



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

INVITATION OF QUOTATION ABOVE R30,000.00

THIS FORM SHOULD BE COMPLETED IN DETAIL AND SHOULD BE ACCOMPANIED BY A **VALID TAX COMPLIANCE STATUS PIN AND VALID BBEE VERIFICATION CERTIFICATE/AFFIDAVIT**

QUOTATION NUMBER: R/S/1819/1667	VALIDITY PERIOD OF QUOTATION..... Days (To be completed by the Supplier)
CLOSING DATE: 21 DECEMBER 2018	CLOSING TIME:11H00
DESCRIPTION(SPECIFICATION/S) OF ITEMS/ SERVICE REQUIRED: Supply , deliver and install irrigation system for Asigodini project	COMPANY NAME: TEL NO: FAX NO: CONTACT PERSON: CSD REG NUMBER MAAA.....
DOES OFFER COMPLY WITH SPECIFICATION?	YES/NO (DELETE WHICH EVER IS NOT APPLICABLE)
DOES ARTICLE COMPLY WITH SABS SPECIFICATION? HAS IT BEEN INSPECTED BY SABS?	YES/NO YES/NO (DELETE WHICH EVER IS NOT APPLICABLE)
DELIVERY PERIOD AFTER INITIAL ORDER?	
IS THE PRICE FIRM	
WHERE ARE THE STOCK HELD? (PHYSICAL ADDRESS , PLEASE)	
QUOTATION PRICE INCLUDING VAT (VAT TO BE ADDED BY REGISTERED VAT VENDORS ONLY)	TOTAL: R
COMPANY OFFICIAL STAMP (COMPULSORY) SIGNATURE OF BIDDER DATE
NUMBER OF PAGES SUBMITTED BACK TO THE DEPARTMENT BY THE SUPPLIER(Supplier to complete)

NB: QUOTATION FOR THE ATTENTION OF: Bonnie Nzimande
TELEPHONE NUMBER: 033 355 9568

NB:
THE ATTACHED SBD4 & SBD9 FORMS MUST BE COMPLETED IN FULL.
THIS REQUEST FOR QUOTATION (RFQ) MUST BE COMPLETED AND RETURNED WITH ALL YOUR QUOTATION DOCUMENTS.

QUOTATIONS MUST BE DEPOSITED IN THE BID BOX SITUATED AT: THE DEPARTMENT OF AGRICULTURE & RURAL DEVELOPMENT: SCM OFFICES: 1 CEDARA ROAD

ANNEXURE A

COMPANY NAME

ADDRESS

CONTACT PERSON

CONTACT NUMBER

FAX NUMBER

EMAIL ADDRESS

LINE NO.	DESCRIPTION OR SPECIFICATION OF ITEM (Please be very specific and clear)	REQUIRED QUANTITY	UNIT PRICE EXCL. VAT		TOTAL PRICE	
			R	C	R	C
	According to Departmental design and specification as per attached bid document – see bill of quantities:	With 1 payment				
1	Supply, deliver and install irrigation system according to the departmental design and specifications for 1 project: <ul style="list-style-type: none"> • Esigodini 1.2ha 	1				
NOTE						
	ARE YOU A VAT REGISTERED SUPPLIER	YES: _____	NO: _____			
*DELIVERY (IF APPLICABLE)						
TOTAL						
*ONLY APPLICABLE TO VAT REGISTERED SUPPLIERS 15% VAT						
TOTAL PRICE						

*VAT Registration No. (Supplier) -----

When Required (Requester): 30 October 2018

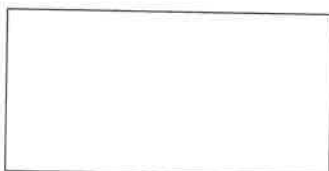
Where Required (Requester): Illovu,

Contact details of requester: Mr X.E Jwara

Tel: 082 922 0139

(COMPULSORY)

COMPANY STAMP



PRICES ARE VALID FOR..... DAYS

SIGNATURE

DATE



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PROVINCE OF KWAZULU-NATAL

SCHEDULE OF QUANTITIES OF ESIGODINI IRRIGATION PROJECT

ITEM NO	DESCRIPTION	AMOUNT
1	SECTION 1: PRELIMINARY & GENERAL	
2	SECTION 2: DAYWORK (PROVISIONAL)	
3	SECTION 3: IRRIGATION SYSTEM	
4	SECTION 4: PUMP STATION	
	SUB TOTAL	
	PLUS 10% ANCILLARY	
	TOTAL (EXCLUDING VAT)	
	PLUS 14% VAT	
	TOTAL (INCLUDING VAT) CARRIED TO FORM OF OFFER	



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PROVINCE OF KWAZULU-NATAL

IVER AND INSTALL AN IRRIGATION SYSTEM AT ESIGODINI

SCHEDULE OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
1	SABS 1200 AA	SECTION 1: PRELIMINARY & GENERAL				
1.1		<u>Fixed Charge</u>				
1.1.1	8.3.1	Contractual requirements and General (insurance, sureties etc.)	Sum	1		
1.1.2	8.3.2.2	Facilities required by Contractor a) Ablution and latrine facilities at construction site b) Water supplies, electric power and communications	No Sum	2 1		
1.1.3	8.3.3	Complying with Health and Safety Act				
1.3.1.1		(i) Preparation of Health and Safety File	Sum	1		
1.3.1.2		(ii) Compilation of a Risk Assessment prior to construction	Sum	1		
1.3.1.3		(iii) Health and Safety Induction Training of employees	Sum	1		
1.3.1.4		(v) Implementation of the Health and Safety Plan over the entire construction period	Sum	1		
1.3.1.5		(vi) Provision of safety gear as per OHS ACT	Sum	1		
1.1.4	8.3.4	Removal of site establishment on completion	Sum	1		
1.1.5		Setting out site as per co-ordinates	Sum	1		
1.2		<u>Time Related Charges</u>				
1.2.1	8.4.1	Contractual requirement	Weeks	4		
1.2.2	8.4.2	Facilities for Contractor	Weeks	4		
1.2.2.1		a) Offices and storage sheds	Weeks	4		
1.2.2.2		d) Living accommodation	Weeks	4		
1.2.2.3		e) Ablution and latrine facilities at construction site	Weeks	4		
1.2.2.4		g) Water supplies, electric power and communication	Weeks	4		
1.2.3	8.4.3	Complying with Health and Safety Act	Weeks Weeks	4 4		
TOTAL SECTION 1 CARRIED TO SUMMARY					R	



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IVER AND INSTALL AN IRRIGATION SYSTEM AT ESIGODINI

SCHEDULE OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2		SECTION 2: DAYWORK (PROVISIONAL)				
2.1		Section 2.1: Labour				
2.1.1		Skilled	day	5		Rate only
2.1.2		Semi-skilled	day	5		Rate only
2.1.3		Unskilled	day	5		Rate only
2.2		Section 2.2: Plant				
2.2.1		4 x 4 TLB or similar Type..... KW..... (to be filled in by tenderer)	hour	10		Rate only
2.2.2		Excavator: Type..... KW..... (to be filled in by tenderer)	hour	10		Rate only
2.2.3		Tipper truck 6m ³ : Type..... (to be filled in by tenderer)	hour	10		Rate only
2.2.4		12 ton Roller: Type..... (to be filled in by the tenderer)	hour	10		Rate only
		TOTAL SECTION 2 CARRIED TO SUMMARY			R	



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IVER AND INSTALL AN IRRIGATION SYSTEM AT ESIGODINI

SCHEDULE OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
3		SECTION 3: IRRIGATION SYSTEM				
3.1						
3.1	SABS 1200DB	<u>Pipe trenches</u>				
3.1.1		<u>Site Clearance</u>				
3.1.1.1	8.3.1(a)	Clear vegetation and trees of girth up to 1m	m	800		
3.1.2		<u>Excavation</u>				
3.1.2.1		Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes up to 200mm diam. For total trench depth of up to 1.0m	m	800		
3.1.2.2	8.3.2(b)	Extra-over item 3.1.2.1 to include for provision of hard rock	m ³	10		
3.2	SABS 1200LB	<u>BEDDING (PIPES)</u>				
		<u>Provision of Bedding</u>				
3.2.1	8.2.1	Available from trench within 1 km				
3.2.1.1		a) Selected granular material	m ³	57		
3.2.1.2		b) Selected fill material	m ³	57		
3.2.2	8.2.2.2	Imported from borrow pits (Provisional)				
3.2.2.1		Selected granular material	m ³	10		
3.2.2.2		Selected fill material	m ³	10		Rate Only Rate Only
3.3	SABS 1200GA	<u>Thrust Blocks</u>				
3.3.1	8.4.1	Supply and place concrete for thrust blocks	m ³	3.0		
3.4	SABS 1200L	<u>Main & Sub-Mainlines</u>				
3.4.1		Supply, handle, lay in bedding, joint with spigot and socket joints and test to SABS standards. uPVC pipes to SABS 966 part 1 in 6m lengths with integral rubber ring joints.				
3.4.1.1		110 mm class 6	m	11		
3.4.1.2		90 mm class 6	m	50		
3.4.1.3		75 mm class 6	m	30		
3.4.1.4		63 mm class 6	m	59		
3.4.2		Supply, handle, lay in bedding, joint with spigot and socket joints and test to SABS standards. HDPE pipes to SABS 966 part 1 in 100m rolls with integral rubber ring joints.				
3.4.2.1		50mm class 10	m	72		
3.4.2.2		40mm class 10	m	112		
3.4.2.3		32mm class 10	m	450		
SUB-TOTAL SECTION 3 CARRIED TO SUMMARY						
				R		



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IVER AND INSTALL AN IRRIGATION SYSTEM AT ESIGODINI

SCHEDULE OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
SECTION 3 CONTINUES						
3.5	SABS 1200L	Specials and Fittings				
Supply, lay and bed class. Joint, incl cut pipes to length where required, test and disinfect, extra over items and pipelaying						
3.5.1	8.2.2	<u>Reducers</u>				
3.5.1.1		40mm x 32mm	No.	4		
3.5.2		<u>End caps</u>				
3.5.2.1		32mm	No.	2		
3.5.3		<u>Polypropylene saddle with steel ring</u>				
3.5.3.1		90mm x 25mm BSP saddle	No.	2		
3.5.3.2		75mm x 25mm BSP saddle	No.	3		
3.5.3.3		63mm x 25mm BSP saddle	No.	3		
3.5.3.4		50mm x 25mm BSP saddle	No.	5		
3.5.3.5		40mm x 25mm BSP saddle	No.	12		
3.5.3.6		32mm x 25mm BSP saddle	No.	41		
3.5.4	8.2.3	<u>Air valves</u>				
3.5.4.1		1" x 1m long galvanised stand pipe	No.	2		
3.5.4.2		1" ball valve	No.	2		
3.5.4.3		1" double action air valve similar or equal to ARI Barak	No.	2		
3.5.5		<u>Cluster Unit 1</u>				
3.5.5.1		63 x 50mm R.O Bend	No.	5		
3.5.5.2		50 x 1000mm galvanised standpipe	No.	10		
3.5.5.3		50mm galvanised equal tee	No.	10		
3.5.5.4		50mm barrel nipple	No.	20		
3.5.5.5		40mm barrel nipple	No.	10		
3.5.5.6		50 x 40mm reducing socket	No.	10		
3.5.5.7		50mm brass gate valve full bore	No.	10		
3.5.5.8		50mm brass gate valve full bore	No.	10		
3.5.5.9		40mm x 90° galvanised elbow	No.	10		
3.5.5.10		40mm x 90° galvanised elbow	No.	10		
3.5.5.11		50 x 750mm galvanised standpipe	No.	10		
3.5.5.12		40mm galvanised standpipe	No.	10		
3.5.5.13		50mm R.O. Bend	No.	10		
3.5.5.14		40mm R.O. Bend	No.	10		
3.5.6		SPRINKLER AND ABOVE GROUND EQUIPMENT				
Supply, deliver and install sprinkler unit, on laterals on PVC sub-mains, including clamps etc. Backfill, test and flush lateral lines.						
3.5.6.1		Nelson R33 Sprinkler 4.8mm Green 24 Nozzle at 25m of Pressure and delivery rate of 1378l/hour	No.	53		
3.5.6.2		25mm x 300mm long galvanised riser pipe	No.	53		
3.5.6.3		25mm hydromatics	No.	53		
3.5.6.4		Short Nylon Riser pipelets	No.	53		
3.5.6.5		300mm dragline stands	No.	53		
3.5.6.6		30m x 20mm dragline hoses	No.	53		
SUB-TOTAL SECTION 3 CARRIED TO SUMMARY						R



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SCHEDULE OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
4		SECTION 4: PUMP STATION				
	PPS 2	PUMP STATION				
4.1		Supply, deliver, install, test and commission a KSB, Grundfos or similar approved pump with a capacity of 29.50m ³ /hr and a head of 52.50m. The pump is to be driven by a Lister, Hatz, Perkins or Yanmar diesel engine with electric starter producing adequate power required by the pump to deliver the specified discharge and head. The pump and diesel engine to be mounted on a steel base plate. The pump and diesel engine to be approved by the responsible engineer prior to procurement and delivery	Sum	1		
4.2		STEEL PIPES AND FITTINGS FOR PUMP STATION Design, supply, deliver, install and test all the steel pipes, fittings, valves and specials complete with gaskets, bolts, nuts and washers according to SABS 971 and BS534 required for the pump in section 4.1 above. All steel pipes and fittings to have a wall thickness of 4.5mm and galvanised fittings to have a wall of thickness of 4.5mm and galvanising to be according to SABS 1461. The rate to include a 24m suction line. The design to be approved by the responsible engineer prior to procurement and delivery.	Sum	1		
4.3		Supply and install galvanised steel frame with pneumatic wheels and swivel handlebar Therate to include all necessary Fittings	Sum	1		
		SUB-TOTAL SECTION 4 CARRIED TO SUMMARY				



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BID DOCUMENT FOR THE INSTALLATION 1.2HA OF SPRINKLER IRRIGATION NEAR WINKLESPRUIT

PROJECT NAME: ESIGODINI IRRIGATION SCHEME

PROJECT DESCRIPTION

The contract covers the supply of all irrigation material including piping, fittings, and pump/motor combination, the construction of a pump house and full installation of irrigation system for this project.

PROJECT LOCATION

District: **ETHEKWINI DM**

Office: **UMBUMBULU SUB DISTRICT**

Esigodini Irrigation Scheme is approximately 8kms North West of Winklespruit, EThekwini district Municipality

The site co-ordinates are 30°04'21.69"S; 30°50'22.27"E

DOCUMENT DATA (FOR INTERNAL USE ONLY)

1) Name of official responsible for attaching this bid document to the request memo:

2) Designation of official (post + station):

3) Date when bid document was obtained:

4 Origin of bid document. Tick applicable box

- (a) copied from original at Hilton head office
- (b) sent electronically from Head office and printed out (provide sender's name)
.....
- (c) sent electronically by an Engineering colleague not from Hilton (provide name)
.....
- (d) copy of a hard copy
- (e) Other **Original Document**



DISCLAIMER

1. If the contractor has the impression that the information provided in the drawing(s) and the technical specifications/Schedule of quantities contradict each other or are perceived to be ambiguous, (s)he should point this out to the Engineer and ask for clarification at an early stage, but not later than before the commencement of any construction. The same applies for purported differences between the technical specifications and schedule of quantities.
2. The Engineering Services Directorate (ESD) takes no responsibility for an implemented project on the basis of this document alone without any prior involvement of ESD before (partial) completion. This involvement consists of, but is not necessarily restricted to:
 - Signing off of the bid/quote document and Drawings by ESD;
 - Presence of ESD at the handover of the site to the contractor and at the commencement of the work. The contractor is to make sure that ESD is informed of his/her intention to commence the work so that ESD presence can be assured.
 - Regular site inspections by ESD and the processing of invoices on the basis of achieved progress.
3. District managers and other departmental end users are therefore required to involve ESD at the earliest possible stage, i.e. during PPC meetings or before submission of the request memo is submitted.

This document contains:

No.	Section	Page(s)	Action
1	Cover Page	1	Read
2	Table of Contents/Disclaimer	2	
3	A) Project Particulars	3	Read
3	B) General Conditions of Contract	3-11	Read
4	C) Project Technical Specifications	12 - 17	Read
5	Project Particular Specifications	18	Read
6	ANNEXURE A: Schedule of quantities	19 - 24	Read
7	ANNEXURE B1 : Site Layout Plan	25	Read
8	ANNEXURE B2 : Typical System Connection	26	Read
9	ANNEXURE C : Additional Information	27-28	Complete
10	ANNEXURE D: Bid Evaluation Criteria	29-30	Read
11	DRAWING 1: PUMPHOUSE	31	Read
12	DRAWING 2: BURGLAR GATE FOR PUMP HOUSE	32	Read



A | PROJECT PARTICULARS

Esigodini Irrigation Scheme is a new 1.2 ha irrigation scheme which will focus on the production of vegetables and green mealies. The farmers wish to plant cabbages, spinach, potatoes, tomatoes and green mealies under irrigation. The farmers requested the Department of Agriculture to assist with the following:-

- Design and installation of a new irrigation system, and
- The supply and delivery of a complete portable pump with all required fittings and materials.

1.1 Scope

The contract covers the supply of all materials and fittings, and the execution of all works relating to the irrigation project. The work required involves but not limited to:-

- The setting out and site establishment.
- The supply and installation of a complete 1.2ha dragline irrigation system.
- The supply, delivery of a portable pump,
- The supply, delivery and installation of a pump with a diesel powered motor and supply of the mainline, and
- The testing of the pump and irrigation system prior to commissioning.

B | GENERAL CONDITIONS OF CONTRACT

1.2 Bid Documentation

1.2.1 Bidders to check completeness of document

The Bidder is required to check the number of consecutively numbered pages and should any found to be missing or in duplicate, or the text of figures indistinct, or should there be any doubt or obscurity as to the meaning of any part of these documents, the Bidder must ascertain the true meaning or intent of the same prior to the submission of his/her Bid, as no claims arising from any incorrect interpretation will be admitted.

1.2.2 Schedule of variations

If the Bidder chooses to suggest alternatives in his bid proposal, these should be *at least* of equal standards to the original specifications. All materials used must be SABS approved. In the case of variations being suggested, the relevant SBD form will have to be completed.

1.2.3 Applicable standards: specification & materials

For the purpose of this Contract the relevant SANS specifications shall apply- specifically SABS 1200: *Standardized Specification for Civil Engineering Construction* specifications shall apply. The following sections shall in particular apply here: **SABS 1200 AA - 1986** (General - Small Works), **SABS 1200 DA - 1988** (Earthworks - Small Works), **SABS 1200GA - 1982** (Concrete - Small Works) and **SABS 1200LB - 1983** (Bedding - Pipes). All materials to be SANS approved and installed to applicable standards specified by SANS, NBR, or the manufacturer. The Bid shall refer to "the Standard (Abridged) Preamble for all trades", which covers the following (only the items in italics apply to this contract):



**STANDARD (ABRIDGED) PREAMBLES TO ALL TRADES
INDEX**

- 1 *EARTHWORKS*
- 2 *CONCRETE, FORMWORK AND REINFORCEMENT*
- 3 *BLOCK AND BRICKWORK*
- 4 *WATERPROOFING*
- 5 *CARPENTRY AND JOINERY*
- 6 *FLOOR COVERINGS, PLASTIC LININGS, ETC.*
- 7 *IRONMONGERY*
- 8 *SCREEDING AND PLASTERING*

1.2.4 Validity period for bids and quotes

Quotes shall remain valid for a period of 30 days after the closing day for the quote. Bids will remain valid for a period of 90 days from date of the closing of the Bid. However, in both cases prices are assumed to be firm for the entire period of the project.

1.2.5 Compulsory pre-bid briefing meeting

A compulsory pre-quote/bid site briefing and consultation meeting will be held with prospective Bidders. Attendance at the meeting will be compulsory and non-attendance shall

invalidate any quote/bid. The date and time of the meeting will be published in the Bid Advertisement or, in the case of a quote, be communicated when the prospective service provider is invited to quote.

1.2.6 Handover of site to the contractor

The Contractor will be introduced to the project participants following the bid award. The site will be handed over to the Contractor who will control the site for the contract duration. Only the Contractor's own employees, Contractor's local labour and Departmental Representatives will be allowed on site. The Contractor is responsible in the administration, control and security on the site at all times during the contract duration.

1.2.7 Water and power

There is no power or piped water available on site. The Contractor shall make the necessary arrangements for the provision of any water and power. No payment will be made for the provision or use of these services and the cost of these shall be included in the Bid/quoted amount.

1.2.8 Location of the camp

The Contractor's camp may be erected on the site of the works but must meet the approval of the Engineer, project beneficiaries and land owners. No persons other than a night watchman may sleep in the camp, without the approval of the local participants and Chairperson.

1.2.9 Housing of contractor's employees

No housing is available for the Contractor's employees and the Contractor shall make his own arrangement for housing his employees and transporting them to and from the site. However it may be possible to arrange temporary local accommodation for the Contractor's staff with the participants. The Contractor is in all respects responsible for the housing and transporting of his



employees, and for the arrangement thereof, and no extension of time due to any delays resulting from this, will be granted.

1.2.10 Local labour

Unskilled labour may be available from the project participants or local community. The Contractor and the Departmental representative (Engineer or local Extension officer) may negotiate with the participants in this regard to establish all the conditions for the utilization of the local labour. Nobody besides those directly involved with the project (i.e.: the Contractors workers and local labour) are allowed on site. The Contractor shall provide his own trained and skilled labour. The Contractor will be responsible for all hiring, payment, housing and transport of any and all labour used for the contract duration.

1.2.11 Security and risk

Except for the necessary security personnel no person shall be allowed on the construction site after normal working hours. The Contractor shall be responsible for all plant, machinery, equipment and materials on site. The Engineer shall not be responsible for any lost, damaged or stolen property or materials. Should any of these situations arise; no allocations will be made in terms of finances or time.

1.2.12 Materials delivery, on & off loading, storage and responsibility

The approved contractor shall be responsible for the safe delivery, loading, off loading, handling and storage of any equipment and materials on site. All equipment, materials and plant stored on site must be suitably protected against deterioration through any cause whatsoever, including damage or loss by theft or otherwise. The Contractor shall remain fully responsible for all material and plant etc. until the completed works are handed over and has been officially accepted by the Department.

1.2.13 Existing roads, municipal pavements, etc

The Contractor is advised that he will be held responsible for any damage to the existing paving, roads, municipal pavements, fences, boundary walls, etc., and will have to make good at his expense.

1.2.14 Damage to property

If the Contractor or his workmen while engaged in the execution of the contract, shall break, deface, injure, destroy or allow to fall into disrepair any part of the Works or property belonging to the Employer, or any private property including: buildings, pavings, roads, fences, walls or grounds contiguous to the premises of the Employer on which he or they may be employed, the Contractor will be required to made good, in a perfect and workmanlike manner, at own expense all damage to the approval of the Employer. The Completion Certificate will not be issued until the Employer is satisfied that all necessary remedial work has been satisfactorily completed.

The Contractor shall take every precaution against damage or nuisance being caused by dust both to the properties of the Employer and all surrounding properties and shall indemnify the Employer against any claim that might arise there from.

1.2.15 Underground cable and pipes

If such services is/are discovered, immediate notification must be made to the Employer and all work in the vicinity of such cables, pipes, etc., shall cease until safe to proceed. Should the Contractor damage underground cable or pipes such damage shall be repaired as soon as safe and possible by the Contractor. The cost of making good such damage will be met by the Contractor as this must be covered by the Contractors works insurance.



1.2.16 Daily rainfall records

The Contractor shall keep **daily rainfall records** and submit them to the Department's representative at every site meeting, or fortnightly by fax in the absence of such visit. No additional payment shall be made for the supply and installation of the rain gauge or for the keeping of the rainfall records and all costs must be included in the scheduled items. Submission of rainfall figures is required for the granting of permission of extending the contract period on the basis of inclement weather.

1.2.17 Inspection of works

The Head of Department or his Representative may at all reasonable times have access to the Works and/or the workshops or other place where work is being prepared for this Contract for inspection. The Engineer may request that evidence of the quality or strength of any materials be supplied by the contractor as may think necessary. Should the Head of Department or Representative consider any materials objectionable or if it shall appear to him at any time during the construction, or prior to the expiry of the defect liability period, that any part thereof has been executed with unsound or imperfect materials or with unskilled or imperfect workmanship, the Engineer will notify the Contractor who shall cause the objectionable materials to be instantly removed from the premises and to be replaced by good and suitable materials, and shall rectify or reconstruct the Works in whole or part, as the case may be at the Contractors own proper cost or charge.

1.2.18 Notice of covering work

The Contractor shall give due notice to the Head of Department or Representative whenever any work or materials are intended to be covered in with earth or otherwise in order that their correct dimensions and quality may be ascertained before being covered, and in the event of any such work or materials being covered without such notice having been given, the work or materials shall be uncovered at the Contractor's expense on instructions given by the Employer.

1.2.19 Contractor to provide everything necessary

The Contractor shall provide everything necessary for the proper execution of the Works according to the true intent and meaning of the Drawings and Specification taken together. The Contractor shall provide without extra charge all assistance and everything reasonably necessary for proving the quality of work done as may be required by the Regional Engineer.

1.2.20 Sub-contracted work

The contractor shall not sub-contract the entire contract. The contractor must indicate in **Annexure C2 – Additional Information: Subcontracted works** which part(s), if any, (s)he intends to subcontract. In case the contractor decides to subcontract part of the work (s)he shall obtain written consent of the Engineer, which shall not be unreasonably withheld. Any such consent shall not relieve the contractor from any liability or obligation under the contract and he shall be liable for the acts, defaults and neglects of any sub-contractor, his agent or employees as fully as if they were the acts, defaults or neglects of the contractor, his agents or employees.

1.2.21 Variation / 'As built' details

No variations or alterations may be made without the prior approval of the Regional Engineer or his delegated representative. As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the specifications as issued to the Contractor at the start of the contract. These details will, where appropriate, be noted on the supplied drawing. All alterations will be deemed to have a zero additional cost implication. If any additional works are required that have an additional cost implication then these must be handled as a contingency and must first be authorized in writing by the Regional Engineer. Refer to notes on contingencies.



1.2.22 Verification of experience

The proponent of a bid/quote will be required to produce adequate and sufficient references to enable the Department to inspect previously completed projects and assess his/her capacity. She/he shall provide such information in **Annexure C3 – Additional Information: Experience**.

1.2.23 Equipment and resources

The proponent of a bid/quote shall in **Annexure C1 – Additional Information: Equipment and Resources** and by way of supplementary information satisfy the Department that sufficient equipment is possessed to execute the services or an indication shall be given as to the manner in which such equipment would be sourced. Should (s)he not be able to prove possession of or ability to access sufficient equipment, the Bid/quote will be wholly disqualified. The Department reserves the right to investigate the existence and/or proposed sourcing of equipment.

1.2.24 Labour capacity

The proponent of a bid/quote will be required to satisfy the Department that a sufficient and experienced labour force is employed or that sufficient experienced labour can be acquired to complete the services and produce a fair quality of workmanship. The Contractor shall only employ such persons on the Works as are thoroughly efficient and of good character. If in the opinion of the Head of Department or Delegated Representative any person employed by the Contractor misconducts himself or is likely to cause or has caused quarrels, or delay, or is incompetent, the Contractor when so directed by the Head of Department or Delegated Representative shall at once remove such person from the site.

1.3 Preliminary Conditions

1.3.1 Local and other authorities notices and fees

The Contractor shall comply with and give notices required by any Act of Parliament, Act of the KwaZulu-Natal Provincial Legislature, Laws, Regulations and By-Laws of any Local Authority and/or any public service company or authority relating to the Works or with whose systems the same or will be connected, and he shall pay and indemnify the Employer against any fees or charges demandable by law there under in respect of the Works provided that the said fees and charges, if not expressly included in the Contract Sum or stated by way of Provisional Sum shall be added to the Contract Sum and be payable to the Contractor accordingly.

The Contractor before making any variation from the Drawings and Specification necessitated by such compliance shall give to the Regional Engineer written notice specifying and giving the reason for such variation and applying for instructions in reference thereto. If the Contractor within twenty-one days does not receive instructions he shall proceed with the work conforming to the provision, regulation or by-law in question, and any variation necessitated as aforesaid shall be deemed a variation and dealt with as such.

1.3.2 Insurance

All accepted approved contractors would be required to provide the following insurance's for the project awarded to them:

- Registration with the Compensation Commissioner and compliance with the Compensation for Occupational Injuries and Diseases Act with regard to insurance.
- Unemployment insurance fund for all workers.
- Insurance against damage, destruction or loss caused by fire.
- Public Liability insurance.
- All risks (works) policy and Political for the value of the respective project plus 10%.



1.3.3 Protection of the public

The Contractor will be required to pay particular attention to watching and warning lighting and must provide any necessary barriers, etc., required for the protection of the public in terms of the existing Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended.

1.3.4 Site safety

During the construction the regulations of the Occupational Health and Safety Act No. 85 of 1993 and Machinery and Occupational Safety Act (Act 6 of 1983) will apply. By submission of a Bid/Quote the proponent acknowledges and agrees that, should this Bid/quote be accepted, (s)he is an employer in his own right with duties as prescribed in the Occupational Health and Safety Act No. 85 of 1993 and amendments thereto and the corresponding Construction Regulations 2003 will ensure that all Works to be performed or machinery and plant to be used in the Works will be in accordance with the provisions of such regulations.

(S)he also agrees that (s)he fully understands all the provisions of such regulations. All equipment, machinery, tools and safety equipment used on site are to be in a safe operating condition and are to be used in a safe and considerate manner by suitably trained and experienced workers.

The Contractor is responsible for all such monitoring and control of site operations and equipment throughout the works for the entire contract duration. All necessary safety equipment required to construct the facility must be used by the workers where appropriate and are for the contractor's responsibility and provisioning. A first aid box is to be provided and available at all times on site during working hours and is to comply with the requirements of the Occupational Health and Safety Act. The Contractor shall ensure the safety of all work left standing in an incomplete state during the construction and shall be responsible for all damage or loss caused by his failure to ensure the safety of such incomplete work.

Site operations requiring special attention include but are not limited to: Any excavations; plant, machinery and equipment operations; any chemical storage and usage whatsoever; any works requiring elevated personnel such as for roofing, elevated building works requiring ladders or scaffolding etc...; any works with overhead elevated operations or construction. Please also refer to item "Safety" in **Section 4: Project Technical Specifications**.

1.3.5 Injury to persons

The Contractor shall be liable for and shall indemnify the Employer/Engineer in respect of any liability, loss, claim or proceedings whatsoever, whether arising in Common Law or by Statute in respect of personal injuries to or death of any person whomsoever arising out of or in the course of or caused by the execution of the Works.

1.3.6 Disagreement

a) Notice of disagreement

The Contractor has the right by written notice to the Engineer to require him to consider any disagreement which he raises with the Engineer provided the said written notice shall be given within 14 days after the cause of disagreement has arisen.

(b) Ruling on disagreements

The Engineer shall give a ruling on the disagreement in writing to the Contractor no later than 14 days after his receipt of a written request from the Contractor requiring him to do so, failing which he shall be deemed to have given a ruling dismissing all the Contractor's contentions.



1.3.7 Fixed priced contract

The contract shall **not** be subject to contract price adjustment. Proponents of Bids/Quotes must therefore allow for increase cost for the contract duration, including possible delays in awarding the Bid in accordance with the validity period.

1.3.8 Pricing - Completeness of Bid/QUOTE

- i. Proponents of Bids/Quotes will be required to Bid for **all** services, products and commissioning as specified in this document and associated plans. **If (s)he does not Bid/quote on all items, his/her Bid/quote may be rejected.**
- ii. All bid/quoted prices for separate items are to be in South African currency and must **exclude** VAT.
- iii. All items as described in the project specification are to be priced in full.
- iv. Transport/Delivery costs must be included in the pricing. It must not be a separate item.
- v. VAT must be filled in as the sub total followed by the complete price for the entire project.
- vi. The Bid price must have your company stamp, date and be signed by an authorised person.

1.3.9 Quantities of work

The Contractor shall receive payment only for the works actually executed and approved by the Engineer. No claim for an extra or for any addition, or for any variation shall be entertained unless such extra, addition or variation was ordered in writing by the Head of Department. Such a variation will be dealt with as a contingency only if the variation has an additional cost implication. See item on 'contingencies'. No objection to the description or terms of the Order in writing will be entertained unless lodged in writing with the Head of Department within twenty-one (21) calendar days of the date of the order.

1.3.10 Progress payment

The contractor may submit claims for progress payments only on completion of the hereunder listed levels. Payment shall only be paid for claims, which are commensurate with the works actually executed and complete. NOTE: Payment will only be made against the construction progress as pertaining to built items. Movable items and materials on site are excluded from progress payments until they have been fully installed or fitted or built up. If any item or part of an item in an invoice is disputed by the Engineer, the Engineer shall give notice of such with reasons.

The contractor shall be paid in up to a maximum of three (3) instalments. These values shall be adhered to during the payment process. Part payments will be made after the Department has approved the completion of each construction phase, in accordance with the retention clause (see below). The penultimate payment occurs after practical works completion. The final payment will be made after the 90 day retention period when the contractor has dealt with all defects, if any.

1.3.11 Retention

A 10% retention will be withheld on payment for duration of the construction. The Department will pay out half of this retention, or 5% of the bid value, at **practical completion** of the works. The remainder, 5%, will be paid out at **final approval** after expiry of the defect liability period (12 months after practical completion), the bidder having eliminated all defects.



1.3.12 Defects liability period

An amount of 5% of the contract value for the works will be withheld as defect liability retention. The contractor shall unconditionally guarantee all materials, workmanship related to the works for a minimum period of 1 year. The guarantee shall cover any defects due to inferior materials and/or workmanship of the Contractor, or any of his sub-contractors, fair wear and tear excepted. The Contractor shall repair, remedy or replace any such defects, part or complete works without delay and at his own cost.

If any defects are not remedied within the period specified by the Head of Department, then the Head of Department shall have such defect repaired at the risk and cost of the Contractor by another Contractor whom the Head of Department deems to be proficient in the work without prejudice to any rights the Head of Department has against the defaulting contractor. The Head of Department will give written notice to the Contractor of such instances where he appoints another Contractor to remedy defects in the works.

1.3.13 Contingencies

Contingencies will only be available to the service provider for unforeseen additional expenditure not covered in the contract due to circumstances that have occurred after commencement of the works. Any contingency must be agreed upon in writing with motivation indicating the cost implications. This must be agreed between the Contractor and the Engineer in writing before the commencement of any procurement of the required goods or services. The total bid price/quote will **not** include any contingency amount.

1.3.14 Service level agreement

The successful Bidder and the Department will sign a Service Level Agreement prior to commencement of works. A proposed schedule of works must be provided by the contractor for the approval of the Engineer within 2 (two) weeks of receiving notification of a successful bid. A required payment schedule will be made in accordance with percentage of works complete (based on installation/work completed on site). Verification of the percentage complete will be at the sole discretion of the Engineer.

1.3.15 Commencement of the works

The Department will organize a site hand-over to the contractor who will then be introduced to the project stakeholders and participants. The site shall only be accessible to contractor staff and Departmental representatives while work is in progress. The site will be handed back after practical completion. Site establishment must start **within two weeks**, and the actual works **within three weeks** after hand-over of the site, provided that an official order has been issued and that no exceptional circumstances such as inclement weather or other outside the control of either party to the contract prevail. In the case the work has not commenced within three weeks of the hand-over and no attenuating circumstances for the delay can be provided, the Department reserves itself the right to cancel the contract and appoint one of the other contractors that have Bid for the works.

1.3.16 Rate of progress

The Works shall be completed within the time period indicated on the official order form. If the Works are delayed by cessation of work by any workmen, inclement weather, or by any omissions, additions, substitutions or variations of the Works, or of any items of work, labour or material, or by any other causes beyond the Contractor's control, then the Contractor shall have the right within twenty-one days of any such cause of delay arising, to apply in writing to the Department to extend the date of completion, stating the cause of delay and period of extension applied for.



The Department upon receipt of such written application may by order in writing extend such date of completion by a period to be determined, or may refuse to extend such date of completion, or may postpone giving a decision upon such application until completion of the Contract period set out in sub-clause (a) of this clause. The date of completion will be extended only to the extent approved by the Department.

Should the Contractor fail to apply in writing for an extension within the time set out above, or should the Department refuse to grant any extension in writing, then the Contract period provided by sub-clause (a) of this clause shall not be exceeded. When the Works are completed the Department will give a completion certificate and the date of such certificate shall be the date of commencement of the guarantee period.

1.3.17 Time to be of the essence

Time shall be considered as the essence of the Contract. If, therefore, the Contractor fails to commence work or the Works or to proceed with and complete the Works in compliance with the projected timeframes, then the Head of Department shall have the right in his/her absolute discretion to adopt and exercise all or any of the following courses wholly or partly, viz: -

- To direct the Contractor, in writing, on any day named therein to suspend and discontinue the execution of the Works, and to withdraw himself and his workmen from the said Site or Sites, and thereupon: -
- To make any Contract or Contracts by calling for Bids or otherwise with any other Contractor or Contractors for the completion of the Works, or any part thereof, at such times and upon such terms as to the Department shall deem best.
- To provide such number of men, or purchase such materials, or both provide the men and purchase the materials as to him shall seem fit and proceed with and complete the said Works.

In relation to the foregoing provisions the Department shall charge any sums of money which may be paid by the Department for completing the said Contract against the Contractor and if such amount shall exceed this Contract, then the Department shall have the right to recover such excess or any balance thereof from the Contractor by legal proceedings.

1.3.18 Program and progress payments (after contract award)

The contractor is to supply a Gantt chart with the proposed times of completion of each phase and associated progress payment request for the project.

1.3.19 Period of completion

The project is to be completed **within 3 months of award of the contract (90 calendar days)**.

1.3.20 Penalty clause / fines for late or non-completion

If the contractor does not complete the work **within the time stipulated** and no extenuating circumstances can be given for the delay, the Department may impose a fine as detailed below. The total will be subtracted from the retention allowance. If the contractor fails to complete the works and the Department is forced to employ another contractor to complete the works, the defaulting contractor will be held liable for the costs as far they exceed the original total Bid value. Refer also to the breach of contract and penalty clauses in ZNT 6, condition 4, section B. The Engineer may decide to deduct a penalty for late completion of up to **R300/working day delay**. This will be deducted from the retention.



C | PROJECT TECHNICAL SPECIFICATIONS

In general, the Specifications published by the South African Bureau of Standards (SABS/SANS), series 1200 (Standardised Specifications for Civil Engineering Construction) shall apply.

The following specifications are applicable to this contract: -

- SABS 1200 A: General
- SABS 1200 C: Site Clearance
- SABS 1200 D: Earthworks
- SABS 1200 GA: Concrete (Small Works)
- SABS 1200 L: Medium Pressure Pipelines

In addition, the following Occupational Health and Safety Regulations (No 85 of 1993) are applicable: -

- General Safety Regulations
- Environmental regulations for workplaces
- Facilities regulations

1.4 Preliminaries and General

The contractor is to note that all insurances (UIF, workman's compensation, works, public liability etc.); site and equipment safety; site establishment and security; services (water and electricity); testing of materials and any specialist services are for the contractors responsibility and attention throughout the contract duration until handover of the project. Please also refer to general conditions of contract. The Department reserves the right to stop progress of the works until these conditions are complied with.

1.5 Earthworks and Site Preparations

Normal regulations regarding safety, municipal by-laws, contamination of water sources, erosion, siltation etc. will still apply.

- Site preparations & establishment: SABS 1200 AA (4).
- Setting out of works: SABS 1200 AA (5.1.1)
- Permissible deviations: SABS 1200 GA (6.4) Degree of accuracy II for all bases.
 - The site must be cleared and stripped of all plant materials, roots and topsoil.
 - The cleared and stripped material is to be stockpiled away from the construction site and is to be levelled/replaced once all construction is complete.
 - The site is to be levelled prior to any construction. This includes excavation of in situ material to provide the pit.
 - Materials excavated and suitable for backfilling will be placed in even, thin layers and compacted with thickness applicable to the compaction method/machinery used but not exceeding 150mm.

1.6 Materials and Constructions

- UPVC pipes and fitting shall be fitted with spigot and socket rubber ring joints and shall comply with requirement of SABS 966.
- All materials must conform to SABS specifications for the products. This includes all items such as pipes, valves, flanges and accessories etc.
- Test pressure shall be performed as stipulated in SABS for test pressure.
- All construction works must conform to the applicable standard specifications and installation requirements as per NBR requirements and manufacturers recommendations.



- All concrete works to conform to Cement & Concrete Institute Standards and Recommendations.

1.7 Standard Concrete Mixes:

- Mixing, pouring and curing of concrete: SABS 1200 GA (5.4)
- Materials: SABS 1200 AA (3); SABS 1200 GA (3)
- Cement: Commencement 32,5N or R to SANS 50197-1
- Testing: SABS 1200 AA (7); SABS 1200 GA (7)
- Quality control through the slump test SABS 1200 GA (5.4.1.2) SABS method 862. The contractor is to supply the slump testing equipment.
- Tolerances to SABS 1200 GA (6.4)
- Formwork: Refer to SABS 1200 GA (4.4; 5.2)
- Reinforcing: SABS 1200 GA (5.1)
- Refer to standard concrete mixes specification.

Standard concrete mixes					
Concrete for non-structural purposes shall be "Prescribed mix concrete" produced in accordance with the requirements indicated in table 5.1, and the Contractor is also referred to the foregoing preambles insofar as they apply: -					
Class of Concrete	Estimated Minimum Compressive Strength in MPA at 28 Days	Maximum Nominal Size of Coarse Aggregate in mm	Proportion of Constituents		
			Cement (Parts)	Fine Aggregate (Parts)	Coarse Aggregate (Parts)
A	10	37,5	1	4	5
B	15	19,0	1	3	4
C	20	19,0	1	2½	3½
D	25	19,0	1	2	3
E	30	19,0	1	2	2½

Cement and aggregates shall be mixed by volume and the contents of a 50kg sack of cement shall be taken to be 0,033m³. Water addition should be kept to a minimum. Only sufficient water should be used to produce a workable mix of 60-100mm slump. A recommended maximum water: cement ratio is 1 for a 10MPa; 0.8 for a 15MPa; 0.65 for a 20MPa; 0.59 for a 25MPa; 0.53 for a 30MPa mix, however the lower the ratio the better the durability of the concrete. Approximately 210 litres per m³ of concrete is required for an average quality sand and optimum quantity 19mm stone.

MORTAR CLASS	MIX RATIO: (By Volume)	MASONRY CEMENT: kg	LIME: L	SAND: (loose and damp) L (max)
I	1 : 4	50	0-10	130
II	1 : 6	50	0-40	200
PLASTER CLASS	MIX RATIO: (By Volume)	MASONRY CEMENT: kg	LIME: L	SAND: (loose and damp) L (max)



Rich mix (foundations, wet areas)	1 : 4	50	0-10	130
General purpose	1 : 5	50	0-40	165

1.8 Safety

1. One 5kg ozone friendly fire extinguisher and 1 fully fitted 1st aid box is to be provided in the facility.
2. All safety equipment required to construct the facility are for the contractor's responsibility and provisioning. Examples include: safety and protective clothing; sound scaffolding; false work and bracing; ladders etc... all equipment, tools and safety equipment are to be in a safe operating condition and must be used by the workers where appropriate.
3. Refer to general conditions for site safety. Site operations and conditions requiring special attention include but are not limited to:
 - Equipment, machinery, tools: (stationary or mobile) such as vehicles, generators, pumps, drills, augers, picks, spades, hand tools, ladders, scaffolding to be in a safe operating condition and are to be used in a safe and responsible manner. The contractor is responsible for all such monitoring and control of site operations and equipment throughout the works for the entire contract duration.
 - Lifting and lowering of materials or personnel in any way whatsoever.
 - Personnel access and operations at raised levels or on raised platforms or scaffolding.
 - Excavation works and holes are to be clearly indicated to prevent injury to personnel.
 - Potential ingress of water on/through the site.
 - Potentially hazardous services may be present on site such as water and sewerage mains, electricity cables etc.
 - Chemical transport, storage and usage whatsoever – this includes chemical contact through equipment use such as fuels and oils; materials such as creosote, paints, solvents, cement, concrete.
 - Safety equipment: Safety and protective clothing, gloves, goggles, masks, hard hats, boots, harnesses etc.
 - A first aid box is to be provided and available at all times on site during working hours and is to comply with the requirements of the Occupational Health and Safety Act.
 - Additional risks associated with specific methods of construction selected by the contractor which are not necessarily covered in the above.

1.9 Flanges and Accessories

Flanges shall comply with the requirements of SABS 1123 latest edition. Flanges designed for rated working pressures of less than 1600kPa shall have flat flange faces and those for equal or greater working pressures raised flange faces.

It shall be the responsibility of the Contractor to ensure that the flanges on pumps, valves, fittings, specials and pipes, which shall be fitted together, are fully compatible. The flanges shall be drilled to the relevant table or to match existing flange drillings if applicable.

Before the machined surfaces have become affected by rust, they shall be coated with a mixture of white lead and tallow or other approved protective composition.



1.10 Flange Jointing Material

All flanged jointing material shall be approved by the Engineer before erection is commenced. Insertions for flat flange faces shall be of the full flange diameter encompassing the bolts. Insertion for raised flanges shall fit neatly inside the bolt rights.

All packing must be cut from rubber insertions (for pipe diameters 300 mm and smaller) with a nominal thickness of 3,2mm according to SABS 564-1973. The inside and outside diameters should be according to SABS 1123-1977. For pipe diameters exceeding 300 mm Klingerrite gaskets should be used to the applicable specifications.

1.11 Bolts and Nuts

All nuts, bolts, studs and washers shall comply with SABS 135:1985 and shall be hot dipped galvanised according to ISO 1461.

No bolts or studs of less than the size indicated on the drawings shall be used. The length of each bolt shall be such that after tightening between one thread and one diameter in length projects through the nut and at least one full thread in addition to the thread run-out remains clear between the nut and the unthreaded shank. The threaded portion of bolts shall be clear of the shear plane. All nuts and studs shall be locked in position by lock-washers and where necessary, locknuts. High tensile bolts and nuts should be used to couple the flexible hoses to limit the rust-effect on these very important elements when the pump units have to be moved.

1.12 Gate Valves and Scour Valves

Resilient seal gate valves (RSV) shall be similar to VOSA configuration and shall comply with SABS 664 (latest amendment) with classes and flanged drillings as scheduled in the bill of quantities. Where plain-ended valves are required, the ends shall be suitable for the type of pipe specified. The valves shall be designed for drop tight closure over the full range of pressures from zero to maximum working pressure.

The valves shall be provided with a straight unobstructed body passage without pockets. The spindle seat shall consist of 2 nitrile rubber O-rings located in a corrosion resistant housing. A wiper ring shall also be provided. The gates shall be completely rubber covered. The gate guides shall be of the tongue and groove type. Spindles shall be manufactured on solid stainless steel and shall be of non-rising type. The body of the valve shall be coated to a minimum DFT of 250 microns.

Extension spindles and brackets shall be provided where detailed and hand-wheels shall be clearly marked with the direction of opening. All valves shall be clockwise opening/closing. Gearing shall be chosen to limit the total effort at the hand-wheel or valve key to 350 Newton's.

1.13 Butterfly Valves

All butterfly valves shall be similar to AMRI configuration and must be provided with a gearbox and hand-wheel mechanism unless otherwise detailed and it must be possible to install the unit between flanges drilled according to SABS specifications. Valves are to have a stainless steel stem and are to incorporate a resilient disc seal mechanically retained around the periphery of the valve disc. Working pressure required is 1000kPa, or as detailed in the Schedule of Quantities and/or the drawings.

1.14 Non Return Valves

All wafer type non return valves may have a cast iron body, but stainless steel plates having machined sealing faces, 316 stainless steel pin and springs, nitrile seat and Teflon or similar bearing washers.



1.15 Pressure Gauges

Pressure gauges shall comply with BS 1780 or equivalent for Industrial Gauges shall be calibrated in kilopascals and shall be not less than 100 mm diameter. Full-scale reading shall be between 1.5 and 2 times the maximum actual operating pressure except where otherwise specified.

All gauges shall be suitable for continuous operation and shall be liquid filled where fluctuations in pressure may cause damage.

Where blockages of the gauge are possible, diaphragm seals with large bases and a facility for cleaning shall be provided. This shall apply in all cases where liquids bearing solids or sludge are handled.

Gauges shall not be mounted directly on equipment subject to variation. For dry locations indoors, the casing may be plastic or epoxy coated aluminium. For damp indoor locations, particularly in any location where sewage is flowing, and for all locations outdoors, the gauges shall be weatherproof and have AISI 316 stainless steel cases.

Isolating and bleed cocks shall be provided for each pressure gauge, except on installations for hazardous fluids.

1.16 Pumps and Motors

1.16.1 Guarantee

All pumps and motors must carry a guarantee of twelve months. The pump and motor must be capable of reaching the required pressure. The pump must be free of any defects pointed out by the engineer or client.

1.16.2 General

- Pumps to be provided shall include power rating, rotational speed/rpm and efficiency.
- Pumps shall be silent and vibration free during operation.
- No pump shall be started before installation of strainers.
- Pumps shall be provided with adequate protection over inlet and outlet flanges before being delivered to site. Protection covers shall be able to withstand normal handling during construction.
- Pumps shall be suitable for the fluids and fluid temperature that they handle, and shall be selected accordingly. See pump data forms in this regard.
- Manual vent valves shall be provided at high points on the pump casings. For applications with temperatures above boiling point, the vent must be piped to a safe drain point.
- Drain plugs shall be provided at low points on the pump casings.

1.16.3 Couplings, Base Plate and Alignment

- The power source and pump must be connected by means of a coupling which can transmit the full power supply of the power source, whether or not a spacer is used, or as specified in the Bill of Quantities. All couplings should be safeguarded to prevent to prevent injury to operators.
- Pumps shall be complete with flexible drive couplings to allow for angular and axial misalignment where applicable.
- The pump and power source must be mounted together on a base plate and the required tolerances:
 - Maximum permissible axial alignment error – 0.03mm
 - Maximum permissible radial alignment error – 0.05mm



- After installation and before commissioning the alignment must again be checked and adjusted with shims.
- Pumps shall be aligned by a representative of the pump supplier but the contractor still remains solely responsible for the guarantee period.
- The tolerances of measurements of the base plate, as indicated by the tenderer in the tender document, must be approximately 2mm.
- Pump drives shall be suitably protected by a securely mounted sheet metal guard and comply with Machinery and Occupational Safety Act (Act 611983).
- Each flexibly coupled pump shall be provided with a cast iron or fabricated steel base plate of ample size to hold both pump and motor in correct alignment. The pump and motor shall be accurately aligned when running at normal temperature. Dowel pins shall be fitted to base plates after alignment.
- Couplings shall be selected to match at least the power of the electric motor and shall not impose any restriction on the normal expansion and tolerances.

1.16.4 Pump Installation

All pumps are to be installed in accordance with the Manufacturers specifications. The rate for installation and commissioning of pumps must include for all nuts, bolts, base plates or straps that are required for their fixing, according to the Manufacturers specifications.

1.16.5 Standard Specifications

The workmanship must be of the highest standard throughout and be done according to the most modern practices. All inferior work will be replaced or rectified, as soon as it is pointed out by the engineer, at the cost of the contract.

1.16.6 Inlet and Outlet Adapters

These form part of the selection of the tender with the necessary nuts, bolts and gaskets for coupling to the pump, and flanged to fit the large end of the steel piping. Suction reducers should be eccentric and conform to a length equals to $5(D1 - D2)$.

1.16.7 Safety Precautions

All necessary safety covers must be supplied to ensure total protection of the operator.

1.17 Commissioning

Should any defects in the equipment become apparent during commissioning or during maintenance accounting; it will be the suppliers' responsibility to replace such faulty equipment.

1.18 Operation and Maintenance Manuals

5 sets of documents are to be provided that include the following:

- Operational philosophy
- Design data where applicable
- Pump and motor data forms and curves
- All technical data and information sheets for equipment and materials
- Detailed layout drawings (in hard copy and electronic (DWG or kcd))



D | PROJECT PARTICULAR SPECIFICATIONS (PPS)

A new dragline irrigation system together with a pump station shall be installed for the application of water for vegetables. In addition to the standard specifications, the following project particular specifications are applicable to the specified operations.

PPS1 Irrigation System

The following information pertain to the irrigation system:-

- Nett irrigation area - approximately 1.2hectares.
- Type of irrigation system - dragline system.
- Design system efficiency - 80%
- Available working days per week - 5 days
- Available irrigation hours per day - 6 hours
- Nett irrigation requirement – 3.5 mm/day
- Pipes to be used shall be uPVC & HDPE. The mainline should be buried at a minimum depth of 900mm to the crown of the pipe and laterals to be buried at 600mm to the crown of the pipe.

PPS2 Pump station

The pump is required to deliver a flow rate of 29.50m³/hr at a total head of 52.5m. The proposed pump performance specifications must include pump curves. The unit must include a suitable diesel motor (Lister, Hatz, Perkins or Yanmar or similar approved) and be direct coupled to the pump (KSB or Grundfos or similar approved). The pump and engine unit should be securely mounted on a suitable galvanised steel frame and suitably fixed (bolted) to the pump house floor slab using raw bolts. The contractor is responsible for the correct alignment of both pump and motor unit. All necessary fittings, adaptors, reticulation, reducers, pressure gauge, priming funnels, tools etc should be supplied with the unit.

PPS 3 Air Valves (Double purpose air valves)

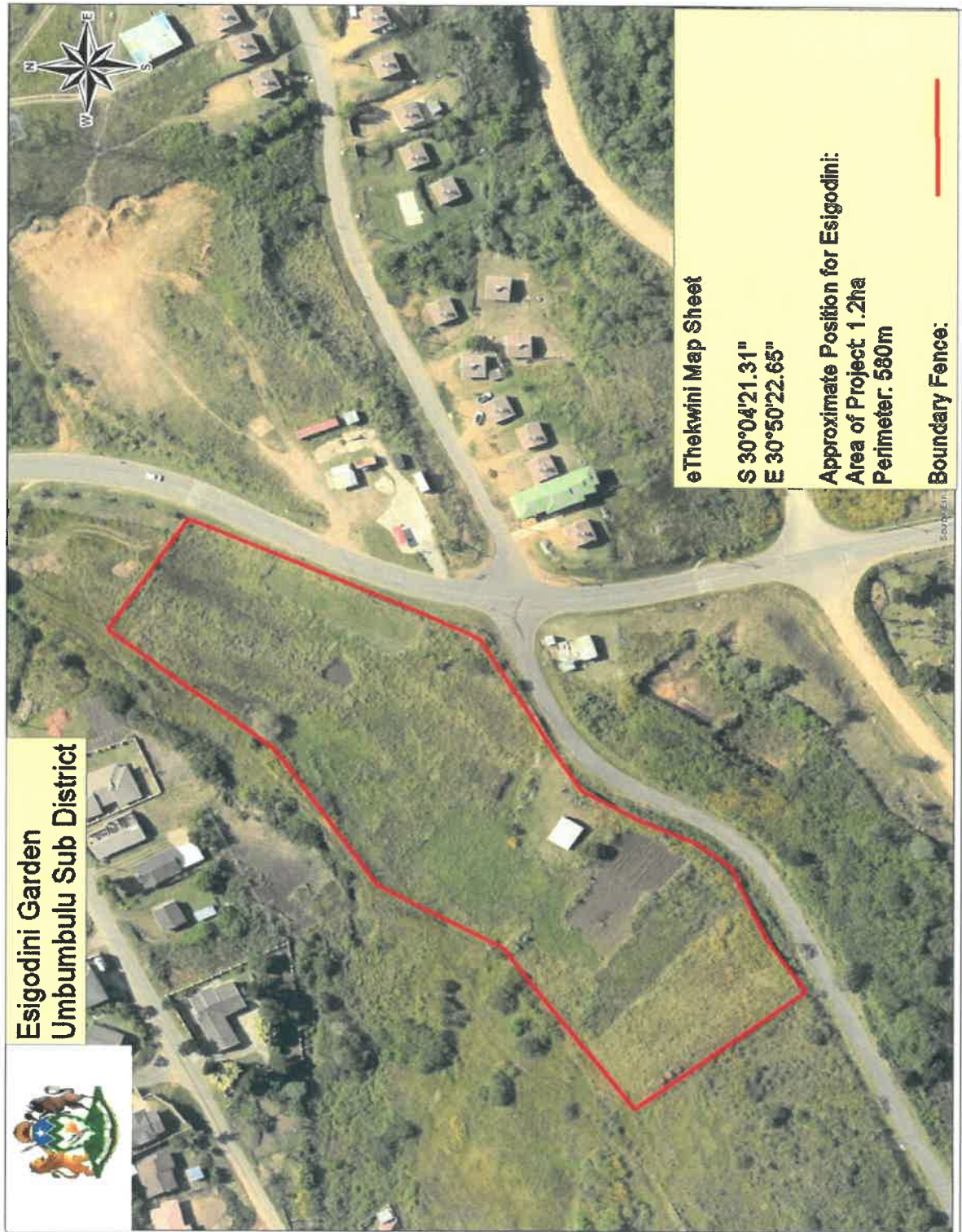
Double purpose air release and vacuum break valves shall be ARI type as specified or similar approved. Double purpose air valves shall be able to release appropriate volumes of air (for instance during the pumping process) and let appropriate volumes of air into the system when needed.



ANNEXURE A: Schedule of Quantities



ANNEXURE B: Site Layout Plan





ANNEXURE C: Irrigation Layout Drawings



ANNEXURE D : Cluster Valve





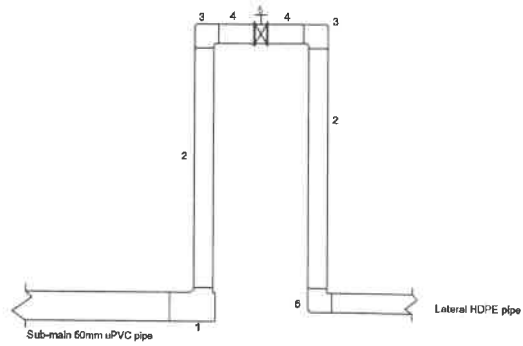
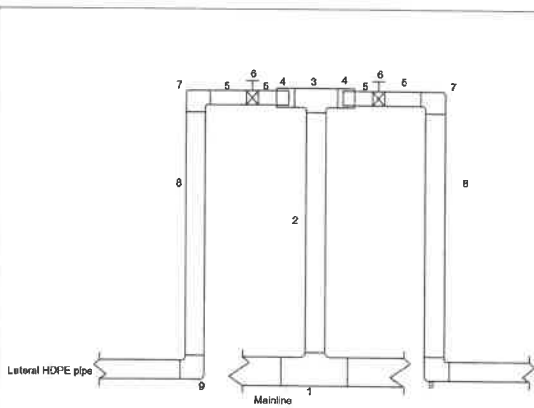
AGRICULTURE AND RURAL DEVELOPMENT.

ANGO WAKZN: WEZOLIMO NOKUTHUTHUKISWA KOMPHEKATHI WASEMAKHAYA



AGRICULTURE AND RURAL DEVELOPMENT

LANGO WAKZN: WEZOLIMO NOKUTHUTHUKISWA KOMPHEKATHI WASEMAKHAYA



NOTES

1. All the materials must conform to the SABS standards related to the product.
2. All pipes installed @ minimum 900mm to the crown of the pipe



agriculture & rural development

Department:
agriculture
& rural development
PROVINCE OF KWAZULU-NATAL

Designed by: NN

Drawn by: NN

Verified by: TC

Typical cluster valve double off-takes

1. R.O. Bend/ R.O. Tee
2. 50mm x 1000mm stand pipe galvanized
3. 50mm x 90° equal Tee galvanized
4. 50mm x 40mm reducing bush
5. 40mm barrel nipple
6. 40mm brass gate valve full bore
7. 40mm x 90° elbow galvanized
8. 40mm x 1000mm stand pipe galvanized
9. 40mm x 40mm female elbow compression fitting

Typical cluster valve single off-take

1. 50mm x 50mm R.O bend
2. 50mm x 1000mm stand pipe galvanized
3. 50mm 90° elbow galvanized
4. 50mm barrel nipple
5. 50mm brass gate valve full bore
6. 50mm x 50mm female elbow compression fitting

Typical Cluster valve connections

Drawing no.:

Date: / /

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, 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, shareholder², 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.

Please clearly indicate, with an 'X' only one box that is applicable to your business or firm

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

YES	NO
-----	----

the appropriate authority to undertake remunerative work outside employment in the public sector?

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.)

2.7.2.1 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.

.....
Name of bidder

.....
Position

.....
Signature

.....
Date

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Standard Bidding Document (SBD) must form part of all bids¹ 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 *per 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.

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 consortium³ 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.
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