THE KENYATTA INTERNATIONAL CONVENTION CENTRE

TENDER

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF CCTV SURVEILLANCE AND ACCESS CONTROL SYSTEM

KENYATTA INTERNATIONAL CONVENTION CENTRE
KICCBUILDING
P. O. BOX 30476-00100
NAIROBI

TENDER NO. KICC/48/16-17

CLOSING DATE: 16th June 2016
TIME: 10.30 A.M
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THE KENYATTA INTERNATIONAL CONVENTION CENTRE

INVITATION TO TENDER

The Kenyatta International Convention Centre invites sealed tenders from eligible and competent Companies for the CCTV SURVEILLANCE AND ACCESS CONTROL SYSTEM for the period 2016/2017 FYR.

The Company MUST meet the following minimum criteria:

- Be registered under the Company’s Act
- Be registered with National Construction Authority under the Cctv Surveillance and Access Control System category.
- Have class of Licenses/ Permits with the relevant statutory bodies e.g. Energy Regulatory Commission, Local Authorities, etc.
- Submit audited accounts for the last three years
- Dully filled Form of Tender
- Have at least three (3) reference letters of contracts held over the last 3 years indicating value of each contract.
- Be Tax Compliant, ETR, and Provide KRA Certification for the last three years.
- Obtain Bid security of 0.5% of the Tender Sum from a reputable Bank.

Detailed criteria and further particulars are contained in the Tender Document. Tender documents will be available from the Managing Directors Office on the 1ST Floor of KICC Building.

Completed Tender document in plain sealed envelopes bearing the reference

**Tender No.: KICC/ 48/16-17 Security and remarks “DO NOT OPEN Should be addressed to:**

The Managing Director
Kenyatta International Convention Centre
P O Box 30746 – 00100
NAIROBI

AND be deposited in the Tender Box provided on the 1ST FLOOR of KICC Building, Harambee Avenue, Nairobi to be **received on or before 10.30 am on 16th June 2016 Tenders will be opened ON THE SAME DAY at the Boardroom** on Ground floor on the same building in the presence of Bidders’ representatives who choose to attend.

The Kenyatta International Convention Centre reserves the right to accept or reject any tender either in whole or in part and is not bound to give reasons thereof.

The bidders are encouraged to visit the sites on prior arrangement with the Security and Safety Manager during working hours.

(ii)
DEFINITIONS

The following terms and expressions used in the contract document shall have the following meanings:

The Employer: - Managing Director
Kenyatta International Convention Centre
P.O. Box 30746 – 00100
NAIROBI

Project Manager: - County Works Officer, Nairobi
Directorate of Public Works
County Works Office
P. O. Box 42267
NAIROBI

Engineer: - County Electrical and Mechanical
Engineer (Building Services)
Directorate of Public Works
County Works Office
P. O. Box 42267
NAIROBI

Employer’s Representative: - Shall mean the Project Manager
(Replacing DR) who in this
case is the County Works Officer,
Nairobi

Contractor: - The Firm appointed to carry out the
Works.

Site: - The site for the proposed works is at
Kenyatta International
Convention Centre, KICC Building,
Nairobi.
FORM OF TENDER

To:
The Managing Director
Kenyatta International Convention Centre
P O Box 30746 – 00100
NAIROBI

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF AN IP BASED CCTV SURVEILLANCE AND ACCESS CONTROL SYSTEM AT KENYATTA INTERNATIONAL CONVENTION CENTRE, KICC BUILDING, NAIROBI

In accordance with the Instructions to Tenderers, Conditions of Contract, Specifications and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of:
Kshs................................................................. [Amount in figures]
Kenya Shillings ......................................................... [Amount in words]

1. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Employer’s Representative’s notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.

2. We agree to abide by this tender for a period of 120 days from the date of tender opening, and shall remain binding upon us and may be accepted at any time before the expiry of that period.

3. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.

4. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this ....................... day of ..................... 20 ......................

Signature ...................... in the capacity of ...................... duly authorized to sign tenders for and on behalf of:
.......................... [Name of Tenderer]
of ................................................................. [Address of Tenderer]
PIN No. ............. VAT CERTIFICATE No. .................................

Witness: Name ..............................................................
Address ..............................................................
Signature ..............................................................
APPENDIX I

FORM OF TENDER SECURITY

WHEREAS ............................................................................(hereinafter
called “the Tenderer”) has submitted his tender
dated ..............................................................................for the construction of
......................................................................................(name of Contract)

KNOW ALL PEOPLE by these presents that
WE ..................................................................having
our registered office at ..............................................................(hereinafter
called “the Bank”), are bound unto .............................................................................(hereinafter
called “the Employer” in the sum of shs. ............................................................................for which payment well and
truly to be made to the said Employer, the Bank bind itself, its successors and assigns by these presents sealed with the Common Seal of the said
Bank this .......................................Day of..................... 20...............

THE CONDITIONS of this obligation are:
1. If after tender opening the tenderer withdraws his tender during
the period of tender
validity specified in the instructions to tenderers

Or

2. If the tenderer, having been notified of the acceptance of this
tender by the Employer during the period of tender validity:

a) fails or refuses to execute the form of Agreement in
accordance with the Instructions to Tenderers, if required; or

b) fails or refuses to furnish the Performance Security, in
accordance with the Instructions to Tenderers;

We undertake to pay to the Employer up to the above amount upon
receipt of his first written demand, without the Employer having to
substantiate his demand, provided that in his demand the Employer
will note that the amount claimed by him is due to him, owing to the
occurrence of one or both of the two conditions, specifying the
occurred condition or conditions.

This guarantee will remain in force for a period of 150 days from the
date of tender opening, and any demand in respect thereof should
reach the Bank not later than the said date.

[date] [signature of the Bank]
[witness] [seal] (v)
APPENDIX II

FORM OF TENDER SECURITY

WHEREAS...........................................[Name of tenderer] (hereinafter called “the Tenderer”) has submitted his tender dated ................................................ for the construction of ................................. ................................................................. (name of Contract)

KNOW ALL PEOPLE by these presents that WE............................................of ..............[Insurance Company]..having our registered office at ..............................................................(hereinafter called “the Bank” or ‘the Guarantor’), are bound unto ...........................................(hereinafter called “the Employer” in the sum of Kshs.................................................for which payment well and truly to be made to the said Employer, the Guarantor binds itself, its successors and assigns by these presents sealed with the Common Seal of the said Bank/ Guarantor this ...............Day of.................. 20............

THE CONDITIONS of this obligation are:

1. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers. If the tenderer, having been notified of the acceptance of this tender by the Employer during the period of tender validity:

   a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or

   b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;

We undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force for a period of 150 days from the date of tender opening, and any demand in respect thereof should reach the Bank not later than the said date.

[date] [signature of the Bank/Guarantor]

[witness] [seal]

(v)
SECTION A

INSTRUCTIONS TO TENDERERS
# INSTRUCTIONS TO TENDERERS

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(ii)
INSTRUCTION TO TENDERERS

Note: The tenderer must comply with the following conditions and instructions and failure to do so is liable to result in rejection of the tender.

GENERAL
1. Definitions
   (a) “Tenderer” means any person or persons partnership firm or company submitting a sum or sums in the Bills of Quantities in accordance with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications, Drawings and Bills of Quantities for the work contemplated, acting directly or through a legally appointed representative.
   (b) “Approved tenderer” means the tenderer who is approved by the Employer.
   (c) Any noun or adjective derived from the word “tender” shall be read and construed to mean the corresponding form of the noun or adjective “bid”. Any conjugation of the verb “tender” shall be read and construed to mean the corresponding form of the verb “bid.”
   (d) “Employer” means a Central Government Ministry, Local Authority, State Corporation or any other Public Institution.

2. Eligibility and Qualification Requirements
   2.1 This invitation to tender is open to all tenderers who have been prequalified.
   2.2 To be eligible for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1 above and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to update the following information already submitted during prequalification:
      (a) Details of experience and past performance of the tenderer on the works of a similar nature within the past five years and details of current work on hand and other contractual commitments.
      (b) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
      (c) Major items of construction plant and equipment proposed for use in carrying out the Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant, equipment and material to be imported for the purpose of the Contract, giving details of make, type, origin and CIF value as appropriate.
(d) Details of subcontractors to whom it is proposed to sublet any portion of the Contract and for whom authority will be requested for such subletting in accordance with clause 4 of the Conditions of Contract.

(e) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer.

(f) Details of any current litigation or arbitration proceedings in which the Tenderer is involved as one of the parties.

2.3 Joint Ventures
Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements:-

(a) The tender, and in case of a successful tender, the Form of Agreement, shall be signed so as to be legally binding on all partners.

(b) One of the partners shall be nominated as being in charge; and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners.

(c) The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the Contract including payment shall be done exclusively with the partner in charge.

(d) All partners of the joint venture shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under (b) above as well as in the Form of Tender and the Form of Agreement (in case of a successful tender).

(e) A copy of the agreement entered into by the joint venture partners shall be submitted with the tender.

3. Cost of Tendering
The tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.
4. **Site Visit**

4.1 The Tenderer **MUST** visit and examine the Site and its surroundings and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a contract. The Tenderer **MUST** sign ‘*The Certificate of Tenderer’s Visit to the Site*’ form (Standard Forms Pg J/15). The costs of visiting the Site shall be the tenderer’s own responsibility.

4.2 The tenderer and any of his personnel or agents will be granted permission by the Employer to enter upon premises and lands for the purpose of such inspection, but only upon the express condition that the tenderer, his personnel or agents, will release and indemnify the Employer from and against all liability in respect of, and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which but for the exercise of such permission, would not have arisen.

4.3 The Employer shall organize a site visit at a date to be notified. A representative of the Employer will be available to meet the intending tenderers at the Site.

4.4 Tenderers must provide their own transport. The representative will not be available at any other time for site inspection visits.

Each tenderer **shall complete the Certificate of Tenderer’s Visit to the Site**, whether he in fact visits the Site at the time of the organized site visit or by himself at some other time.

5. **TENDER DOCUMENTS**

5.1 The Tender documents comprise the documents listed here below and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.

- a) Form of Invitation for Tenders
- b) Instructions to Tenderers
- c) Form of Tender
- d) Appendix to Form of Tender
- e) Form of Tender Surety
- f) Statement of Foreign Currency Requirements
- g) Form of Performance Security
- h) Form of Agreement
- i) Form of Advance payment Bank Guarantee
- j) Schedules of Supplementary Information
- k) General Conditions of Contract – Part I
- l) Conditions of Particular Application – Part II
- m) Specifications
5.2 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the tenderer’s own risk. Pursuant to clause 22 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.

5.3 All recipients of the documents for the proposed Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as “private and confidential”.

6. Clarification of Tender Documents

6.1 A prospective tenderer requiring any clarification of the tender documents may notify the Employer in writing or by telex, cable or facsimile at the Employer’s mailing address indicated in the Invitation to Tender. The Employer will respond in writing to any request for clarification which he receives earlier than 5 days prior to the expiry of 28 days deadline for the submission of tenders. Written copies of the Employer’s response (including the query but without identifying the source of the inquiry) will be sent to all prospective tenderers who have purchased the tender documents.

7. Amendment of Tender Documents

7.1 At any time prior to the deadline for submission of tenders the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the tender documents by issuing Addenda.

7.2 Any Addendum will be notified in writing or by cable, telex or facsimile to all prospective tenderers who have purchased the tender documents and will be binding upon them.

7.3 If during the period of tendering, any circular letters (tender notices) shall be issued to tenderers by, or on behalf of, the Employer setting forth the interpretation to be placed on a part of the tender documents or to make any change in them, such circular letters will form part of the tender documents and it will be assumed that the tenderer has taken account of them in preparing his tender.
The tenderer must promptly acknowledge any circular letters he may receive.

7.4 In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

PREPARATION OF TENDERS

8. Language of Tender
8.1 The tender and all correspondence and documents relating to the tender exchanged between the tenderer and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the tenderer with the tender may be in another language provided they are accompanied by an appropriate translation of pertinent passages in the above stated language. For the purpose of interpretation of the tender, the English language shall prevail.

9. Documents Comprising the Tender
9.1 The tender to be prepared by the tenderer shall comprise: the Form of Tender and Appendix thereto, a Tender Surety, the Priced Bills of Quantities and Schedules, the information on eligibility and qualification, and any other materials required to be completed and submitted in accordance with the Instructions to Tenderers embodied in these tender documents. The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

10. Tender Prices
10.1 All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialed by the person or persons signing the tender.
10.2 A price or rate shall be inserted by the tenderer for every item in the Bills of Quantities whether the quantities are stated or not items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties and taxes and other levies payable by the Contractor under the Contract or for any other cause as of the date 28 days prior to the deadline for the submission of tenders, shall be included in the rates and prices and the total tender prices submitted by the Tenderer.

Each price or unit rate inserted in the Bills of Quantities should be a realistic estimate for completing the activity or activities described under that particular item and the tenderer is advised against inserting a price or rate against any item contrary to this instruction.

Every rate entered in the Bills of Quantities, whether or not such rate be associated with a quantity, shall form part of the Contract. The Employer shall have the right to call for any item of work contained in the Bills of Quantities, and such items of work to be paid for at the rate entered by the tenderer and it is the intention of the Employer to take full advantage of unbalanced low rates.

10.3 Unless otherwise specified the tenderer must enter the amounts representing 10% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices [V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.

10.4 The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of unit rates for the supply of items listed in the Conditions of Contract clause 47 where appropriate.

10.5 The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Contract only in accordance with the provisions of the Conditions of Contract.
The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under clause 47 of the Conditions of Contract Part II.

11. **Currencies of Tender and Payment**

11.1 Tenders shall be priced in Kenya Shillings and the tender sum shall be in Kenya Shillings.

11.2 Tenderers are required to indicate in the Statement of Foreign Currency Requirements, which forms part of the tender, the foreign currency required by them. Such currency should generally be the currency of the country of the tenderer’s main office. However, if a substantial portion of the tenderer’s expenditure under the Contract is expected to be in countries other than his country of origin, then he may state a corresponding portion of the contract price in the currency of those other countries. However, the foreign currency element is to be limited to two (2) different currencies and a maximum of 30% (thirty percent) of the Contract Price.

11.3 Tenderers must enclose with their tenders, a brief justification of the foreign currency requirements stated in their tenders.

12. **Tender Validity**

12.1 The tender shall remain valid and open for acceptance for a period of one hundred and twenty (120) days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.4 here above) whichever is the later.

12.2 In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses thereto shall be made in writing or by cable, telex or facsimile. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

13. **Tender Surety**

13.1 The tenderer shall furnish as part of his tender, a Tender Surety in the amount stated in the Appendix to Instructions to Tenderers.
13.2 The unconditional Tender Surety shall be in Kenya Shillings and be in form of a certified cheque, a bank draft, an irrevocable letter of credit or a guarantee from a reputable Bank approved by the Employer located in the Republic of Kenya.

The format of the Surety shall be in accordance with the sample form of Tender Surety included in these tender documents; other formats may be permitted subject to the prior approval of the Employer. The Tender Surety shall be valid for twenty eight (28) days beyond the tender validity period.

13.3 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.

13.4 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible but not later than twenty eight (28) days after concluding the Contract execution and after a Performance Security has been furnished by the successful tenderer. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Contract and furnishing the required Performance Security.

13.5 The Tender Surety may be forfeited:

(a) if a tenderer withdraws his tender during the period of tender validity: or

(b) in the case of a successful tenderer, if he fails

(i) to sign the Agreement, or
(ii) to furnish the necessary Performance Security

(c) if a tenderer does not accept the correction of his tender price pursuant to clause 23.

14. No Alternative Offers
14.1 The tenderer shall submit an offer which complies fully with the requirements of the tender documents.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture.

14.2 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction options and he shall use without exception, the
Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price.

Any tenderer who fails to comply with this clause will be disqualified.

15. Pre-Tender Meeting
   15.1 The tenderer's designated representative is invited to attend a pre-tender meeting, which if convened, will take place at the venue and time stated in the Invitation to Tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

   15.2 The tenderer is requested as far as possible to submit any questions in writing or by cable, to reach the Employer not later than seven days before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted in accordance with the following:

   (a) Minutes of the meeting, including the text of the questions raised and the responses given together with any responses prepared after the meeting, will be transmitted without delay to all purchasers of the tender documents. Any modification of the tender documents listed in —Clause 9 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of a tender notice pursuant to Clause 7 and not through the minutes of the pre-tender meeting.

   (b) Non-attendance at the pre-tender meeting will not be cause for disqualification of a bidder.

16. Format and Signing of Tenders
   16.1 The tenderer shall prepare his tender as outlined in clause 9 above and mark appropriately one set “ORIGINAL” and the other “COPY”.

   16.2 The copy of the tender and Bills of Quantities shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer. Proof of authorization shall be furnished in the form of the written power of attorney which shall accompany the tender. All pages of the tender where amendments have been made shall be initialed by the person or persons signing the tender.
16.3 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person of persons signing the tender.

SUBMISSION OF TENDERS

17. Sealing and Marking of Tenders
   The tenderer shall seal the original and copy of the tender in separated envelopes, duly marking the envelopes as “ORIGINAL” and “COPY”. The envelopes shall then be sealed in an outer envelope.

17.2 The inner and outer envelopes shall be addressed to the Employer at the address stated in the Appendix to Instructions to Tenderers and bear the name and identification of the Contract stated in the said Appendix with a warning not to open before the date and time for opening of tenders stated in the said Appendix.

17.3 The inner envelopes shall each indicated the name and address of the tenderer to enable the tender to be returned unopened in case it is declared “late”, while the outer envelope shall bear no mark indicating the identity of the tenderer.

17.4 If the outer envelope is not sealed and marked as instructed above, the Employer will assume no responsibility for the misplacement or premature opening of the tender. A tender opened prematurely for this cause will be rejected by the Employer and returned to the tenderer.

18. Deadline for Submission of Tenders
18.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Invitation to Tender, subject to the provisions of clause 7.4, 18.2 and 18.3.

   Tenders delivered by hand must be placed in the “tender box” provided in the office of the Employer.

   Proof of posting will not be accepted as proof of delivery and any tender delivered after the above stipulated time, from whatever cause arising will not be considered.
18.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.

18.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

19. Modification and Withdrawal of Tenders
19.1 The tenderer may modify or withdraw his tender after tender submission, provided that written notice of the modification or withdrawal is received by the Employer prior to prescribed deadline for submission of tenders.

The tenderer’s modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions for the submission of tenders, with the inner and outer envelopes additionally marked “MODIFICATION” or “WITHDRAWAL” as appropriate.

19.2 No tender may be modified subsequent to the deadline for submission of tenders.

19.3 No tender may be withdrawn in the interval between the deadline for submission of tenders and the period of tender validity specified on the tender form. Withdrawal of a tender during this interval will result in the forfeiture of the Tender Surety.

19.4 Subsequent to the expiration of the period of tender validity prescribed by the Employer, and the tenderer having not been notified by the Employer of the award of the Contract or the tenderer does not intend to conform with the request of the Employer to extend the prior of tender validity, the tenderer may withdraw his tender without risk of forfeiture of the Tender Surety.

**TENDER OPENING AND EVALUATION**

20. Tender Opening
20.1 The Employer will open the tenders in the presence of the tenderers’ representatives who choose to attend at the time and location indicated in the Invitation to Tender. The tenderers’ representatives who are present shall sign a register evidencing their attendance.
20.2 Tenders for which an acceptable notice of withdrawal has been submitted, pursuant to clause 19, will not be opened. The Employer will examine the tenders to determine whether they are complete, whether the requisite Tender Sureties have been furnished, whether the documents have been properly signed and whether the tenders are generally in order.

20.3 At the tender opening, the Employer will announce the tenderer's names, total tender price, tender price modifications and tender withdrawals, if any, the presence of the requisite Tender Surety and such other details as the Employer, at his discretion, may consider appropriate. No tender shall be rejected at the tender opening except for late tenders.

20.4 The Employer shall prepare minutes of the tender opening including the information disclosed to those present.

20.5 Tenders not opened and read out a tender opening shall not be considered further for evaluation, irrespective of the circumstances.

21. **Process to be Confidential**
21.1 After the public opening of tenders, information relating to the examination, clarification, evaluation and comparisons of tenders and recommendations concerning the award of Contract shall not be disclosed to tenderers or other persons not officially concerned with such process until the award of Contract is announced.

21.2 Any effort by a tenderer to influence the Employer in the process of examination, evaluation and comparison of tenders and decisions concerning award of Contract may result in the rejection of the tenderer’s tender.

22. **Clarification of Tenders**
22.1 To assist in the examination, evaluation and comparison of tenders, the Employer may ask tenderers individually for clarification of their tenders, including breakdown of unit prices. The request for clarification and the response shall be in writing or by cable, facsimile or telex, but no change in the price or substance of the tender shall be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered by the employer during the evaluation of the tenders in accordance with clause 24.
22.2 No Tenderer shall contact the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. If the tenderer wishes to bring additional information to the notice of the Employer, he shall do so in writing.

23. Determination of Responsiveness
23.1 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender is substantially responsive to the requirements of the tender documents.

23.2 For the purpose of this clause, a substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tender documents.

23.3 Without material deviation or reservation and has a valid bank guarantee. A material deviation or reservation is one which affects in any substantial way the scope, quality, completion timing or administration of the Works to be undertaken by the tenderer under the Contract, or which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the tenderers obligations under the Contract and the rectification of which would affect unfairly the competitive position of other tenderers who have presented substantially responsive tenders.

23.4 Each price or unit rate inserted in the Bills of Quantities shall be a realistic estimate of the cost of completing the works described under the particular item including allowance for overheads, profits and the like. Should a tender be seriously unbalanced in relation to the Employer's estimate of the works to be performed under any item or groups of items, the tender shall be deemed not responsive.

23.5 A tender determined to be not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.

24. Correction of Errors
24.1 Tenders determined to be substantially responsive shall be checked by the Employer for any arithmetic errors in the computations and summations. Errors will be corrected by the Employer as follows:
(a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will govern.

(b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case adjustment will be made to the entry containing that error.

(c) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 13.

25. **Conversion to Single Currency**
25.1 For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya ruling on the date twenty eight (28) days before the final date for the submission of tenders.

25.2 The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Dayworks where priced competitively) to Kenya Shillings at the selling rates stated in clause 25.1.

26. **Evaluation and Comparison of Tenders**
26.1 The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.

26.2 In evaluating tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:

(a) Making any correction for errors pursuant to clause 24.

(b) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.
26.3 The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.

26.4 Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Contract shall not be taken into account in tender evaluation.

26.5 If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer’s estimate of the items of work to be performed under the Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Contract.

26.6 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding Provisional Sums to a non-indigenous sub-contractor.

AWARD OF CONTRACT

27. Award
27.1 Subject to clause 27.2, the Employer will award the Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Contract Works.

27.2 The Employer reserves the right to accept or reject any tender, and to annual the tendering process and reject all tenders, at any time prior to award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer’s action.
28. Notification of Award

28.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by registered letter that his tender has been accepted. This letter (hereinafter and in all Contract documents called “Letter of Acceptance”) shall name the sum (hereinafter and in all Contract documents called “the Contract Price”) which the Employer will pay to the Contractor in consideration of the execution and completion of the Works as prescribed by the Contract.

28.2 Notification of award will constitute the formation of the Contract.

28.3 Upon the furnishing of a Performance Security by the successful tenderer, the unsuccessful tenderers will promptly be notified that their tenders have been unsuccessful.

28.4 Within twenty eight [28] days of receipt of the form of Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.

29. Performance Guarantee

29.1 Within twenty eight [28] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in an amount stated in the Appendix to Instructions to Tenderers.

29.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the tenderer’s option by an established and a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 35.4 of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.
29.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Contract the Employer may award the Contract to the next ranked tenderer.

30. **Advance Payment**
An advance payment, if approved by the Employer, shall be made under the Contract, if requested by the Contractor, in accordance with clause 33.1 of the Conditions of Contract. The Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a bank located in the Republic of Kenya, or a foreign bank through a correspondent bank located in the Republic of Kenya, in either case subject to the approval of the Employer.
APPENDIX TO INSTRUCTIONS TO TENDERERS

1. **CLAUSE 2.1**
   Change to read “This invitation to tender is “open to all ELIGIBLE TENDERERS”

2. **OMIT**
   Clauses 5.1 (a), (d), (f), (i), (j), 10.3, 10.4, 11.2, 11.4,15, 25, 26.6, 29.

3. **ADD TO CLAUSE 13.1**
   Amount of tender surety shall be **0.5% of the Tender Sum**

4. **ADD TO CLAUSE 13.2**
   The tender surety can also be an insurance bond from an insurance company in the current list of authourised insurance companies’ issued by the Public Procurement Oversight Authority (PPOA). Tender surety shall be valid for 150 days from the date of tender opening; the tender surety expiry date and the tender opening date all being inclusive.

5 **MODIFY CLAUSE 16.1 AND 17.**
   Only original tender document shall be submitted.

6. **MODIFY CLAUSE 17.2**
   The name and address of the Employer’s representative for the purpose of submission of tenders shall be as per the tender invitation notice.

7. **ADD TO CLAUSE 20**
   The tender opening date and time is as stated in the tender notice.

8. **MODIFY CLAUSE 28.4**
   Replace “twenty eight (28)” with twenty one (21).

9. **MODIFY CLAUSE 29.1**
   Replace “twenty eight (28) with twenty one. Amount of performance security shall be five per cent (5%).

10. **ADD TO CLAUSE 29.2**
    Performance security shall not be divided in two elements and shall be payable in Kenya Shillings Only.

11. **ADD TO CLAUSE 24**
    (i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail
The Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums)

(iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

12. **MODIFY CLAUSE 10.5**
Clause 47 is not part of the Conditions of Contract Part II

13. **ADD TO CLAUSE 26**
The evaluation criteria to be used is as below

**TENDER EVALUATION CRITERIA**

**SCHEDULE OF REQUIREMENTS**

1.1 **General**
The Kenyatta International Convention Center (KICC) proposes Supply, Installation and Commissioning of CCTV Surveillance and Access Control System in its premises.

1.2 **Submission of Bids**
The Tenderer must submit a two-envelope bid in the following format:

(a) **Technical**
comprising of the following documents
   i) Tender Notice
   ii) Invitation to Tender
   iii) Tender Security- The Bid Bond Must be in form of a bank guarantee from a bank or approved insurance company.
   iv) Duly Completed Confidential Business Questionnaire and supporting documents as requested in the vendor evaluation criteria.
   v) Proof of Registration as a company.
   vi) Proof of Registration/Licensing with regulatory bodies in relevant categories of works to be undertaken
   vii) Proof of completed and on-going works of Similar Magnitude and Complexity undertaken in the last five years.
   viii) Adequate Equipment and Key personnel for the specified category of works
   ix) Sound Financial standing and Adequate access to bank credit line
   x) Litigation History of the company (Both Court and Arbitration cases where applicable.

(b) **Financial**
comprising of:
   i) Tender Form and Price Schedules (only)

(c) **Sealing and Marking of Bids:**
The inner envelopes should be clearly marked as follows:

- ORIGINAL TECHNICAL: A
- COPY TECHNICAL: B
- ORIGINAL FINANCIAL: A
- COPY FINANCIAL: B

The envelopes shall then be sealed in an outer envelope. The inner and outer envelopes shall be addressed to:

The Managing Director
Kenyatta International Convention Centre
P O Box 30746 – 00100
NAIROBI

1.3 **Tender Responsiveness Criteria**

The submission of the following items will be required in the determination of the Completeness of the Bid. Bids that do not contain all the information required will be declared non responsive and shall not be evaluated further.

a) **Mandatory Requirements**
   i) Certificate of business registration, certificate of incorporation and a business license and power of attorney
   ii) Registration with:
   iii) National Construction Authority NCA 4 and above on Security Surveillance Systems (CCTV) and Access Control Systems
   iv) Energy Regulatory Commission
   v) Tender security (Bid Bond)
   vi) Tax Compliance
   vii) Sworn Anti – Corruption Affidavit
   viii) 3 years Audited Accounts/cash flow statement
   ix) Physical address of the Company/business
   x) Certificate of Dealership from the Manufacturer
   xi) Product Country of origin

b) **Other Requirements**
   i) Key Personnel (Attach evidence)
   ii) Recommendation 2 letters major clients (attach copies)
   iii) Major completed contracts in the last five (5) years (Attach evidence)
   iv) On-going contracts in the last 5 years (Attach evidence)
v) Schedules of equipment, transport (proof or evidence of ownership) and physical location (offices leases and latest utility bills)

vi) Audited financial report (last three (3) years) for each year

vii) Evidence of the latest Financial Resources (cash in hand, lines of credit, over draft facility etc) based on the latest financial year
**STAGE 1: VENDOR EVALUATION**

**a) Mandatory Requirements**

These requirements are MANDATORY and must be met by bidders, failure to will lead to disqualification.

*(Bidders to attach Copies of Certified Documents)*

<table>
<thead>
<tr>
<th>Item</th>
<th>Criteria</th>
<th>Requirements</th>
<th>Bidder Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>a)Certificate of business registration, certificate of incorporation and a business license c) Power of Attorney</td>
<td>Proof of incorporation attached Power of Attorney letter</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td></td>
<td>Registration with: a) National Construction Authority in Security Surveillance Systems (CCTV) and Access Control Systems b) Energy Regulatory Commission</td>
<td>Proof of registration/ License attached</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.3</td>
<td>Tender security (Bid Bond)</td>
<td>Proof of Bid Bond attached</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.4</td>
<td>Tax Compliance</td>
<td>Proof of valid tax compliance certificate</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.5</td>
<td>Sworn Anticorruption Affidavit</td>
<td>Attach copy of the affidavit</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.6</td>
<td>3 years Audited Accounts/cash flow statement</td>
<td>Proof of Audited accounts attached</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.8</td>
<td>Physical address of the Company/business</td>
<td>Indicate the physical address of the Company</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>1.9</td>
<td>Certificate of Dealership from the Manufacturer</td>
<td>Proof of authorization by Manufacturing Company</td>
<td><strong>Must meet requirement</strong></td>
</tr>
<tr>
<td>20</td>
<td>Confidential Business Questionnaire</td>
<td>Completely filled Business Questionnaire</td>
<td><strong>Must meet requirement</strong></td>
</tr>
</tbody>
</table>
b) **Other Requirements**  
The following criteria will be used in the evaluation of all potential suppliers.  
The documents submitted will be evaluated for suitability and awarded marks which will contribute to a maximum 25% of the total tender evaluation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Max. Score</th>
<th>Cut-off</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key Personnel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Managerial and Key Personnel Competency Profiles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualification of Key Staff and Capacity to deliver service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Organization chart</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>• Key Staff Competency Profiles</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>• registered with the relevant professional bodies</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Major contracts completed in the last five (5) years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Contracts of similar to scope of works and magnitude (1mk each, max 3mk)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>• Contracts of similar to scope of works and magnitude but of lower value than the one in consideration (0.5mk each, max 2mk)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>On-going contracts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Contracts of similar to scope of works magnitude (1mk each, max 3mk)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>• Contracts of similar to scope of works and magnitude but of lower value than the one in consideration (0.5mk each, max 2mk)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td><strong>Reputation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proof of Satisfactory Service. Submit letters of reference from THREE major clients, which should include summary of services rendered, value of contracts and contact person, address and telephone numbers (0.5 mk for each complete letter).</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Financial report</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Audited financial report (last three (3) years) for each year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Turn over greater or equal to 5 times the Estimated cost of the Contract</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>• Turn over greater or equal to 3 times the estimated cost of the Contract</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>• Turn over greater or equal to the estimated cost of the contract</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>• Turn over below the cost of the contract</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td><strong>Financial Resources</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Evidence of the latest Financial Resources (cash in</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
hand, lines of credit, over draft facility etc) based on the latest financial year

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Has financial resources above the estimated cost of the contract</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Has financial resources equal to the estimated cost of the contract</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Has financial resources below the estimated cost of the contract</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Has not indicated sources of financial resources</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

| Vendor Evaluation Score (Vs) | 25 | 15 |

NOTE: Any bidder who scores less than the cut-off (15%) shall be considered NON-RESPONSIVE and shall not proceed to the next stage.

The Vendor Evaluation Score (Vs) shall be carried forward to STAGE 4.
STAGE 2: TECHNICAL EVALUATION

A) COMPLIANCE WITH TECHNICAL SPECIFICATIONS

In this section, the bid will be analyzed to determine compliance with General and Particular technical specifications for the works as indicated in the tender document.

The tenderer shall fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer of the Item/Equipment they propose to supply.

The Equipment proposed by the tenderer in the Technical Schedule MUST be supported by brochures/catalogues/ datasheets and submitted with the tender document highlighting the catalogues Numbers of the proposed items. Such brochures/catalogues/ datasheets should indicate comprehensive relevant data of the proposed equipment/ items which should include but not limited to the following:-

a) Standards of manufacture
b) Performance ratings/characteristics
c) Material of manufacture
d) Electrical power ratings and
e) Any other requirements deemed necessary by the evaluator

Following the above analyses, where the proposed equipment are found not to satisfy the specifications, the tender will be deemed Non – Responsive and will not be evaluated further.

B) TECHNICAL EXAMINATION

In this section, bidders who have qualified from STAGE 2A above, the information provided in the Technical Schedule and brochures/ catalogues/ datasheets attached will be analyzed in detail against the minimum mandatory technical requirements of each or selected equipment proposed by the tenderer. Any bidder who does not meet the minimum mandatory technical requirements of each or selected equipment as outlined in Tables 2 and Tables 2A to 2F shall be considered NON-RESPONSIVE and shall be disqualified for further evaluation.

Table 2: Below is a summary of the evaluation of each of the major equipment.
**TABLE 2: MINIMUM MANDATORY TECHNICAL REQUIREMENTS SUMMARY**

<table>
<thead>
<tr>
<th>Item</th>
<th>Major Equipment</th>
<th>Bidder’s Score</th>
<th>Mandatory Score</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Panoramic Camera</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>HD indoor dome camera</td>
<td>8</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Bullet Camera</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>HD outdoor PTZ dome camera</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Network Video Recorder</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Access Control System</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Technical Score (Ts)</strong></td>
<td><strong>50</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Any bidder who scores less than 50% shall be considered NON-RESPONSIVE and shall be disqualified for further evaluation.

The Technical Score (Ts) shall be carried forward to STAGE 4

The succeeding Table 2A to 2F shows the detailed evaluation criteria for each of the major equipments. Resultant scores from these tables will be the bidder’s score in Table 2 above.
### TABLE 2A: PANAROMIC CAMERA

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Requirements</th>
<th>Engineer's Specs</th>
<th>Bidder’s Response</th>
<th>Bidder’s Score</th>
<th>Mandatory score</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td><strong>Camera type</strong></td>
<td>IP Indoor 360° Panoramic View</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td><strong>Camera environmental Protection</strong></td>
<td>Vandal-resistant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td><strong>Night vision technology</strong></td>
<td>Colour, Monochrome, Auto, IR range</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td><strong>PoE Class/power</strong></td>
<td>IEEE 802.3af (802.3at Type 1), 15W max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td><strong>Frame rate &amp; resolution/ pixels @ 360° full panoramic</strong></td>
<td>12Mp/30/3584 x 504</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td><strong>Internal Storage</strong></td>
<td>Supports up to 32 GB SDHC / 2 TB SDXC card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td><strong>Key features/functions</strong></td>
<td>Wide Dynamic Range, Video Motion Detection, Motion Tracking, Electronic PTZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td><strong>Web Viewing</strong></td>
<td>Web browser, other viewing software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Score** | 8
### TABLE 2B: HD INDOOR DOME CAMERA

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Requirements</th>
<th>Engineer's Specs</th>
<th>Bidder's Response</th>
<th>Bidder's Score</th>
<th>Mandatory score</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td><strong>Camera type</strong></td>
<td>Indoor IP Dome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td><strong>Environmental Protection/ Camera Security</strong></td>
<td>Built-in algorithm for detecting suspicious movement in the video</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td><strong>Night vision technology</strong></td>
<td>Colour, Monochrome, Auto, IR:15m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td><strong>PoE Class/power</strong></td>
<td>IEEE 802.3af (802.3at Type 1), 15W max</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td><strong>Frame rate &amp; resolution</strong></td>
<td>30fps/1080p, 2MP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td><strong>Internal Storage</strong></td>
<td>Supports up to 32 GB SDHC / 2 TB SDXC card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td><strong>Key features/functions</strong></td>
<td>Wide Dynamic Range, Video Motion Detection, Motion Tracking, Electronic PTZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td><strong>Web Viewing</strong></td>
<td>Web browser, other viewing software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Score | 8 |
TABLE 2C: BULLET CAMERA

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Requirements</th>
<th>Engineer’s Specs</th>
<th>Bidder’s Response</th>
<th>Bidder’s Score</th>
<th>Mandatory score</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Camera type</td>
<td>Outdoor Bullet IP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Environmental Protection/Camera Security</td>
<td>Weatherproof (IP66), Vandal proof (IK08)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Night vision technology</td>
<td>Colour, Monochrome, Auto, IR:30m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>PoE Class/power</td>
<td>IEEE 802.3af (802.3at Type 1), 15W Max</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Frame rate &amp; resolution</td>
<td>30fps /1080p/2MP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Internal Storage</td>
<td>Supports up to 32 GB SDHC / 2 TB SDXC card</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>Key features/functions</td>
<td>AVF (Automatic Varifocal) Wide Dynamic Range, Video Motion Detection, Motion Tracking, Electronic PTZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Web Viewing</td>
<td>Web browser, other viewing software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Score 8
<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Requirements</th>
<th>Engineer's Specs</th>
<th>Bidder's Response</th>
<th>Bidder's Score</th>
<th>Mandatory score</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td><strong>Camera type</strong></td>
<td>Outdoor HD PTZ dome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td><strong>Environmental Protection/ Camera Security</strong></td>
<td>Weatherproof (IP66), Built-in algorithm for detecting suspicious movement in the video</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td><strong>Night vision technology</strong></td>
<td>Colour, Auto/On/off monochrome, IR:180m</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td><strong>PoE Class/power</strong></td>
<td>POE+: 30W max.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td><strong>Frame rate &amp; resolution</strong></td>
<td>30fps/1080p</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td><strong>Internal Storage</strong></td>
<td>Up to 32 GB micro SDHC / 2 TB micro SDXC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td><strong>Key features/functions</strong></td>
<td>Smart, variable IR illumination technology, Sodium Vapor White Balance, 256 camera positions, Dynamic Noise Reduction, quad streaming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td><strong>Web Viewing</strong></td>
<td>Web browser, other viewing software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Score** 8
### TABLE 2E: NETWORK VIDEO RECORDER

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Requirements</th>
<th>Engineer’s Specs</th>
<th>Bidder’s Response</th>
<th>Bidder’s Score</th>
<th>Mandatory score</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Chassis type</td>
<td>19 in rack standard, Fully modular design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Power supplies type</td>
<td>Dual redundant, hot pluggable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Disk Array Type</td>
<td>iSCSI-based digital video disk arrays</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Requisite disk drives</td>
<td>72x3TB Raid-6 disk array</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>System RAM</td>
<td>10GB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Integrated I/O (min.)</td>
<td>2 x 100 RJ45 Mbps management port; 2 x 1/10 Gigabit Ethernet, copper/ fiber, serial port</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Key features</td>
<td>UHD (4K) IP cameras support, online administration, automated path failover, Automatic drive failover and detection and rebuild</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Score</strong></td>
<td><strong>10</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Minimum Requirements</td>
<td>Engineer's Specs</td>
<td>Bidder's Response</td>
<td>Bidder's Score</td>
<td>Mandatory score</td>
</tr>
<tr>
<td>------</td>
<td>----------------------</td>
<td>------------------</td>
<td>------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>a</td>
<td>Type of reader</td>
<td>Outdoor Biometric, pin and proximity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Fingerprint Sensor type</td>
<td>500 DPI optical sensor, fast recognition reader (one-touch-a-second user recognition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Fingerprint log/storage Capacity</td>
<td>1500 fingerprint 5000 cards &amp; 30,000 transactions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Availability of Interface for 3rd party controls</td>
<td>Interface for 3rd party electric lock, door sensor, exit button, alarm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>RF Card Type</td>
<td>Mifare (13.56 MHz)/ EM(125 KHz)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Monitoring Console</td>
<td>Standard computer with TFT-LCD Screen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g</td>
<td>Communication ports</td>
<td>TCP/IP Ethernet port, RS485, USB-host</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h</td>
<td>Equipment Security</td>
<td>Tamper-proofs switch and alarm outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Score</td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
STAGE 3: FINANCIAL EVALUATION

The evaluation shall be in two sections
   A. Preliminary examinations and
   B. Tender sum Comparisons

A. PRELIMINARY EXAMINATIONS

The preliminary examination in the Financial Evaluation shall be in accordance with clause 26 of Instruction to Tenderers.

The parameter to be considered under this section includes the following:
   a) Arithmetic errors and comparison of rates
      i. Arithmetic Errors
         The bid shall be checked for arithmetic errors based on the rates and the total sums indicated in the bills of quantities.

      a) Confirmation shall be sought in writing from the tenderers whose tender sums will be determined to have a significant arithmetic error to their disadvantage, to confirm whether they stand by their tender sums. The error shall be treated as per clause 24 of Instructions to Tenderers.

      b) Non-compliance with the above shall lead to automatic disqualification from further evaluation.

      c) Discount if any shall be treated as an error in pursuance to clause 26.3 of Instructions to Tenderers.

   ii. Major Items Rates Comparison
       The evaluation committee will determine the %deviation of the rates for FIVE MAJOR ITEMS from each bidder including the engineer’s estimate against the average and award marks as below:
TABLE 3A: COMPARISON OF MAJOR ITEM RATES

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
<th>Max. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Item Rates Comparison (The deviation from the average of each of the</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>five major items including Engineers Estimate shall be worked out for each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>item and score allocated as follow:-)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Deviation of between 0% to +/-5% ----------------------------------------</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>o Deviation of between +/-6% to +/-10% ------------------------------------</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>o Deviation of between +/-11% to +/-15% -----------------------------------</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>o Deviation of between 16% to +/-20%---------------------------------------</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>o Deviation of above +/- 21% ---------------------------------------------</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

The Evaluation Committee shall note the spread of % deviation of each bidder from the average. The evaluation committee shall comment on each bidder’s % deviation and its significance to the bidder’s responsiveness.

The above totals above for each item are added, then divided by five and the result \( F_a \) carried forward to the next stage. \( F_a \) has a maximum score of 10%.

B. TENDER SUM COMPARISONS

i. % Deviation

The evaluation committee shall calculate the % deviation of each bidder from the Engineer’s Estimate and note the spread. The evaluation committee shall comment on each bidder’s % deviation and its significance to the bidder’s responsiveness.
TABLE 3B: TENDER SUM COMPARISON

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
<th>Max. Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tender sum Comparison (% deviation of each bidder from the Engineer’s Estimate and score allocated as follow:- )</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>o Deviation of between 0% to +/-5%------------------------------------------ 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Deviation of between +/-6% to +/-10%--------------------- 8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Deviation of between +/-11% to 15%-------------------------- 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Deviation of between 16% to 20%----------------------------- 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Deviation of above 21% -----------------------------------------------0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total (Fb)</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

The above total $F_b$ shall be carried forward to the next stage. ($F_b$ has a maximum score of 10%)

ii. **Comparison with lowest bidder**

In this section, the evaluation team shall **compare the prices of each responsive Bidder against the lowest responsive Bidder** as shown in the formula below. The resultant score $F_c$ shall be awarded to each Bidder to a maximum of 5% of the total tender evaluation.

$$F_c = 5 \times \frac{F_m}{F}$$

Where $F_m = $ Tender Sum of Lowest bidder  
$F = $ Tender Sum of bidder under consideration

The above total $F_c$ shall be carried forward to the next stage. ($F_c$ has a maximum score of 5%)

**FINANCIAL SCORE (Fs)**

The Financial Score ($F_s$) shall be calculated as follows:-

$$F_s = F_a + F_b + F_c \text{ (Fs has a maximum score of 25%)}$$

The Financial Score ($F_s$) shall be carried forward to STAGE 4
STAGE 4 - TOTAL SCORE

The evaluation team shall combine Vendor Evaluation Score (Vs), Technical Score (Ts) and Financial Score (Fs), thus:

\[
\text{Total Score} = \text{Vendor Evaluation Score(Vs)} + \text{Technical score(Ts)} + \text{Financial score (Fs)}
\]

\[
= 50\% + 25\% + 25\% \text{ (max.) or } (40\% + 15\% + 15\% \text{ (cut-off)})
\]

\[
= 100\% \text{ (max) or 70\% (cut-off)}
\]

This is as shown in the table below:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Maximum Score</th>
<th>Cut-off Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor Evaluation (Vs)</td>
<td>25</td>
<td>15</td>
</tr>
<tr>
<td>Technical Evaluation (Ts)</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Financial Evaluation (Fs)</td>
<td>25</td>
<td>None</td>
</tr>
<tr>
<td>Totals</td>
<td>100</td>
<td>65</td>
</tr>
</tbody>
</table>

RECOMMENDATION

Any bidder who scores 65% and above is considered competitive and is qualified to carry out the works. The Evaluation Committee shall therefore consider any bidder who scores at least 65% in Stage 4 above as competitive and shall recommend the bidder to the client for award of the contract.
SECTION B

CONDITIONS OF CONTRACT
CONDITIONS OF CONTRACT

1.0 Definitions

1.1 In this contract, except where context otherwise requires, the following terms shall be interpreted as indicated;

“Bills of quantities” means the priced and completed bill of quantities forming part of the tender.

“Compensation Events” are those defined in clause 24 hereunder.

“Completion date” means the date of completion of the works as certified by the Project Manager, in accordance with Clause 31.

“The Contract” Means the agreement entered into between the Employer and the Contactor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works.

“The Contractor” refers to the person or corporate body whose tender to carry out the Works has been accepted by the Employer.

“The Contractor’s Tender” is the completed tendering document submitted by the Contactor to the Employer.

“The Contract Price” is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

“Days” are calendar days; “months” are calendar months.

“Defects” is any piece of work not completed in accordance with the Contract.

“The Defects Liability Certificate” is the certificate issued by project Manager upon correction of defects by the Contractor.

“The Defects Liability Period” is the period named in the Contract Data and calculated from the Completion Date.

“Drawings” include calculations and other information provided or approved by the Project Manager for the execution of the Contract.

“Dayworks” are Work inputs subject to payment on a time basis for labour and the associated materials and plant.
“Employer” or the “procuring entity” as defined in the Public Procurement Regulations (i.e. Central or Local Government administration, Universities, Public Institutions and Corporations, etc is the party who employs the Contractor to carry out the Works.

“Equipment” is the Contractor’s machinery and vehicles brought temporarily to the Site for the execution of the Works.

“The intended completion date” is the date on which it is intended that the Contractor shall complete the works. The intended Completion Date may be revised only by the Project manager by issuing an extension of time or acceleration in the Works.

“Materials” are all supplies, including consumables, used by the Contractor for incorporation in order.

“Plant” is any integral part of the Works that shall have a mechanical, electrical, chemical or biological function.

“Project Manager” is the person named in the Appendix to Conditions of Contract (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract and shall be an “Architect” or a “Quantity Surveyor registered under the Architects and Quantity Surveyors Act Cap 525 or an “Engineer” registered under Engineers Registration Act Cap 530.

“Site” means the place or places where the permanent Works are to be carried out including workshops where the same is being prepared.

“Site Investigation Reports” are those reports that may be included in the tendering documents which are factual and interpretative about the surface and subsurface conditions at the Site.

“Specifications” means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

“Start Date” is the date when the Contractor shall commence execution of the Works.

B-2
“A Sub-contractor” is a person or corporate body who has a Contract with the Contractor to carry out a part of the Work in the Contract, which includes Work on the Site.

“Temporary works” are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

“Employer’s Representative” is the person appointed by the Employer and notified to the Contractor for the purpose of supervision of the Works.

“A Variation” is an instruction given by the Employer’s Representative which varies the Works.

“The Works” are what the Contract requires the Contractor to construct, install, and turnover to the Employer.

2. Interpretation

In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning in English Language unless specifically defined. The Project Manager will provide instructions clarifying queries about these Conditions of Contract.

If sectional completion is specified in the Appendix to Conditions of Contract, reference in the Conditions of Contract to the Works, the Completion Date and the Intended Completion Date apply to any section of the Works (other than references to the Intended Completion Date for the whole of the Works).

The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;

(i) Agreement,
(ii) Letter of acceptance,
(iii) Contractor’s Tender,
(iv) Appendix to Conditions of Contract,
(v) Conditions of Contract,
(vi) Specifications,
(vii) Drawings,
(viii) Bills of Quantities,
(ix) Any other documents listed in the Appendix to Conditions of Contract as forming part of the contract.
Immediately after the execution of the contract, the Project Manager shall furnish both the Employer and the Contractor with two copies each of all the Contract documents. Further, as and when necessary the Project manager shall furnish the Contractor (always with a copy to the Employer) with three copies of such further drawings or details or descriptive schedules as are reasonably necessary either to explain or amplify the Contract drawings or to enable the Contractor to carry out and complete the Works in accordance with these Conditions.

3. **Language and Law**

Language of Contract and the law governing the Contract shall be English language and the Laws of Kenya respective unless otherwise stated.

4. **Project Manager’s Decisions**

Except where otherwise specifically stated, the Project Manager will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. **Delegation**

The Project manager may delegate any of his duties and responsibilities to others after notifying the Contractor.

6. **Communications**

Communication between parties shall be effective only when in writing. A notice shall be effective only when it is delivered.

7. **Subcontracting**

The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor’s obligations.

8. **Other Contractors**

The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities etc. as listed in the Appendix to Conditions of Contract and also with the Employer, as per the directions of the Project Manager. The Contractor shall also provide facilities and services for them. The employer may modify the said List of Other Contractors etc., and shall notify the Contractor of any such modification.
9. **Personnel**

The Contractor shall employ the key personnel named in the Qualification Information, to carry out the functions stated in the said information or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Qualification Information. If the Project Manager asks the Contractor to remove a person who is a member of the Contractor’s staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within Seven days and has no further connection with the Work in the Contract.

10. **Works**

The Contractor shall construct and install the works in accordance with the Specifications and Drawings. The Works may commence on the Start Date and shall be carried out in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.

11. **Safety and Temporary Works**

The Contractor shall be responsible for the design of temporary works. However before erecting the same, he shall submit his designs including specifications and drawings to the Project Manager and to any other relevant third parties for their approval. No erection of temporary works shall be done until such approvals are obtained.

The Project Manager’s approval shall not alter the Contractor’s responsibility for design of the Temporary works and all drawings prepared by the Contractor for the execution of the temporary or permanent works, shall be subject to prior approval by the Project Manager before they can be used. The Contractor shall be responsible for the safety of all activities on the Site.

12. **Discoveries**

Anything of historical or other interest or of significant value unexpectedly discovered on Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project manager’s instructions for dealing with them.

13. **Work Program**

Within the time stated in the appendix to Conditions of Contract, the
Contractor shall submit to the Project Manager for approval a program showing the general methods, arrangements, order, and timing for all the activities in the Works. An update of the program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

The Contractor shall submit to the Project Manager for approval an updated program at intervals no longer than the period stated in the Appendix to Conditions of Contract. If the Contractor does not submit an updated program within this period, the Project Manager may withhold the amount stated in the said Appendix from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted. The Project Manager’s approval of the program shall not alter the Contractor’s obligations. The Contractor may revise the program and submit it to the Project Manager again at any time. A revised program shall show the effect of Variations and Compensation Events.

14. **Possession of Site**

The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Appendix to Conditions of Contract, the Employer will be deemed to have delayed the start of the relevant activities, and this will be Compensation Event.

15. **Access to Site**

The Contractor shall allow the Project manager and any other person authorized by the Project Manager, access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

16. **Instructions**

The Contractor shall carry out all instructions of the Project Manager which are in accordance with the Contract.

17. **Extension of Acceleration of Completion Date**

The Project manager shall extend the Intended Completion Date if a Compensation Event occurs or a variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost. The Project
Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager in writing for a decision upon the effect of a Compensation Event or variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay caused by such failure shall not be considered in assessing the new (extended) Completion Date.

No bonus for early completion of the Works shall be paid to the Contractor by the Employer.

18. **Management Meetings**

A Contractor management meeting shall be held monthly and attended by the Project Manager and the Contractor. Its business shall be to review the plans for the remaining Work and to deal with matters raised in accordance with the early warning procedure. The Project manager shall record the minutes of management meetings and provide copies of the same to those attending the meeting and the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

19. **Early Warning**

The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the Work increase the Contract Price or delay the execution of the Works. The Project Manager may required the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

The Contractor shall cooperate with the Project Manager in making and considering proposals on how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the Work and in carrying out any resulting instruction of the Project Manager.

20. **Defects**

The Project Manager shall inspect the Contractor’s work and notify the Contractor of any defects that are found. Such inspection shall not affect the Contractor’s responsibilities.
The Project Manager may instruct the Contractor to search for a defect and to uncover and test any work that the Project manager considers may have defects. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor. However, if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.

The Project Manager shall give notice to the Contractor of any defects before the end of the Defect Liability Period, which begins at completion, and is defined in the Appendix to Conditions of contract. The Defects Liability Period shall be extended for as long as defects remain to be corrected.

Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Project Manager’s notice. If the Contractor has not corrected a defect within the time specified in the Project Manager’s notice, the Project Manager will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

21. **Bills of Quantities**

The Bills of Quantities shall contain items for the construction, installation, testing and commissioning of the work to be done by the Contractor. The Contractor will be paid for the quantity of the work done at the rate in the Bills of Quantities for each item.

If the final quantity of the work done differs from the quantity in the Bills of Quantities for the particular item by more than 25 percent and provided the change exceeds 1 percent of the Initial Contractor price, the Project Manager shall adjust the rate to allow for the change.

If requested by the Project Manager, the Contractor shall provide the Project manager with a detailed cost breakdown of any rate in the Bills of Quantities.

22. **Variations**

All variations shall be included in updated programs produced by the Contractor.

The Contractor shall provide the Project Manager with a quotation for carrying out the variations when requested to do so. The Project Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period as may be stated by the Project Manager and before the Variation is ordered.
If the work in the variation corresponds with an item description in the Bills of Quantities and if in the opinion of the Project Manager, the quantity of work is not above the limit stated in Clause 21.2 or the timing of its execution does not cause the cost per unit of quantity to change, the rate in the Bills of Quantities shall be used to calculate the value of the variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the variation do not correspond with items in the Bills of Quantities, the quotation by the contractor shall be in the form of new rates for the relevant items of work.

If the Contractor's quotation is unreasonable, the Project manager may order the variation and make a change to the Contract Price, which shall be based on the Project Manager’s own forecast of the effects of the variation on the Contractor's cost.

If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the works, no quotation shall be given and the variation shall be treated as a Compensation Event.

The Contractor shall not be entitled to additional payment for cost that could have been avoided by giving early warning.

When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.

23. **Payment Certificates, Currency of Payments and Advance Payments**

The Contractor shall submit to the Project Manager monthly applications for payment giving sufficient details of the Work done and materials on Site and the amounts which the Contractor considers himself to be entitles to. The Project Manager shall check the monthly application and certify the amount to be paid to the Contractor within 14 days. The value of work executed and payable shall be determined by the Project Manager.

The value of work executed shall comprise the value of the quantities of the items in the Bills of Quantities completed, materials delivered on site, variations and compensation events. Such materials shall become the property of the Employer once the Employer has paid the Contractor for their value. Thereafter, they shall not be removed from site without the Project Manager's instructions except for use upon the works.

Payments shall be adjusted for deductions for retention. The Employer shall pay the Contractor the amounts certified by the
The rates not stated in the Contract shall be deemed to be a minimum of 3%. Items of the works for which no rate or price has been entered in the Contract shall be deemed covered by other rates and prices in the Contract.

The Contract Price shall be stated in Kenya Shillings. All payments to the contractor shall be made in Kenya Shillings and foreign currency in the proportion indicated in the tender, or agreed prior to the execution of the Contract Agreement and indicated therein. The rate of exchange for the calculation of the amount of foreign currency payment shall be the rate of exchange indicated in the Appendix to Conditions of Contract. If the contractor indicated foreign currencies for payment other than the currencies of the countries of origin of related goods and services. The Employer reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services.

The Employer and the Project manager shall be notified promptly by the Contractor of any changes in the expected foreign currency requirements of the Contractor during the execution of the works as indicated in the Schedule of Foreign Currency Requirements and the foreign and local currency portions of the balance of the Contract Price shall then be amended by agreement between Employer and the Contractor in order to reflect appropriately such changes.

In the event that an advance payment is granted, the following shall apply:-

a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the contract. The advance shall not be subject to retention money.
b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.

c) Reimbursement of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original amount of the contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

\[ R = \frac{A(X^1 - X^{11})}{80 - 20} \]

Where:

- \( R \) = the amount to be reimbursed
- \( A \) = the amount of the advance which has been granted
- \( X^1 \) = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This will exceed 20% but not exceed 80%.
- \( X^{11} \) = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

d) With each reimbursement the counterpart of the directly liable guarantee may be reduced accordingly.

24. **Compensation Events**

The following issues shall constitute Compensation Events.

a) The Employer does not give access to a part of the site by the Site Possession Date stated in the Appendix to Conditions of Contract.

b) The Employer modifies the List of Other Contractors, etc., in a way that affects the Work of the Contractor under the Contract.

c) The Project Manager orders a delay or does not issue drawings, specifications or instructions required for execution of the works on time.
d) The Project Manager instructs the contractor to uncover or to carry out additional tests upon the work, which is then found to have no defects.

e) The Project Manager unreasonably does not approve a subcontract to be let.

f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to tenderers (including the site investigation reports), from information available publicly and from a visual inspection of the site.

g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer or additional works required for safety or other reasons.

h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

i) The effects on the Contractor of any of the Employer’s risks.

j) The Project Manager unreasonably delays issuing a Certificate of Completion.

k) Other compensation events described in the Contract or determined by the Project manager shall apply.

If a compensation event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

As soon as information demonstrating the effect of each compensation event upon the Contractor’s forecast cost has been provided by the Contract, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly.

If the Contractor’s forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.
The Contractor shall not be entitled to compensation to the extent that the Employer’s interests are adversely affected by the Contractor not having given early warning or not having co-operated with the Project Manager.

Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Appendix to Conditions of Contract.

The Contractor shall give written notice to the Project Manager of his intention to make a claim within thirty days after the event giving rise to the claim has first arisen. The claim shall be submitted within thirty days thereafter.

Provided always that should the event giving rise to the claim of continuing effect, the Contractor shall submit an interim claim within the said thirty days and a final claim within thirty days of the end of the event giving rise to the claim.

25. **Price Adjustment**

The Project Manager shall adjust the Contract Price if taxes, duties and other levies are changed between the date 30 days before the submission of tenders for the Contract and the date of Completion. The adjustment shall be the change in the amount of tax payable by the Contractor.

The Contract Price shall be deemed to be based on exchange rates current at the date of tender submission in calculating the cost to the Contractor of materials to be specifically imported (by express provision in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works.

Unless otherwise stated in the Contract, if any time during the period of the Contract exchange rates shall be varied and this shall affect the cost to the Contractor of such materials, then the Project Manager shall assess the net difference in the cost of such materials. Any amount from time to time so assessed shall be added to or deducted from the Contract Price, as the case may be.

Unless otherwise stated in the Contract, the Contract Price shall be deemed to have been calculated in the manner set out below and in sub-clauses 25.4 and 25.5 and shall be subject to adjustment in the events specified thereunder;
i) The price contained in the Contract Bills of Quantities shall be deemed to be based upon the rates of wages and other emoluments and expenses as determined by the Joint Building Council of Kenya (J.B.C.) and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.

ii) Upon J.B.C. determining that any of the said rates of wages or other emoluments and expenses are increased or decreased, then the Contract Price shall be increased or decreased by the amount assessed by the Project Manager based upon the difference, expressed as a percentage, between the rate set out in the schedule of basic rated issued 30 days before the date for submission or tenders and the rate published by the J.B.C. and applied to the quantum of labour incorporated within the amount of work remaining to be executed at the date of publication of such increase or decrease.

iii) No adjustment shall be made in respect of changes in the rates of wages and other emoluments and expenses which occur after the date of Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

The price contained in the Contract Bills of Quantities shall be deemed to be based upon the basic prices of materials to be permanently incorporated in the works as determined by the J.B.C. and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Appendix to Conditions of Contract.

Upon the J.B.C. determining that any of the said basic prices are increased or decreased then the Contract Price shall be increased or decreased by the amount to be assessed by the Project Manager based upon the difference between the price set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of the relevant materials which have not been taken into account in arriving at the amount of any interim certificate under clause 23 of these Conditions issued before the date of publication of such increase or decrease.
No adjustment shall be made in respect of changes in basic prices of materials which occur after the date for Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

The provisions of sub-clause 25.1 to 25.2 herein shall not apply in respect of any materials included in the schedule of basic rate.

26. **Retention**

The Employer shall retain from the payment due to the Contractor the proportion stated in the Appendix to Conditions of Contract until Completion of the whole of the works. On Completion of the whole of the works, half the total amount retained shall be repaid to the Contractor and the remaining half when the Defects Liability Period has passed and the Project manager has certified that all defects notified to the Contractor before the end of this period have been corrected.

27. **Liquidated damages**

The Contractor shall pay liquidated damages to the Employer at the rate stated in the Appendix to Conditions of Contract for each day that the actual Completion Date is later than the Intended Completion Date. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not alter the Contractor’s liabilities.

If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rate specified in Clause 23.30.

28. **Securities**

The Performance Security shall be provided to the Employer not later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a reputable bank acceptable to the Employer, and denominated in Kenya shillings. The Performance Security shall be valid until a date 30 days beyond the date of issue of the Certificate of Completion.
29. **Dayworks**

If applicable, the Dayworks rates in the Contractor’s tender shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

All work to be paid for as Dayworks shall be recorded by the Contractor on Forms approved by the Project Manager. Each completed form shall be verified and signed by the Project manager within two days of the work being done.

The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

30. **Liability and Insurance**

From the Start Date until the Defects Correction Certificate has been issued, the following are the Employer’s risks:

a) The risk of personal injury, death or loss of or damage to property (excluding the works, plant, materials and equipment), which are due to;

   i) use or occupation of the site by the works or for the purpose of the works, which is the unavoidable result of the works, or

   ii) negligence, breach of statutory duty or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.

b) The risk of damage to the works, plant, materials, and equipment to the extent that it is due to a fault of the Employer or in Employer’s design, or due to war or radioactive contamination directly affecting the place where the works are being executed.

From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the works, plant, and materials is the Employer’s risk except loss or damage due to;

a) a defect which existed on or before the Completion Date.

b) An event occurring before the Completion Date, which was not itself the Employer’s risk.
c) The activities of the Contractor on the Site after the Completion Date.

From the Start Date until the Defects Correction Certificate has been issued, the risks of personal injury, death and loss of or damage to property (including, without limitation, the works, plant, materials, and equipment) which are not Employer's risk are contractor's risks.

The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts stated in the Appendix to Conditions of Contract for the following events;

a) loss of or damage to the works, plant and materials;
b) loss of or damage to Equipment;
c) loss of or damage to property (except the works, plant materials, and equipment) in connection with the Contract, and
d) personal injury or death.

Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager’s approval before the Start Date. All such insurance shall provide for compensation required to rectify the loss or damage incurred.

If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

Alterations to the terms of insurance shall not be made without the approval of the Project Manager. Both parties shall comply with any conditions of insurance policies.

31. **Completion and Taking over**

Upon deciding that the works are complete, the Contractor shall issue a written request to the Project Manager to issue a Certificate of Completion of the works. The Employer shall take over the site and the works within seven (7) days of the Project manager’s issuing a Certificate of Completion.
32. **Final Account**

The Contractor shall issue the Project Manager with a detailed account of the total amount that the Contractor considers payable to him by the Employer under Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor’s account if it is correct and complete.

If it is not, the Project Manager shall issue within 30 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a Payment Certificate.

The Employer shall pay the Contractor the amount due in the Final certificate within 60 days.

33. **Termination**

The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following:

a) The Contractor stops work for 30 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Project Manager.

b) The Project Manager instructs the Contractor to delay the progress of the works, and the instruction is not withdrawn within 30 days.

c) The Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation.

d) A payment certified by the Project Manager is not paid by the Employer to the Contractor within 30 days (for Interim Certificate) or 60 days (for Final Certificate) of issue.

e) the Project Manager gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager.

f) the Contractor does not maintain a security, which is required.

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When either party to the contract gives notice of Contract to the Project Manager for a cause other than those listed under Clause 33.1 above, the Project Manager shall decide whether the breach is fundamental or not.

Notwithstanding the above, the Employer may terminate the Contract for convenience.

If the Contractor is terminated, the contractor shall stop work immediately, make the site safe and secure, and leave the site as soon as reasonably possible. The Project Manager shall immediately thereafter arrange for a meeting for the purpose of taking record of the works executed and materials, goods, equipment and temporary buildings on site.

34. **Payment Upon Termination**

If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and materials ordered and delivered to site up to the issue of the certificate. Additional liquidated damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable by the contractor.

If the contract is terminated for the Employer's convenience or because of a fundamental breach of contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, materials ordered, the reasonable cost of removal of equipment, repatriation of the Contractor’s personnel employed solely on the works, and the Contractor’s costs of protecting and securing the works.

The Employer may employ and pay other persons to carry out and complete the works and to rectify and defects and may enter upon the works and use all materials on the site, plant, equipment and temporary works.

The contractor shall, during the execution or after the completion of the works under this clause remove from the site as and when required, within such reasonable time as the Project Manager may in writing specify, any temporary building, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default the Employer may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, hold the proceeds less all costs incurred to the credit of the Contractor.
Until after completion of the works under this clause the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefore the Project Manager shall certify the amount of expenses properly incurred by the Employer and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract the difference shall be a debt payable to the Employer by the Contract; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor.

35. **Release from Performance**

If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it.

36. **Corrupt gifts and Payment of Commission**

The Contractor shall not;

a) Offer or give or agree to give to any person in the service of the Employer any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other Contract for the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for the Employer.

b) Enter into this or any other contract with the Employer in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Employer.

c) Any breach of this Condition by the Contractor or by anyone employed by his or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement Regulations issued under the Exchequer and Audit Act Cap 412 of the Laws of Kenya.
37. **Settlement of Disputes**

In case any dispute or difference shall arise between the Employer or the Project Manager on his behalf and the Contractor, either during the progress or after the completion or termination of the works, such dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the Chairman or Vice Chairman of any of the following professional institutions:

(i) Architectural Association of Kenya  
(ii) Institute of Quantity Surveyors of Kenya  
(iii) Association of Consulting Engineers of Kenya  
(iv) Chartered Institute of Arbitrators (Kenya Branch)  
(v) Institute of Engineers of Kenya

On the request of the applying party. The institution written to first by the aggrieved party shall take precedence over all other institutions.

The arbitration may be on the construction of this Contract or on any matter or thing of whatsoever nature arising hereunder or in connection therewith, including any matter or thing left by this Contract to the discretion of the Project Manager, or the withholding by the Project Manager of any certificate to which the Contractor may claim to be entitled to or the measurement and valuation referred to in clause 23.0 of these conditions, or the rights and liabilities of the parties subsequent to the termination of Contract.

Provided that no arbitration proceedings shall be commenced on any dispute or difference where notice of a dispute or difference has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.

Notwithstanding the issue of a notice as stated above, the arbitration of such a dispute or difference shall not commence unless an attempt has in the first instance been made by the parties to settle such dispute or difference amicably with or without the assistance of third parties. Proof of such attempt shall be required.

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Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the works or abandonment of the works or termination of the Contract by either part:

The appointment of a replacement Project Manager upon the said person ceasing to act.

Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.

Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.

Any dispute or difference arising in respect of war risks or war damage.

37.6. All other matter shall only be referred to arbitration after the completion or alleged completion of the works or termination or alleged termination of the Contract, unless the Employer and the Contractor agree otherwise in writing.

37.7. The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.

37.8. The award of such Arbitrator shall be final and binding upon the parties.
APPENDIX TO CONDITIONS OF CONTRACT

CONDITIONS OF CONTRACT CLAUSE 1
The Employer is: Government of the Republic of Kenya,
Represented by: The Managing Director
Kenyatta International Convention Centre
Address: P.O. Box 30476–00100, NAIROBI
Name of Employer’s Representative: County Works Officer, Nairobi
Address: P.O. Box 42267-00200, NAIROBI

CONDITIONS OF CONTRACT CLAUSE 1
The Project Manager is: County Works Officer, Nairobi
Address: P.O. Box 42267-00200, NAIROBI

CONDITIONS OF CONTRACT CLAUSE 1
The name (and identification number) of the Contract is: Supply, Installation, Testing and Commissioning of Supply and Installation of CCTV Surveillance and Access Control System at Kenyatta International Convention Centre, Nairobi

W. P. ITEM NO. ---------------------------------  

CONDITIONS OF CONTRACT CLAUSE 1

CONDITIONS OF CONTRACT CLAUSE 1
The start date shall be as stated in the letter of acceptance

CONDITIONS OF CONTRACT CLAUSE 1
The Intended Completion Date for the whole of the Works shall be as stated in the Letter of Acceptance.

CONDITIONS OF CONTRACT CLAUSE 2
The following documents also form part of the Contract: Only as listed in Clause 2 of the conditions of contract.

The Site Possession Date shall be as stated in the Letter of Acceptance.

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CONDITIONS OF CONTRACT CLAUSE 1
The Site is located at: Kenyatta International Convention Centre, Nairobi

CONDITIONS OF CONTRACT CLAUSE 13
The contractor shall submit a revised program for the works within 7 days of delivery of the letter of acceptance.

CONDITIONS OF CONTRACT CLAUSE 1
The Defects Liability Period is 12 months from practical completion date

CONDITIONS OF CONTRACT CLAUSE 32
Period of final measurement: 3 months after practical completion

INSTRUCTION TO TENDERERS CLAUSE 20
The tender opening date and time is as stated in the Tender Invitation Notice.

INSTRUCTION TO TENDERERS CLAUSE 20
The name and Address of the Employer's representative for the purposes of submission of Tenders is as stated in the Tender Invitation Notice

INSTRUCTION TO TENDERERS CLAUSE 13
Amount of Tender Security is Kshs.200,000/=.

INSTRUCTION TO TENDERERS CLAUSE 29
The amount of performance security is 5% percent bank guarantee of the Contract Price.

CONDITIONS OF CONTRACT CLAUSE 27
Liquidated and Ascertained damages: At the rate of Kshs.2,000.00 per week or part thereof

CONDITIONS OF CONTRACT CLAUSE 23
Period of honouring certificate: 45 days

Percentage of certified value retained: 10%

Limit of certified value retained: 5%

Period between program updates is: 14 days

The completion period for the contract works is:

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SECTION C

CONTRACT PRELIMINARIES

AND

GENERAL CONDITIONS
# CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

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SECTION C
CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

1.1 Examination of Tender Documents

The tenderer is required to check the number of pages of this document and should he find any missing or indistinct, he must inform the Engineer at once and have the same rectified.

All tenderers shall be deemed to have carefully examined the following:

a) Work detailed in the Specification and in the Contract Drawings.

b) The Republic of Kenya Document “General Conditions of Contract for Electrical and Mechanical Works”.

c) Other documents to which reference is made.

He shall also be deemed to have included for any expenditure which may be incurred in conforming with the above items (a), (b), (c) and observe this expense as being attached to the contract placed for the whole or any part of the work.

The tenderer shall ensure that all ambiguities, doubts or obscure points of detail, are clarified with the Engineer before submission of his tender, as no claims for alleged deficiencies in the information given shall be considered after this date.

1.2 Discrepancies

The contractor shall include all work either shown on the Contract Drawings or detailed in the specification. No claim or extra cost shall be considered for works which has been shown on the drawings or in the specification alone.

Should the drawing and the specification appear to conflict, the contractor shall query the points at the time of tendering and satisfy himself that he has included for the work intended, as no claim for extra payment on this account shall be considered after the contract is awarded.

1.3 Conditions of Contract Agreement

The contractor shall be required to enter into a contract with the Employer.
The Conditions of the Contract between the Contractor and the Employer as hereinafter defined shall be the latest edition of the Agreement and Schedule of Conditions of Kenya Association of Building and Civil Engineering Contractors as particularly modified and amended hereinafter.

For the purpose of this contract the Agreement and Schedule of Conditions and any such modifications and amendments shall read and construed together. In any event of discrepancy the modifications and amendments shall prevail.

1.4 **Payment**

Payment will be made through certificates to the Contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.

1.5 **Definition of Terms**

Throughout these contract documents units of measurements, terms and expressions are abbreviated and wherever used hereinafter and in all other documents they shall be interpreted as follows:

i) **Employer:** The term “Employer” shall mean The Managing Director, Kenyatta International Convention Centre, Nairobi

ii) **Architect:** The term “Architect” shall mean The Project Architect

iii) **Quantity Surveyor:** The term “Quantity Surveyor” shall mean The Project Quantity Surveyor

iv) **Civil/Structural Engineers:** The term “Civil/Structural Engineers” shall mean The Project Structural Engineer.

v) **Engineer:** The term “Engineer” shall mean Project Electrical Engineer (BS).

vi) **Contractor:** The term “Contractor” shall mean the firm or company appointed to carry out the Generator Installation works and shall include his or their heir, executors, assigns, administrators, successors, and duly appointed representatives.
vii) **Contract Works:** The term “contract Works” shall mean all or any portion of the work, materials and articles, whether the same are being manufactured or prepared, which are to be used in the execution of this contract and whether the same may be on site or not.

viii) **Contract Drawings:** The term “Contract Drawings” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.

ix) **Working Drawings:** The term “Working Drawings” shall mean those drawings required to be prepared by the contractor as hereinafter described.

x) **Record Drawings:** The term “Record Drawings” shall mean those drawings required to be prepared by the contractor showing “as installed” and other records for the contract Works.

xi) **Abbreviations:**

CM shall mean **Cubic Metre**
SM shall mean **Square Metre**
LM shall mean **Linear Metre**
LS shall mean **Lump Sum**
**mm** shall mean **Millimetres**
No. shall mean **Number**
Kg. shall mean **Kilogramme**
KEBS shall mean **Kenya Bureau of Standards**
BS shall mean. **Current standard British Standard Specification published by the British Standard Institution, 2 Park Street, London W1, England**

“Ditto” shall mean the whole of the preceding description in which it occurs. Where it occurs in description of succeeding item 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.

1.6 **Site Location**

The site of the Contract Works is situated at **Kenyatta International Convention Centre, KICC Building, Nairobi**
The tenderer is recommended to visit the site and shall be deemed to have satisfied himself with regard to access, possible conditions, the risk of injury or damage to property on/or adjacent to the site, and the conditions under which the contract Works shall have to be carried out and no claims for extras will be considered on account of lack of knowledge in this respect.

1.7 **Duration of Contract**

The Contractor shall be required to phase his work in accordance with the works programme (or its revision). The programme is to be agreed with the Project Manager.

1.8 **Scope of Contract Works**

The contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing, also the supply of ladders, scaffolding the other mechanical devices to plant, installation, painting, testing, setting to work, the removal from site from time to time of all superfluous material and rubbish caused by the works.

The contractor shall supply all accessories, whether of items or equipment supplied but to be fixed and commissioned under this contract.

1.9 **Extent of the contractor’s Duties**

At the commencement of the works, the contractor shall investigate and report to the Engineer if all materials and equipment to be used in the work and not specified as supplied by the others are available locally. If these materials and equipment are not available locally, the contractor shall at this stage place orders for the materials in question and copy the orders to the Engineer. Failure to do so shall in no way relieve the contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by The contractor shall be carefully examined in the presence of the Supplier before installation and connection. Any defects noted shall immediately be reported to the Engineer.

The contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site.
The contractor shall mark accurately on one set of drawings and indicate all alterations and/or modifications carried out to the designed system during the construction period. This information must be made available on site for inspection by the Engineer.

1.10 **Execution of the Works**

The works shall be carried out strictly in accordance with:

a) All relevant Kenya Bureau of Standards Specifications.

b) All relevant British Standard Specifications and Codes of Practice (hereinafter referred to as B.S. and C.P. respectively).

c) This Specification.


e) The Bye-laws of the Local Authority.

f) The Engineer’s Instructions.

The Contract Drawings and Specifications to be read and construed together.

1.11 **Validity of Tender**

The tender shall remain valid for acceptance within 120 days from the final date of submission of the tender, and this has to be confirmed by signing the Tender Bond. The tenderer shall be exempted from this Bond if the tender was previously withdrawn in writing to the Employer before the official opening.

1.12 **Firm – Price contract**

Unless specifically stated in the documents or the invitation to tender, this is a firm-price Contract and the contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract. No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The contractor will be deemed to have allowed in his tender for any increase in the cost of materials which may arise as a result of currency fluctuation during the contract period.
1.13 **Variation**

No alteration to the contract Works shall be carried out until receipt by the contractor of written instructions from the Project Manager.

Any variation from the contract price in respect of any extra work, alteration or omission requested or sanctioned by the Architect or Engineer shall be agreed and confirmed in writing at the same time such variations are decided and shall not affect the validity of the Contract. Schedule of Unit Rates shall be used to assess the value of such variations. No allowance shall be made for loss of profit on omitted works.

Where the Project Manager requires additional work to be performed, the contractor, if he considers it necessary, will give notice within seven (7) days to the Project Manager of the length of time he (the contractor) requires over and above that allotted for completion of the contract.

If the contractor fails to give such notice he will be deemed responsible for the claims arising from the delay occasioned by reason of such extension of time.

1.14 **Prime Cost and Provisional Sums**

A specialist Contractor may be nominated by the Project Manager to supply and/or install any equipment covered by the Prime Cost or Provisional Sums contained within the Contract documents.

The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Project Manager. The whole or any part of these sums utilised by the contractor shall be deducted from the value of the contract price when calculating the final account.

1.15 **Bond**

The tenderer must submit with his tender the name of one Surety who must be an established Bank only who will be willing to be bound to the Employer for an amount equal to 7 1/2 % of the contract amount as Clause 31 of the Main Contract.

1.16 **Government Legislation and Regulations**

The contractor’s attention is called to the provision of the Factory Act 1972 and subsequent amendments and revisions, and allowance must be made in his tender for compliance therewith, in so far as they are applicable.
The contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.

The contractor shall allow for providing holidays and transport for work people, and for complying with Legislation, Regulations and Union Agreements.

1.17  **Import Duty and Value Added Tax**

The contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes.

1.18  **Insurance Company Fees**

Attention is drawn to the tenderers to allow for all necessary fees, where known, that may be payable in respect of any fees imposed by Insurance Companies or statutory authorities for testing or inspection.

No allowance shall be made to the contractor with respect to fees should these have been omitted by the tenderer due to his negligence in this respect.

1.19  **Provision of Services by the Contractor**

Contractor shall make the following facilities available for his use:

a)  Attendance and the carrying out of all work affecting the structure of the building which may be necessary, including all chasing, cutting away and making good brickwork, all plugging for fixing, fittings, machinery, fan ducting, etc., and all drilling and tapping of steel work. Any purpose made fixing brackets shall not constitute Builder’s Work and shall be provided and installed by the contractor unless stated hereinafter otherwise.

b)  The provision of temporary water, lighting and power: All these services utilised shall be paid for by the Contractor

c)  Fixing of anchorage and pipe supports in the shuttering, anchorage with fully dimensioned drawings detailing the exact locations.
d)  
i) Provision of scaffolding, cranes, etc. but only in so far as it is required for the Contract Works
ii) Any specialist scaffolding, cranes, etc. to be used by any Contractor for his own exclusive use shall be paid for by the Contractor.

1.20 **Suppliers**
The contractor shall submit names of any supplier for the materials to be incorporated, to the Engineer for approval. The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no sources of supply will be changed without prior approval.

Each supplier must be willing to admit the Engineer or his representative to his premises during working hours for the purpose of examining or obtaining samples of the materials in question.

1.21 **Samples and Materials Generally**
The contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.

1.22 **Administrative Procedure and Contractual Responsibility**
The Contractor is entirely responsible to the Employer for the whole of the works including any Contract Works and shall deal direct with the Employer or Engineer.

1.23 **Bills of Quantities**
The Bills of Quantities have been prepared in accordance with the standard method of measurement of Building Works for East Africa, first Edition, Metric, 1970. All the Quantities are based on the Contract Drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the contractor but the value thereof shall be deducted from the Contract Sum and the value of the work ordered by the Engineer and executed thereunder shall be measured and valued by the Engineer in accordance with the conditions of the contract.

All work liable to adjustment under this contract shall be left uncovered for a reasonable time to allow measurements needed for such adjustment to be taken by the Quantity Surveyor or Engineer.
Immediately the work is ready for measuring the Contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the contractor shall make default in these respects he shall, if the Project Manager so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.

1.24 Contractor’s Office in Kenya

The contractor shall maintain (after first establishing if necessary) in Kenya an office staffed with competent manager and such supporting technical and clerical staff as necessary to control and coordinate the execution and completion of the contract Works.

The Manager and his staff shall be empowered by the contractor to represent him at meetings and in discussions with the Employer, the Engineer and other parties who may be concerned and any liaison with the contractor’s Head Office on matters relating to the design, execution and completion of the contract Works shall be effected through his office in Kenya.

It shall be the contractor’s responsibility to procure work permits, entry permits, licenses, registration, etc., in respect of all expatriate staff.

The Contractor shall prepare a substantial proportion of his Working Drawings at his office in Kenya. No reasons for delays in the preparation or submission for approval or otherwise of such drawings or proposals will be accepted on the grounds that the contractor’s Head Office is remote from his office in Nairobi or the site of the contract Works or otherwise.

1.25 Builder’s Work

All chasing, cutting away and making good will be done by the Contractor. The contractor shall also mark out in and be responsible for accuracy of the size and position of all holes and chases required.

The contractor shall drill and plug holes in floors, walls, ceiling and roof for securing services and equipment requiring screw or bolt fixings.

The contractor shall also provide and install any purpose made fixing brackets.
1.26 **Structural Provision for the Works**

Preliminary major structural provision has been made for the contract works based on outline information ascertained during the preparation of the Specification.

The preliminary major structural provision made will be deemed as adequate unless the contractor stated otherwise when submitting his tender.

Any major structural provision or alteration to major structural provisions required by the Contractor shall be shown on Working Drawings to be submitted to the Engineer within 30 days of being appointed.

No requests for alterations to preliminary major structural provisions will be approved except where they are considered unavoidable by the Engineer. In no case will they be approved if building work is so far advanced as to cause additional costs or delays in the work of the contractor.

1.27 **Position of Services, Plant, Equipment, Fittings and Apparatus**

The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact sitting of appliances, pipework, etc., may vary from that indicated.

The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the Working Drawings or on site by the Engineer in consultation with the contractor.

Services throughout the ducts shall be arranged to allow maximum access along the ducts and the services shall be readily accessible for maintenance. Any work which has to be re-done due to negligence in this respect shall be the contractor’s responsibility.

The contractor shall be deemed to have allowed in his contract sum for locating terminal points of services (e.g. lighting, switches, socket outlets, lighting points, control switches, thermostats and other initiating devices, taps, stop cocks) in positions plus or minus 1.2m horizontally and vertically from the locations shown on Contract Drawings. Within these limits no variations in the Contract Sum will be made unless the work has already been executed in accordance with previously approved Working Drawings and with the approval of the Engineer.
1.28 **Checking of Work**

The Contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.

1.29 **Setting to Work and Regulating System**

The contractor shall carry out such tests of the contract Works as required by British Standard Specifications, or equal and approved codes as specified hereinafter and as customary.

No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Contractor's own preliminary and proving tests excepted).

It will be deemed that the contractor has included in the contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the contract Works. He shall submit for approval to the Engineer a suitable programme for testing and commissioning. The Engineer and Employer shall be given ample warning in writing, as to the date on which testing and commissioning will take place.

The contractor shall commission the contract Works and provide attendance during the commissioning of all services, plant and apparatus connected under the contract Agreement or other Contract Agreements, related to the project.

Each system shall be properly balanced, graded and regulated to ensure that correct distribution is achieved and where existing installations are affected, the Contractor shall also regulate these systems to ensure that their performance is maintained.

The proving of any system of plant or equipment as to compliance with the Specification shall not be approved by the Engineer, except at his discretion, until tests have been carried out under operating conditions pertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the contract Works.
1.30 **Identification of Plant Components**

The contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment.

Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.

1.31 **Contract Drawings**

The Contract Drawings when read in conjunction with the text of the Specification, have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the contract works.

The Contract Drawings are not intended to be Working Drawings and shall not be used unless exceptionally they are released for this purpose.

1.32 **Working Drawings**

The contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the contract Works can be executed on site but also that the Engineer can approve the contractor's proposals, detailed designs and intentions in the execution of the contract Works.

If the contractor requires any further instructions, details, Contract Drawings or information drawings to enable him to prepare his Working Drawings or proposals, the Contractor shall accept at his own cost, the risk that any work, commenced or which he intends to commence at site may be rejected.

The Engineer, in giving his approval to the Working Drawings, will presume that any necessary action has been, or shall be taken by the contractor to ensure that the installations shown on the Working Drawings have been cleared with the Project Manager and any other Contractors whose installations and works might be affected.
If the contractor submits his Working Drawings to the Engineer without first liaising and obtaining clearance for his installations from the Project Manager and other Contractors whose installations and works might be affected, then he shall be liable to pay for any alterations or modification to his own, the Contractor’s or other Contractor’s installations and works, which are incurred, notwithstanding any technical or other approval received from the Engineer.

Working Drawings to be prepared by the contractor shall include but not be restricted to the following:

a) Any drawings required by the Contractor, or Engineer to enable structural provisions to be made including Builder’s Working Drawings or Schedules and those for the detailing of holes, fixings, foundations, cables and paperwork ducting below or above ground or in or outside or below buildings.

b) General Arrangement Drawings of all plant, control boards, fittings and apparatus or any part thereof and of installation layout arrangement of such plant and apparatus.

c) Schematic Layout Drawings of services and of control equipment.

d) Layout Drawings of all embedded and non-embedded paperwork, ducts and electrical conduits.

e) Complete circuit drawings of the equipment, together with associated circuit description.

f) Such other drawings as are called for in the text of the Specification or Schedules or as the Engineer may reasonably require.

Three copies of all Working Drawings shall be submitted to the Engineer for approval. One copy of the Working Drawings submitted to the Engineer for approval shall be returned to the Contractor indicating approval or amendment therein.

Six copies of the approved Working Drawings shall be given to the employer by the contractor for information and distribution to other Contractors carrying out work associated with or in close proximity to or which might be affected by the contract Works.

Approved Working Drawings shall not be departed from except as may be approved or directed by the Engineer.
Approval by the Engineer of Working Drawings shall neither relieve the contractor of any of his obligations under the contract nor relieve him from correcting any errors found subsequently in the Approved Working Drawings or other Working Drawings and in the contract Works on site or elsewhere associated therewith.

The contractor shall ensure that the Working Drawings are submitted to the Architect for approval at a time not unreasonably close to the date when such approval is required. Late submission of his Working Drawings will not relieve the contractor of his obligation to complete the contract Works within the agreed Contract Period and in a manner that would receive the approval of the Project Manager.

1.33 **Record Drawings (As Installed) and Instructions**

During the execution of the contract Works the contractor shall, in a manner approved by the Engineer record on Working or other Drawings at site all information necessary for preparing Record Drawings of the installed contract Works. Marked-up Working or other Drawings and other documents shall be made available to the Engineer as he may require for inspection and checking.

Record Drawings, may, subject to the approval of the Engineer, include approved Working Drawings adjusted as necessary and certified by the contractor as a correct record of the installation of the contract Works.

They shall include but not restricted to the following drawings or information:

a) Working Drawings amended as necessary but titled “Record Drawings” and certified as a true record of the “As Installed” Contract Works. Subject to the approval of the Engineer such Working Drawings as may be inappropriate may be omitted.

b) Fully dimensioned drawings of all plant and apparatus.

c) General arrangement drawings of equipment, other areas containing plant forming part of the Contract Works and the like, indicating the accurate size and location of the plant and apparatus suitability cross-referenced to the drawings mentioned in (b) above and hereinafter.

d) Routes, types, sizes and arrangement of all pipework and ductwork including dates of installation of underground pipework.

e) Relay adjustment charts and manuals.
f) Routes, types, sizes and arrangement of all electric cables, conduits, ducts and wiring including the dates of installation of buried works.

g) System schematic and trunking diagrams showing all salient information relating to control and instrumentation.

h) Grading Charts.

i) Valve schedules and locations suitability cross-referenced.

j) Wiring and piping diagrams of plant and apparatus.

k) Schematic diagrams of individual plant, apparatus and switch and control boards. These diagrams to include those peculiar to individual plant or apparatus and also those applicable to system operation as a whole.

l) Operating Instruction

Schematic and wiring diagrams shall not be manufacturer’s multipurpose general issue drawings. They shall be prepared specially for the contract Works and shall contain no spurious or irrelevant information.

Marked-up drawings of the installation of the contract Works shall be kept to date and completed by the date of practical or section completion. Two copies of the Record Drawings of contract Works and two sets of the relay adjustment and grading charts and schematic diagrams on stiff backing shall be provided not later than one month later.

The contractor shall supply for fixing in sub-stations, switch-rooms, boiler houses, plant rooms, pump houses, the office of the Maintenance Engineer and other places, suitable valve and instructions charts, schematic diagrams of instrumentation and of the electrical reticulation as may be requested by the Engineer providing that the charts, diagrams, etc., relate to installations forming part of the Contract Works. All such charts and diagrams shall be of suitable plastic material on a stiff backing and must be approved by the Engineer before final printing.

Notwithstanding the contractor’s obligations referred to above, if the contractor fails to produce to the Engineer’s approval, either:-

a) The Marked-up Drawings during the execution of the contract Works or
b) The Record Drawings, etc., within one month of the Section or Practical Completion

The Engineer shall have these drawings produced by others. The cost of obtaining the necessary information and preparing such drawings, etc., will be recovered from the contractor.

1.34 **Maintenance Manual**

Upon Practical Completion of the contract Works, the contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the contract Works.

The manual shall be loose-leaf type, International A4 size with stiff covers and cloth bound. It may be in several volumes and shall be sub-divided into sections, each section covering one Engineering service system. It shall have a ready means of reference and a detailed index.

There shall be a separate volume dealing with Air Conditioning and Mechanical Ventilation installation where such installations are included in the Contract Works.

The manual shall contain full operating and maintenance instructions for each item of equipment, plant and apparatus set out in a form dealing systematically with each system. It shall include as may be applicable to the contract Works the following and any other items listed in the text of the Specifications:

- **a)** System Description.
- **b)** Plant
- **c)** Valve Operation
- **d)** Switch Operation
- **e)** Procedure of Fault Finding
- **f)** Emergency Procedures
- **g)** Lubrication Requirements
- **h)** Maintenance and Servicing Periods and Procedures
- **i)** Colour Coding Legend for all Services
- **j)** Schematic and Writing Diagrams of Plant and Apparatus C-16
Record Drawings, true to scale, folded to International A4 size

Lists of Primary and Secondary Spares.

The manual is to be specially prepared for the contract Works and manufacturer’s standard descriptive literature and plant operating instruction cards will not be accepted for inclusion unless exceptionally approved by the Engineer. The contractor shall, however, affix such cards, if suitable, adjacent to plant and apparatus. One spare set of all such cards shall be furnished to the Engineer.

1.35 **Hand-over**

The contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by the Employer, provided always that the handing over of the contract Works shall be coincident with the handing over of the sub- Contract Works.

The procedure to be followed will be as follows:

a) On the completion of the contract Works to the satisfaction of the Engineer and the Employer, the contractor shall request the Engineer, at site to arrange for handing over.

b) The Engineer shall arrange a Hand-over Meeting or a series thereof, at site.

c) The contractor shall arrange with the Engineer and Employer for a complete demonstration of each and every service to be carried out and for instruction to be given to the relevant operation staff and other representatives of the Employer.

d) In the presence of the Employer and the Engineer, Hand-over will take place, subject to Agreement of the Hand-over Certificates and associated check lists.

1.36 **Painting**

It will be deemed that the contractor allowed for all protective and finish painting in the contract Sum for the contract Works, including colour coding of service pipework to the
approval of the Engineer. Any special requirements are described in the text of the Specifications.

1.37 **Spares**

The contractor shall supply and deliver such spares suitably protected and boxed to the Engineer’s approval as are called for in the Specifications or in the Price Schedules.

1.38 **Testing and Inspection – Manufactured Plant**

The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.

The right of the Engineer relating to the inspection, examination and testing of plant during manufacture shall be applicable to Insurance companies and inspection authorities so nominated by the Engineer.

The contractor shall give two week’s notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections.

Six copies of all test certificates and performance curves shall be submitted as soon as possible after the completion of such tests, to the Engineer for his approval.

Plant or equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the contractor’s own risk and should the test certificate not be approved new tests may be ordered by the Engineer at the contractor’s expense.

The foregoing provisions relate to tests at manufacturer’s works and as appropriate to those carried out at site.

1.39 **Testing and Inspection-Installation**

Allow for testing each section of the contract Works installation as described hereinafter to the satisfaction of the Engineer.

1.40 **Labour Camps**

The contractor shall provide the necessary temporary workshop and mess-room in position to be approved by the Architect.

The work people employed by the contractor shall occupy or be about only that part of the site necessary for the performance of the work and the contractor shall instruct his employees accordingly.
If practicable, W.C. accommodation shall be allocated for the sole use of the contractor's workmen and the contractor will be required to keep the same clean and disinfected, to make good any damage thereto and leave in good condition.

1.41 **Storage of Materials**

Space for storage and provision of any lock-up sheds or stores required will be provided by the contractor.

Nominated Contractors are to be made liable for the cost of any storage accommodation provided specially for their use. No materials shall be stored or stacked on suspended slabs without the prior approval of the Project manager.

1.42 **Initial Maintenance**

The contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done upon the installation shall be supplied to the Engineer.

The contractor shall also provide a 24-hour break-down service to attend to faults on or malfunctioning of the installation between the routine visits of inspection.

The contractor shall allow in the contract Sum of the initial maintenance, inspection and break-down service and shall provide for all tools, instruments, plant and scaffolding and the transportation thereof, as required for the correct and full execution of these obligations and the provision, use or installation of all materials as oils, greases, sandpaper, etc., or parts which are periodically renewed such as brake linings etc., or parts which are faulty for any reason whatsoever excepting always Acts of God such as storm, tempest, flood, earthquake and civil revolt, acts of war and vandalism.

1.43 **Maintenance and Servicing After Completion of the Initial Maintenance**

The contractor shall, if required, enter into a maintenance and service agreement with the employer for the installation for a period of up to five years from the day following the last day of the liability for Defects Period which offers the same facilities as specified in Clause 1.41 (Initial Maintenance).
The terms of any such agreement shall not be less beneficial to the employer than the terms of Agreements for either similar installation.

The contractor shall submit with his tender for the works, where called upon a firm quotation for the maintenance and service of the installation as specified herein, which shall be based upon the present day costs and may be varied only to take into account increases in material and labour unit rate costs between the time of tendering and the signing of the formal maintenance

and service agreement and which shall remain valid and open for acceptance by the Employer to and including the last day of the fifth complete calendar month following the end of the liability for Defects Period.

1.44 Trade Names

Where trade names of manufacturer’s catalogue numbers are mentioned in the Specification or the Bills of Quantities, the reference is intended as a guide to the type of article or quality of material required. Alternate brands of equal and approved quality will be acceptable.

1.45 Water and Electricity for the Works

These will be made available by the Contractor who shall be liable for the cost of any water or electric current used and for any installation provided for their own use.

1.46 Protection

The contractor shall adequately cover up and protect his own work to prevent injury and also to cover up and protect from damage all parts of the building or premises where work is performed by him under the Contract.

1.47 Defects After Completion

The defects liability period will be 6 months from the date of completion of the Contract as certified by the Engineer.

1.48 Damages for Delay

Liquidated and Ascertained damages as stated in the Contract Agreement will be claimed against the Contract for any unauthorised delay in completion. The contractor shall be held liable for the whole or a portion of these damages should he cause delay in completion.
1.49 **Clear Away on Completion**

The contractor shall, upon completion of the works, at his own expense, remove and clear away all plant, equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state, to the satisfaction of the Engineer. On completion, the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the Engineer.

1.50 **Final Account**

On completion of the works the contractor shall agree with the Engineer the value of any variations outstanding and as soon as possible thereafter submit to the Engineer his final statement of account showing the total sum claimed sub-divided as follows:

- **Statement A** - detailing the tender amounts less the Prime Cost and Provisional Sums, included therein.

- **Statement B** - detailing all the variation orders issued on the contract.

- **Statement C** - Summarising statement A and B giving the net grand total due to the Contractor for the execution of the Contract.

1.51 **Fair Wages**

The contractor shall in respect of all persons employed anywhere by him in the execution of the contract, in every factory, workshop or place occupied or used by him for execution of the Contract, observe and fulfil the following conditions:

a) The contractor shall pay rates of the wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where work is carried out.

b) In the absence of any rates of wages, hours or conditions of labour so established the contractor shall pay rates and observe hours and conditions of labour are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.
1.52 **Supervision**

During the progress of the works, the contractor shall provide and keep constantly available for consultation on site an experienced English-speaking Supervisor and shall provide reasonable office facilities, attendance, etc., for the Supervisor.

In addition, during the whole of the time the works are under construction, the contractor shall maintain on site one experienced foreman or charge-hand and an adequate number of fitters, etc., for the work covered by the Specification. The number of this staff shall not be reduced without the prior written approval of the Project manager or Engineer.

Any instructions given to the Supervisor on site shall be deemed to have been given to the contractor.

One copy of this Specification and one copy of each of the Contract Drawings (latest issue) must be retained on site at all times, and available for reference by the Engineer or contractor.

1.53 **Test Certificates**

The contractor shall provide the Engineer with three copies of all test reports or certificates that are or may be required by this Specification.

1.54 **Labour**

The contractor shall provide skilled and unskilled labour as may be necessary for completion of the contract.

1.55 **Discount to the Employer**

No discount to the Employer will be included in the tender for this installation.

1.56 **Guarantee**

The whole of the work will be guaranteed for a period of 12 months from the date of the Engineer’s certification of completion and under such guarantee the contractor shall remedy at his expense all defects in materials and apparatus due to faulty design, construction or workmanship which may develop in that period.
1.57 **Direct Contracts**

Notwithstanding the foregoing conditions, the Government reserves the right to place a “Direct Contract” for any goods or services required in the works which are covered by a P.C Sum in the Bills of Quantities and to pay for the same direct. In any such instance, profit relative to the P.C Sum in the priced Bills of Quantities will be adjusted as deserved for P.C Sum allowed.

1.58 **Attendance Upon the Tradesmen etc**

The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this contract every facility for carrying out their work and also for the use of ordinary scaffolding. The contractor however, shall not be required to erect any special scaffolding for them.

1.59 **Trade Unions**

The contractor shall recognize the freedom of his work people to be members of trade unions.

1.60 **Local and other Authorities notices and fees**

The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.

The contractor before making any variation from the contract drawings or specification necessitated by such compliance shall give the Project Manager written notice specifying and giving the reason for such variation and applying for instructions in reference thereto.

If the contractor within seven days of having applied for the same does not receive such instructions, he shall proceed with the works in conforming to the provision regulation or by-law in question and any variation thereby necessitated shall be deemed to be a variation in accordance to the conditions of contract.

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Assignment or subletting

The contractor shall not without the written consent of the Project Manager assign this contract or sublet any portion of the works, provided that such consent shall not be unreasonably withheld to the prejudice of the contractor.

Partial Completion

If the Government shall take over any part or parts works, apparatus, equipment etc. then within seven days from the date on which the Government shall have taken possession of the relevant part, the Project Manager shall issue a Certificate stating his estimate of the approximate total value of the works which shall be the total value of that part and practical completion of the relevant part shall be deemed to have occurred, and the Defects Liability Period in respect of the relevant part be deemed to have commenced on the date Government shall have taken possession thereof.

The contractor shall make good any defects or other faults in the relevant part that had been deemed complete.
The contractor shall reduce the value of insurance by the full value of the relevant part

The contractor shall be paid for the part of works taken possession by the Government

1.63 Temporary Works

Where temporal works shall be deemed necessary, such as Temporary lighting, the contractor shall take precaution to prevent damage to such works.

The contractor shall include for the cost of and make necessary arrangements with the Project Manager for such temporary works. For temporary lighting, electricity shall be metered and paid for by the contractor.

1.64 Patent Rights

The contractor shall fully indemnify the Government of Kenya; against any action, claim or proceeding relating to infringement of any patent or design rights, and pay any royalties which may be payable in respect of any article or any part thereof, which shall have been supplied by the contractor to the Project Manager. In like manner the Government of Kenya shall fully indemnify the contractor against any such action, claim or proceedings for infringement under the works,
the design thereof of which shall have been supplied by the Project Manager to the contractor, but this indemnify shall apply to the works only, and any permission or request to manufacture to the order of the Project Manager shall not relieve the contractor from liability should he manufacture for supply to other buyers.

1.65 Mobilization and Demobilization

The contractor shall mobilize labour plant and equipment to site according to his programme and schedule of work He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.

1.66 Extended Preliminaries

Where it shall be necessary to extend the contract period by the Project manager the contractor shall still ensure availability on site, optimum labour, materials, plant and equipment. The contractor shall make provision for extended preliminaries, should the contract period be extended and this shall be in a form of a percentage of the proportion of the Contract works remaining as at that time of extension. Where called upon in the Appendix to these Preliminaries the Contractor shall insert his percentage per month for extended preliminaries that shall form basis for compensation. Lack of inserting the percentage shall mean that the contractor has provided for this requirement elsewhere in the Bills of Quantities.

1.67 Supervision by Engineer and Site Meetings

A competent Project Engineer appointed by the Engineer as his representative shall supervise the Contract works. The Project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the Contractor with the authority of the Project Manager. Any instructions given verbal shall be confirmed in writing.

The project engineer and (or) the Engineer shall attend management meetings arranged by the Project Manager and for which the
Contractor or his representative shall also attend. For the purpose of supervising the project, provisional sums are provided to cover for transport and allowances. The Contractor shall in his tender allow for the provision of management meetings and site inspections, as instructed by the Engineer, and also profit an attendance on these funds. The funds shall be expended according to Project Manager's instructions to the contractor.

1.68 **Amendment to Scope of Contract Works**

No amendment to scope of Contract works is expected and in case of amendment or modification to scope of work, these shall be communicated to all tenderers in sufficient time before the deadline of the tender submission. However during the contract period and as the works progress the Project Manager may vary the works as per conditions of contract by issuing site instructions.

No claims shall be entertained on account of variation to scope of works either to increase the works (pre-financing) or reduction of works (loss of profit-see clause 1.69)

1.69 **Contractors Obligation and Employers Obligation**

The Contractor will finance all activities as part of his obligation to this contract. The employer shall pay interim payment for materials and work completed on site as his obligation in this contract, as the works progresses. No claims will be entertained for pre-financing of the project by the Contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the Contractor shall be deemed to have taken adequate measures in programming his works and expenditure and taken necessary financial precaution while executing the works. No interest shall be payable to the Contractor, except as relates to late payment as in the conditions of contract clause 23.3. The contractor shall where called upon, insert his price to compensate for any of the occurrence stated here (premature termination, reduction or increase of works),as a percentage of the contract sum in the Appendix to this section.

1.70 **APPENDIX TO CONTRACT PRELIMINARIES AND GENERAL CONDITIONS**

1. **ADD TO CLAUSE 1.40**

There is no labour camp.
2. **MODIFY CLAUSE 1.66**

Percentage of extended preliminaries shall be inserted in Bill No.1 page H/5 section H. However, this amount of the extended preliminaries **SHALL NOT** exceed the Liquidated and Ascertained Damages indicated on page **B-23** of Section B of this tender document.

3. **ADD TO CLAUSE 1.17**

Prices quoted shall include **VAT and withholding tax**.

In accordance with Government policy, the **withholding tax of 3%** shall be deducted from all payments made to the contractor, and the same shall subsequently be forwarded to the Kenya Revenue Authority (KRA).
SECTION D

GENERAL SPECIFICATIONS

OF

MATERIALS AND WORKS
GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

1.1 General
1.2 Standard of Materials
1.3 Workmanship
1.4 Procurement of Materials
1.5 Shop Drawings
1.6 Record Drawings
1.7 Regulations and Standards
1.8 Setting out Works
1.9 Testing on Site
2.1 **GENERAL**

This specification is to be read in conjunction with any other information herein issued with it. Bills of quantities and schedule of unit rates shall be the basis of all additions and omissions during the progress of the works.

2.2 **STANDARD OF MATERIALS**

Where the material and equipment are specifically described and named in the Specification followed by approved equal, they are so named or described for the purpose of establishing a standard to which the contractor shall adhere.

Should the contractor install any material not specified herein before receiving approval from the proper authorities, the Engineer shall direct the contractor to remove the material in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer.

All materials condemned by the Engineer as not approved for use, are to be removed from the premises and suitable materials delivered and installed in their place at the expense of the Contractor. All materials required for the works shall be from branded manufacturers, and shall be new and the best of the respective kind and shall be of a uniform pattern.

2.3 **WORKMANSHIP**

The workmanship and method of installation shall conform to the best standard practice. All work shall be performed by a skilled tradesman and to the satisfaction of the Engineer. Helpers shall have qualified supervision.

Any work that does not in the opinion of the Engineer conform to the best standard practice will be removed and reinstated at the contractor’s expense.

Permits, Certificates or Licences must be held by all tradesmen for the type of work; in which they are involved where such permits, certificates or licences exist under Government legislation.

2.4 **PROCUREMENT OF MATERIALS**

The contractor is advised that no assistance can be given in the procurement or allotment of any materials or products to be used in and necessary for the construction and completion of the work.
Contractors are warned that they must make their own arrangements for the supply of materials and/or products specified or required.

2.5 RECORD DRAWINGS

These diagrams and drawings shall show the completed installation including sizes, runs and arrangements of the installation. The drawings shall be to scale not less than 1:50 and shall include plan views and section.

The drawings shall include all the details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams relating to operating and maintenance instructions shall be framed and, mounted in a suitable location.

2.6 REGULATIONS AND STANDARDS

All work executed by the contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, Electric Power Act, Kenya Bureau of Standards (KBS), Institution of Electrical Engineers (I.E.E) Wiring Regulations, Current recommendation of CCITT and CCIR, and with the Regulations of the Local Electricity Authority and the Communications Commission of Kenya (CCK)

Where the sets of regulations appear to conflict, they shall be clarified with the Engineer.

2.7 SETTING OUT WORK

The contractor, at his own expenses, is to set out works and take all measurements and dimensions required for the erection of his materials on site; making any modifications in details as may be found necessary during the progress of the works, submitting any such modifications or alterations in detail to the Engineer before proceeding and must allow in his tender for all such modifications and for the provision of any such sketches or drawings related thereto.
2.8 **TESTING ON SITE**

The contractor shall conduct during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specifications No. 1 and No.2, Electric Supply Company’s By-Laws, Communications Commission of Kenya (CCK) requirements or any other supplementary Regulations as may be produced by the engineer.

Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation shall be rectified by the contractor at his own expense.
SECTION E

SCHEDULE OF CONTRACT DRAWINGS
SCHEDULE OF CONTRACT DRAWINGS

1.0 There are no contract drawings

2.0 Bidders shall be required to visit the proposed site to ascertain cable routes and cable lengths before pricing the Bills of Quantities in this document. In this regard, the bidders shall be required to get in touch with the Project Manager, County Electrical and Mechanical Engineer (B. S), Industrial area, along Machakos Road, Nairobi, during official working hours.

3.0 It shall be the responsibility of the contractor to provide wiring and connection diagrams for approval by the Project Manager.
SECTION F

GENERAL, PARTICULAR AND TECHNICAL SPECIFICATIONS

OF

MATERIALS AND WORKS
GENERAL, PARTICULAR & TECHNICAL SPECIFICATIONS

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1.2 Aim of Project
1.3 Scope of Works
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1.38 CCTV Equipment Detailed Technical Specifications
1.39 Access Control System Detailed Technical Specifications

(i)
GENERAL, PARTICULAR AND TECHNICAL SPECIFICATIONS

PART 1: GENERAL SPECIFICATIONS

1.1 SITE LOCATION

The site of the proposed works is at Kenyatta International Convention Centre, KICC Building, Nairobi

1.2 AIM OF THE PROJECT

(i) To design, test, implement and commission structured cabling IP Based Security Surveillance and Access Control System in compliance with TIA/EIA 568B and IEEE and other associated regulations for LANs in buildings.

(ii) To supply, install and configure standard active components in the LAN as an infrastructure for CCTV Camera Surveillance.

1.3 SCOPE OF WORKS

The works to be carried out include the supply, delivery, installation, testing, commissioning and leaving in servicing condition an integrated IP based Security Surveillance and Access Control System. The works shall include, but not limited to the supply and installation of the following:

(i) Fixed/PTZ, indoor/outdoor Digital Signal Processing IP Cameras
(ii) LCD/LED Monitors
(iii) Network Video Recorders
(iv) Access Control System on specific doors
(v) Control and communication Equipment (Ethernet/switches etc)

The recommended coverage areas for installation of CCTV surveillance shall be:

- The main entrance gates
- Entrance lobby
- Lift lobbies (both VIP and non VIP)
- Driveway.
- Parking lot
- Stairwell on all floors
- Along the fence
- Other areas as may be specified by the user and discussed with the PM before

All the cameras will be terminated in an office located at lower ground floor where control equipment will be located.

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1.4 **CLIMATIC CONDITIONS**

The following climate conditions can apply at the site of the sub-contract works and all the plant, equipment, apparatus, materials and installations shall be suited for these conditions:

- Mean maximum temperature: 26.9°C
- Mean minim temperature: 14.6°C
- Range of relative humidity: 20% - 80%
- Salt content in the atmosphere: 0.2%
- Altitude: 1088 metres above sea level
- Latitude: 01’ 22S

Extremely heavy rains fall at certain periods of the year and the sub-contractor shall be deemed to have taken account of this factor both in his process and in his planning of the execution of the contract works.

Equipment de-rating factors for the temperature and altitude shall be stated.

It is intended that ventilation and air filtration, if any shall be provided by others.

It is not intended that the accommodation shall be air conditioned. Any requirements of this nature upon which the tender is conditional shall be clearly stated in the tender.

1.5 **ELECTRICAL REQUIREMENTS**

The equipment to be supplied shall be capable of being operated from 240V AC 50Hz power supply.

1.6 **POSITION OF SERVICES AND EQUIPMENT**

The route services and approximate positions of apparatus will be given produced by the PM, but their exact positions shall be determined by approved dimensional details on working drawings or on site by the P.M.

The contractor shall ascertain on site that his work will not foil other services or furniture and all services through the ducts must be readily accessible for maintenance and arranged to allow maximum access along the ducts. Any work, which has to be redone due to negligence in this respect, will be the contractor’s responsibility.
1.7 SETTING TO WORK AND REGULATING SYSTEMS

The contractor shall carry out such tests of the contract works as are required by KEBS Standard Specifications and Codes of Practice, I.E.E Regulations or equal and approved codes, or the competent Authority.

No testing or commissioning shall be under taken except in the presence of and to the satisfaction of the P.M. unless approved otherwise by him (contractor’s own preliminary and proving tests are exempted).

The contractor shall include in his tender for the costs for testing and commissioning the contract works as herein described. He shall submit for approval to the P.M. a suitable programme for testing and commissioning. The P.M. and the Employer shall be given ample warning as to the dates on which testing and commissioning will take place.

The proving of any system of plant or equipment as to compliance with the specification shall not be approved by the P.M. except at his discretion until tests have been carried out under operating conditions appertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the contract works.

1.8 IDENTIFICATION OF PLANT AND COMPONENTS

The contractor shall supply and install identification labels to all plant and to all switches and items of control equipment with, where no excessive heating is involved, white Traffolyte or equal labels engraved in block lettering denoting the name/function and/or section controlled. Where heating is likely to distort Traffolyte, approved aluminium labels with stamped or engraved lettering shall be used.

The labels shall be mounted on equipment and in most suitable positions. They shall be in English or in internationally understood symbols capable of being read without difficulty. The labels shall conform to descriptions used on record drawing. Details of the lettering of the labels and the method of mounts or supporting shall be forwarded to the P.M. for approval prior to manufacture.

Further adhere to the following when labeling:

(i) Horizontal and backbone cables shall be labelled at each end. The cable or its label shall be marked with its identifier.
(ii) A unique identifier shall be marked on each faceplate to identify it as connecting hardware.

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(iii) Each port on the faceplate shall be labelled with its identifier.
(iv) A unique identifier shall be marked on each piece of connecting hardware to identify it as a connecting hardware.
(v) Each port on the connecting hardware shall be labelled with its identifier.
(vi) A unique identifier shall be marked on each port on the connecting faceplate to identify it as a connecting hardware.

1.9 WORKING DRAWINGS

The contractor shall prepare such working Drawings as may be necessary. The working Drawings shall be completed in such details not only that the contract works can be executed on site but also that the P.M can approve the contractor’s designs and intentions in execution of the contract works.

Approved working drawings shall not be departed from except where provided for. Approval by the P.M. of working Drawings shall neither relieve the contractor of any of his obligations under the contract nor relieve him from correcting any errors found subsequently in the approved working Drawings or elsewhere associated therewith or with the works.

Working drawings shall be supplied to the PM for approval showing the location of identifiers for all Horizontal cabling routes and Terminations, Backbone Routing and Terminations, Data Outlets/ Connectors and Active components etc.

1.10 RECORD DRAWINGS

During the execution of works on site the contractor shall, in a manner approved by the P.M. record on working or other Drawings at site all information necessary for preparing Record Drawings of the installed contract Works. Marked-up working or other Drawings and other documents shall be made available to the P.M. as he may require for inspection and checking.

Record Drawing shall include but are not restricted to the following drawings or information:-

• Working Drawings amended as necessary but titled “Record Drawings” and certified as a true record of the as installed” contract works.

• Fully dimensioned drawings of all plant and apparatus.

• System Schematic and trunking diagrams showing all salient information relating to control and instrumentation.

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• Wiring diagrams of individual plant, apparatus and switch and control boards.

• These diagrams to include these particular to individual plant or apparatus and elsewhere applicable those applicable to system operation as a whole.

One reproducible copy of the Record Drawings of the contract works and Schematic Diagrams shall be provided not later that one month afterwards.

Notwithstanding the contractor’s obligation referred to above, if the contractor fails to produce to the P.M.’s approval of the Record Drawings, within one month of partial or Practical Completion the Employer shall be at liberty to have these drawings produced by others. The cost of obtaining the necessary information shall be deducted from the outstanding payments due to the contractor.

1.11 TESTING

Both on completion of his work and at the end of the guarantee period the contractor shall carry out such tests as may be required in the presence of the P.M. or his representative, or the competent Authority and shall provide all necessary Instruments, labour and materials to do so. The Contractor shall pay such charges related to such tests if any. The following tests, a minimum shall be done:

General
Testing of entire cabling system as per ANSI/TIA/EIA-568B for Ethernet cables shall be performed prior to system handover.

Fibre Optic Testing
Testing of fibre optic shall be as per IEEE 802.32 and ANSI/TIA/EIA-568B for 1000 Base-LC/ 1000 Base-SC

Tenderers Must enclose together with their submitted bids brochures detailing technical Literature and specifications of all active and passive devices. The brochures shall be used to evaluate the suitability of the devices for the proposed works. Any bid submitted without the brochures shall be considered technically non-responsive, and shall subsequently be disqualified.

1.12 TRAINING

Training of at least two system administrators shall be conducted by the Contractor

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1.13 **QUALITY OF MATERIALS**

Materials and apparatus required for the complete installation as called for in the specifications or Contract Drawings shall be supplied by the contractor unless specified otherwise.

Unless otherwise specified all materials (including equipment, fittings, cables) shall be new, of the best quality and approved origin.

1.14 **WARRANTY**

The cabling installation shall carry a warranty of at least 15 years and the contractor shall issue the PM with a certificate from the cable manufacturer upon completion. The cost of the certification if any shall have been included in the prices. You have to specify in both technical and financial proposals the duration the issuance of the certificate will take after completion and commissioning of the installation.

1.15 **EQUIPMENT GUARANTEE**

The contractor shall undertake in writing to rectify free of charge, all faults arising from faulty components, materials, design or workmanship by the manufacturer or contractor whichever is applicable. This liability shall be for a minimum period of one calendar year from the date of acceptance of the equipment. Twelve months limitation notwithstanding, the period of liability shall not end until all defects which appear during the liability period have been rectified.

1.16 **PATENT RIGHTS**

The contractor shall fully indemnify the Government of Kenya, against any action, claim or proceeding relating to infringement of any patent or design rights, and shall pay any royalties which may be payable in respect of any article or any part thereof which shall have been supplied by the contractor to the P.M. and in like manner the government of Kenya shall fully indemnify the contractor against any such action, claim on proceeding for infringement or alleged infringement under the works the design thereof which shall have been supplied by the P.M. to the contractor, but this indemnity shall apply to the works only, and any permission or request to manufacture to the order of the P.M. shall not relieve the contractor from liability should he manufacture for, or supply to other buyers.

1.17 **MINIMUM REQUIREMENTS**

This specification defines minimum requirements, but tenderers who offer superior facilities will be considered.
Any tender which does not comply with the minimum requirements will be rejected.

1.18 **EQUIPMENT FINISH**

The equipment finish shall be the responsibility of the contractor, who shall be responsible for its protection during erection and in the course of making good to the building finishes after equipment erection.

1.19 **INTERFERENCE SUPPRESSION**

The equipment and all its accessories shall be suppressed so as not to interfere with any communications, radio, T.V., Security or electro-medical equipment, recording or computer systems.

1.20 **SERVER ROOM KEYS**

The contractor shall keep the Server Room locked at all times when his staff are not present and shall at the conclusion of the contract hand over all keys to the P.M.

**LENGED**

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<thead>
<tr>
<th>Acronym</th>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
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<td>EIA</td>
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<td>Project Manager</td>
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<td>DTU</td>
<td>Data Terminal Unit</td>
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PART 2: PARTICULAR & TECHNICAL SPECIFICATIONS

PART 2A: STRUCTURED CABLING NETWORK

1.21 REGULATIONS GOVERNING STRUCTURED CABLING

Materials, products and installations must comply to the mandatory provisions of all applicable industrial standards. The contractor shall, in the execution and completion of the works in the detailed design for which he is responsible comply with the provisions of the following as necessary and relevant:

(i) Communication Commission of Kenya (CCK)
(ii) The Kenya Communications Act
(iii) The Electric Power Act and the Rules made there under.
(vi) The requirements of the Chief Inspector of Factories for the Kenya Government.
(vii) Kenya Bureau of Standards (KEBS) Standard Specifications and Codes of Practice, or other equal and approved standard specifications and codes.
(viii) The Bye-Laws of the Local Authority.
(ix) Any other regulations applicable to Electric and Electronic Installations or Communications systems in Kenya.
(x) The Employer’s Safety Regulations.
(xi) ANSI/TIA/EIA-568-B.1 -- Commercial Building Telecommunications Cabling Standard,
(xii) Part 1: General Requirements
(xiii) ANSI/TIA/EIA-568-B.2 -- Commercial Building Telecommunications Cabling Standard,
(xiv) Part 2: Balanced Twisted Pair Cabling Component
(xv) ANSI/TIA/EIA-568-B.3 -- Optical Fiber Cabling Components Standard
(xvi) ANSI/TIA/EIA-569-A -- Commercial Building Standard for Telecommunications Pathways and Spaces
(xvii) ANSI/TIA/EIA-607(A) -- Commercial Building Grounding and Bonding Requirements for Telecommunications

1.22 STUCTURED CABLEING NETWORK FOR CCTV & ACCESS CONTROL SYSTEMS

Shall be an infrastructure for CCTV and Access control Communication;
i) All cables must pass through conduits or trunking.

ii) All cables and connectors shall be permanently labelled.

iii) No distortion due to kinks, sharp bends or excessive hauling tension shall be allowed.

iv) Cables shall be run in a manner eliminating any possibility of strain on the cable itself or on the terminations.

v) Cables shall have no joints or splices.

vi) Cables shall be kept at a minimum distance of 150mm from items liable to become hot or cold.

vii) Bending radii shall be not less than eight times the overall cable diameter.

viii) The manufacturers hauling tension shall not be exceeded.

ix) All cable ties and fixings shall be tightened to support the cable loom without distortion of the cable sheath.

x) The fibre optic cable shall be multi-mode optimal speed and with graded index, and of nominal size 62.5/125, 50/125 micron or single mode optimal speed with nominal size of 9.0 micron.

xi) Fibre optic cable shall have a core/cladding diameter on nominal 850nm and 1300nm optical wavelength.

xii) The optic cable shall be of appropriate core with each core terminated on both ends.

xiii) The enhanced UTP-twisted copper 4 pair cable shall be of cat 6 grade and exceed ANSI/TIA/EIA-568-Aj and ISO/IEC 11001 standards. The cable wire gauge to be at least 22swg

1.23 METAL TRUNKING

All metal trunking used shall be spray painted to approval and shall be fabricated from mild steel not less than 18swg (gauge) and have three compartments.

1.24 PATCH PANELS

i) Shall conform to ANSI/TIA/EIA-568A and be rack mounted.

ii) Shall be equipped with RJ45 contacts of UTP with maximum ohms sockets with capacity of 8, 12, 24 or 48 ports.

iii) Shall be earthed.

iv) Fibre optic patch panels shall be configured to the number of strands/cores terminated at each location.
v) Fibre Optic patching shall be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.
vi) Fibre Optic patch panel shall have a sliding tray.
vii) Except for patch cords used to connect NICs to the RJ45 sockets, all patch cords shall be labelled at each extremity with PVC support and intelligible marking. For other components the label shall be of stiff plastic PVC type.

1.25 NETWORK CONTROL EQUIPMENT

i) Active devices used at the LAN edge shall have 8,12, 24 or 48 ports for connection to the horizontal cabling.
ii) Active devices shall be rack mounted.
iii) Active devices for horizontal cabling shall support auto sensing 10/100/1000mbps.
iv) Active devices used at aggregation/transport layer of LAN shall support IP routing.
v) Active devices used at the LAN edge must be stackable and shall attach to the backbone cabling at 1000mbps through fiber.
vi) Where more than one active device is required to satisfactorily serve the floor data outlet distribution requirements they shall be stacked using interface operating at the backbone speed.

1.26 EQUIPMENT CABINETS

i) The main cabinet shall be of appropriate size.
ii) All cabinets for active devices shall conform to ANSI/TIA/EIA-568B and ANSI/TIA/EIA-569A specifications with forced cooling.
iii) Cabinets shall have adequate room for additional components typically 3U free space.
iv) Power to the cabinets shall be switched off from within the cabinets. Proper power socket cables to be supplied with the cabinets.
v) All cabinets to conform to ANSI/TIA/EIA-568B ANSI/TIA/EIA-569A with forced cooling and their location shall be determined on site.
vi) Support small factor pluggable (SFP) and industry leading density up to 240 of IEEE 8033 for 1000 Base-SX ports per system.
1.27  **ETHERNET EDGE SWITCHES**

i) Each floor edge switch connecting to the backbone must include at least two ports of 1000 Base X Gigabit Ethernet with GBIC support, QOS, Multiple queues with weighted round robin (WRR) scheduling and layer 3 switching and routing of IP, IPX and IP multicast traffic.

ii) Each switch in the set up should give 10/100/MBPS to the desktop.

iii) There should be adequate switches to cater for the total number of data points.

iv) The switches connecting as a backbone shall have additional 10000Base X port that shall be connected as a backup and shall be configured for automatic load balancing.

v) The switches shall be capable of supporting a redundant power supply and a CPU.

The Network Edge Switches shall be 24, 10/100/1000 Ports PoE+ (375W power budget) Switch, 2 combo mini-GBIC ports as Cisco SG300-28MP (SG300-28MP-K9) and 8, 10/100/1000 Ports PoE+ (124W power budget) Switch, 2 combo mini-GBIC ports as Cisco SG300-10MP (SRW2008MP-K9) or approved equivalent of similar capability and quality.

1.28  **ETHERNET CORE SWITCH**

The following are the minimum requirements for the core switch:

i) The Backbone switch should provide minimum (10/100/1,000/10,000mbps) of 8/12/24 ports of IEEE 802.32 1000 Base X.

ii) The minimum switching capacity of 150 GBPS (fabric) and 45 million packets per second.

iii) Be able to run industrial standard IP multicast at wire speed.

iv) Non blocking integrated layer 2/3/4 switching performance.

v) Multi layer IOS software services with IP routing, advanced QOS, traffic management and comprehensive security.

vi) Shall be rack mounted in standard rack/cabinets.

vii) Shall have a redundant power supply for each edge switch and CPU connecting to the backbone.

viii) Shall support BGP switching.

ix) Shall support both data and voice over Internet Protocol.

x) Shall support security features.

xi) Shall support virtual local area Network.
**Special Notes:**

a) Connect the floor network switches in a stack format so that they can be managed as a unit by the core switch.

b) Connect the floor network switches via fiber to the Network Core Switch that shall be located on 10\(^{th}\) Floor of the building.

**1.29 ETHERNET GATEWAY ROUTER**

The following are the minimum requirements for the router;

i) Ability to route both voice and data  
ii) Should provide minimum three (3 No.) 1000Base T ports  
iii) Should provide minimum of two (2 No.) ISDN ports.  
iv) Should be mounted on standard rack /cabinet  
v) Should have dual processor (voice/data)
PART 2B: TECHNICAL SPECIFICATIONS CCTV SURVEILLANCE SYSTEM

1.30 SYSTEM DESIGN & SET UP

A. The offered system will be based on IP infrastructure. All the cameras will be IP with POE capability
B. The offered system will allow viewing of any camera from any viewing station on the network without any limitations.
C. Cameras will be connected to the network using independent LAN infrastructure and independent wireless infrastructure (where needed)
D. The offered system should have an open architecture that will allow secure mode of communication.
E. The system will be operated through work stations and video viewing stations.
F. The system will be managed through a designated management station in order to control devices and users’ registration as well as registration of operational logs and alarms.
G. Main controllers will be sited at the main security control room and viewing of the cameras will be on Plasma/LCD screens/video walls.
H. The controller will be able to view and control all cameras from central CCTV keyboard and workstation keyboards.
I. The offered system will cover all entrances and exits and will give a detailed view of cars entering and exiting through designated gates.
J. All designated entry points will be covered by cameras in strategic locations in order to get a comprehensive view of all points and activities around it.
K. The main control room will be situated in lower ground floor
L. The system will allow 90 days storage of the recording from all cameras

1.31 GENERAL SYSTEM DESCRIPTION

M. The security video system shall be an IP network-based, fully distributed digital video systems. The security video system will utilize local area network (LAN) as a transmission medium for video, configuration, as well as storage of all data. The security video system shall provide unlimited expansion capability for the addition or modification of video inputs.
N. The contractor shall furnish and install all security video cameras, pan/tilt/zoom (PTZ) cameras, mounts, housings, power supply systems, coaxial cable, network cables, connectors, equipment racks, monitors and consoles, computer controlled network switchers, work stations, Network Video Recorders, video encoders, video decoders, video consoles and keyboards, and all other hardware and software to provide a fully operational system. The security video system shall permit normal and event monitoring of all secured areas on digital monitors as required or shown in specifications and drawings. Video monitoring consoles shall be installed at the control room as described in these specifications. In all cases, the method of communication from remote locations within the network to the central components shall be transparent to the user. Equipment shall be selected and installed so repairs can be accomplished on site by module replacement, using spare components whenever possible.

O. The intent of this specification is to provide the owner with a distributed networked digital security system. Supplied by the contractor, the security video system shall be complete and operational per the performance requirements and objectives of these specifications. The contractor shall be responsible for the coordination of related work with other trades affecting his/her work or work of others.

1.32 VIDEO MANAGEMENT SYSTEM CAPABILITIES

The following describes the general architecture and basic functionality deemed essential for the IP video management system described in this specification.

A. The IP video management system shall be built upon, open industry standards and facilitate integration with IT infrastructures and other digital and analogue systems.

B. The IP video management system shall provide an API/SDK that is capable of being used at a level consistent with full-featured gateway. The gateway shall provide an RS232 ASCII interface, Ethernet interface, and the ability to create custom plug-ins to the system user interface.

C. The IP video management system shall support cameras that generate a standard NSTC/PAL composite video signal.

D. The IP video management system shall incorporate up-the-cable PTZ camera management technology as well as serial control methodologies.
E. The IP video management system shall provide support for IP cameras from multiple manufactures
F. The IP video management system shall support standard resolution and megapixel IP cameras.
G. The IP video management system shall not limit resolution, frame rate, or number of standards-resolution or megapixel cameras that can be recorded, viewed, and managed on the system.
H. All displays shall retain the camera’s aspect ratio and accommodate 4:3, 16:9, or 16:10 monitor displays
I. All components of the IP video management system shall be built upon reliable and robust Linux operating system except for the windows workstation.
J. The system shall be fully distributed in nature so that each system device can remain operational in majority of modes without dependence on other devices.
K. Multiple users shall be able to simultaneously view the same camera view or sequence. The system shall use multicast streaming video to allow multiple users to view the same video stream, though not necessarily synchronized with each other, without affecting the bandwidth of the network.
L. Video titling shall provide for 100-character camera site description (on/off), display time/date (on/off), set the display color (black-white), display a site message (on/off), and define screen block position for the title.
M. The IP video management system shall have the capability to create and execute a system script used to control and automate any system function. Scripts can be nested such that multiple actions can be taken off the same trigger. The configuration of such scripts shall be easy to use and follow the rules of drag and drop configuration. The IP video management system shall be capable of the following actions as a minimal requirement:

1) Display video from any camera to a specific monitor or screen division, including changing screen division views.
2) Reset any monitor to its original screen division image.
3) Move the system PTZ cameras to a specified preset location.
4) Activate predefined patterns on system PTZ cameras
5) Start/stop recording an event from the indicated video source.
6) Use script nesting, a means of running another script within any given script
7) Activate system relays and send an e-mail notification to any recipient through pop3

8) Add wait times to any script command

N. The scripting language shall use a system function upload, and then modify or send out a global command to all components in the system.

O. The video management system shall support sequences running on any network monitor. Alarms or user intervention shall be capable of interrupting a running sequence.

P. Operator control of camera or selection of monitors shall override the sequence control of camera or monitor; sequence control of a camera or selection of monitors.

Q. The IP video management system shall allow for programming of alarms and associated incoming alarms with related parts of the system. Alarms and other triggers can be grouped into system events. System events can be configured using Boolean logic that requires multiple entities to be true before a system event is triggered.

R. Individual, group or all alarms shall be disabled by special sequences, which can be initiated by the operator or automatically by time/day/date

S. The IP Video management system shall log all alarms and events in the system manager database

T. All user interfaces in the IP video management system shall support language localization. Language preferences shall be associated with user setting and shall follow the user and automatically load upon user log-in, regardless of the console of work station.

U. The IP video management system shall provide for virtual matrix functionality, leveraging the IP network to switch any camera to any monitor as well as transmit alarms and other system messages to console on the network.

V. The IP video management system shall utilize a system manager to provide user and database management.

W. The system manager software shall support database failover when using two servers by maintaining a continuously synchronized duplicate of the main database at all times.

X. To ensure system security and integrity, the IP video management system shall incorporate a methodology for validating the authenticity of the source of any video or communication message
Y. before recording, displaying, or acting on that message. One example of such methodology is the use the RSA 256 –bit public/private key authentication scheme. All video generated by IP cameras or video encoders shall be digitally signed using the device’s public key prior to the content being recorded or displayed by receiving device. The system manager shall retain all private keys, and messages shall be authenticated with the system manager prior to an action being carried out. In addition, this scheme shall allow for authenticating the validity and integrity of any exported video from the system; all videos will be digitally signed as it is being generated by the IP camera or video encoder and prior to it being recorded to a disk drive.

Z. The IP video security system’s digital recording subsystem shall incorporate a distributed, load balancing architecture and provide fault tolerance and redundancy in critical areas of concern. The hardware shall be designed such that all serviceable components are can be easily replaced or maintained without the need to take the storage system offline. As a standard, all network storage devices shall provide RAID 6 redundancy to safeguard the data if the hard disk failure occurs.

AA. The IP video management system shall provide multilevel diagnostics of each component in all critical areas. These diagnostics shall be reported to a diagnostic console for processing. The diagnostic data shall be capable of being scripted into actionable events within the systems such as Open View, Tivoli, and others for diagnostic traps and operational data.

BB. The IP video management system shall support intelligent edge devices for video motion detection and analytics analysis. Motion detection shall allow for configuration of:

1) Three independently configured groups of activity detection zones
2) Each zone can be programmed with its own specific sensitivity level and configured for a specified threshold
3) Video motion shall be capable of enabling motion-based search routines, triggering relays or executing scripted responses

CC. Video analytics shall use the processing power of the video encoder or IP camera to analyze live video on continuous or scheduled basis. If programmed for scheduled operation, different analytic behaviors shall be capable of being loaded at different schedules or upon user command. Analytic analysis shall be capable of being done entirely within the edge device or IP camera and without requiring an analytics server for processing. Analytics behaviors shall at minimum include the following features: 

F/17
1) Directional motion: shall be capable of triggering an alarm only if an object moves in a specified direction
2) Adaptive motion: shall be capable of monitoring a moving object and only trigger an alarm if the object enters a designated area
3) Video vibration removal: shall be capable of removing a vibration from unstable mounting of the camera.
4) Object removed: shall trigger an alarm should a designated object be removed from the scene
5) Object left behind: shall trigger an alarm should a foreign object be deposited in the scene.
6) Object counting: shall maintain an accurate count of all objects entering a defined zone or objects that move in a given direction past designated spot.
7) Camera sabotage: shall trigger an alarm should it detect attempted sabotage, such as obstructing the lens or moving the camera without authorization.

DD. The IP video management system shall be able to handle future expansion of an unlimited total capacity from what is shown in the drawings, including, but not limited to, cameras, monitors, alarm circuits and relay closures

1.33 MANAGEMENT SERVER

A. The management server shall support database redundancy by utilizing two servers and maintaining constant synchronization between the two servers. In the event of a system manager failure, the hot standby shall assume management responsibilities until the failed unit is restored
B. The management server shall serve as security key server for the entire system and manage device registration and message authentication using the RSA 256-bit public/ private key system
C. The management server software shall manage user rights and permissions. The management server shall provide for unlimited number of system operators with personal identification numbers (PINs) that define priority levels, operator facilities, system roles, and camera and monitor groupings. Cameras, monitors and other system components can be structured in logical groups and user access to groups or individual elements can be restricted
D. The management server shall be capable of serving as an NTP Server for the entire system. The IP video security system shall be synchronized to an NTP server so that all system components function on the same time basis. The NTP server shall reside within the system, and it shall be capable of being driven by external time sources if needed. All time zone corrections shall be provided in the system automatically.

E. The management server shall be capable of performing as a DHCP and UPnP server for the entire system and components. The management server shall provide all connections and management communications between system devices.

F. The management server shall store database of all user activity, alarms and device diagnostic errors. Administrators shall have the ability to determine the retention time targeted for the information. All log entries shall be searchable and exportable through the system log window.

G. The management server shall allow for connection to an intelligent uninterruptible power supply (UPS), and it shall allow for initiation of a managed shutdown should the UPS deplete its stored charge.

1.34 VIDEO ENCODERS AND DECODERS

A. All encoders shall accommodate mounting into standard EIA19-inch rack or separately into a wall mount bracket. The rack unit shall provide a dual power supply or use a separate rack mountable power supply unit for powering multiple rack units.

B. The dual stream video encoder shall transmit video, audio, and data over IP network

C. The dual stream video encoder shall be a high performance, single 8-, or 16-channel video encoding unit, and it shall be able to convert live analogue video signals into dual MPEG-4 streams

D. The dual stream video encoder shall process up to 30 images per second (ips) per stream at 4CIF (70 x 480 or 704 x 576) resolution, and it shall use motion adaptive de-interlacing technology to reduce jitter 4CIF images.

E. The dual stream video encoder shall incorporate the ability to automatically serve the appropriate stream to a work station, network decoder, or virtual console display based on the screen configuration of the display unit, without affecting the recording rate. This shall save on both CPU processing power required to display all the cameras in the given configuration as well as reduce...
F. the network bandwidth required to transmit all the cameras to the display device.

G. The dual stream video encoder shall offer two security modes, video loss indicator, bidirectional audio support, PTZ support (RS-422)

H. The video encoders shall accept Multi-system video signals from fixed color/black-white cameras, PTZ cameras, low light camera, or any other camera that provides a composite Multi-system1 Vp-p video signal.

I. The video encoder shall support dual encoded stream capability from a single video source to allow simultaneous and independent viewing, recording and quality.

J. The video decoder shall support any digital video stream on the network and allow for decoding up to 16 simultaneous streams from any video encoder or recorder. It shall also allow for simultaneous and independent viewing at the recording frame and quality rate.

K. The IP video decoder shall support MPEG-4, H.264 baseline profile, H.264 main profile, and H.264 high profile encoded video streams.

L. The IP video decoder shall decode up to 16 4CIF resolution, 30 ips video streams simultaneously; or up to 12 H.264 baseline, 4CIF resolution 30 ips video streams simultaneously; or up to 2 1080p streams encoded in H.264 baseline profile.

M. The IP video decoder shall drive two high resolution monitors using DVI connection for displaying the video footage.

N. The IP video decoder shall manage the CPU processing requirements and network bandwidth requirements by automatically subscribing to a lower resolution, lower frame rate stream from a given camera, depending on screen configuration chosen.

O. The IP video management system shall support matrix digital decoders that allow an interface of video and data to analog matrix systems. The matrix digital decoder shall convert MGEP-4 digital video streams into analog video outputting the video to the matrix switcher.

P. The matrix digital decoder shall transmit video from IP video security system and allow an operator to use the same analogue keyboard functions to view and control video on both systems.

Q. End-to-end PTZ control latency shall not exceed 160 ms at 4CIF resolution, 30 ips video, excluding network transmission latency.
R. Each of the video encoders shall support an asynchronous serial port that can be programmed for data rates up to 230 kbs and can be set to RS-422 or RS-485 mode shall support 2-wire and 4-wire interfaces.

S. Each of the video encoders shall support three NO/NC dry-contact input and one relay output. The latching alarm shall continue to record until user acknowledgement can be programmed for a predetermined time-out.

T. Each of the video encoders shall transmit all command and control messages using the TCP/IP protocol and use PKI RSA-256 bit encryption for secured communication. All compressed video will be digitally signed by the video encoder prior to transmitting across the network. This digital signature shall be used to facilitate integrity of all exported video.

U. Each of the video encoders/decoders shall meet or exceed the following design and performance specifications:

1. Video encoders: capable of producing at least 1 stream at 4CIF resolution, 30 ips and second stream at CIF resolution, 15 ips

2. Video decoders: capable of displaying video from MGEP-4 and H.264 baseline, main, or high profile streams. Each video decoder shall decode at minimum 16 MGEP-4CIF/30 ips streams, 12 H.264 baseline 4CIF/30 ips streams, or 1080p streams encoded in H.264 baseline profile

V. Each of the video encoders shall have the capability to provide advanced, built-in-video motion detection separate from digital IP-based recording system to activate recoding with pre-alarm capability of up to 24 hours

W. Intelligent video encoders shall have ability to run any selected video analysis software to detect selected behaviors and provide alerts to operators and the rest of the system.

1.35 WORKSTATION

A. The PC workstation shall use a graphical user interface (GUI) that is compatible with Microsoft Windows Vista a a keyboard /mouse for monitoring live and recorded video, virtual matrix functionality that allows operators to see and respond to any alarm from any device on the network, and direct any camera to any monitor on the network.
B. The PC workstations shall allow administrators to configure
devices, set up users, adjust network settings, and create recording
schedules. Permission to access these functions and all other
system services can be configured to a fine level of detail. The PC
work station shall have advanced search capabilities, event logging
and alarm interface displays. The PC workstation shall export
videos and still images in multiple format, including MPEG-4,
H.264, AVI, BMP, and JPG. A front panel USB port and DVD/CD-
RW drive shall be included to make it capable of exporting video
clips and still images to external media. Authentication software
shall be exported automatically.

C. The PC workstation shall allow users with authority to monitor
content from standard resolution, megapixel resolution cameras,
and encoders throughout the network. The PC workstation shall
display content encoded in MPEG-4, H.264 main, and high profile.

D. The PC workstation shall be capable of decoding up to 16
simultaneous video streams at 4CIF resolution, 30 ips that are
encoded in MPEG-4; or 12 simultaneous video streams at 4CIF
resolutions, 30 ips encoded in in H.264 baseline profile; or 2
simultaneous 1980p video streams that are encoded in H.264
baseline profile.

E. The PC workstation shall be capable of minimizing the CPU
processing load and network bandwidth required by using a stream
that automatically seeks out and subscribes a secondary stream at
a lower resolution when the display is changed to multichannel
display.

F. The PC workstation shall support CCTV-style keyboard control of
PTZ camera call-up.

G. The PC workstation shall detect the monitor’s native resolution and
provide users with a single, 2x2,3x3,4x4,1+5,1+12,2+8 for 4:3
aspect ratio monitors

H. The PC workstation shall retain the camera’s aspect ratio and allow
for the mixing of standard resolution and megapixel resolution
cameras on the same monitor.

I. The PC workstation shall allow any combination of live or playback
video on the same monitor simultaneously. The workstation shall
also provide synchronous playback of up to 16 cameras
simultaneously.

J. The PC workstation shall provide for digital zoom capability for any
camera in live or playback mode.
K. The PC workstation shall provide a zone of interest features that can generate up to six independently controlled and zoomed images from a single camera image, and it can allow operators to maintain a panoramic view of the scene while closely monitoring the selected areas. This shall be accomplished without requiring additional network throughput.

L. The system shall be capable of customizing the display area to suit user preferences. All aspects of GUI can be resized, torn-off, and moved to other monitors, or hidden. Up to six customizable workplaces can be created and loaded with camera groups to facilitate easy and efficient monitoring. The system shall allow for up to two video display tear-offs to accommodate up to 32-camera display.

M. The PC workstation shall automatically load user language preferences, camera groups and screen configuration upon logon.

N. The PC workstation shall notify operators of all alarms on the system in convenient alarm tab. Video thumbnails shall be available for visual verification within the alarm monitoring workspace. Alarms can be acknowledged or snoozed by the operator. The PC workstation application shall support the functionality to view procedures and instructions for given alarms; these procedures shall be triggered to appear during certain event, and they can be used to provide detailed written or verbal instructions to the operator about actions to be taken. In addition, operators can enter their own feedback to the given alarm. All user alarms and user actions shall be kept in the system log for audit purposes.

O. The PC workstation application shall support digital zoom on a PTZ camera’s live video streams.

P. The PC workstation application shall provide the ability to control and program any camera equipped with PTZ. The PC workstation shall be capable of the following operations.

1) Manually control PTZ
2) Set the pan/tilt home positions for manual or alarm activation.
3) Automatically control the cameras through an alarm trigger.
4) Ability to set multiple positions
5) Ability to set multiple tours
6) Remotely set and clear the movement limit of the pan/tilt
7) mechanism from the control room, using a telemetry unit at an outdoor camera site.
8) Adjust the zoom lens
9) The ability to control the camera menu and set up the camera through the IP video security system

1.36 **NETWORK VIDEO RECORDER**

A. The Network Video Recorder shall record video and audio streams from IP cameras and video encoders on the network.
B. The Network Video Recorder shall not use a separate network video recorder (NVR) server to run the NVR software. Instead, the server functions and storage elements shall be integrated into a purpose-built chassis.
C. The network Video Recorder shall use RAID6 parity across the storage drives to protect recorded data against hard disk drive failure.
D. The Network Video Recorder’s chassis shall be designed for video surveillance recording applications and encompass redundancy at all vital points:
   1) Redundant, hot swappable power supply modules
   2) Redundant, hot swappable mid-plane fans
   3) Hot swappable P/S drive
   4) Hot swappable rear exhaust fan
E. The Network Video Recorder’s chassis shall be designed for online service and maintenance and cannot be removed from the rack when needing to replace hard disk drives, fans power supplies or operating system drives.
F. The Network Video Recorder shall use the SAS protocol to support direct attached storage expansion boxes. The Network Video Recorder shall allow up to seven storage expansion boxes that can be connected to a Network Video Recorder to increase retention durations.
G. The direct attached storage boxes shall support a mechanism to daisy-chain storage boxes together through SAS cable. All enclosure management and diagnostic messaging shall flow through the SAS connector to the host Network Video Recorder.
H. The Network Video Recorder shall be built upon a reliable and robust Linux operating system.
I. The Network Video Recorder shall use distributed load balancing across other network storage managers configured in a storage pool and provide automatic network failover from any box to any box. Based on the configuration, it shall be possible to create an N+N failover scheme within the storage pool. The duration of time shall not exceed 90 seconds between the time a unit fails and when its associated cameras become equally distributed onto remaining storage managers.

J. The Network Video Recorder shall support a guaranteed recording throughput of 250 Mbps per storage device within a minimum of 64 Mbps of read throughput. The throughput shall be guaranteed under normal and error (RAID rebuild) conditions.

K. The Network Video Recorder shall support any number of cameras as long as the maximum throughput Environmental specifications required are under 250Mbps.

L. The Network Video Recorder shall support the recording of MPEG-4, H.264 baseline, H.264 main profile, and H.264 high profile streams from standard resolution and megapixel cameras.

M. The Network Video Recorder shall support continuous, scheduled, alarm/event (including analytics alarms), motion, and manual recording. Pre-and post-alarm periods shall be programmed up to the total capacity of the system.

N. The Network Video Recorder shall support bookmarking and locking/unlocking of video content on drives.

O. The Network Video Recorder shall support privacy tools that allow administrators to establish maximum retention durations for normal, alarm, and locked video.

P. The Network Video Recorder shall support an intelligent video grooming protocol that can reduce the frame rate of recorded video as the video ages. Administrators shall have the flexibility to determine whether to groom alarm video or leave it at its real-time level.

Q. The Network Video Recorder shall have the ability to report all diagnostic events, including software status diagnostics to a centralized user interface. In addition, SNMP traps shall be available for monitoring using third-party SNMP management console.

R. The Network Video Recorder shall be fully manageable from a remote workstation, including the ability to configure settings and update firmware and software.
S. The Network Video Recorder shall operate normally at altitudes between -50 to 10000 feet and shall withstand vibrations of 0.25G up to 200HZ at a sweep rate of 0.5 octaves per minute. The unit shall operate normally at temperature ranges of 100 to 350 C and shall be designed to withstand humidity gradient of 10% per hour.

1.37 VIRTUAL MATRIX CONTROLLERS

A. The system shall be capable of using virtual matrix keyboard that provides rotation of modules for easy single-or dual-handed operation.

B. The virtual matrix display shall be high performance, multiple stream decoding unit. The virtual matrix display shall convert up to 16 4CIF, 30ips MPEG-4 streams; 12 4CIF, 30 ips H.264 baseline profile streams; or 1080p H.264 baseline profile streams into video signal to be viewed on digital monitors.

C. The virtual matrix display shall decode and display up to 16MGEP-4 4CIF, 30ips streams; or 12 H.264 4CIF/30 ips baseline profile streams or 2 1080p H.264 baseline profile streams simultaneously.

D. The virtual matrix display shall drive up to two 4:3 or 16:9 digital monitors connected through DVI connectors and support to 32 cameras per console.

E. The virtual matrix display system shall accommodate growth by adding additional video virtual matrix, keyboards, network decoders and monitors to decode additional video inputs and drive monitor walls.

F. When multiple images are displayed, the IP video security system shall automatically seek and display a lower resolution stream to conserve CPU processing requirements and network bandwidth.

G. The video console display provides a user interface to the IP video security system. When used with the keyboard controller, the virtual matrix display shall allow a user to operate the system like a traditional matrix using the joystick, jog shuttle, and keypad to control the video display. The video console display shall also provide NVR-like functionality allowing users to record, play back, and export video.

H. The virtual matrix display shall provide full access to operations, through user-friendly, highly intuitive and semitransparent on-screens menus. An on-screen graphical overlay shall allow users
I. to turn on and off the overlay with a single button push of the keyboard controller. The video console display shall have on-screen PTZ, device playback, property controls, and alarm interface display.
A. **IP Panoramic Camera**

**Key Features**

- 12Mp / 30 fps sensor for fine details with smooth motion
- 360 degree coverage
- 2.1mm fixed lens (IR corrected)
- Dewarping offers distortion-free rectangular views
- MOTION+ video motion analysis system
- Intelligent Dynamic Noise Reduction
- E-PTZ and Regions of Interest (ROI)
- Wide Dynamic Range (92dB)
- Intelligent Auto Exposure
- Supports up to 32 GB SDHC / 2 TB SDXC card.
- Built-in microphone and Audio Alarm
- PoE (Power over Ethernet)
- Discreet and aesthetic, low-profile design

**Technical specifications**

<table>
<thead>
<tr>
<th>Camera Type</th>
<th>360° Panoramic View IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment:</td>
<td>Indoor, Vandal-resistant, IK06 (Lens: IK04)</td>
</tr>
<tr>
<td>Day/Night:</td>
<td>Colour, Monochrome, Auto (adjustable switchover points)</td>
</tr>
<tr>
<td>Optical Format:</td>
<td>1/2.3&quot;</td>
</tr>
<tr>
<td>Image Sensor:</td>
<td>CMOS</td>
</tr>
<tr>
<td>Video Performance -</td>
<td>Colour: 0.46, Mono: 0.18</td>
</tr>
<tr>
<td>Sensitivity (3100K,</td>
<td></td>
</tr>
<tr>
<td>Reflectivity 89%, F2.8,</td>
<td></td>
</tr>
<tr>
<td>30IRE:</td>
<td></td>
</tr>
<tr>
<td>Video Performance -</td>
<td>92dB WDR (+16dB IAE)</td>
</tr>
<tr>
<td>Dynamic Range:</td>
<td></td>
</tr>
<tr>
<td>Compression:</td>
<td>H.264, MJPEG</td>
</tr>
<tr>
<td>Power:</td>
<td>Power Supply Power-over-Ethernet 48 VDC nominal</td>
</tr>
<tr>
<td>Streaming:</td>
<td>Multiple configurable streams in H.264 and MJPEG, configurable frame rate and bandwidth. Multiple channels with edge dewarping. Regions of Interest (ROI)</td>
</tr>
<tr>
<td>PoE Class:</td>
<td>IEEE 802.3af (802.3at Type 1) &lt;4W</td>
</tr>
<tr>
<td>Resolution:</td>
<td>12MP: 8192 x 1536</td>
</tr>
<tr>
<td>Lens:</td>
<td>Fixed Iris</td>
</tr>
</tbody>
</table>
Fixed Focal Length: 1.6 mm fixed-focus lens (IR corrected), F2.8

Video Connection(s): RJ-45

Backlight compensation: Off/On /Intelligent Auto Exposure (BLC)

Privacy Masking: Eight independent areas, fully programmable

Audio: 1-Way Mic. With disable option

Internal Storage: Supports up to 32 GB SDHC / 2 TB SDXC card. (An SD card of Class 6 or higher is recommended for HD recording)

Recording: Continuous recording, ring recording, alarm/events/schedule recording

Vandal resistance: IK06 (Lens: IK04)

Video Motion Analytics: Essential Video Analytics and Intelligent Video Analytics

Special Features: Wide Dynamic Range, Video Motion Detection, Motion Tracking, Electronic PTZ, Privacy Masking, Digital Noise Reduction, ONVIF Support

Other functions: Individual names and stamps for all video Channels, Pixel counter, Video watermarking, Location

Viewing Software: Web browser; Video Security Client; Video Security App; Bosch Video Management System; Bosch Video Client; or third party software

This camera shall be Bosch FLEXIDOME IP panoramic 7000 MP (NIN-70122-FOAS) or approves equivalent of similar capability and quality or better.

B. **IP HD indoor dome camera**

**Product Features**

- 1080p resolution for sharp images
- Built-in IR LEDs with 15m (50ft) of viewing distance
- 3-10mm Automatic Varifocal (AVF) motorized zoom
- Intelligent Dynamic Noise Reduction
- Fully configurable quad streaming
- MOTION+ video analysis
- Regions of interest and E-PTZ
- Two-way audio with built-in mic
- MicroSD card slot (up to 2TB)
- ONVIF Profile S conformance
- 12VDC or PoE operation
## Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Camera Type:</strong></td>
<td>Dome (IP)</td>
</tr>
<tr>
<td><strong>Environment:</strong></td>
<td>Indoor</td>
</tr>
<tr>
<td><strong>Day/Night (IR):</strong></td>
<td>Colour, Monochrome, Auto</td>
</tr>
<tr>
<td><strong>Optical Format:</strong></td>
<td>1/2.7”</td>
</tr>
<tr>
<td><strong>Image Sensor:</strong></td>
<td>CMOS</td>
</tr>
<tr>
<td><strong>Video Performance - Sensitivity:</strong></td>
<td>Colour: 0.24lx, Mono: 0.5lx, with IR: 0.0lx</td>
</tr>
<tr>
<td><strong>Video Performance - Dynamic Range:</strong></td>
<td>76dB WDR</td>
</tr>
<tr>
<td><strong>Progressive Scanning:</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Compression:</strong></td>
<td>H.264, MJPEG</td>
</tr>
<tr>
<td><strong>Power:</strong></td>
<td>+12 VDC or Power-over-Ethernet (48 VDC nominal); 3.8 W max., 6.3 W max. (IR version)</td>
</tr>
<tr>
<td><strong>PoE Class:</strong></td>
<td>IEEE 802.3af (802.3at Type 1), Power level: Class 2</td>
</tr>
<tr>
<td><strong>Streaming:</strong></td>
<td>Multiple configurable streams in H.264 and MJPEG, configurable frame rate and bandwidth. Regions of Interest (ROI)</td>
</tr>
<tr>
<td><strong>Resolution:</strong></td>
<td>HD: 1920 x 1080</td>
</tr>
<tr>
<td><strong>Lens:</strong></td>
<td>Motorized Zoom, Varifocal</td>
</tr>
<tr>
<td><strong>Lens type</strong></td>
<td>3 to 10 mm Varifocal, DC Iris F1.3 – 360, IR corrected 3 to 10 mm Automatic Varifocal (AVF), DC Iris F1.3 – 360, IR corrected</td>
</tr>
<tr>
<td><strong>Night Vision</strong></td>
<td>IR: 15m, 10 LED high efficiency array, 850 nm, IR intensity adjustable</td>
</tr>
<tr>
<td><strong>Video Connection(s):</strong></td>
<td>RJ-45</td>
</tr>
<tr>
<td><strong>Audio:</strong></td>
<td>2-Way (Mic.)</td>
</tr>
<tr>
<td><strong>Internal Storage:</strong></td>
<td>Supports up to 32 GB SDHC / 2 TB SDXC card. (An SD card of Class 6 or higher is recommended for HD recording)</td>
</tr>
<tr>
<td><strong>Recording</strong></td>
<td>Continuous recording, ring recording, alarm/events/schedule recording</td>
</tr>
<tr>
<td><strong>Privacy Masking:</strong></td>
<td>Eight independent areas, fully programmable</td>
</tr>
<tr>
<td><strong>Other functions</strong></td>
<td>Image mirror, Image flip, Pixel counter, Video watermarking, Display stamping, Scene modes, Location</td>
</tr>
</tbody>
</table>
This camera shall be Bosch FLEXIDOME IP indoor 5000 HD (NII-50022-A3) or approves equivalent of similar capability and quality or better.

C. IP Bullet Camera

**Key Features**

- 2MP Sensor
- 1080p @ 30fps
- 1080p resolution for sharp images
- 2.7~12mm Lens
- Day/Night Functionality, IR up to 30m
- Wide Dynamic Range (76dB)
- Regions of interest and E-PTZ
- Tamper/Motion Detection
- MicroSD card slot supports up to 2 TB of storage capacity
- Weatherproof (IP66),
- Vandalproof (IK08)
- 12VDC / 24VAC / PoE operation

**Technical Specifications**

<table>
<thead>
<tr>
<th>Camera Type</th>
<th>Outdoor Bullet IP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environment</td>
<td>Outdoor, Weatherproof (IP66), Vandal proof (IK08)</td>
</tr>
<tr>
<td>Day/Night (IR):</td>
<td>Colour, Monochrome, Auto (adjustable)</td>
</tr>
<tr>
<td>Optical Format</td>
<td>1/2.9”</td>
</tr>
<tr>
<td>Image Sensor</td>
<td>CMOS</td>
</tr>
<tr>
<td>Video Performance - Sensitivity (3200K, Reflectivity 89%, F1.3, 0IRE):</td>
<td>Colour: 0.07lx, Mono: 0.5lx, with IR: 0.0lx</td>
</tr>
<tr>
<td>Video Performance - Dynamic Range:</td>
<td>76dB WDR</td>
</tr>
<tr>
<td>Progressive Scanning</td>
<td>Yes</td>
</tr>
<tr>
<td>Compression</td>
<td>H.264, MJPEG</td>
</tr>
<tr>
<td>Power</td>
<td>Power-over-Ethernet (48 VDC nominal); or 24 VAC /+12 VDC; 24 VAC (12.13 W); +12 VDC (13.2 W)</td>
</tr>
<tr>
<td>PoE Class</td>
<td>IEEE 802.3af (802.3at Type 1) Power level: Class 3; PoE (12 W);</td>
</tr>
<tr>
<td>Streaming:</td>
<td>Multiple configurable streams in H.264 and MJPEG,</td>
</tr>
</tbody>
</table>
configurable frame rate and bandwidth. Multiple channels with edge dewarping. Regions of Interest (ROI)

| Night Vision | IR: 30m, 4 LED high efficiency array, 850 nm, IR intensity adjustable |
| Resolution    | HD: 1920 x 1080 |
| Lens Type     | Automatic Varifocal 2.7 to 12 mm, DC IrisF1.4 – 360, IR corrected |
| Video Connection(s) | RJ-45 |
| Audio         | 2-Way |
| Internal Storage: | Supports up to 32 GB SDHC / 2 TB SDXC card. (An SD card of Class 6 or higher is recommended for HD recording) |
| Recording     | Continuous recording, ring recording, alarm/events/schedule recording |
| Display Stamping | Name; Logo; Time; Alarm message |
| Viewing Software: | Web browser; Video Security Client; Video Security App; Bosch Video Management System; Bosch Video Client; or third party software |

This camera shall be Bosch DINION IP bullet 5000 HD (NTI-50022-A3S) or approves equivalent of similar capability and quality or better.

D. **HD outdoor PTZ dome camera**

**Key features**

- Full PTZ functionality with 360° continuous pan and 90° tilt range
- HD 1080p resolution at 30fps
- Integrated IR LEDs illuminate up to 180m
- 30x optical zoom
- 16x digital zoom
- Privacy masking provides 24 configurable masks to prevent unwanted activity from being recorded
- Motion detection alarms
- H.264, MJPEG and area-based encoding
- Support for PoE+ (25.5W)
- Edge recording to MicroSD card (not included) provides a backup solution in the case of network connection failure

F/32
Technical Specifications

Image & Video
Imager 1/2.8” progressive scan CMOS
Resolution 1080p (1920 x 1080); 720p (1280 x 720); D1 (704 x 576 / 704 x 480)
Total Image Sensor Pixels 2.48 MP
Effective Pixels (H x V) 1984 x 1105
Lens Focal Length 4.3 to 129 mm (f/1.6 to 5.0)
Optical Zoom 30x
Digital Zoom 16x
Field of View 2.3° to 65°
Focus Automatic with manual override
Iris Automatic
@30 IRE:
Color: 0.11 lux with SensUp Off; 0.02 lux with SensUp On (1/7.5)
B/W: 0.022 lux with SensUp Off; 0.004 lux with SensUp On (1/7.5)
With IR On: 0 lux
Minimum Illumination @50 IRE:
Color: 0.20 lux with SensUp Off; 0.04 lux with SensUp On (1/7.5)
B/W: 0.04 lux with SensUp Off; 0.008 lux with SensUp On (1/7.5)
With IR On: 0 lux
Compression H.264 (ISO/IEC 14496-10); M JPEG
WDR Control 76 dB (DWDR)
Signal-to-Noise Ratio >50 dB (AGC Off)
Noise Reduction Intelligent DNR
BLC On/Off
Defog Intelligent defog
White Balance Standard Auto, Sodium Vapor Auto, Basic Auto, Manual, Hold, Dominant Color Auto
Day/Night Mechanical switchable IR filter (Auto/On/off) Monochrome
IR Range 180 m
Local Storage Memory card (a maximum of 32 GB microSDHC / 2 TB microSDXC). (An SD card of Class 6 or higher is recommended for HD recording.)
**Network**

- **Frame Rate**: 1 to 25/30 fps
- **Streaming Capability**: Quad stream (2 x H.264, 1 x MJPEG, 1 x iFrame only)
  - Recording: H.264 MP SD; H.264 MP 720p fixed; H.264 MP 1080p fixed
  - 2 x Streams, I-frame only
- **Ethernet**: 10/100BASE-T
- **Interoperability**: ONVIF Profile S; GB/T 28181

**Mechanical**

- **Pan/Tilt Modes**
  - Normal: 1 to 120°/s
  - Turbo: Pan: 1 to 240°/s; Tilt: 1 to 120°/s
- **Preset Speeds**
  - Pan: 240°/s
  - Tilt: 160°/s
- **Pan Range**: 360° continuous
- **Tilt Range**: 0° to ±90°
- **Preset Accuracy**: ±0.2° typical
- **Presets**: 256
- **Tours**: Recorded and preset tours

**Connections**

- **Power**
  - Network: RJ45 (10/100BASE-T)
  - Camera: 24 VAC
- **Alarm Inputs**: 2

**Electrical**

- **Input Voltage**: 24 VAC and POE+
  - 24 VAC: 27.5 W
- **Power Consumption**
  - POE+: 25.5 W

**General**

- **Sectors/Titling**: 16 independent sectors with 20 characters per title
- **Privacy Masking**: 24 individually configurable privacy masks
- **Video Analytics**: MOTION+
- **Rating**: IP66
- **Construction Material**
  - Housing: Aluminum
  - Sunshield: Outdoor grade plastic

*This camera shall be Bosch Autodome IP 5000 IR (NEZ-5230-IRCW4) or approves equivalent of similar capability and quality or better.*
E. **Network Video Recorder**

**Key Features**
- Configurable hardware-based RAID protection (RAID-5 or RAID-6) of high system performance
- Dual Redundant hot-swappable power supplies and cooling fans
- iSCSI-based digital video disk arrays with 10 Gigabit Ethernet ports for connectivity
- Fully modular design for ease of upgradability and service

i) **Controller Unit System hardware specifications**

Chassis: DSA E2700 controller-drive tray conforms to the 483 mm (19.0in) rack standard

Power supplies: Dual redundant, hot pluggable

Maximum disk drives: 12 x 3 TB, 3.5”, Nearline SAS

Maximum net capacity: 30723 GB (RAID-5 configured)

DDR2 memory (system RAM): 4GB

Integrated I/O: 2 x 100 Mbps management port; 2 x 1/10 Gigabit Ethernet, copper

Remote management (via LAN): Yes (plus serial console on dedicated port)

This *NVR Controller Unit shall be Bosch DSA E-Series Dual Simplex Controller, 12x3TB (DSA-N2C7X3-12AT) or approves equivalent of similar capability and quality or better.*

ii) **60-bay expansion unit 60 x 3 TB Hardware Specifications**

Chassis: DE6600 controller-drive tray conforms to the 483mm (19.0in) rack standard

Power supplies: Dual redundant, hot pluggable

Maximum disk drives: 60 x 3 TB, 3.5”, Nearline SAS

Maximum net capacity: 153670 GB (RAID-5 configured)

Integrated I/O: 6 Gb SAS

This *NVR Expansion Unit shall be Bosch DSA E-Series 60-bay expansion unit, 60x3TB (DSX-N6D6X3-60AT) or approves equivalent of similar capability and quality or better.*

F/35
F. **Video Management Server**

**Key Features & Specifications**

- 2U rack for 19” rack deployment
- Six-core Intel Xeon Processor E5-2620v3 (2.4 GHz, 6-core, 15 MB, 85W)
- 16 GB (4 x 4 GB) PC4-1866 (DDR4-2133P) Registered DIMMs (RDIMMs)
- 1 x four port Gigabit server adapter
- Four channels per processor, 12 DIMM slots per processor, and 3 DIMMs per channel DDR4 memory with 1.5 TB max memory
- SmartMemory to increase memory quality, reliability, performance and power efficiency
- To have 24 x 7 continuous health monitoring
- To have complete data protection
- Precise control of server fans to direct cooling and reduce unnecessary fan power

This Video Management Server shall be HP DL380 Gen9 Management Server (MHW-S380R9-SC) or approves equivalent of similar capability and quality or better.

A) **H.264/MPEG4 ENCODER (HARDWARE BASED)**

1. The encoder option shall be used only in cases of analog CCD cameras of equivalent of similar capability and quality or better
2. The encoder shall be built on embedded processor and real time operating system. The Encoder should convert Analog Composite/S-Video input into good quality digital stream on real time basis and shall be able to transmit as Unicast /Multicast IP packet with low latency (less than 200 mSec.) for live viewing as well as for recording. The video resolution should be configurable at either of 4 CIF, 2 CIF, CIF at 30 fps or at lower frame rate per camera, user selectable.
3. The encoder should generate H.264/MPEG4 video stream Compliant with ISO/IEC 14496 standard. The encoder should be interchangeable with any standard encoder of any other make, which generates MPEG4 video stream Compliant with ISO/IEC 14496 standard.
4. The Encoder should have the following specifications or should match with the requirement.
### Technical Specifications

<table>
<thead>
<tr>
<th>Format</th>
<th>PAL color, B/W, composite, 30 fps, 2:1 interlaced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution (H x V pixels)</td>
<td>Full HD, 1080P, 4 CIF 704 x 576, 2 CIF, CIF, QCIF</td>
</tr>
<tr>
<td>Frame Rate</td>
<td>25 fps (PAL) and lower</td>
</tr>
<tr>
<td>Encoding</td>
<td>MPEG-4 Compliant with ISO/IEC 14496 Standard</td>
</tr>
<tr>
<td>Video Parameters</td>
<td>Brightness, contrast, hue, sharpness, and sizing selectable</td>
</tr>
<tr>
<td>Video Latency</td>
<td>Less than 200 mSec.</td>
</tr>
<tr>
<td>Connectors</td>
<td>BNC for Composite Video for input, suitable connectors for Power, Alarm in, and Alarm out, RJ-45 for Ethernet 10/100 Base-T output.</td>
</tr>
<tr>
<td>IP Address</td>
<td>Static IP Address or as per System requirement.</td>
</tr>
<tr>
<td>MPEG4 standard</td>
<td>Compliant with ISO / IEC14496</td>
</tr>
<tr>
<td>IP Packets</td>
<td>Unicast and Multicast</td>
</tr>
<tr>
<td>POE</td>
<td>Compliant</td>
</tr>
<tr>
<td>Power supply</td>
<td>As per OEM's design</td>
</tr>
</tbody>
</table>

### B) NETWORK ATTACHED STORAGE (NAS)/RAID BACKUP DEVICE

1. This shall be used as a remote storage/back-up/archival device. **It shall be hosted outside KICC and bidders shall take this into consideration as they bid for these works.**

2. NAS box/RAID backup device shall be used to record video streams based on the configuration assigned by administrator. Workstations & Servers within the LAN should be able to access the recorded video streams. The NAS/RAID backup device should support simultaneous play back and recording at full duplex operation.

3. It shall provide a high quality recording storage and play back of images. It should support integration with LAN to provide Centralized Management and shall operate on Windows / Linux OS. Support of user management for security level control and authentication required. These NAS boxes/RAID backup device should have the following features and specifications:
**Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onboard CPU</td>
<td>Dual Intel Xeon R Support up to 2.8 GHz</td>
</tr>
<tr>
<td>Onboard Memory</td>
<td>2 GB DDR RAM</td>
</tr>
<tr>
<td>HD Drive</td>
<td>As per system requirement</td>
</tr>
<tr>
<td>Host Interface</td>
<td>Dual Gigabit Ethernet</td>
</tr>
<tr>
<td>RAID Support</td>
<td>RAID levels 0, 1, and 5</td>
</tr>
<tr>
<td>Network Transport Protocols</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>Network File Protocols</td>
<td>CIFS, NFS, HTTP/HTTPS, FTP, NTP, SNMP, SMTP, DHCP and DNS</td>
</tr>
<tr>
<td>Drive Status /Space Monitoring</td>
<td>Supported</td>
</tr>
<tr>
<td>Operating System (OS)</td>
<td>MS Windows OS (Latest version) or Linux</td>
</tr>
<tr>
<td>Power supply</td>
<td>Hot pluggable Redundant Power Supply</td>
</tr>
</tbody>
</table>

**C) WORKSTATION**

This shall be used as an option for installation CCTV surveillance software if not installed in the NVR.

**Technical Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>Intel Core i7-4770 processor (3.40 GHz, 84 W, 8 MB Cache, 1600 MHz memory speed, Quad-Core, HT+; with Intel Turbo Boost technology up to 3.90 GHz)</td>
</tr>
<tr>
<td>Mother Board</td>
<td>Intel Original Mother Board</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB (2 x 4 GB) DDR3 1600</td>
</tr>
<tr>
<td>Hard Drives</td>
<td>500 GB or more</td>
</tr>
<tr>
<td>Display</td>
<td>Dual-monitor support (NVIDIA Quadro K600, 1 GB graphics card)</td>
</tr>
<tr>
<td>Keyboards</td>
<td>Standard PS /2 Keyboard</td>
</tr>
<tr>
<td>Mouse</td>
<td>Standard Optical Mouse with scroll</td>
</tr>
<tr>
<td>Connections</td>
<td>Integrated USB ports: 2 x USB 3.0 and 2 x USB 2.0 on the front side and 2 x USB 3.0 and 4 x USB 2.0 on the rear side.</td>
</tr>
<tr>
<td>Network Adapter (NIC)</td>
<td>Integrated 10/100/1000 Base -T</td>
</tr>
<tr>
<td>Sound Card</td>
<td>In- Built</td>
</tr>
<tr>
<td>DVD writer</td>
<td>DVD+16x –16x, RW +8x -6x, CDW 48x, Blu Ray</td>
</tr>
<tr>
<td>Operating system</td>
<td>MS Windows OS or Linux (Latest versions) at the time of tender.</td>
</tr>
<tr>
<td>Anti Virus Software</td>
<td>Latest software at the time of tender.</td>
</tr>
</tbody>
</table>
D) **CAMERA HOUSING & MOUNT**

The camera mount should be:

i. Of the same make as that of camera and suitable for the model number offered as specified by the manufacturer and should be an integrated unit.

ii. Should be compact and indoor / outdoor type as required.

iii. Should support the weight of camera and accessories such as housing, pan & tilt head in any vertical or horizontal position etc.

E) **Cables**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Connectivity</th>
<th>Cable Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Camera to Video Encoder</td>
<td>Coaxial RG 6/U / CAT 6 / Fibre Optic</td>
</tr>
<tr>
<td>2</td>
<td>Video Encoder to Switch in control room</td>
<td>UTP CAT 6 / Fibre Optic</td>
</tr>
<tr>
<td>3</td>
<td>Switch to Video Wall Switches</td>
<td>UTP CAT 6 / Fibre Optic</td>
</tr>
<tr>
<td>4</td>
<td>From switches to NAS Box</td>
<td>Fibre Optic</td>
</tr>
<tr>
<td>5</td>
<td>Hardware Decoder to monitor</td>
<td>Composite signal cable</td>
</tr>
</tbody>
</table>

F) **CCTV AND VIDEO CAMERA AND ASSEMBLY**

1. **General**

It is a requirement that each PTZ camera in the system is capable of Pan, Tilt and Zoom (including other necessary functions), by an operator located at the monitoring centre. The camera system should meet the requirements listed below and that of the Operational Requirements. The specifications describe individual component parts of a camera system, however, this does not exclude the use of integrated camera systems (telemetry, pan/tilt unit, camera, lens and enclosure), provided that quality and feature specifications are satisfied.

The following external camera types are recommended:

- Pan, tilt and zoom camera system assembled by the Contractor.
- Pan, tilt & zoom camera with integrated optics and telemetry (pre-built).
- Dome camera with integrated optics and telemetry.

Each type of camera listed above exhibit attributes that may offer enhanced suitability for particular operational requirements. Features and capabilities that should be taken
into account are:

- Provision of high quality images both day and night.
- Speed and control of operation
- Cost
- Robustness
- Vandal resistant
- Low maintenance
- Aesthetic qualities and visibility of the camera.

2. **Colour Day/Night Camera**

The specification defines the requirement for a colour camera for use in urban and rural areas operating under a wide range of lighting conditions, including unlit areas.

The camera will provide twenty-four hour coverage and must be capable of producing high-resolution and accurate colour images under a wide variety of conditions ranging from high and variable levels of daylight, to low-light, to no-light.

The camera will be mounted within an environmental housing suitable for outdoor use and provide a suitable level of robustness against abuse.

The camera will normally be mounted on a column or building at a nominal height of 7 meters above ground and located at a position providing good observation of the required area. The camera control system will provide a means to restrict intrusive viewing of areas considered or notified as private. In areas with good street lighting the camera will be required to operate normally in colour mode. A location, which suffers poor or nonexistent street lighting, will require a camera capable of viewing the required scene and providing a suitable level of recognition. Cameras sited adjacent to unlit areas such as open spaces and rivers are recommended to be capable of operation with Infrared lighting, however in some instances it may be more appropriate to have additional lighting installed or upgraded.

The colour camera is required to provide high reliability, capable of operating to specification without the need for constant adjustment, maintenance or repair.

3. **Zoom Lens**

The proposed lens for use at any particular location shall be suitable for providing images of the area and targets as defined in the groups Operational Requirement.
The zoom range and focal length (camera dependent), of each lens shall meet the Operational Requirement and taking into account the area plan and the defined image content.

The lens shall be a high-resolution type with high transmission efficiency suitable for external daylight and low-light conditions.

The lens shall be fully compatible with the proposed camera.

The lens shall be of a high quality, with particular emphasis placed on the aperture of the lens for low-light operation and the quality of the electromechanical assembly in terms of operation and expected lifetime reliability.

Camera/lens combinations utilising Auto-focus should provide fast tracking of objects and manual override of Auto-focus should be possible.

4. **Environmental Camera housing**

The housing shall be designed to IP65 protection and should provide climatic and mechanical protection of the camera, lens and ancillary equipment and cables. It should not obstruct the field of view of the camera. A wiper is required with remote operation. Washer units are not generally required. A heater with automatic thermal switching for optimum climatic control is required.

5. **Infrared Lighting**

It is recommended that a survey be carried out at each location to identify areas that may benefit from the use of infrared lighting. Areas that can benefit from infrared lighting are those adjacent to open spaces without public lighting and along waterways.

When Infrared lighting is considered a requirement, it is recommended a wide-angle flood lamp and a narrow beam spot lamp, selected to provide sufficient illumination over the area is provided. The power and type of the lamps employed should be suitable to meet the Operational Requirement.
6. **Pan and Tilt Unit**

Dependent on the camera selected for use at a specific location, the pan & tilt units employed shall be a heavy-duty variable speed type, with high quality bearings, motor control and pre-set potentiometers, capable of long term use.

The arc of travel of the platform should be adjustable within specified limits pre-set for each camera location.

The pan and tilt unit should be capable of fast, smooth and precise movement with minimal lag or overshoot.

The un-powered holding torque should be sufficient to hold a fully fitted camera platform, complete with dual IR lamps (if required), in any position without slippage when subjected to wind speeds of up to 60 mph.

The motor and telemetry control shall provide variable speed movement of the camera platform with a pan speed from approximately 6° to 50° per second and a tilt speed of approximately 12° per second. Units providing a wider range then these figures are acceptable provided that the unit is capable of supporting the camera assembly without undue wear and strain on the unit.

7. **CE Compliance**

The camera housing assembly, complete with associated components and wiring must bear the CE mark.

CE certification of individual component items is not sufficient.

**G) TRANSMISSION**

1. **Transmission methods**

The system proposed for transmission of video signals and telemetry should be based preferably on fibre optic transmission system installed in underground ducting or routed via premises where way-leaves have been obtained. Copper or coaxial transmission of baseband video is to be avoided due to risk of eavesdropping and the inherent loss of image quality associated with these systems.

Digital transmission over secure broadband systems capable of providing image quality levels meeting the objectives of the Operational Requirement are acceptable provided that real-time monitoring of an activity can be undertaken.
Ongoing costs for the provision of cable or duct services attributable to maintenance, licensing and rental charges should be identified and detailed by the Contractor.

The system of transmission, especially microwave links should provide a certain level of security against unauthorized monitoring and interference of signals.

The Contractor is required to set out and describe the transmission system plan. Guarantees are required that the monitoring centre will be provided with images displaying a high level of signal quality in terms of signal level, interference, noise, bandwidth or image quality and that a high level of link resilience shall be provided.

The transmission system should be resilient to all weather conditions frequently experienced in the locality.

Radio links should be operated within their specified licensing conditions and distances.

Telemetry signaling should be integrated into the video transmission equipment and transmitted over the same medium at a rate not less then 9600bps and provide terminated connections for control via a standard data interface (e.g. RS232, RS422, RS485). Systems employing FSK telemetry shall have the facility to transmit the FSK signals over the transmission medium.

2. Specifications relating to Coaxial, Fibre-optic and Microwave transmission.

<table>
<thead>
<tr>
<th><strong>Video Bandwidth</strong></th>
<th>Not less than 5.6 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Video Signal Quality</strong></td>
<td>Less than 5% differential gain</td>
</tr>
<tr>
<td></td>
<td>Less than 5% differential phase</td>
</tr>
<tr>
<td><strong>Video Signal to Noise</strong></td>
<td>Not less than 46dB</td>
</tr>
<tr>
<td><strong>Video termination</strong></td>
<td>75Ω terminated BNC input/outputs</td>
</tr>
<tr>
<td></td>
<td>PAL composite video input of 1Vp-p</td>
</tr>
</tbody>
</table>

H) CAMERA SITE - EQUIPMENT AND INSTALLATIONS

1. General

The following specifications cover the general requirements of items and services provided at each camera site.
Plans showing the location of cameras, equipment and proposed signal routes and types are to be supplied.

2. **Outdoor Equipment Cabinet**

Outdoor equipment cabinets must conform to IP65 for environmental protection and electrical safety. Cabinets fitted in secure locations (not easily accessible to the general public) should be fitted with a standard cabinet lock. Roadside cabinets should be secured with anti tamper fixings in addition to the standard cabinet lock.

3. **Camera Mounting Brackets**

It is recommended that cameras be placed at a height of 7 meters above ground. A heavy-duty mounting bracket is required, specifically and individually designed or selected to support the camera assembly on each structure or premises proposed and capable of easily and safely supporting the proposed camera assembly. High quality rust proof materials shall be used in the construction of the brackets, including fixings, bands, nuts, bolts and screws.

4. **Camera Column (pole)**

The camera and associated equipment at each location will determine the choice of camera column or pole required.

It is recommended that the standard column provide a camera platform height of 7 meters, however, under certain circumstances, a greater or lesser height may be more appropriate. Situations affecting the height of the column are radio “line of sight” issues, camera security considerations or obstacles preventing the camera from viewing a particular scene.

The camera poles shall be constructed of galvanized tubular steel in one single column designed to provide a rigid and stable platform for the camera and any additional items such as microwave radio links or equipment. Lattice or tilt-over types are not acceptable.

The column shall safely house any transmission/telemetry equipment, electrical mains power supplies and any other items required to be placed within it. An access hatch suitable for installation and service requirements shall be provided. A secure and lockable cover shall be provided.
5. **Camera/Equipment location**

The location of cameras and ancillary equipment and cabling in any area and on buildings or structures shall comply with planning requirements and way-leave agreements obtained by the Group.

6. **CCTV Signs**

Signs of an appropriate size should be placed so that the public is made aware they are entering an area where CCTV cameras are in operation. The signs should clearly show that CCTV cameras are in operation and identify the organization legally responsible for the system.

7. **Electrical Mains Supply**

The Contractor shall co-ordinate the provision of electrical mains supplies.

8. **The ESB publication**

“National Code of Practice for Customer Interface. 3rd Edition 2002” provides a single interpretation of ESB requirements. This document also covers the electrical supply requirements for CCTV camera installations.

Power supplies for cameras and links will be obtained from the electricity supply provider; this will normally be a single-phase 230V 50Hz AC mains supply.

The ESB will require applications for electrical supply from the power utility company and satisfactory completion certificates issued by the electrical contractor prior to supply being provided at each site. The ESB will normally issue specific requirements following inspection of each of the camera sites.

The installation of the electrical works at each camera site and the consumer unit must meet all ESB and ETCI specifications. The installation of the electrical supply from an agreed supply point and the fitting of consumer units and earth rods will be the responsibility of the Contractor.
I) **MONITORING CONTROL CENTRE**

9. **Control Centre**

The design of the system will provide control of the CCTV system in premises provided by the Client.

10. **Monitoring Facilities**

As monitoring facilities will vary due to the size and nature of any scheme the following common requirements shall be taken into account in the provision of facilities.

The area selected to view the monitors and operate the equipment will be suitable for limiting access only to those responsible for its operation and management and others with legitimate or sufficient reasons for entry. The area should be capable of being secured against unauthorized entry. Viewing of video monitors should not be possible from positions outside this area. Window blinds shall be used to prevent viewing of monitors from outside the building. Procedures and facilities should be put in place to ensure protection against unauthorized access to the area.

All monitoring equipment shall meet relevant safety requirements for electrical equipment and installations and be operated within these requirements.

The monitoring of the CCTV images shall be carried out having due regard to viewing ergonomics, health and safety and comfort of the CCTV operators. Issues such as viewing angles and distance, lighting / environmental conditions and staff facilities should be satisfactorily met.

Suitable ventilation shall be provided to remove heat generated by the CCTV equipment and to maintain good environmental conditions for the operators and equipment. The main areas of heat generation will be from video and computer monitors, video recorders and fibre-optic termination equipment. The capacity of the ventilation system should take into account the quantity and power consumption of the equipment to be installed.

Lighting should be provided which aids the viewing of video monitors and which also provides effective light for report writing. The control desk should provide adequate space for CCTV control equipment, radio or telephone equipment, writing space and storage area for log books etc.
The video monitors should be positioned so as to prevent light from windows causing reflections on the screens and from shining directly into the operators’ eyes.

The size, positioning and number of monitors in a control room will have an effect on the performance of the CCTV operator. Consideration of viewing and operator requirements should be a priority in the design of the control room.

The size of the monitor will depend on the level of picture detail and text displayed, the distance of the monitor from the operator and the nature of visual tasks. High-resolution monitors are recommended for these tasks with a horizontal line resolution of at least 650 lines of resolution for 14” to 17” monitors and 550 lines of resolution for monitors of 19” to 21”. LCD and Computer video monitors should display a minimum of 1024 by 768 pixels and provide a wide viewing angle in the horizontal and vertical directions.

The monitors may form part of a bank of monitors and should be designed to take into account heat dissipation and electrical/electromagnetic isolation.

Power supplies for the CCTV control installation shall meet electrical wiring standards and shall be adequate for all equipment proposed.

11. Secure Tape and Media Storage Cabinets

A secure lockable cabinet to facilitate 31-days storage of tapes to be secured on the premises is required. This cabinet should be designed in such a way that those responsible for storing and removing tapes can easily identify each designated location slot and tape. Some additional space should be allocated for the storing of spare tapes to replace those removed for evidential purposes or replacement of faulty tapes.

A second lockable cabinet for the storage of tapes removed for evidential purposes should also be provided to prevent accidental re-recording.

Where Digital recording systems are in use the storage requirements will be sufficient to provide secure storage of media been held off the system up to the 31-day storage requirement and for media retained as evidence.
12. **System Management Functions**

Depending on the nature of each CCTV scheme, combinations of equipment offering a range of functions will be proposed by vendors. In order to clearly define the properties and functions required of any system as a whole, the following requirements are to be stipulated.

The system shall provide management facilities in the form of restricted user access.

The following basic management facilities shall be provided by the system. Manufacturers may well refer to a facility or feature by different names, however, the basic requirements are as listed below.

13. **User level set-up**

a) Supervisor options and operator options set-up.

b) Camera home positions

c) A facility to program each camera a home position.

14. **Privacy zones**

A facility to program privacy zones per camera. The system is required to allow the programming of specific areas viewed by the camera as a privacy zone. This area when defined, will be viewable under wide angle viewing of the scene, however if an operator attempts to zoom in on the specific area, the image is required to distort, blackout or auto-pan away from the area.

15. **Camera set-up**

Camera on-screen displays and remote camera set-up and maintenance should be provided.

16. **System functions**

- Privacy zones
- Home position, Timed patrolling
- Alarm recording
- Operator management and passwords
17. **Operator Functions**


The camera control system either in the form of a keyboard/joystick or graphical user interface will provide the operator with control of the camera functions and functions of the multiplexer/matrix system including any proprietary functions offered to enhance system performance.

Each operator’s camera controller will interface to the video multiplexer/matrix or digital recording system, enabling a selected camera to be viewed on a spot monitor and recorded on an event recorder as required.

18. **Recording/Playback**

Only proposals employing Digital based recording systems are acceptable.

The recording rate for each camera shall not be less than one (1) frame per second.

A suitable number of recorders to achieve the above recording rate with the specified number of cameras shall be provided.

One video recorder for real-time event recording shall be provided. Or in the case of digital recording, playback of the operator’s spot monitor at full resolution, at a high recording rate is required.

The system is required to provide a playback facility to allow reviewing of recordings.

It is recommended that the playback area is located away from the monitoring area to facilitate in-private viewing of recordings.

The system should provide a suitable connection point to provide evidential copying of images to tape or the connection of a printer for evidential purposes. Digital recorders should preferably provide a PAL composite and/or y/c output for copying purposes. Alternatively, a copy facility should be provided such as CD-ROM, DVD or file-transfer via standard system interfaces. Playback and interface software, whether of a proprietary nature or not, should be provided as part of the system.
In the case of analogue recording, high quality S-VHS SE180 tapes shall be used to ensure highest quality recording.

It is recommended that videotapes be replaced after 12 recording cycles.

19. **On-screen Text Display**

A character generator providing burnt-in on-screen camera identification and time/date information shall form part of the system. The following information shall be imposed on each camera image and recorded:

- Camera identification number or title
- Time and Date
- Optional: Location (scene viewed, street or area name)

A feature to have the named location change according to the general direction the camera is currently viewing is optional.

J) **UNINTERRUPTIBLE POWER SUPPLY (UPS)**

This shall be an on-line Un-interruptible power supply with output rating of 10KVA and 1.5KVA of 240V, 50HZ single-phase supply. They shall provide power to the security surveillance system.

They shall be microprocessor based so that both output voltage and frequency are closely regulated and continuously monitored and also provide system diagnostic and shut down protection functions. They shall feature a maintenance by-pass to enable normal routine maintenance operations to be performed without interruptions to the system.

They shall be fitted with both visual and audible alarms to indicate any change in equipment status such as:

- input power problems
- ups faults
- ups overload
- battery discharging
Other parameters are:

- Input supply: 240VAC 50HZ
- Power factor: 0.7 lag at full load
- Current limit: 125% of the normal
- Output voltage: 240V AC 50 HZ
- Output voltage tolerance: 2%
- Output frequency tolerance: 0.05%

1.39 **ACEESS CONTROL SYSTEM DETAILED SPECIFICATIONS**

**Key Features**

- To be Fingerprint, card and pin reader with durable and highly accurate optical sensor
- To be a fast recognition reader (one-touch-a-second user recognition)
- To store at least 1,500 templates, 5,000 cards and 30,000 transactions
- To have built-in Serial and Ethernet ports
- To have tamper-proofs switch and alarm outputs
- To have request-to-exit and alarm contacts
- To have audio-visual indications for acceptance and rejection of valid/invalid fingers

**Technical Specifications**

- Fingerprint Capacity: 1500 templates
- ID card Capacity: 5000
- Transaction Capacity: 30,000
- Sensor: ZK Optical Sensor
- Algorithm Version: ZK Finger v10.0
- Communication: RS232/485, TCP/IP, USB-host
- Access Control Interface: for 3rd party electric lock, door sensor, exit button, larm, Door Bell
- Wiegand Signal: Output and Input
- Display: TFT LCD Screen
- Standard function: ID card, Webserver, DLST
- Optional function: Mifare card
- Power Supply: DC12V
- Operating Temperature: 0\(^\circ\) - 55\(^\circ\)
- Operating Humidity: 20% ~ 80%

This Access Control System shall be F18 from ZKAccess or approves equivalent of similar capability and quality or better.
STATEMENT OF COMPLIANCE

(a) I confirm compliance with all clauses in this tender specification.

(b) I confirm that I have not and will not make any payment to any person which can be perceived as in inducement to enable me win this tender.

Signed ........................................... for and on behalf of the Tenderer.

Date ....................................................
SECTION G

SCHEDULE OF UNIT RATES
SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.

2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.

3. The unit rates will be used to assess the value of additions or omissions arising from authorised variations to the contract works.

4. Where trade names or manufacturer’s catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of equal and approved quality will be accepted.
## SCHEDULE OF UNIT RATES

*(To be completed by the Tenderer as a mandatory requirement)*

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UNIT</th>
<th>RATE (KSHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Four pair UTP (CAT 6) cable</td>
<td>1</td>
<td>LM</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>4-Core Single Mode fiber optic cable</td>
<td>1</td>
<td>LM</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>24 port UTP CAT6 RJ45 patch panel</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>12 port Fiber Optic patch panel</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>GigaBit Ethernet Media Converter</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>EDGE Switches: 24, 10/100/1000 Ports as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
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<tr>
<td>07</td>
<td>EDGE Switches: 8, 10/100/1000 Ports as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
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<tr>
<td>08</td>
<td>IP Panoramic Camera as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
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<tr>
<td>09</td>
<td>IP HD indoor dome camera as specified in Section F and BoQ</td>
<td>1</td>
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<tr>
<td>10</td>
<td>IP Bullet Camera as specified in Section F and BoQ</td>
<td>1</td>
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<tr>
<td>11</td>
<td>HD outdoor PTZ dome camera as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
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<tr>
<td>12</td>
<td>MIDSAN as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
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<tr>
<td>13</td>
<td>NVR Controller Unit as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Video Management Server as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Video Management Workstation as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>System Control (Joystick) Keyboard c/w PSU as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
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<tr>
<td>17</td>
<td>32-inch High Performance HD LED Monitor as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
<td></td>
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<tr>
<td>18</td>
<td>VMS (encoder/decoder) Channel Expansion as specified in Section F and BoQ</td>
<td>1</td>
<td>No.</td>
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<tr>
<td>19</td>
<td>10KVA UPS as specified in Section F and BoQ</td>
<td>1</td>
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<tr>
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<td>1.5KVA UPS as specified in Section F and BoQ</td>
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<tr>
<td>21</td>
<td>IP Based Access Control</td>
<td>1</td>
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<td></td>
</tr>
</tbody>
</table>

G/2
SECTION H

BILLS OF QUANTITIES
BILL OF QUANTITIES

PRICING OF PRELIMINARIES ITEMS

Prices will be inserted against item of preliminaries in the contractor’s Bills of Quantities and specification. These Bills are designated as Bill No.1 in this Section. Where the contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract.

The Bills of Quantities are divided generally into three sections:

(a) Preliminaries – Bill No.1

Contractors preliminaries are as per those described in section C – contract preliminaries and general conditions of contract. The contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer have been limited to tangible items such as site office, temporary works and others. However the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

(b) Installation Items – Other Bills

(i) The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications.

(ii) The unit of measurements and observations are as per those described in clause 1.0 5 of the section C.

(c) Summary

The summary contains tabulation of the separate parts of the Bills of Quantities carried forward with provisional sum, contingencies and any prime cost sums included. The contract shall insert his totals and enter his grand total tender sum in the space provided below the summary.

This grand total tender sum shall be entered in the Form of Tender provided elsewhere in this document.

H/1
SPECIAL NOTES TO BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.

2. The prices quoted shall be deemed to include for all obligations under the contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including VAT and withholding tax).

In accordance with Government policy, Withholding Tax of 3% shall be deducted from all payments made to the contractor, and the same shall be forwarded to the Kenya Revenue Authority (KRA).

3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part thereof.

4. The brief description of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the contractor shall adhere. Otherwise alternative brands of equal and approved quality will be accepted.

Should the contractor install any material not specified here in before receiving written approval from the Project Manager, the contractor shall remove the material in question and, at his own cost, install the proper material.

5. The grand total of prices in the price summary page must be carried forward to the Form of Tender for the tender to be deemed valid.

6. Tenderers must enclose, together with their submitted tenders, manufacturer’s brochures detailing technical literature and specifications.
## SCHEDULE 1 - CONTRACT PRELIMINARIES
*(Refer to Section C of this Tender Document)*

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>UNIT</th>
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<td>Discrepancies clause 1.02</td>
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<td>2</td>
<td>Conditions of contract Agreement clause 1.03</td>
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<td>3</td>
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<td>4</td>
<td>Site location clause 1.06</td>
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<td>5</td>
<td>Scope of Contract Works clause 1.08</td>
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<td>6</td>
<td>Extent of the Contractor’s Duties clause 1.09</td>
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<td>7</td>
<td>Firm price contract clause 1.12</td>
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<td>8</td>
<td>Variation clause 1.13</td>
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<td>9</td>
<td>Prime cost and provisional sum clause 3.14 (insert profit and attendance which is a percentage of expended PC or provisional sum.)</td>
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<td>10</td>
<td>Bond clause 1.15</td>
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<td>11</td>
<td>Government Legislation and Regulations clause 1.16</td>
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<td>12</td>
<td>Import Duty and Value Added Tax clause 1.17 (Note this clause applies for materials supplied only)</td>
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<td>13</td>
<td>Insurance company Fees clause 1.18</td>
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<td>14</td>
<td>Provision of services by the Main contractor clause 1.19</td>
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<td>15</td>
<td>Samples and Materials Generally clause 1.21</td>
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**SUB-TOTAL CARRIED TO PAGE H/5**
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<td>Bills of Quantities clause 1.23</td>
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<td>Contractor’s Office in Kenya clause 1.24</td>
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<td>Builder’s Work clause 1.25</td>
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<td>20</td>
<td>Setting to work and Regulating system clause 1.29</td>
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<td>21</td>
<td>Identification of plant components clause 1.30</td>
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<td>22</td>
<td>Working Drawings clause 1.32</td>
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<td>23</td>
<td>Record Drawings(As Installed) and Instructions clause 1.33</td>
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<td>24</td>
<td>Maintenance Manual clause 1.34</td>
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<td>25</td>
<td>Hand over clause 1.35</td>
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<td>Painting clause 1.36</td>
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<td>Testing and Inspection – manufactured plant clause 1.38</td>
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<td>28</td>
<td>Testing and Inspection – Installation clause 3.39</td>
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<td>Storage of Materials clause 1.41</td>
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<td>30</td>
<td>Initial Maintenance clause 1.42</td>
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**SUB-TOTAL CARRIED TO PAGE H/5**
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<td>Local and other Authorities notices and fees clause 1.60</td>
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<td>32</td>
<td>Temporary Works clause 1.63</td>
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<td>Patent Rights clause 1.64</td>
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<td>34</td>
<td>Mobilization and Demobilization Clause 1.65</td>
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<td>35</td>
<td>Supervision by engineer and site meetings clause 1.67</td>
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<td>300,000</td>
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<td>36</td>
<td>Allow for profit and Attendance for the above (item 35)</td>
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<td>37</td>
<td>Amendment to Scope of Contract Works Clause 1.68</td>
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<tr>
<td>38</td>
<td>Contractor Obligation and Employers Obligation clause 1.69</td>
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Sub-total from above

Sub-total B/F from Page H/3

Sub-total B/F from Page H/4

TOTAL CARRIED FORWARD TO PRICE SUMMARY PAGE

Bidders MUST either insert percentage or indicate as NIL for the following clauses:

1. Attendance Upon Tradesmen, etc. *(Insert percentage only)* clause 1.58 of section C

   .................................%  

2. Extended Preliminaries *(Insert percentage only)* Clause 1.66 of section C

   .................................%

H/5
IP BASED SECURITY SURVEILLANCE ACCESS CONTROL SYSTEM

IMPORTANT NOTES (Read Before Filling The BQ)

1. This BQ and the rates quoted herein MUST include software, warrantees, licenses, type approvals and all that is necessary for the intended security solution to the satisfaction of the PM.

2. The bidder MUST read the specifications in SECTION F of this Tender Document before filling this BoQ. The items supplied MUST meet or surpass the specifications

SCHEDULE 2: CCTV & ACCESS CONTROL INFRASTRUCTURE

<table>
<thead>
<tr>
<th>Item</th>
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<th>Amount</th>
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<tbody>
<tr>
<td>1.01</td>
<td>Supply, install, set up, configure, test and commission the following Items or their latest release/ replacements or approved equivalent: CCTV &amp; Access Control Network Cabling</td>
<td>LM</td>
<td>11,000</td>
<td></td>
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<tr>
<td>1.02</td>
<td>Four pair UTP (CAT 6) cable drawn in the existing trunkings with one end patched at Patdh Panel and RJ45 module on the other end.</td>
<td>No.</td>
<td>5500</td>
<td></td>
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<tr>
<td>1.03</td>
<td>4-Core Single Mode fiber optic cable (indoor/ outdoor)</td>
<td>No.</td>
<td>7</td>
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<tr>
<td>1.04</td>
<td>24 port UTP CAT6 RJ45 patch panel</td>
<td>No.</td>
<td>7</td>
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<tr>
<td>1.05</td>
<td>12 port Fiber Optic patch panel</td>
<td>No.</td>
<td>24</td>
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<tr>
<td>1.06</td>
<td>GigaBit Ethernet Media Converter</td>
<td>No.</td>
<td>24</td>
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<tr>
<td>1.07</td>
<td>Factory manufactured Fiber Patch Codes SC-SC</td>
<td>No.</td>
<td>7</td>
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<tr>
<td>1.08</td>
<td>UTP CAT6 rack mount cable organiser</td>
<td>No.</td>
<td>7</td>
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</tr>
<tr>
<td>1.09</td>
<td>Factory manufactured 1Metre, UTP 4-pair RJ45-RJ45 patch cords</td>
<td>No.</td>
<td>168</td>
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<tr>
<td>1.10</td>
<td>42U 19&quot; free standing factory manufactured cabinet 800Wx800D with low noise (low Db) fans, Power Distribution Unit and all necessary parts.</td>
<td>No.</td>
<td>1</td>
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Sub-total C/F to Next Page

H/6
<table>
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<tr>
<td>1.11</td>
<td>Supply, install, set up test and commission the following Items or their latest release/ replacements or approved equivalent: 12U 19&quot; free standing factory manufactured cabinet 600Wx600D with low noise (low Db) fans, Power Distribution Unit and all necessary parts.</td>
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<tr>
<td>1.12</td>
<td>6U 19&quot; free standing factory manufactured cabinet 600Wx600D with low noise (low Db) fans, Power Distribution Unit and all necessary parts.</td>
<td>No.</td>
<td>7</td>
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<tr>
<td>1.13</td>
<td>10 KVA Single Phase UPS: Rack mountable, 240VAC, 50Hz, True Online, by-pass switch complete with all necessary parts</td>
<td>No.</td>
<td>1</td>
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<tr>
<td>1.14</td>
<td>1.5 KVA UPS, Rack mountable 240VAC, 50Hz, True On-line, by-pass switch complete with all necessary parts</td>
<td>No.</td>
<td>1</td>
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<tr>
<td>1.15</td>
<td>Network Cabinet associated electrical works to to include: a) separation of electrical circuit for CCTV and Access Control network c/w associated controls and appropriate protective devices b) earthing of network cabinets</td>
<td>Item</td>
<td>Sum</td>
<td></td>
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</tr>
<tr>
<td>1.16</td>
<td>EDGE Switches: 24, 10/100/1000 Ports PoE+ (375W power budget) Switch, 2 combo mini-GBIC ports as Cisco SG300-28MP (SG300-28MP-K9)</td>
<td>No.</td>
<td>7</td>
<td></td>
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</tr>
<tr>
<td>1.17</td>
<td>EDGE Switches: 8, 10/100/1000 Ports PoE+ (124W power budget) Switch, 2 combo mini-GBIC ports as Cisco SG300-10MP (SRW2008MP-K9)</td>
<td>No.</td>
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### SCHEDULE 3: CCTV EQUIPMENTS

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<th>Amount</th>
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</table>
| 2.01 | **Supply, install, set up test and commission the following Items or their latest release/ replacements or approved equivalent:** **Network Cameras**  
  IP Panoramic Camera: 360° lens, 12MP, 30fps, PoE (IEEE 802.3af/802.3at Type1), DORI (Detect, Observe, Recognize, Identify) standard system (EN-62676-4), E-PTZ, WDR, Intelligent Video Analytics on full panoramic overview, Memory card slot up to 32GB SD Card, as Bosch FLEXIDOME IP panoramic 7000 MP (NIN-70122-FOAS) or approved equivalent | No.  | 16  |  |  |
| 2.02 | IP HD indoor dome camera: 1080p HD (2MP), 30fps, 15m IR, PoE (IEEE 802.3af/802.3at Type1), E-PTZ, WDR, Micro SD card slot support up to 2TB of storage capacity as Bosch FLEXIDOME IP Indoor 5000 HD (NII-50022-A3) or approved equivalent. | No.  | 88  |  |  |
| 2.03 | IP Bullet Camera: 1080p HD, 30fps, 30m IR, PoE (IEEE 802.3af/802.3at Type1), E-PTZ, IP66, IK08, Micro SD card slot support up to 2TB of storage capacity as Bosch DINION IP bullet 5000 HD (NTI-50022-A3S) or approved equivalent. | No.  | 16  |  |  |
| 2.04 | HD outdoor PTZ dome camera: 30x Optical Zoom, 1080p, 25/30fps, (2.48MP), 180m IR, PoE+: 25.5W (PoE+ (IEEE 802.3at class 4))/ 24 VAC: 27.5W, IP66, Memory card support upto of 32 GB microSDHC/ 2 TB microSDXC as Bosch AUTODOME IP 5000 IR (NEZ-5230-IRCW4) or approved equivalent | No.  | 6   |  |  |

**Sub-total C/F to Next Page**

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<td></td>
<td><strong>Supply, install, set up test and commission the following Items or their latest release/ replacements or approved equivalent:</strong></td>
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<tr>
<td>2.05</td>
<td>MIDSPAN: SINGLE PORT, 60W, AC IN: PoE 60W max, comply with IEEE 802.3af and the IEEE 802.3at standards while doubling the available power</td>
<td>No.</td>
<td>6</td>
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<tr>
<td></td>
<td><strong>Network Video Recorder</strong></td>
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<tr>
<td>2.06</td>
<td>Controller Unit: Rack mountable, Modular design, 12x3TB, RAID-5 or RAID-6), Dual redundant hot-swappable power supplies and cooling fans, 2 x 100 Mbps and 2 x 1/10 RJ45 Gigabit Ethernet, Remote management capability as Bosch DSA E-Series 3TB - E2700 (DSA-N2C7X3-12AT) or approved equivalent</td>
<td>No.</td>
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<td>2.07</td>
<td>Expansion Unit: Rack mountable, Modular design, 60x3TB, RAID-5 or RAID-6), Dual redundant hot-swappable power supplies and cooling fans, 2 x 100 Mbps and 2 x 1/10 RJ45 Gigabit Ethernet, Remote management capability as Bosch DSA E-Series 60-bay expansion unit, 60 x 3 TB (DSX-N6D6X3-60AT) or approved equivalent</td>
<td>No.</td>
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<td>2.08</td>
<td>Video Management Server Appliance: Rack mountable, Six-core Intel Xeon Processor E5-2620v3 (2.4 GHz, 6-core, 15 MB), 16 GB RAM, 24x7 continuous health monitoring as HP DL380 Gen9 Management Server (MHW-S380R9-SC) or approved equivalent.</td>
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<td>2.09</td>
<td>Supply, install, set up test and commission the following Items or their latest release/ replacements or approved equivalent: Video Management Workstation: Dual-monitor support (NVIDIA Quadro K600, 1 GB graphics card), Intel Core i7-4770 processor (3.40 GHz, 84 W, 8 MB Cache, 1600 MHz memory speed, Quad-Core, HT+; with Intel Turbo Boost technology up to 3.90 GHz), 8 GB (2 x 4 GB) DDR3 1600 as Bosch Z230 PE Management Workstation UK (MHW-WZ2R3-PEUK) or approved equivalent.</td>
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<td>2.10</td>
<td>System Control (Joystick) Keyboard: Able to control matrix, DVR, and IP video products with one keyboard, Soft keys specific menus, Backlit keys for ease of reading, Multilingual support as Bosch KBD-Universal Keyboard (KBD-UNIVERSAL) or approved equivalent.</td>
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<tr>
<td>2.11</td>
<td>PSU for System Control (Joystick) Keyboard: as KBD-220PS Power Supply Unit (KBD-220PS) or approved equivalent.</td>
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<tr>
<td>2.12</td>
<td>Display System 32-inch High Performance HD LED Monitor: Full HD 1920 x 1080 resolution, PAL/NTSC, Precise colour reproduction, HDMI, DVI, VGA, S-Video inputs, 6.5 ms (typical) response time, Contrast ratio of 3,000:1, Aspect Ratio of 16:9 as Bosch UML-323-90 32-inch High Performance HD LED Monitor (UML-323-90) or approved equivalent.</td>
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<td>2.13</td>
<td>Supply, install, set up test and commission the following Items or their latest release/ replacements or approved equivalent:</td>
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<tr>
<td></td>
<td><strong>Software Licenses</strong></td>
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<td></td>
<td>Video Management System: 300 cameras minimum with a single recording server, integration with 3rd party cameras and storage systems, hardware and software, resilience to ensure continuous operation as Bosch VMS Professional Edition (MBV-BPRO-60) or approved equivalent.</td>
<td></td>
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<tr>
<td>2.14</td>
<td>VMS (encoder/decoder) Channel Expansion as Bosch BVMS Channel (cam/dec) Expansion V6.0 (MBV-XCHAN-60) or approved equivalent.</td>
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<tr>
<td>2.15</td>
<td>Allow for assorted cables, accessories, equipment, software and any other item necessary for the complete installation of the CCTV &amp; Access Control Systems but not captured in this BoQ. (List and price. Pricing without listing the product will not be accepted).</td>
<td></td>
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<tr>
<td>2.16</td>
<td>Making good of any disturbed parts</td>
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<tr>
<td>2.17</td>
<td>Allow for Training of system operator.</td>
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<td>2.18</td>
<td>Allow Testing and Commissioning.</td>
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**SCHEDULE 4: NETWORKED ACCESS CONTROL SYSTEM**

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<tbody>
<tr>
<td></td>
<td><strong>Supply, install, set up test and commission the following Items or their latest release/replacements or approved equivalent:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.01</td>
<td>Combined Biometric, Pin and Proximity IP-Based Single Door Access Controller c/w its PSU as F18 from ZK Access or approved equivalent.</td>
<td>No.</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Access Control Accessories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.12</td>
<td>Exit Buttons</td>
<td>No</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.03</td>
<td>Maglock of 300Kg holding force</td>
<td>No.</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.04</td>
<td>Bracket as ZL</td>
<td>No.</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.05</td>
<td>Door Closer as Union</td>
<td>No.</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.06</td>
<td>Emergency Break Glass</td>
<td>No.</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.07</td>
<td>Access Control Management Station: Desktop Host Computer: Intel i3 processor 3.6 GHz at least 2GB Ram, 500GB HDD, Win.7 OS</td>
<td>No.</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.09</td>
<td>Making good of any disturbed parts</td>
<td>Item</td>
<td>Sum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>Allow for Training of system operator.</td>
<td>Item</td>
<td>Sum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.11</td>
<td>Allow Testing and Commissioning.</td>
<td>Item</td>
<td>Sum</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sub-total C/F to Summary Page**

H/12
# SCHEDULE 7: ASSOCIATED WORKS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
<th>Qty.</th>
<th>Rate</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.01</td>
<td>Supply the following to the Project Manager for Project Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>i) Photocopying Papers (A4, 80g/m2, high quality)</td>
<td>Ream</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii) Spring File PVC (Executive)</td>
<td>No.</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>iii) HP Laserjet P2035 Toner 05A</td>
<td>No.</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Sub-total C/F to summary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

H/14
### SCHEDULE 6: SUMMARY PAGE

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.01</td>
<td>Sub-total for Schedule 1: Contract Preliminaries</td>
<td></td>
</tr>
<tr>
<td>5.02</td>
<td>Sub-total for Schedule 2: CCTV &amp; Access Control Infrastructure</td>
<td></td>
</tr>
<tr>
<td>5.03</td>
<td>Sub-total for Schedule 3: CCTV Equipments</td>
<td></td>
</tr>
<tr>
<td>5.04</td>
<td>Sub-total for Schedule 4: Access Control Equipments</td>
<td></td>
</tr>
<tr>
<td>5.05</td>
<td>Sub-total for Schedule 7: Other Associated Works</td>
<td></td>
</tr>
<tr>
<td>5.06</td>
<td>Project Administration</td>
<td>100,000.00</td>
</tr>
<tr>
<td>5.07</td>
<td>Contingency</td>
<td>2,000,000.00</td>
</tr>
</tbody>
</table>

Add 16% VAT

**Total Carried to Form of Tender**

Total amount in words: Kenya Shillings ..............................

Signed by Tenderer ..................................................................

P.I.N No. ..................................................VAT Reg. No. ..................

Address ..................................................................................

Date ......................................................................................

Official Rubber stamp ..........................................................

Signed by witness ..................................................................

Name of witness .....................................................................

Address ..................................................................................

Date: .....................................................................................

H/15
SECTION I

TECHNICAL SCHEDULE

OF

ITEMS TO BE SUPPLIED
1.0 The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders.

2.0 The filling of this schedule forms part of Technical Evaluation of the tenders, and bidders shall therefore be required to indicate the type/make and country of origin of all the materials and equipments they intend to offer to the employer as listed in the technical schedule.

3.0 Any bid returned with unfilled Technical Schedule shall be considered technically non-responsive, and the bidder shall automatically be disqualified.
TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED
(To be Completed by the Tenderer as a Mandatory Requirement)

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>TYPE/MAKE</th>
<th>COUNTRY OF ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Four pair UTP (CAT 6) cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>4-Core Single Mode fiber optic cable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>24 port UTP CAT6 RJ45 patch panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>12 port Fiber Optic patch panel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>GigaBit Ethernet Media Converter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>EDGE Switches: 24, 10/100/1000 Ports as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>EDGE Switches: 8, 10/100/1000 Ports as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>IP Panoramic Camera as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>IP HD indoor dome camera as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>IP Bullet Camera as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>HD outdoor PTZ dome camera as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>MIDSPAN as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>NVR Controller Unit as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Video Management Server as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Video Management Workstation as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>System Control (Joystick) Keyboard c/w PSU as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>32-inch High Performance HD LED Monitor as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>VMS (encoder/decoder) Channel Expansion as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>10KVA UPS as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1.5KVA UPS as specified in Section F and BoQ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>IP Based Access Control</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION J

STANDARD FORMS
### CONTENTS OF SECTION J: STANDARD FORMS

<table>
<thead>
<tr>
<th>TITLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Performance Bank Guarantee</td>
<td>J/1</td>
</tr>
<tr>
<td>2. Tender Questionnaire</td>
<td>J/2</td>
</tr>
<tr>
<td>3. Confidential Business Questionnaire</td>
<td>J/3 - J/4</td>
</tr>
<tr>
<td>4. Key Personnel</td>
<td>J/5</td>
</tr>
<tr>
<td>5. Schedule of Contracts completed in the last five (5) years</td>
<td>J/6</td>
</tr>
<tr>
<td>6. Schedule of on-going projects</td>
<td>J/7</td>
</tr>
<tr>
<td>7. Evidence of Financial Resources to Meet Qualification Requirements</td>
<td>J/8</td>
</tr>
<tr>
<td>8. Name and Address of Bankers</td>
<td>J/9</td>
</tr>
<tr>
<td>9. Details of Litigation or Arbitration Proceedings</td>
<td>J/10</td>
</tr>
<tr>
<td>10. Proposed Works Programme</td>
<td>J/11</td>
</tr>
<tr>
<td>11. Form of Agreement</td>
<td>J/12-J/13</td>
</tr>
<tr>
<td>12. Agents Authorization Form</td>
<td>J/14</td>
</tr>
<tr>
<td>13. Certificate of Tenderer’s Visit To The Site</td>
<td>J/15</td>
</tr>
</tbody>
</table>

**NOTE:**

Tenderers **MUST** duly fill these Standard Forms as a **mandatory requirement** as they will form part the evaluation criteria.
PERFORMANCE BANK GUARANTEE

To: The Managing Director
    Kenyatta International Convention Centre
    P O Box 30746 – 00100
    NAIROBI

Dear Sir,

WHEREAS .................................................... (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. .......................... dated .......................... to execute ........................................ (hereinafter called “the Works”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognised bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of:
Kshs. ..........................................................   (amount of Guarantee in figures)
Kenya Shillings ..........................................................   (amount of Guarantee in words),
and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Kenya Shillings ..........................................................   (amount of Guarantee in words) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change, addition or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any change, addition, or modification.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR ..........................................................
Name of Bank ...........................................................................................................
Address ....................................................................................................................
Date .........................................................................................................................

J/1
TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of Tenderer:

2. Full address of Tenderer to which tender correspondence is to be sent (unless an agent has been appointed below):

3. Telephone number (s) of Tenderer:

4. Telex/Fax Address of Tenderer:

5. Name of Tenderer’s representative to be contacted on matters of the tender during the tender period:

6. Details of Tenderer’s nominated agent (if any) to receive tender notices. This is essential if the Tenderer does not have his registered address in Kenya (name, address, telephone, telex):

________________________________________
Signature of Tenderer

Make copy and deliver to: County Works Officer, Nairobi
Directorate of Public Works
County Works Office
P.O. Box 42267- 00200,
NAIROBI

J/2
CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2(c) and (2d) whichever applies to your type of business.

You are advised that it is a serious offence to give false information on this Form.

Part 1 – General

Business Name ........................................................................................................
Location of business premises: Country/Town..............................................
Plot No.................................................. Street/Road .................................
Postal Address.............................. Tel No.............................................
Nature of Business.................................................................
Current Trade Licence No............... Expiring date.........................
Maximum value of business which you can handle at any time:
Kenya Shillings...........................................................................................
Name of your bankers..............................................................................
Branch........................................................................................................

Part 2 (a) – Sole Proprietor

Your name in full........................................... Age.................................
Nationality.............................................. Country of Origin.........................
Citizenship details ..............................................................

Part 2 (b) – Partnership

Give details of partners as follows:

<table>
<thead>
<tr>
<th>Name in full</th>
<th>Nationality</th>
<th>Citizenship Details</th>
<th>Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

J/3
**Part 2(c) – Registered Company**

Private or Public .................................................................................................................................

State the nominal and issued capita of the company:

Nominal KShs. ......................

Issued KShs. ......................

Give details of all directors as follows:

<table>
<thead>
<tr>
<th>Name in full</th>
<th>Nationality</th>
<th>Citizenship Details*</th>
<th>Shares</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part 2(d) Interest in the Firm:**

Is there any person/persons in the employment of the Government of Kenya WHO has interest in this firm? Yes/No ....... (Delete as necessary)

I certify that the above information is correct.

.......................................................................................................................... 
Title Signature Date

* Attach proof of citizenship
(*Failure to fill this form will lead to automatic disqualification.*)

**KEY PERSONNEL**

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

<table>
<thead>
<tr>
<th>POSITION</th>
<th>NAME</th>
<th>YEARS OF EXPERIENCE (GENERAL)</th>
<th>YEARS OF EXPERIENCE IN PROPOSED POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I certify that the above information is correct.

...........................................  ...........................................  ...........................................
Title  Signature  Date

J/5
CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS

Work performed on works of a similar nature, complexity and volume over the last 5 years.

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>NAME OF CLIENT</th>
<th>TYPE OF WORK AND YEAR OF COMPLETION</th>
<th>VALUE OF CONTRACT (Kshs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I certify that the above works were successfully carried out and completed by ourselves.

……………………….  ……………………….  ………………..…..
Title  Signature  Date

J/6
SCHEDULE OF ON-GOING PROJECTS

Details of on-going or committed projects, including expected completion date.

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>NAME OF CLIENT</th>
<th>CONTRACT SUM</th>
<th>% COMPLETED</th>
<th>COMPLETION DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

I certify that the above works are currently being carried out by ourselves.

..........................................................
Title

............................
Signature

............................
Date

J/7
EVIDENCE OF FINANCIAL RESOURCES TO MEET QUALIFICATION REQUIREMENTS

(Cash in hand, Lines of credit, e.t.c. List below and attach copies of supportive documents)

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  
9.  
10.  

J/8
NAME, ADDRESS AND TELEPHONE, TELEX AND FACSIMILE OF BANKS

(This should be for banks that may provide reference if contacted by the employer)

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>TELEPHONE</th>
<th>TELEX</th>
<th>FACSIMILE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

J/9
DETAILS OF LITIGATION OR ARBITRATION PROCEEDINGS IN WHICH THE TENDERER HAS BEEN INVOLVED AS ONE OF THE PARTIES IN THE LAST 5 YEARS

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

J/10
PROPOSED WORKS PROGRAMME

(Bidders to Propose Works Programme in form of a Bar Chart covering the whole of the Contract Period)
FORM OF AGREEMENT

THIS AGREEMENT, Made the __________ day of ________________, 20______-

between **THE MANAGING DIRECTOR, KENYATTA INTERNATIONAL CONVENTION CENTRE** of (or whose registered office is situated at **KICC BUILDING** (herein after called “the Employer”) of the one part AND

- of (or

whose registered office is situated at

(herein after called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

_________________________ (Name and identification number of contract) (herein after called “the Works”) located at

(place/location of the Works) and the Employer has appointed **THE COUNTY WORKS OFFICER, NAIROBI** of (or whose registered office is situated at)

**NAIROBI** as the **PROJECT MANAGER** for the purposes thereof and has accepted the tender submitted by the Contractor for the execution and completion of the said works and the remedying of any defects therein in the sum of

Kshs.________ (amount in figures) Kenya Shillings

_________________________ (amount in words) (herein after called “the Contract price”).

NOW THAT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as respectively assigned to them in the conditions of Contract herein after referred to.

2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.

   (i) Letter of acceptance
   (ii) Form of Tender
   (iii) Conditions of Contract
   (iv) Specifications
   (v) Priced Bills of Quantities
   (vi) Drawings
   (vii) Appendix to conditions of contract

3. In consideration of the payments to be made by the Employer to the Contractor as herein mentioned, the contractor hereby covenants with the Employer to execute and complete the Works and any defects therein in conformity in all respects with the provision of the contract.

   J/12
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 thereto have caused this Agreement to be executed the day and year first written.

The common Seal of the Managing Director, Kenyatta International Convention Centre

Was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said:

Binding Signature of Employer:

Date:

Binding Signature of Contractor:

Date:

Witnessed by: 1) Name
Address
Signature
Date

2) Name
Address
Signature
Date

J/13
AGENTS AUTHORIZATION FORM

TO

(Name of entity)

(Name of entity)

{Name of entity}

Whereas

{Name of Agent}

Who is established and reputable agent of

{Name of entity}

Having businesses at

(Address of premises)

Do hereby confirm that we are the suppliers of spares of the above mentioned

Core/ Edge Switch to

M/s

We hereby extend our full guarantee for the availability of spares from us for the services offered by the above firm against this invitation to tender.

Name

Signature

Official Rubber Stamp

Note: This form MUST be on the letter head of the agent and should be signed by an authorized person.
CERTIFICATE OF TENDERER'S VISIT TO THE SITE

(Failure to fill this form will lead to automatic disqualification.)

As per clause 4 of Instruction to tenderers, I confirm that I visited the site and obtained all the necessary information for preparing the tender. (The Tenderer to read Clause 4 of ‘Instructions to Tenderers’ on page A-3 of this document)

Tenderer’s Name.................................................................

<table>
<thead>
<tr>
<th>Title</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

Tenderer’s name & rubber stamp

Witnessed by the Employer’s Representative:

Officer’s Name..............................................................

<table>
<thead>
<tr>
<th>Title</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
</table>

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