IRRIGATION AUTHORITY

BIDDING DOCUMENT FOR

Supply, Installation, Testing and Commissioning of New Centre Pivots in Replacement to Existing Old Ones

Procurement Reference No: OAB/OMD/CENTREPIVOTS/33/25

Irrigation Authority

5th Floor, Fon Sing Building
12 Edith Cavell Street
Port-Louis
Tel: 210 6596
Fax: 212 7652
Email: irrig@irrig.org

September 25

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Section 1 - Instructions to Bidders

A. GENERAL

1. Introduction

The Irrigation Authority also referred as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

The Works are related to the:

Supply, Installation, Testing and Commissioning of Centre Pivots in Replacement to Existing Old Ones

Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius.

1.1 Clarifications, if any, should be addressed to:

The General Manager
5th Floor, Fon Sing Building
12 Edith Cavell Street,
Port Louis
Tel: +230 210 6596
Fax: +230 212 7652
Email : irrig@irrig.org

1.2 The Employer will respond in writing to any request for clarification, provided that such request is received 14 days prior to the deadline for submission of bids. The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids

1.3 Bidders are advised to carefully read the complete Bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

2. Validity of Bids

The bid validity period shall be **90 days** from the date of bid submission deadline.

3. Work Completion Period

The Intended Completion period is 150 calendar days from the start date of works.

4. Site Visit

Bidders or their designated representatives are invited to attend a pre-bid meeting/site visit scheduled for **Thursday 02 October 2025** on sites. The meeting point and time of the meeting shall be at our Sub-Office at Plaines des Papayes at **13hr00** respectively.

The purpose of the pre-bid meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage by the Bidders.

5. Sealing and Marking of Bids

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Irrigation Authority with the Bidder's name at the back of the envelope.

6. Submission of Bids

Bids should be deposited in the Bid Box located at the Office of the Irrigation Authority, 5th Floor, Fon Sing Building, 12, Edith Cavell Street, Port Louis, Tel: +230- 2106596, Fax: +230- 212 7652 not later than **Friday 31 October 2025 at 15hr 30.**

Bids by post or hand delivered should reach the above-mentioned address by the same date and time at latest. Late bids will be rejected. Bids received by e-mail will not be considered.

7. Bid Opening

Bids will be opened at the Office of the Irrigation Authority, 5th Floor, Fon Sing Building, 12, Edith Cavell Street, Port Louis on **Friday 31 October 2025 at 16hr 00**. Bidders or their representatives may attend the Bid Opening if they choose to do so.

8. Evaluation of Bids

The Irrigation Authority shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

9. Eligibility Criteria

To be eligible to participate in this bidding exercise, Bidder should:

(a) have the legal capacity to enter into a contract to execute the works;
(b) be duly registered with the CIA under the grades that would allow him to perform the value of works for which he is submitting his bid. (Note 1)
(c) not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;
(d) not have had your business activities suspended;

(e) not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;

(f) not have a conflict of interest in relation to this procurement requirement; and

(g) have a Business Registration Card.

(h) For contract above Rs 1 Million, the enterprise should have an annual turnover not less than 75% of the bid price in any one year of the last 3 years.

(i) Where applicable, be duly registered with SME Mauritius under Micro or Small Enterprise.

Note 1 Sub-contractors undertaking works are also subject to registration with CIA as applicable to Contractors.

10. Qualification and Experience Criteria

Bidders should have the following minimum qualifications and experience:

(a) valid registration certificates with the CIA under the grade that will enable the contractor to perform the works quoted for, under the following class(es): Civil Engineering Construction works or Building Construction works or Mechanical, Electrical and Plumbing Works (MEP Works).

(b) experience in one work of a similar nature over the last 10 years, of value not less than ***MUR 5 Million***;

(c) Qualification and experience of Key personnel required for the Contract shall be:

(i) One Contract Manager (part time), holding at least a Degree in Mechanical or Electromechanical Engineering or Building Services Engineering works from a recognised institution. He shall have at least 5 years experience in Mechanical or Electromechanical engineering works or Building Services Engineering works and shall be registered with the Council of Registered Professional Engineer of Mauritius

(ii) Site agent (full-time) holding at least a Diploma in Mechanical or Electromechanical engineering works or Building Services Engineering works from a recognized institution. He shall have at least 3 years experience in Mechanical or Electromechanical engineering works or Building Services Engineering works.

(iii) One foreman having at least 3 years of experience in pipe laying works, plumbing works and installation of water works.

(iv) At least one qualified plumber/pipe fitter having a minimum 3 years of experience related to installation of water works.

(d) minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the Bidder of **MUR 5 Million**.

11. Content of Bid

The Bid shall comprise the following:

(a) duly filled Bid Submission Form;

(b) duly filled Priced Bill of Quantities/Activity Schedule;

(c) duly filled Qualification Information Form and attachments required

(d) duly filled Key Financial Information Form along with certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids

(e) Valid Registration certificates with the CIA, as applicable

(f) Signed C.V of Contract Manager;

(g) Documentary evidence of liquid assets and/or credit facilities (Note 1);

(h) Any other documents deemed necessary as per the requirements of this bidding document

Note 1

Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.

12. Joint Venture

Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:

i. the Bid shall include all the information required as per the Qualification Information form for each joint venture partner;

ii. the Bid shall be signed so as to be legally binding on all partners;

iii. the Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;

iv. one of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and

v. the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees. Items for which no rate or price is entered by Bidders, shall not be paid for by the Irrigation Authority when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted.

Bidders are required to submit their bid prices **exclusive of VAT**.

14. Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

15. Margin of Preference

15.1 Margin of Preference

(i) A local Small and Medium Enterprise, having an annual turnover not exceeding Rs 100M or a joint venture consisting of local Small and Medium Enterprises having an aggregate annual turnover not exceeding Rs 100M and employing a minimum of 80% or more of local manpower of the total man-days deployed for the execution of a Works contract, shall be eligible for a Margin of Preference of 20 %.

(ii) Any bidder incorporated in the Republic of Mauritius not satisfying the conditions mentioned in (i) above but employing a minimum of 80% or more of local manpower of the total man-days deployed for the execution of a Works contract, shall be eligible for a Margin of Preference of 10 %.

Note: Local manpower shall mean Mauritian nationals, who are on the payroll of the contractor as well as those of subcontractors executing works on the site.

(iii) The contractor, having benefitted from the Margin of Preference, shall from time to time, as may reasonably be requested by the public body, submit reports on the status of employment of local manpower. At the time of works completion, as defined in the bidding document, the contractor shall submit a certified audit report to the public body to substantiate the actual percentage of local manpower employed throughout the execution of the works.

15.2 Preference Security

For contracts up to Rs 100M, the public body shall, at the selected bidder's option, either retain money from progressive payments to constitute the preference security or request a security in the form of a bank guarantee.

15 A. Evaluation of Bids

If the lowest evaluated bid is seriously unbalanced or front loaded or if any item in the Bill of Quantities or Price Activity Schedule is front loaded or contains an erroneous amount in the opinion of the *Employer*, the *Employer* may require the Bidder to produce detailed price analysis for any or all items of the bid *to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After analysis of the prices the Employer may reject the bid or require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract.*

16. Award of Contract

The Employer shall award the Contract to the lowest evaluated substantially responsive bidder.

The contract may be awarded at a negotiated price following negotiation in the following circumstances:

(i) there is a tie in the lowest evaluated price by 2 or more bidders;

(ii) the lowest evaluated price substantially exceeds the estimated cost.

Invitation for negotiation, where the lowest evaluated price substantially exceeds of the estimated cost, shall be limited to bidders whose evaluated prices are not more that 25% above the estimated cost.

Where there is a tie in the lowest evaluated price by 2 or more bidders, on completion of negotiations, the bidders shall be invited to submit their best and final offer.

Prior to award, t*he selected bidder will be required to submit a Certificate of Credit Worthiness from the Mauritius Credit Information Bureau (MCIB) in case the bid amount exceeds Rs 10 Million.*

Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

17. Performance Security and signing of contract

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the Employer, the successful Bidder shall furnish a Performance Security, in the amount equal to 10% of the Bid price (exclusive of VAT), in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section V Contract Forms.

The Contract Agreement shall be signed within 28 days after the successful bidder receives the Letter of Acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

18. Notification of Award and Debriefing

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Irrigation Authority shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Irrigation Authority shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

19. Advance Payment

The Irrigation Authority shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section V.

The Advance Payment shall be limited to **10%** percent of the Contract Price, less any provisional and contingencies sums.

20. Integrity Clause

The Irrigation Authority commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

21. Rights of Public Body

The Irrigation Authority reserves the right to accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Irrigation Authority.

22. Challenge and Appeal

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

(a) The address, Tel. & Fax No. & Email address to file Challenges in respect of this procurement is:

The General Manager
5th Floor, Fon Sing Building
12 Edith Cavell Street,
Port Louis
Tel: +230 2106596
Fax: +230 212 7652
Email : irrig@irrig.org

(b) The address to file Application for Review is:

The Chairperson
Independent Review Panel,
5th Floor,
Belmont House
Intendence Street
Port Louis
Tel : +230 2602228
Email: irp@govmu.org

Section 2 - Bidding Forms

Note: Bidders are required to fill all the forms in this section and submit as part of their bid. Non-submission of any form may lead to rejection of the bid

Bid Submission Form

Date: _____
Bid's Reference No.: _____
Procurement Reference No:……

To: The Officer-In-Charge (Projects)
Irrigation Authority
5th, Floor, Fon Sing Building
12, Edith Cavell Street
Port Louis

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;

(b) We offer to execute in conformity with the Bidding Documents the following Works: _____;

(c) The total price of our Bid excluding VAT is: _____(MUR):

(d) Our bid shall be valid for a period of 90 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

(e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.

(f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;

(g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 8;

(h) We are not participating, as a Bidder in more than one bid in this bidding process;

(i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;

(j) We declare that we "qualify/do not qualify" for Margin of Preference and shall upon request submit documentary evidence in this respect. *[Bidder to strike out as appropriate]*

(k) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:

i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

(l) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

(m) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and

(n) If awarded the contract, the person named below shall act as Contractor's Representative:

Name: .....

In the capacity of: .....

Signed: .....

Duly authorized to sign the Bid for and on behalf of: .....

Date: .....

Seal of Company .....

Bid Securing Declaration

By subscribing to the undertaking in the Bid Submission Form:

I/We* accept that I/we* may be disqualified from bidding for any contract with any public body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are* in breach of any obligation under the bid conditions, because I/we*:

(a) have modified or withdrawn my/our* Bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Letter of Bid; or

(b) have refused to accept a correction of an error appearing on the face of the Bid; or

(c) having been notified of the acceptance of our Bid during the period of bid validity, (i) have failed or refused to execute the Contract, if required, or (ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We* understand this Bid Securing Declaration shall cease to be valid

(a) in case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us; or

(b) if I am/we are* not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my/our* Bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

Qualification Information

[The information to be filled in by bidders in the following pages shall be used for purposes of post-qualification or for verification of prequalification as provided for in ITB Clause 6. This information shall not be incorporated in the Contract. Attach additional pages as necessary. Pertinent sections of attached documents should be translated into English. If used for prequalification verification, the Bidder should fill in updated information only.]

Individual Bidders or Individual Members of Joint Ventures

1.1 Constitution or legal status of Bidder: [*attach copy]*

Place of registration: [*insert]*

Principal place of business: [*insert]*

1.2 Bidder shall provide *[insert number]* of works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a) (b)			

1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a) (b)			

[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIA in accordance with CIDB Act 2008.

1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.

2. Additional Requirements

2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.

Key Financial Information Form

Key Financial Information extracted from Audited Accounts/Financial Statements

Financial data in the currency reported in the Audited Accounts / Financial Statements	Historical Information			Remarks by BEC
	Previous years	Last year	Current year	
Statement of Financial Position (Information from Balance Sheet)				
A. Current Assets				
B. Current Liabilities				
Working capital ratio or current ratio (A / B)				
Quick ratio or Acid Test ratio (Current Asset net of stock / B) (A – Closing Stock) B				
C. Total Assets				
D. Total Liabilities				
Net Asset (C-D)				
Cash in hand and at Bank				
Bank Overdrafts				
Other Liquid Assets				
Debt to Equity Ratio (Gearing / Solvency ratio) **Long Term Debt X100** **Equity**				
Information from Income statement				
Key Profitability Indicators in the currency reported in the Audited Accounts/Financial Statements	**Previous years**	**Last year**	**Current year**	
Turnover				
Profit /(Loss)Before Tax				
Taxation				
Net Profit /(Loss) After Tax				
(Net profit After tax) x 100 (Turnover)				

	Certified by Bidder that information is true extract from Audited Accounts/ Financial Statements Name of Bidder: Signature: Capacity: Date:

Financial Resources

Form FIN 3.3

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as indicated in Section III (Evaluation and Qualification Criteria).

Source of financing	Amount (MUR equivalent)
1.	
2.	
3.	
4.	

BID CHECKLIST

Procurement Reference No: OAB/OMD/CENTREPIVOTS/33/25

S.N	Description	Attached (please tick if submitted)
1	Bid Submission form	
2	Priced Bill of quantities	
3	Specifications and Compliance sheet	
4	Bid Securing declaration	
5	Qualification Information	
6	Key Financial Information Form	
7	Financial Resources	
8	Programme of Works and weekly input of labour, plant and resources	
9	Origin of goods	
10	Proposed Methodology for effecting the works	

Bill of Quantities[1]

Abbreviations:

B/F	:	brought forward
C/F	:	carried forward
Galv.	:	galvanised
c/w	:	complete with
prov.	:	provisional
PCV	:	pressure control valve
PRV	:	pressure relief valve
NRV	:	non-return valve
IA	:	Irrigation Authority
DN	:	Nominal Diameter
PN	:	Nominal Pressure
m	:	metre
mm	:	millimetre
Kg	:	kilogram
F/PE	:	flanged and plain end
D/F	:	double flanged
G. S	:	galvanised steel
E/O	:	Extra over

[1] *In lump sum contracts, the "Bill of Quantities" is prepared for information; it is not contractual. The contractual document prepared by the Bidder shall be a "Schedule of Activities."*

Preamble

1. General

1.1 The Conditions of Contract together with the Specifications and Drawings are to be read in conjunction with the Bill of Quantities and in so far as they have any bearing must be referred to for details of the description, quality, test and strength of materials to be used and the workmanship, conditions, obligations, liabilities and instructions generally which have to be complied with in carrying out the Contract.

The cost of complying with all the conditions, obligations and liabilities described in the Conditions of Contract and Specifications and carrying out the work as shown on the Drawings will be deemed to be spread over and included in the prices stated in the Bill of Quantities unless expressly the subject of a specific item.

1.2 Each item shall be priced and extended to the "Amount" column by the Contractor with the exception of the items for which a rate only is required or which already have Provisional Sums affixed thereto. Unless otherwise stated, all items shall be fully inclusive of all that is necessary to fulfil the liabilities, obligations and risks either expressly stated or implied arising out of the Contract and shall be deemed to include all of the following:

i. Labour and all associated costs.
ii. Materials, goods, plant and all associated costs.
iii. Contractor's Equipment.
iv. Temporary Works.
v. Superintendence of the Works.
vi. Establishment charges, overheads and profit.

If any item in the Bill of Quantities is not priced, the cost of the work for such item shall be deemed to be spread over and included in the rates and prices for other items of work. The Bill of Quantities has been divided into sections for convenience of measurement and pricing.

1.3 The rates and prices inserted by the Contractor are to be the full and inclusive value of the work described. They must include all plant, tools, materials, transport of men and materials, insurance and labour of every description. They must also take into account the conditions referred to in the General Conditions of Contract and other documents on which the tender is based, and include the time lost due to weather, payment of guaranteed minimum and holidays with pay. The cost of any travelling time, subsistence and incentives such as overtime, etc. must be included in the rates and prices. Where any special risks, liabilities and obligations mentioned above or otherwise, cannot be dealt with in the rates, then the price thereof is to be separately stated in an item or items provided for the purpose or added by the Contractor.

1.4 The cost of all temporary works required for the construction of the Works shall be deemed to be included in the Contractor’s rates and prices listed in the BOQ. Other than the items

provided in the BOQ, no additional payment or any claims for the cost of temporary works shall be allowed.

1.5 The rates and prices in the Bill of Quantities shall be deemed to include all obligations for the location, procurement and maintenance of adequate water and power supplies and shall be deemed to include for all costs in association therewith, unless expressly the subject of specific items.

1.6 The quantities of work and material in the Bill of Quantities are not to be considered as limiting or extending the amount of work to be done and material to be supplied by the Contractor. The quantities of the Bill of Quantities are an estimate of the amount of work, but the work will be measured on completion and the Contractor will be paid on the actual measurement of work agreed by the Engineer.

1.7 Descriptions given are brief references only and the Contractor is referred to the respective Clauses of the Conditions of Contract and the Specifications and to the Drawings for the full descriptions and instructions. The Clauses of the Conditions of Contract and of the Specifications will be equally binding as if they had been fully repeated in the Bill of Quantities and the Contractor must allow for this in his prices. Furthermore, the Clause numbers quoted herein are for reference only and are not guaranteed as comprising the whole of the relevant descriptions or instructions.

1.8 Where alternatives are proposed for materials, plant or methods of construction, the original items scheduled in the Bill of Quantities shall be priced as described and the alternatives shall be priced separately.

1.9 Where Specifications clauses or drawings are expressly stated in item descriptions, these items shall be deemed to include for all relevant items referred to in such clauses or on such drawings as well as all other relevant items specified in or reasonably implied in the Contract.

1.10 "Ditto" shall mean the whole of the preceding description except as qualified in the description in which it occurs. Where it occurs in descriptions of succeeding items it shall mean the same as in the first description of the series in which it occurs except as qualified in the description concerned. Where it occurs in brackets it shall mean the whole of the preceding description which is contained within the appropriate brackets.

1.11 The units of measurement described in the Bill of Quantities are metric units.

1.12 All rates and sums of money quoted in the Bill of Quantities shall be in Mauritian Rupees.

1.13 Arithmetic errors (if any) will be corrected by the Bid Evaluation Committee and such corrections shall be final and binding. Where a discrepancy exists between the unit rates in the "Rate" column and the extended total price in the "Amount" column, the unit rate shall be taken as correct and the amount adjusted accordingly.

1.14 The Contractor shall be deemed to have visited the Site before preparing his Tender and to have examined for himself the conditions under which the work will proceed and all other matters affecting the carrying out of the Works and the costs thereof.

1.15 "Instructed", "directed" or "approved" shall mean the instruction, direction or approval of the Engineer in writing.

1.16 The Contractor shall not be automatically entitled to receive payment for any item for work that has not been carried out or on any items that are not used. Payment will be made only on the basis of re-measurement of work actually done.

1.17 The rate for the construction of temporary access roads through and around the site shall include for all costs incurred by the Contractor for providing and maintaining such access and for reinstatement of the area to its original condition.

2. Dayworks

2.1 The rates and the valuation of works ordered by the Engineer to be executed on a daywork basis shall be made in accordance with the following: -

Plant

2.2 Rates shall be inserted against all items of plant listed and the amount extended to the 'Amount' column.

2.3 Plant Daywork hire rates shall include all operating and maintenance costs including fuel, oil, grease, spare parts, repairs, insurance and all other costs whatsoever together with operators, superintendence, any extra costs of overtime, overhead charges, P&G and profit. The rates shall also include for travelling time and costs for the plant operators, etc., to and from and about the site.

2.4 Idle time where due solely to the nature of dayworks or authorised methods of procedure will be paid for at one half of the rates entered herein.

2.5 Hire rates shall be paid only for the time during which the plant is actually working on daywork as authorised by the Engineer. Plant hire rates shall not be paid for periods of breakdown, inefficiency or unsuitability of the plant.

Labour

2.6 Rates shall be inserted against all categories of labour listed and the amount extended to the Amount' column.

2.7 The Labour Daywork rates shall include the net hourly rate paid to the worker plus special allowances to such labour in respect of subsistence, bonuses, overtime, feeding, housing, gratuity, holidays, transport to or from the Site or any cost of overhead charges in respect of recruitment, camp administration, welfare, medical treatment, supervision, insurances, profit and any other costs or allowances.

2.8 The cost of supervisors, foremen and working gangers employed in a supervisory capacity only shall be included in the daywork rates and shall not be paid for separately. The rates shall cover for the supply, transport about the Site, use, maintenance and renewal of all hand tools and equipment available on site and used on Dayworks, such as wheelbarrows, spades, picks,

crowbars, hammers, ropes, chains, hooks, blocks, pulleys, scaffolding, timber putlogs, running planks, ladders, hand operated jacks, handpumps, lamps, timber runways or platforms, tarpaulins and all other like hand tools and general equipment not specifically referred to under the listed plant hire for Dayworks.

2.9 Where the Engineer orders work to be carried out on a Daywork basis outside the Site, necessary travelling time between site and such places of work shall be allowed as hours worked.

2.10 The cost of plant operators is included in the daywork plant hire rates and are not paid separately under labour dayworks.

2.11 The total amount from the extension of all labour items is a Provisional Sum.

Materials

2.12 Rates shall be inserted against all items for materials listed and the amount extended to the 'Amount' column.

2.13 The rates inserted are to include all loading, transport, unloading, storage, double handling, insurance, superintendence, overheads and profit.

2.14 The materials shall in all instances conform to the qualities and descriptions stated in the Specifications.

3. Provisional Sums

3.1 No item for which a Provisional Sum is inserted shall be purchased by the Contractor until the Project Manager has given written instructions to this effect and it shall be the duty of the Contractor to make an application to the Project Manager sufficiently in advance of the progress of the work for instructions with regard to each such items. The Contractor shall obtain competitive quotations and samples if required and shall submit these to the Project Manager for approval.

3.2 The Contractor shall produce to the Project Manager the receipted accounts for all articles purchased under Provisional. No payment to the Contractor shall be made in respect of the items until the said receipts have been presented to the Project Manager.

3.3 The Contractor shall enter the percentage mark up of corresponding items described as Provisional Sum.

3.4 Provisional sums inserted in the Bill of Quantities in respect of materials to be specially imported for the Contract by the Contractor shall be deemed to include insurance, freight, dock and all other charges. In the case of imported materials obtained through a manufacturer's agent in Mauritius the sum shall be deemed to include the agent's fees and charges.

3.5 The Bill of Quantities include items in respect of the Provisional Sums for materials and sub-contracts given in the form of a percentage of the sums to be expended to cover the

Contractor's profit and overheads, including but not limited to the costs of obtaining quotations for, and the placing of orders or awarding sub-contracts, and all expenses in connection with administering such orders or sub-contract and financing cost for payment of these sums until recovery from Interim Certificates.

3.6 Items described as Provisional Sum or Prov. Sum or Provisional in the column of Description or Unit of the Bill of Quantities shall be subject for approval from the Project Manager prior of executing the items of work. Such items may be used in whole or in part, or not at all as instructed by the Project Manager

4. Method Related Charges

4.1 In order that the Contractor may cover his costs in executing the whole of the Works in conformity with the contract documents, where those costs are not properly attributable to the quantity of permanent works to be executed, he may cover such costs in the Bills of Quantities as method related charges.

A Bidder may insert in the Bills of Quantities and in the space provided, such items for Method Related Charges as he may decide to cover items of work relating to his intended method of executing the works, the costs of which are not to be considered as proportional to the quantities, rates and prices for the other items.

Each item for a Method Related Charge inserted by the Tenderer shall be fully described so as to define precisely the extent of work covered and to identify the constructional resources (plant, equipment etc.) to be used and the particular items of permanent or temporary works to which the items relate.

Bill No. 1: General and Preliminary

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
1.1	***Method Related Charges*** Mobilisation and demobilisation of plant and equipment for the whole duration of the work on site.	Sum	1		
1.2	Insurance.	Sum	1		
1.3	Guarantees.	Sum	1		
1.4	Supply of Operation and Maintenance manual.	Sum	1		
1.5	On site training on operation and maintenance of Centre Pivots to the Engineers, Divisional Irrigation Officer, Irrigation Officers and field supervisors, prior to commissioning.	Sum	1		
	Sub Total to be transferred to Bill No. 1 of Summary of Price				

Bill No. 2: Centre Pivot P1- Block 2

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
2.0	**CENTRE PIVOT P1- BLOCK 2**				
	The scope of the works shall be as follows: 1. Supply, install and test one new centre pivot system similar or equivalent in dimensions and features to the existing old one on site, complete with control panel, SS cable straps, electrical cables – to be 11-core aluminium along spans and 4-core 2.5mm^2 copper from centre drive motor to tower box as per specifications. 2. Dismantling of the old valves and fittings at the inlet to the centre pivot and delivery of same at our store yard at Plaine des Papayes. 3. Supply, install, test and commission new gate valve, double-orifice air valve, pressure reducing valve, automatic brush-away filter, pressure relief valve, dismantling joint and automatic flow control valve which are similar or equivalent to the existing ones on site. The new centre pivot shall be capable of being moved forward and in the reverse direction at a pre-set adjusting running speed. All the different parts including the bolts and nuts shall be genuine and as per the manufacturer's recommendation. Allow for the fixation of all the anchoring plates, metal straps, bolts, nuts and any concrete anchor block at the pivot centre point.	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
2.1	**Control Panel and Electrical Works**				
	Supply, fix and test appropriate Control Panel complete with all associated electrical wiring works, breakers, switches, connection boxes, and accessories for power and control of the new centre pivot as per specifications. The control panel shall have the following features among others: 1. Start/stop. 2. Forward/reverse. 3. Water on/water off. 4. Auto reverse/ auto stop. 5. Adjusting running speed. 6. Phase failure protection. 7. Under voltage protection, adjustable from 200 to 500 v. 8. Low Pressure Shut down. 9. End Gun on/End Gun off. (Power supply is readily available on site)	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
2.2	**Security Alarm System with Telephone Monitoring Response Services**				
	Supply, install, test and commission an effective security alarm system as per specifications to the new Centre Pivot, which would secure it from the occurrence of theft of electric cables, drive motors and copper parts.	Sum	1		
2.3	**Electric Fence around the Compound of the Control Panel area**				
	Supply, install, test and commission an electric fence system as per specifications around the compound of the control panel area of the new centre pivot, using the existing steel poles	Sum	1		
2.4	**Provision for marker post at Parking Area**				
	Supply and fix concrete marker posts at a distance of 50 metres on each side of the parking area having the following specifications: 1) Total length :1000 mm 2) Height above ground : 600 mm 3) Buried depth : 400 mm 4) Cross-Section (rectangular) : 150 mm x 75 mm. 5) Concrete grade : M20. 6) Reinforcement : 4 bars of 8mm dia., ties of 6 mm dia. at 150 mm c/c	Sum	1		
	Sub Total to be transferred to Bill No. 2 of Summary of Price				

Bill No. 3: Centre Pivot P4- Block 2

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
3.0	**CENTRE PIVOT P4- BLOCK 2**				
	The scope of the works shall be as follows: 1. Supply, install and test one new centre pivot system similar or equivalent in dimensions and features to the existing old one on site, complete with control panel, SS cable straps, electrical cables – to be 11-core aluminium along spans and 4-core 2.5mm^2 copper from centre drive motor to tower box as per specifications. 2. Dismantling of the old valves and fittings at the inlet to the centre pivot and delivery of same at our store yard at Plaine des Papayes. 4. Supply, install, test and commission new gate valve, double-orifice air valve, pressure reducing valve, automatic brush-away filter, pressure relief valve, dismantling joint and automatic flow control valve which are similar or equivalent to the existing ones on site. The new centre pivot shall be capable of being moved forward and in the reverse direction at a pre-set adjusting running speed. All the different parts including the bolts and nuts shall be genuine and as per the manufacturer's recommendation. Allow for the fixation of all the anchoring plates, metal straps, bolts, nuts and any concrete anchor block at the pivot centre point.	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
3.1	**<u>Control Panel and Electrical Works</u>**				
	Supply, fix and test appropriate Control Panel complete with all associated electrical wiring works, breakers, switches, connection boxes, and accessories for power and control of the new centre pivot. The control panel shall have the following features among others: 1. Start/stop. 2. Forward/reverse. 3. Water on/water off. 4. Auto reverse/ auto stop. 5. Adjusting running speed. 6. Phase failure protection. 7. Under voltage protection, adjustable from 200 to 500 v. 8. Low Pressure Shut down. 9. End Gun on/End Gun off. (Power supply is readily available on site)	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
3.2	**Security Alarm System with Telephone Monitoring Response Services**				
	Supply, install, test and commission an effective security alarm system as per specifications to the new Centre Pivot, which would secure it from the occurrence of theft of electric cables, drive motors and copper parts.	Sum	1		
3.3	**Electric Fence around the Compound of the Control Panel area**				
	Supply, install, test and commission an electric fence system as per specifications around the compound of the control panel area of the new centre pivot, using the existing steel poles	Sum	1		
3.4	**Provision for marker post at Parking Area**				
	Supply and fix concrete marker posts at a distance of 50 metres on each side of the parking area having the following specifications: 1) Total length :1000 mm 2) Height above ground : 600 mm 3) Buried depth : 400 mm 4) Cross-Section (rectangular) : 150 mm x 75 mm. 5) Concrete grade : M20. 6) Reinforcement : 4 bars of 8mm dia., ties of 6 mm dia. at 150 mm c/c	Sum	1		
	Sub Total to be transferred to Bill No. 3 of Summary of Price				

Bill No. 4: Centre Pivot P1- Block 3

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
4.0	**Centre Pivot P1- Block 3**				
	The scope of the works shall be as follows: 1. Supply, install and test one new centre pivot system similar or equivalent in dimensions and features to the existing old one on site, complete with control panel, SS cable straps, electrical cables – to be 11-core aluminium along spans and 4-core 2.5mm^2 copper from centre drive motor to tower box as per specifications. 2. Dismantling of the old valves and fittings at the inlet to the centre pivot and delivery of same at our store yard at Plaine des Papayes. 5. Supply, install, test and commission new gate valve, double-orifice air valve, pressure reducing valve, automatic brush-away filter, pressure relief valve, dismantling joint and automatic flow control valve which are similar or equivalent to the existing ones on site. The new centre pivot shall be capable of being moved forward and in the reverse direction at a pre-set adjusting running speed. All the different parts including the bolts and nuts shall be genuine and as per the manufacturer's recommendation. Allow for the fixation of all the anchoring plates, metal straps, bolts, nuts and any concrete anchor block at the pivot centre point.	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
4.1	**Control Panel and Electrical Works**				
	Supply, fix and test appropriate Control Panel complete with all associated electrical wiring works, breakers, switches, connection boxes, and accessories for power and control of the new centre pivot. The control panel shall have the following features among others: 1. Start/stop. 2. Forward/reverse. 3. Water on/water off. 4. Auto reverse/ auto stop. 5. Adjusting running speed. 6. Phase failure protection. 7. Under voltage protection, adjustable from 200 to 500 v. 8. Low Pressure Shut down. 9. End Gun on/End Gun off. (Power supply is readily available on site)	Sum	1		
	Total C/F				

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
	Total B/F				
4.2	**Security Alarm System with Telephone Monitoring Response Services**				
	Supply, install, test and commission an effective security alarm system as per specifications to the new Centre Pivot, which would secure it from the occurrence of theft of electric cables, drive motors and copper parts.	Sum	1		
4.3	**Electric Fence around the Compound of the Control Panel area**				
	Supply, install, test and commission an electric fence system as per specifications around the compound of the control panel area of the new centre pivot, using the existing steel poles	Sum	1		
4.4	**Provision for marker post at Parking Area**				
	Supply and fix concrete marker posts at a distance of 50 metres on each side of the parking area having the following specifications: 1) Total length :1000 mm 2) Height above ground : 600 mm 3) Buried depth : 400 mm 4) Cross-Section (rectangular) : 150 mm x 75 mm. 5) Concrete grade : M20. 6) Reinforcement : 4 bars of 8mm dia., ties of 6 mm dia. at 150 mm c/c	Sum	1		
	Sub Total to be transferred to Bill No. 4 of Summary of Price				

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF NEW CENTRE PIVOTS IN REPLACEMENT TO EXISTING OLD ONES

PROCUREMENT REFERENCE NO: OAB/OMD/CENTREPIVOTS/33/25

SUMMARY OF PRICE

BILL NO.	DESCRIPTION	AMOUNT (MUR)
1	GENERAL AND PRELIMINARY	
2	CENTRE PIVOT P1 – BLOCK 2	
3	CENTRE PIVOT P4 – BLOCK 2	
4	CENTRE PIVOT P1 – BLOCK 3	
SUB- TOTAL		
ADD 15% VAT		
ADD CONTINGENCY		200,000.00
GRAND TOTAL, MUR (INCLUDING VAT AND CONTINGENCY)		

Priced Activity Schedule Authorised By:

NAME: .....

POSITION: .....

SIGNATURE: .....

DATE: .....

NAME OF COMPANY: .....

ADDRESS OF COMPANY:
.....

COMPANY SEAL:

Schedule of rate

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
1.0	**PLANT**				
1.01	Water bowser (1500 L)	hr	1		
1.02	Concrete mixer (1 m^3)	hr	1		
1.03	Poker Vibrator	hr	1		
1.04	Crane lorry (3 ton)	hr	1		
1.05	Electric/Petrol generator	hr	1		
1.06	Water pump	hr	1		
2.0	**LABOUR**				
2.01	Pipefitter	hr	1		
2.02	Welder	hr	1		
2.03	Carpenter	hr	1		
2.04	Mason	hr	1		
2.05	Labourer	hr	1		
2.06	Electrician	hr	1		
3.0	**MATERIAL**				
3.01	Crusher run	ton	1		
3.02	High yield tensile steel reinforcement	kg	1		
3.03	Mild tensile steel reinforcement	kg	1		
3.04	Galvanised angled bar of profile 50 x 50 x 6 mm	kg	1		
3.05	Crushed basalt coarse aggregate (<20mm)	m^3	1		
3.06	Crushed basalt fine aggregate	m^3	1		

Item No.	Description	Unit of Measure	Quantity	Rate (MUR)	Total Price (MUR)
4.0	**EXCAVATION**				
	The rates for excavation shall include trimming of sides, forming steps, keeping excavation free from water or mud, stacking and carting away of materials as directed by Project Manager				
4.01	Excavation in soil to depth not exceeding 2 m.	m^3	1		
4.02	Excavate in soil to depth exceeding 2m but not exceeding 4 m.	m^3	1		
4.03	Excavation in hard rock to depth not exceeding 2 m.	m^3	1		
4.04	Excavate in hard rock to depth exceeding 2m but not exceeding 4m.	m^3	1		
4.05	Excavate for unsuitable material below formation level where ordered by the Project Manager.	m^3	1		
5.0	**BACKFILLING**				
	The rate to include for supply, placing and compaction as per specifications.				
5.01	Hardcore filling consisting of sound hardstone not exceeding 150 mm size and compacting in layers not exceeding 250 mm thick	m3	1		
5.02	Soil materials free from organic matter and stones and compacted in layers not exceeding 150 mm	m3	1		
5.03	Compact Class B bedding under pipes as specified	m^3	1		
5.04	Compact Class B bedding under pipes to fill extra depth below formation after removal of unsuitable ground	m^3	1		

Section 3 - Employer's Requirements

3.1 Introduction

Twenty-five (25) new Centre Pivots were installed under different Contract in the years 2004/2006 /2008 and same are being operated and maintained by the Irrigation Authority.

The Contract under which the different Centre Pivots were supplied and installed are as given below:

S.n	Contract Name and Reference	Centre Pivot Referenced No.	Make
1	Conversion of High-Pressure Sprinkler System to Centre Pivot and Solid Set Sprinkler System in the Northern Plains Irrigation Project Stage1 (NPIP 1): Phases II and III (770 ha)	A1, A2, A3, A4, A5, A6 B1, B2, B3, B4, B5 C1, C2, C3	REINKE
2	Northern Plains Irrigation Project Phase II – Block 2 (Belle Vue Pilot/Fond du Sac Region) – Contract BLK 2/IPU/01/01	**Block 2** P1, P2, P3, P4, P5, P6	REINKE
3	Northern Plains Irrigation Project Phase II – Block 3 (Fond du Sac/Rouge Terre region) – Contract BLK 3/IPU/00/01	**Block 3** P1, P2, P3	BAUER
4	Northern Plains Irrigation Project Phase II – Block 8A (Mon Tracas/L'Esperance Trebuchet) – Contract BLK8A/IFAD/IPU 01/04	**Block 8** Block 8-A1 Block 8-A2	REINKE

Over the years all the above Centre Pivots have suffered from wear and tear, weathering, vandalism and atmospheric corrosion to the extent that they now require immediate replacement.

The Irrigation Authority has decided to embark on a replacement program by replacing a few of the old Centre Pivots by new ones every financial year.

The Centre Pivots that are earmarked to be replaced under this Contract are:

1. Centre Pivot P1-Block 2 – (REINKE)
2. Centre Pivot P4-Block 2 – (REINKE)
3. Centre Pivot P1- Block 3 – (BAUER)

Bidders are requested to supply, install and test new ones of the type similar or equivalent to the existing ones, but with the latest model and technologies.

The main features which need to be respected while supplying the new Centre Pivots in replacement to the existing pivots are provided below at Section 3.3 – Operating Conditions.

3.2 Scope of Works

The scope of works is described below:

1. Supply and install new Centre Pivots, complete with all parts and accessories including gate valve, pressure reducing valve, filter, double orifice air valve, pressure reducing valve, automatic control valve, dismantling joint, control panel, metal structures, piping, sprinklers, fittings, tyres, wheels, gear boxes, drive motors, protective devices and all other associated equipment.
2. Provision of concrete marker posts to delineate parking areas, every 50 metres on each side.
3. Supply, installation, testing and commissioning of an effective security alarm systems to each Centre Pivot, which would deter theft of electric cables, drive motors and copper parts.
4. Supply, installation, testing and commissioning of electric fencing system to each Centre Pivot.
5. Training on the operation and maintenance of the Centre Pivots to selected employees from the Irrigation Authority, prior to commissioning on the centre pivots.
6. Testing, commissioning and maintenance of the Centre Pivots during the Defects liability Period including the making good of possible defects.

3.3 Operating Conditions

The operating conditions and status of the existing Centre Pivots to be replaced are:

S.N	Centre Pivot	Operating Pressure (bar)	Flow (m^3/hr)	Length (m)	No. of Towers	End gun Radius (m)	Overhang Length (m)	Power Supply 3 Ph, 50 Hz 380/400V
1	P1 – Block 2	5.1	88.8	355.5	6	23.1	9.4	√
2	P4 – Block 2	5.2	109.5	397.8	7	24.6	12.4	√
3	P1 – Block 3	4.2	163.7	299.7	5	19.9	11.7	√

Full information of the Centre Pivots with regard to the following parameters are provided at **Annexure 1.**

3. Sprinkler set up chart
4. Length and diameters of the different spans
5. Details of end guns
6. Positioning, spacing, model and colour of each nozzle, etc.

3.4 Site and location Plan

The existing Centre Pivots are located at different sites in the Northern Plains Irrigation Project areas.

3.5 Installation

The actual locations of Centre Pivots P1- Block 2, P4- Block 2 and P1 – Block 3 are shown at drawing No. OAB/OMD/CENTREPIVOTS/48/24/01 – Location of existing Centre Pivots.

3.6 Centre Pivot

The new Centre Pivot systems shall be constructed from high strength galvanized steel materials offering the greatest corrosion protection under most conditions and shall consist of a rotating arm that sprays water continuously through water pipes flanged to each other across the field in a circular pattern.

The bolts and nuts used for fastening the different members shall be of the appropriate types and sizes as recommended by the manufacturer.

Bidder should provide full technical specifications of all the different components of the Centre Pivots. All the components should be most suitably adapted to the operating conditions provided at section 3.3 above and to the tropical conditions of Mauritius.

The key components of the Centre Pivot system shall be as described below:

1. Pivot Point

- The Centre Pivot shall have **pivot point** which is the central hub where the system is anchored. It is the point around which the rest of the system shall rotate. This structure shall typically include:
    - A **water supply connection**, where water enters the system, at the existing concrete platform.
    - **Control panels** for managing the operation of the system (timing, speed, and water flow).

2. Control Panel

The Control panel should made from Stainless steel enclosure for maximum protection and safety, manufactured under strict ISO 9001 quality standards or better.

The Control panel should be equipped with selector switch, push button, indicator light, switch disconnect handle, percentage timer, voltmeter, hour meter, etc.

It should have the following function:

- Start/stop
- Forward/reverse

- Water on/water off
- Auto reverse/ auto stop
- Adjusting running speed
- Phase failure protection
- Highest quality components internationally known electrical components
- Flexible control panel can be installed on any center pivot irrigation system
- Clearly identified control wiring to make electrical troubleshooting easier
- Under voltage protection, adjustable from 200 to 500 v
- Low Pressure Shut down
- End Gun on/End Gun off

3. Electric Cables

Along spans : The electrical cables shall be 11-cores aluminium cables of appropriate cross-sectional area to meet the current carrying capacity to each centre pivot. The outer insulation sheath of the cables shall be UV resistant and suitable for tropical climate.

Relevant certificates of compliance from the accredited testing body (MSB), shall be provided and approved by the Project Manager, prior to installation on sites.

Note : Stainless steel strap or clamps at 3m intervals around the power cables over the spans shall be provided.

From centre drive to tower box : The electrical cables shall be 4-cores copper electric cables of size 2.5mm^2 from centre drive to tower box.

Note : Stainless steel straps (3 per tower base) shall be provided.

4. Span

- The **span** refers to the individual sections or arms of the pivot system, which shall be made of high strength galvanized steel. These sections shall carry the sprinklers and support the system as it rotates.

5. Sprinkler Heads

- **Sprinkler heads** shall be attached along the length of the span to distribute water. Sprinklers with **high-efficiency nozzles** shall be supplied so as to minimize water loss.
- Bidders are requested to refer to the Sprinkler Chart as provided at **Annexure 1** for information concerning the model and type to be supplied.

6. Towers

- The Centre Pivot system shall be supported by **towers** (also called drive units or drive towers), which are placed at intervals along the span. These towers shall be motorized and have wheels that move the entire system in a circular motion around the pivot point.

7. Drive Mechanism

- Each tower shall have a **drive mechanism** powered by electric motors that shall allow the span to rotate around the central pivot. The system shall move slowly to cover the field efficiently.

8. Control System

- The Centre Pivot system shall be equipped with **automated control systems** allowing the adjustment of water application rates.

9. End Gun

- At the end of the span, an **end gun** (a high-pressure sprinkler) shall be installed, that can extend the range of irrigation, allowing the system to cover more of the field, especially at the corners.
- The make and model of the End Gun shall be similar or equivalent to Nelson SR 100.
- The end gun shall be able to be put on and off from the control panel at specific positions of the centre pivots.

10. Water Source

- Water is readily available on site at the centre point of each existing Centre Pivot through an existing pipe network.

11. Truss and Bracing

- A series of **trusses and braces** shall support the span, keeping it rigid and properly aligned while rotating. These structural elements shall help prevent sagging and ensure uniform water distribution.

The other main components which the Centre Pivots shall consist of are:

1. Gearbox (helical standard type)
2. Control box
3. Collector ring
4. Shaft
5. Overhang
6. End guns
7. Tyres and Wheels, etc…

3.7 Valves, fittings and accessories at inlet to Centre Pivots

Bidders are required to supply, install, test and commission the following new valves, fittings and accessories which shall be similar or equivalent to existing old ones on sites as follows:

1. Gate Valve – to be similar or equivalent to existing one
2. Double orifice air valve – –To be similar or equivalent to CSA – Fox Model
3. Pressure Reducing Valve – To be similar or equivalent to Raphael – RAF 60
4. Automatic motorized Filter with brushaway – from Amiad.
5. Dismantling Joint – To be similar or equivalent to Leya – Series 1020
6. Pressure Relief Valve – To be similar or equivalent Raphael – RAF 80
7. Automatic Control Valve – To be similar or equivalent to Nelson – series 800

3.8 Security Alarm System with Telephone Monitoring Response Services

Bidders are required to supply, install, test and commission an effective security alarm system to each new Centre Pivot, which would secure it from the occurrence of theft of electric cables, drive motors and copper parts.

The Security Alarm System shall have the following features:

1. The security alarm system should be such that it would be immediately triggered following:
    - tampering with electric cables at the Centre, over the spans of the Centre Pivot, supplying the drive motors and tower boxes, and
    - tampering with the drive motors and pilot valves (made of Copper).
2. The alarm system should be able to immediately dial the IA officers for intervention on site upon occurrence of any tampering.
3. The alarm system shall be powered by using the 3-phase power supply available on site at the actual existing Centre Pivot. Electrical supply of the alarm system shall be made either from any one core out of the 11-core aluminium cable running along the spans to each of the Centre Pivots or from any other alternative which would ensure functioning of the alarm system.
4. The main power panel should be secured with a magnetic contact which would trigger an external siren in case of intrusion. The alarm system should be equipped with a keypad and at least 2 remote switches so as to arm or disarm it whenever being accessed by IA personnel.
5. Rechargeable power supplies shall be provided to allow functioning of the alarm system in case of electricity power failure.
6. All installed components should be properly secured in a foolproof and hermetic box in conformity with IP 65 or better.
7. All alarm equipment should be covered by a warranty of at least one year, as from the date of commissioning.

Training shall be provided to staff of the Irrigation Authority on arming and disarming the alarm system, and any other aspect deemed appropriate.

3.9 Electric Fence around the Compound of the Control Panel area

Bidders are required to supply, install, test and commission an electric fence system around the compound of the control panel area of each centre pivots, using the existing steel poles.

The compound of each of the control panel areas, having a perimeter of around 40 m each has to be enclosed with electric fence over a height of 2.4m, with at least 24 horizontal wires spaced closely enough to prevent intruders from having access into the control panel area. The electric fence should be installed on appropriate supports along the perimeter of the control panel area. It shall include a double leaf gate (1.5 m wide each and height similar to the fencing). The electric charge over the horizontal wires to be strong enough so as to deter intrusion within the control panel area, but not cause serious injury or death of any person or animal touching the electric fence by accident.

The electric fence system shall have the following features:

1. All installed components should be properly secured in a foolproof and hermetic box in conformity with IP 65 or better.
2. All equipment should be covered by a warranty of at least one year, as from the date of commissioning.
3. Provision for rechargeable power supplies, which may be used in case of electricity power failure.
4. Appropriate fluorescent warning signs on four sides of the electric fencing shall be fixed.

Training shall be provided to staff of the Irrigation Authority on safety measures and any other aspect deemed appropriate.

3.10 Operation and Maintenance Manual

The Bidder shall submit with the material, plant or equipment, all the manuals and drawings describing the recommended detailed procedures for their assembly, dismantling, installation, operation and maintenance. These documents shall also provide the dimensions, weight and space required for the operation and maintenance of said Centre Pivots and equipment.

The Bidder shall also submit a detailed catalogue of the Centre Pivot system, identifying their part numbers and any additional information required for re-ordering.

3.11 Training

The duration of the training shall be over a period of one week to the Engineers, Divisional Irrigation Officer, Irrigation Officers and Field Supervisors of the Operation and Maintenance Department.

3.12 Progress Photograph

The Bidder shall provide progress photographs, illustrating each stage of the work being carried out and to submit same to the Project Manager for onward transmission to the Operation and Maintenance Department.

3.13 Bolts, Nuts, Washers and Gaskets

All bolts, nuts and washer for fastening of different parts and for flange connections shall be of the grade and type as per the Manufacturer's recommendation.

Gaskets shall be made of reinforced type EPDM rubber, in accordance with BS EN681-1 and duly certified as suitable for raw water supply (irrigation water), by one of the International regulations or as recommended by the manufacturer of particular valve and fitting

3.14 Steel Pipes, Structural Steel members and Fittings

All steel pipes, structural steel members and fittings shall be made from high strength galvanized steel materials and should be according to the Manufacturer's latest and proven design recommendation with regard to thickness and galvanization coating and standard.

3.15 Drawings

The following drawings are annexed:

Drawing No.	Title
OAB/OMD/CENTREPIVOTS/48/24/01	Location of existing Centre Pivots

Section 4 - General Conditions of Contract and Particular Conditions of Contract

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC), **(Ref:W/GCC10/04-24**), for the Procurement of Works (available on website *ppo.govmu*.org) except where modified by the Particular Conditions of Contract below.

Procurement Reference No: OAB/OMD/CENTREPIVOTS/33/25

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

Particular Conditions of Contract

PROCUREMENT REFERENCE NO: OAB/OMD/CENTREPIVOTS/33/25

These clauses should be read in conjunction with the General Conditions of Contract.

A. General	
GCC 1.1 (o)	The Defects Liability Period is 6 months from successful commissioning of the whole project.
GCC 1.1 (r)	The Employer is the Irrigation Authority The authorised representative is the General Manager of Irrigation Authority
GCC 1.1 (v)	The Intended Completion Period for the whole of the Works shall be one hundred and fifty (150) calendar days calculated from start date.
GCC 1.1 (y)	The Project Manager is to be appointed by the Employer.
GCC 1.1 (aa)	The Sites are located in the Northern Plains Irrigation Project as per drawing N**o.** OAB/OMD/CENTREPIVOTS/48/24/01
GCC 1.1 (dd)	The Start Date shall be seven (7) days from the date of the Order to Commence works to be issued by the Project Manager.
GCC 1.1 (hh)	Refer to Section 3.2 - Scope of Works.
GCC 2.2	Sectional Completions are not allowed.
GCC 2.3(i)	The following documents also form part of the Contract: 1) Pre-award correspondences 2) Letter of Acceptance 3) Specifications 4) Bill of Quantities 5) Drawings 6) Post-award Submissions a) Performance Security b) Insurance Policies c) Joint Venture Agreement (if any) d) Programme of Works 7) Technical Proposal submitted by the Bidder including all catalogues and brochures 8) Any other document submitted by the Bidder which the Employer considered to be necessary for inclusion in the Contract.
GCC 3.1	The language of the contract is English The law that applies to the Contract is the law of the Republic of Mauritius.

GCC 4.1	The Project Manager shall obtain specific approval from the Employer before carrying out any of his duties under the Contract which in the Project Manager's opinion will cause the amount finally due under the Contract to exceed the Contract Price or will give entitlement to extension of time. This requirement shall be waived in an emergency affecting safety of personnel or the Works or adjacent property.
GCC 5.1	The Project Manager is not allowed to delegate any of his duties and responsibilities without the approval of the Employer.
GCC 6	Any notice shall be sent to the following addresses: The General Manager, Irrigation Authority, 5th Floor Fon Sing Building, 12 Edith Cavell Street Port Louis. For the Contractor, the address shall be as given on the first page of the Letter of Acceptance and the contact name shall be: _____.
GCC 8.1	Schedule of other contractors: Not applicable
GCC 9.1	To add under Key Personnel: (i) One Contract Manager, holding at least a Degree in Mechanical, Electromechanical or Building Services Engineering from a recognised institution. He shall have at least 5 year experience in Mechanical or Electromechanical engineering works or Building Services Engineering works and shall be registered with the Council of Registered Professional Engineer of Mauritius. (ii) Site agent holding at least a Degree in Mechanical or Electromechanical engineering works or Building Services Engineering works from a recognised institution and shall be registered with the Council of Registered Professional Engineer of Mauritius. He shall have at least 3 years post registration experience in Mechanical or Electromechanical engineering works or Building Services Engineering works. (iii) One foreman having at least 3 years of experience in pipe laying works, plumbing works and installation of water works. (iv) At least one qualified plumber/pipe fitter having a minimum 3 years of experience related to installation of water works.

GCC 13.1	Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be: a) for the Works, Plant and Materials: Contact Price + 15% **b)** for loss or damage to Equipment: **Cost of equipment plus** **15% of its value** c) for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract: Rs 3 million d) for personal injury or death: i. of the Contractor's employees: As per laws of Mauritius ii. of other people: Rs 10 million - This cover shall be in the joint name of the two parties covering any third party and extended to the site representatives of the Irrigation Authority**.** e) for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable. The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor. All insurance covers shall be valid from the commencement of works until the end of the defects liability period and shall be approved by the Project Manager.
GCC 14.1	Site Data are: There are no site data available for consultation. Available information concerning the site are described in the specifications, bill of quantities and drawings. Bidders are however advised to visit and examine the site of works and surrounding prior to submission of bid. They should acquaint themselves with the nature of site, extent of work, limits of site, sizes and accessibility to existing chambers, means of access, general nature of the soil and all other matters which may influence preparation and execution of their bid. All costs incidental thereof shall be at the Bidder's own expense. No claim due to ignorance of these factors as mentioned in the preceding paragraph shall be entertained from the contractor. The costs of visiting the site shall be at the Bidder's own expense.
GCC 16.1	The intended completion date shall be **One hundred and Twenty (150)** calendar days from the Start Date
GCC 20.1	The Site Possession Date shall be stated by the Project Manager in the Letter of Order to Commence and shall be based on the Program of works to be approved by the Project Manager as stated in GCC 25.1.
GCC 23.1 & GCC 23.2	Appointing Authority for the Adjudicator: **No Adjudicator shall be appointed for this Contract.**

GCC 24.	In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party. The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Irrigation Authority or the Contractor may give notice to the other party of its intention to refer the matter to the competent courts of Mauritius
GCC 24.3	Hourly rate and types of reimbursable expenses to be paid to the Adjudicator: **Not applicable.**
GCC 24.4	**Not applicable**
B. Time Control	
GCC 25.1	The Contractor shall submit for approval a Program for the Works within s*even (7)* calendar days from the date of the Letter of Acceptance.
GCC 25.3	Program update shall be required and the period between Program updates is ten *(*10*)* calendar days. The amount to be withheld for late submission of an updated Program is MUR 2,000.00 per day delayed.
C. Quality Control	
GCC 33.1	The Defects Liability Period is: 365 days calculated from the date of completion of the works to be certified by the Project Manager.
GCC 34.1	Delete sub-clause 34.1 and replace by the following: Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from monies due to the contractor or from the Performance Security.
GCC 37.1	To add: Prior to issue of any Variation Order (VO) involving cost implication, the Project Manager shall assess the variation and seek the approval of the Employer.
GCC 37.2	To add: The Project Manager shall assess all quotations and submit recommendation to Employer for approval prior to issue of the VO.

GCC 39.7	Interim Payment for Plant and Material on site is applicable.
D. Cost Control	
GCC 40.1	The Employer shall pay the Contractor the amounts certified by the Project Manager within 14 days of the date of each certificate but not later than 56 days after the Project Manager has received a statement with supporting documents from the Contractor. Minimum amount of Interim Payment shall be **MUR 500,000**
GCC 41.1 (I)	The term "exceptionally adverse weather conditions" is hereby defined as any one of the following events: (i) 100 mm rainfall or above recorded in one day of the nearest rain station; (ii) An official declaration of 'Torrential Rain' by meteorological Department of Mauritius; and (iii) Cyclone warning Class II or above.
GCC 43.1	The currency of the Employer's country is: **Mauritian Rupees**.
GCC 44.1	The Contract is not subject to price adjustment. It shall be a fixed price which shall not be revised or adjusted for any fluctuations in the cost of inputs.
GCC 45.1	10% of the amount shall be retained from any payment in respect of the value of work certified. Half of the retention money will be released after formal taking over of the Works and the remaining shall be released after the Defect Liability Period subject to the Contractor making good all defects. **The limit of Retention Money shall be 5% of Contract Price.**
GCC 46.1	The liquidated damages for the whole of the Works are MUR 5,000.00 per day. The maximum amount of liquidated damages for the whole of the Works is **10%** of the awarded contract value.
GCC 47.1	Not applicable.
GCC 48.1	The Advance Payments shall be: **10 %** of the Contract Price excluding VAT, less any provisional and contingencies sums and shall be paid to the Contractor within 14 days after signature of the Contract and submission of the Advance Payment security by the contractor no later than 7 days from the signature of the Contract.
GCC 49.1	The Performance Security amount is **10 %** of the awarded Contract Price excluding VAT, inclusive of Provisional Sum and Contingencies Sum and shall be in the form of an unconditional Bank Guarantee as per the format provided at section 5, and shall be valid until the issue of the Defects Liability Certificate

E. Finishing the Contract	
GCC 56	The date by which operating and maintenance manuals are required is two weeks before the intended completion date.
GCC 56.2	The amount to be withheld for failing to produce operating and maintenance manuals by the date required in GCC 56.1 is **MUR 20,000.00**.
GCC 57.2 (g)	The maximum number of days shall be computed based on the maximum amount of liquidated damages for the whole of the Works.
GCC 59.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is 25%.

Section 5 - Contract Forms

This Section contains forms which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

Performance Security

.....Bank/Insurance Company's Name and Address of Issuing Branch or Office.....

Beneficiary: .....*Name and Address of Public Body.....*

Date.....

PERFORMANCE GUARANTEE No.: .....

We have been informed that .....*[name of the Contractor]* ..... (hereinafter called "the Contractor") has entered into Contract No.....*[reference number of the Contract]* ..... dated..... with you, for the execution of .....*[name of Contract and brief description of Works]* .....(hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

At the request of the Contractor, we ..... *[name of Bank/Insurance Company]* .....hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ..... *[amount in figures (amount in words)]* ..... such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the.....day of ....., ..., whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

.....Seal of bank/Insurance Guarantee and

Signature(s).....

Advance Payment Security

The Guarantor…… [*insert bank/Financial Institution's name and address of place of issue, unless indicated in the letterhead]*

Advance Payment Guarantee No.:…… *[insert Guarantee Reference Number]* **Name of Contract/Contract No.: ……***.[insert name or reference number of contract]*

The Beneficiary (the Employer): ……***.....****[insert Name and Address of Employer]*

We have been informed that …….. *[insert name and address of the Contractor]* (hereinafter called the "Applicant") is your Contractor under such Contract and wishes to receive an advance payment, for which the Contract requires him/her to obtain a guarantee.

At the request of the Applicant, we ……*[insert name of Guarantor]* hereby irrevocably undertake to pay you, the Beneficiary/Employer, any sum or sums not exceeding in total the amount of ……*[insert in figures and words the maximum amount payable and the currency in which it is payable]* (the "Guaranteed Amount") upon receipt by us of your demand in writing and your written statement that:

(a) the Applicant has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or

(b) the Applicant has failed to repay the advance payment in accordance with the Conditions of Contract, specifying the amount of the advance payment which the Applicant has failed to repay.

This guarantee shall become effective upon receipt (of the first instalment) of the advance payment by the Applicant. The Guaranteed Amount shall be reduced by the amounts of the advance payment repaid to you, as evidenced by interim payment certificates issued under Sub-Clause 40.1 of the Conditions of Contract. Following receipt of a copy of each interim payment certificate, we shall promptly notify you of the revised Guaranteed Amount accordingly.

Any demand for payment must contain your signature(s) which must be authenticated by your bankers or by a notary public. The authenticated demand and statement must be received by us at the following office [insert address of office] on or before……*[insert the date 70 days after the expected expiry of the Time for Completion]* (the "Expiry Date"), when this guarantee shall expire.

The party liable for the payment of any charges: ……*[insert the name of the party]*.

This guarantee shall be governed by the laws of ……[insert the law governing the guarantee], and shall be subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

. . . . . ***[Seal of Bank/Insurance Company and Signature(s)]***. . . . . .

Letter of Acceptance

[on letterhead paper of the Employer***]***

. . . . . ***[date]***. . . . . ..

To: . . . . ***[name and address of the Contractor]*** . . . .

Subject: . . . . ***[Notification of Award Contract No]***. . . . . .

This is to notify you that your Bid dated . . . ***[insert date] . .*** . . for execution of the . . . . . ***.[insert name of the contract and identification number, as given in the Appendix to Bid]*** . . . . . for the Accepted Contract Amount of .Rs . . . . . ***.[insert amount in numbers and words and name of currency]***, exclusive of VAT, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by *(insert name of Public Body).*

You are requested to furnish the Performance Security in accordance with the General Conditions of Contract, using for that purpose of the Performance Security Form included in Section V (Contract Forms) of the Bidding Document.

Authorized Signature:

Name and Title of Signatory:

Name of Agency:

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . .day of . . . . . ., ..., between . . . . . ***[name of the* Employer*]***. . . .. (hereinafter "the Employer"), of the one part, and . . . . . ***[name of the Contractor]***. . . . .(hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . ***[name of the Contract]***. . . . .should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents*.*
   (a) the Letter of Acceptance
   (b) the Bid
   (c) the Addenda Nos . . . . . ***[insert addenda numbers if any]***. . . . .
   (d) the Appendix to the General Conditions of Contract
   (e) the General Conditions of Contract;
   (f) the Specification
   (g) the Drawings*;* and
   (h) the completed Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by:	Signed by: .....
for and on behalf of the Employer	for and on behalf the Contractor
In the presence of:	in the presence of: .....
Witness, Name, Signature, Address, Date	Witness, Name, Signature, Address, Date

Format for Bank Certificate

(Bank's Official Letterhead)

Bank Certificate

Procurement Reference No: ……..

Name of Project: .

For: …….. (Name of public body)

THE UNDERSIGNED

(Bank Name):

(Address): ……

Certifies that the firm:

…… (Name of firm and address)

for the purposes of submitting a bid for the above-mentioned project has, at the present time,

the financial means and resources for the proper execution of the Contract (if awarded) with a minimum of liquid assets and/or credit facilities of (MUR …….) net of other contractual commitments.

Drawn at…….

Date:……..

For: ……(Bank Name)

Represented by: ……(Name of Officer)

Status:…….

Signature:……..

[Bank Seal]

[Note: The bidder should ensure that the Bank Certificate submitted by a Bank shall be

substantially similar to the above format]

Annexure – Annexure 1

Centre Pivots : P1- (Block 2), P4 - (Block 2) and P1- (Block 3)

1. Sprinkler set up chart
2. Length and diameters of the different spans
3. Details of end guns
4. Positioning, spacing, model and colour of each nozzle, etc.

REINKE IRRIGATION SYSTEMS
PIVOT SYSTEM SPRINKLER CHART
E65/60 Std 114" Electro
REINKE IRRIGATION SYSTEMS
RMCchart0.97c

CASE NUMBER: RP040076 DATE: 09 Jan 2004

DEALER: SOTRAVIC LTEE CUSTOMER NAME: NORTHERN PLAINS #1
NUMBER: 81922 SERIAL NUMBER: 0104-30616-2060SG

NUMBER OF TOWERS:	6	NOZZLE FILES: N3000G , R3000G	
GAUGE PRESSURE:	5.1 bar	NOZZLE SELECTION OPTION:	1
TOTAL SYSTEM FLOW:	1480.1 lpm	FRICTION C-FACTOR:	135
TOTAL PIPE LENGTH:	355.5 m	COVERAGE WITHOUT GUN:	356.4 m
END GUN TYPE: SR75		ADJ. END GUN RADIUS:	23.1 m

FLOW RATE & RADIUS SPECIFIED-NOT COMPUTED

SYSTEM lpm PER ha: 32.9

LAST TOWER - TIRE SIZE: 14.9 x 24 CENTERDRIVE: 48:1

SYSTEM MANUFACTURER: REINKE

1	194-60	SPAN 1,	60.4 m,	14.73 cm ID PIPE
4	194-60	SPANS 2- 5,	59.1 m,	14.73 cm ID PIPE
1	160-60	SPAN 6,	49.2 m,	14.73 cm ID PIPE
1	32GF	OVERHANG,	9.4 m,	14.73 cm ID PIPE

DISCLAIMER

The uniformity of water application obtained with this system can be adversely affected by many variables including, but not limited to, the improper makeup or installation of the nozzle package; obstructed nozzles; tight and/or sloping soils; improper end gun arc settings; incorrect maintenance of pivot pressure; unfavorable climate conditions; and erratic and improper operating speed of the system. Reinke Mfg. Co., Inc. makes no warranty as to the uniformity of the coverage to be obtained from this water application printout other than its mathematical accuracy.

The products, which are specified as a part of this nozzle package design, are covered by the original manufacturer's printed "Warranty and Disclaimer", which applies to the individual components of their own manufacture. Reinke Mfg. Co., Inc. cannot be responsible for the performance of these products and makes no warranties, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, where permitted by law, and does hereby disclaim any liability for damages due to failure of these products to perform as anticipated.

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	DEL.	PRESSURE INLINE	
1	2.7		PLUG							
2	5.6		PLUG							
3	8.5		PLUG							
4	11.4	1	11.4	N3000	TN-#12 Gold	LB10	2.1	3.3	4.9	72
5	14.3		PLUG							
6	17.2	2	5.8	N3000	TN-#12 Gold	LB10	2.8	3.3	4.9	78
7	20.1		PLUG							
8	23.0	3	5.8	N3000	TN-#12 Gold	LB10	3.4	3.3	4.9	84
9	25.9		PLUG							
10	28.8	4	5.8	N3000	TN-#13 Gold w/lime	LB10	4.0	3.8	4.9	84
11	31.7		PLUG							
12	34.6	5	5.8	N3000	TN-#14 Lime	LB10	4.3	4.4	4.9	84
13	37.5		PLUG							
14	40.4	6	5.8	N3000	TN-#14 Lime	LB10	4.7	4.4	4.9	84
15	43.3		PLUG							
16	46.2	7	5.8	N3000	TN-#16 Lavender	LB10	5.6	5.8	4.9	78
17	49.1		PLUG							
18	52.0	8	5.8	N3000	TN-#16 Lavender	LB10	6.1	5.8	4.9	72
19	54.9		PLUG							
20	57.8	9	5.8	N3000	TN-#19 Gray w/trqu	LB10	7.8	8.1	4.8	60
	60.4	TOWER NO. 1								
21	61.9		PLUG							
22	64.8	10	7.0	R3000	TN-#17 Lvndr w/gra	LB20	8.4	8.8	4.8	66
23	67.7		PLUG							
24	70.6	11	5.8	R3000	TN-#16 Lavender	LB20	8.2	7.8	4.8	72
25	73.5		PLUG							
26	76.4	12	5.8	R3000	TN-#18 Gray	LB20	9.3	9.7	4.8	78
27	79.2		PLUG							
28	82.1	13	5.8	R3000	TN-#18 Gray	LB20	9.5	9.7	4.8	84
29	85.0		PLUG							
30	87.9	14	5.8	R3000	TN-#18 Gray	LB20	10.3	9.7	4.8	84
31	90.8		PLUG							
32	93.7	15	5.8	R3000	TN-#19 Gray w/trqu	LB20	11.5	10.9	4.8	84
33	96.6		PLUG							
34	99.5	16	5.8	R3000	TN-#20 Turquoise	LB20	12.2	12.1	4.8	84
35	102.4		PLUG							
36	105.3	17	5.8	R3000	TN-#21 Trqu w/yllw	LB20	12.7	13.1	4.8	78
37	108.2		PLUG							
38	111.1	18	5.8	R3000	TN-#21 Trqu w/yllw	LB20	12.9	13.1	4.8	72
39	114.0		PLUG							
40	116.9	19	5.8	R3000	TN-#23 Yllw w/red	LB20	15.3	15.6	4.8	60

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	LPM DEL.	PRESSURE INLINE	
	119.6	TOWER NO. 2								
41	121.0		PLUG							
42	123.9	20	7.0	R3000	TN-#23 Yllw w/red	LB20	16.0	15.6	4.8	66
43	126.8		PLUG							
44	129.7	21	5.8	R3000	TN-#23 Yllw w/red	LB20	15.9	15.6	4.8	72
45	132.6		PLUG							
46	135.5	22	5.8	R3000	TN-#24 Red	LB20	16.5	17.2	4.7	78
47	138.4		PLUG							
48	141.3	23	5.8	R3000	TN-#23 Yllw w/red	LB20	16.4	15.6	4.7	84
49	144.2		PLUG							
50	147.1	24	5.8	R3000	TN-#25 Red w/white	LB20	18.1	18.5	4.7	84
51	150.0		PLUG							
52	152.9	25	5.8	R3000	TN-#24 Red	LB20	17.8	17.2	4.7	84
53	155.8		PLUG							
54	158.6	26	5.8	R3000	TN-#26 White	LB20	19.5	20.1	4.7	84
55	161.5		PLUG							
56	164.4	27	5.8	R3000	TN-#25 Red w/white	LB20	19.0	18.5	4.7	78
57	167.3		PLUG							
58	170.2	28	5.8	R3000	TN-#27 White w/blu	LB20	20.9	21.5	4.7	72
59	173.1		PLUG							
60	176.0	29	5.8	R3000	TN-#28 Blue	LB20	22.7	23.4	4.7	60
	178.7	TOWER NO. 3								
61	180.1		PLUG							
62	183.0	30	7.0	R3000	TN-#28 Blue	LB20	23.4	23.4	4.7	66
63	185.9		PLUG							
64	188.8	31	5.8	R3000	TN-#28 Blue	LB20	22.6	23.4	4.7	72
65	191.7		PLUG							
66	194.6	32	5.8	R3000	TN-#28 Blue	LB20	22.6	23.4	4.7	78
67	197.5		PLUG							
68	200.4	33	5.8	R3000	TN-#28 Blue	LB20	23.2	23.4	4.7	84
69	203.3		PLUG							
70	206.2	34	5.8	R3000	TN-#29 Blue w/brn	LB20	24.5	24.9	4.7	84
71	209.1		PLUG							
72	212.0	35	5.8	R3000	TN-#29 Blue w/brn	LB20	24.9	24.9	4.7	84
73	214.9		PLUG							
74	217.8	36	5.8	R3000	TN-#30 Drk Brown	LB20	26.0	26.6	4.7	84
75	220.7		PLUG							
76	223.6	37	5.8	R3000	TN-#30 Drk Brown	LB20	26.1	26.6	4.7	78
77	226.5		PLUG							
78	229.4	38	5.8	R3000	TN-#30 Drk Brown	LB20	26.8	26.6	4.7	72
79	232.3		PLUG							

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	DEL.	PRESSURE INLINE	
80	235.2	39	5.8	R3000	TN-#33 Ornge w/grn	LB20	31.3	32.1	4.7	60
	237.8	TOWER NO. 4								
81	239.3		PLUG							
82	242.2	40	7.0	R3000	TN-#32 Orange	LB20	31.1	30.2	4.7	66
83	245.1		PLUG							
84	248.0	41	5.8	R3000	TN-#32 Orange	LB20	30.5	30.2	4.7	72
85	250.9		PLUG							
86	253.7	42	5.8	R3000	TN-#32 Orange	LB20	30.6	30.2	4.7	78
87	256.6		PLUG							
88	259.5	43	5.8	R3000	TN-#33 Ornge w/grn	LB20	31.4	32.1	4.7	84
89	262.4		PLUG							
90	265.3	44	5.8	R3000	TN-#32 Orange	LB20	31.0	30.2	4.6	84
91	268.2		PLUG							
92	271.1	45	5.8	R3000	TN-#34 Drk Green	LB20	33.2	34.1	4.6	84
93	274.0		PLUG							
94	276.9	46	5.8	R3000	TN-#33 Ornge w/grn	LB20	32.1	32.1	4.6	84
95	279.8		PLUG							
96	282.7	47	5.8	R3000	TN-#34 Drk Green	LB20	33.8	34.1	4.6	78
97	285.6		PLUG							
98	288.5	48	5.8	R3000	TN-#34 Drk Green	LB20	34.1	34.1	4.6	72
99	291.4		PLUG							
100	294.3	49	5.8	R3000	TN-#37 Prpl w/blck	HB20	38.9	40.1	4.6	60
	297.0	TOWER NO. 5								
101	298.4		PLUG							
102	301.3	50	7.0	R3000	TN-#36 Purple	HB20	38.5	37.6	4.6	66
103	304.2		PLUG							
104	307.1	51	5.8	R3000	TN-#36 Purple	HB20	37.6	37.6	4.6	72
105	310.0		PLUG							
106	312.9	52	5.8	R3000	TN-#36 Purple	HB20	37.3	37.6	4.6	72
107	315.8		PLUG							
108	318.7	53	5.8	R3000	TN-#33 Ornge w/grn	HB20	32.2	32.3	4.6	72
109	320.7		PLUG							
110	322.8	54	4.1	R3000	TN-#33 Ornge w/grn	HB20	32.9	32.3	4.6	72
111	325.7		PLUG							
112	328.6	55	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.8	40.1	4.6	72
113	331.5		PLUG							
114	334.4	56	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.7	40.1	4.6	72
115	337.3		PLUG							
116	340.2	57	5.8	R3000	TN-#38 Black	HB20	42.7	42.3	4.6	66
117	343.1		PLUG							

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	LPM DEL.	PRESSURE INLINE	
	346.2	TOWER NO. 6								
118	346.6	58	6.5	R3000	TN-#37 Prpl w/blck	HB20	39.0	40.1	4.6	72
119	348.1		PLUG							
120	349.5		PLUG							
121	351.0	59	4.3	R3000	TN-#31 Brwn w/orng	HB20	28.1	28.4	4.6	66
122	352.4		PLUG							
123	353.6		PLUG							
124	354.7	60	3.7	R3000	TN-#29 Blue w/brn	HB20	25.6	25.2	4.6	72
END GUN: (NOZZLE SELECTED BASED ON RECOMMENDED 170 DEGREE ARC.)										
	355.5			SR75	.45" NOZZLE		168.6	168.1	4.6	

2 INCH DIAPHRAM END GUN VALVE PRESSURE LOSS: 0.0 bar
RESULTING END GUN PRESSURE: 4.6 bar

SYSTEM INLINE END PRESSURE: 3.1 bar, INCLUDING PLUS 16 m ELEVATION

TOTAL lpm DELIVERED: 1479.7

SYSTEM lpm PER ha: 32.9

SPRINKLER SPACING LIMITS HAVE BEEN EXTENDED AT SOME OF THE TOWERS.

9 MOUNTING ASSEMBLIES:	First outlet=	4, Last outlet= 20	
Blk Combo Tube/Hose		151892	(Length=152.44 cm)
U-PIPE- 3/4"Male x Female Galv		008100	
DROP- 3/4"M Tube/Hose	<Vari>	143894	(Length=152.44 cm)
Standard Tee		000100	(as needed)
Standard Regulator		0000-000	(as needed)

51 MOUNTING ASSEMBLIES: First outlet= 22, Last outlet= 124

Black Plastic Semi-Rigid		151870	(Length=152.44 cm)
U-PIPE- 3/4"Male x Female Galv		008100	
DROP- 3/4"M Blk.Plastic	<Vari>	143874	(Length=152.44 cm)
Standard Tee		000100	(as needed)
Standard Regulator		0000-000	(as needed)

NOZZLE SELECTION VERIFICATION

SPAN #	1	2	3	4	5	6	OH+EG
lpm REQ.	40.8	110.3	182.6	251.5	326.7	300.8	261.3
lpm DEL.	42.1	110.5	183.0	255.1	327.3	299.9	261.8
% DEV.	3%	0%	0%	1%	0%	-0%	0%

DATA FILE IDENTIFICATION

File	Sprinkler	Plate	SprNo	ID	Regulator	Flow	Duty	PSI	Outlet ID
N3000G	Nutator	Green	1- 9	4E91	LB10	LO	BLUE	10	Squr 7549
R3000G	Rotator	Green	10- 60	D4D5	LB20	LO	BLUE	20	Squr 7628
					HB20	HI	BLUE	20	Squr 748B

WATER APPLICATION DEPTH PER REVOLUTION

APPLICATION DEPTH (mm)	2.58	6.35	12.70	19.05	25.40	31.75	38.10
% TIMER SETTING	100	41	20	14	10	8	7
REVOLUTION TIME	13HRS	32HRS	65HRS	97HRS	129HRS	161HRS	194HRS

GROUND SPEED AT 100% TIMER SETTING: 2.77 m/min

The revolution time may vary some from the values indicated above. This may be due to generator speed, slippage, or over/under inflated tires.

Power frequency is 50 Hertz.
Loaded radius of tires is 59.7 cm.

REINKE IRRIGATION SYSTEMS
PIVOT SYSTEM SPRINKLER CHART
E65/60 Std 114"
Reinke Mfg. Co. Inc.
RMCchart0.97c

CASE NUMBER: RP042732 DATE: 14 Jun 2004

DEALER: SOTRAVIC LTEE CUSTOMER NAME: NORTHERN PLAINS #4
NUMBER: 90846 SERIAL NUMBER: 0604-31943-2060 SG

NUMBER OF TOWERS:	7	NOZZLE FILES: N3000G , R3000G	
GAUGE PRESSURE:	5.2 bar	NOZZLE SELECTION OPTION:	1
TOTAL SYSTEM FLOW:	1824.6 lpm	FRICTION C-FACTOR:	135
TOTAL PIPE LENGTH:	397.8 m	COVERAGE WITHOUT GUN:	398.2 m
END GUN TYPE: SR75		ADJ. END GUN RADIUS:	24.6 m

FLOW RATE & RADIUS SPECIFIED-NOT COMPUTED

SYSTEM lpm PER ha: 32.5

LAST TOWER - TIRE SIZE: 14.9 x 24 CENTERDRIVE: 48:1

SYSTEM MANUFACTURER: REINKE

1	194-60	SPAN 1,	60.4 m, 14.73 cm ID PIPE
3	194-60	SPANS 2- 4,	59.1 m, 14.73 cm ID PIPE
3	160-60	SPANS 5- 7,	49.2 m, 14.73 cm ID PIPE
1	42GF	OVERHANG,	12.4 m, 14.73 cm ID PIPE

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	DEL.	PRESSURE INLINE	DROPS
1	2.7		PLUG							
2	5.6		PLUG							
3	8.5	1	8.5	N3000	TN-#12 Gold	LB10	1.6	3.3	5.0	72
4	11.4		PLUG							
5	14.3	2	5.8	N3000	TN-#12 Gold	LB10	2.5	3.3	5.0	78
6	17.2		PLUG							
7	20.1	3	5.8	N3000	TN-#12 Gold	LB10	3.2	3.3	5.0	84
8	23.0		PLUG							
9	25.9	4	5.8	N3000	TN-#13 Gold w/lime	LB10	3.8	3.8	4.9	84
10	28.8		PLUG							
11	31.7	5	5.8	N3000	TN-#14 Lime	LB10	4.2	4.4	4.9	84
12	34.6		PLUG							
13	37.5	6	5.8	N3000	TN-#14 Lime	LB10	4.5	4.4	4.9	84
14	40.4		PLUG							
15	43.3	7	5.8	N3000	TN-#15 Lime w/lav	LB10	5.2	5.1	4.9	78
16	46.2		PLUG							
17	49.1	8	5.8	N3000	TN-#16 Lavender	LB10	5.9	5.8	4.9	72
18	52.0		PLUG							
19	54.9	9	5.8	N3000	TN-#18 Gray	LB10	7.3	7.2	4.9	66
20	57.8		PLUG							
	60.4	TOWER NO. 1								
21	61.9	10	7.0	R3000	TN-#16 Lavender	LB20	8.1	7.8	4.9	60
22	64.8		PLUG							
23	67.7	11	5.8	R3000	TN-#16 Lavender	LB20	8.2	7.8	4.9	72
24	70.6		PLUG							
25	73.5	12	5.8	R3000	TN-#17 Lvndr w/gra	LB20	8.9	8.8	4.8	78
26	76.4		PLUG							
27	79.2	13	5.8	R3000	TN-#18 Gray	LB20	9.4	9.7	4.8	84
28	82.1		PLUG							
29	85.0	14	5.8	R3000	TN-#18 Gray	LB20	9.7	9.7	4.8	84
30	87.9		PLUG							
31	90.8	15	5.8	R3000	TN-#19 Gray w/trqu	LB20	10.7	10.9	4.8	84
32	93.7		PLUG							
33	96.6	16	5.8	R3000	TN-#19 Gray w/trqu	LB20	11.2	10.9	4.8	84
34	99.5		PLUG							
35	102.4	17	5.8	R3000	TN-#20 Turquoise	LB20	12.3	12.1	4.8	78
36	105.3		PLUG							
37	108.2	18	5.8	R3000	TN-#21 Trqu w/yllw	LB20	12.9	13.1	4.8	72
38	111.1		PLUG							
39	114.0	19	5.8	R3000	TN-#22 Yellow	LB20	14.8	14.4	4.8	66
40	116.9		PLUG							

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	LPM DEL.	PRESSURE INLINE	
	119.6	TOWER NO. 2								
41	121.0	20	7.0	R3000	TN-#23 Yllw w/red	LB20	16.1	15.6	4.8	60
42	123.9		PLUG							
43	126.8	21	5.8	R3000	TN-#23 Yllw w/red	LB20	15.4	15.6	4.7	72
44	129.7		PLUG							
45	132.6	22	5.8	R3000	TN-#23 Yllw w/red	LB20	15.4	15.6	4.7	78
46	135.5		PLUG							
47	138.4	23	5.8	R3000	TN-#23 Yllw w/red	LB20	16.1	15.6	4.7	84
48	141.3		PLUG							
49	144.2	24	5.8	R3000	TN-#24 Red	LB20	17.5	17.2	4.7	84
50	147.1		PLUG							
51	150.0	25	5.8	R3000	TN-#25 Red w/white	LB20	17.9	18.5	4.7	84
52	152.9		PLUG							
53	155.8	26	5.8	R3000	TN-#24 Red	LB20	17.8	17.2	4.7	84
54	158.6		PLUG							
55	161.5	27	5.8	R3000	TN-#26 White	LB20	19.5	20.1	4.7	78
56	164.4		PLUG							
57	167.3	28	5.8	R3000	TN-#25 Red w/white	LB20	19.2	18.5	4.7	72
58	170.2		PLUG							
59	173.1	29	5.8	R3000	TN-#28 Blue	LB20	23.1	23.4	4.7	66
60	176.0		PLUG							
	178.7	TOWER NO. 3								
61	180.1	30	7.0	R3000	TN-#28 Blue	LB20	23.2	23.4	4.7	60
62	183.0		PLUG							
63	185.9	31	5.8	R3000	TN-#27 White w/blu	LB20	21.7	21.5	4.7	72
64	188.8		PLUG							
65	191.7	32	5.8	R3000	TN-#28 Blue	LB20	22.8	23.4	4.6	78
66	194.6		PLUG							
67	197.5	33	5.8	R3000	TN-#28 Blue	LB20	22.8	23.4	4.6	84
68	200.4		PLUG							
69	203.3	34	5.8	R3000	TN-#28 Blue	LB20	23.3	23.4	4.6	84
70	206.2		PLUG							
71	209.1	35	5.8	R3000	TN-#29 Blue w/brn	LB20	24.6	24.9	4.6	84
72	212.0		PLUG							
73	214.9	36	5.8	R3000	TN-#29 Blue w/brn	LB20	25.0	24.9	4.6	84
74	217.8		PLUG							
75	220.7	37	5.8	R3000	TN-#30 Drk Brown	LB20	26.1	26.6	4.6	78
76	223.6		PLUG							
77	226.5	38	5.8	R3000	TN-#30 Drk Brown	LB20	26.1	26.6	4.6	72
78	229.4		PLUG							
79	232.3	39	5.8	R3000	TN-#32 Orange	LB20	29.8	30.2	4.6	66

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	LPM DEL.	PRESSURE INLINE	
80	235.2		PLUG							
	237.8	TOWER NO. 4								
81	239.3	40	7.0	R3000	TN-#32 Orange	LB20	30.7	30.2	4.6	60
82	242.2		PLUG							
83	245.1	41	5.8	R3000	TN-#32 Orange	LB20	29.4	30.2	4.6	66
84	248.0		PLUG							
85	250.9	42	5.8	R3000	TN-#31 Brwn w/orng	LB20	28.7	28.1	4.6	72
86	253.7		PLUG							
87	256.6	43	5.8	R3000	TN-#31 Brwn w/orng	LB20	28.6	28.1	4.6	72
88	259.5		PLUG							
89	261.6	44	5.0	R3000	TN-#30 Drk Brown	LB20	26.8	26.6	4.6	72
90	263.7		PLUG							
91	266.5	45	5.0	R3000	TN-#32 Orange	LB20	29.3	30.2	4.6	72
92	269.4		PLUG							
93	272.3	46	5.8	R3000	TN-#33 Ornge w/grn	LB20	31.2	32.1	4.6	72
94	275.2		PLUG							
95	278.1	47	5.8	R3000	TN-#33 Ornge w/grn	LB20	31.8	32.1	4.6	66
96	281.0		PLUG							
97	283.9	48	5.8	R3000	TN-#32 Orange	LB20	29.5	30.2	4.5	60
	287.0	TOWER NO. 5								
98	288.5	49	4.5	R3000	TN-#32 Orange	LB20	29.7	30.2	4.5	60
99	291.4		PLUG							
100	294.3	50	5.8	R3000	TN-#34 Drk Green	LB20	34.1	34.1	4.5	66
101	297.2		PLUG							
102	300.1	51	5.8	R3000	TN-#35 Green w/prp	LB20	35.4	35.9	4.5	72
103	302.9		PLUG							
104	305.8	52	5.8	R3000	TN-#33 Ornge w/grn	LB20	32.9	32.1	4.5	72
105	308.7		PLUG							
106	310.8	53	5.0	R3000	TN-#33 Ornge w/grn	LB20	32.0	32.1	4.5	72
107	312.9		PLUG							
108	315.7	54	5.0	R3000	TN-#34 Drk Green	LB20	34.4	34.1	4.5	72
109	318.6		PLUG							
110	321.5	55	5.8	R3000	TN-#36 Purple	LB20	38.2	37.7	4.5	72
111	324.4		PLUG							
112	327.3	56	5.8	R3000	TN-#37 Prpl w/blck	LB20	39.0	40.2	4.5	66
113	330.2		PLUG							
114	333.1	57	5.8	R3000	TN-#34 Drk Green	LB20	33.8	34.1	4.5	60
	336.2	TOWER NO. 6								
115	337.7	58	4.5	R3000	TN-#35 Green w/prp	LB20	35.2	35.9	4.5	60

-OUTLET- NO.	LOC.	-SPRINKLER- NO.	SEP.	MODEL	NOZZLE	-REG- MODEL	LPM REQ.	LPM DEL.	PRESSURE INLINE	
116	340.6		PLUG							
117	343.5	59	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.8	40.1	4.5	66
118	346.4		PLUG							
119	349.3	60	5.8	R3000	TN-#37 Prpl w/blck	HB20	40.8	40.1	4.5	72
120	352.1		PLUG							
121	355.0	61	5.8	R3000	TN-#37 Prpl w/blck	HB20	39.5	40.1	4.5	72
122	357.9		PLUG							
123	360.0	62	5.0	R3000	TN-#35 Green w/prp	HB20	35.7	35.9	4.5	72
124	362.1		PLUG							
125	364.9	63	5.0	R3000	TN-#37 Prpl w/blck	HB20	39.6	40.1	4.5	72
126	367.8		PLUG							
127	370.7	64	5.8	R3000	TN-#38 Black	HB20	43.2	42.3	4.5	72
128	373.6		PLUG							
129	376.5	65	5.8	R3000	TN-#34 Drk Green	HB20	34.1	34.2	4.5	66
130	379.4	66	2.9	R3000	TN-#27 White w/blu	HB20	22.2	21.8	4.5	66
131	382.3	67	2.9	R3000	TN-#29 Blue w/brn	HB20	25.7	25.2	4.5	60
	385.4	TOWER NO. 7								
132	385.9	68	3.6	R3000	TN-#29 Blue w/brn	HB20	25.9	25.2	4.5	60
133	387.4		PLUG							
134	388.8	69	2.9	R3000	TN-#28 Blue	HB20	23.6	23.7	4.5	66
135	390.3		PLUG							
136	391.7	70	2.9	R3000	TN-#27 White w/blu	HB20	22.0	21.8	4.5	60
137	393.0		PLUG							
138	394.4	71	2.6	R3000	TN-#27 White w/blu	HB20	21.3	21.8	4.5	66
139	395.7		PLUG							
140	397.0	72	2.6	R3000	TN-#25 Red w/white	HB20	19.6	18.8	4.5	72
END GUN: (NOZZLE SELECTED BASED ON RECOMMENDED 170 DEGREE ARC.)										
	397.8			SR75	.50" NOZZLE		203.8	207.6	4.5	

2 INCH DIAPHRAM END GUN VALVE PRESSURE LOSS: 0.1 bar
RESULTING END GUN PRESSURE: 4.5 bar

SYSTEM INLINE END PRESSURE: 3.1 bar, INCLUDING PLUS 14 m ELEVATION

TOTAL lpm DELIVERED: 1823.8

SYSTEM lpm PER ha: 32.5

SPRINKLER SPACING LIMITS HAVE BEEN EXTENDED AT SOME OF THE TOWERS.

9 MOUNTING ASSEMBLIES:	First outlet=	3,	Last outlet= 19	
Blk Combo Tube/Hose			151892	(Length=152.44 cm)
U-PIPE- 3/4"Male x Female Galv			008100	
DROP- 3/4"M Tube/Hose		<Vari>	143894	(Length=152.44 cm)
Standard Tee			000100	(as needed)
Standard Regulator			0000-000	(as needed)
63 MOUNTING ASSEMBLIES:	First outlet=	21,	Last outlet= 140	
Black Plastic Semi-Rigid			151870	(Length=152.44 cm)
U-PIPE- 3/4"Male x Female Galv			008100	
DROP- 3/4"M Blk.Plastic		<Vari>	143874	(Length=152.44 cm)
Standard Tee			000100	(as needed)
Standard Regulator			0000-000	(as needed)

========== NOZZLE SELECTION VERIFICATION ==========

SPAN #	1	2	3	4	5	6	7	OH+EG
lpm REQ.	38.0	106.2	178.0	245.4	266.0	309.5	355.9	316.2
lpm DEL.	40.5	105.3	177.2	248.1	267.8	310.4	355.6	318.9
% DEV.	6%	-1%	-0%	1%	1%	0%	-0%	1%

DATA FILE IDENTIFICATION

File	Sprinkler	Plate	SprNo	ID	Regulator	Flow	Duty	PSI	Outlet ID
N3000G	Nutator	Green	1- 9	4E91	LB10	LO	BLUE	10	Squr 7549
R3000G	Rotator	Green	10- 72	E425	LB20	LO	BLUE	20	Squr 7628
					HB20	HI	BLUE	20	Squr 748B

WATER APPLICATION DEPTH PER REVOLUTION

APPLICATION DEPTH (mm)	2.84	6.35	12.70	19.05	25.40	31.75	38.10
% TIMER SETTING	100	45	22	15	11	9	7
REVOLUTION TIME	15HRS	33HRS	65HRS	98HRS	130HRS	163HRS	196HRS

GROUND SPEED AT 100% TIMER SETTING: 2.77 m/min

The revolution time may vary some from the values indicated above. This may be due to generator speed, slippage, or over/under inflated tires.

Power frequency is 50 Hertz.
Loaded radius of tires is 59.7 cm.

This computer printout is a mathematical calculation based upon information provided to Reinke Mfg. Co., Inc. This information concerns pipe length and inside diameter; surface finish; outlet spacing; water flow and pressure. The calculations are based upon this data and other applicable data being furnished as accurate. All figures are also based on 100% water application efficiency (zero wind velocity and no evaporation). The PRESSURE @ TOP OF INLET is measured at the first outlet on the main horizontal distribution pipe just after the top pivot elbow, while the GAUGE PRESSURE is measured on the vertical distribution pipe six feet below the top pivot elbow. The main pipe pressure is calculated as if the pipe is always level. The flow rate is based on the nozzle pressure, which may differ from the main pipe pressure due to the use of pressure regulators and/or drop pipes.

PIVOT 1 - BLOCK 3

Client:	*Irrigation Authority*	Date:	*12.06.01*
Project:	*Fond du Sac-Rouge Terre Project*	Composed by:	*Rey&Lenfernaltd*
	Conforming tender-Pivot 1 @ 3.5 mm nett applic	Project No.:	*BLK3/IPU00/01*
		Remarks:	

Technical data

Bauer Centerstar 168E

Rey & Lenferna Ltd.
Royal Road
Bell Village

System length	(5 spans wih overhang)	*299,7 m*
Irrigated area incl. additional spray range		*32,1 ha*

Spans

Span type	*168E*	*168E*
Span length	*58,6 m*	*52,8 m*
No. of spans	*4*	*1*
Span length with coupling	*58,62 m*	*52,77 m*
Pipe diameter	*168,0 mm*	*168,0 mm*
System height	*5,0 m*	*5,0 m*
Clearance under the truss structure	*3,9 m*	*3,9 m*
Pivot drive with electric motors		
Weight with water	*3410 kg*	*3095 kg*
Tires	*14.9-24*	*14.9-24*
Soil pressure	*15,5 N/cm²*	*14,1 N/cm²*
Nozzeling	*Nelson-Rotator3000 D4*	

Length of overhang	*11,7 m*
Extension pipe	*0,0 m*
Additional spray range	*19,9 m*
Irrigated radius	*319,6 m*
Operating angel	*360,0 °*
Operating hours per day	*10,0 h*
Total flow	*163,7 m³/h*
Irrigation capacity	*1,42 l/s/ha*
- equivalent to *51,0 m³/ha* or	*5,1 mm/ day*
Max. travelling speed	*287 m/h*
Min. rotation time at max. speed	*6 h 20 min*
Min. precipitation rate in per rotation	*3,2 mm*
Max. intensity at last span	*55,7 mm/h*
Nozzle pressure at last connection	*2,0 bar*
Connection pressure at pivot inlet	*4,2 bar*
incl. elevation from center to pivot end	*12,0 m*
Voltage	*380 V*
Frequency	*50 Hz*
Required generator size	*6,3 kVA*
Connection value at network	*4,9 kW*

2

Client:	*Irrigation Authority*	Date:	*12.06.01*
Project:	*Fond du Sac-Rouge Terre Project*	Composed by:	*Rey&Lenfernaltd*
	Conforming tender-Pivot 1 @ 3.5 mm nett applic	Project No.:	*BLK3/IPU00/01*
		Remarks:	

Technical data

Bauer Centerstar 168E

Endregner BAUER - SR 101

Nozzle diameter		*12 mm*
Nozzle pressure at endgun		*2,0 bar*
Flow		*7,8 m³/h*
Spray range		*23,4 m*
useable for add. spray range		*19,9 m*
Operating angle		*360,0 °*
Additional area	*(+ 11,5 %)*	*3,3 ha*

Client	*Irrigation Authority*	Date	*12.06.01*
Project	*Fond du Sac-Rouge Terre Project*	Composed by	*Rey&Lenfernaltd*
	Conforming tender-Pivot 1 @ 3.5 mm nett applica	Project No.	*BLK3/IPU00/01*
		Remarks	

Performance table

Bauer Centerstar 168E

System length	(5 spans wih overhang)	*299,7 m*
Irrigated area incl. additional spray range		*32,1 ha*
Total flow		*163,7 m^3/h*
Irrigation capacity		*1,42 l/s/ha*
- equivalent to	*51,0 m^3/ha* or	*5,1 mm/ day*

Pivot setting at desired precipitation:

Precipitation (mm)	Rotation time (h, min)	Setting on speed control
3,2 mm	*6 h 20 min*	*100 %*
4,0 mm	*7 h 50 min*	*80 %*
6,0 mm	*11 h 50 min*	*53 %*
8,0 mm	*15 h 50 min*	*40 %*
10,0 mm	*19 h 40 min*	*31 %*
12,5 mm	*24 h 30 min*	*25 %*
15,0 mm	*29 h 30 min*	*21 %*
17,5 mm	*34 h 20 min*	*18 %*
20,0 mm	*39 h 20 min*	*15 %*
25,0 mm	*49 h 10 min*	*12 %*

Pivot setting at desired rotation time:

Rotation time (h)	Precipitation (mm)	Setting on speed control
12 h	*6,1 mm*	*52 %*
18 h	*9,2 mm*	*34 %*
24 h	*12,2 mm*	*26 %*
36 h	*18,4 mm*	*17 %*
48 h	*24,5 mm*	*13 %*
60 h	*30,6 mm*	*10 %*
72 h	*36,7 mm*	*8 %*
84 h	*42,8 mm*	*7 %*
96 h	*49,0 mm*	*6 %*
108 h	*55,1 mm*	*5 %*

For heavier soils we recommend to select a lower precipitation rate or a shorter rotation time!

Client	*Irrigation Authority*	Date	*12.06.01*
Project	*Fond du Sac-Rouge Terre Project*	Composed by	*Rey&Lenfernaltd*
	Conforming tender-Pivot 1 @ 3.5 mm nett applic	Project No.	*BLK3/IPU00/01*
		Remarks	

Nozzeling

Bauer Centerstar 168E

1. 168E

No.	Designation:	Pieces	Pressure red.
1	Stopfen	1	
2	Stopfen	1	
3	Stopfen	1	
4	#16 Nel. R3000 D4	1	BlueTop25
5	#16 Nel. R3000 D4	1	BlueTop25
6	#16 Nel. R3000 D4	1	BlueTop25
7	#16 Nel. R3000 D4	1	BlueTop25
8	#16 Nel. R3000 D4	1	BlueTop25
9	#16 Nel. R3000 D4	1	BlueTop25
10	#16 Nel. R3000 D4	1	BlueTop25
11	#16 Nel. R3000 D4	1	BlueTop25
12	#16 Nel. R3000 D4	1	BlueTop25
13	#16 Nel. R3000 D4	1	BlueTop25
14	#16 Nel. R3000 D4	1	BlueTop25
15	#16 Nel. R3000 D4	1	BlueTop25
16	#16 Nel. R3000 D4	1	BlueTop25
17	#16 Nel. R3000 D4	1	BlueTop25
18	#16 Nel. R3000 D4	1	BlueTop25
19	#16 Nel. R3000 D4	1	BlueTop25
20	#16 Nel. R3000 D4	1	BlueTop25
21			
22			

2. 168E

No.	Designation:	Pieces	Pressure red.
1	#18 Nel. R3000 D4	1	BlueTop25
2	#18 Nel. R3000 D4	1	BlueTop25
3	#18 Nel. R3000 D4	1	BlueTop25
4	#18 Nel. R3000 D4	1	BlueTop25
5	#18 Nel. R3000 D4	1	BlueTop25
6	#18 Nel. R3000 D4	1	BlueTop25
7	#20 Nel. R3000 D4	1	BlueTop25
8	#20 Nel. R3000 D4	1	BlueTop25
9	#20 Nel. R3000 D4	1	BlueTop25
10	#20 Nel. R3000 D4	1	BlueTop25
11	#20 Nel. R3000 D4	1	BlueTop25
12	#22 Nel. R3000 D4	1	BlueTop25
13	#22 Nel. R3000 D4	1	BlueTop25
14	#22 Nel. R3000 D4	1	BlueTop25
15	#22 Nel. R3000 D4	1	BlueTop25
16	#22 Nel. R3000 D4	1	BlueTop25
17	#22 Nel. R3000 D4	1	BlueTop25
18	#22 Nel. R3000 D4	1	BlueTop25
19	#24 Nel. R3000 D4	1	BlueTop25
20	#24 Nel. R3000 D4	1	BlueTop25
21			
22			

3. 168E

No.	Designation:	Pieces	Pressure red.
1	#24 Nel. R3000 D4	1	BlueTop25
2	#24 Nel. R3000 D4	1	BlueTop25
3	#24 Nel. R3000 D4	1	BlueTop25
4	#24 Nel. R3000 D4	1	BlueTop25
5	#24 Nel. R3000 D4	1	BlueTop25
6	#26 Nel. R3000 D4	1	BlueTop25
7	#26 Nel. R3000 D4	1	BlueTop25
8	#26 Nel. R3000 D4	1	BlueTop25
9	#26 Nel. R3000 D4	1	BlueTop25
10	#26 Nel. R3000 D4	1	BlueTop25
11	#26 Nel. R3000 D4	1	BlueTop25
12	#26 Nel. R3000 D4	1	BlueTop25
13	#28 Nel. R3000 D4	1	BlueTop25
14	#28 Nel. R3000 D4	1	BlueTop25
15	#28 Nel. R3000 D4	1	BlueTop25
16	#28 Nel. R3000 D4	1	BlueTop25
17	#28 Nel. R3000 D4	1	BlueTop25
18	#28 Nel. R3000 D4	1	BlueTop25
19	#28 Nel. R3000 D4	1	BlueTop25
20	#28 Nel. R3000 D4	1	BlueTop25
21			
22			

4. 168E

No.	Designation:	Pieces	Pressure red.
1	#30 Nel. R3000 D4	1	BlueTop25
2	#30 Nel. R3000 D4	1	BlueTop25
3	#30 Nel. R3000 D4	1	BlueTop25
4	#30 Nel. R3000 D4	1	BlueTop25
5	#30 Nel. R3000 D4	1	BlueTop25
6	#30 Nel. R3000 D4	1	BlueTop25
7	#30 Nel. R3000 D4	1	BlueTop25
8	#30 Nel. R3000 D4	1	BlueTop25
9	#30 Nel. R3000 D4	1	BlueTop25
10	#32 Nel. R3000 D4	1	BlueTop25
11	#32 Nel. R3000 D4	1	BlueTop25
12	#32 Nel. R3000 D4	1	BlueTop25
13	#32 Nel. R3000 D4	1	BlueTop25
14	#32 Nel. R3000 D4	1	BlueTop25
15	#32 Nel. R3000 D4	1	BlueTop25
16	#32 Nel. R3000 D4	1	BlueTop25
17	#32 Nel. R3000 D4	1	BlueTop25
18	#34 Nel. R3000 D4	1	BlueTop25
19	#34 Nel. R3000 D4	1	BlueTop25
20	#34 Nel. R3000 D4	1	BlueTop25
21			
22			

Client	*Irrigation Authority*	Date	*12.06.01*
Project	*Fond du Sac-Rouge Terre Project*	Composed by	*Rey&Lenfernaltd*
	Conforming tender-Pivot 1 @ 3.5 mm nett applica	Project No.	*BLK3/IPU00/01*
		Remarks	

Nozzeling

Bauer Centerstar 168E

5. 168E

No.	Designation:	Pieces	Pressure red.
1	#34 Nel. R3000 D4	1	BlueTop25
2	#34 Nel. R3000 D4	1	BlueTop25
3	#34 Nel. R3000 D4	1	BlueTop25
4	#34 Nel. R3000 D4	1	BlueTop25
5	#34 Nel. R3000 D4	1	BlueTop25
6	#34 Nel. R3000 D4	1	BlueTop25
7	#36 Nel. R3000 D4	1	BlueTop25
8	#36 Nel. R3000 D4	1	BlueTop25
9	#36 Nel. R3000 D4	1	BlueTop25
10	#36 Nel. R3000 D4	1	BlueTop25
11	#36 Nel. R3000 D4	1	BlueTop25
12	#36 Nel. R3000 D4	1	BlueTop25
13	#36 Nel. R3000 D4	1	BlueTop25
14	#36 Nel. R3000 D4	1	BlueTop25
15	#36 Nel. R3000 D4	1	BlueTop25
16	#36 Nel. R3000 D4	1	BlueTop25
17	#36 Nel. R3000 D4	1	BlueTop25
18	#36 Nel. R3000 D4	1	BlueTop25
19			
20			
21			
22			

6. 168E

No.	Designation:	Pieces	Pressure red.
1	#38 Nel. R3000 D4	1	BlueTop25
2	#38 Nel. R3000 D4	1	BlueTop25
3	#38 Nel. R3000 D4	1	BlueTop25
4	#38 Nel. R3000 D4	1	BlueTop25
5	SR 101 12 mm	1	
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			

BESTÜCKUNGS-Protokoll:

Nr.	Q1	Q2	Q2-Q1	Pp	Pn	Bestückung:	Anz.:	Druckreduzierer:
1				2,42		Stopfen	1	
2				2,41		Stopfen	1	
3				2,40		Stopfen	1	
4	0,11	0,51	0,40	2,40	1,72	#16 Nel. R3000 D4	1	BlueTop25
5	0,14	0,51	0,37	2,39	1,72	#16 Nel. R3000 D4	1	BlueTop25
6	0,16	0,51	0,34	2,38	1,72	#16 Nel. R3000 D4	1	BlueTop25
7	0,19	0,51	0,31	2,37	1,72	#16 Nel. R3000 D4	1	BlueTop25
8	0,22	0,51	0,29	2,37	1,72	#16 Nel. R3000 D4	1	BlueTop25
9	0,25	0,51	0,26	2,36	1,72	#16 Nel. R3000 D4	1	BlueTop25
10	0,27	0,51	0,23	2,35	1,72	#16 Nel. R3000 D4	1	BlueTop25
11	0,30	0,51	0,20	2,34	1,72	#16 Nel. R3000 D4	1	BlueTop25
12	0,33	0,51	0,18	2,34	1,72	#16 Nel. R3000 D4	1	BlueTop25
13	0,36	0,51	0,15	2,33	1,72	#16 Nel. R3000 D4	1	BlueTop25
14	0,38	0,51	0,12	2,32	1,72	#16 Nel. R3000 D4	1	BlueTop25
15	0,41	0,51	0,09	2,32	1,72	#16 Nel. R3000 D4	1	BlueTop25
16	0,44	0,51	0,07	2,31	1,72	#16 Nel. R3000 D4	1	BlueTop25
17	0,47	0,51	0,04	2,30	1,72	#16 Nel. R3000 D4	1	BlueTop25
18	0,49	0,51	0,01	2,29	1,72	#16 Nel. R3000 D4	1	BlueTop25
19	0,52	0,51	-0,02	2,29	1,72	#16 Nel. R3000 D4	1	BlueTop25
20	0,55	0,51	-0,04	2,28	1,72	#16 Nel. R3000 D4	1	BlueTop25
21	0,58	0,64	0,06	2,27	1,72	#18 Nel. R3000 D4	1	BlueTop25
22	0,60	0,64	0,04	2,27	1,72	#18 Nel. R3000 D4	1	BlueTop25
23	0,63	0,64	0,01	2,26	1,72	#18 Nel. R3000 D4	1	BlueTop25
24	0,66	0,64	-0,02	2,25	1,72	#18 Nel. R3000 D4	1	BlueTop25
25	0,69	0,64	-0,05	2,25	1,72	#18 Nel. R3000 D4	1	BlueTop25
26	0,71	0,64	-0,07	2,24	1,72	#18 Nel. R3000 D4	1	BlueTop25
27	0,74	0,79	0,05	2,23	1,72	#20 Nel. R3000 D4	1	BlueTop25
28	0,77	0,79	0,02	2,23	1,72	#20 Nel. R3000 D4	1	BlueTop25
29	0,80	0,79	-0,00	2,22	1,72	#20 Nel. R3000 D4	1	BlueTop25
30	0,82	0,79	-0,03	2,22	1,72	#20 Nel. R3000 D4	1	BlueTop25
31	0,85	0,79	-0,06	2,21	1,72	#20 Nel. R3000 D4	1	BlueTop25
32	0,88	0,96	0,08	2,20	1,72	#22 Nel. R3000 D4	1	BlueTop25
33	0,90	0,96	0,06	2,20	1,72	#22 Nel. R3000 D4	1	BlueTop25
34	0,93	0,96	0,03	2,19	1,72	#22 Nel. R3000 D4	1	BlueTop25
35	0,96	0,96	-0,00	2,19	1,72	#22 Nel. R3000 D4	1	BlueTop25
36	0,99	0,96	-0,03	2,18	1,72	#22 Nel. R3000 D4	1	BlueTop25
37	1,01	0,96	-0,06	2,17	1,72	#22 Nel. R3000 D4	1	BlueTop25
38	1,04	0,96	-0,08	2,17	1,72	#22 Nel. R3000 D4	1	BlueTop25
39	1,07	1,14	0,07	2,16	1,72	#24 Nel. R3000 D4	1	BlueTop25
40	1,10	1,14	0,04	2,16	1,72	#24 Nel. R3000 D4	1	BlueTop25
41	1,12	1,14	0,02	2,15	1,72	#24 Nel. R3000 D4	1	BlueTop25
42	1,15	1,14	-0,01	2,15	1,72	#24 Nel. R3000 D4	1	BlueTop25
43	1,18	1,14	-0,04	2,14	1,72	#24 Nel. R3000 D4	1	BlueTop25
44	1,21	1,14	-0,07	2,14	1,72	#24 Nel. R3000 D4	1	BlueTop25
45	1,23	1,14	-0,09	2,13	1,72	#24 Nel. R3000 D4	1	BlueTop25
46	1,26	1,34	0,08	2,13	1,72	#26 Nel. R3000 D4	1	BlueTop25
47	1,29	1,34	0,05	2,12	1,72	#26 Nel. R3000 D4	1	BlueTop25
48	1,32	1,34	0,02	2,12	1,72	#26 Nel. R3000 D4	1	BlueTop25
49	1,34	1,34	-0,00	2,11	1,72	#26 Nel. R3000 D4	1	BlueTop25
50	1,37	1,34	-0,03	2,11	1,72	#26 Nel. R3000 D4	1	BlueTop25
51	1,40	1,34	-0,06	2,10	1,72	#26 Nel. R3000 D4	1	BlueTop25
52	1,43	1,34	-0,09	2,10	1,72	#26 Nel. R3000 D4	1	BlueTop25
53	1,45	1,55	0,10	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
54	1,48	1,55	0,07	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
55	1,51	1,55	0,05	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
56	1,54	1,55	0,02	2,08	1,72	#28 Nel. R3000 D4	1	BlueTop25
57	1,56	1,55	-0,01	2,08	1,72	#28 Nel. R3000 D4	1	BlueTop25
58	1,59	1,55	-0,04	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
59	1,62	1,55	-0,06	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
60	1,64	1,55	-0,09	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
61	1,67	1,78	0,11	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
62	1,70	1,78	0,08	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
63	1,73	1,78	0,06	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
64	1,75	1,78	0,03	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
65	1,78	1,78	0,00	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
66	1,81	1,78	-0,03	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
67	1,84	1,78	-0,05	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
68	1,86	1,78	-0,08	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
69	1,89	1,78	-0,11	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
70	1,92	2,03	0,11	2,04	1,72	#32 Nel. R3000 D4	1	BlueTop25
71	1,95	2,03	0,08	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
72	1,97	2,03	0,06	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
73	2,00	2,03	0,03	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
74	2,03	2,03	0,00	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
75	2,06	2,03	-0,03	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
76	2,08	2,03	-0,05	2,02	1,72	#32 Nel. R3000 D4	1	BlueTop25
77	2,11	2,03	-0,08	2,02	1,72	#32 Nel. R3000 D4	1	BlueTop25
78	2,14	2,23	0,09	2,02	1,72	#34 Nel. R3000 D4	1	BlueTop25
79	2,17	2,23	0,06	2,02	1,72	#34 Nel. R3000 D4	1	BlueTop25

No.	Q1	Q2	Q2-Q1	Pp	Pn	Bestückung:	Anz.:	Druckreduzierer:
82	2,25	2,23	-0,02	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
83	2,28	2,23	-0,05	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
84	2,30	2,23	-0,08	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
85	2,33	2,23	-0,10	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
86	2,36	2,23	-0,13	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
87	2,39	2,50	0,12	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
88	2,41	2,50	0,09	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
89	2,44	2,50	0,06	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
90	2,47	2,50	0,03	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
91	2,49	2,50	0,01	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
92	2,52	2,50	-0,02	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
93	2,55	2,50	-0,05	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
94	2,58	2,50	-0,08	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
95	2,60	2,50	-0,10	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
96	2,63	2,50	-0,13	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
97	2,66	2,79	0,13	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
98	2,69	2,79	0,11	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
99	2,71	2,79	0,08	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
100	2,74	2,79	0,05	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
101	2,77	2,79	0,02	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
102	2,80	2,79	-0,00	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25

BESTÜCKUNGS-Protokoll:

No.	Q1	Q2	Q2-Q1	Pp	Pn	Bestückung:	Anz.:	Druckreduzierer:
1				2,42		Stopfen	1	
2				2,41		Stopfen	1	
3				2,40		Stopfen	1	
4	0,11	0,51	0,40	2,40	1,72	#16 Nel. R3000 D4	1	BlueTop25
5	0,14	0,51	0,37	2,39	1,72	#16 Nel. R3000 D4	1	BlueTop25
6	0,16	0,51	0,34	2,38	1,72	#16 Nel. R3000 D4	1	BlueTop25
7	0,19	0,51	0,31	2,37	1,72	#16 Nel. R3000 D4	1	BlueTop25
8	0,22	0,51	0,29	2,37	1,72	#16 Nel. R3000 D4	1	BlueTop25
9	0,25	0,51	0,25	2,36	1,72	#16 Nel. R3000 D4	1	BlueTop25
10	0,27	0,51	0,23	2,35	1,72	#16 Nel. R3000 D4	1	BlueTop25
11	0,30	0,51	0,20	2,34	1,72	#16 Nel. R3000 D4	1	BlueTop25
12	0,33	0,51	0,18	2,34	1,72	#16 Nel. R3000 D4	1	BlueTop25
13	0,36	0,51	0,15	2,33	1,72	#16 Nel. R3000 D4	1	BlueTop25
14	0,38	0,51	0,12	2,32	1,72	#16 Nel. R3000 D4	1	BlueTop25
15	0,41	0,51	0,09	2,32	1,72	#16 Nel. R3000 D4	1	BlueTop25
16	0,44	0,51	0,07	2,31	1,72	#16 Nel. R3000 D4	1	BlueTop25
17	0,47	0,51	0,04	2,30	1,72	#16 Nel. R3000 D4	1	BlueTop25
18	0,49	0,51	0,01	2,29	1,72	#16 Nel. R3000 D4	1	BlueTop25
19	0,52	0,51	-0,02	2,29	1,72	#16 Nel. R3000 D4	1	BlueTop25
20	0,55	0,51	-0,04	2,28	1,72	#16 Nel. R3000 D4	1	BlueTop25
21	0,58	0,64	0,06	2,27	1,72	#18 Nel. R3000 D4	1	BlueTop25
22	0,60	0,64	0,04	2,27	1,72	#18 Nel. R3000 D4	1	BlueTop25
23	0,63	0,64	0,01	2,26	1,72	#18 Nel. R3000 D4	1	BlueTop25
24	0,66	0,64	-0,02	2,25	1,72	#18 Nel. R3000 D4	1	BlueTop25
25	0,69	0,64	-0,05	2,25	1,72	#18 Nel. R3000 D4	1	BlueTop25
26	0,71	0,64	-0,07	2,24	1,72	#18 Nel. R3000 D4	1	BlueTop25
27	0,74	0,79	0,05	2,23	1,72	#20 Nel. R3000 D4	1	BlueTop25
28	0,77	0,79	0,02	2,23	1,72	#20 Nel. R3000 D4	1	BlueTop25
29	0,80	0,79	-0,00	2,22	1,72	#20 Nel. R3000 D4	1	BlueTop25
30	0,82	0,79	-0,03	2,22	1,72	#20 Nel. R3000 D4	1	BlueTop25
31	0,85	0,79	-0,06	2,21	1,72	#20 Nel. R3000 D4	1	BlueTop25
32	0,88	0,96	0,08	2,20	1,72	#22 Nel. R3000 D4	1	BlueTop25
33	0,90	0,96	0,05	2,20	1,72	#22 Nel. R3000 D4	1	BlueTop25
34	0,93	0,96	0,03	2,19	1,72	#22 Nel. R3000 D4	1	BlueTop25
35	0,96	0,96	-0,00	2,19	1,72	#22 Nel. R3000 D4	1	BlueTop25
36	0,99	0,96	-0,03	2,18	1,72	#22 Nel. R3000 D4	1	BlueTop25
37	1,01	0,96	-0,06	2,17	1,72	#22 Nel. R3000 D4	1	BlueTop25
38	1,04	0,96	-0,08	2,17	1,72	#22 Nel. R3000 D4	1	BlueTop25
39	1,07	1,14	0,07	2,16	1,72	#24 Nel. R3000 D4	1	BlueTop25
40	1,10	1,14	0,04	2,16	1,72	#24 Nel. R3000 D4	1	BlueTop25
41	1,12	1,14	0,02	2,15	1,72	#24 Nel. R3000 D4	1	BlueTop25
42	1,15	1,14	-0,01	2,15	1,72	#24 Nel. R3000 D4	1	BlueTop25
43	1,18	1,14	-0,04	2,14	1,72	#24 Nel. R3000 D4	1	BlueTop25
44	1,21	1,14	-0,07	2,14	1,72	#24 Nel. R3000 D4	1	BlueTop25
45	1,23	1,14	-0,09	2,13	1,72	#24 Nel. R3000 D4	1	BlueTop25
46	1,26	1,34	0,08	2,13	1,72	#26 Nel. R3000 D4	1	BlueTop25
47	1,29	1,34	0,05	2,12	1,72	#26 Nel. R3000 D4	1	BlueTop25
48	1,32	1,34	0,02	2,12	1,72	#26 Nel. R3000 D4	1	BlueTop25
49	1,34	1,34	-0,00	2,11	1,72	#26 Nel. R3000 D4	1	BlueTop25
50	1,37	1,34	-0,03	2,11	1,72	#26 Nel. R3000 D4	1	BlueTop25
51	1,40	1,34	-0,06	2,10	1,72	#26 Nel. R3000 D4	1	BlueTop25
52	1,43	1,34	-0,09	2,10	1,72	#26 Nel. R3000 D4	1	BlueTop25
53	1,45	1,55	0,10	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
54	1,48	1,55	0,07	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
55	1,51	1,55	0,05	2,09	1,72	#28 Nel. R3000 D4	1	BlueTop25
56	1,54	1,55	0,02	2,08	1,72	#28 Nel. R3000 D4	1	BlueTop25
57	1,56	1,55	-0,01	2,08	1,72	#28 Nel. R3000 D4	1	BlueTop25
58	1,59	1,55	-0,04	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
59	1,62	1,55	-0,06	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
60	1,64	1,55	-0,09	2,07	1,72	#28 Nel. R3000 D4	1	BlueTop25
61	1,67	1,78	0,11	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
62	1,70	1,78	0,08	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
63	1,73	1,78	0,06	2,06	1,72	#30 Nel. R3000 D4	1	BlueTop25
64	1,75	1,78	0,03	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
65	1,78	1,78	0,00	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
66	1,81	1,78	-0,03	2,05	1,72	#30 Nel. R3000 D4	1	BlueTop25
67	1,84	1,78	-0,05	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
68	1,86	1,78	-0,08	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
69	1,89	1,78	-0,11	2,04	1,72	#30 Nel. R3000 D4	1	BlueTop25
70	1,92	2,03	0,11	2,04	1,72	#32 Nel. R3000 D4	1	BlueTop25
71	1,95	2,03	0,08	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
72	1,97	2,03	0,06	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
73	2,00	2,03	0,03	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
74	2,03	2,03	0,00	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
75	2,06	2,03	-0,03	2,03	1,72	#32 Nel. R3000 D4	1	BlueTop25
76	2,08	2,03	-0,05	2,02	1,72	#32 Nel. R3000 D4	1	BlueTop25
77	2,11	2,03	-0,08	2,02	1,72	#32 Nel. R3000 D4	1	BlueTop25
78	2,14	2,23	0,09	2,02	1,72	#34 Nel. R3000 D4	1	BlueTop25
79	2,17	2,23	0,06	2,02	1,72	#34 Nel. R3000 D4	1	BlueTop25
80	2,19	2,23	0,03	2,02	1,72	#34 Nel. R3000 D4	1	BlueTop25

No.	Q1	Q2	Q2-Q1	Pp	Pn	Bestückung:	Anz.:	Druckreduzieren:
82	2,25	2,23	-0,02	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
83	2,28	2,23	-0,05	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
84	2,30	2,23	-0,08	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
85	2,33	2,23	-0,10	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
86	2,36	2,23	-0,13	2,01	1,72	#34 Nel. R3000 D4	1	BlueTop25
87	2,39	2,50	0,12	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
88	2,41	2,50	0,09	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
89	2,44	2,50	0,06	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
90	2,47	2,50	0,03	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
91	2,49	2,50	0,01	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
92	2,52	2,50	-0,02	2,01	1,72	#36 Nel. R3000 D4	1	BlueTop25
93	2,55	2,50	-0,05	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
94	2,58	2,50	-0,08	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
95	2,60	2,50	-0,10	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
96	2,63	2,50	-0,13	2,00	1,72	#36 Nel. R3000 D4	1	BlueTop25
97	2,66	2,79	0,13	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
98	2,69	2,79	0,11	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
99	2,71	2,79	0,08	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
100	2,74	2,79	0,05	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
101	2,77	2,79	0,02	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25
102	2,80	2,79	-0,00	2,00	1,72	#38 Nel. R3000 D4	1	BlueTop25

Annexure – Drawing

1. Location of existing Centre Pivots - Drwg No. OAB/OMD/CENTREPIVOTS/48/24/01

LEGEND

- NPIP-PHASE I (STAGE 1) UNDER OPERATION
- BLOCKS UNDER OPERATION NPIP-PHASE II
- AREA EXCISED
- SMALL PLANTERS
- CIE. AGRICOLE DE LABOURDONNAIS LTD.
- BELLE VUE MAURICIA S.E. CO. LTD.
- ST. ANTOINE S. E. CO. LTD.
- COMPAGNIE SUCRIERE DE MONT CHOISY
- M1 PIPELINE
- DELIVERY MAINS / LATERALS ALREADY LAID
- LATERALS (STAGE1)
- PIVOTS

Block 3
Piv. P1
Piv. P2
Piv. P3
DELIVERY MAIN FOR BLOCK 3
Block 2
Piv. 1
Piv. 2
Piv. 3
Piv. 4
Piv. 5
Piv. 6
Block 1
DELIVERY MAIN FOR BLOCK 2
DELIVERY MAIN FOR BLOCKS 8A-1 & 8A-2
Block 8A-1
Block 8A-2
M1B3L4
M1B3L2
M1B3L1.1&1.2
M1B3
M1B2L9
M1B2L10
M1B2L7
M1B2L8
M1B2L5
M1B2L6
M1B2L3
M1B2L2
M1B2L4
M1B2
M1B1
Piv. A1
Piv. A2
Piv. A3
Piv. A4
Piv. A5
Piv. A6
Piv. B1
Piv. B2
Piv. B3
Piv. B4
Piv. B5
Piv. C1
Piv. C3
Piv. C4
PROPOSED TRIOLET BYPASS
SOLITUDE PHASE I
SOLITUDE PHASE II
BELLE VUE SE
A5 PIPELINE
M1 PIPELINE
Ferret
Grand Baie R-about
The Vale R-about
Forbach R-about
Labourdonnais R-about
Mapou R-about
Belle Vue Harel
Labourdonnais
Mon Loisir Rouillard
Pte Aux Piments
Trou aux Biches
Forbach
Espérance
Espérance Trébuchet
Bon Espoir
L'Espérance
PITON
Cottage
PETIT RAFFRAY
THE VALE
MONT MASCAL
SOTTISE
UNION DARUTY
MON LOISIR ROUILLARD
MON CHOISY
CROWN LAND POWDER MILLS
CROWN LAND L'ASILE
MON ROCHER
BOIS ROUGE
Beau Plan
PAMPLEMOUSSES
Sir Seewoosagur Ramgoolam National Hospital
Village Hotel
Golf Course
Maheswarnath Temple
ND de Fatima Chapel
St Jean Marie de Vianney Chapel
Breakwaters
Sugar Factory
Distillery
Botanical Gardens
River Citron

IRRIGATION AUTHORITY

PROJECT	Supply, Installation, Testing and Commissioning of New Centre Pivots in Replacement to Existing Old Ones
TITLE	Location of Existing Centre Pivots
SCALE : N.T.S	DRG No. OAB/OMD/CENTREPIVOTS/48/24/01
DATE : November 2024	