PINELANDS CID CCTV SYSTEM

WIRELESS NETWORK UPGRADE AND NVR RELOCATION

PROJECT NUMBER: PLCID02_26

Request for Quotation Document

Issued by:

Pinelands CID

Prepared by:

Transport Telematics Africa (Pty) Ltd

Issue Date	19 June 2026
Due Date and Time	13 July 2026
Tenderer Name:	
Primary Contact Person:	
Contact Number:	
Email Address:	

PARTIES

Pinelands CID: Pinelands CID the contracting authority and client for whom the Works are to be executed, represented by Yazied Davids.

Engineer: Transport Telematics Africa (Pty) Ltd, represented by Johan Badenhorst.

Tenderer / Contractor: The entity or individual who submits a tender in response to this Request for Quotation (RFQ) and whose tender is accepted by Pinelands CID.

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PART T1: TENDER DATA

TENDER NOTICE AND INVITATION

On behalf of Pinelands CID, contractors are hereby invited to submit a tender for the Wireless network upgrade and NVR relocation project.

All queries and submissions must be directed to the Pinelands CID at bids@pinelandscid.co.za. Only electronic submissions will be accepted.

Tenders must be valid for 30 days.

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PART T1: TENDER DATA

The rules and procedures below apply from the time contractors are invited to the completion of the project:

1 GENERAL

1.1 ACTIONS

1.1.1 The tenderer must declare any conflict of interest.

1.1.2 The employer shall not seek and a contractor shall not submit a tender without having a firm intention and the capacity to proceed with the work.

1.2 EVALUATION

1.2.1 Minimum score for functionality

The criteria above will be rated according to the following guidelines:

1.2.1.1 The track record criteria will be scored according to the information supplied by the tenderer in returnable **Schedule 2**. The tenderer shall supply as much information as deemed necessary to allow the evaluation of this criterion including contactable references to confirm information. The following point allocation will be used to score each tenderer.

ITEM	CRITERIA	POINTS MAX (20)
1	Five or more successfully completed wireless networking contracts	**20**
2	3 to 4 successfully completed wireless networking contracts	**10**
3	1 to 2 successfully completed wireless networking contracts	**5**

The table indicates the maximum number of points that can be awarded in each instance.

‘Wireless networking contracts’ refers to projects making use of high bandwidth long distance radio links for backhaul purposes.

1.2.1.2 The tenderer partner status will be scored according to the information supplied by the tenderer. The tenderer shall supply proof of installing technicians' Ubiquiti training as part of his submission. The following point allocation will be used to score each tenderer.

ITEM	CRITERIA	POINTS MAX (5)
1	Installing technicians has Ubiquiti training certificates	**5**
2	Installing technicians does not have Ubiquiti training certificates	**0**

1.2.1.3 Project team organogram and staff qualifications

The tenderer shall submit an organogram of the proposed project team including CV's and copies of relevant qualifications of each of the members. The project leader should preferably have more than 5 years' experience in managing similar projects.

The following point allocation will be used to score each tenderer.

ITEM	CRITERIA	POINTS MAX (15)
1	Organogram submitted	**5**
2	CV's and qualifications of attending staff submitted	**5**
3	Project leader has more than 5 years' experience in managing similar projects	**5**

The table indicates the maximum number of points that can be awarded in each instance.

1.2.1.4 Functionality scoring

Functionality scoring will be evaluated according to the below table. A **minimum of 30 out of 40 points** must be achieved to proceed to the financial evaluation portion.

ITEM	DESCRIPTION	POINTS (MAX)
1	The ability and proven track record of the tenderer to successfully complete similar Hikvision CCTV systems	**20**
2	Hikvision partner status	**5**
3	Organogram and staff qualifications	**15**
4	**Total**	**40**

1.2.2 Tender scoring

Submissions will be evaluated on the following criteria:

ITEM	DESCRIPTION	POINTS
1	Functionality scoring	**40**
2	Price	**60**
3	**Total**	**100**

A **minimum score of 70 out of 100** must be achieved for the tender to be eligible for award.

1.2.2.1 The price criteria shall be scored as follows:

$$Ps = 60 \times \left(1 - \left(\frac{Pt - Pmin}{Pmin}\right)\right)$$

Where:

Ps = the number of points scored for price;
Pt = the price of the tender under consideration;
Pmin = the price of the lowest tender.

1.2.3 The employer reserves the right to accept any, none, or part of any of the received tenders.

2 TENDERER'S OBLIGATIONS

The tenderer shall:

2.1 NOTICES

Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

2.2 COST OF TENDERING

Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

2.3 CONFIDENTIALITY AND COPYRIGHT OF DOCUMENTS

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

2.4 REFERENCE DOCUMENTS

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

2.5 ACKNOWLEDGE ADDENDA

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing date and time stated in the tender data, in order to take the addenda into account. No queries will be accepted during the five working days prior to the closing date.

2.6 SEEK CLARIFICATION

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

2.7 PRICING OF THE TENDER

2.7.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT)), and other levies payable by the successful tenderer that are applicable 14 days before the closing date and time stated in the tender data.

2.7.2 Prices are fixed and firm. Claims for rate of exchange or escalation will not be entertained. Rates are not subject to adjustment except as provided for in the conditions of contract identified in the contract data. Pricing qualified to not be firm or fixed may lead to disqualification.

2.7.3 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

2.7.4 State the rates and prices in South African Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

2.7.5 Pricing negotiations after tender submissions are allowed if requested by Pinelands CID.

2.8 ALTERATIONS TO DOCUMENTS

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

2.9 ALTERNATIVE TENDER OFFERS

Alternative offers may be submitted.

2.10 SUBMITTING A TENDER OFFER

Submit one electronic copy of the tender offer to bids@pinelandscid.co.za. Only electronic submissions will be accepted. No hard copy submissions will be considered.

2.11 INFORMATION AND DATA TO BE COMPLETED IN ALL RESPECTS

Accept that tender offers, which do not provide all the data or information requested completely and submitted in the form required, may be regarded by the employer as non-responsive.

2.12 TENDER OFFER VALIDITY

Tender offers must be valid for 30 (thirty) days from the closing date of tender submission.

3 EMPLOYER'S UNDERTAKINGS

Pinelands CID shall:

3.1 RESPOND TO REQUESTS FROM THE TENDERER

Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all invited tenderers.

3.2 ISSUE ADDENDA

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until four days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all invited tenderers.

3.3 RETURN LATE TENDER OFFERS

Return tender offers received after the closing time stated in the Tender Data, unopened, to the address indicated on the submission envelope (as stated on page 3).

3.4 OPENING OF TENDER SUBMISSIONS

Announce the total of prices and names of each tenderer at opening on request only.

3.5 NON-DISCLOSURE

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

3.6 GROUNDS FOR REJECTION AND DISQUALIFICATION

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

3.7 ARITHMETICAL ERRORS, OMISSIONS AND DISCREPANCIES

Check the tender offers for:

a) The gross misplacement of the decimal point in any unit rate;
b) Omissions made in completing the pricing schedule or bills of quantities; or
c) Arithmetic errors in:
   i) Line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
   ii) The summation of the prices.

Pinelands CID may correct the arithmetical errors in the following manner:

d) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern.
e) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
f) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices. Line items that are not priced will be assumed to have a value of zero.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

3.8 ACCEPTANCE OF TENDER OFFER

Issue a letter of appointment, Purchase Order or signed form of offer and acceptance as acceptance of the tender to the successful tenderer.

3.9 NOTICE TO UNSUCCESSFUL TENDERERS

After the successful tenderer has been notified of Pinelands CID’s acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

3.10 PROVIDE WRITTEN REASONS FOR ACTIONS TAKEN

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

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PART T2:

RETURNABLE SCHEDULES

Forms to be completed:

1. Basic information
2. Previous experience
3. Data sheet of tendered equipment

Forms to be submitted:

4. Tax clearance certificate
5. Authority of Signatory
6. Manufacturer Certifications
7. Workman’s Compensation Letter of Good Standing
8. Organogram and CV’s of project team members

SCHEDULE 1: BASIC INFORMATION

Name of Enterprise: _____

Trading As: _____

Contractor's name: _____

Registered address of the enterprise: _____

_____

_____

Contact Persons name: _____

Email contact address: _____

Telephone contact number: _____

Enterprise VAT registration number: _____

Bank: _____

Branch code: _____

Account number: _____

SCHEDULE 2: PREVIOUS EXPERIENCE

2.1 Previous Wireless Network Projects

The Tenderer shall set out in the Schedule hereunder details of work successfully carried out by them for the installation and configuration of wireless networking equipment making use of high bandwidth long distance radio links.

Failure to complete this Schedule may result in the Tender being considered non-responsive

Project	Employer Including contact details	Number of radio links	Value of work	Year Completed

SCHEDULE 3: DATA SHEET OF TENDERED EQUIPMENT

The following must be completed fully and submitted as part of the Tender offer:

ITEM	DESCRIPTION	
A1	**WIRELESS BACKHAUL RADIO**	
A1.1	Manufacturer	
A1.2	Model number	
A2	**BATTERY STATUS MONITOR**	
A2.1	Manufacturer	
A2.2	Model number	
A3	**BATTERY MONITOR COMMUNICATION DEVICE**	
A3.1	Manufacturer	
A3.2	Model number	
A4	**VIDEO MANAGEMENT SYSTEM SERVER**	
A4.1	Manufacturer	
A4.2	Model number	
A4.3	CPU	
A4.4	RAM	
A4.5	Hard disks	
A4.6	Operating system	
A5	**NETWORK SWITCH (GARDEN CITY HEIGHTS)**	
A5.1	Manufacturer	
A5.2	Model number	
A6	**NETWORK GATEWAY/FIREWALL**	
A6.1	Manufacturer	
A6.2	Model number	
A7	**12VDC – 24VDC VOLTAGE CONVERTER**	
A7.1	Manufacturer	
A7.2	Model number	
	Full product data sheets and descriptions must be included with the tender document	

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PART C1: CONTRACT DATA

C1.1: FORM OF OFFER AND ACCEPTANCE

1. OFFER

Pinelands CID, identified in the acceptance signature below, has solicited offers to enter into a contract for the procurement of

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The tenderer, identified in the offer signature below, has examined the documents listed in the tender data and addenda thereto as listed in the tender schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount as stated below.

The offered total of the prices inclusive of Value-Added Tax is

.....

.....

.....Rand (in words); R…….....(in figures)

This offer may be accepted by Pinelands CID by issuing a purchase order or letter of appointment to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in terms of the conditions of contract identified in the contract data.

For the **Tenderer**

……
(Name and address of organization)

Signature(s)……

Name(s)..... .....

Capacity ....

Witness

Name and signature……

Date ..... …….

2. ACCEPTANCE

By signing this part of this form of offer and acceptance, Pineland CID identified below accepts the tenderer's offer. In consideration thereof, Pinelands CID shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement between Pinelands CID and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract are contained in

Part C1: Agreements and contract data (which includes this agreement)

Part C2: Pricing Data

Part C3: Scope of Work and Specifications

and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto, as listed in the tender schedules as well as any changes to the terms of the offer agreed by the tenderer and Pinelands CID during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The tenderer shall, within two weeks after receiving a completed copy of this agreement or order including the schedule of deviations (if any), contact Pinelands CID's agent (whose details are given in the contract data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of the obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor), within five (5) working days of the date of such receipt, notifies Pinelands CID in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

for **Pinelands CID**

.....

..... (Name and address of organization)

Signature .....

Name .....

Capacity .....

Witness

Name and signature ……..

Date ..... …….

3. SCHEDULE OF DEVIATIONS

Notes:

3.1 The extent of deviations from the tender documents issued by Pinelands CID before the tender closing date is limited to those permitted in terms of the conditions of tender.

3.2 A tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

3.3 Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents, and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

3.4 Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the contract.

FOR PINELANDS CID TO COMPLETE ON ACCEPTANCE OF THE OFFER:

a) Subject .....

Details .....

b) Subject .....

Details .....

By the duly authorized representatives signing this schedule of deviations, Pinelands CID and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and Pinelands CID during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

Pinelands CID	**Contractor**
.....	.....
Name	Name
.....	……
Signature	Signature
..... ……	……
Date	Date

PART C1.2: CONTRACT DATA

The following terms and conditions will form part of this agreement. Where the terms and conditions stated below are not clear, the parties entered into the agreement shall refer to the following standard conditions of contract: General Conditions of Contract (revised July 2010) as published by National Treasury. However, the terms and conditions stated below take preference.

1 DEFINITIONS:

"**Agreement**" means these Terms and Conditions and the Order Form and the Schedules, annexures, attachments, addenda and variations or amendments thereof duly effected;

"**Business Day**" means any day other than a Saturday, Sunday or official public holiday in South Africa;

"**Business Hours**" means the hours between 08h00 and 17h00 on any Business Day. Any reference to time shall be based on South African Standard Time;

"**Order**" means an order for Goods and/or Services set out in an Order Form which has been accepted by the Contractor, or which has been deemed to have been accepted by the Contractor;

"**Contractor**" **or "Tenderer"** means the person or legal entity with whom the Consumer has placed an Order for Goods and/or Services;

"Contract Sum" means the accepted amount provided for in the agreement made in terms of the Form of Offer and Acceptance, or Order;

"Commencement date" means the date stated on the Order or Letter of Appointment as issued to the tenderer;

"Employer" means the person for whom the Works are to be executed and who is name as the Employer in the Contract Data, and the legal successors in title of this person.

"Employer's representative" or "Engineer" means the person whom is indicated in the Contract Data, and the legal successors in title of this person.

2 PRIORITY OF DOCUMENTS

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) the Form of Offer and Acceptance, or Order

(b) the Appendix to Tender within the Contract Data,

(c) the General Conditions (revised July 2010) as published by National Treasury (not included in the document),

(d) the Employer's Requirements, and

(e) the Schedules.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

3 APPENDIX TO TENDER: CONTRACT DATA COMPLETED BY THE EMPLOYER:

Item	Entry
Pinelands CID's name and address	Pinelands CID, 28B Greenzone, Mutualpark, Jan Smuts Drive, Pinelands, 7405
Representative	Yazied Davids
Commencement Date	On receipt of Purchase order, or letter of appointment
Time for Completion of the Works	Maximum 1 Month
Period for submission of Programme	One week after commencement date
Defects Liability Period	12 Months
Form of communication	e-mail
Governing Law	Republic of South Africa
Ruling language	English
Language for communications	English
Amount of Performance Security	N/A
Normal working hours	08:00 till 17:00
Delay penalties for the Works	R1000 excl VAT per calendar day
Maximum amount of Delay penalties	No limit
Adjustments for Changes in Cost	None applicable - Fixed priced contract
Total advance payment	Up to 70% Deposit
Percentage of retention	10% from each interim payment certificate (value of works), reducing to 5 % upon the issue of a Certificate of Practical Completion.
Limit of Retention Money	10% of contract sum
Retention Period	3 (three) Months
Plant and Materials for payment when shipped en route to the Site	None
Plant and Materials for payment when delivered to the Site	None, only paid once installed.
Currency/currencies of payment	South African Rand, as named in Offer

Item	Entry
Payment Cycle	30 days from date of invoice based on certified claim
Periods for submission of insurance:	
(a) evidence of insurance	5 days from commencement
(b) relevant policies	5 days from commencement
Maximum amount of deductibles for insurance of the Employer's risks	Not applicable
Minimum amount of third party insurance	R3 000 000,00

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PART C2: PRICING DATA

PRICING INSTRUCTIONS AND SCHEDULE

1. This Bill of Quantities forms part of, and must be read in conjunction with the specification.

2. No alteration, erasure or addition is to be made in the text of the Bill of Quantities. Should any alteration, erasure or addition be made it will not be recognized but the original working of the Bill of Quantities will be adhered to.

3. Pinelands CID will check the complete Bill of Quantities and reserves the right to adjust any individual price and to rectify any discrepancy whilst **the total tender price as quoted remains unaltered**.

4. The unit prices tendered in the Bill of Quantities must include for such small installation materials as are required for the complete installation in accordance with the specification.

5. The unit prices tendered must include all travelling costs associated.

6. Should the Bill of Quantities be made available in electronic Excel format, the Tenderer will be responsible to ensure the correctness of all formulas. Pinelands CID will accept no responsibility for any incorrect tender pricing as a result of wrong formulas in the Excel document.

7. Prices are fixed and firm. Claims for rate of exchange or escalation will not be entertained. Pricing qualified to not be firm or fixed may lead to disqualification.

8. The successful tenderer is required to perform all tasks listed against each item. The tenderer must therefore tender prices/rates on all items as per the section in the Price Schedule. **An item against which no rate (or rates, in the case of rate categories if provided) is/are entered, or if anything other than a rate or a nil rate (for example, a zero, a dash or the word "included" or abbreviations thereof) is entered against an item, it will also be evaluated as a nil rate having been entered against that item, i.e. that there is no charge for that item.**

PINELANDS CID CCTV - WIRELESS NETWORK UPGRADE AND NVR RELOCTION - SCHEDULE OF QUANTITIES

SECTION A: PRELIMINARY AND GENERAL

			Tendered rates		
Item	**Description**	**Unit**	**Qty**	**Rate R-c**	**Total R-c**
1	**PRELIMINARY AND GENERAL**				
1.1	12 Month Guarantee & Maintenance Allowance	Sum	1		R
1.2	Quality Assurance Procedures	Sum	1		R
1.3	Project Management	Sum	1		R
1.4	OHS compliance	Sum	1		R
2	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**

SECTION B: OLD MUTUAL CONTROL ROOM HEAD-END INSTALLATION

			Tendered rates		
Item	**Description**	**Unit**	**Qty**	**Rate R-c**	**Total R-c**
1	**HIKVISION HIKCENTRAL SERVER**				
1.1	**Hikvision HikCentral-P-VER/HW1D/64**				
1.1.1	Supply	No.	1		R
1.1.2	Install	No.	1		R
1.2	**Server configuration for existing CCTV cameras**				
1.2.1	Setup and configuration	Sum	1		R
1.3	**NVR Relocation**				
1.3.1	Decommission and relocate to Old Mutual control room	No.	7		R
1.3.2	Install and configure to new HikCentral server	No.	7		R
1.4	**Network configuration for FirstAlert integration**				
1.4.1	Setup and configuration to FirstAlert service from Old Mutual control room	Sum	1		R

2	**GATEWAY/FIREWALL**				
2.1	**Network gateway/firewall**				
2.1.1	Supply	No.	1		R
2.1.2	Install and configure	No.	1		R
3	**CABLING**				
3.1	**Fly leads Molex CAT6 UTP, complete with RJ45 moulded plugs**				
3.1.1	3m Grey Supply	No.	10		R
3.1.2	3m Grey Install	No.	10		R
4	**OTHER**				
4.1	Sundries	Sum	1		R
5	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**

SECTION C: FIELD INSTALLATIONS

			Tendered rates		
Item	**Description**	**Unit**	**Qty**	**Rate R-c**	**Total R-c**
1	**OLD MUTUAL COLLECTION NODE**				
1.1	**Antenna mounting pole including bracket - 3m x 75mm**				
1.1.1	Supply	No.	2		R
1.1.2	Install	No.	2		R
1.2	**Small waterproof enclosure for network cable terminations including bracket**				
1.2.1	Supply	Sum	3		R
1.2.2	Install	Sum	3		R
1.3	**Wire mesh cable tray including mounting hardware**				
1.3.1	Supply	m	15		R
1.3.2	Install	m	15		R

1.4	**Copper cabling: Data points, complete with outdoor CAT6A UTP Solid Molex cable, two molex keystone jacks and accessories as per the specification (40m average length), installed to the outlet point**				
1.4.1	Supply	No.	12		R
1.4.2	Install (Excluding testing and commissioning)	No.	12		R
1.5	**24-port CAT6 patch panel (blank)**				
1.5.1	Supply	No.	1		R
1.5.2	Install	No.	1		R
1.6	**Patch Leads Molex CAT6 UTP, complete with RJ45 moulded plugs**				
1.6.1	2m Grey Supply	No.	12		R
1.6.2	2m Grey Install	No.	12		R
1.7	**Fly leads outdoor UV protected, complete with RJ45 moulded plugs**				
1.7.1	5m Supply	No.	12		R
1.7.2	5m Install	No.	12		R
1.8	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**				
1.8.1	Supply	No.	3		R
1.8.2	Install and configure	No.	3		R
1.9	**Removal of redundant equipment**				
1.9.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R
2	**ZONEWATCH COLLECTION NODE**				
2.1	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**				
2.1.1	Supply	No.	1		R
2.1.2	Install and configure	No.	1		R
2.2	**Removal of redundant equipment**				
2.2.1	Decommissioning and removal of redundant/replaced radio equipment	No.	4		R

3	**GARDEN CITY HEIGHTS COLLECTION NODE**				
3.1	**IP65 equipment enclosure for electrical and networking equipment**				
1.1.1	Supply	No.	1		R
1.1.2	Install	No.	1		R
3.2	**Small waterproof enclosure for network cable terminations including bracket**				
3.2.1	Supply	No.	3		R
3.2.2	Install	No.	3		R
3.3	**Copper cabling: Data points, complete with outdoor CAT6A UTP Solid Molex cable, two molex keystone jacks and accessories as per the specification (20m average length), installed to the outlet point**				
3.3.1	Supply	No.	12		R
3.3.2	Install (Excluding testing and commissioning)	No.	12		R
3.4	**Patch Leads Molex CAT6 UTP, complete with RJ45 moulded plugs**				
3.4.1	2m Grey Supply	No.	13		R
3.4.2	2m Grey Install	No.	13		R
3.5	**Fly leads outdoor UV protected, complete with RJ45 moulded plugs**				
3.5.1	5m Supply	No.	12		R
3.5.2	5m Install	No.	12		R
3.6	**Battery charger/interver: Victron MultiPlus 24/500/10 500VA**				
3.6.1	Supply	No.	1		R
3.6.2	Install and configure	No.	1		R
3.7	**24V 100Ah battery**				
3.7.1	Supply	No.	1		R
3.7.2	Install	No.	1		R
3.8	**Battery monitor: Victron BMV-700**				
3.8.1	Supply	No.	1		R
3.8.2	Install and configure	No.	1		R
3.9	**Communications hub: Victron Cerbo GX including cabling to devices**				
3.9.1	Supply	No.	1		R
3.9.2	Install and configure	No.	1		R

3.10	**8-port PoE network switch: Ubiquiti UniFi Switch Ultra**				
3.10.1	Supply	No.	2		R
3.10.2	Install and configure	No.	2		R
3.11	**54VDC 210W power supply for network switch**				
3.11.1	Supply	No.	2		R
3.11.2	Install	No.	2		R
3.12	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**				
3.12.1	Supply	No.	2		R
3.12.2	Install and configure	No.	2		R
3.13	**Re-installation of solar charge controller**				
3.13.1	Decommission and remove	No.	1		R
3.13.2	Install and configure	No.	1		R
3.14	**Removal of redundant equipment**				
3.14.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R
3.14.2	Decommissioning and removal of old equipment enclosure including equipment	No.	1		R
4	**GOLF PARK COLLECTION NODE**				
4.1	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**				
4.1.1	Supply	No.	1		R
4.1.2	Install and configure	No.	1		R
4.2	**Removal of redundant equipment**				
4.2.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R

5	**BIOVAC COLLECTION NODE**				
5.1	**Battery monitor: Victron BMV-700**				
5.1.1	Supply	No.	1		R
5.1.2	Install and configure	No.	1		R
5.2	**Communications hub: Victron Cerbo GX including cabling to devices**				
5.2.1	Supply	No.	1		R
5.2.2	Install and configure	No.	1		R
5.3	**12VDC - 24VDC voltage converter**				
5.3.1	Supply	No.	1		R
5.3.2	Install	No.	1		R
5.4	**Re-direction of radio antenna**				
5.4.1	Re-direction of existing Ubiquiti AirFiber unit towards Old Mutual highsite	No.	1		R
5.5	**Removal of redundant equipment**				
5.5.1	Decommissioning and removal of redundant/replaced power equipment	No.	1		R
6	**OTHER**				
6.1	Sundries	Sum	1		R
7	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**

SECTION D: TESTING, COMMISSIONING AND HANDING OVER

			Tendered rates		
Item	**Description**	**Unit**	**Qty**	**Rate R-c**	**Total R-c**
1	**TESTING, COMMISSIONING AND LABELLING**				
1.1	Testing and Commissioning of network point, including test report	No	24		R
1.2	Data Outlets: Labelling of all data points at cabinets and outlets	No	24		R
1.3	Testing and Commissioning of CCTV recording system	Sum	1		R
1.4	Testing and Commissioning of radio communications network	Sum	1		R

2	**AS-BUILT DOCUMENTATION**				
2.1	Nett amount for the provision of "AS-BUILT" drawings as per the specification	Sum	1		R
3	**INSPECTIONS AND HANDING OVER**				
3.1	Old Mutual commissioning inspection	No	1		R
3.2	Garden City Heights highsite commissioning inspection	No	1		R
3.3	Golf Park highsite commissioning inspection	No	1		R
3.4	Biovac highsite commissioning inspection	No	1		R
3.2	Handing over	No	1		R
4	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**

SECTION E: SUMMARY

			Tendered rates		
Item	**Description**	**Unit**	**Qty**	**Rate R-c**	**Total R-c**
1	SECTION A: PRELIMINARY AND GENERAL				R
2	SECTION B: OLD MUTUAL CONTROL ROOM HEAD-END INSTALLATION				R
3	SECTION C: FIELD INSTALLATIONS				R
4	SECTION D: TESTING, COMMISSIONING AND HANDING OVER				R
5	**SUBTOTAL**				**R**
6	CONTINGENCIES		10%		R
7	**TOTAL CARRIED FORWARD TO ELECTRONIC SUMMARY**				**R**
8	VAT		15%		R
9	**TOTAL**				**R**

PINELANDS CID CCTV SYSTEM:

WIRELESS NETWORK UPGRADE AND NVR RELOCATION

PART C3: SCOPE OF WORK AND SPECIFICATIONS

1 GENERAL

1.1 PROJECT DESCRIPTION

The Pinelands CID requires the supply and installation of new wireless networking backhaul equipment for the upgrade and re-configuration of the existing CCTV communications network as well as the supply, installation and configuration of a new HikCentral server and relocation of existing NVR devices.

Upgrades at the existing wireless collection nodes (highsites) shall include new networking equipment and real-time battery status monitoring. The head-end installation at the Old Mutual viewing node shall be expanded to include a new Hikvision HikCentral server that will become the core of the Pinelands CID CCTV system, and the existing NVR devices currently located at the Zonewatch control room shall be relocated to the Old Mutual site.

The purpose of the network re-configuration is that the Old Mutual highsite and control room shall become the primary node for the CCTV system instead of the Zonewatch node as is currently the case.

1.2 SCOPE OF WORK

The scope of work includes the supply, installation, testing, commissioning and handing over in proper working order the equipment and software as specified in this Specification, and Schedules. The work for this contract includes, but is not limited to the following:

- Supply, installation and configuration of new backhaul radio links as listed below:
  - Old Mutual to Zonewatch
  - Old Mutual to Biovac
  - Old Mutual to Garden City Heights
  - Garden City Heights to Golf Park
- Supply, installation and configuration of backup battery monitoring and communication devices at the Biovac and Garden City Heights highsites
- Decommissioning and removal of redundant radio equipment
- Supply, installation and configuration of a new Hikvision HikCentral server at the Old Mutual control room including transfer of system licenses from the Zonewatch VMS system to the Pinelands CID VMS system
- Phased relocation of the existing NVR devices from the Zonewatch control room to the Old Mutual control room

- Supply, installation and configuration of a network firewall at the Old Mutual control room for managed internet breakout of system devices
- Assistance with ensuring that the existing monitoring capability at the Zonewatch control room remain in place and active throughout the project
- Compiling and submission of as-built documentation

1.3 PROGRAMME

The successful tenderer must submit a programme within the timeframe stipulated in the contract data. If the tenderer fails to adhere to the tendered programme, penalties according to the contract data will be applicable.

The installation period will commence when the successful Tenderer has been appointed.

The tenderer shall carry out the equipment installation and configuration in strict accordance with the programme agreed between himself and the Pinelands CID.

The contract work shall be executed mainly during normal working hours. Work undertaken outside normal working hours shall in all instances only take place with the prior arrangement with and approval of the Pinelands CID's representative.

No claims for additional overtime work other than the above will be entertained without prior written approval of the Pinelands CID.

1.4 SUITABLE SITE STAFF AND MONTHLY CLAIMS

The tenderer shall allow for the employment of site staff that shall be suitably qualified and experienced in the installation and configuration of items of material and equipment installed during the execution of the installation.

1.5 MAKING GOOD

The successful tenderer will be responsible for making good in all trades of any damage to the buildings, environment or other services, which he or his employees may have incurred during the construction of works.

The successful tenderer will be responsible for keeping the site clean and tidy and must remove from the site on the on the same day all rubble and litter resulting from the works.

2 DETAIL SPECIFICATION

2.1 EXISTING CCTV SYSTEM INSTALLATION

The Pinelands CID CCTV installation currently consists of 98 individual camera installations in the Pinelands area of which 37 are fitted with dual optical/thermal type cameras. The cameras are connected to the Zonewatch HikCentral system at the Zonewatch control room in Maitland through a dedicated radio communications network. All video feeds are recorded on NVR devices located in the Zonewatch control room and connected to the Zonewatch HikCentral system.

All video feeds are monitored by Zonewatch and incidents are managed by the Zonewatch operators. Radio network maintenance as well as camera maintenance, such as cleaning and repairs, are performed by Zonewatch as contractors to Pinelands CID. The monitoring and maintenance status quo shall remain in place and the successful tenderer shall ensure that performance of the Works causes minimal impact to the operations of the CCTV system.

2.2 OLD MUTUAL CONTROL ROOM HEAD-END INSTALLATION

2.2.1 HikCentral server installation

The successful tenderer shall be responsible for the supply, installation and configuration of a HikCentral server to establish a dedicated Pinelands CID CCTV system located at the Old Mutual control room. Existing camera licenses associated with the Pinelands CID CCTV cameras shall be transferred from the Zonewatch HikCentral server to the Pinelands CID HikCentral server.

The tenderer shall liaise with the Zonewatch technical staff to ensure that the Zonewatch control room viewing node is re-configured to draw the video feeds from the new Pinelands CID server that the operators have access to all video feeds after installation.

2.2.2 Hikvision HikCentral server

The Hikvision HikCentral server shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Video Channels	64-channel expandable to 3000-channel
2	CPU	Intel Xeon E-2434
3	Memory	16GB
4	Hard disks	2x 2TB SATA in RAID 1
5	Operating system	Windows Server 2019
6	Remote management	iDrac9 Enterprise
7	Security	Support Cryptographically signed firmware; Secure Boot; Secure Erase; Silicon Root of Trust; System Lockdown
8	USB Interfaces	Front panel: 1x USB 2.0; Rear panel: 1x USB 3.0 and 1x USB 2.0
9	Ethernet	2x 1Gbps LAN RJ45
10	VGA port	Yes
11	Power Supply	100 to 240 VAC, 50 to 60 Hz, 600W
12	Operating Temperature	10 °C to 35 °C
13	Chassis Format	1U Rack mountable

The server shall be a HikCentral-P-VER/HW1D/64 server.

2.2.3 NVR relocation

During the project, the existing Hikvision NVR devices installed at the Zonewatch control room shall be relocated to the server rack in the Old Mutual control room. The relocation shall be carefully planned and phased to minimize any downtime and ensure that system operations continue optimally during the execution of the Works.

The successful tenderer shall liaise with the Zonewatch technical staff to verify and ensure that the full monitoring functionality is still available to the Zonewatch operators during and after the installation move has been completed. The contractor shall be responsible for the configuration of the system to ensure that the NVR's are correctly integrated with the Pinelands CID HikCentral server after installation at the Old Mutual control room.

2.2.4 FirstAlert integration

The existing FirstAlert integrations shall remain in place and the successful tenderer shall ensure that the link is still operational after the new HikCentral installation and NVR move has been completed.

2.2.5 Viewing node at Old Mutual building control room

The successful tenderer shall ensure that the viewing node at the Old Mutual control room is successfully linked to the new HikCentral server after the installation is completed with the operator able to view all cameras connected to the system.

2.2.6 Network firewall at Old Mutual building control room

The successful tenderer shall supply, install and configure a network firewall at the Old Mutual control room that will manage system device access to internet connectivity.

The network firewall shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Processor	Dual-core ARM Cortex-A53 at 1 GHz
2	Memory	1GB DDR3L
3	Networking interfaces	1x GbE RJ45 WAN port 1x GbE RJ45 LAN port
4	Performance	WiFi QoS with UniFi APs Application, domain, and country-based QoS Application and device type identification Backup Internet quality and outage reporting
5	Security	Application-aware firewall rules Signature-based IPS/IDS threat detection Content, country, domain, and ad filtering VLAN/subnet-based traffic segmentation Full stateful firewall
6	Advanced networking	WireGuard, L2TP and OpenVPN server OpenVPN client

		OpenVPN and IPsec site-to-site VPN Policy-based WAN and VPN routing DHCP relay Customizable DHCP server IGMP proxy IPv6 ISP support

The preferred shall be an Ubiquiti UniFi Security Gateway Lite.

2.3 EQUIPMENT FOR FIELD INSTALLATIONS

2.3.1 Backhaul radio installations

The successful tenderer shall supply, install and configure new backhaul radio equipment at locations as indicated in these specifications and design drawings. The backhaul radios shall be Ubiquiti radios that the client can monitor the status of all connected radio equipment from a single management platform.

The backhaul radios shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Processor and OS	airFiber LTU IC with airOS LTU
2	Maximum throughput	1.34 Gbps
3	Latency	1.5ms – 3.5ms
4	Encryption	AES-256
5	Wireless modes	PtP Master or Slave
6	RF Connectors	2x RP-SMA Weatherproof (CH0, CH1) 1x SMA Weatherproof (GPS)
7	Power supply	24V, 1A Gigabit PoE
8	Power consumption	6 – 12W
9	Supported voltage	+18 to +54VDC
10	Mounting	airFiber X mount
11	Weatherproofing	IP67
12	Data port	1x 10/100/1000 Mbps Ethernet port
13	Channel bandwidth	10/20/30/40/50/60/80/100 MHz Selectable Programmable Uplink and Downlink Duty Cycles
14	Operating frequency	4800 – 6200 MHz
15	Antenna frequency	4.9 – 5.9 GHz
16	Antenna gain	30dBi
17	Antenna polarization	Dual-linear
18	Antenna mounting	Universal pole mount including airFiber X radio bracket
19	Antenna dimensions	ø 650 x 386 mm

The backhaul radios shall be Ubiquiti AirFiber AF-5XHD with 30dBi antenna devices.

2.3.2 Battery monitoring devices

The successful tenderer shall supply, install and configure new battery monitoring devices at locations as indicated in these specifications and design drawings. The battery monitoring devices shall be the same Victron devices to what has already been deployed at some radio and/or camera sites and shall be able to be monitored by the client from the Victron monitoring interface.

The battery monitoring devices shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Supply voltage range	6.5 – 95VDC
2	Current draw, back light off	< 4mA
3	Battery capacity	1 – 9999 Ah
4	Operating temperature	-40° to 50°C
5	Resolution and accuracy	Current ± 0.01A Voltage ± 0.01V Amp hours ± 0.1 Ah State of charge (0 – 100%) ± 0.1% Time to go ± 1 min Accuracy of current measurement ± 0.4% Accuracy of voltage measurement ± 0.3%
6	Installation	Flush mount
7	Protection category	IP55
8	Shunt	500A / 50mV (included)

The battery monitor shall be a Victron BMV-700 device.

2.3.3 Battery monitoring communication devices

The successful tenderer shall supply, install and configure new battery monitoring communication devices at locations as indicated in these specifications and design drawings. The communication device shall initially make use of the internet breakout at the Zonewatch control room and shall later be re-configured to use the internet breakout at the Old Mutual control room.

The communication devices shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Supply voltage range	8 – 70VDC
2	Power draw	2.8W @ 12V
3	Mounting	Wall or DIN rail
4	VE.Direct ports	3 ports
5	Bluetooth	Yes
6	Ethernet	1x 10/100 Mbps RJ45 socket
7	Wi-Fi	Built-in
8	Operating temperature	-20° to 50°C
9	IP rating	IP20

The communications interface shall be a Victron Cerbo-GX device.

2.4 NETWORK COLLECTION NODE AT OLD MUTUAL BUILDING

The successful tenderer shall be responsible for the upgrading of the network collection node at the Old Mutual building to accommodate the installation of additional radio network equipment for the network re-configuration.

2.4.1 Additional mounting poles and network cabling

The tenderer shall supply and install two new radio mounting poles similar to the existing mounting pole on the Old Mutual building roof. The mounting poles shall be of galvanised steel type, 3m in length with a 75mm diameter and shall be fixed to the wall with suitable mounting brackets.

Each mounting pole shall be fitted with a waterproof enclosure where the outdoor CAT6A network cables from the network cabinet will be terminated. Outdoor-rated fly leads shall be installed from the termination enclosures to the radio installations. All cable entry points into the enclosure shall be done with suitable glands to protect the environmental integrity of the enclosure.

The new network cables from the existing equipment enclosure to the new mounting poles shall be installed using the existing cable tray installation, with new extensions of the existing cable tray where required to reach the mounting poles.

At the existing network enclosure, the new data cables shall be terminated onto a suitable 19” rackmount CAT6 patch panel.

2.4.2 Cabling to network outlets

All network cabling between the equipment enclosure and the mounting pole outlets shall be done with outdoor CAT 6A UTP Solid Molex cable.

The CAT6A cabling to the peripheral end points shall be installed using a structured cabling solution. All network cables must be neatly terminated onto the patch panel or outlet points using Molex CAT6A RJ45 keystone jacks, complete with all accessories (frames, adaptors, Molex CAT6A UTP surface mount outlets, etc.) as may be required for installation onto the particular outlets. All cabling installations shall be tested after installation and copies of the test results shall be submitted to the Employer for review and included in the as-built documentation.

2.4.3 Patch leads and Fly leads

The successful tenderer shall supply and install Molex PowerCat CAT 6 UTP patch leads as specified in the Schedule of Quantities at the equipment enclosure for connecting of the new radio installations to the network switch.

Fly leads installed between the pole outlet boxes and the radio equipment shall be suitably outdoor rated and shall be factory pre-terminated leads. No leads that are terminated on site will be accepted.

2.4.4 New radio installations

The successful tenderer shall supply, install and configure new backhaul radio equipment at the Old Mutual collection node for backhaul radio links for the following:

- Old Mutual to Zonewatch

- Old Mutual to Biovac
- Old Mutual to Garden City Heights

The existing Old Mutual – Zonewatch radio link will be decommissioned and removed from both highsites. The successful tenderer shall ensure that minimal disruptions occur during the new radio installations. It is preferred that the new link be installed and commissioned while the existing link remains operational and only switched over once the new link is established and stable.

The new radio links shall make use of the backhaul radio specified in section 2.3.1.

2.5 NETWORK NODE AT THE ZONEWATCH CONTROL ROOM

The successful tenderer shall supply and install a new backhaul radio at the Zonewatch highsite for the new Old Mutual – Zonewatch link. Once the new link is established and operational, the existing equipment shall be decommissioned and removed.

The existing radio equipment from the Zonewatch node to the highsites at Garden City Heights, Biovac and Golf Park shall also be decommissioned and removed after their new links have been installed and commissioned.

2.6 NETWORK COLLECTION NODE AT GARDEN CITY HEIGHTS BUILDING

The successful tenderer shall be responsible for the upgrading of the network collection node at the Garden City Heights building with new backhaul radio links, new network switching equipment, battery monitoring and a new equipment enclosure.

The existing equipment enclosure shall be replaced with a new enclosure including new electrical and network switching equipment and new network cabling to the radio antennas. The existing equipment enclosure shall remain active while the new enclosure, cabling and equipment is installed in parallel to the existing installation and a phased switch-over shall be done of the radios once the new equipment is successfully commissioned.

2.6.1 New equipment enclosure installation

The successful tenderer shall supply and install a suitably sized outdoor equipment enclosure with a minimum IP65 rating to house the new networking and electrical equipment.

The new enclosure shall be installed in the same location as the existing enclosure. The existing enclosure shall be carefully removed from the wall and placed to one side while remaining operational. After the new enclosure and equipment has been successfully installed and commissioned, the radio connections shall be transferred to the new enclosure, and the existing enclosure and equipment shall be decommissioned and delivered to the Employer.

The enclosure shall be fitted with a removable backplate onto which all equipment shall be mounted.

2.6.2 Cabling to network outlets

New data network cabling shall be installed between the new equipment enclosure and the radios on the lattice mast. All network cabling between the equipment

enclosure and the radio mounting points shall be done with outdoor CAT 6A UTP Solid Molex cable.

The CAT6A cabling to the peripheral end points shall be installed using a structured cabling solution. All network cables must be neatly terminated onto the patch panel or outlet points using Molex CAT6A RJ45 keystone jacks, complete with all accessories (frames, adaptors, Molex CAT6A UTP surface mount outlets, etc.) as may be required for installation onto the particular outlets. All cabling installations shall be tested after installation and copies of the test results shall be submitted to the Employer for review and included in the as-built documentation.

The lattice antenna mast shall be fitted with three waterproof enclosures where the outdoor CAT6A network cables from the network cabinet will be terminated. Outdoor-rated fly leads shall be installed from the termination enclosures to the radio installations.

The new network cables from the existing equipment enclosure to the new mounting poles shall be installed using the existing cable tray installation, with new extensions of the existing cable tray where required to reach the termination enclosures.

2.6.3 Patch leads and Fly leads

The successful tenderer shall supply and install Molex PowerCat CAT 6 UTP patch leads as specified in the Schedule of Quantities at the equipment enclosure for connecting of the new radio installations to the network switch.

Fly leads installed between the pole outlet boxes and the radio equipment shall be suitably outdoor rated and shall be factory pre-terminated leads. No leads that are terminated on site will be accepted.

2.6.4 New electrical supply equipment installation

The successful tenderer shall supply and install electrical supply equipment including supply backup. The electrical supply equipment shall make use of an inverter/charger unit with 24VDC backup battery while the equipment enclosure shall be fitted with isolating switchgear that the equipment can be safely isolated from the incoming electrical supply.

The existing solar charge controller shall be decommissioned from the existing enclosure and installed into the new enclosure as an additional method of battery charging. Refer to section 2.6.8 for relevant details.

The backup battery shall be a 24V/100Ah unit that shall be located inside the enclosure with the charging and networking equipment.

The inverter/charger device shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Input voltage range	19 – 33VDC
2	Output voltage	230VAC ±2% at 50Hz
3	Continuous output power	500VA
4	Peak power	900W
5	Charger AC input voltage	187 – 265VAC
6	VE.Bus communication port	Yes
7	Internal DC fuse	60A
8	Operating temperature	-40°C to 65°C

The inverter/charger device shall be a Victron MultiPlus 24/500/10 500VA.

2.6.5 New network switching equipment installation

The successful tenderer shall supply and install network switching equipment for connecting all radio and monitoring devices to the wireless network. The network switch(es) shall be able to provide PoE power to the connected devices to reduce the number of power devices inside the equipment enclosure. The client must be able to monitor the status of the switches on the same monitoring platform as the radio network.

The network switch(es) shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Number of ports	8x GbE RJ45 ports
2	PoE available	Yes, PoE/PoE+ out on 7 ports, 30W max per port 202W total with 210W power supply
3	Power input	44-57VDC PoE++ input on port 8 (42W)
4	Switching features	Port isolation Storm control Port mirroring Multicast / broadcast rate limiting Flow control Jumbo frames Egress rate limit
5	UniFi network	Version 8.0.28 and later
6	Enclosure material	Polycarbonate

The network switches shall be Ubiquiti UniFi Switch Ultra 8-port switches.

The network switches shall be powered from suitable 54V/200W power supplies. The preferred power supply is an Ubiquiti 54W 210W AC Power Supply or similar.

2.6.6 New radio installations

The successful tenderer shall supply, install and configure new backhaul radio equipment at the Garden City Heights collection node for backhaul radio links for the following:

- Garden City Heights to Old Mutual
- Garden City Heights to Golf Park

The existing Garden City Heights – Zonewatch radio link will be decommissioned and removed from both highsites. The successful tenderer shall ensure that minimal disruptions occur during the new radio installations. It is preferred that the new link be installed and commissioned while the existing link remains operational and only switched over once the new link is established and stable.

The new radio links shall make use of the backhaul radio specified in section 2.3.1.

2.6.7 New battery monitoring installation

The successful tenderer shall supply, install and configure new battery monitoring and communications devices to provide real-time monitoring of the backup battery status.

The new monitoring devices shall comply with the specifications in sections 2.3.2 and 2.3.3.

2.6.8 Re-installation of existing solar charge controller

Once the new equipment enclosure is installed and the equipment is active, the successful tenderer shall decommission and remove the existing solar charge controller from the old equipment enclosure and re-install and commission the unit into the new equipment enclosure. The existing solar panel shall remain in place.

The solar charge controller shall be connected to the communications device for real-time monitoring of the unit status.

2.6.9 Decommissioning of the existing equipment enclosure and network cabling

After the new equipment enclosure has been installed and all network devices are connected to the new equipment, the contractor shall decommission the old equipment enclosure and the enclosure with the remaining equipment shall be delivered to the Pinelands CID offices. The old network cabling shall also be removed from the antenna mast.

2.7 NETWORK COLLECTION NODE AT GOLF PARK BUILDING

The successful tenderer shall be responsible for the upgrading of the network collection node at the Golf Park building with a new backhaul radio link.

2.7.1 New radio installations

The successful tenderer shall supply, install and configure new backhaul radio equipment at the Golf Park collection node for a backhaul radio link for the following:

- Golf Park to Garden City Heights

The existing Golf Park – Zonewatch radio link will be decommissioned and removed from both highsites. The successful tenderer shall ensure that minimal disruptions occur during the new radio installations. It is preferred that the new link be installed and commissioned while the existing link remains operational and only switched over once the new link is established and stable.

The new radio links shall make use of the backhaul radio specified in section 2.3.1.

2.8 NETWORK COLLECTION NODE AT BIOVAC BUILDING

The successful tenderer shall be responsible for the upgrading of the network collection node at the Biovac building with redirection for a new backhaul radio link and the supply and installation of battery monitoring devices.

2.8.1 New radio installations

The successful tenderer shall redirect the existing Ubiquiti airFiber device from the current alignment to the Zonewatch highsite to new alignment towards the Old Mutual highsite.

The existing radio at the Zonewatch highsite shall be decommissioned and removed after the Biovac – Old Mutual link has been established and commissioned.

The new radio links shall make use of the backhaul radio specified in section 2.3.1.

2.8.2 New battery monitoring installation

The successful tenderer shall supply, install and configure new battery monitoring and communications devices to provide real-time monitoring of the backup battery status.

The new monitoring devices shall comply with the specifications in sections 2.3.2 and 2.3.3.

2.8.3 New voltage converter installation

The successful tenderer shall supply and install an industrial-type 12VDC – 24VDC voltage converter unit to replace the existing units in the kiosk.

The voltage conversion device shall comply to the following minimum specifications:

Item	Feature	Requirement
1	Input voltage	9 – 18VDC
2	Efficiency (typical)	88.5%
3	Input DC current	11.2A @ 12VDC
4	Output voltage	24VDC
5	Output current	0 – 4.2A
6	Output power	100.8W
7	Mounting	DIN Rail mount
8	Cooling	Fanless cooling

The voltage converter shall be a Meanwell DDR-120A-24.

2.9 TESTING, COMMISSIONING AND HANDING OVER

The successful tenderer must allow in his offer for the complete testing and commissioning of the installation.

The tenderer must make provision in his quote for the supply of instrumentation, materials and tests required to commission the installation, before the Engineer is invited to the demonstration of the installation.

The tenderer shall ensure that the installation complies with the specification and has been carried out in workmanlike manner. Should any part of the installation fail during a test or should the equipment in the opinion of the Engineer not meet with the requirements, the Contractor must replace, repair or correct such equipment at his own expense, to the satisfaction of the Engineer.

When the successful tenderer has satisfied himself that the whole installation complies with all the requirements of the specification and workmanship is of the required standard, the Engineer, Contractor and Employer Representative must be invited to perform an inspection on hand-over of the system and before the final account.

2.10 AS-BUILT DOCUMENTATION

The successful tenderer must submit a copy of the as-built documentation to the Engineer before practical completion (final handover) inspection.

The as-built documentation shall include a network point and patching schedule, and documented information of all equipment settings.

2.11 LIST OF DRAWINGS

The following list of drawings are applicable to this tender:

Drawing number	Description
K7914C-E06-001	PLCID Network upgrade summary
K7914C-E06-002	Garden City Heights enclosure diagram

PINELANDS CID CCTV - WIRELESS NETWORK UPGRADE AND NVR RELOCATION - SCHEDULE OF QUANTITIES

SECTION A: PRELIMINARY AND GENERAL

Item	Description	Unit	Qty	Tendered rates: Rate R-c		Tendered rates: Total R-c
1	**PRELIMINARY AND GENERAL**					
1,1	12 Month Guarantee & Maintenance Allowance	Sum	1		R	-
1,2	Quality Assurance Procedures	Sum	1		R	-
1,3	Project Management	Sum	1		R	-
1,4	OHS compliance	Sum	1		R	-
2	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**	-

SECTION B: OLD MUTUAL CONTROL ROOM HEAD-END INSTALLATION

Item	Description	Unit	Qty	Tendered rates: Rate R-c		Tendered rates: Total R-c
1	**HIKVISION HIKCENTRAL SERVER**					
1,1	**Hikvision HikCentral-P-VER/HWI/D/64**					
1.1.1	Supply	No.	1		R	-
1.1.2	Install	No.	1		R	-
1,2	**Server configuration for existing CCTV cameras**					
1.2.1	Setup and configuration	Sum	1		R	-
1,3	**NVR relocation**					
1.3.1	Decommission and relocate to Old Mutual control room	No.	7		R	-
1.3.2	Install and configure to new HikCentral server	No.	7		R	-
1,4	**Network configuration for FirstAlert integration**					
1.4.1	Setup and configuration to FirstAlert service from Old Mutual control room	Sum	1		R	-
2	**GATEWAY/FIREWALL**					
2,1	**Network gateway/firewall**					
2.1.1	Supply	No.	1		R	-
2.1.2	Install and configure	No.	1		R	-
3	**CABLING**					
3,1	**Fly leads Molex CAT6 UTP, complete with RJ45 moulded plugs**					
3.1.1	3m Grey Supply	No.	10		R	-
3.1.2	3m Grey Install	No.	10		R	-
4	**OTHER**					
4,1	Sundries	Sum	1		R	-
5	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**	-

SECTION C: FIELD INSTALLATIONS

Item	Description	Unit	Qty	Tendered rates: Rate R-c		Tendered rates: Total R-c
1	**OLD MUTUAL COLLECTION NODE**					
1,1	**Antenna mounting pole including bracket - 3m x 75mm**					
1.1.1	Supply	No.	2		R	-
1.1.2	Install	No.	2		R	-
1,2	**Small waterproof enclosure for network cable terminations including bracket**					
1.2.1	Supply	Sum	3		R	-
1.2.2	Install	Sum	3		R	-
1,3	**Wire mesh cable tray including mounting hardware**					
1.3.1	Supply	m	15		R	-
1.3.2	Install	m	15		R	-
1,4	**Copper cabling: Data points, complete with outdoor CAT6A UTP Solid Molex cable, two molex keystone jacks and accessories as per the specification (40m average length), installed to the outlet point**					
1.4.1	Supply	No.	12		R	-
1.4.2	Install (Excluding testing and commissioning)	No.	12		R	-
1,5	**24-port CAT6 patch panel (blank)**					
1.5.1	Supply	No.	1		R	-
1.5.2	Install	No.	1		R	-
1,6	**Patch Leads Molex CAT6 UTP, complete with RJ45 moulded plugs**					
1.6.1	2m Grey Supply	No.	12		R	-
1.6.2	2m Grey Install	No.	12		R	-
1,7	**Fly leads outdoor UV protected, complete with RJ45 moulded plugs**					
1.7.1	5m Supply	No.	12		R	-
1.7.2	5m Install	No.	12		R	-
1,8	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**					
1.8.1	Supply	No.	3		R	-
1.8.2	Install and configure	No.	3		R	-
1,9	**Removal of redundant equipment**					
1.9.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R	-
2	**ZONEWATCH COLLECTION NODE**					
2,1	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**					
2.1.1	Supply	No.	1		R	-
2.1.2	Install and configure	No.	1		R	-
2,2	**Removal of redundant equipment**					
2.2.1	Decommissioning and removal of redundant/replaced radio equipment	No.	4		R	-
3	**GARDEN CITY HEIGHTS COLLECTION NODE**					
3,1	**IP65 equipment enclosure for electrical and networking equipment**					
1.1.1	Supply	No.	1		R	-
1.1.2	Install	No.	1		R	-
3,2	**Small waterproof enclosure for network cable terminations including bracket**					
3.2.1	Supply	No.	3		R	-
3.2.2	Install	No.	3		R	-
3,3	**Copper cabling: Data points, complete with outdoor CAT6A UTP Solid Molex cable, two molex keystone jacks and accessories as per the specification (20m average length), installed to the outlet point**					
3.3.1	Supply	No.	12		R	-
3.3.2	Install (Excluding testing and commissioning)	No.	12		R	-
3,4	**Patch Leads Molex CAT6 UTP, complete with RJ45 moulded plugs**					
3.4.1	2m Grey Supply	No.	13		R	-
3.4.2	2m Grey Install	No.	13		R	-
3,5	**Fly leads outdoor UV protected, complete with RJ45 moulded plugs**					
3.5.1	5m Supply	No.	12		R	-
3.5.2	5m Install	No.	12		R	-
3,6	**Battery charger/interver: Victron MultiPlus 24/500/10 500VA**					
3.6.1	Supply	No.	1		R	-
3.6.2	Install and configure	No.	1		R	-
3,7	**24V 100Ah battery**					
3.7.1	Supply	No.	1		R	-
3.7.2	Install	No.	1		R	-
3,8	**Battery monitor: Victron BMV-700**					
3.8.1	Supply	No.	1		R	-
3.8.2	Install and configure	No.	1		R	-
3,9	**Communications hub: Victron Cerbo GX including cabling to devices**					
3.9.1	Supply	No.	1		R	-
3.9.2	Install and configure	No.	1		R	-
3,10	**8-port PoE network switch: Ubiquiti UniFi Switch Ultra**					
3.10.1	Supply	No.	2		R	-
3.10.2	Install and configure	No.	2		R	-
3,11	**54VDC 210W power supply for network switch**					
3.11.1	Supply	No.	2		R	-
3.11.2	Install	No.	2		R	-
3,12	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**					
3.12.1	Supply	No.	2		R	-
3.12.2	Install and configure	No.	2		R	-
3,13	**Re-installation of solar charge controller**					
3.13.1	Decommission and remove	No.	1		R	-
3.13.2	Install and configure	No.	1		R	-
3,14	**Removal of redundant equipment**					
3.14.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R	-
3.14.2	Decommissioning and removal of old equipment enclosure including equipment	No.	1		R	-
4	**GOLF PARK COLLECTION NODE**					
4,1	**Backhaul radio: Ubiquiti AirFiber AF-5XHD with 30dBi antenna**					
4.1.1	Supply	No.	1		R	-
4.1.2	Install and configure	No.	1		R	-
4,2	**Removal of redundant equipment**					
4.2.1	Decommissioning and removal of redundant/replaced radio equipment	No.	1		R	-
5	**BIOVAC COLLECTION NODE**					
5,1	**Battery monitor: Victron BMV-700**					
5.1.1	Supply	No.	1		R	-
5.1.2	Install and configure	No.	1		R	-
5,2	**Communications hub: Victron Cerbo GX including cabling to devices**					
5.2.1	Supply	No.	1		R	-
5.2.2	Install and configure	No.	1		R	-
5,3	**12VDC - 24VDC voltage converter**					
5.3.1	Supply	No.	1		R	-
5.3.2	Install	No.	1		R	-
5,4	**Re-direction of radio antenna**					
5.4.1	Re-direction of existing Ubiquiti AirFiber unit towards Old Mutual highsite	No.	1		R	-
5,5	**Removal of redundant equipment**					
5.5.1	Decommissioning and removal of redundant/replaced power equipment	No.	1		R	-
6	**OTHER**					
6,1	Sundries	Sum	1		R	-
7	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**	-

SECTION D: TESTING, COMMISSIONING AND HANDING OVER

Item	Description	Unit	Qty	Tendered rates: Rate R-c		Tendered rates: Total R-c
1	**TESTING, COMMISSIONING AND LABELLING**					
1,1	Testing and Commissioning of network point, including test report	No	24		R	-
1,2	Data Outlets: Labelling of all data points at cabinets and outlets	No	24		R	-
1,3	Testing and Commissioning of CCTV recording system	Sum	1		R	-
1,4	Testing and Commissioning of radio communications network	Sum	1		R	-
2	**AS-BUILT DOCUMENTATION**					
2,1	Nett amount for the provision of "AS-BUILT" drawings as per the specification	Sum	1		R	-
3	**INSPECTIONS AND HANDING OVER**					
3,1	Old Mutual commissioning inspection	No	1		R	-
3,2	Gardens City Heights highsite commissioning inspection	No	1		R	-
3,3	Golf Park highsite commissioning inspection	No	1		R	-
3,4	Biovac highsite commissioning inspection	No	1		R	-
3,5	Handing over	No	1		R	-
4	**TOTAL CARRIED FORWARD TO SUMMARY**				**R**	-

SECTION E: SUMMARY

Item	Description	Unit	Qty	Tendered rates: Rate R-c		Tendered rates: Total R-c
1	SECTION A: PRELIMINARY AND GENERAL				R	-
2	SECTION B: OLD MUTUAL CONTROL ROOM HEAD-END INSTALLATION				R	-
3	SECTION C: FIELD INSTALLATIONS				R	-
4	SECTION D: TESTING, COMMISSIONING AND HANDING OVER				R	-
5	**SUBTOTAL**				**R**	-
6	CONTINGENCIES		10%		R	-
7	**TOTAL CARRIED FORWARD TO ELECTRONIC SUMMARY**				**R**	-
8	VAT		15%		R	-
9	**TOTAL**				**R**	-