cleaned, and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended: ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the to the area and paint the matt anther two coats with sealant **Size of reservoir** **Diameter:** 5.09 meter **Height:** 2.4 meter **Circumference:** 16 meter **Size to be sealed:** 67 m² (floor 19.6 m², side wall 40 m² top of wall and outside wall 9.6 m²) **Size of drinking trough around reservoir** **Diameter:** 40 cm **Height:** 50 cm **Circumference:** 18 meters **Size to be sealed:** 35 m²	1 1	Reservoir Drinking trough		

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	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron : 15 cm Length of apron : 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m² (9.45 m³ concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification	240	Meter		

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	Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m				
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	◦ 32 mm male adaptor (nylon)	2	Adapter		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipples (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	◦ 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe	300	Meter		
	◦ Thread tape	20	Roll		
	TOTAL				

I.B.

2.9 Glenred (S - 26°57'16.7"; E 23°54'40.7")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 26°57'16.7"; E 23°54'40.7"**				
	Supply and installation of Windmill ***(Includes all equipment, materials transport and labour required)*** Install 9 m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force head.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	20	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	21	Rod		
	Borehole specification (Pump depth = 60 meters) Borehole depth: 78.3 m Water level: Before test: 44.7 m; After test: 61.5 m Delivery: 3 600 liter/hour Water abstraction limit at 60 % of delivery: 2 160 liter/hour				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A. Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*160mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		

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	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**RESERVOIR WITH DRINKING TROUGH:** *Approximately 5m away from the windmill*				
	Construction of concrete reservoir with the drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m³(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet.	1	Reservoir		
	The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included.	1	Drinking trough		
	Provide concrete test cube results	10	Test cube		
	Construction of new apron around reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cubes	1	Apron		
	Inlet pipe fittings (40 mm)				
	◦ 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	◦ 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm float valve	1	Valve		
	• 40 mm T-piece	1	T/piece		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		

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	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs **Drinking troughs specifications** **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Nipple		
	• 32 mm x 0.8m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

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2.10 Klein Eira (S 27° 17' 35.4"; E 23° 25' 02.2")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 27° 17' 35.4"; E 23° 25' 02.2"**				
	Supply and installation of Windmill ***(Includes all equipment, materials transport and labour required)*** **Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail** brake system, fork rod, bucket rod (pitman), wood rod and force head.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	5	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	7	Rod		
	Borehole specification (Pump depth = 15 meters) Borehole depth: 85 m **Water level**: Before test: 9 m; After test: 15.4 m **Delivery**: 9000 l/h **Water abstraction limit at 60 % of delivery**: 5400 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **Cylinder make:**..... **Cylinder model:**..... **Cylinder size:** ..... **mm** **Specify delivery of cylinder :** ..... **Liters/hour** Total head :..... meters	1	Cylinder		
	Windmill Tower Foundation **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: See attached specification in Appendix A** Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: 800mm diameter x 600mm high 4x12mm bolts and nuts** Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot (strainer) valve	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		

I.B.

	• 40 mm Male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**RESEVIOR WITH DRINKING TROUGH LOCATION:** *Approximately 5m away from the windmill*				
	Construction of concrete reservoir with the drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m , wall thickness 225 mm, capacity 33.5 m³(33.5 kl).The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included.	1 1	Reservoir Drinking trough		
	Provide concrete test cube results	10	Test cube		
	Construction of new apron around reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron: 23 meters Outer circumference of apron: 42 meters Thickness of apron: 15 cm Width of apron: 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cubes	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm float valve	1	Valve		
	• 40 mm T-piece	1	T/piece		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		

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3.	DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* 2ND LOCATION: *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipples (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B

2.11 Lokaleng (S - 27°. 235332025; E 23°.159988135) (DOA 4838)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S - 27°. 235332025; E 23°.159988135				
	Supply and installation of Windmill *(Includes all equipment , materials transport and labour required)* Install 9m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meters and force heads.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	13	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	14	Rod		
	Borehole specification (Pump depth = 39 meters) Borehole depth: 60 m Water level: Before test: 36.1 m; After test: 36.1 m Delivery: 12 000 l/h Water abstraction limit at 60 % of delivery: 7 200 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A. Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		

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	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant **Size of reservoir** **Diameter:** 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Size to be sealed:** 67 m² (floor 19.6 m², side wall 40 m² top of wall and wall 9.6 m²) **Size of drinking trough around reservoir** **Diameter:** 40 cm **Depth :** 50 cm **Circumference:** 18 meters **Size to be sealed:** 35 m²	1 1	Reservoir Drinking trough		

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	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron : 15 cm Length of apron : 3 meter Size of apron : 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cubes results	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		

I.B.

	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8m standpipe	2	Pipe		
	◦ 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm ball valve	2	Valve		
	• 32 brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	◦ 32 mm class 3 LDPE pipe	300	Meter		
	◦ Thread tape	20	Roll		
	TOTAL				

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2.12 Maphiniki (S - 27°01'40.8"; E 23° 13' 38.6")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 27°01'40.8"; E 23° 13' 38.6"**				
	Supply and installation of Windmill *(Includes all equipment , materials transport and labour required)* Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod 3 meter and force heads.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	5	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	6	Rod		
	Borehole specification (Pump depth = 15 meters) Borehole depth: 77.4 m Water level: Before test: 3.8 m; After test: 7.5 m Delivery: 10 285 l/h Water abstraction limit at 60 % of delivery: 6 171 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/ hour Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4x12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		

I.B.

	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir on the site need to be cleaned, and the cracks to be repaired Inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... ..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant **Size of reservoir** **Diameter:** 5.09 meters **Height:** 2.4 meters **Circumference:** 16 meters **Size to be sealed:** 96 m² (floor 19.6 m², side wall 40 m² top of wall and wall 9.6 m²) **Size of drinking trough around reservoir** Diameter: 40 cm Height: 50 cm Circumference: 18 meters Size to be sealed: 35 m²	1 1	Reservoir Drinking trough		

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	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				

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	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamps (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B.

2.13 Morotobolo (S - 27°19' 25.4"; E 23°29'15.4") (T 10625)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION: S - 27°19' 25.4"; E 23°29'15.4"**				
	Supply and installation of Windmill ***(Includes all equipment , materials transport and labour required)*** **Install 9m high windmill tower with a 3.0m Ø wheel with a gearbox, tail brake** system, fork rod, bucket rod (pitman), wood rod and force head.	1	Windmill		
	• 40mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	21	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	22	Rod		
	Borehole specification (Pump depth = 64 meters) Borehole depth: 80 m Water level: Before test: 12.5 m; After test: 60 m Delivery: 1 200 l/h Water abstraction limit **at 60 %** of delivery: 720 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **Cylinder make:**..... **Cylinder model:**..... **Cylinder size:** ..... mm **Specify delivery of cylinder :** ..... **Liters/ hour** Total head: .....meters	1	Cylinder		
	Windmill Tower Foundation **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: See attached specification in Appendix A** Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: 800mm diameter x 600mm high 4x12mm bolts and nuts** Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		

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	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**REPAIR OF RESERVOIR WITH DRINKING TROUGH:**				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meet the floor the overlap should be 30 cm. Method of application : Paint area to be seal with sealant and apply the matt to the area and paint the matt anther two coats with sealant **Size of reservoir** **Diameter:** 5.09 meter **Height:** 2.4 meters **Circumference:** 16 meters **Size to be sealed:** 96 m² (floor 19.6 m², side wall 40 m² top of wall and wall 9.6 m²) **Size of drinking trough around reservoir** **Diameter:** 40 cm **Height:** 50 cm **Circumference:** 18 meters **Size to be sealed:** 35 m²	1 1	Reservoir Drinking trough		
	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m² Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube result	1	Apron		

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	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 20m away from the windmill* **2ND LOCATION:** *Approximately 100m away from the reservoir* **3RD LOCATION:** *Approximately 100m away from the reservoir* **4TH LOCATION:** *Approximately 50m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	4	Trough		
	Slab specification for drinking troughs Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	4	Slab		
	Provide concrete test cube results for slab	4	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	400	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	4	Adaptor		
	• 32 mm x 0.8m standpipe	4	Pipe		
	• 32 mm nipple (galv)	4	Nipple		
	• 32 mm bend (galv)	4	Bend		
	• 32 mm M&F bend	4	Bend		
	• 32 mm ball valve	4	Valve		
	• 32 mm brass gate valve	4	Valve		
	• 32 mm float valve (control water level)	4	Valve		

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	• 32 mm clamps (wire type)	48	Clamp		
	• 32 mm class 3 LDPE pipe.	500	Meter		
	• Thread tape	20	Roll		
	TOTAL				

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2.14 Mapoteng (S - 27° 22' 28.4; E 23° 30' 37.6")

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S -27° 22' 50.8"; E 23° 30' 23.8"				
	Supply and installation of Windmill *(Includes all equipment, materials transport and labour required)* Install 9 m high windmill tower with a 3.0 m Ø wheel with a gearbox, tail, brake system, fork rod, bucket rod (pitman), wood rod and force heads.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	18	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	19	Rod		
	Borehole specification (Pump depth = 54 meters) Borehole depth: 63.5m Water level: Before test: 10.5m; After test: 51.9m Delivery: 960 l/h Water abstraction limit at 60 % of delivery: 576 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm Cylinder make:..... Cylinder model:..... Cylinder size: ..... mm Specify delivery of cylinder : ..... Liters/hour Total head:..... meters	1	Cylinder		
	Windmill Tower Foundation Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: See attached specification in Appendix A. Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Size: 800mm diameter x 600mm high 4 x 12mm bolts and nuts Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mmx 0.5 meter standpipe (galv)	1	Pipe		

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	• 40 mm male adaptor (nylon)	1	Adaptor		
	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	3	Meter		
2.	REPAIR OF RESERVOIR WITH DRINKING TROUGH :				
	Repair and sealing of existing reservoir and trough. The existing reservoir and drinking trough around the reservoir on the site, need to be cleaned and the cracks to be repaired inside and outside with sand/cement filler. The inside of the reservoir and drinking trough needs to be sealed with geotextiles matt (90-100 g/m²) and polymer anionic bitumen emulsion sealant. Specification type of matt:..... Specification type of sealing:..... Coating layers recommended : ..... The sealing matt should go over the wall of the reservoir down the outside wall for 30 cm and where the matt is joined the overlap should be 30 cm. Where the inner wall meets the floor the overlap should be 30 cm. Method of application: Paint area to be seal with sealant and apply the matt to the area and paint the matt another two coats with sealant. **Size of reservoir** **Diameter:** 5.09 meter **Height:** 2.4 meter **Circumference:** 16 meters **Size to be sealed:** 67 m² (floor 19.6 m², side wall 40 m² top of wall and wall 9.6 m²) **Size of drinking trough around reservoir** Diameter: 40 cm Depth : 50 cm Circumference: 18 meters Size to be sealed: 35 m²	1 1	Reservoir Drinking trough		

I.B.

	Construction of new apron around existing reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron : 15 cm Length of apron : 3 meter Size of apron : 96 m^2 Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		
3.	**DRINKING TROUGHS: 1ST LOCATION:** *Approximately 120m away from the reservoir* **2ND LOCATION:** *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications Concrete casted drinking troughs with cover to protect ball valve Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs Concrete strength: 30 Mpa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Slab size : 9 meter x 7 meter x 0.15 meter Size: 62 m^2 (9.45 m^3 concrete)	2	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		

I.B.

	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	• 32 mm brass gate valve	2	Valve		
	• 32 mm ball valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Roll		
	TOTAL				

I.B

2.15 Mogonate (S - 26. 684836115; E 23. 318061683)

	DESCRIPTION	Qty	Unit	Price/Unit VAT Incl	Total Price VAT Incl
1.	**WINDMILL LOCATION:** S -26° 41' 04.2"; E 23° 19' 05.4"				
	Supply and Installation of Windmill *(Includes all equipment , materials transport and labour required)* **Install 9 m high windmill tower with a 4.3 m Ø wheel with a gearbox, tail** brake system, fork rod, bucket rod (pitman), wood rod and force head.	1	Windmill		
	• 40 mm Ø x 3.0m Galvanized medium screwed/socket pipe SABS	30	Pipe		
	• 12 mm Ø x 3.0m Electro plated pump rods with socks and protectors	33	Rod		
	Borehole specification (Pump depth = 90 meters) Borehole depth: 172 m Water level: Before test: 89 m; After test: 91.6 m Delivery: **6000 l/h** Water abstraction limit at 60 % of delivery: 3600 l/h				
	• Stainless steel borehole cylinder diameter 60 mm tube length 550 mm **Cylinder make:**..... **Cylinder model:**..... **Cylinder size:** ..... mm **Specify delivery of cylinder** : ..... Liters/ hour Total head :..... meters	1	Cylinder		
	Windmill Tower Foundation **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: See attached specification in Appendix A** Provide concrete test cube results	2.8	m^3		
	Supporting concrete block around casing **Concrete strength: 30 MPa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Size: 800mm diameter x 600mm high 4 x 12 mm bolts and nuts** Provide concrete test cube results	0.3	m^3		
	Fittings from windmill to reservoir				
	• 40 mm Ø brass foot valve (strainer)	1	Valve		
	• 40 mm Ø base plate	1	Plate		
	• 40 mm Ø brass non return valve	1	Valve		
	• 40 mm Ø brass force head	1	F-head		
	• 40 mm Ø inlet air chamber (*150mm Ø x 900mm steel pipe (2mm thick) with 20mm brass gate valve*	1	Air chamber		
	• 40 mm nipple (galv)	3	Nipple		
	• 40 mm T-piece (galv)	2	T/piece		
	• 40 mm x 0.5 meter standpipe (galv)	1	Pipe		
	• 40 mm male adaptor (nylon)	1	Adaptor		

I.B.

	• 40 mm male bend (galv)	2	Bend		
	• 40 mm pipe clamp	1	Clamp		
	• 40 mm LDPE pipe	30	Meter		
2.	**RESEVIOR WITH DRINKING TROUGH LOCATION:** *Approximately 5m away from the windmill*				
	Construction of concrete reservoir with drinking trough around Circular reinforced concrete reservoir, diameter 4.5 m, height 2.1 m, wall thickness 225 mm, capacity 33.5 m³ (33.5 kl), The wall should be reinforced horizontally and vertically and the floor horizontally. Reservoir should be supply with inlet and outlet. The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The steel plate to cover the float valve in the drinking trough should be included.	1 1	Reservoir Drinking trough		
	Provide concrete test cube results	10	Test cube		
	Construction of new apron around reservoir: Three (3) meter apron should be constructed around the existing reservoir. Inner circumference apron : 23 meters Outer circumference of apron : 42 meters Thickness of apron: 15 cm Length of apron : 3 meter Size of apron: 96 m² Concrete strength: 30 MPa Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone) Provide concrete test cube results	1	Apron		
	Inlet pipe fittings (40 mm)				
	• 2.5 meter x 40 mm standpipe (galv)	1	Pipe		
	• 0.3 meter x 40 mm standpipe (galv)	1	Pipe		
	• 40 mm bend (galv)	3	Bend		
	• 40 mm male adaptor (galv)	2	Adaptor		
	• 40 mm pipe clamp for LDPE pipe	1	Clamp		
	Outlet pipe fittings (40 mm)				
	• 40 mm outlet screen (stainless steel)	1	Screen		
	• 0.5 meter x 40 mm standpipe (galv)	3	Pipe		
	• 40 mm float valve	1	Valve		
	• 40 mm T-piece	1	T/piece		
	• 40 mm brass gate valve (brass)	1	Valve		
	• 40 mm bend (galv)	1	Bend		
	• 40 mm nipple (galv)	1	Nipple		
	• 40 mm x 32 mm reducing bush (galv)	1	R/Bush		
	• 32 mm male adaptor	1	Adaptor		

I.B.

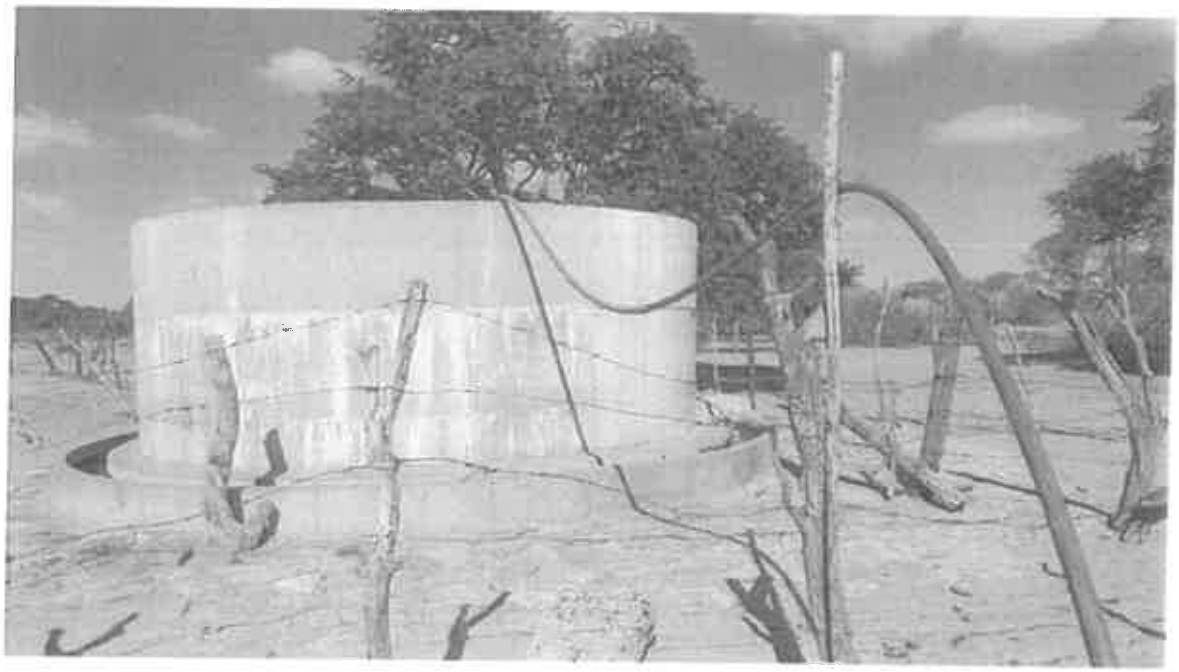
3.	DRINKING TROUGHS: 1ST LOCATION: *Approximately 120m away from the reservoir* 2ND LOCATION: *Approximately 120m away from the reservoir*				
	Supply and installation of concrete casted drinking troughs Drinking troughs specifications **Concrete casted drinking troughs with cover to protect ball valve** **Size: length 2.4 meter x width 1.10 meter x depth 0.8 meter** Capacity : 1000 liters per trough	2	Trough		
	Slab specification for drinking troughs **Concrete strength: 30 Mpa** **Ratio: 1:3:3 (1 cement, 3 parts coarse sand and 3 parts of 19mm stone)** **Slab size : 9 meter x 7 meter x 0.15 meter** Size: 62 m^2 (9.45 m^3 concrete)	1	Slab		
	Provide concrete test cube results for slab	2	Cube test		
	The trench specification Size: The pipe should be buried in a trench of 0.5m deep with the width of 0.3m	240	Meter		
	Fittings for troughs				
	• 32 mm inserts T-piece (nylon)	4	T/piece		
	• 32 mm male adaptor (nylon)	2	Adaptor		
	• 32 mm x 0.8 m standpipe	2	Pipe		
	• 32 mm nipple (galv)	2	Nipple		
	• 32 mm bend (galv)	2	Bend		
	• 32 mm M&F bend	2	Bend		
	◦ 32 mm brass gate valve	2	Valve		
	• 32 mm ball valve	2	Valve		
	• 32 mm float valve (control water level)	2	Valve		
	• 32 mm clamp (wire type)	24	Clamp		
	• 32 mm class 3 LDPE pipe.	300	Meter		
	• Thread tape	20	Rolls		
	TOTAL				

I 8.

agriculture,
forestry & fisheries

Department:
Agriculture, forestry & fisheries
REPUBLIC OF SOUTH AFRICA

CONSTRUCTION DETAILS OF THE 4.5m DIAMETER REINFORCED CONCRETE RESERVOIR



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PURPOSE OF THE DOCUMENT

This document provides construction guidelines and specification of the 4.5m diameter reinforced concrete reservoir. It is important that this document is read alongside the two drawings referenced RCR1 and RCR2, respectively. Attached is Annexure A, a Gantt chart summarizing the entire construction phases of the reservoir. It is important that the construction is carried out according to the SABS standards as stipulated in the referenced drawings.

1. CLEARING AND DEBUSHING

The designated area by the Engineer, approximately 400m², will be cleared as follows if and when necessary:

a) clearing of boulders,
b) grubbing of trees and tree stumps,
c) backfilling of cavities,
d) demolishing of structures and
e) disposing of material thus cleared, grubbed, cut and/or demolished.

2. SETTING OUT OF THE FOOTING

In this, the procedure for setting out the footing for the reinforced concrete reservoir is explained. Refer to Figure 2.1 for an illustration of the procedure.

When the site has been leveled in all directions, a strong pipe is set firmly and vertically at the center of the reservoir. A strong wire loop is formed in such a way that it fits loosely around the central pipe and can easily slide up and down. To this loop attach a lighter wire and measure accurately along it a length equal to the inside radius of the reservoir. At this

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point, twist a small loop into the wire. The loop not only serves as the base from which the trench for the footing can be set out, but also as a guide for the setting up of the forms.

Holding the wire stretched on the ground, drive a steel peg 100mm back from the base loop towards the center of the tank. From the peg, measure outwards along the center wire a distance equal to the required width of the footing (i.e. 1250mm) and drive a second peg. Next wind the loose end of the wire tightly round the first peg, withdraw it from the ground and with the bottom end mark out a circle round the center pipe. Straighten wire and repeat the procedure using the second (outer) peg.

The inner and outer circles scratched on the ground mark the corresponding inner and outer edges of the excavation for the footing.

As the final step in the setting out, a series of wooden pegs are driven into the ground at intervals of 1.5m along the perimeter of the reservoir and just inside the circle marking the inner edge of the footing excavation. The pegs should be leveled with a straight edge and hand level to serve as a reference point for the top of the footing. The top of the footing should be perfectly level and should correspond with the top of the ground surface on which the floor is to be laid (or that of any compact layer of gravel or hardcore which may be necessary because of the nature of the ground).

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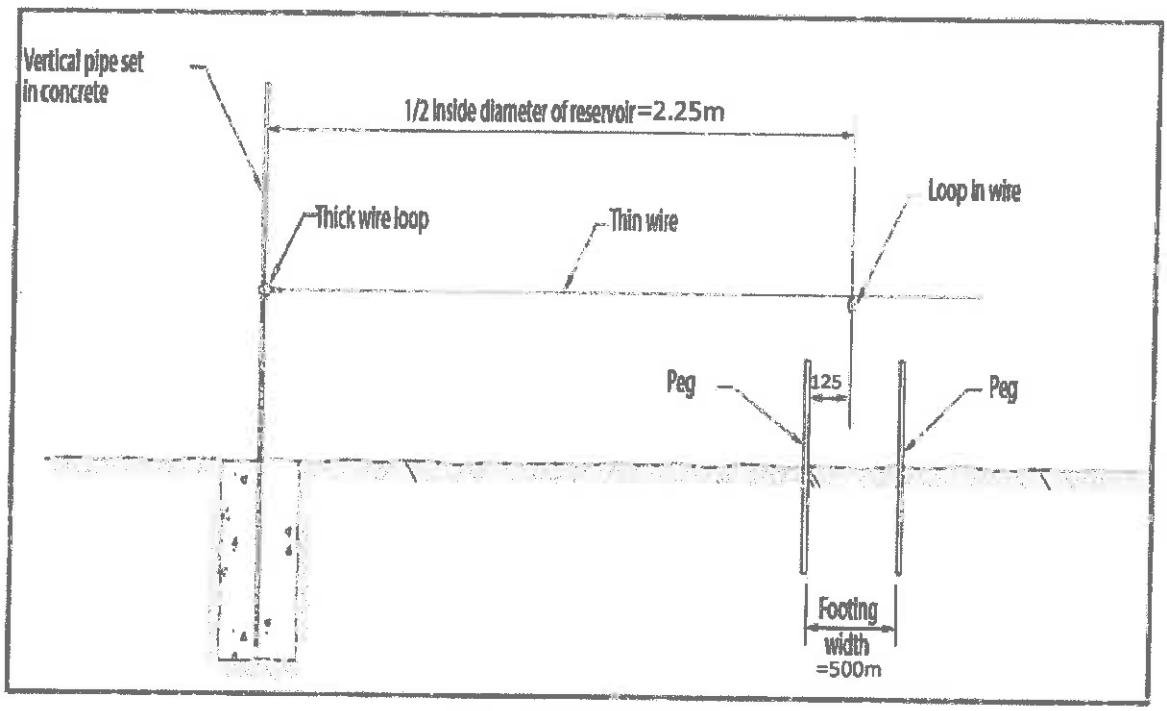

Figure 2.1: Setting out the circular reservoir footing

3. CONSTRUCTION OF WALL FOOTINGS

The excavations for footings should be carried down to firm ground, but in any case to a depth of not less than 250mm below the prepared surface of the site. The bottom of the excavation should be level, or cut in a series of steps, the top of which are horizontal. Stepped footings should be used only if the floor is to be slopped.

Pipe work under the reservoir should be placed and concreted in before the footing and ribs are cast.

Before placing any concrete, the bottom and sides of the excavation should be damped to prevent absorption of water from the concrete. When the concrete is placed, however, there should be no free water in the trench.

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The concrete for footings need not be water tight, low strength concrete is therefore suitable. It should be placed uniformly and continuously along the trench, construction joints being avoided as far as possible. The concrete should be thoroughly tamped and spaded into place.

The top surfaces of footings should be brought up to exact levels and the concrete wood=-floated to a smooth surface immediately after placing. When all bleeding has ceased, which usually takes one to three hours after placing, the bleed water should be removed by mopping or be allowed evaporate, the surface of the concrete should be heavily steel-trowelled to a smooth, flat finish.

The footing should be damped cured for a week (7 days) by covering it with sacking or old paper sacks which are kept saturated. Before walls are built and when concrete is sufficiently dry, the surface of the footing should be mopped with bitumen to provide the sliding joint.

Normally, footings need not be reinforced, but if the reservoir is to be built on clayey soil, or other material of doubtful stability, the Engineer shall provide specifications of the required reinforcement.

4. CONSTRUCTION OF THE DRINKING TROUGH

The drinking trough wall should be cast simultaneously with the first lift of the reservoir wall. The inner formwork of the trough wall should be 500mm wide and 22m length and 700mm wide and 23m length for the outer formwork. The reinforcement should be as specified in Drawing Ref No.: RCR 1. See section 6 below for further details on formwork.

The wall concrete should be 30MPa. The concrete should be placed within 30 minutes of mixing, In layers of 150mm for the full circumference of the wall. Care should be taken to ensure that the outer cover of concrete over reinforcement is well compacted. The wall should be thoroughly and continuously cured for at least 14 days after placing.

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5. CONSTRUCTION OF THE RESERVOIR FLOOR

Once the footing has been completed, what follows is to cast the walls for the full height of the formwork, which is 800mm. The detail on the construction of the wall is given in section 6 below.

Before laying the floor, the earth immediately adjacent to the footing should be wetted and well rammed to ensure compaction, and the top surface of the footing should be mopped with bitumen.

A flexible, watertight expansion joint is required between the edge of the floor and the wall. The type of joint recommended is illustrated in Figure 5.1. The joint-filler in board form should be of resilient material, such as closed cell expanded polyethylene, cut beforehand into strips of the appropriate width, namely 75mm.

The timber strips for forming the grooves in the floor for the sealing compound should be prepared beforehand. If they are of the tapered cross-section shown in the drawing they will be easy to remove when necessary.

To make them easy to bend to fit against curved walls, saw-cuts may be made at intervals into the face of the timber which bears against the wall. A detachable strip of joint filler board may be used instead of the timber strip to form the groove. Joint-fillers and timbers are placed against the foot of the wall immediately before the concrete for the floor is cast.

The perimeter joint is necessary for concrete floors. Its width (dimension T in Figure 5.1) should be 12mm.

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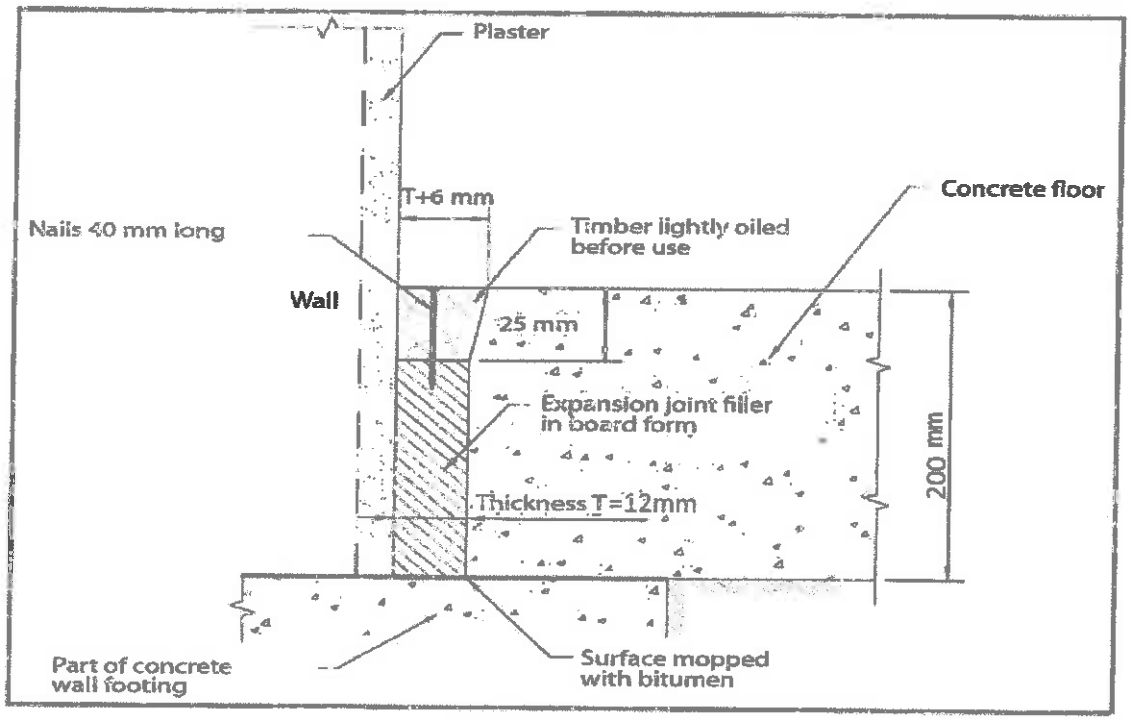


Figure 5.1 Joint between edge of floor and wall

Since the reservoir floor is only 4.5m in diameter, the floor can be cast at one go, and not divided up into panels.

The floor should be constructed as specified according to Drawing Ref. No.: RCR 1, making an important note of the reinforcement and concrete strength. Before placing the 50mm blinding layer of concrete, the ground (or layer of compacted material) under the floor should be thoroughly damped down to prevent moisture absorption from the concrete. However, at the time of placing, there should be no free water on the surface. Before placing the floor concrete, the blinding layer should be mopped with bitumen.

A 40mm depth of concrete is first put down; the reinforcement is laid over it and covered immediately by the remaining 160mm of concrete. Do not let the bottom layer of the concrete to dry out before the top layer is placed in position. The concrete in reservoir floors should be thoroughly compacted. The surface should be screeded level and float smoothed with a wood float as soon as possible.

I.B.

Damp curing of the floor should continue for at least 14 days. The floor concrete should be damp cured by covering with sacking or empty cement bags which are continuously kept saturated. Covering the concrete with plastic sheeting to prevent drying is also satisfactory, while even better results will be obtained if the plastic is spread over the wet sacking, so ensuring that the latter does not dry out.

After the concrete has been damp-cured and has dried out, the timber strips are removed. The resulting groove is then cleaned, primed (to aid the adhesion of the joint-sealant) and finally filled with permanent plastic (elastomeric) joint sealant.

Some types of elastomeric sealant can be applied cold. Most of these compounds require that the concrete should be primed (i.e. painted beforehand with a suitable material). The concrete should be scrupulously clean. While these proprietary materials may be more expensive than solid bitumen, they are easier to use especially where they can be applied cold, and are far more satisfactory in service than bitumen.

6. CONSTRUCTION OF THE RESERVOIR WALL

The reservoir wall should be constructed as specified in the Drawing Ref. No.: RCR 1. The wall should be cast in three lifts, and the forms for the upper lift are to overlap the concrete previously cast by 100mm. The form height should be 800mm. The form may be entirely of timber, of timber and sheet metal, or of corrugated steel sheeting. The form should be raised when the concrete has hardened sufficiently, which is 48 hours after placing has been completed.

Corrugated steel forms are recommended, and when they are used, allowance should be made for an overlap of at least two corrugations when the forms are lifted.

A set of inside and outside forms that fit completely round the reservoir should be provided, to avoid vertical joints and to avoid the difficulty caused by the hoop reinforcement crossing the joints of shorter sets.

I.B.

The length of the formwork to be provided is 15m and 16m for the inside and outside forms, respectively.

Since freshly placed concrete exerts considerable pressure outward pressure on the formwork, wires ties should be provided to prevent this pressure from forcing forms apart.

Forms should be oiled before use, and thoroughly cleaned and re-oiled before re-use.

The wall concrete should be 30MPa. The concrete should be placed within 30 minutes of mixing, in layers of 150mm for the full circumference of the wall. Care should be taken to ensure that the outer cover of concrete over reinforcement is well compacted. The wall should be thoroughly and continuously cured for at least 14 days after placing.

7. CONSTRUCTION OF THE APRON

The reservoir apron should be constructed as specified in the Drawing Ref. No.: RCR 1. The concrete should be cured for at least 14 days.

8. FIRST FILLING OF THE RESERVOIR

The reservoir should not be filled completely until the finished walls are at least 28 days old and have been actively cured for 14 days. It is recommended that the reservoir is filled to half its capacity 7 days after completion and three-quarters full after 14 days.

Upon the tank being filled to its maximum capacity, it should be checked for any leakages, cracks, damp patches and seepages.

If any leakages occur, the tank should be emptied and any cracks should be opened up and filled with the sealant used in the floor expansion joints. Damp areas on the walls should be given two coats of cement paint, each coat being carefully cured.

IB

9. APPROVAL

Document compiled by:

KG Tsamai

Candidate Engineer

Document approved / not approved.

Mr MJ Mabadi (Pr. Eng.)

Production Engineer

Document approved / not approved.

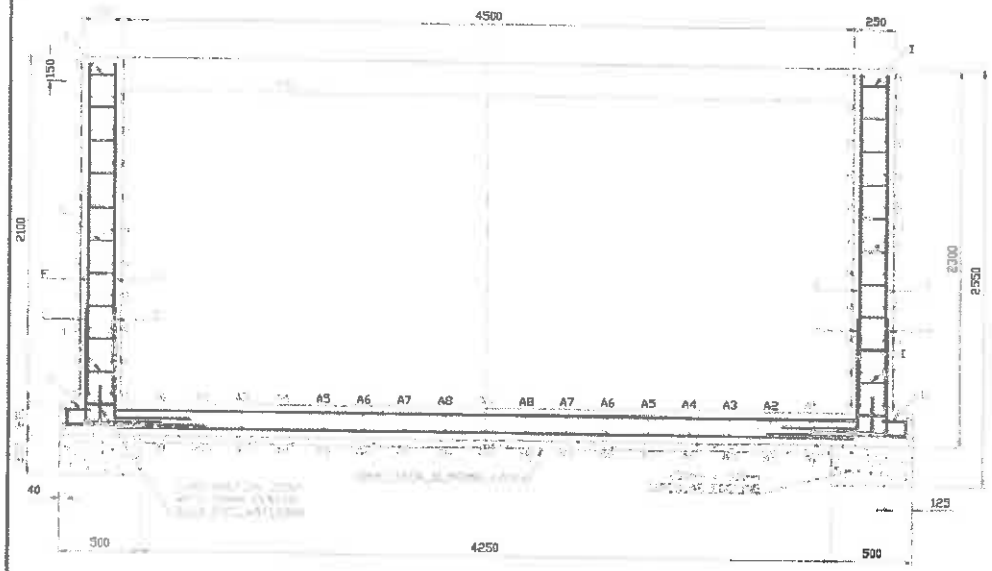
Mr DKM Motebejane (Pr. Eng.)

Acting Director: Infrastructure Support

I.B.

CONSTRUCTION DRAWING FOR 4.5m DIAM. REINFORCED CONCRETE RESERVOIR

TYPICAL SECTION



FOR SCHEDULE OF

(SANS 10100 – PART 1 :2000)

T 28-DAYS

TE : CLASS 30MPa

CONCRETE WORK

IN BLINDING LAYER

THICKNESS EXCEEDS

STRENGTH MIX

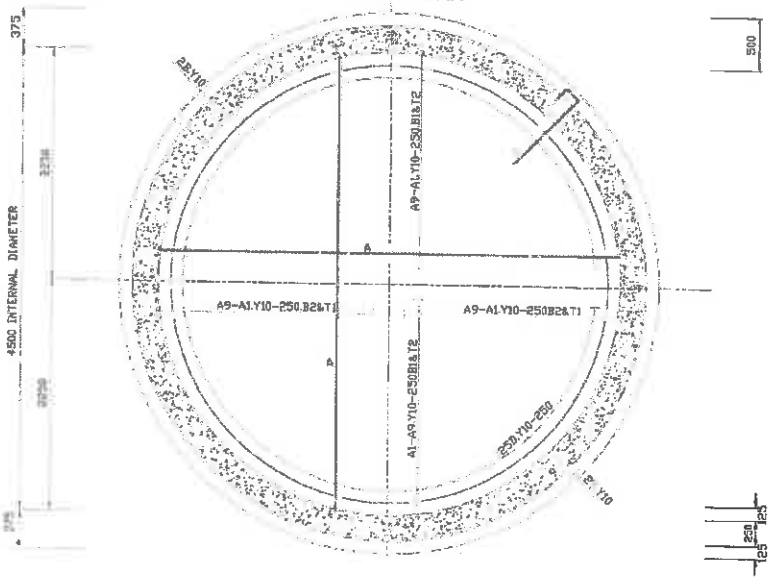
SHALL BE USED

- 150MPa
- 30MPa

APACITY = 150kPa

ITEM	MARK	TOTAL No.	DIA	C/C	LENGTH	SHAPE CODE	A	B	C	D	R	TOTAL LENGTH (m)	MASS (KG)
1	A1	8	Y10	250	2070	20	2070					16560	10,22
	A2	8	Y10	250	2830	20	2830					22640	13,97
	A3	8	Y10	250	3360	20	3360					26880	16,58
	A4	8	Y10	250	3750	20	3750					30000	18,51
	A5	8	Y10	250	4040	20	4040					32320	19,94
	A6	8	Y10	250	4250	20	4250					34000	20,98
	A7	8		250	4390	20	4390					35120	21,67
	A8	8	Y10	250	4480	20	4480					35840	22,11
	A9	4	Y10	250	4500	20	4500					18000	11,11
	B	4	Y10	NIL	16200	20	16200					64800	39,98
	C	233	Y10	125	1260	34	700					293600	173,95
		125	Y10	250	1000	36	150	100				125000	77,13
2	F			300	2000	20	2000					142000	87,61
	F			200	2000	20	2000					142000	87,61
	G			200	14500	20	14500					159500	98,41
	H	11	Y10	200	15400	20	15400					169400	104,52
		781	R8		200	33	200					156000	61,70
												Total = 1492260	886,05

FLOOR PLAN



NOTES

1. FOUNDATIONS
   a. The Contractor shall ensure that all excavation work is carried out in compliance with the Construction Regulations, in terms of OHSA Act No. 85 of 1993.
   b. Exposed founding plane to be observed on site by the Engineer prior to concreting.
   c. Structure shall be cast on a blinding layer of at least 50mm and not more than 250mm.
2. FORMWORK
   a. The Contractor shall ensure that all formwork and support work operations are carried out in compliance with the Construction Regulations, in terms of OHSA Act No. 85 of 1993.
3. REINFORCEMENT
   a. All reinforcing steel shall be wire-brushed and kept clean and free of any rust, oil or any other deleterious compounds.
   b. Welding of reinforcing steel will not be permitted.
   c. Legend for positions of reinforcement:
      - T1 Highest of the top layers
      - T2 Second highest of the top layers
      - B1 Lowest of the bottom layers
      - B2 Second lowest of the bottom layers
4. CONCRETE
   a. Prescribed mix 15MPa in blinding layers up to a maximum thickness of 150mm.
   b. Strength mix concrete: Class 30MPa in all reinforced concrete work.
   c. Cover to reinforcement (unless otherwise stated), including links, shall be
      i) 40mm in floor, outside & inside walls
      ii) 20mm in remainder
   d. All reinforced concrete work shall be carried out in accordance with the latest issues of SANS-10100 and SABS-1200G with degree of accuracy II, with special attention to the following:
      i) A concrete mix design for each class shall be submitted to the Engineer before any concrete is cast
      ii) Concrete test cubes shall be made in sets of four, with one cube tested at the age of 7 days for early-strength indication, and the other three cubes tested at the age of 28 days. All test results shall be made available to the Engineer as soon as they become available.
   e. Construction joints : Only horizontal construction joints to be allowed - for preparation & treatment see note h
   f. Laps in adjacent ring reinforcement to be staggered
   g. Ferrules shall be of the permanent sacrificial type such as coil ties or crimp ties. Ferrule cup holes to be repaired on inside face with approved epoxy or non-shrink grout, and on outside with mortar, to be pressed in.
   h. Joint between reservoir floor & wall & all other construction joints : The joint surface must be clean, damp & free of laitance. Roughen the surface by brushing while the concrete is still green. Before new concrete is placed clean & wet thoroughly. Prepare a solution of 1kg Coprox per litre of water, let stand for 15 minutes, then mix thoroughly and apply within 2 hours at a rate of 0.5 litre per square metre. Place a 6mm layer of cement mortar (1:3) & continue pouring of new concrete within 30 minutes.
   i. Treatment of tank floor and inside walls: Not later than one day after concrete has been placed, all laitance must be removed with a stiff broom & surface hosed down with water. Remove all surface water & apply one brush coat of waterproof additive 'Coprox' at 0,25kg per square metre, followed by a second coat of 'Coprox' at 0,15kg per square metre. (Note: 'Coprox' to be mixed with water in the ratio of 1kg 'Coprox' per litre of water)
   j. Curing: Concrete must be cured for at least 7 days by preventing the evaporation of moisture from the concrete by covering with polythene sheeting or other suitable means.
   k. Surface finishes:
      i) Floor and overflow channel: Wood floated
      ii) External face of wall: Rubbed
      iii) Remainder of shuttered surfaces: Off-shutter
   l. All exposed concrete edges to have a 20mm chamfer.
   m. Prior to construction of each phase of concrete, the Contractor shall give written notice and afford the Engineer to observe the alignment and level of all formwork, reinforcing steel and works to be cast in.
5. GENERAL
   a. Read this plan in conjunction with all the relevant drawings.
   b. All dimensions in millimetre.
   c. All levels and dimensions to be verified on site prior to the commencement of any work, and the Engineer to be notified in case of any discrepancies.
   d. Any approval, check, certificate, consent, examination, inspection, instruction, notice, observation, proposal, request, test or similar act by the Engineer (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances.

DATE	NO	AMENDMENTS	APPROVAL

Agriculture, Forestry & Fisheries

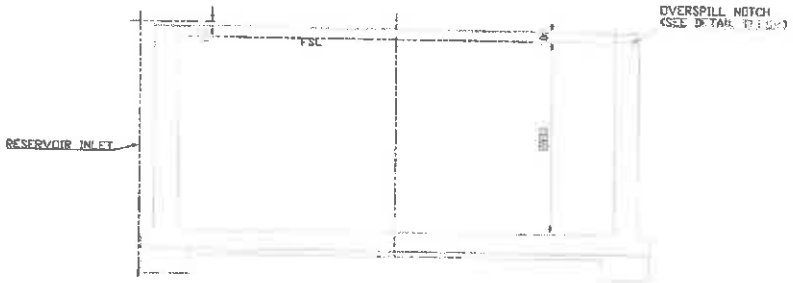
DIRECTORATE: INFRASTRUCTURE SUPPORT

SURVEYED:	4.5m CIRCULAR REINFORCED CONCRETE RESERVOIR	SCALE:
PROJECT LEADER:		
DESIGNED: KG TSAMAI		DRAWING REF NO.: RCR1
DRAWN: KG TSAMAI		
FIRST ISSUE: 09 JUNE 2016	TYPICAL CONCRETE AND REINFORCEMENT DETAILS	DRAWING NO: 1/2
CHECKED: MJ MABADI		
APPROVED:		REVISION NO.:
DATE:		

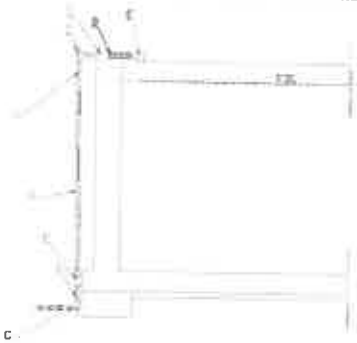
TB-

CONSTRUCTION DRAWING FOR 4.5m DIAM. REINFORCED CONCRETE RESERVOIR

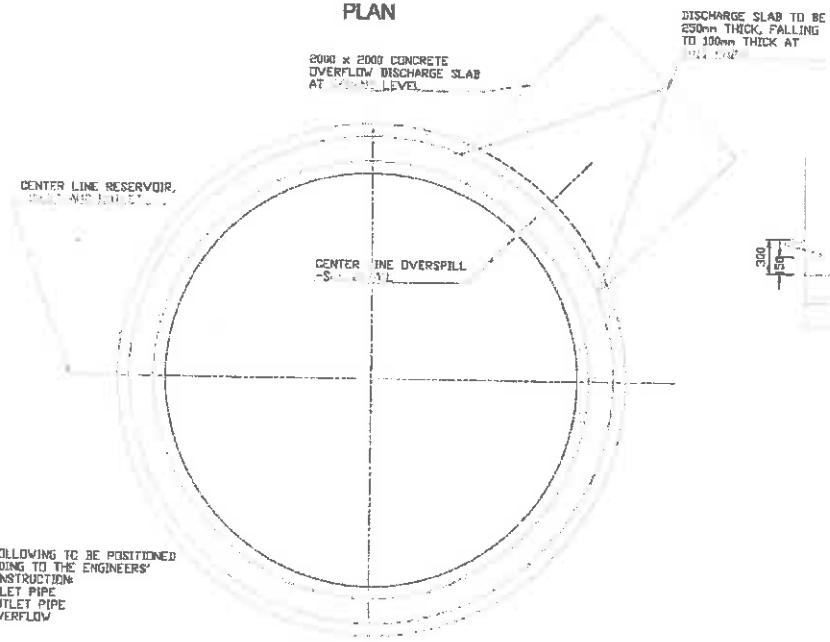
TYPICAL SECTION



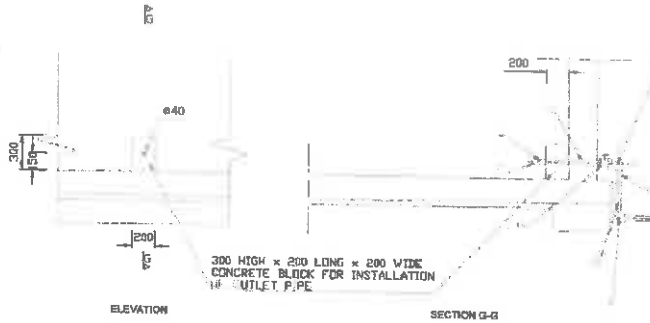
RESERVOIR INLET FROM WINDMILL



PLAN



RESERVOIR OUTLET DETAIL



SCHEDULE OF QUANTITIES

REF	DESCRIPTION	QUANTITY
	INLET PIPE FITTINGS (40 mm)	
A	2.5 meter x 40 mm Standpipe (galv)	1
B	0.3 meter x 40 mm Standpipe (galv)	1
C	40 mm Bend (galv)	3
D	40 mm Male Adaptor (galv)	2
E	40 mm pipe clamp for LDPE pipe	2
	OUTLET PIPE FITTINGS (40 mm)	
F	40 mm Outlet screen (Stainless steel)	1
G	0.6 meter x 40 mm Standpipe (galv)	1
H	40 mm Brass gate valve (brass)	1
I	40 mm Bend (galv)	2
J	0.7 meter x 40 mm Standpipe (galv)	1
K	32 mm Male Adaptor	1
L	40 mm Nipple	1

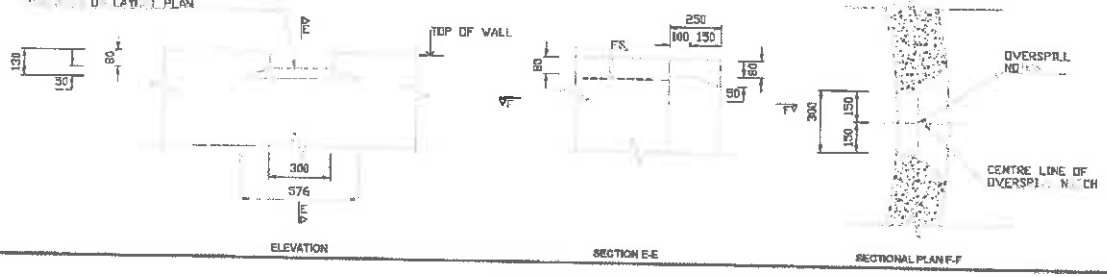
SCHEDULE OF QUANTITIES

ITEM NO.	PAYMENT REFERENCE	DESCRIPTION	UNIT	QTY
1	SABS 1200C	SITE CLEARANCE		
1.1	8.2.1	Clear and grub reservoir site	m²	400
2	SABS 1200DA	EARTHWORKS		
2.1	8.3.2a)	Excavation (measured 1.0m beyond wall perimeter with 1:1.5 side slopes) and used for backfill at 90% MODAASHTO density, embankments around reservoir or dispose, as ordered with 0.5km freehaul distance at reservoir site:	m³	*
2.2	8.3.2b)	Extra-over item 1.2.1 for a) Intermediate material b) Hard rock excavation	m³ m³	* *
2.3	8.3.4	Importation of material from an open borrow pit within 0.5km freehaul distance, place in backfill and compact to 90% MODAASHTO density (Provisional)	m³	*
3	SABS 1200G			
3.1	8.2 8.2.2	CONCRETE WORK Formwork a) Smooth off shutter (all vertical surfaces) b) Chamfered edges (20mm x 20mm): Top edges of wall (inside and outside) and exposed floor edges c) Boxed-out openings all as per drawing, per reservoir	m² m no	70 47 1
3.2	8.3 8.3.1	Reinforcement a) High tensile steel reinforcement b) Mild steel reinforcement	t t	1 1
3.3	8.4 8.4.2	Concrete a) Blinding layer - 50mm thick in prescribed concrete of mix strength 15MPa b) Filling of pockets in excavated foundations where such over-excavations were ordered by the Engineer (concrete strength mix 15MPa) c) Concrete mix of strength 30MPa in reservoir wall, floor and footing d) Concrete mix of strength 20MPa overflow channel e) Supply and install waterbar between reservoir wall and floor f) Waterproofing of reservoir by application of prescribed waterproofing additive as detailed in RCR1	m² m³ m³ m no	1 * 14 1 15 1
3.4	8.4.4	Surface finish Surface finishes to concrete work, to specifications in: a) Rubbed surface finish on exposed external reservoir wall surfaces. As extra-over items 1.3.1a) and b) (Prov) b) Floated surface finish on overflow channel and reservoir floor	m² m²	35 17

Note: Quantities marked '*' are to be determined for each specific reservoir site

150mm HIGH x 300mm LONG OVERFLOW OPENING IN RESERVOIR WALL IN POSITION

OVERSPILL NOTCH DETAIL



DATE	NO	AMMENDMENTS	APPROVAL

Agriculture, Forestry & Fisheries

DIRECTORATE: INFRASTRUCTURE SUPPORT

SURVEYED:	4.5m CIRCULAR REINFORCED CONCRETE RESERVOIR	SCALE:
PROJECT LEADER:		DRAWING REF NO.: RCR2
DESIGNED: NG TSAMAI	TYPICAL CONCRETE AND REINFORCEMENT DETAILS	DRAWING NO: 2/2
DRAWN: KG TSAMAI		
FIRST ISSUE: 08 JUNE 2018		
CHECKED: MJ MABAGI		REVISION NO.:
APPROVED:		
DATE:		

T.Q

ANNEXURE A

agriculture,
forestry & fisheries

Department:
Agriculture, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

IMPLEMENTATION PLAN GUIDELINE FOR THE EQUIPPING OF BOREHOLES

Area/District	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6

Area/District	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6

PROJECT MANAGEMENT, PLANNING CONSTRUCTION OF 4.5M^3 CONCRETE RESERVOIR

PROPOSED START DATE		2018/2019 FINANCIAL YEAR																																																		
		D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	D22	D23	D24	D25	D26	D27	D28	D29	D30	D31	D32	D33	D34	D35	D36	D37	D38	D39	D40	D41	D42	D43	D44	D45	D46	D47	D48	D49	D50	D51
BY	DAFF:DHS on behalf of CCDM																																																			
ITEM	DESCRIPTION OF ACTIVITY																																																			
1	CLEARING AND DEBUSHING																																																			
2	SETTING OUT OF THE FOOTING																																																			
3	CONSTRUCTION OF WALL FOOTINGS																																																			
3.1	Excavation																																																			
3.2	Concrete placing																																																			
3.3	Concrete curing																																																			
4	CONSTRUCTION OF DRINKING TROUGH																																																			
4.1	Arrangement of reinforcement																																																			
4.2	Concrete placing																																																			
4.3	Concrete curing																																																			
5	CONSTRUCTION OF THE RESERVOIR FLOOR																																																			
5.1	Arrangement of reinforcement																																																			
5.2	Concrete placing																																																			
5.3	Concrete curing																																																			
6	CONSTRUCTION OF THE RESERVOIR WALL																																																			
6.1	Arrangement of reinforcement																																																			
6.2	Concrete placing																																																			
6.3	Concrete curing																																																			
7	CONSTRUCTION OF THE APRON																																																			
7.1	Concrete placing																																																			
7.2	Concrete curing																																																			
8	FIRST FILLING OF THE RESERVOIR																																																			
9	FOLLOW-UP																																																			

I.B

THE NATIONAL TREASURY

Republic of South Africa

GOVERNMENT PROCUREMENT:

GENERAL CONDITIONS OF CONTRACT

July 2010

GOVERNMENT PROCUREMENT

GENERAL CONDITIONS OF CONTRACT
July 2010

NOTES

The purpose of this document is to:

(i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and

(ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- The General Conditions of Contract will form part of all bid documents and may not be amended.

- Special Conditions of Contract (SCC) relevant to a specific bid, should be compiled separately for every bid (if (applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.

TABLE OF CLAUSES

General Conditions of Contract

1. Definitions

1. The following terms shall be interpreted as indicated:

1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.

1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.

1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.

1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

1.7 "Day" means calendar day.

1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.

1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.

1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.

1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the

RSA.

1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

1.14 "GCC" means the General Conditions of Contract.

1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

1.16 "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.

1.17 "Local content" means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.

1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.

1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.

1.20 "Project site," where applicable, means the place indicated in bidding documents.

1.21 "Purchaser" means the organization purchasing the goods.

1.22 "Republic" means the Republic of South Africa.

1.23 "SCC" means the Special Conditions of Contract.

1.24 "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such

obligations of the supplier covered under the contract.

1.25 "Written" or "in writing" means handwritten in ink or any form of electronic or mechanical writing.

2. Application

2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.

2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za

4. Standards

4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection.

5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights

6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance security

7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.

7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.

7.3 The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

(a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
(b) a cashier's or certified cheque

7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

8. Inspections, tests and analyses

8.1 All pre-bidding testing will be for the account of the bidder.

8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department.

8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7 Any contract supplies may on or after delivery be inspected, tested or

analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.

8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.

10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance

11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental services

13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

(a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
(b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
(c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;

(d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and

(e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

(a) such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and

(b) in the event of termination of production of the spare parts:

(i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and

(ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take

such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.

16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

17. Prices

17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

18. Contract amendments

18.1 No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

19. Assignment

19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.

21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the

supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.

21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.

21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without canceling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

(a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;

(b) if the Supplier fails to perform any other obligation(s) under the contract; or

(c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4 If a purchaser intends imposing a restriction on a supplier or any

person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.

23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

(i) the name and address of the supplier and / or person restricted by the purchaser;
(ii) the date of commencement of the restriction
(iii) the period of restriction; and
(iv) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

24.1 When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which

may be due to him

25. Force Majeure

25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

27.5 Notwithstanding any reference to mediation and/or court proceedings herein,

(a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
(b) the purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

28.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6;

(a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

(b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

31. Notices

31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice

31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.

32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

33. National Industrial Participation (NIP) Programme

33.1 The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation.

34 Prohibition of Restrictive practices

34.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).

34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.

34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.