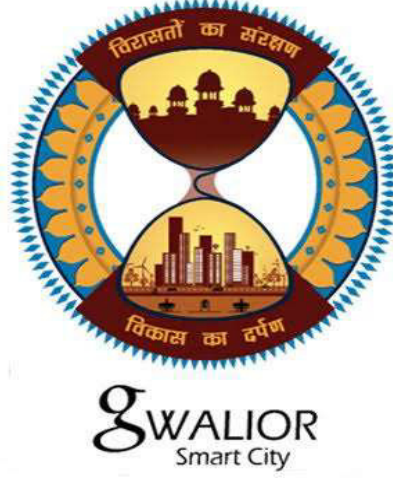


# Gwalior Smart City Development Corporation Limited (GSCDCL)



## Request for Proposal (RFP) for Upgradation of City CCTV Surveillance in Gwalior Madhya Pradesh

---

Office of the Gwalior Smart City Development Corporation Limited (GSCDCL)  
Integrated Command and Control Centre (ICCC), 1<sup>st</sup> Floor, Motimahal, Lashkar,  
Gwalior (M.P.)-474007, India,

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**Office of the Gwalior Smart City Development Corporation  
Limited (GSCDCL)**

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Phone No. 0751-2646629, 2646634, 2646632, 264663

**Tender Document  
For Percentage Rate only**

|                                 |   |  |
|---------------------------------|---|--|
| NIT Number                      | : | GSCDCL/ 212/E-TENDERING/2023-24  |
| Date                            | : | 18 <sup>th</sup> Dec 2023  |
| Name of Work                    | : | Request for Proposal (RFP) for Upgradation of City CCTV Surveillance in Gwalior, Madhya Pradesh  |
| Probable Amount of Contract     | : | ₹ 8,47,11,845/- (Excluding GST) (Rupees Eight Crore Forty Seven Lakhs Eleven Thousand Eight Hundred Forty Five only)   |
| Cost of Tender Document         | : | Rs. 15,000/- plus GST  |
| Stipulated Period of Completion | : | 64 (Sixty-Four) Months Including Rainy Season<br><i>[4 months period for GO-Live of City CCTV Surveillance in Gwalior, Madhya Pradesh, and 60 months or 5 years for operation and maintenance period after Go-live date.</i> |

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## 1 Disclaimer

The information contained in this Request for Proposal document ("RFP") whether subsequently provided to the bidders, ("Bidder/s") verbally or in documentary form by Gwalior Smart City Development Corporation Limited (henceforth referred to as "GSCDCL" in this document) or any of its employees or advisors, is provided to Bidders on the terms and conditions set out in this Tender document and any other terms and conditions subject to which such information is provided.

This RFP is not an agreement and is not an offer or invitation to any party. The purpose of this RFP is to provide the Bidders or any other person with information to assist the formulation of their financial offers ("Bid"). This RFP includes statements, which reflect various assumptions and assessments arrived at by GSCDCL in relation to this scope. This Tender document does not purport to contain all the information each Bidder may require. This Tender document may not be appropriate for all persons, and it is not possible for the Chief Executive Officer, GSCDCL and their employees or advisors to consider the objectives, technical expertise and particular needs of each Bidder. The assumptions, assessments, statements and information contained in the Bid documents, may not be complete, accurate, adequate or correct. Each Bidder must therefore conduct its own analysis of the information contained in this RFP and to seek its own professional advice from appropriate sources.

Information provided in this Tender document to the Bidder is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. GSCDCL accepts no responsibility for the accuracy or otherwise for any interpretation of opinion on law expressed herein.

GSCDCL and their employees and advisors make no representation or warranty and shall incur no liability to any person, including the Bidder under law, statute, rules or regulations or tort, the principles of restitution or unjust enrichment or otherwise for any loss, cost, expense or damage which may arise from or be incurred or suffered on account of anything contained in this RFP or otherwise, including the accuracy, reliability or completeness of the RFP, and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this Selection Process.

GSCDCL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this RFP. GSCDCL may in its absolute discretion, but without being under any obligation to do so, can amend or supplement the information in this RFP.

The issue of this Tender document does not imply that GSCDCL is bound to select a Bidder or to appoint the Selected Bidder (as defined hereinafter), for implementation and GSCDCL reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by GSCDCL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and GSCDCL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation for submission of the Bid, regardless of the conduct or outcome of the Selection process.

## 2 Glossary

| TERMS  | MEANING  |
|--------|--|
| BG     | Bank Guarantee                                     |
| BoQ    | Bill of Quantity                                   |
| BEC    | Bidders Evaluation Committee                       |
| CC     | Command Centre                                     |
| CCTV   | Closed Circuit Television                          |
| CEO    | Chief Executive Officer                            |
| DD     | Demand Draft                                       |
| EMD    | Earnest Money Deposit                              |
| GST    | Goods and Service Tax                              |
| HD     | High Definition                                    |
| HDD    | Hard Disk Drive                                    |
| HOD    | Head of Department                                 |
| IP     | Internet Protocol                                  |
| ICT    | Information Communication and Technology           |
| IT     | Information Technology                             |
| INR    | Indian Rupee                                       |
| LoI    | Letter of Intent                                   |
| MP     | Mega Pixel   |
| NVR    | Network Video Recorder                             |
| OEM    | Original Equipment Manufacture                     |
| PB     | Peta Bite  |
| PBG    | Performance Bank Guarantee                         |
| PQ     | Pre-Qualification                                  |
| PSU    | Public Sector Undertaking                          |
| RFP    | Request for Proposal                               |
| SI     | System Integrator                                  |
| SLA    | Service Level Agreement                            |
| GMC    | Gwalior Municipal Corporation                      |
| SPV    | Special Purpose Vehicle                            |
| GSCDCL | Gwalior Smart City Development Corporation Limited |
| TQ     | Technical Qualification                            |

### 3 SECTION 1: Notice inviting e-Tenders

#### Office of the Gwalior Smart City Development Corporation Limited (GSCDCL)

Integrated Command and Control Centre (ICCC), 1<sup>st</sup> Floor, Motimahal, Lashkar,  
Gwalior (M.P.)-474007, India,

Email ID: [gscdcltender@gmail.com](mailto:gscdcltender@gmail.com)

Phone No. 0751-2646629, 2646634, 2646632, 264663

NIT No. GSCDCL/ 212 /E-TENDERING/2023-24

Online Percentage rate bids for the following works are invited from registered contractors and firms of repute fulfilling registration criteria:

| SN | Name of Work   | Probable Amount (Rs.)  | Earnest Money Deposit (EMD) (In Rupees)  | Cost of Bid Document (In Rupees)                     | Category of Contractor   | Period of Completion (in months)   |
|----|--|--|--|--|--|--|
| 1  | Upgradation of City CCTV Surveillance in Gwalior, Madhya Pradesh | ₹ 8,47,11,845/- (Excluding GST) (Rupees Eight Crore Forty Seven Lakhs Eleven Thousand Eight Hundred Forty Five only) | ₹ 4,23,560/- (Rupees Four Lakhs Twenty Three Thousand Five Hundred Sixty only) | Rs. 15,000/- (Rupees Fifteen Thousand only) plus GST | contractors registered under centralized e-registration system in MP PWD | 64 (Sixty-Four) Months Including Rainy Season<br><i>[4 months period for GO-Live of City CCTV Surveillance in Gwalior, Madhya Pradesh, and 60 months or 5 years for operation and maintenance period after Go-live date.</i> |

- All details relating to the Bid Documents can be viewed and downloaded free of cost on the website.
- Bid Document can be purchased after marking online payment of portal fees through Credit/Debit/Cash Card/Internet Banking.
- At the time of submission of the bid the eligible bidder shall be required to submit:
  - Payment of the cost of Bid Document;
  - Deposit of Earnest Money; and
  - An affidavit duly notarized. (Annexure B)
  - Power of attorney (Annexure M1) and
  - Submit a Check List



4. Eligibility for Bidders:
  - a) At the time of submission of the Bid the bidder should have valid registration with the Government of Madhya Pradesh, PWD in appropriate class. However, such bidders who are not registered with the Government of Madhya Pradesh and are eligible for registration can also submit their bids after having applied for registration with appropriate authority. The valid copy of the applied receipt is mandatory to submit
  - b) The bidder would be required to have valid registration at the time of signing of the Contract.
  - c) Failure to sign the contract the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.
5. **Pre-qualification** - Prequalification conditions, wherever applicable, are given in the Bid Data Sheet.
6. **Special Eligibility** - Special Eligibility Conditions, if any, are given in the Bid Data Sheet.
7. The Bid Document can be purchased only online from **18<sup>th</sup> Dec 2023, 02:00 PM to 03<sup>rd</sup> Jan 2024, 5:30 PM**. Other key dates may be seen in Bid Data Sheet.
8. Amendments to NIT, if any, would be published on website only, and not in newspaper.
9. Any type of exemption in Tender Form Fees / EMD will not be allowed and Tender without Tender form Fees / EMD shall be rejected prima-facie.

**Executive Director**  
**Gwalior Smart City Development Corporation Ltd. (GSCDCL)**

## **4 SECTION 2: INSTRUCTIONS TO BIDDERS (ITB)**

### **A. GENERAL**

#### **4.1 Scope of Bid**

The detailed description of work, hereinafter referred as 'work', is given in the Bid Data Sheet.

#### **4.2 General Quality of Work:**

The work shall have to be executed in accordance with the technical specifications specified in the Bid Data sheet/ Contract Data, and shall have to meet high standards of workmanship, safety and security of workmen and works.

#### **4.3 Procedure for Participation in E-Tendering**

The procedure for participation in e-tendering is given in the Bid Data Sheet.

#### **4.4 One Bid per Bidder**

The bidder can be an individual entity or a joint, venture (if permitted as per Bid Data Sheet). In case the J.V. is permitted, the requirement of joint venture shall be as per the Bid Data Sheet.

No bidder shall be entitled to submit more than one bid whether jointly or severally. If he does so, all bids wherein the bidder has participated shall stand disqualified.

#### **4.5 Cost of Bidding**

The bidder shall bear all costs associated with the preparation and submission of his bid, and no claim whatsoever for the same shall lie on the Government.

#### **4.6 Site Visit and examination of works**

The bidder is advised to visit and inspect the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the work. All costs in this respect shall have to be borne by the bidder.

### **B. Bid Documents**

#### **4.7 Content of Bid Documents**

The Bid Document comprises of the following documents:

1. NIT with all amendments
2. Instructions to Bidders, Bid Data Sheet with all Annexures
3. Conditions of Contract:
  - (a) Part I General Conditions of Contract and the Contract Data with all Annexures; and

(b) Part II Special Conditions of Contract.

4. Specifications
5. Drawings
6. Priced Bill of Quantities
7. Technical and Financial Bid
8. Letter of Acceptance
9. Agreement, and
10. Any other document(s), as specified.

#### **4.8 Bidder to inform**

The bidder is expected to examine carefully all instructions, conditions of contract, the contract data, forms, terms and specifications, bill of quantities, forms and drawings in the Bid Document. Bidder shall be solely responsible for his failure to do so.

#### **4.9 Pre-Bid Meeting (where applicable)**

Wherever the Bid Data Sheet provides for pre-bid meeting:

- a. Details of venue, date and time would be mentioned in the Bid Data Sheet. Any change in the schedule of pre-bid meeting would be communicated on the website only, and intimation to bidders would not be given separately.
- b. Any prospective bidder may raise his queries and/or seek clarifications in writing before or during the pre-bid meeting. The purpose of such meeting is to clarify issues and answer questions on any matter that may be raised at that stage. The Employer may, at his option, give such clarifications as are felt necessary.
- c. Minutes of the pre-bid meeting including the gist of the questions raised and the responses given together with any response prepared after the meeting will be hosted on the website.
- d. Pursuant to the pre-bid meeting if the Employer deems it necessary to amend the Bid Document, it shall be done by issuing amendment to the online NIT.

#### **4.10 Amendment of Bid Documents**

- a) Before the deadline for submission of bids, the Employer may amend or modify the Bid Documents by publication of the same on the website.
- b) All amendments shall form part of the Bid Document.
- c) The Employer may, at its discretion, extend the last date for submission of bids by publication of the same on the website.

### **C. Preparation of Bid**

#### 4.11 Bidder to prepare and submit Bid as per procedure

The bidders have to prepare their bids online, encrypt their Bid Data in the Bid Forms and submit Bid Seals (Hashes) of all the envelopes and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the Notice Inviting e-Tenders after signing of the same by the Digital Signature of their authorized representative.

#### 4.12 Documents Comprising the Bid

The bid submitted online by the bidder shall be in the following parts:

**Part 1** - This shall be known as Online **Envelope A** and would apply for all bids. Online **Envelope A** shall contain the following as per details given in the Bid Data Sheet:

**Part 2** - This shall be known as Online **Envelope B** and required to be submitted only in works where pre-qualification conditions and/or special eligibility conditions are stipulated in the Bid Data Sheet. Online **Envelope B** shall contain a self-certified sheet duly supported by documents to demonstrate fulfilment of pre-qualification conditions as mentioned Data Sheet.

Important Note: If the Bidder fails to meet the Pre-Qualification and Technical Evaluation Criteria mentioned in Annexure-C, then their Bid is treated as NON-RESPONSIVE AND DISQUALIFIED and their financial bid shall not be opened.

**Part 3** - This shall be known as Online (Central Public Procurement Portal (URL: <https://mptenders.gov.in/nicgep/app>)) Envelope C and would apply to all bids. Envelop C shall contain financial offer in the prescribed format enclosed with the Bid Data Sheet.

**Envelope C** shall contain financial offer in the prescribed format enclosed with the Bid Data Sheet.

a) Annexure – J

Important Note: The financial bid should be submitted in **ENVELOPE C ONLY** and should not be submitted in any Envelope except Envelope -C, if submitted then their bid shall be rejected.

#### 4.13 Language

The bid as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer shall be in English or Hindi. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English. In such case, for the purposes of interpretation of the bid, such translation shall govern.

#### **4.14 Technical Proposal**

- a. Only, in case of bids with pre-qualification conditions defined in the Bid Data Sheet, the Technical Proposal shall comprise of formats and requirements given in the Bid Data Sheet.
- b. All the documents/ information enclosed with the Technical Proposal should be self-attested and certified by the bidder. The Bidder shall be liable for forfeiture of his earnest money deposit, if any document / information are found false/ fake/ untrue before acceptance of bid. If it is found after acceptance of the bid, the bid sanctioning authority may at his discretion forfeit his performance security/ guarantee, security deposit, enlistment deposit and take any other suitable action.

#### **4.15 Financial Bid**

- a. The bidder shall have to quote rates in format referred in Bid Data Sheet, in overall percentage, and not item wise. If the bid is in absolute amount, overall percentage would be arrived at in relation to the probable amount of contract given in NIT. The overall percentage rate would apply for all items of work.
- b. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found, lower of the two shall be taken as valid and correct.
- c. The bidder shall have to quote rates inclusive of all duties, taxes, royalties and other levies; and the Employer shall not be liable for the same.
- d. The material along with the units and rates, which shall be issued, if any, by the department to the contractor, is mentioned in the Bid Data Sheet.

#### **4.16 Period of Validity of Bids**

The bids shall remain valid for a period specified in the Bid Data Sheet after the date of "close for bidding" as prescribed by the Employer. The validity of the bid can be extended by mutual consent in writing.

#### **4.17 Earnest Money Deposit (EMD)**

- a. The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), in the amount specified in the Bid Data Sheet.
- b. EMD/ Bid Security shall be submitted only online using options available in the tender portal within the specified time limit. Bidders are advised to process it well in advance. No claim shall be entertained due to delay in online transactions via payment gateway/banking portal.
- c. Bid not accompanied by EMD shall be liable for rejection as non-responsive.
- d. EMD of bidders whose bids are not accepted will be returned within ten working days of the decision on the bid.
- e. EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement after furnishing the required Performance Security.
- f. Failure to sign the contract by the selected bidder, within the specified period, for whatsoever reason, shall result in forfeiture of the earnest money deposit.

## **D. Submission of Bid**

### **4.18 Online submission of bids**

The bidder is required to submit digitally signed Bid i.e. Envelop A, B & C online only. No physical submission of the Bid will be accepted.

## **E. Opening and Evaluation of Bid**

### **4.19 Procedure for opening of Bids**

- a. Envelope 'A' shall be opened first online at the time and date notified and its contents shall be checked. In cases where Envelop 'A' does not contain all requisite documents, such bid shall be treated as non-responsive, and Envelop B and/or C of such bid shall not be opened.
- b. Wherever Envelop 'B' (Technical Bid) is required to be submitted, the same shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Envelop 'B'. The bidder whose are not qualified in Technical Bid (Envelop 'B'), then their Financial Bid(Envelop 'C' ) shall not be opened.
- c. Envelope 'C' (Financial Bid) shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Envelop 'C'.
- d. After opening Envelop 'C' all responsive bids shall be compared to determine the lowest evaluated bid.
- e. The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all the bids at any time prior to contract award, without incurring any liability. In all such cases reasons shall be recorded.
- f. The Employer reserves the right of accepting the bid for the whole work or for a distinct part of it.
- g. In exceptional case, if physical submission of certain documents is found essential, then expressed prior permission must be obtained in writing by the tender issuing authority from an authority, as authorized by the State Government. In such a case, such documents are required to be submitted physically at the place and date specified in the Bid Data Sheet. In case of any mismatch in the documents submitted in the physical form and that uploaded online, or if the contractor fails to submit the document physically, the bid shall be liable for rejection as non-responsive.

### **4.20 Confidentiality**

- a. Information relating to examination, evaluation, comparison and recommendation of contract award shall not be disclosed to bidders or any other person not officially concerned with such process until final decision on the bid.

- b. Any attempt by a bidder to influence the Employer in the evaluation of the bids or contract award decisions may result in the rejection of his bid.

#### **F. Award of Contract**

##### **4.21 Award of Contract**

The Employer shall notify the successful bidder by issuing a Letter of Acceptance (LOA) that his bid has been accepted.

##### **4.22 Performance Security**

Prior to signing of the Contract the bidder to whom LOA has been issued shall have to furnish performance security of the amount in the form and for the duration, etc. as specified in the Bid Data Sheet.

Additional performance security, if applicable, is mentioned in the Bid Data Sheet and shall be in the form and for the duration, etc. similar to Performance Security.

##### **4.23 Signing of Contract Agreement**

- a. The successful bidder shall have to furnish Performance Security and Additional Performance Security, if any, and sign the contract agreement within 15 days of issue of LOA.
- b. The signing of contract agreement shall be reckoned as intimation to commencement of work. No separate work order shall be issued by the Employer to the contractor for commencement of work.
- c. In the event of failure of the successful bidder to submit Performance Security and Additional Performance Security, if any or sign the Contract Agreement, his EMD shall stand forfeited without prejudice to the right of the employer for taking any other action against the bidder.

##### **4.24 Corrupt Practices**

The Employer requires that bidders observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, the Employer:

- i. May reject the bid for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract; and
- ii. May debar the bidder declaring ineligible, either indefinitely or for a stated period of time, to participate in bids, if it at any time determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, a contract. For the purposes of this provision, the terms set forth above are defined as follows:
  - a. "Corrupt Practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

- b. "Fraudulent Practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
- c. "Coercive Practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;'
- d. "Collusive Practice" means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

[End of ITB]



## 5 Bid Data Sheet

| GENERAL         |  |   |
|-----------------|--|---|
| Sl. No.         | Particulars                                      | Data  |
| 1.              | Office Inviting Tender                           | Office of the Gwalior Smart City Development Corporation Limited (GSCDCL), Integrated Command and Control Centre (ICCC), 1st Floor, Motimahal, Lashkar, Gwalior (M.P.)-474007, India.<br>Email ID: gscdcltender@gmail.com,<br>Website: www.smartcitygwalior.org |
| 2.              | NIT No   | As mentioned on online e-tendering portal   |
| 3.              | Date of NIT                                      | As mentioned on online e-tendering portal   |
| 4.              | Bid document download available from date & time | From date as mentioned on online e-tendering portal<br>from 02:00 P.M on the start date to 05:30 P.M on the closing date  |
| 5.              | Website link                                     | <a href="https://www.mptenders.gov.in/">https://www.mptenders.gov.in/</a>   |
| SECTION 1 – NIT |  |   |
| NIT Clause      | Particulars                                      | Data  |
| 2               | Portal fees                                      | As mentioned on online e-tendering portal   |
| 3               | Affidavit Format                                 | As per Annexure - B   |
| 4               | Pre-qualifications required                      | Yes   |

|                       |   |   |
|-----------------------|---|---|
|                       | If Yes, details                                   | As per Annexure - C   |
| 7                     | Key dates   | As per Annexure - A   |
| <b>SECTION 2: ITB</b> |   |   |
| 4.1                   | Name of the 'work'                                | Upgradation of City CCTV Surveillance in Gwalior, Madhya Pradesh  |
| 4.2                   | Specifications                                    | Annexure - E  |
| 4.3                   | Procedure for participation in e-tendering        | Annexure - F  |
| 2.4                   | Whether J.V. is allowed                           | Yes, Maximum Two Partners including Lead Partner/bidder   |
| 2.4                   | if J.V. is allowed, requirement for Joint Venture | Annexure - G  |
| 4.9                   | Pre bid meeting to be held                        | YES   |
| 4.9                   | If Yes,   | Date and Time : 26 <sup>th</sup> December 2023 11:00 PM<br>Adress:<br>Office of the Gwalior Smart City Development Corporation Limited (GSCDCL), Integrated Command and Control Centre (ICCC), 1st Floor, Motimahal, Lashkar, Gwalior (M.P.)-474007, India. |

|      |  |  |
|------|--|--|
| 4.12 | Envelope-A containing :<br><b>(Mandatory Submission)</b>       | Apply through Online Only.<br>i. Registration number or proof of application for registration and organizational details (Annexure - H )<br>ii. Cost of Bid Document<br>iii. EMD<br>iv. An affidavit duly notarized as per Annexure - B.<br>v. Power of attorney (Annexure M1) |
| 4.12 | Envelope-B Technical Proposal<br><b>(Mandatory Submission)</b> | Apply through Online Only.<br>a) Pre-Qualification/Eligibility Criteria (Annexure –C)<br>b) Annexure I (I-1 to I-5)<br>c) Annexure – M2  |
| 4.12 | Envelope-C Financial Bid                                       | Annexure - J   |
| 2.15 | Materials to be issued by the department                       | Not Applicable   |
| 4.16 | Period of Validity of Bid                                      | 120 Days from the date of opening of tender  |
| 4.17 | Earnest Money Deposit  | As mentioned NIT   |
|      | Forms of Earnest Money Deposit                                 | Online payment through Debit Card/Credit Card /Internet Banking or system Generated Challan  |
|      | EMD valid for a period of                                      | 180 days from the date of submission of bid  |
| 4.21 | Letter of Acceptance (LoA)                                     | Annexure - L   |

|      |   |  |
|------|---|--|
| 2.22 | Amount of Performance Security              | 3 percent (3%) of contract amount (minimum)  |
|      | Additional Performance Security, if any     | Equal to an amount arrived at, by multiplying the contract amount with difference of percentage between percent rates (below/minus) of successful bid and Ten percent (10%) (below/minus) considering bid rates less than fifteen percent below PAC to be unworkable and shall require additional performance security (guarantee) |
| 4.22 | Performance security in the format          | Annexure - M   |
| 4.22 | Performance security in favour of           | The Executive Director, GSCDCL   |
|      | Performance Security valid up to            | Valid Contract Period 04 (Four) Months Plus 5 Years (O&M) Period plus 3 months   |
|      | Additional Performance Security valid up to | Stipulated Physical Completion time plus 3 months  |
| 4.23 | Signing of Contract                         | The successful bidder shall require to sign the contract within 15 days from the date of issue of LOA  |

Note: The conditions / information as mentioned above in the Bid Data Sheet shall supersede the relevant clause of ITB (Instructions to Bidders) of the tender document.

## 6 Annexure - A

(See Clause 7 of NIT)

### Key Dates

| Sl. No. | Particular                            | Date                      | Time     |
|---------|---------------------------------------|---------------------------|----------|
| 1       | Document Sale Start Date              | 18 <sup>th</sup> Dec 2023 | 02:00 PM |
| 2       | Document Download/Sale start Date     | 18 <sup>th</sup> Dec 2023 | 05:00 PM |
| 3       | Last date for sending pre-bid queries | 25 <sup>th</sup> Dec 2023 | 05:30 PM |
| 4       | Pre Bid Meeting Date                  | 26 <sup>th</sup> Dec 2023 | 11:00 AM |
| 5       | Bid Submission (Online only)          | 03 <sup>rd</sup> Jan 2024 | 05:30 PM |
| 6       | Bid Opening Date                      | 04 <sup>th</sup> Jan 2024 | 05.30 PM |

## 7 Annexure - B

(See clause 3 of NIT)

### ||AFFIDAVIT||

(To be contained in Envelope A) (On Non Judicial Stamp of Rs. 100)

I/we \_\_\_\_\_ who is/are \_\_\_\_\_ (status in the firm/ company) and competent for submissions of the affidavit On behalf of M/S \_\_\_\_\_ (contractor) do solemnly affirm an oath and state that:

I/we am/are fully satisfied for the correctness of the certificates/records submitted in support of the following information in bid documents which are being submitted in response to notice inviting e-tender No. \_\_\_\_\_ for \_\_\_\_\_

(Name of work) dated \_\_\_\_\_ issued by the \_\_\_\_\_ (Name of the department).

I/we am/ are fully responsible for the correctness of following self-certified information/ digitally signed documents and certificates:

1. That the self-certified information /digitally signed documents given in the bid document are fully true and authentic.
2. That:
  - a. Information regarding financial qualification and annual turnover, submitted online is correct.
  - b. Information regarding various technical qualifications, submitted online is correct.
3. No close relative of the undersigned and our firm/company is working in the department.

Or

Following close relatives are working in the department:

| Name _____     | Post _____ | Present |
|----------------|------------|---------|
| Posting _____. |            |         |

Signature with Seal of the Deponent (Bidder)

I/we, \_\_\_\_\_; \_\_\_\_\_ above deponent do hereby certify that the facts mentioned in above paras 1 to 3 are correct to the best of my knowledge and belief. In the event of any information is found to be incorrect/ untrue or found violated, then without giving any prior notice, our bid shall be liable for rejection or termination of contract, without prejudice to any other rights of remedy including the forfeiture of the bid security/performance security.

Verified today \_\_\_\_\_ (dated) at \_\_\_\_\_ (place).

Signature with Seal of the Deponent (Bidder)

## 8 Annexure - C

(See clause 5 of NIT)

### Pre-Qualifications Criteria

The bidder should have:

#### 1. A Bidder shall be any of the following legal entity:

- i. A company incorporated under Companies Act, 2013 or 1956, amended till date; or
- ii. A partnership firm registered under Partnership Act, 1932; or
- iii. A Limited Liability Partnership Firm, incorporated under Limited Liability Partnerships Act, 2008; or
- iv. A society, established under Societies Registration Act, 1860 or any analogous law enacted by a State Government in India;
- v. A Cooperative Society, established under Cooperative Societies Act, 1912, Multi-State Cooperative Societies Act, 1984 or any analogous law enacted by a State Government in India; or
- vi. A Trust established under Indian Trusts Act, 1882 or Bombay Public Trusts Act, 1950, or any analogous law enacted by a State Government in India; or
- vii. A Proprietorship having relevant Certificate/license issued by the Municipal authorities under Shop & Establishment Act or licenses or registrations or certificates in the name of the Proprietor such as GST Certificate, PAN Card, etc.

#### B. Experience/Bidders Eligibility Criteria:

The bidder or consortium must possess the requisite experience, strength and capabilities in providing services necessary to meet the requirements as described in the RFP document. Keeping in view the complexity and volume of the work involved, following criteria are prescribed as the eligibility criteria for the bidder or consortium interested in undertaking the project. The bidder or consortium must also possess technical know-how and financial ability that would be required for comprehensive onsite warranty and O&M support services sought by the GSCDCL for the entire contract duration. The Bids must be completed in all respect and should cover entire scope of work as stipulated in the bid document. This invitation to bid is open to all bidders or consortium who qualify the eligibility criteria as given below. In case of consortium, please refer section 8.6.

#### **Note: For evaluation following definition is considered**

- i. The completion/implemented project is defined as those projects that have been supplied and installed in last 7 years from the date of publishing of this RFP.
- ii. The total Project value shall be considered as Capex Cost + Opex Cost.
- iii. OEM experience will not be considered for Eligibility Criteria and Technical Evaluation.



| # | Eligibility Criteria  | Proof Document Required   | Applicable to Sole Bidder | Applicable to Consortium        |
|---|---|---|---------------------------|---------------------------------|
| 1 | <p>The Prime Bidder / Sole Bidder should be registered under the Companies Act 1956 and should be in operation in India for a period of at least 5 years as on publication of bid.</p> <p>In case of Consortium, the Consortium Partner should be registered under the Companies Act 1956 Or a partnership firm registered under LLP Act, 2008 or partnership firm registered under Indian Partnership Act 1932</p>   | <p>Copy of certification of incorporation issued by competent authority/<br/>Registration Certificate/ Shop and Establishment certificate</p>                                   | Yes                       | Yes                             |
| 2 | <p>Bidder/ Primer Bidder should have a minimum average annual turnover of Rs. 5 Crore from ICT business for last three financial years i.e. FY 2020-21, FY 2021-22, 2022-23</p> <p>In case of Consortium, Consortium Partner should have a minimum average annual turnover of Rs. 3 crores from ICT business for last three financial years i.e. FY 2020-21, FY 2021-22, 2022-23</p> <p>The copies of Audited Annual Accounts for last three years to be submitted along with the bid</p> | <p>Copy of the Audited Profit and Loss statement and statutory auditor / CA certificate from a regarding turnover. The certificate should be originally signed or notarized</p> | Yes                       | Yes                             |
| 3 | <p>Bidder/ Consortium should have a positive net worth as on 31st March 2023</p>  | <p>Certificate from the statutory auditor / CA towards positive net worth of the company. The certificate should be originally signed or notarized</p>                          | Yes                       | Yes (All Members of Consortium) |

|   |  |   |     |  |
|---|--|---|-----|--|
| 4 | <p>Bidder should have supplied and installed any of the following in last 7 years from the date of publishing this RFP as below:</p> <p>At least one project covering minimum 200 CCTV Cameras along with network, data storage and server setup etc.</p> <p>OR</p> <p>Two Projects each covering minimum 100 CCTV Cameras along with network, data storage and server setup etc.</p> <p>OR</p> <p>Three Projects each covering minimum 70 CCTV Cameras along with network, data storage and server setup etc.</p> | <p>Copy of completion certificate issued by client</p> <p>Copy of Work order / Contract</p>   | Yes | Yes (All Members of Consortium)  |
| 5 | Bidder should be registered for GST number in India  | <p>GST Registration Certificate</p> <p>PAN Card</p>   | Yes | Yes (All Members of Consortium)  |
| 6 | Bidder should not be blacklisted or debarred by any Government / PSU in India at the time of submission of the bid.  | <p>Declaration letter by bidder as per format given in the RFP document</p>   | Yes | Yes (All Members of Consortium)  |
| 7 | <p>Bidder should have a local office in Gwalior.</p> <p>Note: If bidder does not have the local presence, it should open a local office within 60 days from issuance of LOI / Work Order whichever is earlier.</p>   | <p>Supporting Documents like Rent Agreement/ Electricity Bill / Self Declaration on Company's Letter head to be submitted.</p> <p>In case local presence is not available then an Undertaking from authorized signatory to open the local office within 60 days</p> | Yes | Yes (In case of consortium, the lead bidder should meet this criteria) |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | from issuance of LOI<br>to be submitted |  |  |
|--|--|---|--|--|

**Note:**

1. In case of Consortium only 2 partners are allowed including Prime Bidder.

*of this NIT.]*

**Note: Below Document needs to be submitted**

- a) The experience of the bidder must be as on the date of issue of this NIT.
- b) Bidders are required to submit the corresponding Work Order copies & Execution/ Completion Certificates along with the BOQ Copies issued by the respective clients. The Certificates should be issued by respective authority (Not below the rank of Executive Engineer) of client. GSCDCL may call for original certificates for verification.

*Note: Work execution/Completion Certificate shall include detailed scope of work, actual cost of work completed with date of commencement and date of completion of the work.*

Work Wise Detail is to be signed by:-

- Officer of Rank not below the rank of Executive Engineer, if work is done/ being done for Government or Semi Government.
- If work is done directly /sub-contractor for Government , certified copy from concerned department of work done to be submitted furnished with work done value.

**9 Annexure - D**

(See clause 6 of section 1-NIT)

**Special Eligibility Criteria**

**NOT APPLICABLE**

**10 Annexure – D1**

FORMAT FOR CERTIFICATION W.R.T. BIDDERS FROM COUNTRIES THAT SHARE  
LAND BORDER WITH INDIA

**Certificate**

**NOT APPLICABLE**

## 11 Annexure - E

(See section 4.2 of ITB)

### Specifications and Scope of Work

## 12 Scope of the Project

Gwalior Smart City Development Corporation Limited (GSCDCL) request proposal from the interested bidders to bid for the "CCTV Surveillance Project". The System Integrator (SI) shall install CCTV system at identified locations across Gwalior city. The SI shall also be responsible to integrate the CCTV system which is being implemented under the scope of "CCTV Surveillance Project" with the multiple Command Control Centre including a centralized video management platform as per SLA requirements. The scope of work under this RFP is broadly divided into two parts.

- A. **System Integration of CCTV Surveillance Network:** Design, Supply, Installation, Commissioning of complete IP Based CCTV Surveillance System at identified locations across Gwalior city. All items procured under this contract shall be with 5 years of warranty support.
- B. **Comprehensive Operation & Maintenance (O&M):** Comprehensive Operation and Maintenance of entire CCTV Surveillance System installed at identified locations across Gwalior city as per the scope of work defined in this RFP.

### 12.1 System Integration of CCTV Surveillance Network

CCTV Surveillance System will be installed at multiple identified locations across Gwalior city. The list of locations location will be provided by GSCDCL to SI. The scope of work of the project is as per below:

- 1. Supply, Installation, Testing and Commissioning of end-to-end IP based CCTV systems with all related accessories including but not limited to following components
  - i. IP Based CCTV Cameras.
  - ii. Video Management Software.
  - iii. Active and passive networking components including structured cabling and LAN.
  - iv. Data centre equipment's i.e., Racks, Network Switch, Next Generation Firewall, Server, Storage etc.
  - v. UPS and Battery banks for data centre.
  - vi. Any other components like Poles, Field Junction Box, PVC Conduit, HDPE/DWC Pipes etc as per project requirements.
- 2. Setup 24 X 7 surveillance of day to day activity with minimum 90 days backup/retention of video feeds at Full HD (1920 x 1080P) resolution at minimum 25 Frames Per Second (FPS).

3. Bidder shall have to design their solution for CCTV system considering the bit rate of minimum 5 Mbps for each camera.
4. Selected SI shall provide end to end solution for H.265 compression technology for proposed solution components (CCTV, NVR, VMS, etc.) for CCTV Surveillance Project.
5. Conduct detailed feasibility study and site survey in accordance with scope of work as mentioned in this RFP document for implementing CCTV System. The feasibility report shall clearly highlight following:
  - i. Type and quantity of CCTV cameras at each Location
  - ii. Video Management Software (VMS) including License requirements
  - iii. Source of power supply
  - iv. Storage requirements
  - v. Bandwidth Requirements at each Location etc.
  - vi. List of existing infrastructure (Cameras, make & model, technology, storage etc.) if any at each location. In this regard if any upgradation/replacement is required, the SI shall mention the same in the feasibility study report. Further, the bidder shall have to design their solution after considering the re-usability of existing available infrastructure.
  - vii. Cabling, Trenching and last mile connectivity requirements with detailed drawings to be submitted as part of feasibility report
6. The SI shall prepare and submit the detailed feasibility study report including final Bill of Quantity (BoQ) within the time limit from the date of issuance of LoI. Any discrepancies noticed in the BOQ or sites, or if there is any requirement of extra items, or if there is a major excess of the quantity, bidder should immediately bring it in the notice of the GSCDCL in writing to take necessary action in time. Failing so, the bidder will not get any extra payment or extension in timeline for such instances. However, if authority suggest any work which is not included in the tender and to be executed as an extra item / excess item, agency has to carry out the work as per tender terms and conditions and SI cannot deny to execute the same.
7. Final Solution architecture design along with BoQ is required to be submitted for the approval from GSCDCL. SI will commence the installation work only after GSCDCL has approved the final design. Final design shall ensure high availability and maximum fault tolerance of the CCTV System.
8. SI to ensure centralized monitoring, playback and storage of video feeds coming from CCTV cameras, which is being implemented at different field locations of GSCDCL premises as mentioned below:
  - i. Bus Stops
  - ii. Roads and or Junctions
  - iii. Public Parks
  - iv. Infrastructure Construction Site
  - v. Water Distribution Plants
  - vi. Overloaded container spots
  - vii. Water logging spots
  - viii. Others locations as instructed by GSCDCL
9. SI to ensure local monitoring, playback and storage of video feeds coming from CCTV cameras which is being implemented at provided locations. The storage of video feeds

should be made available locally (SD Card) as well as at Data Center. Offline or locally Recorded Data must have automatic data sync provision shall also be made available in case of network failure.

10. Local Monitoring and Playback:

- Each CCTV camera may be connected to a local monitoring system that enables real-time video feed observation.

11. Local Storage:

- Each CCTV camera will be equipped with an SD card for local storage of video feeds. The capacity of the SD card will be chosen based on the required days of storage, resolution, and recording bitrate.
- The system will be designed to record on a loop, with new recordings automatically overwriting the oldest footage once the SD card is full.
- The recording devices will support high-endurance SD cards suited for continuous recording.

12. Central Storage at Data Center:

- Video feeds will be transmitted in real-time to a central data center where the footage will be stored on redundant, high-capacity storage servers.
- The data center will implement storage redundancy (e.g., RAID configurations) to prevent data loss.
- A secure network will be established to ensure the encrypted transmission of video feeds from local sites to the data center.

13. Automatic Data Synchronization:

- In the event of network failure, the system will be designed to continue recording on local storage uninterrupted.
- Once the network is restored, the system will automatically sync the locally stored video footage with the central data center's storage.
- The synchronization process will involve a check for any gaps in the data center's video footage timeline and will only transfer the missing footage to minimize bandwidth usage.
- Timestamps and camera IDs will be used to accurately merge the footage from local storage into the central data center's timeline.

14. Fail-Safe and Network Failure Handling:

- The system will be designed to detect network outages immediately and switch to a fail-safe recording mode, ensuring no interruption in the video surveillance process.
- Notifications will be sent to system administrators in the event of a network failure, prompting a timely response to resolve any issues.

15. Network Topology Overview:

- Core Layer:
  - The central command control center serves as the core of the network, housing the centralized video management platform and data storage servers.
  - High-capacity, redundant, and secure servers with virtualization capabilities to handle the video feed processing and storage.



- High-speed backbone switch or router to manage data traffic.
- Distribution Layer:
  - Multiple Command Control Centers located across the city, connected to the core layer through high-speed fiber optic links.
  - Intermediate distribution frames (IDFs) or switches that route traffic from the access layer to the core layer.
- Access Layer:
  - IP-based CCTV cameras installed at identified locations throughout Gwalior city.
  - Each CCTV pole will be equipped with a VPN router that ensures a secure connection to the central system.
  - Local NVRs (Network Video Recorders) or edge storage devices at strategic locations for initial video feed collection and local storage.
- 

#### **16. Internet and Electrical Connection Responsibilities:**

- **Electrical Arrangement:**
  - The vendor will coordinate the installation and provisioning of electrical connections at each CCTV pole with the Madhya Pradesh Electricity Board (MPEB).
  - GSCDCL will make payments directly to MPEB for the electricity consumption on a monthly basis (Deducting Amount as mentioned in BoQ for electricity).
- **Internet Fiber Broadband Connection:**
  - The vendor is responsible for the installation and setup of internet fibre broadband connections at each CCTV location.
  - The monthly payment for the internet services will be paid by GSCDCL directly to the Internet Service Provider (ISP) (Deducting Amount as mentioned in BoQ for internet services).

#### **17. Data Transmission and Security:**

- **Secure VPN Connection:**
  - A Virtual Private Network (VPN) router at each CCTV location will establish a secure tunnel to the central and multiple command control centers.
  - All CCTV data feeds will be encrypted and transferred through this secured VPN connection.
  - Firewalls will be configured at each layer to ensure secure data transfer and to prevent unauthorized access.
- **Encryption and Cybersecurity Measures:**
  - Advanced encryption standards (AES) will be used for encrypting video feeds.
  - Continuous cybersecurity monitoring to protect against threats and vulnerabilities.

#### **18. System Redundancy and Reliability at datacentre:**

- **Network Redundancy:**

- Dual WAN connections and automatic failover to ensure continuous internet connectivity.
  - Redundant power supplies and backup generators for each critical network component.
  - **Data Storage Redundancy:**
    - Implementation of RAID configurations in data storage to prevent data loss.
    - Regular backup schedules for long-term storage and disaster recovery plans.
19. **Network Diagram:** The SI will need to provide a detailed network diagram that includes all components of the CCTV Surveillance system, their interconnections, and the secure data flow between the CCTV poles and the command control centers. This diagram will be critical for understanding the entire network layout, troubleshooting issues, and planning future expansions.
20. Provision shall be made to integrate the CCTV system implement under CCTV Surveillance Project with existing infrastructure/ Project of GSCDCL /Police Department/ Gwalior Municipal Corporation (GMC)
- i. SI shall be responsible to integrate the CCTV system implemented under the scope of “CCTV Surveillance Project” with existing video wall available at GSCDCL ICCC Center.
  - ii. SI shall be responsible to provide the feeds, if required to Police Command Control Center. The cameras feed shall be on demand or on real time basis.
  - iii. SI shall also be responsible to integrate the video feeds with Video Wall to be supplied under Integrated Command Control Center (ICCC). Moreover, SI is also responsible to provide support to ICCC service provider for the integration of CCTV Surveillance Project with ICCC software for incidents and event monitoring.
  - iv. SI shall ensure to integrate existing cameras, if any at any locations wherever it is possible. The integration solution shall be clearly highlighted in feasibility report
  - v. GMC has implemented CCTV system at some of the municipal locations. If the existing system is ONVIF compliant, the same should be integrated with CCTV Surveillance Project. If any upgradation/ replacement is required for integration, the SI has to mention the same in the feasibility study report. Further, the bidder shall have to design their solution after considering the re-usability of existing available infrastructure.
21. Provision shall be made to monitor the real time feeds as well as playback of CCTV cameras implemented under the scope of “CCTV Surveillance Project” from multiple locations at the same time on demand.
22. SI shall be responsible for Installation and Commissioning of the Software for Video Management System (VMS) including all features as mentioned in this RFP.
23. The selected bidder shall be responsible to provide the detailed requirement of bandwidth at each identified location with proper justification of the same considering the number of cameras and other factors. The network connectivity is not in the scope of the SI. GSCDCL shall provide network connectivity through their appointed Service Provider in the form of lease line/Dark fibre/Other Media at each identified location as

per bandwidth requirement shared by SI after due validation. However, SI shall be responsible for the LAN cabling and last mile connectivity at each identified locations.

24. SI shall be responsible to coordinate with GSCDCL or its appointed service provider for network connectivity at respective site. The SI shall be responsible to provide infrastructure i.e. civil work, space in Junction box, etc., at the identified location for housing the equipment's or its appointed service provider for Broad Band/lease line/Dark Fibre connectivity. The provision of network connectivity is not in the scope of SI.
25. SI shall be responsible for cable laying, ducting, trenching etc. for CCTV system. SI is responsible for termination of LAN cable/ last mile connectivity of CCTV system to the existing network infrastructure at respective site to integrate the CCTV System with data centre, command centre etc.
26. The IP Pool and network routing requirements are to be finalised by the SI in consultation with GSCDCL. It is to be noted that the range/class/IP pool may be different at different locations and hence SI should design their solution accordingly.
27. GSCDCL needs to be fully informed of the results of the feasibility survey and the amount and extent of the demolition and site clearance shall then be agreed with the GSCDCL. Selected bidder has to inform & take necessary approval from GSCDCL in advance (minimum 2 weeks) for the digging or excavation required wrt ROW/RI. The bidder is required to submit the detailed plan with drawing for approval. GSCDCL will facilitate such permissions and provide support wherever required. The restoration cost, if any shall be borne by SI and same shall be reimbursed by GSCDCL.
28. SI is responsible to carry out Civil Work (Supply, Erection and commissioning) of Non-IT infrastructure like poles/frames/fixtures/housing etc. with proper electrical earthing (as per IS-3043) wherever required based on the feasibility study report.
29. The SI has to ensure that on completion of work, site has to be restored to its original condition as per site requirements.
30. The successful bidder has to provide structural safety certificate from qualified structural engineers approved/ certified by Government Agency for the approval of Pole design and foundations for CCTV system implemented under CCTV Surveillance (CCTV Network) Project.
31. The CCTV system implemented at Construction site shall be temporary implemented. SI shall carry out shifting and or alignment of CCTV Cameras installed system implemented at construction site within same premise for better monitoring. SI shall also carry out the relocation of CCTV System at another construction sites without any extra cost if the work at existing site has been completed. In this regard, SI shall carry out above said activities only after intimation and written permission from GSCDCL.
32. All equipment installed as part of CCTV system under the scope of "CCTV Surveillance (CCTV Network) Project" should be with 5 year replacement warranty / comprehensive warranty.
33. SI shall provide necessary training to end users to access the feeds pertaining to their site/department and other relevant technical training to manage the system.
34. SI is also responsible to design Standard Operating Procedure (SOP) for all incidents during Operation & warranty support.
35. SI shall be responsible to integrate the CCTV system with the EMS and helpdesk software for SLA monitoring.

36. It is proposed that the SI shall provide the IT hardware infrastructure along with system software's at the Data Center for successful operations of the systems. The Primary DC will be at GSCDCL ICC & Office where in space will be provided to the selected bidder to host the IT infrastructure pertaining to this project. SI has to ensure that redundancy is provided for all the key DC components to ensure that no single point of failure affects the performance of the overall system.
37. After the completion of contract duration, SI shall hand over the entire solution covering all the components in working condition to GSCDCL.

#### RoW and Restoration Charges

1. SI is required to carry out complete process as per GSCDCL guidelines including taking permission. GSCDCL will provide necessary support to expedite the permission.
2. The security deposit required to be paid at the time of Road Digging Permission will be waived off by GSCDCL.
3. The Road Reinstatement Charge (RI Charge) will be reimbursed on quarterly basis as per actuals on submission of bills.
4. In case of HDD, the Road Reinstatement Charges will be calculated considering the actual road that has been dug (the pit area).
5. For micro trenching SI is required to undertake the restoration at his cost. No reimbursement will be made in this regard by GSCDCL. Depth of cable using Micro trenching should be in compliance with the specification of the RFP.
6. The SI shall inform all concerned authorities and obtain NOC or permissions as required before starting work
7. In case of the permission is required from any other authority apart from GMC, the SI is required to coordinate. GSCDCL will facilitate and provide necessary support to expedite the same.

#### Feasibility Report

After signing of contract, the Systems Integrator needs to deploy local team of minimum three CCTV Technical persons (based at Gwalior) proposed for the project and ensure that a Project Inception Report is submitted to GSCDCL which should cover following aspects:

1. Project organization structure and escalation metrics
2. Approach and methodology to be adopted to implement the Project
3. Responsibility matrix for all stakeholders
4. Detailed project plan specifying dependencies between various project activities / sub-activities and their timelines
5. Installation locations geo mapped preferably on google earth to visually identify the geographical area

The SI as part of the feasibility study shall conduct below mentioned activities. Based on below mentioned activities SI shall have to prepare detailed feasibility study report and submit the same to GSCDCL.

1. Conduct Survey of each identified location for implementing CCTV System including Data Centre and ICCC
2. Comprehensive As-Is study of the existing CCTV system which are identified for integration and upgradation if any.
3. Assess the reusability of the existing infrastructure (i.e., Junction Box, Switch, CCTV System etc.) wherever possible and will submit a reusability report to GSCDCL.
4. Assess the requirement of IT Infrastructure and Non IT Infrastructure including type and count of CCTV cameras at each identified locations, Video Management Software requirement, EMS software etc.
5. Assess the network connectivity and bandwidth requirement at each identified locations including Police Control Room Centre and ICCC covered under City CCTV Surveillance Project
6. Assess the storage requirement for CCTV system at data center and each identified location as per the scope of City CCTV Surveillance Project
7. Assessment of the cable laying requirement including trenching and ducting
8. Assessment of integration requirement if any
9. Any other relevant information
10. Preparation and submission of Final BoQ for City CCTV Surveillance Project

Additionally, the System Integrator should provide as part of feasibility report the detailed To be designs (layout plans) specifying the following:

1. Location of all field systems and components proposed at the identified locations, (KML /KMZ file plotted google earth etc.)
2. Height and foundation of CCTV Camera Poles and other mounting structures for field devices.
3. Design of pole, Junction box and other fabricated components
4. Location of Junction Box
5. Location of Network Provider's Point of Presence (PoP)
6. Design of Cables routing, Ducts routing, digging and trenching
7. Electrical power provisioning, etc

#### Detailed Functionalities of City CCTV Surveillance Project

**Note: It is a mandatory condition that none of the cameras supplied should originate from countries sharing a border with India. Furthermore, at least 50% of the total cameras provided must be manufactured in India. Compliance with these geographical origin requirements is essential for the acceptance of the bid. Bidders are required to provide clear documentation verifying the manufacturing location of each camera, ensuring that at least half of the supplied cameras are made in India."**

1. The Surveillance System shall offer centralized management of all devices, servers and users.
2. The Surveillance System shall not have any limit on the number of cameras to be connected for Surveillance, Monitoring and recording. The solution shall be scalable to accept any increase in no. of cameras by augmentation of Hardware components.

3. The Surveillance System shall have ability to knit the video streams from multiple cameras, based on the date/time stamp. Every video stream shall have date, time, source camera location, FPS etc. water-marked. These attributes shall be finalized at the System Design time. There shall be a centralized NTP server, from which all devices shall synchronize the date and time.
4. The Surveillance System shall support distributed viewing of any camera in the system using Video walls or big screen displays.
5. The Surveillance System shall support alarm management. The alarm management shall allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras and other external devices.
6. It should be possible to integrate the Surveillance System with 3rd-party software, to enable the users to develop customized applications for enhancing the use of video surveillance solution. For e.g., integrating alarm management to initiate SMS, E-Mail, VoIP call etc.
7. The Surveillance system shall store the overall network elements configuration in central database, either on the management server computer or on a separate DB Server on the network.
8. The Recording Server / System shall support camera (analogue and IP cameras) devices from various manufacturers.
9. The Recording Server / System shall support the PTZ protocols not limited to certain OEMs but in general all the PTZ cameras of the supported devices listed by the camera OEMs.
10. The system shall support full two-way audio between Client systems and remote devices. (Audio from certain set of cameras can be recorded in future).
11. The system shall support automatic failover for recording servers. This functionality shall be accomplished by failover server as a standby unit that shall take over in the event that one of a group of designated recording servers fails. Recordings shall be synchronized back to the original recording server once it is back online.
12. The system shall support multiple failover servers for a group of recording servers.
13. The system shall support Simple Network Management Protocol (SNMP) in order for thirdparty software systems to monitor and configure the system.
14. The system shall act as an SNMP agent which can generate an SNMP trap as a result of rule activation in addition to other existing rule actions.
15. The System Administration Server shall provide a feature-rich administration client for system configuration and day-to-day administration of the system
16. The System Administration Server shall support different logs related to the Management Server
  - i. The System Log
  - ii. The Audit Log
  - iii. The Alert Log
  - iv. The Event Log
17. The system shall support the use of rules to determine when specific actions occur. Rules shall define what actions shall be carried out under specific conditions. The system shall support rule initiated actions such as:
  - i. Start and stop recording

- ii. Set non-default live frame rate
  - iii. Set non-default recording rate
  - iv. Start and stop PTZ patrolling
  - v. Send notifications via email
  - vi. Pop-up video on designated Client Monitor recipients
18. The Client system shall provide remote users with rich functionality and features as described below.
- i. Viewing live video from cameras on the surveillance system
  - ii. Browsing recordings from storage systems
  - iii. Creating and switching between multiple of views.
  - iv. Viewing video from selected cameras in greater magnification and/or higher quality in a designated hotspot.
  - v. Controlling PTZ cameras.
  - vi. Using digital zoom on live as well as recorded video.
  - vii. Using sound notifications for attracting attention to detected motion or events.
  - viii. Getting quick overview of sequences with detected motion.
  - ix. Getting quick overviews of detected alerts or events.
  - x. Quickly searching selected areas of video recording for motion (also known as Smart Search).
19. The web-based remote client shall offer live view of up to 16 cameras, including PTZ control and event / output activation. The Playback function shall give the user concurrent playback of multiple recorded videos with date, alert sequence or time searching.
20. User Authentication – The Remote Client shall support logon using the user name and password credentials.
21. User role & right management – There should be provision to define access control depending upon different user roles. It should be possible to map the camera depending on location, type, etc.
22. Matrix Monitor – The Matrix Monitor feature shall allow distributed viewing of multiple camera on the system on any monitor. It shall be possible to define the viewing matrix like nXn covering maximum 16 cameras. The Matrix Monitor feature shall access the H.264/H.265/MJPEG/MPEG4 stream from the connected camera directly and not sourced through the recording server
23. The alarm management module shall allow for continuous monitoring of the operational status and event-triggered alarms from various system servers, cameras and other devices. The alarm management module shall provide a real-time overview of alarm status or technical problems while allowing for immediate visual verification and troubleshooting.
24. The alarm management module shall provide interface and navigational tools through the client including;
- i. Graphical overview of the operational status and alarms from servers, network cameras and external devices including motion detectors and access control systems.
  - ii. Intuitive navigation using a map-based, hierarchical structure with hyperlinks to other maps, servers and devices or through a tree-view format.

25. The module shall include flexible access rights and allow each user to be assigned several roles where each shall define access rights to all or selected cameras.
26. Basic VMS should be capable to accept third party generated events / triggers. Based on alarms/alerts, customized/standard alert messages should be published on VMB/PA, after authorization by a supervisor/operator
27. System should have a facility to create CDs or other storage media for submission to Judiciary, which can be treated evidence for legal matters.
28. There should be functionality to convert Video clips into .AVI and other suitable formats as per requirement.
29. All the systems proposed and operationalization of Video Management System should comply with requirements of IT Acts.
30. Any hardware or software required to achieve the functional requirement and technical solution of the overall Project (may not be specified in the schedule) is to be proposed in the Bid and borne by the SI.
31. SI to provide the access of Surveillance system through mobile app for viewing of any video stream from Central VMS
32. There should be provision to group the set of cameras depending on the location or the departments, type, etc.
33. There should be provision to set various camera related parameters like frame rate, compression rate, zoom, etc. from the centralized console for a specific camera or set of cameras.
34. The CCTV Surveillance System to be implemented will include an advanced two-way communication feature at each camera pole to facilitate audio interaction between the Integrated Command and Control Center (ICCC) operators and the specified locations across Gwalior city. This system will be composed of durable, weather-resistant microphones that are sensitive enough to capture a wide frequency range of sounds while being resistant to vandalism. Alongside these, high-definition loudspeakers will be installed, capable of delivering clear audio output suitable for the urban environment, with adjustable volume to account for varying noise levels. The audio devices will be integrated into the IP network, using Power over Ethernet for efficient power management and reduced cabling needs.
35. Operators at the ICCC will be able to issue announcements to any individual location or broadcast to the entire city via a centralized management platform. This platform will facilitate not only the live audio feeds from various locations but also the archival of all communications, which will be time-stamped and stored in accordance with privacy and data retention laws. The audio transmission will be encrypted to safeguard against unauthorized listening, and access to the system will be strictly regulated to ensure that only authorized personnel can use it.
36. To align with the project's comprehensive approach, the audio communication devices will be under the same warranty as specified in this RFP for the CCTV system, with the vendor responsible for offering complete training on their operation. The entire system will adhere to national and international standards for audio communication, ensuring that the integration of the two-way communication setup complements the CCTV surveillance capabilities, thus enhancing both security measures and public service announcements in the smart city infrastructure.



37. CCTV Surveillance System shall mandate the inclusion of a Network Keyboard and Network Monitoring Software (NMS) as part of the system designed by the vendor. The Network Keyboard must be a high-performance, full-featured control device, a precise 4-axis joystick for comprehensive management of PTZ cameras. The keyboard is required to have flexible network configuration capabilities through an adaptive ethernet port and support WiFi connectivity for optimal placement and network integration. The keyboard should also possess USB ports for the connection of external devices, audio in/out connectors to facilitate two-way communication, and HDMI and DVI outputs for connecting to external monitoring displays. It must include a suite of serial interfaces including RS-232, RS-422, and RS-485 to ensure compatibility and control across the surveillance system.
38. The Network Monitoring Software (NMS) that is to be proposed must be capable of delivering full-stack monitoring and analytics, with the ability to monitor the entire gamut of network components, from physical devices to cloud services and software applications. The software shall offer discovery and visualization tools to map network architecture effectively, and must include log indexing and event management features to record and search through network activities. The software shall facilitate full-stack analytics, ensuring visibility across all layers of the infrastructure, and include an alerting system to promptly notify network administrators of any potential issues to minimize response times and prevent downtime.
39. Vendors are required to include these specified features and facilities in their proposed system design to meet the RFP requirements. These components should be seamlessly integrated into the overall CCTV Surveillance System to ensure robust, secure, and efficient operations for the end-user, with all elements backed by a warranty and support agreement as specified in the RFP documentation.

#### Data Center

Bidder is required to propose Data Center components within GSCDCL premises. SI shall submit the suitable design to meet the project requirements to GSCDCL for approval at design stage of the project. The space for installation of Racks shall be provided by GSCDCL.

The successful bidder will be required to commission and integrate the underlying infrastructure required for running the applications and manage the entire system. The bidder as the part of overall solution should consider latest & innovative technologies and propose the most optimal solution. SI shall be responsible to integrate the CCTV system with the EMS and helpdesk software for SLA monitoring.

As part of preparing the final bill of material for the physical Data Centre, the successful bidder will be required to list all passive & active components required in the Data Centers. The bill of material proposed by the successful bidder will be approved by GSCDCL for its supply and installation. Indicative equipment to be commissioned as part of Server Side infrastructure at Data Center are as under:

1. Servers
  - i. Application Servers
  - ii. Recording Server

- iii. Database Server
- iv. Management Server
- v. Antivirus Server
- vi. Any other Server required to cater to the scope of work mentioned in this RFP

2. Application & System Software

- i. Video Management System including Licenses
- ii. Network Management & SLA Management, Helpdesk Management
- iii. Anti-virus Software for Servers
- iv. Customized Software to cater to requirements of Project Requirements
- v. Any other software with all necessary licenses

3. Storage & Storage Management Solution

4. Switches

5. Next Generation Firewall

6. Racks

7. All required Passive Components

The above are only indicative requirements of IT & Non-IT Infrastructure requirements at Data Centre. Benchmark specifications for various items mentioned above are given in this RFP document.

Key Consideration for IT Infrastructure for CCTV Surveillance

12.1.1.1 General Instructions

1. SI is responsible to size and propose the IT infrastructure required for smooth functioning of the entire solution as per OEM guidelines and standard industry practice. SI has to supply, install, commission and manage/maintain the IT Infrastructure components such as Servers, Databases, Storage Solution, Software and other supporting IT components as required at the Data Centre that has been proposed as part of the bid. The space for Data Centre (DC) used for this project will be provided by GSCDCL.
2. The System Integrator has to procure the materials and equipment as required and given as part of the System Integrator's response. However, it should be noted that the System Integrator has to procure all necessary equipment to run the solution as per the requirement of the RFP documents including the SLA. In case, it is identified that certain components are required but not quoted by the bidder, the SI will procure and commission the same without any financial implications.
3. The System Integrator shall note that the specification provided is the minimum requirement and the System Integrator shall procure better equipment if it is required to meet the service levels mentioned in the RFP
4. GSCDCL reserves the right to ask the bidder to supply only part of the hardware quoted and procure the rest of it separately by itself. The payments schedule will be adjusted accordingly. The Bill of Quantity mentioned in this RFP is indicative and may vary at the time of implementation. The bidder is required to propose the same during feasibility survey report.

5. GSCDCL is not responsible for any assumptions or judgments made by the Bidder for arriving at any type of sizing or costing. GSCDCL at all times will benchmark the performance of the Bidder to the RFP Documents circulated to the Bidder and the expected service levels as mentioned in these documents. In the event of any deviations from the requirements of these documents, the Bidder must make good the same at no extra costs to GSCDCL within two weeks of detection of the deviation, in order to achieve the desired service levels as well as meeting the requirements of these documents. GSCDCL shall not be responsible for any assumptions made by the Bidder. Also, if bidder misses to factor the cost of any item required to deliver the solution successfully or undersizes the solution, then the bidder has to provide that without any additional cost.
6. All the patches have to run successfully on Test & Development (T&D) environment before deployed Live for production. Bidder has to ensure that the patches provided are compatible with the customized solution running at GSCDCL and will not have any adverse impact on the existing functionalities.
7. Bidder can leverage virtualization to arrive on the solution.
8. The Bill of Quantity(BOQ) as estimated by GSCDCL is not exhaustive. Any additional items/ components like Hardware, Software, any licenses, accessories, service etc. as required to make the project completely operational may be assessed by the Bidder and the same may be incorporated in the offer. Even at the time of execution, if any additional items/ components like Hardware, Software, any licenses, accessories, service etc. are required to complete the system integration, notwithstanding the BOQ as identified by the Bidder as above, the same shall be provided at no additional cost.

#### 12.1.1.2 Key Aspects to be considered

1. The solution should be highly scalable and capable of delivering high performance as and when number of camera increases without compromising the performance.
2. All components of the IT Infrastructure should be based on standards to avoid compatibility issues.
3. The IT Infrastructure should have ability to withstand all single point of failure.
4. The IT Infrastructure should support auto-switching to available server in case of server failure.
5. It should be possible to configure data replication synchronously or asynchronously.
6. The solution proposed should include servers with latest CPU architecture offered by the hardware provider.
7. All the hardware shall be new and procured for this project. The ownership of hardware shall be transferred to GSCDCL on commissioning of hardware. However, SI will be fully responsible for maintaining these Assets during the contract period and will be fully accountable for the same.
8. All the software used for GSCDCL shall be licensed to GSCDCL and will be the property of GSCDCL. The licenses shall be perpetual.
9. The hardware sizing proposed for hosting the solution shall be based on the VMS OEM guideline.

### 12.1.1.3 Key Activities and Deliverables

The SI is responsible to supply, configure and manage the IT infrastructure under this project. All necessary activities in this regard shall be the responsibility of the SI during the implementation and post-implementation period. Operations and Maintenance of IT infrastructure shall include a range of services related to the operation & maintenance of the IT infrastructure.

Following is the indicative list of activities to be performed:

1. The System Integrator shall be responsible for end-to-end implementation and shall quote and provide/supply any items not included in the bill of material but required for commissioning of the application and meet the requirements of the RFP/Contract. GSCDCL shall not pay for any of the equipment not quoted in the bid but are required for successful completion of the project. However, the same has to be supplied by the System Integrator without any additional fees.
2. The bidder shall propose hardware such that at any point in time during the contract period, the resource utilization does not go beyond the levels defined below
  - i. The average CPU utilization should not exceed 70% for more than 15 minutes in a single stretch
  - ii. The average memory utilization should not exceed 70% for more than 15 minutes in a single stretch
  - iii. In case of breach of above, the bidder will be required to optimize the solution else the additional hardware has to be provided by the successful bidder to ensure the performance within the indicated levels, at no further cost.
3. The SI shall be required to carry out preventive and corrective maintenance of all hardware supplied including replacement of defective parts, installation and configuration of OS and other tools during warranty period. The SI will ensure maximum uptime of the solution.
4. The SI shall be required to repair the faulty component/equipment at the earliest or within the problem resolution time as per SLA defined in this RFP. However if any component/equipment gives continuous trouble, the SI shall replace the same with the new compatible component/equipment of the same or higher configuration without any additional cost to GSCDCL.
5. The SI must integrate hardware and software components along with rest of the IT Infrastructure at GMC to make the system integrated and fully functional.
6. Necessary installation/reinstallation, configuration and implementation support to be provided by SI.
7. In case if breakdown/ maintenance work is required to be carried out during nonworking days/ hours, the SI shall attend the task(s) during this period at no extra payment.
8. The System Integrator has to supply all the installation material/ accessories/ consumables (e.g. screws, clamps, fasteners, ties anchors, supports, grounding strips, wires etc.) necessary for the installation and operation of the systems.
9. The System Integrator has to prepare and submit a delivery report including details of components supplied. The delivery report will be validated by the identified GSCDCL authorized person.

10. None of the components and sub-components that are declared "End-of-sale" by the respective OEM in next 5 years as on date of submission of Bid shall be proposed.
11. Configure, Install and maintain licensed software required for CCTV system with latest antivirus with all critical updates to be installed in the server.
12. The server and other system software should be regularly patched/ updated. Major patching / update which requires system downtime has to be informed well in advance and should be undertaken only after GSCDCL's confirmation.
13. System Integrator should have a governance structure in place to report to GSCDCL's team on daily, weekly and monthly basis and the solution should allow downloading of standard and custom reports on the monitoring status in various formats like PDF, Excel etc.
14. Necessary network connectivity at ICCV WAN will be provided by GSCDCL. However, the SI will be responsible for network configuration and management of the IT infrastructure provided under this project.
15. The System Integrator shall provide monitoring and management services during the contract period. The scope of the services shall include Monitoring, Administration and Management of the entire DC infrastructure together with other GSCDCL's offices. The entire stack of monitoring and management services shall include the following:
  - i. Infrastructure Monitoring, Administration & Management Services
  - ii. Database Administration & Management Services
  - iii. Storage Administration & Management Services
  - iv. Backup & Restore Services
  - v. Production Control and Job Scheduling
  - vi. Security, Patch and antivirus management

#### 12.1.1.4 Monitoring, Administration & Management of IT infrastructure for CCTV Solution

All the devices that will be installed in the Data Centre should be SNMP enabled and shall be centrally and remotely monitored and managed to ensure maximum uptime and optimum performance. The physical infrastructure management and maintenance services shall include but not limited to:

1. Administration and Management of all physical and virtual environments. Bidder should provide skilled resources on all leading Operating Platforms
2. Administration service to keep servers, storage and other IT infrastructure stable, reliable and efficient.
3. Proactive and reactive maintenance, repair and replacement of defective components (IT and Non-IT/ Hardware and Software). The cost for repair and replacement shall be borne by the System Integrator.
4. The selected System Integrator shall have to stock and provide adequate onsite and offsite spare parts and spare component to ensure that the uptime commitment as per SLA is met. To provide this service it is important for the selected System Integrator to have back to back arrangement with the OEMs.
5. Component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA). In case the selected System Integrator

fails to meet the above standards of maintenance, there will be a penalty as specified in the SLA.

6. The selected System Integrator shall also maintain records of all maintenance of the system and shall maintain a logbook on-site that may be inspected by GSCDCL at any time.
7. Regular analysis of events and logs and maintain the reports for future audit purposes.
8. Periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures.
9. Take appropriate steps to comply with the audit observations made by various internal/ external auditors.
10. Systems Administration Services performed by System Integrator shall ensure that GSCDCL's IT Environment operates smoothly, securely and consistently. It also ensures Optimized use of IT resources. System Integrator shall ensure following Server Administration activities for GSCDCL.
11. Configuration of server, storage, networking & security component parameters, operating systems administration and tuning.
12. Adequate hardening of the operating systems of the servers, storage & network equipment and security equipment to prevent known and unknown attacks.
13. Operating system administration, including but not limited to management of users, processes, resource contention, preventive maintenance and management of upgrades including migration to higher versions and patches to ensure that the system is properly updated.
14. Re-installation in the event of system crash/failures.
15. Maintenance of a log of the performance monitoring of servers including but not limited to monitoring CPU, disk space, memory utilization, I/O utilization, etc.
16. Periodic health check of the systems, troubleshooting problems, analyzing and implementing rectification measures.
17. Troubleshooting issues in the infrastructure, network and IT application to determine the areas where fixes are required and ensuring resolution of the same.
18. Identification, diagnosis and resolution of problem areas pertaining to the DC site infrastructure and application and maintenance of assured SLA levels.
19. Implementation and maintenance of standard operating procedures for maintenance of the infrastructure based on GSCDCL's policies.
20. Management of the user names, roles and passwords of all the relevant subsystems, including, but not limited to servers, applications, storages etc.
21. System administration activities shall include tasks including but not limited to setting up the IT assets, executing hardware and software updates when necessary. The indicative activities include
  - i. Configuring and apportioning storage space
  - ii. Setting up of working e-mail accounts and mailing lists
  - iii. Management and integration of databases if required
  - iv. Implementing security on the Internet / Intranet
  - v. Performing periodic backup of data and automating reporting tasks
  - vi. Executing hardware and software updates when necessary
22. IT assets performance monitoring, fine-tuning, optimization & Problem Resolution

23. Pro-active Disk management /Capacity planning
24. IT assets Configuration changes
25. Understanding Performance Bottlenecks and solving the issue proactively
26. Log in ID administration (addition / modification / deletion / maintenance etc.)
27. Perform file back-up/recovery as defined in the process
28. Intrusion / Malware / Virus etc. detection and neutralization

12.1.1.5 Backup & restore services:

SI will be responsible to take the backup of operating system, database and application as per industry best practices. SI will be responsible to restore the backup in case of failure

12.1.1.6 Storage, Administration & Management Services

The indicative list of activities shall include:

1. Installation, configuration, monitoring and management of the storage system in accordance to the application requirement.
2. Creation of required number of VLUNs to optimize the speed and storage of data. The VLUNs created would also ensure segregation of the data as per the application requirement. The VLUNs should be dynamically configurable for the space allocation.
3. Management of storage environment to maintain performance at desired optimum levels.
4. Development of storage management policy, configuration and management of disk array, SAN fabric / switches, virtual Storage, etc.
5. Configuration of SAN shall include activities such as management of storage space, volume, RAID configuration, LUN, zone, security, business continuity volumes, performance, etc.

12.1.1.7 Database administration and Management Services

The indicative list of activities shall include:

1. Monitoring, maintenance and tuning of the databases to meet performance standards, maximize efficiency and minimize outages, as necessary and proactively reviewing database logs and alert logs and taking appropriate actions.
2. Management of database upgrade or patch upgrade as and when required with minimal downtime.
3. Regular backups for all databases in accordance with the backup and archive policies and conduct recovery whenever required with appropriate permissions.

12.1.1.8 Security Administration Services at DC

The indicative list of activities shall include:

1. Server and application hardening to prevent attack from any known and unknown attacks.
2. Root domain administration by creating the root and sub-domains and setting the root level security policies such as authentication mechanisms (single/multi factor), password policies such as password length, password complexity, password expiry, account lockout policy, certificate policies, etc.

3. Maintaining an updated knowledge base of all the published security vulnerabilities and threats.
4. Ensuring that patches / workarounds for identified vulnerabilities are patched / blocked immediately.
5. Respond to security breaches or other security incidents and coordinate with respective OEM in case of a new threat is observed to ensure that workaround / patch is made available for the same.
6. Operating system hardening through appropriate configuration and patch updates.
7. Periodic reviews of rights and privileges.

#### 12.1.1.9 Warranty, INSURANCE and Annual Maintenance Services

The System Integrator shall provide a comprehensive warranty, insurance, and maintenance for both the IT and software infrastructure for the entire solution provided to GSCDCL. This includes a manufacturer's warranty covering proper design, quality, and workmanship of all hardware, equipment, accessories, and related components outlined in this bidding document. The System Integrator must ensure all hardware, equipment, accessories, spare parts, and software are free from manufacturing defects throughout the warranty period. Furthermore, the System Integrator shall be held responsible for replacing any equipment or components that are stolen or otherwise removed from their installed locations without authorization during the warranty period, at no additional cost to GSCDCL. This responsibility extends to providing all necessary replacements in a timely manner to ensure continuous operation and service provision as per the agreed standards and expectations.

1. Hardware Warranty: As per RFP requirements on-site comprehensive warranty with parts (Back-to-back from OEM).
2. Hardware O&M after warranty: Comprehensive onsite O&M with parts from the date of end of warranty till the end of contract covering back-to-back support from the OEM.
3. Software Automated Test Suite (ATS): Comprehensive O&M/ATS services from the date of completion of Warranty on all the licensed software (IT product, associated software components, VMS Software, database, operating systems, etc.) provided by the System Integrator till 5 years from the date of first Go live. The ATS from OEM shall be applicable for VMS and antivirus software. All minor and major updates/upgrades shall be made available as part of ATS. The SI will be responsible to installation of the same from time to time. For OS & Database, the SI will be required to carry out necessary patch updates/ service pack updates from time to time.
4. System Integrator shall, for this purpose, stock sufficient spares for rendering service and meeting SLA. GSCDCL is not obliged to continue with the System Integrator providing O&M and may choose another System Integrator as O&M Partner.
5. No separate charges shall be paid for visit of engineers or attending to faults and repairs or supply of spare parts.
6. During the implementation period and warranty period System Integrator shall perform all the functions as enunciated under the O&M at no extra cost to GSCDCL.



7. The support for planning, optimization and tuning of hardware and software after commissioning, whenever needed during Operation period/ Warranty / AMC shall be provided by System Integrator at no extra cost to GSCDCL.
8. Mean Time between Failures (MTBF): If during contract period, any equipment has a hardware failure on four or more occasions in a period of less than three months or six times in a period of less than twelve months, it shall be replaced by equivalent or higher level new equipment by the System Integrator at no cost to GSCDCL. For any delay in making available the replacement and repaired equipment for inspection, delivery of equipment or for commissioning of the systems reserves the right to charge a penalty.
9. Warranty should not become void, if GSCDCL buys, any other supplemental hardware from a third party and installs it within these machines under intimation to the System Integrator. However, the warranty will not apply to such supplemental hardware items installed
10. The System Integrator shall carry out Preventive Maintenance (PM).
11. The System Integrator shall ensure that the warranty complies with the agreed Technical Standards, Security Requirements, Operating Procedures, and Recovery Procedures.
12. Insurance Coverage: The System Integrator shall procure and maintain, at their own expense, comprehensive insurance coverage for all supplied hardware, software, and accessories against risks of theft, loss, damage, or destruction during the entire period of implementation, warranty, and O&M contract period. The insurance policy shall cover the full replacement value of the items and shall be endorsed in Favor of GSCDCL. In the event of a claim, the System Integrator shall facilitate the timely processing and replacement or repair of the affected assets to ensure adherence to the service continuation and uptime commitments as per the SLA. The insurance shall also cover the liability for any third-party claims arising out of the operation of the system or during the execution of the project, including but not limited to, bodily injury, property damage, and any other liability associated with the operation of a surveillance system. Proof of such insurance shall be provided to GSCDCL prior to the commencement of the contract and upon each renewal of the policy thereafter.
13. System Integrator shall have to stock and provide adequate onsite and offsite spare parts and spare component to ensure that the uptime commitment as per SLA is met.
14. Any component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA).
15. The System Integrator shall develop and maintain a database of IT inventory to include the registered hardware warranties.

Design Considerations and Operating Condition for CCTV SURVEILLANCE PROJECT  
(CCTV Network)

1. **Reliability:** The proposed equipment must be designed to cater for 24x7 round-the clock operations.
2. **Maintainability:** The bidder has to maintain the uptime for entire system as mentioned in SLA. This uptime is exclusive of regular maintenance. The minimum down-time for all the components, factors such as ease of replacement, mean-time to-repair (MTTR) has to be incorporated in the system design and proposal and the same to be submitted.

3. **User-Friendly:** The system server should / may be based Windows, Linux or Unix OS. At the same time, the administrative and dispatch console should be World Wide Web based, the multi-channel S/W client should operate on Windows and Linux based client Operating System". The server system can be based on Windows/Linux/Unix OS.
4. **Upgradeability:** Each part of the system produced should be modular and easily reconfigurable and upgradeable. The system should be preferably based on an open system concept.
5. **Security:** Network and Physical Security of the equipment against all the possible threats needs to be taken care of while designing the entire system. The utmost care and due consideration for the security of data / video is mandatory as the data is directly related to law & order and Surveillance. The architecture must adopt an end-to-end security model that protects data and the infrastructure from malicious attacks, theft, etc. SI must make provisions for security of field equipment as well as protection of the software system from hackers and other threats. Using Next Generation Firewall such attacks and theft should be controlled and well supported (and implemented) with the security policy. The virus and worms attacks should be well defended with gateway level Anti-virus system, along with workstation level antivirus mechanism. Furthermore, all the system logs should be properly stored & archived for future analysis and forensics whenever desired. GSCDCL may carry out the Security Audit of the entire system post acceptance / operationalization through a Third Party Auditor (TPA). The following guidelines need to be observed for security:
  - a. Build a complete audit trail of all activities and operations using log reports, so that errors in system – intentional or otherwise – can be traced and corrected.
  - b. The most appropriate level of security commenced with the value to that function for which it is deployed must be chosen
  - c. Access controls must be provided to ensure that the system is not tampered or modified by the system operators.
  - d. Implement data security to allow for changes in technology and business needs.
  - e. The security of the field devices must be ensured with system architecture designed in a way to secure the field devices in terms of physical damage & unauthorized access.
6. **Electromagnetic Compatibility:** The IP Interoperability and Collaboration System shall be able to operate without any complication due to any electromagnetic interference exists in or between sub-systems.
7. **At expiry of Contract:** For smooth handing over/transfer of the system, at the time of expiry the contract, all the system (Software, Hardware, Connectivity, Control Room, Field equipment, Components and subcomponents etc used in the project) shall be fully functional with detailed diagrams and drawings.
8. **Scalability:** The system should be designed for scalability and allow future expansions in terms of subsequent project phases, increased user density and geographical coverage. Important technical components of the architecture must support scalability to provide continuous growth. The system should support vertical and horizontal scalability so that depending on change in requirements from time to time, the system may be scaled upwards. There must not be any system imposed restrictions on the upward scalability in number of field devices. Main technological components requiring

scalability are storage, computing performance (IT Infrastructure) and software / application performance.

9. **Availability** - Components of the architecture must provide redundancy and ensure that there are no single point of failures in the key project components. Considering the high sensitivity of the system, design should be in such a way as to be resilient to technological sabotage. To take care of remote failure, the systems need to be configured to mask and recover with minimum outage. The SI shall make the provision for high availability for all the services of the system.
10. **Convergence** – GSCDCL has already initiated many projects which have state of the art infrastructure at field locations deployed under them. The System Integrator shall ensure leveraging the existing infrastructure for optimum utilization, and hence the SI shall submit a re-usability report for all IT and non-IT Infrastructure during the feasibility study period after signing of contract. Further, City CCTV Surveillance Project Infrastructure should be made scalable for future convergence needs. Under the smart city program, GSCDCL has envisaged to create a state of the art infrastructure and services for the citizens of Gwalior, hence it is imperative that all infrastructure created under the project shall be leveraged for maximum utilization. Hence the System Integrator is required to ensure that such infrastructure will allow for accommodation of equipment's being procured under other smart city projects. The procedure for utilization of the infrastructure will be mutually agreed between the GSCDCL and System Integrator.

#### Acceptance Testing

The GSCDCL shall review and finalize the detailed acceptance test plan proposed by the SI. The GSCDCL would also conduct audit of the process, plan and results of the Acceptance Test carried out by the SI for both IT & non-IT components. The GSCDCL would issue certification of completion for which GSCDCL shall verify availability of all the defined services as per the contract signed between the SI and GSCDCL. The SI shall be required to demonstrate all the services, features, functionalities as mentioned in the agreement.

All acceptance testing, project review and monitoring shall be enabled through a Project Management Unit (PMU) nominated by GSCDCL prior to certification by GSCDCL.

Commissioning shall involve the completion of the site preparation, supply and installation of the required components and making the Project available to the GSCDCL for carrying out live Operations and getting the acceptance of the same from the GSCDCL. Testing and Commissioning shall be carried out before the commencement of Operations.

#### 12.1.1.10 Partial Acceptance Test

Partial Acceptance Test shall involve scrutiny of documents for various IT / Non-IT components to verify if the specifications conform to the technical and functional requirements mentioned in the Tender and subsequent corrigendum. GSCDCL reserves right to conduct physical inspection of the equipment delivered to ensure that they arrive at the sites in good condition and are free from physical damage and

incomplete shipments and shall return the products to the supplier at the supplier's expenses if the same is not as per RFP requirements. Physical inspection of hardware will also include physical checking and counting of the delivered equipment in presence of the Successful SI. This equipment will only be acceptable as correct when each received item corresponds with the checklist that will be prepared by the Successful SI prior to shipment. Any shortfalls in terms of number of items received may render the delivered equipment incomplete. This is required to be carried out for all request orders issued under this project.

#### 12.1.1.11 Final Acceptance Testing

The final acceptance shall cover 100% of the "City CCTV Surveillance Project", after successful testing by the GSCDCL or its PMU; a Final Acceptance Test Certificate (FAT) shall be issued by the GSCDCL to the SI.

Prerequisite for Carrying out FAT activity:

1. Detailed test plan shall be developed by the SI and approved by GSCDCL. This shall be submitted by SI before FAT activity to be carried out.
2. All documentation related to City CCTV Surveillance Project and relevant acceptance test document (including IT Components, Non IT Components etc.) should be completed & submitted before the final acceptance test to the GSCDCL.
3. The training requirements as mentioned should be completed before the final acceptance test.
4. Successful hosting of Application and Software.
5. For both IT & Non-IT equipment's / software manuals / brochures / Data Sheets / CD / DVD / media for all the City CCTV Surveillance Project supplied components.

The FAT shall include the following:

1. All hardware and software items must be installed and configured at respective sites as per the specification.
2. Availability of all the defined services shall be verified.
3. The SI shall be required to demonstrate all the features / facilities / functionalities as mentioned in the RFP.
4. The SI shall arrange all tools/equipments required to carry out successful FAT, and will also provide documented test results for the same.

Any delay by the SI in the Final Acceptance Testing shall render him liable to the imposition of appropriate Penalties. However, delays identified beyond the control of SI shall be considered appropriately and as per mutual agreement between GSCDCL and SI. In the event the SI is not able to complete the installation due to non-availability of bandwidth from the bandwidth service providers, the Supplier and GSCDCL may mutually agree to redefine the Network so the SI can complete installation and conduct the Final Acceptance Test within the specified time.

OEM Support

1. Bidders are required to specify only one specific make and model of each item and provide the details in the Technical bid. Providing more than one option shall not be allowed.
2. Bidder must be authorised by the OEM by submission of MAF in original (No photocopy accepted) to quote on behalf of the manufacturer for supply, install and comprehensive onsite warranty and O&M support of the equipment that they offered. The MAF from OEM has to be as per format mentioned in Compliance sheet.
3. The bidder should have a back-to-back support from OEMs on the CCTV system equipment, hardware & software for 5 years. Any upgrade and updates of software shall be made available by the bidder without any additional cost. OEM should provide adequate spares support to SI to upkeep the CCTV system.
4. The relevant product information, brand and model number offered, printed product brochure, technical specification sheets, datasheets etc. should be submitted along with the bid. Failure to submit this information along with the bid shall result in disqualification.
5. The bidder shall furnish undertaking confirming compliance to technical specifications and complete functional requirements as stated in the bid document for all equipment proposed from OEMs. Please refer to Technical and functional specifications of RFP.
6. The bidder shall also furnish the undertaking from their OEM confirming compliance to technical specifications and complete functional requirements as stated in the bid document. Please refer to Technical and functional specifications of RFP.
7. The bidder must not bid/supply any equipment that is likely to be declared end of sale within one year from the date of supply. The successful bidder would be required to replace all such equipment with latest and at least of equivalent configuration. The successful bidder shall submit an undertaking from OEM in this regard to the GSCDCL.

#### Training

1. SI is responsible for providing required training as mentioned below:
2. Training to the staff of GSCDCL or GSCDCL's appointed agencies on related operations of City CCTV Surveillance Project including reports generation etc.
3. Training on basic troubleshooting of all equipment/infrastructure during comprehensive onsite warranty and O&M support of equipment/infrastructure to GSCDCL officials
4. Training sessions should be conducted on a requisite mix of theory & practical operations. The trainings should be conducted in English and Hindi. For practical training, SI is responsible to make provision of cameras, NVR etc. for better understanding to trainees
5. SI is responsible for providing user manuals at the time of training. The user manual should also be periodically updated (if necessary) and provided in hard copy as well as in soft copy.
6. The training shall be carried out for adequate period as mentioned above for which the detailed training schedule along with the content of the training shall be submitted by the SI.
7. SI will have to bear all the cost associated with the conducting such training programs. The space for training shall be provided by GSCDCL.

#### Electrical works and power supply

For those locations where the existing power supply is there in place, the SI will be required to lay necessary power cable with conduit to draw power upto the POE/Camera(s). For those locations, where power supply is required to be obtained to make the CCTV System functional, the SI will be responsible to apply and obtain the same on behalf of GSCDCL by undergoing necessary formalities with electricity boards for provision of mains power supply at desired location. Necessary expense on actuals, based on the payment receipt from electricity board in terms of meter charge, connection charge, etc. will be reimbursed to the SI. The recurring electricity charges will be borne and paid by GSCDCL (deducting amount from BoQ for the said work).

#### Cabling Infrastructure

1. The SI shall provide standardized cabling for all devices and subsystems in the field and Data Centre.
2. SI shall ensure the installation of all necessary cables and connectors between the field devices assembly, outstation junction box, for pole mounted field devices the cables shall be routed down the inside of the pole and through underground duct to the outstation cabinet.
3. All cables shall be clearly labelled with indelible indications that can clearly be identified by maintenance personnel. The proposed cables shall meet the valid directives and standards.
4. Cabling must be carried out as per relevant BIS/IS standards. All cabling shall be documented in a cable plan by the SI.

#### Lightning-proof measures

The SI shall comply with lightning-protection and anti-interference measures for system structure, equipment type selection, equipment earthing, power, signal cables laying. The SI shall describe the planned lightning-protection and anti-interference measures in the feasibility report. Corresponding lightning arrester shall be erected for the entrance cables of power line, video line, data transmission cables. All crates shall have firm, durable shell. Shell shall have dustproof, antifouling, waterproof function & should be capable to bear certain mechanical external force. Signal separation of low and high frequency; equipment's protective field shall be connected with its own public equal power bodies; small size/equipment signal lightning arrester shall be erected before the earthing. The Internal Surge Protection Device for Data Line Protection shall be selected as per zone of protection described in IEC 62305, 61643-11/12/21, 60364-4/5. Data line protection shall be used for security system, server data path and other communication equipment. Data line protection shall be installed as per zone defined in IEC 62305. Type 1 device shall be installed between zone 0B and zone 1. Type 2 devices shall be installed before the equipment in zone 2 and 3.

#### Earthing System

All electrical components are to be earthen by connecting two earth tapes from the frame of the component ring and will be connected via several earth electrodes. The cable arm will be earthen through the cable glands. The entire applicable IT infrastructure i.e signal junction or command centre shall have adequate earthing. Further, earthing should be done as per Local state national standard in relevance with IS standard.

1. Earthing should be done for the entire power system and provisioning should be there to earth all equipment procured under this project so as to avoid a ground differential. GSCDCL shall provide the necessary space required to prepare the earthing pits.
2. All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.
3. There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
4. The earth connections shall be properly made.

#### Others

SI will have to carry his own four-wheeler and a ladder of 15 feet length for carry out implementation and maintenance work (including transportation of items required for Project) during the Contract Period. All the expenses pertaining to four wheeler such as driver's expense, fuel, lubricants, maintenance etc., will have to be borne by the SI. The SI will have to keep minimum 1 number of loaded 4 wheeler for maintenance work. GSCDCL may ask bidder to arrange additional vehicle if required. The vehicle & related accessories should follow RTO norms of Government of Madhya Pradesh.

### 12.2 Onsite Warranty Support and Comprehensive Operation & Maintenance (O&M)

The components procured under CCTV Surveillance Project shall be with 5 years of comprehensive Warranty. The broad scope of the work during onsite Warranty Support and Comprehensive O&M Support are as follows:

1. The SI is required to provide the warranty to Hardware and Software items (including Non-IT/ passive items ) forming part of CCTV Surveillance Project and supplied and installed by the SI for a period of 5 (five) years from the date of issuance of Project Acceptance/Go Live Certificate (the "Warranty Period"). The Warranty Period of different Request Order items shall end at different dates. The SI shall not dispute the same in future in any manner. SI to ensure uptime and availability of Project all time during the Warranty Period as well by resolving any bug and technical problems as soon as possible.
2. Maintenance Terms and O&M obligations are inclusive of spares during Contract period and followings shall constitute the Maintenance Terms, obligations and responsibilities of the SI during Operation and Maintenance (the "Maintenance Terms");
3. Following activities to be carried out by SI during Warranty and O&M Support:
  - a. Maintain the Project , modify, repair or otherwise make improvements to the Project to comply with Technical Specifications, Service Level Agreements specified in RFP Good Industry Practice, Applicable Laws and Applicable Permits, and manufacturer's guidelines and instructions.

- b. The SI shall be responsible for ensuring smooth operation of the Project and undertaking routine and periodic maintenance including all periodic software upgrades in order to maintain the Minimum Service Levels specified in RFP.
- c. Take responsibility for any defect or failure of Project Components comprising of Hardware and Software (including Non-IT/ passive items) due to defective design, material or workmanship, manufacturing or development defects or latent defect or normal wear and tear within the design limit, during the Contract Period.
- d. The SI shall be responsible for any defect or failure of CCTV Surveillance Project Components comprising of Hardware and Software (including Non-IT/ passive items) due to defective design, material or workmanship, manufacturing or development defects or latent defect or due to normal wear and tear within the design limit, during the Warranty period.
- e. The rectification, change of spare of hardware and software units, modification and all software upgrades (Major and minor) shall have to be undertaken by the System Integrator to cure the faults/defects/deficiency in order to raise speed, efficiency and/or effectiveness of the sub system and achieve a higher performance level of Project within the Remedial Period specified by the GSCDCL.
- f. In case if breakdown/ maintenance work is required to be carried out during nonworking days/ hours, the bidder shall attend the task(s) during this period at no extra payment.
- g. The SI should either repair the equipment, or replace the equipment with new equipment, to ensure the CCTV system is operational. Any equipment is either breakdown, damaged due to the negligence of SI, or any technical reasons, it should be replaced with new equipment or item under the guidance of operational team of the GSCDCL.
- h. In case the quoted item is not available in the market, the SI shall have to supply higher Version/ Replacement of that item with prior approval of GSCDCL at no extra cost. No "End of Life" product should be supply to minimize such instances during OEM support for 5 years. If any spare(s)/ material(s) found defective than same should be repaired or new spare(s)/ material(s) is to be replaced. In any case second hand material is not allowed.
- i. In case if the SI is not able to repair the original equipment or any part of it, the SI shall supply the new substitute of same specifications or of higher specifications, with prior approval of the concern officer in GSCDCL. In case, if it is found that the substituted item is of lower quality/specification then the same must be replaced. In case of, repetitive instances, GSCDCL will take punitive action against the bidder.
- j. The SI should perform all the tasks that need to be taken to upkeep the CCTV system in a 24 x 7 days environment. This includes but not limited to any component breakdowns, reworks; relay of cable/re-configure system that needed to perform / replacing the breakdown components etc. as per SLA.
- k. The SI should also take up the work including reworks, relaying of cable cuts, shifting of cameras and equipment, reconfiguring the system, optimization or performance of CCTV system, re-installation of software, expansion to the



existing system such as adding cameras etc. as & when needed. SI to ensure above activities without any additional cost to GSCDCL

- l. Deploy required number of competent technical manpower /engineers/ supervisors along with necessary spare parts, standby items and inventories of all parts of Project during the Contract period at its own cost for evaluation of performance, operation, maintenance and management of the Project and its components in order to maintain the Minimum Service Levels specified in RFP during the Contract period. Necessary technical personnel shall also be deputed by the SI at its own cost for investigating defects and failures and carrying out modifications as and when required during the Contract Period.
- m. Resolve any bugs, technical problems with regards to ticketing operation on urgent basis.
- n. To ensure that ticketing operation shall not get affected owing to technical issues.
- o. Ensure smooth operation of Project during the Contract Period by undertaking routine and periodic maintenance of the Project components and carrying out rectification, modification , software upgrades , change of spare if need so arise in order to maintain the Minimum Service Levels all time during the Contract Period.
- p. Ensure uptime and availability of this Project, all times of Contract Period at all identified locations in relation to the minimum Service Levels specified in this RFP.
- q. Undertake timely upgradation of Project if need so arise during the Contract Period.
- r. Prepare a Maintenance Manual and other manuals specified in this RFP in consultation with GSCDCL or its PMC specifying the detailed operation plan, methodology and time period of regular and preventive maintenance, comprehensive information of equipment, hardware, software (including Non-IT/ passive items) used in Project, operation procedure of each sub system installed, the repair and maintenance procedures of each component and hardware of the Project, procedures for diagnosis, removal of bugs and replacement of any item of equipment, diagnosis procedures of faults and procedures for removing it and replacing. These manuals shall be detailed as per the RFP requirements.
- s. Provide all MIS report specified in RFP or any other reports required by GSCDCL.
- t. Take all precautions to ensure that the Project including all software and hardware (including Non-IT/ passive items) involved remains safe and secure in general and free from attacks arising from attempted manipulation, fraud, break down, compromising of data security, malware and virus attacks, physical attacks or damage due to neglect or omission.
- u. Provide training and handholding support to GSCDCL as follows;
  - Provide training to GSCDCL personnel with regards to operation of Cameras / viewing of feeds/reporting etc and;
  - Provide training to GSCDCL personnel with regards to functioning of Control Center, handling incidents etc.

- v. Ensure that any premises/Project Site provided by GSCDCL to the System Integrator for the purpose of carrying out its obligations shall be used solely for the purpose of carrying out the functions intended and obligations placed under this contract and not for any other purposes.
- w. The SI shall not permit anti social activities/illegal activities on Project Site during the Contract Period. Any liabilities arise as consequences of such event shall be borne by the SI. On occurrence of such event, the SI shall solely responsible for legal remedies and GSCDCL may consider Termination on occurrence of such event.
- x. Take prompt and reasonable action for redressal of each complaint received from users including complaints received by GSCDCL related to Project.
- y. Obtain and keep valid all applicable permits/ Licenses required by it under applicable laws for carrying out its scope of work during the Contract Period.
- z. The SI shall be required to hand over all the equipments in working condition at the time of completion/termination of the Contract, otherwise the equipment, found faulty, shall be rectified from any external agency and whole replacement/repair cost will be borne by the SI only.
- aa. SI is not responsible to maintain the existing infrastructure which is being re-utilized for CCTV Surveillance Project. However, SI is required to inform the GSCDCL if any damage/discrepancies observed during the monitoring. GSCDCL shall get the faulty equipment repaired by their respective Service Provider.
- bb. Warranty and O&M Terms shall not be applicable in the event of damages due to Vandalism, tempering of hardware or any of the Project components by Authority's staff or any external party. In such an event, the GSCDCL shall request the SI to repair/replace the damaged component of Project and reinstall the same. Reasonable repair/replacement costs towards the same shall be reimbursed by the GSCDCL to the SI less of insurance proceeds.

#### Helpdesk System

As part of Overall project scope, the SI will provide the necessary support services for complaint registration related to any component of the solution as part of the Scope. The detailed activities to be carried out by Service agency are listed below:

Given below is an initial list of tasks to be performed by the bidder for support services. GSCDCL may direct bidder to perform any additional / similar tasks, as per its requirement during the contract period.

| #  | Services   |
|----|--|
| 1. | SI shall provide the customer care number and email id to GSCDCL for registration of complaint. Each complaint shall generate the ticket mentioning date and time of registration. The ticket number should be provided to client at the time of complain registration |

|  |   |
|--|---|
| 2.   | SI will nominate one senior person as the Single Point of Contact (SPOC) for the purpose of receiving the complaint and resolution of the same from Go Live. The nominated SPOC must interact cordially with the end user. he will carry out necessary activities to resolve the problem as per the response and resolution time  |
| 3.   | Call center/support center, Call Logging for queries / services / complaints (Trouble Ticketing)  |
| 4.   | Facility to log calls through telephone / mobile, e-mail or service desk software or through personal messenger. Proactive monitoring has to be done by System Integrator to reduce the resolution time in case of any failure. Proactive monitoring should have mechanism of auto generation of ticket for faster resolution. Ticket raise information should be informed to GSCDCL. |
| 5.   | Recording redressal of complaints in the Service Desk Software, Call closure  |
| 6.   | Ensuring the resolution of the complaints in the shortest possible time. To escalate call internally if the same is not redressed by respective field representative of the vendor or requires intervention of higher official.   |
| 7.   | Incident Management   |
| 8.   | Call analysis and generation of reports using a computerized tool for uptimes and SLA's.  |
| 9.   | Bidder shall keep GSCDCL informed about the progress at regular intervals.  |
| 10.  | Assigning a dedicated senior account manager as a SPOC for all the services/issues as listed in this RFP.   |
| 11.  | To provide the outage report on its closure listing the reasons for the same.   |
| 12.  | Any other help / service desk related services not listed above but required for smooth functioning of help / service desk services as directed by GSCDCL   |
| Note: Helpdesk support is not required to be setup onsite. |   |

## Deployment of Onsite Support Engineer

1. The successful SI shall depute 3 (three) trained and qualified on-site support engineers during Warranty and O&M support period i.e for the period of 5 years from the date of Go-Live. Support engineer must have mobile phones round the clock and must have personal vehicle.
  - i. Availability of the required man-power should be 100% except for Sundays. GSCDCL shall take the attendance through biometric and/or mobile based GPS attendance of each person proposed as part of team on monthly basis.
  - ii. Support Engineer team shall require to take the approval from the GSCDCL or concerned authority for in case of planned leaves. SI is responsible to provide the replacement of unavailable manpower till the leaves duration.
  - iii. Support Engineers are entitled to take 12 leaves in a year.
  - iv. Any leave beyond permissible leave shall be subject to penalty if no suitable replacement is available.
2. Considering the criticality of the nature of work, the SI is expected to deploy the best of the breed resources to ensure smooth service delivery to the end users and seamless coordination with other entities involved for tasks related to smooth operation of entire "City CCTV Surveillance Project.
3. The SI will be notified through an email or phone or any other medium by the GSCDCL or any operational team that would exist as the case may be on the issues faced related to the system. The SI will be required to extend support during office hours and beyond as well to attend the issues.
4. SI shall have to ensure local service support within Gwalior city for all locations/service calls under "City CCTV Surveillance Project". The SI shall submit a detailed support plan providing complete details in terms of address of the support centre, number of service engineers available along with their names, telephone/mobile numbers, fax number, spares that will be stocked for comprehensive warranty service etc.
5. The support engineer will visit the installation site once quarterly with the provision that monthly/quarterly reports of the failures and health of the equipment is generated from the NMS and submitted to the Authority. The SI shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services. SI may also require to engage additional manpower on case to case basis for proper operation & support of the system
6. The SI's Engineer shall be responsible to identify the fault and take corrective measures
7. These engineers shall be deputed for the sole purpose for configuring, installing and maintaining the hardware, deploying and installing the system software as per the requirements /testing /integration of various hardware and software, as may be needed at GSCDCL Site without any additional cost during contract period from the date of installation for all supplied items.
8. The server and storage products if used in virtualized environment for video management software necessary Installation / reinstallation of VMS, configuration and implementation support in future if required shall be provided by successful SI through deployed man-power.
9. These engineers shall be deputed for the sole purpose of installation, re-installation, maintenance and troubleshooting the hardware and software supplied and installed for

the duration of the contract. GSCDCL shall provide a table space for the engineer(s) deputed for the sole purpose of servicing products installed under CCTV Surveillance project at GSCDCL.

10. The onsite engineers shall also be required to install, configure and trouble shoot all hardware / software issues pertaining to smooth functioning of CCTV cameras deployed at various locations within GMC limit. In case of major issues, the support engineer will be required to inform GSCDCL. The same applies for network problems as well, where in client side trouble shooting and primary diagnosis is to be done by the deputed resident support engineer.
11. The Engineer must be equipped with all necessary facilities/equipments such as Laptop, mobile telephone, Internet connection, personal vehicles, etc.
12. The SI shall depute only such individuals as are skilled and experienced in the works to be executed under the contract. The GSCDCL has all the rights to reject the services of any support engineer and can ask for a change, if not found fit. The service engineer's leave applications are to be channelled through GSCDCL. In the event of change of any support engineer from the site, prior approval from the Head of GSCDCL shall be essential.
13. The SI shall be responsible for providing all materials, equipment, installation / maintenance tools and services, specified or otherwise, which are required to fulfil the intent of ensuring operation-ability/ maintainability and reliability of total materials covered under these specifications.
14. The indicative list of functions through the engineers deputed at the GSCDCL -site is as under:

| Field Support |  |
|---------------|--|
| 1             | Providing hands and feet support in field for fixing reported incidents  |
| 2             | Provide quarterly Helpdesk and alarm reporting   |
| 3             | Coordinating with GSCDCL nominated officers/agencies to ensure fault free system   |
| 4             | Ensuring completion of upgrade/change activities as required   |
| 5             | Quarterly station visit with necessary tools and equipment to check all the hardware, software, peripheral instruments installed |
| 6             | Logging incident calls and tickets from field with respective OEMs   |
| 7             | Follow up with the concerned OEM and engineer to resolve the incident  |
| 8             | Coordinate and liaise with OEM/Vendor engineers visiting site for issue rectification  |
| 9             | Monitoring installed IT infrastructure/application and alerting concerned person in case of any damage or misconduct             |

|    |  |
|----|--|
| 10 | Conducting day to day operations as instructed by GSCDCL |
|----|--|

| Datacentre Support |   |
|--------------------|---|
| 1                  | Alarm monitoring  |
| 2                  | Filtering of alarms based upon service affecting categories and/or predefined alarm reaction lists.       |
| 3                  | Advising field support Engineers for corrective action to be taken.                                       |
| 4                  | Network Management misbehaviours and malfunctions.  |
| 5                  | Support from EMS for all planned activities.  |
| 6                  | Generating a Service request to respective vendor for further Activity                                    |
| 7                  | Follow up with vendor and field engineers to resolve the network issues                                   |
| 8                  | Escalation to respective managers for long pending network issues and opened service request with vendor. |
| 9                  | Generation of weekly report for all service requests opened/closed with vendor                            |
| 10                 | Conduct day to day operation in accordance to GSCDCL recommended procedures.                              |

| Server Management |  |
|-------------------|--|
| 1                 | Performing management of Servers for in scope application/system   |
| 2                 | Setting of key monitoring parameters from availability point of view i.e. System performance monitoring, tuning, server utilization, scheduling and optimizing the services running on server etc. |
| 3                 | Managing physical system elements (servers, storage devices) including configuration and maintenance tasks   |
| 4                 | Managing local systems components, such as operating systems and their configurations  |

|   |  |
|---|--|
| 5 | Managing asset register for all server equipment. Record information such as serial number, asset code, warranty, AMC details etc. for in-scope applications |
| 6 | Planning for patch release and upgrades  |
| 7 | Any other activities pertaining to server management and maintain SLAs   |

| Database Management |   |
|---------------------|---|
| 1                   | Performing database installation, configuration and maintenance activity related to scope         |
| 2                   | Setting data storage parameters for storage associated with the physical elements of the database |
| 3                   | Setting up of the backup procedures and restoration of the back in case of requirement            |
| 4                   | Analysing alerts  |
| 5                   | Any other activities pertaining to database management and maintain SLAs                          |

| Storage Management |   |
|--------------------|---|
| 1                  | Backup Administration - Manage and monitor activities for Production Environment            |
| 2                  | Handling service requests to provide the Flagged/Marked Data (if any)                       |
| 3                  | Generating daily/weekly/monthly report on the backup as per agreed policy                   |
| 4                  | Any other activities pertaining to storage management and maintain SLAs                     |
| 5                  | Preventive maintenance of the storage e.g: Firmware upgrade/Interoperability with OS/Server |

| Security Management |  |
|---------------------|--|
| 1                   | Managing and monitoring of system to protect from – virus, phishing and malware for managed resources. Virus should be removed or system should be isolated from the network successfully within agreed time from the time of detection of virus at that designated target system. |
| 2                   | Ensuring 100% antivirus coverage with patterns not old more than period agreed on inscope system   |
| 3                   | Reporting security incidents to co-ordinate for resolution   |
| 4                   | Performing Virus pattern update within agreed time period of new release at the OEM site   |
| 5                   | Performing patch management for antivirus for in-scope system  |
| 6                   | Performing vulnerability scanning of all servers/devices (in-scope), which are IP Based. Vulnerability assessment report should be share with GSCDCL every Quarter.  |
| 7                   | Testing and implementation of patches and upgrades   |
| 8                   | Any other activities pertaining to security management and maintain SLAs   |

| Application Management |  |
|------------------------|--|
| 1                      | Performing vendor/OEM interaction for resolving application related issues |
| 2                      | Performing performance tuning of applications                              |
| 3                      | Performing Access Management   |
| 4                      | Performing periodic review of access                                       |
| 5                      | Performing patch updates and software updates for application              |



|   |   |
|---|---|
| 6 | Any other activities pertaining to application management and maintain SLAs |
|---|---|

| Network Management |   |
|--------------------|---|
| 1                  | Troubleshooting communication disruptions and working with vendors to resolve the issues      |
| 2                  | Performing policy management (firewall users, rules etc.)                                     |
| 3                  | Network /device hardening procedure   |
| 4                  | Troubleshooting firewall hardware related issues and coordinating the replacement of hardware |
| 5                  | Implementing and maintaining of security rules  |
| 6                  | Rapidly resolving every incident/problem and ensuring adherence to SLA                        |
| 7                  | Disabling/enabling service/ports  |
| 8                  | Performing any other day-to-day administration and support activities                         |

### 12.3 Audit Observations and Compliance

GSCDCL is subjected to various audits [internal / external]. In the event of any observation by the audit team the same will be intimated to the Bidder. The Bidder is required to assist the GSCDCL for compliance of the same.

### 12.4 Rate Contract

The approved rate of the selected bidder shall be considered as the rates under rate contract and the same will be valid for the period of 5 years. GSCDCL may ask SI for any additional work incorporating one or more items in one or more quantity and cost for these quantities shall be same as discovered as part of the commercial bid.

### 12.5 Project Planning & Management

The success of the project depends on the proper project planning and management. At the onset, the SI shall plan the project implementation in great details and should provide a micro level view of the tasks and activities required to be undertaken in

consultation with GSCDCL. Initial list of planning related tasks and procedures (along with corresponding documentation) that the System Integrator should be submitted at the onset is as follows:

1. Project Schedule: A detailed timeline indicating various activities to be performed along with completion dates and resources required for the same
2. Progress Monitoring Plan: Detailed periodic Progress Report formats along with issue escalation format. The format shall be approved by GSCDCL to the successful bidder before start of the project.
3. Escalation Matrix & Incident Management: A detailed list of key contact persons with contact details with escalation hierarchy for resolution of issues and problems

#### Resource Requirement

The selected bidder shall be required to identify and appoint a senior responsible person as a Project Manager. The same should be available locally at Gwalior. He/she will be required to constantly interact and coordinate with GSCDCL and appointed agency for the timely rollout of the project. S/he will visit GSCDCL or any other office on a short notice.

The Project Manager will perform the following roles & responsibilities:

| # | Role            | Responsibility  |
|---|-----------------|---|
| 1 | Project Manager | <ul style="list-style-type: none"> <li>• Plans and manages the activities for successful completion of the project</li> <li>• Manages quality assurance and Ensures compliance with policies and procedures</li> <li>• Defines the phase deliverables and is responsible for meeting project milestones</li> <li>• Establishes appropriate metrics for measuring key project criteria<br/>Participate in periodic reviews</li> <li>• Management Summary to Reports and Root Cause Analysis with Technical Specialist</li> <li>• Planning and Execution</li> <li>• Co-ordination with GMC /GSCDCL</li> </ul> |

In addition, the selected bidder shall be required to make available necessary back office support staff as and when required depending on the type and nature of support required for the scope to be executed under this project.

### 13 Service Level Agreements (SLA)

Service Level Agreement (SLA) shall become the part of Agreement between GSCDCL and the Successful Bidder. SLA defines the terms of the Successful Bidder's responsibility in ensuring the timely delivery of the deliverables and the correctness of the same based on the agreed Performance Indicators as detailed in this section. The Successful Bidder has to comply with Service Levels requirements to ensure adherence to Project timelines, quality and availability of services.

**The Successful Bidder (refer as System Integrator, SI) has to supply software/automated tools to monitor all the SLAs mentioned below.**

**Note:** Penalties shall not be levied on the Successful Bidder in the following cases:

1. There is a Force Majeure event effecting the SLA which is beyond the control of the Successful Bidder
2. The non-compliance to the SLA has been due to reasons beyond the control of the Bidder.
3. Theft cases by default would not be considered as "beyond the control of Bidder". However, certain cases, based on circumstances & certain locations, GSCDCL may agree to qualify as "beyond the control of Bidder". Damages due to any accident / mishap shall be considered as "beyond the control of Bidder". However, Power shut down or deliberate damage to field devices such as Cameras, Network Switch Systems etc. would not be considered as "beyond the control of Bidder".

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the System Integrator to GSCDCL for the duration of this Agreement.

#### 13.1 Definitions

For the purposes of this service level agreement, the definitions and terms are specified in the contract along with the following terms shall have the meanings set forth below :

- "Uptime" shall mean the time period for the specified services / components with the specified technical service standards are available to the user department. Uptime, in percentage, of any component (Non IT & IT) can be calculated as:
- $$\text{Uptime} = \{1 - [(\text{Downtime}) / (\text{Total Time} - \text{Maintenance Time})]\} * 100\%$$
- "Downtime" shall mean the time period for which the specified services / components with specified technical and service standards are not available to the user department and excludes downtime owing to Force Majeure & Reasons beyond control of SI.
- "Incident" refers to any event / abnormalities in the functioning of the Services specified as part of the Scope of Work of the Systems Integrator that may lead to disruption in normal operations of the Surveillance System.
- "Resolution Time" shall mean the time taken (after the incident has been reported at the helpdesk), in resolving (diagnosing, troubleshooting and fixing) or escalating (to the

second level or to respective vendors, getting the confirmatory details about the same from the vendor and conveying the same to the end user), the services related troubles during the first level escalation.

### 13.2 Measurement of SLA

The SLA metrics provided specifies performance parameters as baseline performance, lower performance and breach. All SLA calculations will be done on monthly basis. The monthly O&M cost shall be calculated as “Cost of that particular year / 12”.

The SLA also specifies the liquidated damages for lower performance and breach conditions. Payment to the SI is linked to the compliance with the SLA metrics.

The aforementioned SLA parameters shall be measured as per the individual SLA parameter requirements and measurement methods, through appropriate SLA Measurement tools to be provided by the SI and audited by GSCDCL or its appointed Consultant for accuracy and reliability.

GSCDCL shall also have the right to conduct, either itself or through any other agency as it may deem fit, an audit / revision of the SLA parameters/ penalty. The SLAs defined, shall be reviewed by GSCDCL on an annual basis after consulting the SI, Project Management Consultants and other experts. All the changes would be made by GSCDCL after consultation with the SI and might include some corrections to reduce undue relaxation in Service levels or some corrections to avoid unrealistic imposition of liquidated damages/ penalties, which are noticed after project has gone live.

Total liquidated damages to be levied on the SI shall be capped at 10% of the total contract value. However, GSCDCL would have right to invoke termination of the contract in case the overall liquidated damages equals 10% of total contract value.

### 13.3 SLA's

| #                          | Performance Area | SLA | Penalty |
|----------------------------|------------------|-----|---------|
| Project Implementation SLA |                  |     |         |

|  |  |                    |  |
|--|--|--------------------|--|
| 1  | Delay in Delivery of Project scope   | As per RFP         | <p>Any delay in the delivery of the project (solely attributable to vendor) would attract a liquidated damage per day of 0.2% of the CAPEX value of that particular item.</p> <p>Total Liquidated Damages applicable under this clause shall be limited to 10% of the value of the equipment/device in software or hardware to be supplied, installed and commissioned for which Request Order is placed. If the liquidated damage reaches 10% of the total contract value, Authority may invoke termination clause.</p> |
| Uptime of all Data Center components   |  |                    |  |
| 1  | <p>Equipment Availability (EA) Uptime (%) = <math>\frac{\text{Total minutes in a month} - \text{Planned downtime} - \text{Total downtime (min) in a month}}{\text{Total minutes in a month} - \text{Planned downtime}} \times 100</math></p> <p><math>X = \frac{100 - (\text{uptime value})}{2}</math></p> | >97.5%             | No Penalty   |
|  |  | <97.5 % to >=95%   | Penalty of 0.1% of purchase cost for that particular equipment during warranty or 0.5% of yearly AMC for that particular equipment   |
|  |  | < 95%              | Penalty of X*0.1% of purchase cost for that particular equipment during warranty or X*0.5% of yearly AMC for that particular equipment   |
| Mean Time To Repair (MTTR) - MTTR shall be monitored on the time taken between logging of complain against the equipment & its closure |  |                    |  |
| 1  | NVR and Edge level Switch  | <= 4 Hrs           | No penalty   |
|  |  | >4 Hrs to <= 6 Hrs | Penalty of Rs 250 for each hour of delay   |
|  |  | >6 Hrs to <= 8 Hrs | Penalty of Rs 500 for each hour of delay   |
|  |  | > 8 Hrs            | Rs. 2000 for each day's delay whichever is higher.   |
| 2  |  | <= 6 Hrs           | No penalty   |

|                             |                                      |                    |  |
|-----------------------------|--------------------------------------|--------------------|--|
|                             | All type of Surveillance Cameras     | >6 Hrs to <= 8 Hrs | Penalty of Rs 250 for each hour of delay                           |
|                             |                                      | > 8 Hrs            | Rs. 500 for each day's delay whichever is higher.                  |
| <b>Incidence Resolution</b> |                                      |                    |  |
| 1                           | Priority Level 1 (Critical) Incident | Within 2 hr.       | 0.25% of quarterly payment after every 2 hours delay in resolution |
| 2                           | Priority Level 2 (Medium) Incident   | Within 6 hr.       | 0.25% of quarterly payment after every 3 hours delay in resolution |
| 3                           | Priority Level 3 (Low) Incident      | Within 12 hr.      | 0.25% of quarterly payment after every 6 hours delay in resolution |

**Note:**

1. The performance report for all above shall be generated from the Measurement Tool (NMS/EMS, Helpdesk tool, etc.). SI shall submit the monthly Reports on the performance and adherence to the SLA through these tools. All incidences reported by EMS and all tickets registered in Helpdesk should be part of the performance report.
2. Following will not be considered for downtime calculation
  - i. Equipment down due to power failure at Location or due to loss of network connectivity attributable to GSCDCL
  - ii. Schedule maintenance by SI with prior information to GSCDCL
3. The payment shall be made on quarterly basis on completion of respective quarter.
4. SLA for MTTR shall be calculated within Business Hours of GSCDCL. However, SLA for Data Centre Component shall be calculated 24\*7.

#### 13.4 Security Breach SLA

**Note** – This SLA for Security Breach is applicable over and above the SLAs mentioned in above table.

|   |  |
|---|--|
| <b>Definition</b>                             | <p>Security of the video feeds and the overall system is quite important and Successful Bidder shall be required to ensure no compromise is done on the same. Security Breach types considered for this SLA are–</p> <ul style="list-style-type: none"> <li>• Availability of Video feeds to any other user than those authorized by GSCDCL /End user department and provided passwords.</li> <li>• Availability of any report / data to any other user than those authorized by GSCDCL /End user department and provided passwords.</li> <li>• Successful hacking on by any unauthorized user or any other privacy rule is broken as per Govt. of India guidelines</li> </ul> |
| <b>Service Level Requirement</b>              | Security compliance of the system should be 100%   |
| <b>Measurement of Level Service Parameter</b> | Any reported security breach shall be logged into the SLA Management solution as a security breach and same should be resolved under Priority level 1.   |
|   | For every security breach reported and proved, there shall be a penalty of INR 2,00,000/- or lead to termination of contract   |

### 13.5 Breach in supply of Onsite Support Engineer

**Note –** This SLA for supply of Technical Manpower is applicable over and above the SLAs mentioned in the above tables.

|                                  |   |
|----------------------------------|---|
| <b>Definition</b>                | SI to ensure that support engineers are available to GSCDCL /End user department and performs to the expected levels. The current SLA breach shall specify penalty amount for non-availability of these manpower.   |
| <b>Service Level Requirement</b> | <p>i. Availability of the required man-power should be 100% except for Sundays. GSCDCL shall take the attendance through biometric attendance of each person proposed as part of team on monthly basis.</p> <p>ii. Support Engineer team shall require to take the approval from the GSCDCL or concerned authority for in case of planned leaves. SI is responsible to provide the replacement of unavailable manpower till the leaves duration.</p> <p>iii. Support Engineers are entitled to take 12 leaves in a year.</p> <p>iv. The penalty shall be waived off for that approved leaves provided replacement is available. In case of absence of approval the penalty shall be levied.</p> |

|  |   |  |
|--|---|--|
| <b>Measurement of Level Service Parameter</b>        | Non-deployment of the profile for more than 1 month. Authority reserves the right to ask SI to replace the manpower if the performance / commitment are not up to the mark. |  |
| <b>Penalty for nonachievement of SLA Requirement</b> | For every SLA non-compliance reported and proved, there shall be a penalty as given below:  |  |
|  | Team Member   | Penalty  |
|  | Support Engineer  | Penalty of Rs 1,000 per day for nonavailability (beyond permissible leaves and without any suitable replacement)<br>· Penalty of Rs. 2,000 per day in case of continuous non-availability for more than 5 days |
|  | <b>Note:</b> The non-availability shall be calculated on working days.  |  |

### 13.6 Explanation Notes for SLA Matrix

#### Issue Resolution

|                                  |   |
|----------------------------------|---|
| <b>Explanation</b>               | Issue Resolution SLA shall monitor the time taken to resolve a complaint / query after it has been reported to the SI by any media i.e., e-mail, Phone, Verbal or through EMS   |
| <b>Service Level Requirement</b> | Different Issues/Queries shall be classified as in following three categories as defined above.<br><b>Critical:</b> The system is unable to be used for normal business activities. There is certainty of operational inefficiency to GSCDCL.<br><b>Medium:</b> There is a problem with part of the system, which impacts on GMC's/GSCDCL decision making.<br><b>Low:</b> Upgrades, shifting, preventive maintenance. Issues which don't have impact on services. |

## 14 Payment Schedules and Milestones

The SI will be required to complete the feasibility and submit the feasibility report as per the RFP requirements within 30 days from date of issuance of LOI.

GSCDCL shall issue a "Request Order" in writing, indicating the number of units of Hardware and Software to be supplied along with the location (Project Site). Upon getting the Request Order, the selected bidder shall promptly and as soon as



possible within the lead time specified in the request order, commission the specified no locations. GSCDCL shall specify the Lead Time in Request Order. The delay in delivery will attract delayed penalty. Tentative Number of Request Orders and Lead Time as envisaged at this point of time is specified below:

| Services        | Approximate Time for Issuance of Request Order | Tentative Scope/ Approximate Sizing | Tentative Lead Time   |
|-----------------|--|-------------------------------------|---|
| Request Order 1 | Two weeks post issuance of feasibility Report  | Locations as prioritized by GSCDCL. | Supply, Installation and commissioning in 180 days post issuance of request order |
| Request Order 2 | Within Three months post issue of LOI          | Locations as prioritized by GSCDCL. | Supply, Installation and commissioning in 180 days post issuance of request order |
| Request Order 3 | Within Five months post issue of LOI           | Locations as prioritized by GSCDCL. | Supply, Installation and commissioning in 180 days post issuance of request order |

**Note:**

1. Based on requirement/criticality GSCDCL may issue interim/subsequent orders as per the approved rate during and after the Request Orders as specified above. Such order may have different quantity of CCTV Camera and other components and the same shall be required to be delivered.
  - a. For CCTV Camera quantity up to 25 – SITC to be completed within 30 days of work order.
  - b. For CCTV Camera quantity 25 to 100 – SITC to be completed within 90 days of work order.

**14.1 Payment Terms**

| # | Milestone   | Payment                             |
|---|---|-------------------------------------|
| 1 | Satisfactory delivery and acceptance of materials (as per the Request Order) and after submission of the invoice. | 40% of total CAPEX of Request order |
| 2 | Satisfactory completion of Installation of respective items/ equipment and after, submission of the invoice.      | 10% of total CAPEX of Request order |

|   |   |                                     |
|---|---|-------------------------------------|
| 3 | UAT and Go Live of entire Request Order (Testing and Commissioning)   | 10% of total CAPEX of Request order |
| 4 | OPEX  | 40% of total CAPEX of Request order |
|   | i. OPEX will be made equally on quarterly basis (20 quarters) at completion of each quarter.<br>ii. The payments are subject to meeting of SLA's failing which the appropriate deductions as mentioned in the SLA section of this RFP.<br>iii. The contract period of 5 years are considered from the Go-Live date of 1st Request Order. The payment of subsequent Request Orders will be made from the Go-Live date of that request order till the remaining years of the Contract period i.e. 5 years |                                     |

**Note:**

- All payments to the SI shall be made upon submission of invoices along with necessary approval certificates from concerned Authority like GSCDCL, GMC, if applicable.
- The above payments are subject to meeting of SLA's failing which the appropriate deductions as mentioned in the SLA document of this RFP.

**14.2 Project Milestone**

The selected System Integrator has to execute the project (i.e Supply, Install, Testing and Commissioning) and handover the entire system in fully functional condition under scope within timelines as following.

| # | Deliverables  | Timeline   |
|---|---|--|
| 1 | Signing of contract agreement   | Within 15 calendar Days from date of issuance of LOI                     |
| 2 | Submission of performance Bank Guarantee  | Within 10 calendar Days from date of issuance of LOI                     |
| 3 | Feasibility study / Site Survey Report for each Request Order                     | Within 30 calendar days of issuance of LOI                               |
| 4 | Request Order   | Within 15 calendar days of submission and approval of Feasibility Report |
| 5 | Supply, Installation, Commissioning and FAT of hardware/software at Site Location | Within 180 calendar days from the date of issuance Lol                   |

## 15 Technical Compliance Sheet

The specifications provided below are the minimum requirements. Bidders are encouraged to propose products that meet or exceed these specifications, based on their assessment of the complete solution. Along with the technical bid, bidders must include the technical specification sheet and product brochure of the offered products. ***It's mandatory that the following technical compliance sheet, including make and model, is officially authorized by the Original Equipment Manufacturer (OEM). This authorization should be evidenced by submitting a Manufacturer's Authorization Form (MAF) in its original form*** (photocopies are not accepted). The MAF, provided by the OEM, must be in the format specified here. Bidders are expected to quote on behalf of the manufacturer for the supply, installation, and comprehensive onsite warranty, as well as Operations and Maintenance (O&M) support for the equipment they offer.

### 15.1 Item No. 1 :- Bullet CCTV

| S.No. | Parameter   | Minimum Specification Requirement | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|-----------------------------------|--------------------|--|
| 1     | Note:<br>Models to be quoted as per Approved Make list only.<br>Compliance should be provided on OEM Letter Head. |                                   |                    |  |
| 2     | Type  | IP IR Varifocal Bullet Camera     |                    |  |
| 3     | Resolution (No of Pixels)   | 5 MP (2592 x 1944)                |                    |  |
| 4     | Image sensor  | 1/2.8-inch CMOS, Progressive Scan |                    |  |
| 5     | Focal length  | 2.7 ~ 13.5 mm, (F 1.6 ~ F 3.3)    |                    |  |

|    |                         |  |  |  |
|----|-------------------------|--|--|--|
| 6  | Lens                    | Motorized Focus and Zoom   |  |  |
| 7  | Iris                    | DC-IRIS  |  |  |
| 8  | Removable IR-Cut Filter | Auto ICR   |  |  |
| 9  | Minimum illumination    | Color: 0.007 Lux @F2.0 (30 IRE)  |  |  |
| 10 |                         | B/W: 0Lux (IR on) @F2.0  |  |  |
| 11 | IR distance             | Smart IR 60m, Day and Night mode switching based on IR sensor or schedule.   |  |  |
| 12 | Electronic Shutter      | Auto/Manual, 1/32000 ~ 1/8   |  |  |
| 13 | Wide Dynamic Range      | 120dB True WDR   |  |  |
| 14 | Back Light Compensation | Required   |  |  |
| 15 | High Light Compensation | Required   |  |  |
| 16 | Noise Reduction         | 3D DNR   |  |  |
| 17 | Signal to Noise ratio   | 50 dB  |  |  |
| 18 | Video compression       | H.265 HEVC, H.264, MJPEG, Smart Codec  |  |  |
| 19 | Angle of View           | H:88°-26°, V:65°-20°   |  |  |
| 20 | Protocols supported     | IPv4, IPv6, TCP / IP, HTTP, HTTPS, RTSP / RTP / RTCP, IGMP / Multicast, SMTP, DHCP, NTP, DNS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, TLS |  |  |

|    |                             |   |  |  |
|----|-----------------------------|---|--|--|
| 21 | Number of Streams supported | Primary, secondary, and tertiary video streams @ H.265; Each stream independently configurable with different resolution and frame rate   |  |  |
| 22 | Stream Resolution           | Primary: 2592 x 1944 / 2592 x 1520 / 1920 x 1080 / 1280   |  |  |
| 23 |                             | x 720   |  |  |
| 24 |                             | Secondary: 1920 x 1080 (MAX 12 fps)/ 704 x 576/ 640 x   |  |  |
| 25 |                             | 480/ 352 x 288  |  |  |
| 26 |                             | Tertiary: 640 x 480 / 352 x 288   |  |  |
| 27 | Frame rate                  | 25 fps  |  |  |
| 28 | Features                    | Color, Brightness, Sharpness, Contrast, Automatic white balance, Gain control, Fine tuning of behavior at low light, Rotation, Character overlay and all other Image Settings in Web UI |  |  |
| 29 | Built-in Video Analytics    | Smart Motion Detection, Tamper Detection, People Counting, Multi Loitering, Intrusion   |  |  |
| 30 | Defog                       | Required  |  |  |

|    |                      |   |  |  |
|----|----------------------|---|--|--|
| 31 | Event Type           | Video motion detection, Alarm input, Recording notification, Tampering  |  |  |
| 32 | Event Linkage        | Event notification using digital output, Email and MicroSD card   |  |  |
| 33 | Security             | User account and password protection, HTTPS, IP Filter, Digest authentication, TLS1.2, Stream encryption, AES128 / 256  |  |  |
| 34 | Prohibited Protocols | Port 21 (FTP), Port 23 (Telnet), GB/T 28191, SSH. There should not be any provision to enable or disable these protocols in the default firmware from manufacturer. Any special firmware developed to disable these features will not be allowed. |  |  |
| 35 | Privacy masking      | 4, definable areas  |  |  |
| 36 | Region of Interest   | 8, definable regions  |  |  |
| 37 | Local storage        | Micro SD / SDHC / SDXC card slot (up to 256 GB)   |  |  |
| 38 | Audio                | Two-way, Full Duplex (Line IN/OUT) supporting G.711   |  |  |

|    |                            |  |  |  |
|----|----------------------------|--|--|--|
| 39 | Alarm                      | 1 In and 1 Relay out   |  |  |
| 40 | Max. User Access           | 10 users   |  |  |
| 41 | Network                    | RJ45 (10 Base-T/100 Base-TX)   |  |  |
| 42 | Environmental Protection   | IP 67  |  |  |
| 43 | Impact protection          | IK10   |  |  |
| 44 | Housing Material           | Die-Cast Aluminum  |  |  |
| 45 | Input voltage              | 12 VDC, PoE (IEEE 802.3 af)  |  |  |
| 46 | Power Consumption          | Max 6W   |  |  |
| 47 | Operating Temperature      | -40°C to 60°C  |  |  |
| 48 | Operating Humidity         | less than 90% (non-condensing)   |  |  |
| 49 | Certifications/Compliances | ONVIF: Profile S, G, T; Secure by Default; UL 62368-1; FCC PART 15B, EN 55032; CE (EN 50130-4); CE (EN 63000); NDAA: Sec 889 |  |  |
| 50 | WARRANTY                   | 5yR  |  |  |
| 51 | MAF & COMPLIANCE           | MAF ON OEM LETTER HEAD WITH TENDER REF. NO. & Compliance on OEM LETTERHEAD   |  |  |

|    |  |  |  |  |
|----|--|--|--|--|
| 52 |  | <p>NOTE :</p> <p>i) OEM Part Numbers MUST be mentioned against each item in Technical and Commercial Bids</p> <p>ii) Data Sheets MUST be attached for each item in the Technical Bid</p> <p>iii) Any Additional items required for complete implementation of the project is in the scope of vendor</p> <p>iv) Vendor to get the doubts cleared before submitting the tender technical bid</p> |  |  |
|----|--|--|--|--|

## 15.2 Item No.-2, PTZ CCTV

| S.No | Parameter  | Minimum Specification Requirement                       | Compliance Yes/ No | Deviation from Specifications /Remarks if Any |
|------|--|---|--------------------|---|
| 1    | <p>Note:<br/>Models to be quoted as per Approved Make list only.<br/>Compliance should be provided on OEM Letter Head.</p> |   |                    |   |
| 2    | Type   | 30X Outdoor IR Network Speed Dome Camera                |                    |   |
| 3    | Image sensor   | 1/2.8-inch CMOS Progressive Scan                        |                    |   |
| 4    | Focal length   | 5~150mm (+/- 10% on each side) (30x) Autofocus MFZ lens |                    |   |
| 5    | Iris   | P-IRIS  |                    |   |
| 6    | Resolution (No of Pixels)  | 5 MP (2592 x 1944)                                      |                    |   |
| 7    | Minimum illumination   | Color: 0.005 Lux @F1.6                                  |                    |   |
| 8    |  | B/W: 0Lux @F1.6 (IR On)                                 |                    |   |
| 9    | IR Illumination  | Internal or External                                    |                    |   |



|    |                               |   |  |  |
|----|-------------------------------|---|--|--|
| 10 | IR Illumination Range         | 150 mtr distance from Camera to object  |  |  |
| 11 | Electronic Shutter            | 1/30000 ~ 1/1   |  |  |
| 12 | Back Light Compensation (BLC) | Required  |  |  |
| 13 | High Light Compensation (HLC) | Required  |  |  |
| 14 | Wide Dynamic Range (WDR)      | WDR up to 120 dB  |  |  |
| 15 | Signal to Noise ratio         | 50dB  |  |  |
| 16 | Video compression             | H.265 HEVC, H.264, MJPEG, Smart Codec   |  |  |
| 17 | Protocols supported           | IPv4, IPv6, TCP / IP, HTTP, HTTPS, RTSP / RTP / RTCP, IGMP / Multicast, SMTP, DHCP, NTP, DNS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, TLS  |  |  |
| 18 | Number of Streams supported   | Primary, secondary, and tertiary video streams; Each stream independently configurable with different resolution and frame rate @ H.265   |  |  |
| 19 | Stream Resolution             | Primary: 2592 x 1944 / 2592 x 1520 / 1920 x 1080 / 1280 x 720<br>Secondary: 704 x 576/ 640 x 480/ 352 x 288<br>Tertiary: 640 x 480 / 352 x 288  |  |  |
| 20 | Frame rate                    | 25 fps  |  |  |
| 21 | Features                      | Automatic white balance, Automatic Gain control, 3D Noise reduction   |  |  |
| 22 | Built-in Video Analytics      | Smart Motion Detection, Video Tampering, People counting, Multi Loitering, Intrusion.   |  |  |
| 23 | Event Type                    | Video motion detection, Alarm input, Recording notification, Tampering  |  |  |
| 24 | Security and Encryption       | User account and password protection, Digest authentication   |  |  |
| 25 |                               | AES 256 (Advanced Encryption System), Stream Encryption, TLS 1.2 (Transport Layer Security), HTTPS  |  |  |
| 26 | Prohibited Protocols          | Port 21 (FTP), Port 23 (Telnet), GB/T 28191, SSH. There should not be any provision to enable or disable these protocols in the default firmware from manufacturer. Any special firmware developed to disable these features will not be allowed. |  |  |
| 27 | Defog                         | On/Off  |  |  |

|    |                                 |  |  |  |
|----|---------------------------------|--|--|--|
| 28 | Electronic Image Stabilization  | Yes  |  |  |
| 29 | Privacy masking                 | 4, Programmable  |  |  |
| 30 | Pan Range                       | 360° endless   |  |  |
| 31 | Tilt Range                      | -10° to 90°  |  |  |
| 32 | Pan Speed                       | High Speed and quick response rotation up-to 180°/sec  |  |  |
| 33 | Tilt Speed                      | High Speed and quick response Tilt up-to 90°/sec   |  |  |
| 34 | Presets                         | 256  |  |  |
| 35 | Auto Pan Mode                   | Required   |  |  |
| 36 | Tour                            | 12 nos.  |  |  |
| 37 | Patrol                          | 6 nos.   |  |  |
| 38 | Auto Resume after power failure | Required   |  |  |
| 39 | Local storage                   | There shall be no loss of recording during an event of connection failure between the edge device i.e., CCTV camera and the backend system. Each camera should support 256GB Micro SD Card |  |  |
| 40 | Ethernet                        | 10 Base-T / 100 Base-TX Ethernet (RJ-45)   |  |  |
| 41 | Audio                           | Two-way (Line IN/OUT) supporting G.711 / G.726   |  |  |
| 42 | Alarm                           | 2 In and 2 Relay out   |  |  |
| 43 | Environment                     | IP67 rated outdoor protection  |  |  |
| 44 | Impact Protection               | IK10 rated vandal protection   |  |  |
| 45 | Heater / Fan                    | Yes  |  |  |
| 46 | Input voltage                   | 24 VDC / 24 VAC, High POE  |  |  |
| 47 | Power Consumption               | Max 24 W   |  |  |
| 48 | Operating Temperature           | -40°C to 60°C  |  |  |
| 49 | Operating Humidity              | less than 90% (non-condensing)   |  |  |
| 50 | ONVIF Compliance                | ONVIF Profile S, G and T   |  |  |
| 51 | Operating Temperature           | -40°C to 60°C  |  |  |
| 52 | Operating Humidity              | less than 90% (non-condensing)   |  |  |
| 53 | Certifications/Compliances      | ONVIF: Profile S, G, T; Secure by Default; UL 62368-1; FCC PART 15B, EN 55032;   |  |  |

|    |                     |  |  |  |
|----|---------------------|--|--|--|
|    |                     | CE (EN 50130-4); CE (EN 63000); NDAA:<br>Sec 889                                 |  |  |
| 54 | WARRANTY<br>& model | 5YR  |  |  |
| 55 | MAF &<br>COMPLIANCE | MAF ON OEM LETTER HEAD WITH<br>TENDER REF. NO. & Compliance on<br>OEM LETTERHEAD |  |  |

### 15.3 Item No.; 3 , Workstation

| S.No. | Parameter   | Minimum Specification Requirement                 | Compliance Yes/ No | Deviation from Specifications/Remarks if Any |
|-------|---|---|--------------------|--|
| 1     | Note:<br>Models to be quoted as per Approved Make list only.<br>Compliance should be provided on OEM Letter Head. |   |                    |  |
| 2     | Make& Model   | Vendor should specify, data sheet to be supplied. |                    |  |
| 3     | Processor   | Intel core i7-10700 or higher                     |                    |  |
| 4     | Clock Speed   | 3.2 GHz or higher                                 |                    |  |
| 5     | RAM   | 32 GB DDR4  |                    |  |
| 6     | OS  | WIN 10 Ent 64- Bit or latest                      |                    |  |
| 7     | Display Adaptor (GPU)   | Integrated Intel UHD graphics 630 + Nvidia T1000  |                    |  |
| 8     | Video Output  | HDMI  |                    |  |
| 9     | Optical Drives  | DVD Writer (Optional)                             |                    |  |
| 10    | HDD   | 500 GB SSD + 1TB HDD SATA                         |                    |  |

|    |  |  |  |  |
|----|--|--|--|--|
| 11 | Ethernet   | min 1 nos of 10/100/1000, Auto Negotiating Ethernet controller   |  |  |
| 12 | USB Port   | 2 USB 2.0 and 2 USB 3.0  |  |  |
| 13 | Audio  | Line In / Line Out, 3.5mm jack                                   |  |  |
| 14 | Regulatory   | CE/EN, FCC, UL   |  |  |
| 15 | Warranty (Year)& Model   | Minimum 5 years or as per OEM standard which ever is higher      |  |  |
| 16 | OEM Authorization Letter - Manufacturer Authorization Form (MAF) | Vendor has to submit MAF along with the Technical Specification. |  |  |

#### 15.4 Item No.: 7 , Information outlet

| S.No. | Parameter   | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
|-------|---|--|--------------------|---|
| A     |   | UTP Cat 6 RJ 45 Sockets  |                    |   |
| B     | Standards and Approvals                                       | The electrical performance of installation outlet shall meet or exceed requirement as per<br>- ISO/IEC 11801 Edition 2;<br>- CENELEC EN 50173-1 2007;<br>- ANSI/EIA/TIA 568-C.2;<br>- IEC series 60603-7 |                    |   |
| C     | Performance characteristics to be provided for CAT6 @ 250 MHz | The information outlet NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT and return loss should be verified   |                    |   |

|   |   |  |  |  |
|---|---|--|--|--|
| D | Connection of RJ 45                       | Should Accept RJ11 (4 contacts), RJ12 (6 contacts), RJ45 (9 contacts).   |  |  |
| E | Conductors Supported                      | Single-wire: 0.5 to 0.65 mm, AWG 22 to 25<br>Multiple-wire: AWG 26<br>Polyethylene conductor insulation: max Ø with insulation 1.58 mm   |  |  |
| F | Shutter                                   | Information outlet should have transparent shutter for protection against dust when not used.  |  |  |
| G | Tool Less Crimping                        | The information outlet termination should be of self crimping type without use of 110 punching tool requirement  |  |  |
| H | <b>Material Specifications</b>            |  |  |  |
| 1 | Body                                      | Contacts :gold/nickel, minimum thickness of gold > 0.8 µm  |  |  |
| 2 |   | Metal parts: bronze, nickel, platinum, gold  |  |  |
| 3 |   | The information outlet shall be made of high impact PBT Polycarbonate plastic material   |  |  |
| 4 |   | For STP Products the body and spreader are made of metal alloy with a copper-nickel coating.   |  |  |
| I | <b>Electrical Specifications</b>          |  |  |  |
| 1 | Break Down Voltage                        | Greater than or equal to 1000V   |  |  |
| 2 | Contact Resistance                        | Less than or equal to 20mOhms  |  |  |
| 3 | Insulation Resistance                     | Greater than or equal to 500 M Ohm at 100 V DC   |  |  |
| 4 | Load Testing                              | Connector should be tested and guaranteed under PoE restrictions, IEEE 802.3af standard and PoE+, draft standard 802.3at, up to 2500 on-load connections / disconnections.<br>Tested with 2 simultaneous PoE+ circuits for a minimum total power of 50 W |  |  |
| J | <b>Mechanical Specifications</b>          |  |  |  |
| 1 | Maximum no of Connections/ Re connections | 5 without refreshing the wiring.   |  |  |
| 2 | Endurance                                 | 2500 movements (plug insertion/withdrawal). IK03   |  |  |
| 3 | Temperature & Make                        | -40 Deg C to +70 Deg C   |  |  |
| 4 | MAF & Compliance                          | MAF & Compliance should be on OEM MAF with Seal & Sign   |  |  |

15.5 Item NO. ; 8 , Cat 6 cable

| Cat6 UTP Copper Cable |                                       |   |                    |   |
|-----------------------|---------------------------------------|---|--------------------|---|
| S.No.                 | Parameter                             | Minimum Specification Requirement                       | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
| 1                     | Type as per ANSI/TIA 568C.2 at 250MHz | U/ UTP, Cat 6 Cable                                     |                    |   |
| 2                     | Insulation                            | Solid PE Ø0.96 mm                                       |                    |   |
| 3                     | Conductor                             | 23 AWG solid bare copper with a Diameter ≥0.56 mm       |                    |   |
| 4                     | Separator                             | X shaped separator                                      |                    |   |
| 5                     | Type of Sleeve                        | PVC / LSZH  |                    |   |
| 6                     | Maximum Attenuation                   | 32.8 dB per 100m  |                    |   |
| 7                     | Min Next (dB)                         | 38.3  |                    |   |
| 8                     | ACRF (dB/100m)                        | 18.8  |                    |   |
| 9                     | Return Loss (dB)                      | 17.3  |                    |   |
| 10                    | Electrical Specifications at 20 Deg C |   |                    |   |
| 11                    | Type                                  | Unshielded Twisted Pair, Category 6, as per IEC 61156-5 |                    |   |
| 12                    | Max linear resistance                 | 95 Ohms per KM  |                    |   |
| 13                    | DC dielectric strength                | 1KV/ 1 minute   |                    |   |

|    |  |                                  |  |  |
|----|--|----------------------------------|--|--|
| 14 | Minimum Insulation Resistance              | 5000 Mohm.km                     |  |  |
| 15 | Minimum Propagation Speed                  | >65%                             |  |  |
| 16 | Characteristic Impedance from 1 to 100 MHz | 100 Ohm $\pm$ 15%                |  |  |
| 17 | Mechanical Features                        |                                  |  |  |
| 18 | Diameter Over Insulation (mm)              | 1.02 $\pm$ 0.06                  |  |  |
| 19 | Cable Diameter (mm)                        | 6.1 $\pm$ 0.3                    |  |  |
| 20 | Min. bending radius when laying (mm)       | 25                               |  |  |
| 21 | ENVIRONMENTAL FEATURES                     |                                  |  |  |
| 22 | Usage Temperature                          | -20 to + 60 degree C             |  |  |
| 23 | Transport temperature                      | 0 to + 50 °C                     |  |  |
| 24 | Fire rating :                              | IEC 60332-1-2, EN 60332-1-2      |  |  |
| 25 | EUROCLASS                                  | EUROCLASS EN 13501-6 = Class Eca |  |  |
| 26 | STANDARDS AND APPROVALS                    |                                  |  |  |
| 27 | Approvals                                  | UL Certified                     |  |  |
| 28 |  | 3P Certified                     |  |  |

|    |   |  |  |  |
|----|---|--|--|--|
| 29 |   | ETL verified to TIA / EIA Cat 6  |  |  |
| 30 | Packing   | Box of 305 meters  |  |  |
| 31 | Color   | Blue RAL 5015  |  |  |
| 32 | Performance characteristics to be provided along with bid for CAT6 @250 MHz | The cable NEXT, PSNEXT, FEXT, ELFEXT, PSELFEXT test result should meet & exceed the performance requirement as per as per ANSI/TIA 568C.2, ISO/IEC 11801, & EN50173-1, EN 50288-6-1, ISO/IEC 11801 (ed. 2.2), IEC 61156-5, IEEE 802.3at : PoE+ |  |  |
| 33 | Warranty & make   | 25-year systems warranty   |  |  |
| 34 | MAF & Compliance  | MAF & Compliance should be on OEM MAF with Seal & Sign   |  |  |

#### 15.6 Item No.; 20, Patch panel 24 Port

| S.No. | Parameter               | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|-------------------------|---|--------------------|--|
| A     |                         | CAT6 RJ45 patch panel - 24 port loaded  |                    |  |
| B     | Standards and Approvals | Compliant with standards: ISO/IEC 11801 Edition 2 CENELEC EN 50173-1 2007 ANSI/EIA/TIA 568-B.2-1 IEC series 60603-7 |                    |  |
| C     | Performance             |   |                    |  |
| 1     |                         | The patch panel NEXT, FEXT, Return Loss, PS Next, Attenuation, ACR and ELFEXT, should be verified for CAT6 @250Mhz. |                    |  |



| S.No. | Parameter                | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--------------------------|---|--------------------|--|
| 2     |                          | The patch panel connector shall be of front removable type for ease of Maintenance.                                 |                    |  |
| 3     |                          | Connectors are attached without the need for Specific Tools   |                    |  |
| 4     |                          | The panel configuration shall be of minimum 6 connectors in 19" & maximum 24connectors in 1U design.                |                    |  |
| 5     |                          | The patch panel connector termination should be of self crimping type without use of 110 punching tool requirement. |                    |  |
| 6     |                          | Should Accept RJ11 (4 contacts), RJ12 (6 contacts), RJ45 (9 contacts).  |                    |  |
| D     | Conductors Supported     |   |                    |  |
| 1     |                          | Single-wire: 0.5 to 0.65 mm, AWG 22 to 25   |                    |  |
| 2     |                          | Multiple-wire: AWG 26   |                    |  |
| 3     |                          | Polyethylene conductor insulation: max Ø with insulation 1.58 mm  |                    |  |
| E     | Cable Manager            | Cable Guide Should be Provided; thus eliminating the use of Cable Collars or Cable Ties                             |                    |  |
| F     | Earthing                 | The panels offer automatic earthing of each connector   |                    |  |
| G     | Performance Warranty     | The performance warranty for over all installation shall be for 25 years by manufacturer.                           |                    |  |
| H     | Capacity                 | Patch panel should accept 6 port Fibre cassette to connect fibre other than Copper Connectors, if required          |                    |  |
| I     | Material Characteristics |   |                    |  |

| S.No. | Parameter                                  | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--|--------------------|--|
| 1     | Panel                                      | Panel: DC01 galvanised steel sheet   |                    |  |
| 2     | Block                                      | Block: RAL 9005 polycarbonate  |                    |  |
| 3     | Connector                                  | Contacts: gold/nickel, thickness of gold > 0.8 µm  |                    |  |
|       |  | Metal parts: bronze, nickel, platinum, gold  |                    |  |
|       |  | PBT polycarbonate  |                    |  |
|       |  | For STP products the body and the spreader are made of metal alloy with a copper-nickel coating.   |                    |  |
|       |  | STP connectors are fitted with a steel ring enabling a 360° Earth connection.  |                    |  |
| J     | Electrical Specifications                  |  |                    |  |
| 1     | Break Down Voltage                         | Greater than or equal to 1000V   |                    |  |
| 2     | Contact Resistance                         | Less than or equal to 20mOhms  |                    |  |
| 3     | Insulation Resistance                      | Greater than or equal to 500 M Ohm at 100 V DC   |                    |  |
| 4     | Load Testing                               | - Connector should be tested and guaranteed under PoE restrictions, IEEE 802.3af standard and PoE+, draft standard 802.3at, up to 2500 on-load connections / disconnections. |                    |  |
|       |  | Tested with 2 simultaneous PoE+ circuits for a minimum total power   |                    |  |
|       | Mechanical Specifications                  |  |                    |  |
| 1     | Maximum no of Connections / Re connections | 5 without refreshing the wiring.   |                    |  |
| 2     | Endurance                                  | 2500 movements (plug insertion/withdrawal). IK03   |                    |  |
| 3     | Temperature & make                         | -40 Deg C to +70 Deg C   |                    |  |

| S.No. | Parameter        | Minimum Specification Requirement                      | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|------------------|--|--------------------|--|
| 4     | MAF & Compliance | MAF & Compliance should be on OEM MAF with Seal & Sign |                    |  |

### 15.7 Item No. ; 21 , 15U outdoor rack pole mount

| OUTDOOR RACK |   |                    |   |
|--------------|---|--------------------|---|
| S.No         | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
| 1            | OutDoor IP54/55/56 Pole Mount Enclosure of size 15U x 600W x 600D   |                    |   |
|              | 1) All Round welded construction with trough design,  |                    |   |
|              | 2) Front Hinged Single Door with 130 degree opening with concealed hinges.  |                    |   |
|              | 3) Top with Rain Canopy Provision, Bottom flush type gland plate  |                    |   |
|              | 4) PU Foam Gasketing,   |                    |   |
|              | 5) 04 number 19" recess angle,  |                    |   |
|              | 6) Finish RAL 7035 Str.   |                    |   |
| 2            | Autotek Wall Mount Rain Canopy 600W x 600D  |                    |   |
| 3            | Air Filter x 3 No.  |                    |   |
| 4            | Metal Hood x 1 No.  |                    |   |
| 5            | Autotek Pole Mount Bracket x 2 No.  |                    |   |
| 6            | Pole Mount `C' Channel bracket x 4 No.  |                    |   |
| 7            | AC Axial Fan - 230V AC - 90 CFM x 2 No.   |                    |   |
| 8            | Metal Cable Manager - 01U - Plastic Cable Loop's Mountable - Black Fine Tex. - Assembly   |                    |   |
| 9            | Power Distribution Unit - 06 Amp 3 Pin - 06 Socket - 16 Amp Switch with Indicator - 06 Amp Fuse - 06 Amp 3 Pin Plug with Power Cable 0.75 sq.mm 1.5 meter Length - Black Fine Tex. - Assembly |                    |   |
| 10           | Mounting Hardware Packet { Containg 1 Nos Each Of 3 } - 20 Set  |                    |   |
| 11           | Make & Model  |                    |   |

|    |  |  |  |
|----|--|--|--|
| 12 | Drawing enclosed in tender for same  |  |  |
| 13 | Compliance should be on OEM letter head with Seal & Sign & MAF with tender Reference No. |  |  |

**15.8 Item No. 22.; 42u server Rack 780x1000**

| 42u Rack with 16AMP PDU , Cable manager, Tray etc. |                      |  |                   |  |
|--|----------------------|--|-------------------|--|
| S.No.  | Parameter            | Minimum Specification Requirement  | Compliance Yes/No | Deviation from Specifications/Remarks if Any |
| 1  | Basic Frame          | Sheet steel Monoblock bended profile structure with interlocking top and bottom cover. Main frame with 2 depth support channel to increase the stability of the cabinet          |                   |  |
| 2  | Top Cover            | Made of sheet steel with 1.5mm thickness, cut out for fan kit and multiple brush cable entries   |                   |  |
| 3  | Bottom Cover         | Made of sheet steel with 1.5mm thickness, cut out for multiple brush cable entries   |                   |  |
| 4  | Side Panel           | Sheet steel with 1mm thickness fixed panel by cylindrical lock (1 piece for 1000mm depth and 2 pieces for 1200mm depth on one side)  |                   |  |
| 5  | Front Door           | Sheet steel 80% perforation door with 220 degree opening angle and 1.2mm thickness   |                   |  |
| 6  | Rear Door            | Sheet steel 80% perforation door with 220 degree opening angle and 1.2mm thickness   |                   |  |
| 7  | Lock for doors       | 3 Point lock/ Electronic Lock  |                   |  |
| 8  | 19" Mounting Angle   | 4 No Adjustable. 19" verticals with Punched 9.5mm Squarer Hole and Universal 12.5 alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space. |                   |  |
| 9  | Standard Finish      | Electrostatic powder coated with surface treatment, 80 – 100 micron paint thickness  |                   |  |
| 10   | Powder coating Shade | RAL 9005 Black   |                   |  |
| 11   | Standard Mounting    | Rotational type castors (80mm H with 150kg load capacity per castor) and   |                   |  |
|  |                      | Levelling feet (with load capacity of 375KG per leg) and   |                   |  |
|  |                      | Metal plinth of 100mm H  |                   |  |
| 13   | Static Load          | Upto 1500 KG.  |                   |  |

|    |                               |   |  |  |
|----|-------------------------------|---|--|--|
| 14 | Accessories                   | Raised floor kit, Floor Fixing kit, baying kit, Vertical patchcord manager (Finger type & Metal type), Cable tray of 100mm W, Grounding Busbar kit, Anti tilt bar, Fixed Shelves , Telescopic Shelves, 19'' Cable manager, Plastic Blanking plates of 1U & 2U |  |  |
| 15 | Equipment cooling             | 4 module and 6 module fan kit with 95/102 CFM for one piece fan   |  |  |
| 16 | Corrosion Resistance          | ASTM B117 Standard complied by the test report Salt Spray Test  |  |  |
| 17 | Rack Standards & Certificates | ISO 9001:2015, ISO 14001:2015, ISO 27001:2013, ISO 45001:2018, IEC 297-1, EN 61587-1, IEC 297-2, UL Certified   |  |  |
| 18 | Warranty                      | One year  |  |  |
| 19 | Size                          | Floor stand   |  |  |
| 20 | SIZE                          | 42U x 780W x 1000D/ 1200D   |  |  |
| 21 | Make                          | Make & Model , data sheet   |  |  |
| 22 | MAF                           | Compliance should be on OEM letter head with Seal & Sign & MAF with tender Reference No.  |  |  |

### 15.9 Item No. 23,; firewall Specs/Compliances

| S.No.  | Minimum Specification Requirement   | Compliance Yes/ No  | Deviation from Specifications / Remarks if Any |
|--------|---|---------------------|--|
| S. NO. | technical Specs   | Compliance Yes / No |  |
| 1      | General Requirements  |                     |  |
| 2      | The proposed system shall support unlimited IP addresses license  |                     |  |
| 3      | The solution should be based on a multiple processors to accelerate content scanning, stateful packet header inspection, VPN encryption/decryption by offloading it to different processors. Solution should also provide acceleration for processing all packet sizes which include time sensitive |                     |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | applications such as VoIP, real-time protocols, and multimedia applications.  |                    |  |
| 4     | The proposed solution must be recognized as Leader in the latest Gartner Magic Quadrant for Enterprise Firewalls since last three years in a row. |                    |  |
| 5     | The proposed solution must be from a family of products that achieves "Recommended" rating from NSS Labs for NGFW testing                         |                    |  |
| 6     | Operating System Requirements   |                    |  |
| 7     | The proposed OS must:   |                    |  |
| 8     | Be proprietary to prevent inheriting common OS vulnerabilities  |                    |  |
| 9     | Resided on flash disk for reliability over hard disk  |                    |  |
| 10    | Allow dual booting  |                    |  |
| 11    | Upgradeable via Web UI or TFTP  |                    |  |
| 12    | Interfaces Requirement  |                    |  |
| 13    | 1G RJ45 : Minimum 12 No's   |                    |  |
| 14    | 1G SFP : Minimum 6 No's   |                    |  |
| 15    | 10G SFP+ : Minimum 4 No's   |                    |  |
| 16    | Management Requirements   |                    |  |
| 17    | The administrator authentication shall be facilitated by local database, PKI & remote   |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | services such as Radius, LDAP and TACACS+  |                    |  |
| 18    | The system shall support two factor authentication for admin users and should provide two 2FA tokens from day 1  |                    |  |
| 19    | The proposed system should be able to facilitate administration audits by logging detailed activities to event log - management access and also configuration changes. |                    |  |
| 20    | System Requirements  |                    |  |
| 21    | The proposed system shall at least provide the following system performance:   |                    |  |
| 22    | Concurrent session: Atleast 3M   |                    |  |
| 23    | New sessions/sec: Minimum 250000   |                    |  |
| 24    | Firewall throughput (large packet): 25Gbps or Higher   |                    |  |
| 25    | Firewall throughput (small packet-64 byte): .10Gbps or Higher & Please provide supporting document.  |                    |  |
| 26    | Firewall Latency : Should not higher then 5μs  |                    |  |
| 27    | Firewall Policies : Should support atleast 10000   |                    |  |
| 28    | SSL Inspection Throughput: 4Gbps or Higher   |                    |  |
| 29    | Power : Dual AC Power Supply   |                    |  |
| 30    | Virtulization  |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
| 31    | The system shall be able to support virtualization of the following feature components:  |                    |  |
| 32    | Firewall   |                    |  |
| 33    | IPSEC & SSLVPN   |                    |  |
| 34    | IPS settings   |                    |  |
| 35    | Antivirus settings   |                    |  |
| 36    | Antispam settings  |                    |  |
| 37    | Web content Filtering Settings   |                    |  |
| 38    | DLP Settings   |                    |  |
| 39    | Application Control Settings   |                    |  |
| 40    | User Group settings  |                    |  |
| 41    | Routing  |                    |  |
| 42    | Log & report Configurations  |                    |  |
| 43    | The proposed system shall be able to operate on either Transparent (bridge) mode to minimize interruption to existing network infrastructure or NAT/Route mode. Both modes can also be available concurrently using Virtual firewalls. |                    |  |
| 44    | Routing  |                    |  |
| 45    | The system must be able to support routing protocols including RIP, OSPF, ISIS, BGP, RIPng and OSPFv3  |                    |  |



| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
| 46    | The system shall be able to operate as a Protocol Independent Multicast (PIM) version 2 router.  |                    |  |
| 47    | The system shall support PIM sparse mode and PIM dense mode and can service multicast servers or receivers on the network segment to which an interface is connected   |                    |  |
| 48    | Next Generation Firewall Performance & feature requirements  |                    |  |
| 49    | The firewall shall minimally attain Internet Computer Security Association (ICSA) Firewall Product Criteria 4.1 Certification.   |                    |  |
| 50    | The firewall shall provide 3 Gbps of Threat Protection performance is measured with Firewall, IPS, Application Control and Malware Protection and logging enabled on IMIX / Enterprise Mix / Production Traffic. |                    |  |
| 51    | The firewall shall provide 3.5 Gbps of NGFW performance measured with Firewall, IPS and Application Control & logging enabled on IMIX / Enterprise Mix / Production Traffic.                                     |                    |  |
| 52    | The firewall policy table shall support both IPv4 and IPV6 GUI configurations.   |                    |  |
| 53    | The firewall policy table shall also allow display of filtered firewall policies based of selected objects   |                    |  |
| 54    | The firewall shall belongs to product family which attains Common Criteria EAL4+ / NDPP  |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
| 55    | The proposed system should have integrated Traffic Shaping functionality with ability to pass Differentiated Service tagging and ability to tag packet for DiffServ |                    |  |
| 56    | The firewall should support NAT46, NAT64, DNS64 & DHCPv6  |                    |  |
| 57    | The firewall shall be able to handle VoIP traffic securely with "pinhole opening" and support SIP, SCCP, MGCP and H.323 ALGs  |                    |  |
| 58    | VPN Requirements  |                    |  |
| 59    | The device shall provide up to 10 Gbps of IPSec VPN throughput.   |                    |  |
| 60    | The proposed system shall comply/support industry standards, supports without additional external solution, hardware or modules:                                    |                    |  |
|       | IPSEC VPN   |                    |  |
|       | PPTP VPN  |                    |  |
|       | L2TP VPN  |                    |  |
|       | SSL VPN   |                    |  |
|       | The system shall support IPSEC and PPTP VPN pass through so that computers or subnets on internal network can connect to a VPN gateway on the Internet.             |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | The system shall support 2 forms of site-to-site VPN configurations:   |                    |  |
|       | Route based IPsec tunnel   |                    |  |
|       | Policy based IPsec tunnel  |                    |  |
|       | The system shall support IPSEC site-to-site VPN and remote user VPN in transparent mode.                     |                    |  |
|       | The system shall provide IPv6 IPsec feature to support for secure IPv6 traffic in an IPsec VPN.              |                    |  |
|       | The proposed system shall support TWO modes of SSL VPN operation:  |                    |  |
|       | Web-only mode: for thin remote clients equipped with a web browser only and support web application such as: |                    |  |
|       | 6.10.1.1 HTTP/HTTPS Proxy  |                    |  |
|       | 6.10.1.2 FTP   |                    |  |
|       | 6.10.1.3 Telnet  |                    |  |
|       | 6.10.1.4 SMB/CIFS  |                    |  |
|       | 6.10.1.5 SSH   |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | 6.10.1.6 VNC  |                    |  |
|       | 6.10.1.7 RDP  |                    |  |
|       | Tunnel mode, for remote computers that run a variety of client and server applications  |                    |  |
|       | The proposed solution shall support to a maximum of 500 concurrent SSL-VPN users from day 1   |                    |  |
|       | Server Load Balancing Requirements  |                    |  |
|       | The administrator shall be able to define the type of supported communication protocol used by the virtual server for load balancing: |                    |  |
|       | HTTP, HTTPS   |                    |  |
|       | SSL   |                    |  |
|       | TCP, UDP & IP   |                    |  |
|       | The proposed system should be capable of creating server load balancing settings with configurable health probes using                |                    |  |
|       | HTTP port, URLs & Matched Content   |                    |  |
|       | Customized TCP port   |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | ping probes   |                    |  |
|       | The proposed system shall be able to use the following load balance algorithm:  |                    |  |
|       | Static: The traffic load is spread evenly across all servers, no additional server is required.   |                    |  |
|       | Round Robin: Directs requests to the next server, and treats all servers as equals regardless of response time or number of connections. Dead servers or non responsive servers are avoided. A separate server is required.   |                    |  |
|       | Weighted: Servers with a higher weight value will receive a larger percentage of connections. Set the server weight when adding a server.   |                    |  |
|       | First Alive: Always directs requests to the first alive real server.  |                    |  |
|       | Least RTT: Directs requests to the server with the least round trip time. The round trip time is determined by a Ping monitor and is defaulted to 0 if no Ping monitors are defined.  |                    |  |
|       | Least Session: Directs requests to the server that has the least number of current connections. This method works best in environments where the servers or other equipment you are load balancing have similar capabilities. |                    |  |
|       | The proposed system shall support persistence which is the process of   |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | ensuring that a user is connected to the same server every time they make a request within the boundaries of a single session using available option of:  |                    |  |
|       | HTTP Cookie: Persistence time is equal to the cookie age.   |                    |  |
|       | SSL Session ID: Persistence time is equal to the SSL sessions.  |                    |  |
|       | The proposed system shall have HTTP proxy which can multiplex multiple client connections destined for the web server into a few connections between the unit and the web server. This can improve performance by reducing server overhead associated with establishing multiple connections. |                    |  |
|       | The proposed system shall have option to preserve the IP address of the client in the X-Forwarded-For HTTP header. This can be useful if there is need for logging on the server of the client's original IP address.   |                    |  |
|       | IPS Requirements  |                    |  |
|       | The solution shall provides up to 4Gbps of IPS throughput   |                    |  |
|       | The IPS detection methodologies shall consist of:   |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | Signature based detection using real time updated database  |                    |  |
|       | Anomaly based detection that is based on thresholds   |                    |  |
|       | The proposed system shall support One-arm IDS (sniffer mode)  |                    |  |
|       | Administrator shall be able to configure DoS policies that are used to associate DoS settings with traffic that reaches an interface based on defined services, source and destinations IP/Range. |                    |  |
|       | The proposed system shall identify, set threshold and act on network traffic anomalies of statistical anomaly types for the TCP, UDP, and ICMP:   |                    |  |
|       | Flooding: If the number of sessions targeting a single destination in one second is over a threshold, the destination is experiencing flooding.   |                    |  |
|       | Scan: If the number of sessions from a single source in one second is over a threshold.   |                    |  |
|       | Source session limit: If the number of concurrent sessions from a single source is over a threshold.  |                    |  |
|       | Destination session limit: If the number of concurrent sessions to a single destination is over a threshold.  |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | The IPS system shall have at over 11,000 signatures  |                    |  |
|       | IPS Signatures can be updated in three different ways: manually, via pull technology or push technology. Administrator can schedule to check for new updates or if the device has a public IP address, updates can be pushed to the device each time an update is available. |                    |  |
|       | When a signature is matched, the following configurable actions can be automatically taken:  |                    |  |
|       | Detailed attack logging with hyperlink to IPS encyclopedia references  |                    |  |
|       | Inbuilt email alerts   |                    |  |
|       | SNMP traps   |                    |  |
|       | Pass, block or reset sessions  |                    |  |
|       | The device shall allow administrators gradual IPS signature implementation by:   |                    |  |
|       | Configurable IPS filters to selectively implement signatures based on severity,  |                    |  |



| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | target (client/server), protocol, OS and Application types.   |                    |  |
|       | Configurable IPS filter-overrides that provides specific signature exclusions or variations based on source and destination addresses   |                    |  |
|       | The device shall allow administrators gradual IPS anomaly implementation by:  |                    |  |
|       | Multiple Anomaly profiles based on source and destination IPs   |                    |  |
|       | Each profile allow administrator to configure variable thresholds and actions   |                    |  |
|       | In event if IPS should cease to function, it will fail open by default and is configurable. This means that crucial network traffic will not be blocked and the Firewall will continue to operate while the problem is resolved.  |                    |  |
|       | The proposed system should be able to block, allow or monitor only using IPS, Application Control or AV scanning and file blocking based on per firewall policy based or based on firewall authenticated user groups with configurable selection of the following services: |                    |  |
|       | HTTP, HTTPS   |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | SMTP, SMTPS  |                    |  |
|       | POP3, POP3S  |                    |  |
|       | IMAP, IMAPS  |                    |  |
|       | NNTP   |                    |  |
|       | Antivirus Requirements   |                    |  |
|       | <p>AV Signatures can be updated in three different ways: manually, via pull technology or push technology. Administrator can schedule to check for new updates or if the device has a public IP address, updates can be pushed to the device each time an update is available.</p> |                    |  |
|       | <p>The proposed system shall provide ability allow or block specific grayware groups such as adwares, BHO and keyloggers</p>   |                    |  |
|       | <p>The proposed system shall provide the ability to enable/disable heuristics engine, and block suspected file attachments.</p>  |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | The proposed system should be able to block or allow oversized file based on configurable thresholds for each protocol types and per firewall policy.   |                    |  |
|       | The proposed system shall provide "client comforting" capabilities which periodically forwards to the client a portion of the file being buffered for scanning, providing feedback that the download is occurring and preventing connection timeouts. |                    |  |
|       | The Proposed Antivirus protection shall include advanced malware protection:  |                    |  |
|       | Virus Outbreak Protection   |                    |  |
|       | Content disarm and reconstruction (CDR)   |                    |  |
|       | Web Filtering & Web Proxy Requirements  |                    |  |
|       | The proposed unit shall be able to support the following configuration of explicit proxy:   |                    |  |
|       | Proxy FQDN  |                    |  |
|       | Max HTTP request length   |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | Max HTTP message length   |                    |  |
|       | Add headers to Forwarded Requests   |                    |  |
|       | Proxy Port  |                    |  |
|       | Interfaces that listen to proxy request   |                    |  |
|       | The propose system should support Transparent Web Proxy.  |                    |  |
|       | The proposed system should have integrated Web Content Filtering solution without external solution, devices or hardware modules.   |                    |  |
|       | The proposed solution should be able to enable or disable Web Filtering per firewall policy or based on firewall authenticated user groups for both HTTP and HTTPS traffic. |                    |  |
|       | The proposed system shall provide web content filtering features:   |                    |  |
|       | a) which blocks web plug-ins such as ActiveX, Java Applet, and Cookies.   |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | b) Shall include Web URL block   |                    |  |
|       | c) Shall include score based web keyword block   |                    |  |
|       | d) Shall include Web Exempt List   |                    |  |
|       | The proposed system shall be able to queries a real time database of over 250 million + rated websites categorized into 75+ unique content categories in 70 languages. |                    |  |
|       | Application Control Requirements   |                    |  |
|       | The proposed system shall have the ability to detect, log and take action against network traffic based on over 2,000 application signatures                           |                    |  |
|       | The application signatures shall be manual or automatically updated  |                    |  |
|       | The administrator shall be able to define application control list based on selectable application group and/or list and its corresponding actions                     |                    |  |
|       | The administrator shall be able to set the Session TTL of the selected application/group.  |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | The proposed system shall have the ability to identify, block or rate limit the following common P2P applications:                                     |                    |  |
|       | Gnutella (Napshare, iMesh, Mldonkey, morph, Xolox, BearShare, FOXY)  |                    |  |
|       | BitTorrent   |                    |  |
|       | Torrentz   |                    |  |
|       | BitTorrent_HTTP.Track  |                    |  |
|       | The proposed system shall have the ability to manage and control VoIP usage:   |                    |  |
|       | Rate limit SIP REGISTER & INVITE requests  |                    |  |
|       | Rate limit SCCP call setup   |                    |  |
|       | Data Leakage Prevention Requirements   |                    |  |
|       | The proposed system shall allow administrator to prevent sensitive data from leaving the network. Administrator shall be able to define sensitive data |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | <p>patterns, and data matching these patterns that will be blocked and/or logged when passing through the unit. The DLP capability shall support the following protocol &amp; activities:</p> |                    |  |
|       | <p>HTTP/HTTPS POST, HTTP/HTTPS GET</p>  |                    |  |
|       | <p>FTP PUT, GET</p>   |                    |  |
|       | <p>SMTP, IMAP, POP3, SMTPS, IMAPS, POP3S</p>  |                    |  |
|       | <p>The DLP capability shall be configured by creating individual rules, combining the rules into sensors, and then assigning them to profiles which in turn bind to firewall policies.</p>    |                    |  |
|       | <p>The administrator shall be able to configure the following actions upon data matched:</p>  |                    |  |
|       | <p>Block: prevents the traffic matching the rule from being delivered.</p>  |                    |  |
|       | <p>Exempt: prevents any DLP sensors from taking action on matching traffic. This action overrides any other action from any matching sensors.</p>   |                    |  |
|       | <p>Ban: if the user is authenticated, will block all traffic to or from the user using the protocol that triggered the rule and the user will be added to the Banned</p>                      |                    |  |

| S.No. | Minimum Specification Requirement   | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | User list. If the user is not authenticated, all traffic of the protocol that triggered the rule from the user using will be blocked. |                    |  |
|       | The administrator shall be able to configure the following detection settings for Email traffic:                                      |                    |  |
|       | Attachment size   |                    |  |
|       | Attachment type   |                    |  |
|       | Content on Email subject or body  |                    |  |
|       | Content on Email text attachment  |                    |  |
|       | Sender and receiver Email address   |                    |  |
|       | High Availability Requirement   |                    |  |
|       | The proposed system shall have built-in high availability (HA) features without extra cost/license or hardware component              |                    |  |
|       | The device shall support stateful session maintenance in the event of a fail-over to a standby unit.                                  |                    |  |



| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | The device shall event log, send snmp traps, send alert email when fail-over occurs.   |                    |  |
|       | High Availability feature must be supported for either NAT/Route, Transparent or hybrid mode   |                    |  |
|       | Web Application Firewall Requirements  |                    |  |
|       | Web Application Firewall must be able to create with Signature and Constraints, with the options to support "Allow", "Monitor" or "Block", and the Severity can be set to High, Medium or Low. |                    |  |
|       | Cross Site Scripting   |                    |  |
|       | Cross Site Scripting Extended  |                    |  |
|       | SQL Injection  |                    |  |
|       | Trojans  |                    |  |
|       | Information Disclosure   |                    |  |

| S.No. | Minimum Specification Requirement         | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | Known Exploits                            |                    |  |
|       | Credit Card Detection                     |                    |  |
|       | 3rd Party Integrations Requirement        |                    |  |
|       | Cisco ACI                                 |                    |  |
|       | Amazon Web Services (AWS)                 |                    |  |
|       | Microsoft Azure                           |                    |  |
|       | VMWare NSX                                |                    |  |
|       | Nuage Virtualized Services Platform       |                    |  |
|       | SD-WAN Capabilities                       |                    |  |
|       | The Proposed system shall support SD-WAN. |                    |  |

| S.No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | The Proposed system shall support SD-WAN Policies based on:                      |                    |  |
|       | Firewall Addresses   |                    |  |
|       | Internet Service Database  |                    |  |
|       | Application awareness  |                    |  |
|       | Preferred Interface  |                    |  |
|       | Automation & Incident Response   |                    |  |
|       | The Proposed system shall support automation response based on following events: |                    |  |
|       | Compromised Hosts detected   |                    |  |
|       | Configuration Change   |                    |  |
|       | Event Log  |                    |  |

| S.No. | Minimum Specification Requirement                                 | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|---|--------------------|--|
|       | High CPU  |                    |  |
|       | License Expiry  |                    |  |
|       | The action taken by automation / incident response shall include: |                    |  |
|       | Email Alert   |                    |  |
|       | Access Layer Quarantine   |                    |  |
|       | IP Ban  |                    |  |
|       | AWS Lambda  |                    |  |
|       | Web Hook  |                    |  |
|       | 5YR SUBSCRIPTION & 5 YR WARRANTY                                  |                    |  |
|       | All Complaiance should be on OEM Letter head with Seal & Sign     |                    |  |

| S.No. | Minimum Specification Requirement                    | Compliance Yes/ No | Deviation from Specifications / Remarks if Any |
|-------|--|--------------------|--|
|       | MAF in favor To Department with Tender reference No. |                    |  |

**15.10 Item No. 24.; 8 Port POE switch**

| Layer 2 - 8x GE RJ45 and 2x GE SFP (4 Port POE) ( For clint Side) |                      |  |                    |   |
|---|----------------------|--|--------------------|---|
| S.No  | Parameter            | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
| 1   | General Requirements | Managable switch should have minimum 4 x 1G , 4x1G POE port and 2 SFP ports                              |                    |   |
| 2   |                      | Proposed switch should have a RJ-45 Serial console port and Dedicated Management 10/100 Port             |                    |   |
| 3   |                      | The form factor of the proposed switch should be 1 RU Rack-Mount Appliance with Redundant Power Supplies |                    |   |
| 4   |                      | Switching capacity of the proposed switch should be minimum 20 Gbps                                      |                    |   |

|    |                      |   |  |  |
|----|----------------------|---|--|--|
| 5  |                      | Packet per second capacity of the switch should be minimum 30 Mpps  |  |  |
| 6  |                      | Proposed Switch should support minimum 8K MAC address storage   |  |  |
| 7  |                      | Proposed switch should support 4000 VLANs   |  |  |
| 8  |                      | Should support min DRAM-256 MB DDR3, maximum to be specified and minimum 32 MB flash memory                   |  |  |
| 9  |                      | Proposed switch should be with PoE Power budget 65W and 802.3af/at support                                    |  |  |
| 10 | Layer 2 Requirements | Should support Jumbo frames and link auto-negotiation   |  |  |
| 11 |                      | Should support Spanning Tree Protocol MSTP native, and backwards compatible with RTSP, STP and STP Root Guard |  |  |
| 12 |                      | Should support Edge Port / Port Fast  |  |  |
| 13 |                      | IEEE 802.1AX Link Aggregation   |  |  |
|    |                      |   |  |  |

|    |                   |   |  |  |
|----|-------------------|---|--|--|
| 14 |                   | IEEE 802.1q VLAN tagging, Private VLAN, Voice VLAN  |  |  |
| 15 |                   | Mean Time Between Failures must be >10 years  |  |  |
| 16 |                   | should support Unicast/Multicast traffic balance over trunking port for dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac |  |  |
| 17 |                   | Should support virtual wire between two ports for troubleshooting   |  |  |
| 18 | Security          | should support Storm Control, LoopGuard   |  |  |
| 19 |                   | Should support IGMP snooping, DHCP snooping(entry limit per port) and Dynamic ARP Inspection                                      |  |  |
| 20 |                   | Switch should support 640 ACL entries   |  |  |
| 21 |                   | Switch should support Device Detection to understand the type of device operating systems, display the IP address.                |  |  |
| 22 |                   | Switch should support Policy Control of Users and Devices   |  |  |
| 23 | Switch Management | Should support Telnet,SSH,  |  |  |

|    |                    |  |  |  |
|----|--------------------|--|--|--|
|    |                    | HTTP,HTTPS with IPv4 Management  |  |  |
| 24 |                    | Switch should support SNMP   |  |  |
| 25 |                    | Software download/upload: TFTP/FTP/GUI   |  |  |
| 26 |                    | Proposed switch should be managed via both, GUI and CLI  |  |  |
| 27 |                    | Switch should support IP conflict detection and notification   |  |  |
| 28 | Central Management | Should be ready to integrated with existing switch controller which offers visibility, user access control, and threat mitigation to quarantine automatically on the compromised host at the switch port level. If bidder not supported they should include switch controller with required hardware and license in the quotation. |  |  |
| 29 |                    | Should support centralized security management, configuration and reporting through a single console from existing switch controller or from external NMS  |  |  |



|    |  |  |  |  |
|----|--|--|--|--|
| 30 |  | Should have option to create switch profiles to allow specific settings to be applied to all authorized Switches.  |  |  |
| 31 |  | Proposed switch should be managed by existing switch controller for performing the following configurations. VLAN, POE Control, RSTP/MSTP, 802.1x Authentication, Syslog Collection , Device Detection, Host Quarantine on Switch Port, QoS, Radius accounting(COA) and Centralized Firmware Management through this single pane of glass. |  |  |
| 32 |  | Centralized management should show the network topology of all managed switches through a single console   |  |  |
| 33 |  | Switch should discover automatically by centralized switch controller and configures with Zero-touch provisioning  |  |  |
| 34 |  | Switch should automatically discover   |  |  |

|    |                       |  |  |  |
|----|-----------------------|--|--|--|
|    |                       | the controller when the controller is under an L3 network                                |  |  |
| 35 | Environment           | Power Required :100–240V AC, 50/60 Hz  |  |  |
| 36 |                       | Operating Temperature :0–45°C  |  |  |
| 37 |                       | Humidity : 10–90% non-condensing   |  |  |
| 38 | Certification & Model | FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2  |  |  |
| 39 | Warranty support      | 5 Years  |  |  |
| 40 | MAF                   | Compliance should be on OEM letter head with Seal & Sign & MAF with tender reference No. |  |  |

**15.11 Item No. 25.; 24 port Layer 2 Switch**

| Layer 2 - 24 x GE RJ45 and 4x GE SFP |                      |  |                    |   |
|--------------------------------------|----------------------|--|--------------------|---|
| S.No.                                | Parameter            | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
| 1                                    | General Requirements | Managable switch should have minimum 24 x1G and 4 x SFP ports with Module                    |                    |   |
| 2                                    |                      | Proposed switch should have a RJ-45 Serial console port and Dedicated Management 10/100 Port |                    |   |

|    |                      |   |  |  |
|----|----------------------|---|--|--|
| 3  |                      | The form factor of the proposed switch should be 1 RU Rack-Mount Appliance with Redundant Power Supplies                          |  |  |
| 4  |                      | Switching capacity of the proposed switch should be minimum 55 Gbps   |  |  |
| 5  |                      | Packet per second capacity of the switch should be minimum 80 Mpps  |  |  |
| 6  |                      | Proposed Switch should support minimum 8K MAC address storage   |  |  |
| 7  |                      | Proposed switch should support 4000 VLANs   |  |  |
| 8  |                      | Should support min DRAM-256 MB DDR3, maximum to be specified and 32 MB flash memory   |  |  |
| 9  |                      | Built in power supply   |  |  |
| 10 | Layer 2 Requirements | Should support Jumbo frames and link auto-negotiation   |  |  |
| 11 |                      | Should support Spanning Tree Protocol MSTP native, and backwards compatible with RTSP, STP and STP Root Guard                     |  |  |
| 12 |                      | Should support Edge Port / Port Fast  |  |  |
| 13 |                      | IEEE 802.1AX Link Aggregation   |  |  |
| 14 |                      | IEEE 802.1q VLAN tagging, Private VLAN, Voice VLAN  |  |  |
| 15 |                      | Mean Time Between Failures must be >10 years  |  |  |
| 16 |                      | should support Unicast/Multicast traffic balance over trunking port for dst-ip, dst-mac, src-dst-ip, src-dst-mac, src-ip, src-mac |  |  |
| 17 |                      | Should support virtual wire between two ports for troubleshooting   |  |  |

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|----|--|--|--|--|
| 18 | Security   | should support Storm Control, LoopGuard  |  |  |
| 19 |  | Should support IGMP snooping, DHCP snooping(entry limit per port) and Dynamic ARP Inspection   |  |  |
| 20 |  | Switch should support 640 ACL entries  |  |  |
| 21 |  | Switch should support Device Detection to understand the type of device operating systems, display the IP address.   |  |  |
| 22 |  | Switch should support Policy Control of Users and Devices  |  |  |
| 23 |  | Switch Management  | Should support Telnet,SSH, HTTP,HTTPS with IPv4 Management |  |
| 24 | Switch should support SNMP                                   |  |  |  |
| 25 | Software download/upload: TFTP/FTP/GUI                       |  |  |  |
| 26 | Proposed switch should be managed via both, GUI and CLI      |  |  |  |
| 27 | Switch should support IP conflict detection and notification |  |  |  |
| 28 | Central Management   | Should be ready to integrated with existing switch controller which offers visibility, user access control, and threat mitigation to quarantine automatically on the compromised host at the switch port level. If bidder not supported they should include switch controller with required hardware and license in the quotation. |  |  |
| 29 |  | Should support centralized security management, configuration and reporting through a single console from existing switch controller or from external NMS  |  |  |

|    |                       |  |  |  |
|----|-----------------------|--|--|--|
| 30 |                       | Should have option to create switch profiles to allow specific settings to be applied to all authorized Switches.  |  |  |
| 31 |                       | Proposed switch should be managed by existing switch controller for performing the following configurations. VLAN, POE Control, RSTP/MSTP, 802.1x Authentication, Syslog Collection , Device Detection, Host Quarantine on Switch Port, QoS, Radius accounting(COA) and Centralized Firmware Management through this single pane of glass. |  |  |
| 32 |                       | Centralized management should show the network topology of all managed switches through a single console   |  |  |
| 33 |                       | Switch should discover automatically by centralized switch controller and configures with Zero-touch provisioning  |  |  |
| 34 |                       | Switch should automatically discover the controller when the controller is under an L3 network   |  |  |
| 35 | Environment           | Power Required :100–240V AC, 50/60 Hz  |  |  |
| 36 |                       | Operating Temperature :0–45°C  |  |  |
| 37 |                       | Humidity : 10–90% non-condensing   |  |  |
| 38 | Certification & Model | FCC, CE, RCM, VCCI, BSMI, UL, CB, RoHS2  |  |  |
| 39 | Warranty support      | 5 Years  |  |  |
| 40 | MAF                   | Compliance should be on OEM letter head with Seal & Sign & MAF with tender reference No.   |  |  |

**15.12Item No. 31.; Data NAS storage**

| Storage for CCTV recording- Qty- 1 No. |                                       |  |                   |  |
|--|---------------------------------------|--|-------------------|--|
| S.No.                                  | Parameter                             | Minimum Specification Requirement  | Compliance Yes/No | Deviation from Specifications/Remarks if Any |
| 1                                      | Operating System & Clustering Support | 1. The storage array should support industry-leading Operating System platforms including: Windows 2022, 2019 and 2016<br>RHEL 8.2 and 7.8<br>SLES 15.2 and 12.5<br>VMware 7.0 and 6.7<br>Citrix XenServer 8.x and 7.x |                   |  |
|  |                                       | 2. Offered Storage Shall support all above operating systems in Clustering.  |                   |  |
| 2                                      | Capacity & Scalability                | The Storage Array shall be offered with at least 42 *20TB 7.2K NL-SAS drives.  |                   |  |
|  |                                       |  |                   |  |
| 3                                      | Front-end Ports & Back-end Ports      | 1. Offered Storage system shall be supplied with 8 x 16GB FC ports with transceiver ports at Front End   |                   |  |
|  |                                       | 2. Offered storage system shall have 2 * 12G SAS ports for Back-end connectivity.  |                   |  |
| 4                                      | Architecture                          | The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability  |                   |  |
| 5                                      | Storage Scalability                   | The storage should be scalable to atleast 330 drives or higher using additional enclosures   |                   |  |

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|----|------------------------------|--|--|--|
| 6  | No Single point of Failure   | Offered Storage Array shall be configurable in a No Single Point of configuration including Cache memory, FAN, Power supply etc.                       |  |  |
| 7  | Disk Drive Support           | 1. Storage system shall also support Enterprise SAS spinning drives, SSD and near line SAS / 7.2K RPM drives.  |  |  |
|    |                              | 2. Offered storage array shall also have support for self-encrypted SSD, SAS and near line SAS / 7.2K RPM .  |  |  |
| 8  | Cache                        | 1. Offered Storage Array shall be given with Minimum of 16GB cache per controller in a single unit 32GB Cache across Array                             |  |  |
|    |                              | 2. Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology.      |  |  |
|    |                              | 3. Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 14TB Flash Cache. |  |  |
| 9  | Raid Support                 | 1. Offered Storage Subsystem shall support Raid 1, 5, 6, 10, & Adapt   |  |  |
|    |                              | 2. All Raid Sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array.    |  |  |
| 10 | Point in time and clone copy |  |  |  |
|    |                              | 1. Offered Storage array shall support at-least 512 point in time copies (Snapshots)   |  |  |
| 11 | Replication                  | Offered storage subsystem shall support storage based replication.   |  |  |

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|----|--------------------------------|--|--|--|
|    | Thin provisioning              | Offered Storage shall be offered and configured with Thin Provisioning capability.   |  |  |
|    | Data Tiering                   | Offered Storage shall also be configured Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc.  |  |  |
|    | Global and dedicated Hot Spare | <ol style="list-style-type: none"> <li>1. Offered Storage Array shall support Global hot Spare for offered Disk drives.</li> <li>2. Atleast 1 Global hot spare drive shall be configured for every 30 drives.</li> <li>3. Offered storage array shall have the support for distributed hot spare</li> </ol>  |  |  |
| 15 | Logical Volume & Performance   | <ol style="list-style-type: none"> <li>1. Storage Subsystem shall support minimum of 1000 Logical Units. Storage Array shall also support creation of more than 100TB volume at controller level.</li> <li>2. Offered Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.</li> </ol> |  |  |
| 16 | Virtualization Integration     | <p>Storage should support Virtualization integration with :-</p> <p>VMware vSphere (ESXi)<br/>vCenter; SRM<br/>Microsoft Hyper-V</p>   |  |  |
| 17 | Drive Support                  | <p>Storage should support following drives :-</p> <p>NLSAS (7.2K 3.5"): 4TB, 8TB, 12TB, 16TB, 20TB</p> <ul style="list-style-type: none"> <li>• SAS (10K 2.5"): 1.2TB, 2.4TB, 2.4TB SED</li> <li>• SSD: 1.6TB, 1.92TB, 3.84TB, 7.68TB</li> </ul>   |  |  |



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|----|--------------------|---|--|--|
| 18 | Large Pool support | Storage system should support pool capacity of upto 4000 TB Raw capacity                        |  |  |
| 19 | Licenes            | All requested features licnese should be supplied from day 1 for complete supported capacity    |  |  |
| 20 | Deployment         | Onsite Deployment   |  |  |
| 21 | Warranty & Model   | 5 Years / 24X7  |  |  |
| 22 | MAF                | Compliance should be on OEM letter head with seal & sign & enclose MAF with tender refrence No. |  |  |

### 15.13Item No. 33.; Rack Server

| S. No. | Minimum Specification Requirement  | Compliance Yes/ No | Deviation from Specifications/ Remarks if Any |
|--------|--|--------------------|---|
| 1      | 1 X R750xs Motherboard with Broadcom 5720 Dual Port 1Gb On-Board LOM                       |                    |   |
| 2      | 2 X Intel Xeon Gold 5317 3G, 12C/24T, 11.2GT/s, 18M Cache, Turbo, HT (150W) DDR4-2933      |                    |   |
| 3      | 1 X iDRAC Group Manager, Enabled   |                    |   |
| 4      | 1 X 3.5" Chassis with up to 8 Hard Drives (SAS/SATA), 2 CPU                                |                    |   |
| 5      | 1 X PowerEdge 2U Standard Bezel  |                    |   |
| 6      | 1 X Riser Config 0, Half Length, Low Profile, 5x16 + 1x4 slots                             |                    |   |
| 7      | 1 X PowerEdge R750xs Shipping Material   |                    |   |
| 8      | 1 X Dell EMC Luggage Tag R750xs  |                    |   |
| 9      | 1 X No Quick Sync  |                    |   |
| 10     | 1 X Performance Optimized  |                    |   |
| 11     | 1 X 3200MT/s RDIMMs  |                    |   |
| 12     | 4 X 64GB RDIMM, 3200MT/s, Dual Rank, 16Gb  |                    |   |
| 13     | 1 X iDRAC9, Enterprise 15G   |                    |   |
| 14     | 3 X 480GB SSD SATA Read Intensive 6Gbps 512 2.5in Hot-plug AG Drive,3.5in HYB CARR, 1 DWPD |                    |   |
| 15     | 1 X BOSS Blank   |                    |   |
| 16     | 1 X PERC H755 SAS Front  |                    |   |
| 17     | 2 X Dell EMC PowerEdge SFP+ SR Optic 10GbE 850nm   |                    |   |

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|----|--|--|--|
| 18 | 1 X Performance BIOS Settings  |  |  |
| 19 | 2 X Standard Heatsink  |  |  |
| 20 | 1 X No Internal Optical Drive  |  |  |
| 21 | 1 X Dual, Hot-plug, Power Supply Redundant (1+1), 800W, Mixed Mode, NAF                  |  |  |
| 22 | 2 X Jumper Cord - C13/C14, 4M, 250V, 10A (India BIS)                                     |  |  |
| 23 | 2 X Power Cord - C13, 1.8M, 250V, 10A (India   |  |  |
| 24 | 1 X Trusted Platform Module 2.0 V3   |  |  |
| 25 | 1 X Dell/EMC label (BIS) for 3.5" Chassis  |  |  |
| 26 | 1 X PowerEdge 2U CCC Marking, No CE Marking, ICC   |  |  |
| 27 | 1 X Broadcom 57412 Dual Port 10GbE SFP+, OCP NIC 3.0                                     |  |  |
| 28 | 1 X No Systems Documentation, No OpenManage DVD Kit                                      |  |  |
| 29 | 1 X Front PERC Mechanical Parts, front load  |  |  |
| 30 | 1 X Standard Fan x5  |  |  |
| 31 | 1 X ReadyRails Sliding Rails Without Cable Management Arm                                |  |  |
| 32 | 1 X Unconfigured RAID  |  |  |
| 33 | 1 X iDRAC,Factory Generated Password   |  |  |
| 34 | 1 X Operating System   |  |  |
| 35 | 1 X UEFI BIOS Boot Mode with GPT Partition   |  |  |
| 36 | 1 X OpenManage Enterprise Advanced   |  |  |
| 37 | 1 X 5yR ONSITE WARRANTY 24X7   |  |  |
| 38 | Make & Model   |  |  |
| 39 | Compliance should be on OEM letter head with Seal & Sign & MAF with tender Reference No. |  |  |

**15.14Item NO. 34.; Video management Software**

| S.No. | Parameter    | Minimum Specification Requirement   | Compliance<br>Yes/ No | Deviation<br>from<br>Specifications<br>/Remarks if<br>Any |
|-------|--------------|---|-----------------------|---|
| 1     | Note:        | Models to be quoted as per Approved Make list only.<br>Compliance should be provided on OEM Letter Head.  |                       |   |
| 2     | General      | <p>I. The Video Management System (VMS) shall control multiple sources of video surveillance subsystems in a facility to collect, manage and present video in a clear and concise manner. VMS shall intelligently determine the capabilities of each subsystem across a single or multiple sites, allowing video management of any compatible analog or digital video device through a unified configuration platform and viewer.</p> <p>II. VMS shall provide a single graphical user interface (GUI) to monitor, control and administer digital video surveillance equipment from multiple systems and platforms.</p> <p>III. VMS shall include a fully scalable enterprise-class media management system to enable simultaneous live monitoring from multiple stations and be configurable for storage both on and off site.</p> <p>IV. VMS shall be based on server client architecture with server &amp; controller containing a database of all network-connected cameras, integrated components and their configurations; and Workstations that will render video and act as a main user/machine interface.</p> <p>V. VMS software shall be configured to store and to view images captured by one camera or numerous cameras and monitor connections across an unlimited number of servers.</p> |                       |   |
| 3     | Capabilities | <p>1. Capable of managing pentaplex user operations of attached recording devices simultaneously, including live viewing, recording, playback, archiving of video data to an external storage device, and handling the exchange of data between the server and a remote workstation.</p> <p>2. Live viewing of up to 64 cameras on a single workstation with up to four monitors set up at CIF resolution. For 1080p and up to 4K resolution, the number of live streams shall be benchmarked based</p>   |                       |   |

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|  | <p>on the client hardware configuration deployed.</p> <p>3. Integration with multiple digital and network video recording devices.</p> <p>4. Integration with multiple video matrix switchers and matrix keyboards.</p> <p>5. The number of recorders and switchers shall be scalable within a network to handle any size of installation.</p> <p>6. Capable of managing the integration with multiple digital IP cameras through compatible recording devices.</p> <p>7. Integration with video analytics and a data management utility.</p> <p>8. Capable of managing failover and redundant capabilities of the recording device(s) and the database server. 1+1/N+M Recorder failover and failback automatically or manually. View and playback on one client panel.</p> <p>9. Application should have at least 11 configurable failover modes with custom threshold levels against each parameter to activate redundant server. These failover modes should be in addition to network failover.</p> <p>10. Capable of managing the investigation and video archive search tools of the recording devices.</p> <p>11. Capable of managing advanced search capabilities of the recording devices.</p> <p>12. Capable of managing motion detection-based recording.</p> <p>13. Multi-level user access rights for managing viewing rights and access to the recorder functions.</p> <p>14. Capable of managing continuous, scheduled, manual, event-based and alarm-based recording features of the recording devices.</p> <p>15. Support for Unicast/multicast network topologies and communication protocols.</p> <p>16. Macro capability to allow for custom scripts and to provide both customization and third party</p> |  |  |
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|  | <p>integration.</p> <p>17. Integrates Video Analytics of the same make as of camera and VMS OEM</p> <p>18. Support for both centralized and distributed architectures.</p> <p>19. Simultaneous use of multiple video compression including H.264, H.265 (including camera dependent smart codec support), MPEG-4 and MJPEG</p> <p>20. Utilization of off-the-shelf computer workstations, servers, networking and storage equipment.</p> <p>21. Capable of person anonymization for GDPR compliance.</p> <p>22. Support web client that supports modern web browser like Google Chrome for<br/> a) View live, playback and control PTZ for one or more cameras from a single browser instance<br/> b) Support setting stream preferences allows configuring either same stream as thick clients or a lower or higher quality video stream for web clients to cater to remote web clients.</p> <p>23. Shall support two-way audio integration with IP cameras.</p> <p>24. VMS/Recorders shall conform to Latest standard of ONVIF Profile S, G and the same shall be listed on ONVIF website.</p> <p>25. Software Should support ANR (Automatic Network replenishment) Feature where camera should Record to Camera SD card during it gets disconnects from Storage. Once connection is established recording in SD card can be replenished automatically to storage.</p> <p>26. The Recording System, once configured, shall run independently of the Video Management system and continue to operate if the Management system is off-line.</p> <p>27. Simultaneous use of multiple video compression including H.264, H.265 (including camera dependent smart codec support), MPEG-4 and MJPEG.</p> |  |  |
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|   |                     | <p>28. VMS should support H.265 GPU rendering.</p> <p>29. Support custom Video Archival period for every camera maximum up to 5 years on FIFO basis</p>  |  |  |
| 4 | Cyber Security      | <p>1. Enhanced password security – non-recoverable passwords, enforcing complex passwords, password expiry, and no default passwords.</p> <p>2. Addressed Unauthenticated/Unauthorized channels.</p> <p>3. Secured firewall configuration.</p> <p>4. Secured Web client – enabled HTTPS and TLS 1.2, and protection from CSRF and XSS attacks.</p> <p>5. Restricted folder and Registry access to operators.</p> <p>6. Secured Assemblies – Digital signing.</p> <p>7. Secure communication with Cameras and Encrypted video streams using TLS 1.2</p> |  |  |
| 5 | Modes of User Login | <p>VMS Server and Workstation shall have the option of two modes of user logins</p> <p>1. Windows Authentication: Uses the Windows logged-in user name.</p> <p>2. User DB Authentication: Uses a preconfigured user name and password.</p>   |  |  |

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| 6 | Configurati<br>on | <p>The operator (with Administrator privileges) shall have the option to configure VMS. VMS shall support live updates of all configurations. The following configurations shall be possible:</p> <p>a. Recorders Configuration: Option to add/edit/delete recorders.</p> <p>b. Camera Configuration: Option to add/edit/delete cameras and associate to a recorder or switcher and map to a site, partition or event group.</p> <p>c. Monitor Configuration: Option to add/edit/delete monitors and map to a site, partition, event group or keyboard. It shall provide an option to add a digital monitor and associate it with a workstation. It shall provide an option to configure a digital monitor with a default salvo and startup in full screen. It shall provide an option to add an analog monitor and associate it with a switcher. Option to save a digital correction in the video input page.</p> <p>d. Switcher Configuration: Option to add/edit/delete analog video switchers.</p> <p>e. Keyboard Configuration: Option to add/edit/delete keyboard controllers.</p> <p>f. User Management (Users and Roles): Option to add/edit/delete roles and associate to predefined privileges and then add/edit/delete users and associate users with roles. Option to associate permissions with salvo selection and tool bar buttons.</p> <p>g. Administrators of the system should have option to force logout users from workstation clients. If more than one instance of a client is running in a workstation, administrator should be allowed to force log out the user from all client instances of a workstation</p> <p>h. Site Configuration: Option to add/edit/delete a site.</p> <p>i. Workstation Configuration: Option to add/edit/delete a workstation.</p> <p>j. Event Group Configuration: Option to add/edit/delete event groups. Support of bulk event association to enable/disable and adjust events for recorders and inputs in bulk.</p> |  |  |
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|   |        | <p>k. Partition Configuration: Option to add/edit/delete partitions.</p> <p>l. Sequence Configuration: Option to add/edit/delete a scan sequences.</p> <p>m. Intercept Key Configuration: Option to add/edit/delete intercept keys from Ethernet joystick keyboards to change the key function to a new and desired function.</p> <p>n. System Macro Configuration: Option to add/edit/delete macros. Option to restore macros. Execute button option to trigger selected macros provides mechanism for testing written macros.</p> <p>o. Port Configuration: Option to add/edit/delete keyboard controllers and analog video switchers to the ports available on the control</p>   |  |  |
| 7 | Viewer | <p>a. Capable of being launched multiple times on the same workstation a minimum of four (4) times to display four (4) viewers on four (4) separate monitors per workstation.</p> <p>b. Main video viewing screen capable of showing 1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7,8x8,1x5, 2x8, and 1x12 salvos of live or recorded video. The Viewer application shall be capable of a full screen mode where only the video salvo is displayed.</p> <p>c. Each Viewer has the capability to be associated to a specific monitor on a workstation and be assigned a unique output number that is either selectable from the viewer device tree, an Ethernet Joystick controller, or from a system macro.</p> <p>d. Capable of saving current salvo as a View and allowing the user to select the saved view by either dragging and dropping it into the viewer, using an joystick controller or a system macro.</p> <p>e. Capable of selecting a particular camera or salvo by using the mouse to drag it onto the main video viewing screen. Users shall also have an undo/redo option for camera drag/drop and salvo selection from the viewer and joystick controller.</p> <p>f. Capable of switching an analog camera to an analog or digital monitor so that the system will</p> |  |  |



|  |  |  |  |
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|  | <p>recognize to switch to the analog matrix switch or to pull the video from an encoder.</p> <p>g. Capable of choosing My Salvos (unique to the current operator) or Shared Salvos while saving a salvo.</p> <p>h. Capable of allowing duplicate salvo names to be set by different users and in different locations.</p> <p>i. Capable of dragging any monitor defined in the system onto a video panel and take control of that monitor.</p> <p>j. Option to send a command to the controller to switch a particular analog camera onto the analog monitor through a drag and drop operation.</p> <p>k. Capable of configuring and running scan sequences.</p> <p>l. Capable of independently adjusting the contrast, brightness, and saturation settings for each camera.</p> <p>m. Support for both analog and digital PTZs through the GUI or the keyboard.</p> <p>n. Innovative “One-Click” or “Mouse Drag” 3D PTZ control experience that does away with legacy PTZ controls of continuous clicking.</p> <p>o. Intelligence events from cameras can be viewed at the alarm panel and trigger event recording on recorders for further investigation. In alarm pane operator should be able to view the video during pre-alarm, on-alarm, post-alarm, and also view live video from the camera which triggered the alarm through a single 2x2 salvo</p> <p>p. 360° de-warping “spreads” the distorted fisheye image into natural panoramic and/or multiple tile views. Operators can view and focus on zones of interest on live and recorded video.</p> <p>q. Clip Export:</p> <ul style="list-style-type: none"> <li>• The VMS shall export video and audio data optionally in ASF/MOV/WMV format to a CD/DVD drive, a network drive, or a USB drive. The exported data in ASF/MOV/WMV format may be played back using standard software such as Windows Media Player.</li> <li>• The VMS shall export video and audio data</li> </ul> |  |  |
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|  | <p>optionally in its native recording format to a CD/DVD drive, a network drive, or a direct attached drive. Viewer software shall be included with the export.</p> <ul style="list-style-type: none"><li>• The video management system shall write a digital signature to the exported video. This shall allow the viewing client to verify, that the imported video has not been tampered. The utility/verification tool shall provide a warning in case that the video has been tampered. This shall be done by means of the checksum of the digital signature.</li><li>• It shall be possible to password protect the video export. The export can then only be opened and viewed when the corresponding password is entered.</li></ul> <p>r. Incident Clip Creation: The Clip Creation facility shall permit multi-camera clip generation</p> <ul style="list-style-type: none"><li>• Story clips allow for selecting multiple cameras at different times to create a single clip to play the cameras back in order. Also supports saving salvo information in a story clip.</li><li>• Salvo clips provide an instant clip export button to create an instant clip while maintaining the salvo information. Supports pre-determined pre- and post-times that are user-configurable in the preferences.</li><li>• Clip preview window facility supports play back of the individual cameras prior to commencing clip creation.</li><li>• Capable of manually setting the clip duration in the clip creation window for each camera</li></ul> <p>s. Capable of playing back the exported video clips. Each video channel that is being recorded by the recording system shall be overlaid with text and a time stamp that is customizable by the user.</p> <p>t. Allows the user to initiate recording through the GUI or controller.</p> <p>u. Capable of complete alarm management for the alarms coming from recorders or switchers.</p> <p>v. Quick and responsive alarm actions can be initiated from the preview pane options.</p> <p>w. Application launch pad launches other applications from within the Viewer.</p> <p>x. Control of operator messaging, allowing operators to communicate with each other. Operators can exchange text, images and annotated</p> |  |  |
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|  | <p>video sources. Operators can hand over a video source to another operator using messaging.</p> <p>y. Sequences: System should be able to create Scan and Salvo sequence.</p> <ul style="list-style-type: none"><li>• Scan Sequence: A scan sequence view shall consist of camera view, which can be cycled on a timed basis. There shall be no limit to number of cameras that can be assigned to a single sequence. There shall be no limit on the number of available sequence views.</li><li>• Salvo Sequence: A salvo sequence will have one or more existing salvos. Dwell time shall specify the display time duration for the video. The monitor shall display each salvo in the salvo sequence for the dwell time.</li></ul> <p>z. Ability to set up surrounding camera views. Support for setting presets in surrounding cameras.</p> <ul style="list-style-type: none"><li>• In a surround view, video from a specific/intended device shall be playing in the Centre and the other videos will be from surrounding devices.</li><li>• Every video device can be mapped with 12 cameras.</li><li>• It shall support setting presets in surrounding cameras.</li></ul> <p>aa. Option to perform various operations through the context menu on a particular video (live/recorded/sequence). These operations include: Full screen, point and drag, enable square select, maintain aspect ratio, toggle text, digital PTZ, add bookmark, send message, start recording, stop recording, mark in, mark out, save image, save image as, and show surrounding cameras.</p> <p>bb. Ability to manage the timeline control of the recording device, which provides camera recording statistics. Timeline control shall have the following features: Min 8 color recording indications, Mark in/out (with looping facility), bookmark (including for all playing cameras or all selected cameras or removing all bookmarks), snapshot, time slider, time search, time jump, and play controls. Timeline control shall also include dedicated buttons for step reverse and step forward and keyboard shortcuts for playback operations.</p> <p>cc. Bookmarks: Operator should be add/delete bookmarks for Live, Recorded videos. Should have</p> |  |  |
|--|--|--|--|

|   |         |  |  |  |
|---|---------|--|--|--|
|   |         | <p>provision to add comments to Bookmarks. Support for bookmark searches based on cameras, time duration, and comments.</p> <p>dd. Controllable by a keyboard controller connected to the VMS server/controller with the following major features: selecting salvos, ending monitor commands, switching operations, and PTZ control operations.</p> <p>ee. Preference configuration including: fps of unselected panels, rendered type, preview pane, and text display format.</p> <p>ff. Support for smooth reverse playback at 2x (Recorder Dependent)</p> <p>gg. Capable of displaying analytics annotations (Recorder/Camera Dependent)</p> <p>hh. Profile camera: Create and save virtual profile cameras in layout for live viewing by digitally zooming into the field of view of camera. These virtual cameras should not require any additional license and operators should be able to create multiple such views.</p> |  |  |
| 8 | Search  | <ul style="list-style-type: none"> <li>• The Search facility shall include searches based on Recorders, Cameras, Date/Time, Type/Event.</li> <li>• Calendar Search with thumbnail image preview of recording and quick export of video clips.</li> <li>• Should have advanced, smart search function performing quick Motion Detection search on recorded video for multiple user defined region of interest.</li> <li>• Should support sync playback between multiple recorders.</li> <li>• Playback with speeds ranging from 1/64X to 256X.</li> </ul>   |  |  |
| 9 | Reports | <ul style="list-style-type: none"> <li>• It shall be possible to get reports on past events by querying the databases. <ul style="list-style-type: none"> <li>o System Report - Event history reports for cameras, Monitors, Recorders</li> <li>o Operator Log reports based on operator activities like log In / Log Out , creating clip, adding bookmark etc.</li> </ul> </li> <li>• Health Report</li> <li>• Failover Reports</li> <li>• Configuration reports</li> <li>• Log reports shall be exported in RPT, XLS, DOC, RFT, PDF formats</li> <li>• Email for alarms and failover</li> </ul>  |  |  |

|    |                  |   |  |  |
|----|------------------|---|--|--|
| 10 | Remote Monitor   | The Remote Monitor facility shall allow operators to control a remote monitor connected to another workstation and perform review capabilities so that both the local operator and the remote viewer can simultaneously watch the same video.   |  |  |
| 11 | VMS Integrations | <p>a) Recorders: VMS shall support integration with digital and network video recorders (DVRs/NVRs). VMS shall have the ability to access and manage necessary functions of the recording devices through the VMS client interface, such as live video, recorded video, camera configuration, PTZ control and other associated functions.</p> <p>b) Analog Video Switchers: VMS shall support matrix switcher integration including camera call up, monitor switching, video command support and PTZ support. The video subsystem shall be the controller device for video cameras, monitors, and VCRs, and shall associate camera inputs with monitor outputs. The system shall allow users to program video monitors and video cameras to execute commands upon recognition of an alarm or any other condition within the system. The user shall be able to add, edit, delete, and partition video subsystems.</p> <p>c) Data Management Utility</p> <p>d) IP Surveillance Control Keyboards – Ethernet based</p> <p>e) Video Analytic Software</p> |  |  |
| 12 | WARRANTY & Make  | 5YR   |  |  |
| 13 | MAF & COMPLIANCE | MAF ON OEM LETTER HEAD WITH TENDER REF. NO. & Compliance on OEM LETTERHEAD  |  |  |

**15.15Item No. 35.; VPN Router**

| S.No | Minimum Specification Requirement | Compliance Yes/ No | Deviation from Specifications/Remarks if Any |
|------|-----------------------------------|--------------------|--|
| 1    | General Requirements              |                    |  |

|    |  |  |  |
|----|--|--|--|
| 2  | The proposed system shall support unlimited IP addresses license   |  |  |
| 3  | The solution should be based on a multiple processors to accelerate content scanning, stateful packet header inspection, VPN encryption/decryption by offloading it to different processors. Solution should also provide acceleration for processing all packet sizes which include time sensitive applications such as VoIP, real-time protocols, and multimedia applications. |  |  |
| 4  | Interfaces Requirement   |  |  |
| 5  | 1G RJ45 : Minimum 5 No's   |  |  |
| 6  | 1x Console and 1 x USB Port  |  |  |
| 7  | Management Requirements  |  |  |
| 8  | The administrator authentication shall be facilitated by local database, PKI & remote services such as Radius, LDAP and TACACS+  |  |  |
| 9  | The system shall support two factor authentication for admin users and should provide two 2FA tokens from day 1  |  |  |
| 10 | The proposed system should be able to facilitate administration audits by logging detailed activities to event log - management access and also configuration changes.   |  |  |
| 11 | System Requirements  |  |  |
| 12 | The proposed system shall at least provide the following system performance:   |  |  |
| 13 | Ipv4 Firewall or Router Throughput : Min 5 Gbps  |  |  |
| 14 | Concurrent Session : Min 600K  |  |  |
| 15 | New Session : Min 35000  |  |  |

|    |  |  |  |
|----|--|--|--|
| 16 | IPSec VPN throughput : Min 4 Gbps  |  |  |
| 17 | Routing  |  |  |
| 18 | The system must be able to support routing protocols including RIP, OSPF, ISIS, BGP, RIPng and OSPFv3  |  |  |
| 19 | The system shall be able to operate as a Protocol Independent Multicast (PIM) version 2 router.  |  |  |
| 20 | The system shall support PIM sparse mode and PIM dense mode and can service multicast servers or receivers on the network segment to which an interface is connected |  |  |
| 21 | VPN Requirements   |  |  |
| 22 | The device shall provide up to 4 Gbps of IPSec VPN throughput.   |  |  |
| 23 | The proposed system shall comply/support industry standards, supports without additional external solution, hardware or modules:                                     |  |  |
| 24 | IPSEC VPN  |  |  |
| 25 | PPTP VPN   |  |  |
| 26 | L2TP VPN   |  |  |
| 27 | SSL VPN  |  |  |
| 28 | The system shall support IPSEC and PPTP VPN pass through so that computers or subnets on internal network can connect to a VPN gateway on the Internet.              |  |  |
| 29 | The system shall support 2 forms of site-to-site VPN configurations:   |  |  |
| 30 | Route based IPSec tunnel   |  |  |
| 31 | Policy based IPSec tunnel  |  |  |

|    |  |  |  |
|----|--|--|--|
| 32 | The system shall support IPSEC site-to-site VPN and remote user VPN in transparent mode.                     |  |  |
| 33 | The system shall provide IPv6 IPsec feature to support for secure IPv6 traffic in an IPsec VPN.              |  |  |
| 34 | The proposed system shall support TWO modes of SSL VPN operation:  |  |  |
| 35 | Web-only mode: for thin remote clients equipped with a web browser only and support web application such as: |  |  |
| 36 | 6.10.1.1 HTTP/HTTPS Proxy  |  |  |
| 37 | 6.10.1.2 FTP   |  |  |
| 38 | 6.10.1.3 Telnet  |  |  |
| 39 | 6.10.1.4 SMB/CIFS  |  |  |
| 40 | 6.10.1.5 SSH   |  |  |
| 41 | 6.10.1.6 VNC   |  |  |
| 42 | 6.10.1.7 RDP   |  |  |
| 43 | Tunnel mode, for remote computers that run a variety of client and server applications                       |  |  |
| 44 | The proposed solution shall support to a maximum of 200 concurrent SSL-VPN users from day 1                  |  |  |
| 45 | SD-WAN Capabilities  |  |  |
| 46 | The Proposed system shall support SD-WAN.  |  |  |
| 47 | The Proposed system shall support SD-WAN Policies based on:  |  |  |
| 48 | Firewall Addresses   |  |  |
| 49 | Internet Service Database  |  |  |
| 50 | Application awareness  |  |  |



|    |  |  |  |
|----|--|--|--|
| 51 | Preferred Interface  |  |  |
| 52 | Give Make & model  |  |  |
| 53 | Compliance should be on OEM letter head with Seal & Sign & MAF with tender reference No. |  |  |

**15.16Item NO. 36.; SAN Switch**

| S.No. | Parameter                 | Minimum Requirement  | Specification | Compliance Yes/No | Deviation from Specifications/Remarks if Any |
|-------|---------------------------|--|---------------|-------------------|--|
| 1     | Make & Model              | 16Gb 8-port Active Fibre Channel Switch  |               |                   |  |
| 2     | SAN switch                | 24-port 16Gbps FC SAN Switch that supports 4, 8 & 16 Gbps speeds And with License for 16-port Active Ports from Day One  |               |                   |  |
| 3     | Transceiver with LC I/F   | 24 Nos of 16Gb SFP+ Short Wave Transceivers  |               |                   |  |
| 4     | Form Factor               | 1U Rack Form Factor  |               |                   |  |
| 5     | Rack Mount Kit            | Includes Rackmount kit to install in Industry Standard Server Racks  |               |                   |  |
| 6     | Non-blocking Architecture | 16 Gbit/Sec Non-blocking architecture with 1:1 performance for all the 24 ports  |               |                   |  |
| 7     | Port types Support        | Supports Port types<br>- F_Port, E_Port,<br>- M_Port (Mirror Port)<br>- D_Port (Diagnostic Port);<br>- Self-discovery based on switch type (U_Port);<br>Optional port type control |               |                   |  |

|    |   |  |  |  |
|----|---|--|--|--|
|    |   | - Access Gateway mode: F_Port and NPIV-enabled N_Port  |  |  |
| 8  | Non-disruptive software upgrade support                     | Supports non-disruptive software upgrades  |  |  |
| 9  | USB port for system log file downloads or firmware upgrades | One USB port for system log file downloads or firmware upgrades  |  |  |
| 10 | Aggregate Bandwidth   | Switch should support aggregate bandwidth of minimum 768 GBPS  |  |  |
| 11 | QoS   | Supports<br>- Quality of Service (QoS): Enables zones with high, medium, and low priorities within a fabric on a zone by zone basis  |  |  |
| 12 | ISL Trunking  | Supports Inter-Switch Link (ISL) Trunking to provide a high-speed data path between switches which enables a high speed data path between 16 Gb/s switches up to 128 Gb/s with Optional "ISL Trunking" License |  |  |
| 13 | Management  | Supports web based management with Built-in Web browser management tools   |  |  |
| 14 | Power   | Consumes Up to 80 watts with all 24 ports populated with 16 Gbps SWL optics  |  |  |
| 15 | Warranty  | 5 Years Warranty including Parts, Labour and Onsite support with next business day response  |  |  |

|    |              |  |  |  |
|----|--------------|--|--|--|
| 16 | Make & Model | Give Make & model  |  |  |
| 17 | MAF          | Compliance should be on OEM letter head with Seal & Sign & MAF with tender reference No. |  |  |
|    |              |  |  |  |

## 16 Annexure - F

(See clause 4.3 of ITB)

### Procedure for Participation in e-Tendering

- 1) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://mptenders.gov.in/nicgep/app>) by clicking on the link “**Online bidder Enrolment**” on the MP TENDERS Portal **which is free of charge**.
- 2) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- 3) Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the MP TENDERS Portal.
- 4) Upon enrolment, the bidders will be required to register **their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage)** issued by any Certifying Authority recognized by CCA India (e.g. Sify / nCode / eMudhra etc.), with their profile.
- 5) Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.
- 6) Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

### SEARCHING FOR TENDER DOCUMENTS

- 1) There are various search options built in the MP TENDERS Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the MP TENDERS Portal.
- 2) Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the MP TENDERS Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.
- 3) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

### PREPARATION OF BIDS

- 1) Bidder should take into account any corrigendum published on the tender document before submitting their bids.

- 2) Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted.
- 3) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS / RAR / DWF/JPG formats. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- 4) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

#### SUBMISSION OF BIDS

- 1) Bidder should log into the site well in advance for bid submission so that they can upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- 2) The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- 3) Bidder has to select the payment option as "online" to pay the tender fee / EMD.
- 4) Bidder should prepare the EMD as per the instructions specified in the tender document.
- 5) Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BoQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BoQ file, open it and complete the white coloured (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BoQ file is found to be modified by the bidder, the bid will be rejected.
- 6) The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.
- 7) All the documents being submitted by the bidders would be encrypted using PKI encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done. Any bid document that is uploaded to the

server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

- 8) The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- 9) Upon the successful and timely submission of bids (ie after Clicking "Freeze Bid Submission" in the portal), the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- 10) The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings.

#### ASSISTANCE TO BIDDERS

- 1) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- 2) Any queries relating to the process of online bid submission or queries relating to MP TENDERS Portal in general may be directed to the 24x7 MP TENDERS Portal Helpdesk.
- 3) Set Up of Bidder's Computer System:

In order for a bidder to operate on the e-tendering System, the Computer System of the bidder is required to be set up for Operating System, Internet Connectivity, Utilities, Fonts, etc. The details are available at <https://mptenders.gov.in/nicgep/app>

- 4) Key Dates:

The bidders are strictly advised to follow the time schedule (Key Dates) of the bid on their side for tasks and responsibilities to participate in the bid, as all the stages of each bid are locked before the start time and date and after the end time and date for the relevant stage of the bid as set by the Department.

- 5) Preparation and Submission of Bids

The bidders have to prepare their bids online, encrypt their bid Data in the Bid forms and submit Bid of all the envelopes and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the Notice inviting e-Tenders after signing of the same by the Digital Signature of their authorized representative.

- 6) Purchase of Bid Document

For purchasing of the bid document bidders have to pay Service Charge online ONLY which is Rs. [as per Bid Date Sheet]. Cost of bid document is separately mentioned in the Detailed NIT. The Bid Document shall be available for purchase to concerned eligible bidders immediately after online release of the bids and up to

scheduled time and date as set in the key dates. The payment for the cost of bid document shall be made online through Debit/Credit card, Net banking or NEFT Challan through the payment gateway provided on the portal.

7) **Withdrawal, Substitution and Modification of Bids**

Bidder can withdraw and modify the bid till Bid submission end date.

## **17 Annexure - G**

(See clause 0 of ITB)

### **Joint Venture (J.V.)**

#### ***Annexure - G***

*(See clause 2.4 of ITB)*

If J.V. is allowed following conditions and requirements must be fulfilled -

1. Number of partners in a joint venture shall not exceed 2 (two). The partners shall comply with the following requirements :
  - a. One of the partners shall be nominated as being Lead Partner, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;
  - b. The bid and, in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all 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 the 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 statement to this effect shall be included in the authorization mentioned under [c] above, as well as in the bid and in the Agreement [in case of a successful bid];
  - e. The joint venture agreement should indicate precisely the role and responsibilities of all the members of JV in respect of planning, design, construction equipment, key personnel, work execution, and financing of the project including operation and maintenance of the works. All members of JV should have active participation in execution during the currency of the contract. This should not be varied/modified subsequently without prior approval of the employer;
  - f. The joint venture agreement should be registered, so as to be legally valid and binding on all partners; and



- g. A copy of the Joint Venture Agreement entered into by the partners shall be submitted with the bid.
- 2. All the partners should meet out the minimum qualifying criteria required for the bid and collectively must meet the criteria specified in full. Failure to comply with this requirement will result in rejection of the joint venture's bid.
- 3. The performance security of a Joint Venture shall be in the name of the **Lead Partner**.
- 4. Attach the power of attorney of the partners authorizing the Bid signatory (IES) on behalf of the joint venture.
- 5. An individual bidder cannot at the same time be member of a joint venture applying for this bid. Further, a member of a particular bidder joint venture cannot be member of any other bidder joint venture applying for this bid.
- 6. Furnish details of participation proposed in the joint venture as below:

DETAILS OF PARTICIPATION IN THE JOINT VENTURE

| <b>Participation Details</b>           | <b>Firm 'A'(Lead Partner)</b> | <b>Firm 'B'</b> |
|--|-------------------------------|-----------------|
| Financial                              |                               |                 |
| Name of the Banker(s)                  |                               |                 |
| Planning                               |                               |                 |
| Construction                           |                               |                 |
| Equipment                              |                               |                 |
| Key Personnel                          |                               |                 |
| Execution of Work                      |                               |                 |
| (Give details on contribution of each) |                               |                 |

## 18 Annexure - H

(See clause 4.12 of ITB)

### ORGANIZATIONAL DETAILS

| SN | Particulars   | Details   |
|----|---|---|
| 1. | Registration number issued by Centralized Registration system of Govt. of M.P. or proof of application for registration   | (If applicable, scanned copy of proof of application for registration to be uploaded) |
| 2. | Valid registration of bidder in appropriate class through centralized registration of Govt. of M.P.   | Registration No..... Date.....<br>(Scanned copy of registration to be uploaded)       |
| 3. | Valid GST, PAN and PF Registration No.  | Copies of same to be provided   |
| 4. | Name of Organization / Individual Proprietorship Firm / Partnership firm  |   |
| 5. | Entity of Organization:<br>A Company registered under the Companies Act, 1956 or Companies Act, 2013;<br>OR<br>Partnership Firm registered under Indian Partnership Act, 1932<br>OR<br>Limited Liability Partnership Firm registered under the Limited Liability Partnership Act, 2008;<br>OR<br>A Sole Proprietorship. |   |
| 6. | Address of Communication  |   |
| 7. | Telephone and Fax Number with STD Code  |   |

| <b>SN</b> | <b>Particulars</b>                     | <b>Details</b> |
|-----------|--|----------------|
| 8.        | Mobile Number                          |                |
| 9.        | Email address for all communications   |                |
| 10.       | Details of Authorized Representative   |                |
|           | Name                                   |                |
|           | Designation                            |                |
|           | Postal Address                         |                |
|           | Telephone and Fax Number with STD Code |                |
|           | Mobile Number                          |                |
|           | Email address for all communications   |                |

Note: In case of partnership firm and limited company certified copy of partnership deed/ Articles of Association and Memorandum of Association along with registration certificate of the company shall have to be enclosed.

Signature of Bidder with Seal

Date:

## 19 Annexure - I

(See clause 4.14 of ITB)

Technical Proposal shall comprise the following documents:

| <b>SN</b> | <b>Particulars</b>                                       | <b>Details to be submitted</b> |
|-----------|--|--------------------------------|
| 1         | Experience – Financial & Physical                        | Annexure – I (Format I-1)      |
| 2         | Annual Turnover  | Annexure – I (Format I-2)      |
| 3         | List of technical personnel for the key positions        | Annexure – I (Format I-3)      |
| 4         | List of key equipment/ machines for quality control labs | Annexure – I (Format I-4)      |
| 5         | List of key equipment/ machines for construction work    | Annexure – I (Format I-5)      |

Note:

1. Technical Proposal should be uploaded duly page numbered and indexed.
2. Technical Proposal uploaded otherwise will not be considered.

**20 Annexure - I (Format: I-1)**

(See clause 4.14 of ITB)

**FINANCIAL & PHYSICAL EXPERIENCE DETAILS**

A. Financial Requirement:

As stipulated at Annexure - C.

To be filled in by the contractor:

i. Details of successfully completed similar work shall be furnished in the following format.

ii. Certificate duly signed by the employer shall also be enclosed for each completed similar work.

| Agreement Number & Year | Name of Work | Date of Work Order | Date of Completion | Amount of Contract | Employer's Name and Address |
|-------------------------|--------------|--------------------|--------------------|--------------------|-----------------------------|
|                         |              |                    |                    |                    |                             |
|                         |              |                    |                    |                    |                             |
|                         |              |                    |                    |                    |                             |
|                         |              |                    |                    |                    |                             |

Existing commitments - (Value of 'C' for Bid Capacity formula)

NOT APPLICABLE

B. Physical Requirement:

As specified at Annexure - C

**21 Annexure - I (Format: I-2)**

(See clause 4.14 of ITB)

**ANNUAL TURNOVER & NET WORTH**

Requirement:

As stipulated at Annexure - C.

To be filled in by the contractor:

| Financial Year | Turnover from similar work | Net worth |
|----------------|----------------------------|-----------|
| 2020-21        |                            |           |
| 2021-22        |                            |           |
| 2022-23        |                            |           |

Note:

- i. Annual turnover of similar work should be certified by the Chartered Accountant along with valid UDIN,
- ii. Audited balance sheet including all related notes, and income statements for the above financial years to be enclosed.

**Bid Capacity**

NOT APPLICABLE

## **22 Annexure - I (Format: I-3)**

(See clause 4.14 of ITB)

List of Technical Personnel for the Key Positions

AS per SLA

Penalty for Non-deployment of above staff are as follow:

As per SLA

**Note:** The above-mentioned staff detail is the indicative and minimum, the contractor must deploy the required more number of additional staff/team and other experts as required for the execution of the project successfully in timely manner. In case the contractor does not deploy the requisite required team/ staff for the project and the staff is unavailable for a part of the month, the penalty shall be imposed upon the contractor on pro-rata basis. **Even If after reminders/notice, the contractor does not deploy the required human resources, the minimum required human resources shall be deployed by the GSCDCL and the payment for those resources shall be deducted from the contractor's bill and/or performance security as the case may be.**



**23 Annexure - I (Format: I-4)**

(See clause 4.14 of ITB)

**NOT APPLICABLE**

## **24 Annexure - I (Format: I-5)**

(See clause 4.14 of ITB)

The contractor shall submit the details of the following minimum equipment's/machinery available with them , if not the agreement of hiring the same along with the bid documents submitted.

### **Minimum requirement**

**NOT APPLICABLE**

The equipments shall be deployed by the contractor as per the requirement of the work to b completed in due time.

After inspection, Engineer in charge may accept the request as it is or instruct for some changes if required in the machinery which shall be carried out by the Contractor at this own cost. Only after its approval by the Engineer-in-Charge, the Contractor shall carry out work from the approved machinery.

## 25 Annexure - J

(See clause 4.15 of ITB)

### FINANCIAL BID (To Be Contained in Envelope-C)

NAME OF WORK \_\_\_\_\_

I/We hereby bid for the execution of the above work within the time specified at the **rate (in figures)** \_\_\_\_\_ **(in words)** \_\_\_\_\_ **percent below/ above or at par** based on the Bill of Quantities and item wise rates given therein in all respects and in accordance with the specifications, designs, drawings and instructions in writing in all respects in accordance with such conditions so far as applicable. I/We have visited the site of work and am/ are fully aware of all the difficulties and conditions likely to affect carrying out the work. I/We have fully acquainted myself/ourselves about the conditions in regard to accessibility of site and quarries/kilns, nature and the extent of ground, working conditions including stacking of materials, installation of tools and plant conditions effecting accommodation and movement of labour etc. required for the satisfactory execution of contract.

Should this bid be accepted, I/We hereby agree to abide by and fulfilment of all the terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the Governor of Madhya Pradesh or his successors in office the sums of money mentioned in the said conditions.

Note:

- i. Only one rate of percentage above or below or at par based on the Bill of Quantities and item wise rates given therein shall be quoted.
- ii. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found lower of the two shall be taken as valid and correct rate. If the bidder is not ready to accept such valid and correct rate and declines to furnish performance security and sign the agreement his earnest money deposit shall be forfeited.

- iii. In case the percentage "above" or "below" is not given by a bidder, his bid shall be treated as non-responsive.
  
- iv. All design cost, duties, taxes, and other levies payable by the bidder shall be included in the percentage quoted by the bidder except GST (**GST will be paid as per applicable rule**).

Signature of Bidder

Name of Bidder

The above bid is hereby accepted by me on behalf of the Governor of Madhya Pradesh dated the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

Signature of Officer by whom accepted

**26 Annexure - K**

(See clause 4.15 of ITB)

MATERIALS TO BE ISSUED BY THE DEPARTMENT

**NOT APPLICABLE**

**27 Annexure - L**

(See Clause 4.21 of ITB)

LETTER OF ACCEPTANCE (LOA)

No. \_\_\_\_\_

Dated:

To,

M/s. \_\_\_\_\_

(Name and address of the contractor)

Subject: Letter of Award for (Name of the work as appearing in the bid for the work)

Reference: NIT No. \_\_\_\_\_ dated: \_\_\_\_\_

Dear Sir (s),

Your bid for the work mentioned above has been accepted on behalf of GSCDCL at a bid amount which is Rs. (Enter the Amount in Figure)/- (Rupees (Enter the amount in Words)--- only) excluding of GST given in your proposal.

You are requested to submit the following within 15 (Fifteen) days from the date of issue of this letter:

- a. The performance security/ performance guarantee of Rs. (\_\_\_\_\_ Enter the amount in Figure)/-(Rupees \_\_\_\_\_ (Enter the amount in Words only) being 3% of the accepted quoted cost in favour of **“The Executive Director, Gwalior Smart City Development Corporation Limited”** . The performance security shall be in the shape of Term Deposit Receipt / Bank Guarantee of any nationalized / schedule commercial bank valid to upto the contract period including defect liability period (\_\_\_\_\_ (Enter the execution Period in months) Months execution including rainy season + 36 months DLP + 3 Months (Total \_\_\_\_\_ (Enter in figure) Months).

Please note that the time allowed for carrying out the work as entered in the bid is \_\_\_\_\_ (Enter time in figure) (Enter time in Words) months including rainy season and total contract period is \_\_\_\_\_ (Enter time in Figure) Months, shall be reckoned from the date of Signing the contract agreement.

The contract agreement shall be deemed as an intimation for commencement of work and no separate letter for in this record shall be issued.

Yours Faithfully

Authorised Signatory

GSCDCL

**28 Annexure - M**

(See clause 4.22 of ITB)

PERFORMANCE SECURITY

To,

\_\_\_\_\_ [Name of Employer]

\_\_\_\_\_ [Address of Employer]

WHEREAS \_\_\_\_\_ [name and address of Contractor] (Hereinafter called "the Contractor") has undertaken, in pursuance of Letter of Acceptance No. \_\_\_\_\_ dated \_\_\_\_\_ to execute \_\_\_\_\_ [Name of Contract and brief description of Works] (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation 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 \_\_\_\_\_ [amount of guarantee]\* \_\_\_\_\_ (in words), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ [amount of guarantee] 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 or addition to or other modification of the terms of the Contract of the Works to be performed there under 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 such change, addition or modification. This guarantee shall be valid until 3 (twelve) months from the date of expiry of the Defect Liability Period.

Signature, Name and Seal of the guarantor Name of Bank

Address

Phone No., Fax No., E-mail Address, of Signing Authority Date

\* An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

**29 Annexure – M 1**

FORM OF POWER OF ATTORNEY FOR SIGNING THE BID DOCUMENTS

(On non-judicial stamp paper of Rs. 100/-)

Know all men by these presents, we, ..... (name of Supplier and address of the registered office) do hereby irrevocably constitute, nominate, appoint and authorize Mr. / Ms..... son/daughter/wife of ..... and presently residing at ....., who is presently employed with us and holding the position of ..... as our true and lawful attorney (hereinafter referred to as the “Authorized Representative”), hereinafter necessary or required in connection with or incidental to submission of bid for the \_\_\_\_\_ [name of the work] being developed by the GSCDCL including but not limited to signing and submission of all applications, proposals/bids and other documents and writings, participating in pre-bid and other conferences and providing information/ responses to GSCDCL, representing us in all matters before GSCDCL, signing and execution of all contracts and undertakings consequent to acceptance of our proposal and generally dealing with GSCDCL in all matters in connection with or relating to or arising out of our Proposal for the said work and/or upon award thereof to us till the entering into of the agreement with GSCDCL.

AND GENERALLY, to act as our Attorney or agent on behalf of us in relation to the bid for \_\_\_\_\_ [name of the work] (and to execute and do all instruments, acts, deeds, matters and things in relation to the said Proposal or any incidental

or ancillary activity, as fully and effectually in all respects as we could do if personally present.

AND We hereby agree to ratify and confirm and agree to ratify and confirm all acts, deeds and things whatsoever lawfully done or caused to be done by our said Attorney and that all acts, deeds and things done by our said Attorney in exercise of the powers hereby conferred shall and shall always be deemed to have been done by us.

IN WITNESS WHEREOF WE, ..... THE ABOVE-NAMED PRINCIPAL HAVE

EXECUTED THIS POWER OF ATTORNEY ON THIS ..... DAY OF .....,

2021

For

.....

(Signature, name, designation and address)

Witness

1.

2.

Notarized

Accepted

-----

(Signature, name, designation and address of the Attorney)

**30 Annexure – M 2**

**DECLARATION**

**Affidavit**

**(On Non Judicial Stamp of Rs. 100/-)**

I / WE ..... have gone through carefully all the Tender conditions and solemnly declare that I / we will abide by any penal action such as disqualification or blacklisting or determination of contract or any other action deemed fit, taken by, the Department against us, if it is found that the statements, documents, certificates produced by us are false / fabricated.

I / WE hereby declare that, I / WE have not been blacklisted / debarred / Suspended / demoted in any department in Madhya Pradesh or in any other State Government / Central Government / UT due to any reasons. I/WE agree to disqualify me/us for any wrong declaration in respect of the above and to summarily reject my/our tender.

Signed by an Authorized Officer of the Firm

Title of the Officer

Name of the Firm

Date

## **SECTION 3: Conditions of Contract (Part - I General Conditions of Contract (GCC)]**

### **A. GENERAL**

#### **1. DEFINITIONS**

- 1.1. Bill of Quantities: means the priced and completed Bill of Quantities forming part of the Bid.
- 1.2. Completion: means completion of the work as certified by the Engineer-in-Charge, in accordance with provisions of agreement.
- 1.3. Contract: means the Contract between the Employer and the Contractor to execute, complete and/or maintain the work. Agreement is synonym of Contract and carries the same meaning wherever used.
- 1.4. Contract Data: means the documents and other information which comprise of the Contract.
- 1.5. Contractor: means a person or legal entity whose bid to carry out the work has been accepted by the Employer.
- 1.6. Contractor's bid: means the completed bid document submitted by the Contractor to the Employer.
- 1.7. Contract amount: means the amount of contract worked out on the basis of accepted bid.
- 1.8. Completion of work: means completion of the entire contracted work. Exhaustion of quantity of any particular item mentioned in the bid document shall not imply completion of work or any component thereof.
- 1.9. Day: means the calendar day.
- 1.10. Defect: means any part of the work not completed in accordance with the specifications included in the contract.
- 1.11. Department: means Urban Development and Housing Department, Government of Madhya Pradesh, wherever used in the meaning that construes an Authority apart from the Employer.
- 1.12. Drawings: means drawings including calculations and other information provided or approved by the Engineer-in-Charge.
- 1.13. Employer: means the party as defined in the Contract Data, who employs the Contractor to carry out the work. The Employer may delegate any or all functions to a person or body nominated by him for specified functions. The word Employer / Government / Department wherever used denote the Employer.
- 1.14. Engineer: means the person named in the Contract Data.
- 1.15. Engineer-in-Charge: means the person named in the Contract Data.

- 1.16. Equipment: means the Contractor's machinery and vehicles brought temporarily to the Site for execution of work.
- 1.17. Government: means Government of Madhya Pradesh.
- 1.18. In Writing: means communicated in written form and delivered against receipt.
- 1.19. Material: means all supplies, including consumables, used by the Contractor for incorporation in the work.
- 1.20. Superintending Engineer: means Superintending Engineer of GSCDCL.
- 1.21. Stipulated period of completion: means the period in which the Contractor is required to complete the work. The stipulated period is specified in the Contract Data.
- 1.22. Specification: means the specification of the work included in the Contract and any modification or addition made or approved by the Engineer-in-Charge.
- 1.23. Start Date: means the date of signing of agreement for the work.
- 1.24. Sub-Contractor: means a person or corporate body who has a Contract with the Contractor, duly authorized to carry out a part of the construction work under the Contract.
- 1.25. Temporary Work: means work designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the work.
- 1.26. Tender/Bid, Tenderer/Bidder: are the synonyms and carry the same meaning wherever used.
- 1.27. Variation: means any change in the work which is instructed or approved as variation under this contract.
- 1.28. Work: The expression "work" or "works" where used in these conditions shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the work by virtue of contract, contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

## **2. INTERPRETATIONS AND DOCUMENTS**

### **2.1. Interpretations**

In the contract, except where the context requires otherwise:

- a) Words indicating one gender include all genders;
- b) Words indicating the singular also include the plural and vice versa.
- c) Provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

## 2.2. Documents Forming Part of Contract

- Notice Inviting Tender (NIT), Request for Proposal (RFP) with all amendments.
- Instructions to Bidders (ITB, Bid Data Sheet with all Annexures)
- Conditions of Contract:
  - Part I: General Conditions of Contract and the Contract Data; with all Annexures
  - Part II: Special Conditions of Contract.
- Specifications
- Drawings
- Bill of Quantities
- Technical and Financial Bid
- Agreement, and
- Any other document(s), as specified.

## 3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data.

## 4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent to the address or contact details given by the Contractor in his Bid. The address and contact details for communication with the Employer/Engineer shall be as per the details given in the Contract Data. Communication between parties that are referred to in the conditions shall be in writing. The notice sent by facsimile (fax) or other electronic means (email) shall also be effective on confirmation of the transmission. The notice sent by registered post or speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service. In case of any change in address for communication, the same shall be immediately notified to Engineer-in-Charge.

## 5. Subcontracting

- 5.1. Subcontracting shall be permitted for contracts of value more than amount specified in the Contract Data with following conditions.
- 5.2. The Contractor may subcontract up to 25 percent of the contract price with the approval of the Employer in writing, but will not assign the Contract. Subcontracting shall not alter the Contractor's obligations.
- 5.3. Following shall not form part of subcontracting:
  - Hiring of labour through a labour contractor.
  - The purchase of Materials to be incorporated in the works.
  - Hiring of plant & machinery.
- 5.4. The sub-contractor will have to be registered in the **appropriate category** in the centralized registration system for contractors of the Govt. of Madhya Pradesh.

## **6. Personnel**

- 6.1.** The Contractor shall employ for the construction work and routine maintenance the technical personnel as provided in the Annexure - I (Format: I-3). If the Contractor fails to deploy required number of technical staff, recovery as specified in the Contract Data will be made from the Contractor.
- 6.2.** If the Engineer-in-Charge asks the Contractor to remove a person who is a member of the Contractor's staff or workforce, stating the reasons, the Contractor shall ensure that the person leaves the Site within three days and has no further connection with the Works in the Contract.

## **7. Force Majeure**

- 7.1.** The term "Force Majeure" means an exceptional event or circumstance:
- a) Which is beyond a Party's control,
  - b) Which such Party could not reasonably have provided against before entering into the Contract,
  - c) Which, having arisen, such Party could not reasonably have avoided or overcome, and
  - d) This is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- i. War, hostilities (whether war be declared or not), invasion, act of foreign enemies,
  - ii. Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
  - iii. Riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
  - iv. Munitions of war, explosive materials, ionising radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
  - v. Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
- 7.2.** In the event of either party being rendered unable by force majeure to perform any duty or discharge any responsibility arising out of the contract, the relative obligation of the party affected by such force majeure shall upon notification to the other party be suspended for the period during which force majeure event lasts. The cost and loss sustained by either party shall be borne by respective parties.
- 7.3.** For the period of extension granted to the Contractor due to Force Majeure the price adjustment clause shall apply but the penalty clause shall not apply. It is clarified that this sub clause shall not give eligibility for price adjustment to contracts which are otherwise not subject to the benefit of price adjustment clause.
- 7.4.** The time for performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such cause lasts. Should the delay caused by



force majeure exceed **twelve** months, the parties to the contract shall be at liberty to foreclose the contract with mutual discussions.

## **8. Contractor's Risks**

- 8.1.** All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor.
- 8.2.** All risks and consequences arising from the inaccuracies or falseness of the documents, drawing, designs, other documents and/or information submitted by the contractor shall be the responsibility of the Contractor alone, notwithstanding the fact that the designs/ drawings or other documents have been approved by the department.

## **9. Liability for Accidents to Person**

The contractor shall be deemed to have indemnified and saved harmless the Government against all action, suits, claims, demands, costs etc. arising in connection with injuries suffered by any persons employed by the contractor or his subcontractor for the works whether under the General law or under Workmen Compensation Act, 1923 or any other statute in force at the time of dealing with the question of the liability of employees for the injuries suffered by employees and to have taken steps properly to ensure against any claim there under.

## **10. Contractor to Construct the Works**

- 10.1.** The Contractor shall construct, install and maintain the Works in accordance with the Specifications and Drawings as specified in the **Contract Data**.
- 10.2.** In the case of any class of work for which there is no such specification as is mentioned in Contract Data, such work shall be carried out in accordance with the instructions and requirement of the Engineer-in-Charge.
- 10.3.** The contractor shall supply and take upon himself the entire responsibility of the sufficiency of the scaffolding, timbering, machinery, tools and implements, and generally of all means used for the fulfilment of this contract whether such means may or may not be approved or recommended by the Engineer-in-Charge.

## **11. Discoveries**

Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer-in-Charge of such discoveries and carry out the Engineer's instructions for dealing with them.

## **12. Dispute Resolution System**

- 12.1.** No dispute can be raised except before the Competent Authority as defined in Contract Data in writing giving full description and grounds of dispute. It is clarified

that merely recording protest while accepting measurement and/or payment shall not be taken as raising a dispute.

- 12.2. No dispute can be raised after 45 days of its first occurrence. Any dispute raised after expiry of 45 days of its first occurrence shall not be entertained and the Employer shall not be liable for claims arising out of such dispute.
- 12.3. The **Competent Authority** shall decide the matter within 45 days.
- 12.4. Appeal against the order of the Competent Authority can be referred within 30 days to the **Appellate Authority** as defined in **the Contract Data**. The Appellate Authority shall decide the dispute within 45 days.
- 12.5. Appeal against the order of the Appellate Authority can be referred before the Madhya Pradesh Arbitration Tribunal constituted under Madhya Pradesh Madhyastha Adhikaran Adhiniyam, 1983.
- 12.6. The Contractor shall have to continue execution of the Works with due diligence notwithstanding pendency of a dispute before any authority or forum.

#### **B. Time Control**

### **13. Programme**

- 13.1. Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order and timing for all the activities for the construction of works.
- 13.2. The program shall be supported with all the details regarding key personnel, equipment and machinery proposed to be deployed on the works for its execution. The contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/equipment being placed in field laboratory and the location of field laboratory along with the Programme.
- 13.3. An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.
- 13.4. The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the **Contract Data**. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the **Contract Data** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.
- 13.5. The Engineer's approval of the Programme shall not alter the Contractor's obligations.

### **14. Extension of Time**

- 14.1. If the Contractor desires an extension of time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-Charge, on account of which he desires such extension. Engineer-in-Charge shall forward the aforesaid application to the Competent Authority as prescribed.

- 14.2. The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under Clause 15 of this RFP.
- 14.3. In case the work is already in progress, the Contractor shall proceed with the execution of the works, including maintenance thereof, pending receipt of the decision of the competent authority as aforesaid with all due diligence.

### **15. Compensation for delay**

- 15.1. The time allowed for carrying out the work, as entered in the agreement, shall be strictly observed by the Contractor.
- 15.2. The time allowed for execution of the contract shall commence from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.
- 15.3. In the event milestones are laid down in the Contract Data for execution of the works, the contractor shall have to ensure strict adherence to the same.
- 15.4. Failure of the Contractor to adhere to the timelines and/or milestones shall attract such liquidated damages as is laid down in the Contract Data.
- 15.5. In the event of delay in execution of the Works as per the timelines mentioned in the Contract Data the Engineer-in-Charge shall retain from the bills of the Contractor amount equal to the liquidated damages leviable until the Contractor makes such delays good. However, the Engineer-in-Charge shall accept bankable security in lieu of retaining such amount.
- 15.6. If the Contractor is given extension of time after liquidated damages have been paid, the Engineer-in-Charge shall correct any over payment of liquidated damages by the Contractor in the next payment certificate.
- 15.7. In the event the Contractor fails to make good the delay until completion of the stipulated contract period (including extension of time) the sum so retained shall be adjusted against the liquidated damages levied.

### **16. Contractor's quoted percentage**

The Contractor's quoted percentage rate referred to in the "Bid for works" will be deducted/ added from/to the net amount of the bill after deducting the cost of material supplied by the department, if applicable.

### **C. QUALITY CONTROL**

#### **17. Tests**

- 17.1. The Contractor shall be responsible for:
  - a) Carrying out the tests prescribed in specifications, and

- b) For the correctness of the test results, whether performed in his laboratory or elsewhere.
- 17.2. The contractor shall have to establish field laboratory within the time specified and having such equipment as are specified in the Contract Data.
- 17.3. Failure of the Contractor to establish laboratory shall attract such penalty as is specified in the Contract Data.

#### **18. Correction of Defects noticed during the Defect Liability Period**

- 18.1. The Defect Liability Period of work in the contract shall be as per the **Contract Data**.
- 18.2. The Contractor shall promptly rectify all defects pointed out by the Engineer-in-Charge well before the end of the Defect Liability Period. The Defect Liability Period shall automatically stand extended until the defect is rectified.
- 18.3. If the Contractor has not corrected a Defect pertaining to the Defect Liability Period to the satisfaction of the Engineer-in-Charge, within the time specified by the Engineer-in-Charge, the Engineer-in-Charge will levy Penalty as specified in the Contract Data and will assess the cost of having the Defect corrected, and the cost of correction of the Defect shall be recovered from the Performance Security or any amount due or that may become due to the contractor and other available securities.

#### **D. COST CONTROL**

#### **19. Variations - Change in original Specifications, Designs, and Drawings etc.**

- 19.1. The Engineer-in-Charge shall have power to make any alterations, omissions or additions to or substitutions in the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in-Charge, and such alterations, omission, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work, which the contractor may be directed to do in the manner above specified, as part of the work, shall be carried out by the contractor on the same conditions in all respects on which he agrees to do the main work.
- 19.2. The time for the completion of the work shall be adjusted in the proportion that the altered, additional or substituted work bears to the original contract work and the certificate of the Engineer-in-Charge shall be conclusive as to such proportion.

#### **20. Extra items**

- 20.1. All such items which are not included in the priced BOQ shall be treated as extra items.

## 21. Payments for Variations and /or Extra Quantities

21.1. The rates for such additional (Extra quantity), altered or substituted work / extra items under this clause shall be worked out in accordance with the following provisions in their respective order: -

- a) The contractor is bound to carry out the additional (Extra quantity) work at the **same rates** as are specified in the contract for the work as recommended by the Engineer-in-Charge.
- b) If the item is not in the priced BOQ and is included in the Schedule of Rate (SOR) of UADD, PWD, or any other SOR of Government of Madhya Pradesh, the rate shall be arrived at by applying the quoted tender percentage on the SOR rate.
- c) **If the rates for the altered or substituted work or extra item are not provided in applicable SOR** - such rates will be derived from the rates for a similar class (type) of work as is provided in the contract (priced BOQ) for the work.
- d) If the rates for the altered, substituted work or extra item cannot be determined in the manner specified in the sub clause (c) above - then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates minus/plus the percentage quoted by the contractor.
- e) If the rates for a particular part or parts of the item is not in the Schedule of Rates and the rates for the altered, or substituted work item cannot be determined in the manner specified in sub clause (b) to (d) above, the rate for such part or parts will be determined by the Competent Authority as defined in the Contract Data on the basis of the rate analysis derived out of prevailing market rates when the work was done.
- f) But under no circumstances, the contractor shall suspend the work on the plea of non-acceptability of rates on items falling under sub clause (a) to (e). In case the contractor does not accept the rate approved by the Engineer-in-Charge for a particular item, the contractor shall continue to carry out the item at the rates determined by the Competent Authority. The decision on the final rates payable shall be arrived at through the dispute settlement procedure.

## 22. No compensation for alterations in or restriction of work to be carried out.

22.1. If at any time after the commencement of the work, the Engineer-in-Charge, for, any reason whatsoever, not require the whole or any part of the work as specified in the bid to be carried out, the Engineer-in-Charge shall give notice in writing of the fact to the Contractor and withdraw that whole or any part of the work.

22.2. The Contractor shall have no claim to any payments or compensation whatsoever, on account of any profit or advantage which he might have derived from the

execution of work in full or on account of any loss incurred for idle men and machinery due to any alteration or restriction of work for whatsoever reason.

- 22.3.** The Engineer-in-Charge may supplement the work by engaging another agency to execute such portion of the work, without prejudice to his rights.

### **23. No Interest Payable**

No interest shall be payable to the Contractor on any payment due or awarded by any authority.

### **24. Recovery from Contractors**

Whenever any claim against the Contractor for the payment arises under the contract, the Employer may be entitled to recover such sum by:

- a) Appropriating, in part or whole of the Performance Security and Additional Performance Security, if any; and/or Security Deposit and / or any sums payable under the contract to the contractor.
- b) If the amount recovered in accordance with (a) above is not sufficient, the balance sum may be recovered from any payment due to the contractor under any other contract of the department, including the securities which become due for release.
- c) The Employer shall, further have an additional right to effect recoveries as arrears of land revenue under the M.P. Land Revenue Code.

### **25. Tax**

- 25.1.** The rates quoted by the Contractor shall be deemed to be inclusive of the commercial tax and other levies, duties, cess, toll, taxes of Central and State Governments, local bodies and authorities except Goods and Services Tax (GST). The amount of applicable GST will be paid separately to the Contractor with each bill at the time of payment.
- 25.2.** The liability, if any, on account of quarry fees, royalties, octroi and any other taxes and duties in respect of materials actually consumed on public work, shall be borne by the Contractor.
- 25.3.** Any changes in the taxes due to change in legislation or for any other reason shall not be payable to the contractor.

### **26. Check Measurements**

- 26.1.** The department reserves to itself the right to prescribe a scale of check measurement of work in general or specific scale for specific works or by other special orders.
- 26.2.** Checking of measurement by superior officer shall supersede measurements by subordinate officer(s), and the former will become the basis of the payment.

- 26.3.** Any over/excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion of the defect liability period specified in this contract, shall be recoverable from the Contractor, as per Clause 24 above.

## **27. Termination by Engineer-in-Charge**

- 27.1.** If the Contractor fails to carry out any obligation under the Contract, the Engineer-in-Charge may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.
- 27.2.** The Engineer-in-Charge shall be entitled to terminate the Contract if the Contractor
- a) Abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;
  - b) The Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;
  - c) Without reasonable excuse fails to comply with the notice to correct a particular defect within a reasonable period of time;
  - d) The Contractor does not maintain a valid instrument of financial security as prescribed;
  - e) The Contractor has delayed the completion of the Works by such duration for which the maximum amount of liquidated damages is recoverable;
  - f) If the Contractor fails to deploy machinery and equipment or personnel or set up a field laboratory as specified in the **Contract Data**;
  - g) If the contractor, in the judgment of the Engineer-in-Charge has engaged in corrupt or fraudulent practices in competing for or in executing the contract;
  - h) Any other fundamental breaches as specified in the **Contract Data**.
- 27.3.** In any of these events or circumstances, the Engineer-in-Charge may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (b) or (g) of clause 27.2, the Engineer-in-Charge may terminate the Contract immediately.
- 27.4.** Notwithstanding the above, the Engineer-in-Charge may terminate the Contract for convenience by giving notice to the Contractor.

## **28. Payment upon Termination**

- 28.1.** If the contract is terminated under Clause 27.3, the Engineer shall issue a certificate for value of the work accepted on final measurements, less Advance Payments and Penalty as indicated in the Contract Data. The amount so arrived at shall be determined by the Engineer-in-Charge and shall be final and binding on both the parties.
- 28.2.** Payment on termination under Clause 27.4 above-
- 28.3.** If the Contract is terminated under clause 27.4 above, the Engineer-in-Charge shall issue a certificate for the value of the work done, 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 and less advance payments received up to the date of the certificate, less other recoveries due in

terms of the contract and less taxes due to be deducted at source as per applicable law.

- 28.4.** If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered as per clause 24 above.

## **29. Performance Security**

The Contractor shall have to submit performance security and Additional Performance Security, if any, as specified in the **Bid Data Sheet** at the time of signing of the contract. The contractor shall have to ensure that such performance security and additional performance security, if any, remains valid for the period as specified in the Contract Data.

## **30. Security Deposit**

- 30.1.** Security Deposit shall be deducted from each running bill at the rate as specified in the Contract Data. The total amount of Security Deposit so deducted shall not exceed the percentage of Contract Price specified in the Contract Data.
- 30.2.** The security deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt assigned to the Employer, with validity up to 8 (Eight) months beyond the completion of Defect Liability Period/ extended Defect Liability Period.
- 30.3.** The Security Deposit shall be refunded on completion of Defect Liability Period.

## **31. Price Adjustment**

- 31.1.** Price adjustment shall be applicable only if provided for in the Contract Data.
- 31.2.** The price adjustment clause shall apply only for the works executed from the date of signing of the agreement until the end of the initial intended completion date or extensions granted for reasons attributed to the Employer by the Engineer.
- 31.3.** The Contractor shall not be entitled to any benefit arising from the price adjustment clause for extension in the contract period for reasons attributed to the Contractor.
- 31.4.** In the Force Majeure event the price escalation clause shall apply.

For the purpose of clarity it is pointed out that the price adjustment may be either positive or negative, i.e. if the price adjustment is in favour of the Employer, the same shall be recovered from the sums payable to the Contractor.

## **32. Mobilization and Construction Machinery Advance**

- 32.1.** Payment of advances shall be applicable if provided in the **Contract Data**.
- 32.2.** If applicable, the Engineer-in-Charge shall make interest bearing advance payment to the contractor of the amounts stated in the **Contract Data**, against provision by



the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled banks, in the name as stated in the **Contract Data**, in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the contractor.

**32.3.** The rate of interest chargeable shall be as per **Contract Data**.

**32.4.** The construction machinery advance, if applicable, shall be limited to 80% of the cost of construction machinery and admissible only for new construction machinery.

**32.5.** The advance payment shall be recovered as stated in the **Contract Data** by deducting proportionate amounts from payment otherwise due to the Contractor. No account shall be taken of the advance payment or its recovery in assessing valuations of work done, variations, price adjustments, compensation events, or liquidated damages.

### **33. Secured Advance**

**33.1.** Payment of Secured Advance shall be applicable if provided in the **Contract Data**.

**33.2.** If applicable, the Engineer-in-Charge shall make advance payment against materials intended for but not yet incorporated in the Works and against provision by the contractor of an Indenture Bond as per prescribed format.

**33.3.** The amount of secured advance and conditions to be fulfilled shall be as stipulated in the **Contract Data**.

**33.4.** The Secured Advance paid shall be recovered as stated in the **Contract Data**.

### **34. Payment Certificates**

The payment to the contractor will be as follows for construction work:

- a) The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously, supported with detailed measurement of the items of work executed.
- b) The Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- c) The value of work executed shall be determined, based on the measurements approved by the Engineer-in-Charge.
- d) The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- e) The value of work executed shall also include the valuation of Variations and Compensation Events.
- f) All payments shall be adjusted for deductions for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law.
- g) The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

- h) Payment of intermediate certificate shall be regarded as payments by way of advance against the final payment and not as payments for work actually done and completed.
- i) Intermediate payment shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or be considered as an admission of the due performance of the contractor any part thereof, in any respect or the occurring of any claim.
- j) The payment of final bill shall be governed by the provisions of clause 36 of GCC.

## **E. FINISHING THE CONTRACT**

### **35. Completion Certificate**

- 35.1.** A Physical Completion Certificate in the prescribed format in Contract Data shall be issued by the Engineer-in-Charge after physical completion of the Work.
- 35.2.** After final payment to the Contractor (i.e. after completion of the Defect Liability Period), a Final Completion Certificate in the prescribed format in the Contract Data shall be issued by the Engineer-in- Charge.

### **36. Final Account**

- 36.1.** The Contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable for works under the Contract within 21 days of issue of certificate of physical completion of works. The Engineer shall issue a Defects Liability Certificate and certify any payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If the account is not correct or complete, the Engineer-in-Charge shall issue within 45 days a schedule that states the scope of the corrections or additions that are necessary. If the Account is still unsatisfactory after it has been resubmitted, the matter shall be referred to the Competent Authority as defined in the Contract Data, who shall decide on the amount payable to the Contractor after hearing the Contractor and the Engineer-in-Charge.
- 36.2.** In case the account is not received within 21 days of issue of Certificate of Completion as provided in Clause 35.1 above, the Engineer shall proceed to finalise the account and issue payment certificate within 28 days.

## **F. OTHER CONDITIONS OF CONTRACT**

### **37. Currencies**

All payments will be made in Indian Rupees.

### **38. Labour**

- 38.1.** The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.
- 38.2.** The Contractor shall, if required by the Engineer-in-Charge, deliver to the Engineer-in-Charge a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Engineer-in-Charge may require.

### **39. Compliance with Labour Regulations**

- 39.1.** During continuance of the Contract, the Contractor and his Sub-contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given in the Contract Data. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made their under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/byelaws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct from any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

### **40. Audit and Technical Examination**

- 40.1.** Government shall have the right to cause an audit and technical examination of the works and the final bill of the contract including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done under the contract and found not to, have been executed, the Contractor shall be liable to refund the amount of overpayment and it shall be lawful for Government to recover the same from him in the manner prescribed in Clause 24 above and if it is found that the Contractor was paid less than what was due to him, under the contract

in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the Contractor.

#### **41. Death or Permanent Invalidity of Contractor**

- 41.1.** If the Contractor is an individual or a proprietary concern, partnership concern, dies during the currency of the contract or becomes permanently incapacitated, where the surviving partners are only minors, the contract shall be closed without levying any damages/ compensation as provided for in Clause 28.2 of the contract agreement. However, if the competent authority is satisfied about the competence of the survivors, then the competent authority shall enter into a fresh agreement for the remaining work strictly on the same terms and conditions under which the contract was awarded.

#### **42. Jurisdiction**

- 42.1.** This contract has been entered into the State of Madhya Pradesh and its validity, construction, interpretation and legal effect shall be subjected to the courts at the place where this agreement is entered into. No other jurisdiction shall be applicable.

### 43. CONTRACT DATA

| Clause reference | Particulars   | Data   |
|------------------|---|--|
| 1.13             | Employer  | Gwalior Smart City Development Corporation Limited (GSCDCL)  |
| 1.14             | Engineer  | Executive Engineer/ IT Expert, GSCDCL  |
| 1.15             | Engineer-in-Charge  | Superintending Engineer, GSCDCL  |
| 1.21             | Stipulated date of completion   | 64 (Sixty-Four) Months Including Rainy Season<br><i>[4 months period for GO-Live of City CCTV Surveillance in Gwalior, Madhya Pradesh, and 60 months or 5 years for operation and maintenance period after Go-live date]</i> |
| 3                | Language & Law of Contract  | English & Indian Contract Act 1872   |
| 4                | Address & contact details of the Contractor                               | As given in the Bid (Annexure - H of ITB)  |
|                  | Address & contact details of the Employer/ Engineer - phone, Fax, e-mail. | As given in the NIT  |
| 5                | Subcontracting permitted for the Contract Value                           | Permitted upto 25 percent of the contract price with the approval of the Employer in writing but will not assign the contract. Subcontracting shall not alter the Contractor's obligations.                                  |
| 6                | Technical Personnel to be provided by the contractor - requirement, &     | As per Annexure - I (Format: I-3)  |
|                  | Penalty, if required Technical Personnel not employed                     | As per Annexure - I (Format: I-3)  |
| 10               | Specifications  | As per Annexure - E  |
|                  | Drawings  | As per Annexure - N  |

| Clause reference | Particulars  | Data   |
|------------------|--|--|
| 12               | Competent Authority for deciding dispute under Dispute Resolution System               | Chief Executive Officer, GSCDCL  |
|                  | Appellate Authority for deciding dispute under Dispute Resolution System               | Executive Director, GSCDCL   |
| 13               | Period for submission of updated construction program                                  | 15 days after signing of contract agreement and every month thereafter (within 5 <sup>th</sup> day of every month) |
|                  | Amount to be withheld for not submitting construction program in the prescribed period | 1% of contract value, subject to a maximum of Rs. 50,000/- (Rupees Fifty Thousand only)                            |
| 14               | Competent Authority for granting Time Extension  | Superintending Engineering, GSCDCL   |
| 15               | Milestones laid down for the contract  | Yes  |
|                  | If Yes, details of Milestones  | As per Annexure - O  |
|                  | Liquidated damage  | As per Annexure - P  |
| 17               | List of equipment for lab  | As per Annexure - Q  |
|                  | Time to establish lab  | 15 days from signing of agreement  |
|                  | Penalty for not establishing field Laboratory/ MOU with the Engineering                | As per SLA   |

| Clause reference | Particulars  | Data  |
|------------------|--|---|
|                  | college or the Lab (to be approved by the GSCDCL)                        |   |
| 18               | Defect Liability Period  | <p>Not Applicable.</p> <p><b>However, the warranty more than five years as per manufacturer's certificate shall be applicable.</b></p> <p><b>The contractor has to submit all the warranty certificate to GSCDCL along with the Bill.</b></p>   |
| 21               | Competent Authority for determining the rate                             | Executive Director, GSCDCL  |
| 27               | Any other condition for breach of contract                               | <p>Yes as below:</p> <p>If the contractor fails to achieve 50% financial progress in any milestone and/or fails to achieve 75% financial progress in two consecutive milestones.</p>  |
| 28.1             | Penalty (the percentage to apply to the value of the work not completed) | <p>Penalty shall include:</p> <ul style="list-style-type: none"> <li>a) Security deposit as per clause 30 of General Conditions of Contract (GCC) and the percentage to apply to the value of work not completed representing the Employer's additional cost for completing the works which shall be 20 percent; and</li> <li>b) Liquidated damages as per clause 15 or performance security (Guarantee) including additional performance security (Guarantee), if any, as per clause 29 of General Conditions of Contract (GCC), whichever is higher.</li> </ul> |
| 29               | Performance Security (Guarantee) shall be valid up to                    | Three months beyond the completion of Defect Liability Period and Additional Performance Security (Guarantee) shall be valid upto stipulated time of completion plus three months   |
| 30               | Security Deposit to be deducted from each running bill                   | At the rate of 7% of Gross amount of running bill.  |

| Clause reference | Particulars  | Data   |
|------------------|--|--|
|                  | Maximum limit of deduction of Security Deposit             | Up to 7% of Final Contract Amount.   |
| 31               | Price Adjustment formula and procedure to calculate        | <b>Not Applicable</b>  |
| 32               | Mobilization and Construction Machinery Advance applicable | Yes  |
|                  | If yes, Type & Amount of Advance payment that can be paid  | 10% of the Contract Amount. However, request for release of 5% shall be made post signing of agreement and balance can only be raised post providing proof of utilization of 5% verified by Engineer-in-Charge of Authority.   |
|                  | Unconditional Bank Guarantee                               | In the format prescribed in Annexure - S   |
|                  | Rate of interest chargeable on advances                    | 10 % annual simple interest  |
|                  | Recovery of advance payment                                | <p>Recovery of Mobilization and/or Construction Machinery advance shall commence when 10% of the Contract Amount is executed and recovery of total advance shall be done on pro-rata basis and shall be completed by the time work equivalent to 80% of the Contract Amount is executed.</p> <p>In addition to the recovery of principal amount, recovery of interest shall be carried out as calculated on the outstanding amount of principal at the close of each month. The interest shall be accrued from the day of payment of advance and the recovery of interest shall commence when 10% of the Contract Amount is executed and shall be completed by the time work equivalent to 80% of the Contract Amount is executed.</p> |



| Clause reference | Particulars  | Data   |
|------------------|--|--|
| 33               | Secured Advance applicable   | No   |
| 35               | Physical Completion Certificate - after physical completion of the Work      | As per Annexure - U  |
|                  | Final Completion Certificate - after final payment on completion of the Work | As per Annexure - V  |
| 36               | Competent Authority  | Chief Executive Officer, GSCDCL  |
| 39               | Salient features of some of the major labour laws that are applicable        | As per Annexure - W<br>In case any Child labour is employed at site in violation with the laws of the state and India, the employer will levy an additional penalty of Rs 25,000 per incidence and in such instance occurs more than once the contract may be terminated, to be decided at the sole discretion of the Employer. This is in addition to any other action that may be available to the employer under rules & regulations. |

**44. Annexure - N**

(See clause 10 of GCC)

**Drawings**

**Attached Separately**

## **45. Annexure - O**

(See clause 15 of GCC)

### **Details of Milestones**

The time allowed for the carrying out the work, as entered in the tender form shall be strictly observed by the contractor and shall be deemed to be essence of the contract and shall be reckoned immediately from the date of issue of the order to commence the work issued to the contractor.

The work shall throughout the stipulated period of contract be proceeded with all due diligence keeping in view that time is the essence of the contract. The contractor shall be bound in all cases, to complete the following financial target,

- 5 % of the whole work before 1/4<sup>th</sup> of the whole time allowed under the contract has elapsed,
- 30% of the work before 1/2 of such time has elapsed
- 60% of the work before 3/4<sup>th</sup> of such time has elapsed.
- 100% of the work on/before the stipulated time including EOT granted if any.

## 46. Annexure - P

(See clause 15 of GCC)

### Compensation for Delay

If the contractor fails to achieve the milestones, and the delay in execution of work is attributable to the contractor, the Employer shall retain an amount from the sums payable and due to the contractor as per following scale -

- i. Slippage up to 25% in financial target during the milestone under consideration
  - 2.5% of the work remained unexecuted in the related time span.
- ii. Slippage exceeding 25% but Up to 50% in financial target during the milestone under consideration
  - 5% of the work remained unexecuted in the related time span..
- iii. Slippage exceeding 50% but Up to 75% in financial target during the milestone under consideration
  - 7.5% of the work remained unexecuted in the related time span.
- iv. Slippage exceeding 75% in financial target during the milestone under consideration
  - 10% of the work remained unexecuted in the related time span.

Note: For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the Contractor shall be considered. The slippage on any milestone is if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions which are granted to the Contractor for either Employer's default or Force Majeure, the compensation shall be levied on the contractor at the rate of 0.05% per day of delay limited to a maximum of 10% of contract price.

The decision of the **Engineer-in-Charge** shall be final and binding upon both the parties.

**47. Annexure - Q**

(See clause 17 of GCC)

**List of Equipment for Quality Control Lab**

As per Annexure-I (Format I-4)

**NOT APPLICABLE**

#### 48. Annexure - R

(See clause 31 of GCC)

#### Price Adjustment

##### (If applicable as per Contract Data)

Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with following principles and procedures and as per formula given in the contract data.

The price adjustment shall apply from the work done from the start date given in the contract data upto the end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor

The price adjustable shall be determined during each month from the formula given in the contract data.

Following expression and meaning are assigned to the work done during each month.

R = Total value of work during the month. It would include the amount of secured advance granted, if any during the month, less the amount of secured advance recovered, if any during the month. It will exclude value of works executed under variations for which no price adjustment shall be payable.

To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed amounts to cover the contingency of such other rise or fall in costs.

The formula for adjustment of price are as follow:

R = Value of work as defined in Conditions of Contract.

##### Weightages\* of component in the work

| S.No. | Component  | Percentage of Component in the Work |
|-------|------------|-------------------------------------|
| 1     | Cement -Pc |                                     |
| 2     | Steel-Ps   |                                     |
| 3     | Bitumen-Pb |                                     |
| 4     | POL-Pf     |                                     |

\*Weightages of various components of the work shall be as determined by the competent Technical Authority.

#### **Adjustment for Cement component.**

Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula

$$V_c = 0.85 \times PC/100 \times R \times (C_1 - C_0)/C_0$$

$V_c$  = increase or decrease in the cost of work during the month under consideration due to changes in rates for cement.

$C_0$  = The all India wholesale price index for Pozzolana cement on the **date of Issuance of ISSRE (and amendment if any)** as published by Economic Advisor, DIPP, Ministry of Commerce and Industry Government of India, New Delhi.

$C_1$  = The all India average wholesale price Index for Pozzolana cement for the month under consideration as published by Economic Advisor, DIPP, Ministry of Commerce and Industry Government of India, New Delhi.

$P_c$  = Percentage of cement component of the work

#### **Adjustment of Steel Component**

Price adjustment for increase or decrease in the cost of steel procured by the Contractor shall be paid in accordance with the following formula:

$$V_s = 0.85 \times P_s \times /100 \times R \times (S_1 - S_0)/S_0$$

$V_s$  = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel.

$S_0$  = The all India wholesale price index for mild steel long products/flats on the **date of Issuance of ISSRE (and amendment if any)** as published by Economic Advisor, DIPP, Ministry of Commerce and Industry Government of India, New Delhi.

$S_1$  = The all India average wholesale price index for mild steel long products/flats for the month under consideration as published by Economic Advisor, DIPP, Ministry of Commerce and Industry Government of India, New Delhi.

$P_s$  = Percentage of steel component of the Work.

Note: For the application of this clause, index of mild steel long products /flats has been chosen to represent steel group. In any work only one of the

indices .i.e. either for long products for flats shall be used as decided by the GSCDCL

#### **Adjustment Bitumen Component**

Price adjustment for increase or decrease is the cost of bitumen shall be paid in accordance with the following formula:

$$V_b = 0.85 \times P_b / 100 \times R_x (B_i - B_0) / B_0$$

$V_b$  = Increase or decrease the cost of work during the month under consideration due to changes in rates for bitumen.

$B_0$  = The official retail price of bitumen at the IOC depot nearest to the work site on the on the date of opening of Bids.

$B_i$  = The official retail price of bitumen of IOC depot nearest to the work site for the 15<sup>th</sup> day of the month under consideration.

$P_b$  = Percentage of bitumen component of the work.

#### **Adjustment of POL (fuel and lubricant) component**

Price adjustment for increase or decrease in cost of POL (fuel and lubricant) shall be paid in accordance with the following formula:

$$V_f = 0.85 \times P_f / 100 \times R_x (F_i - F_0) / F_0$$

$V_f$  = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricant.

$F_0$  = the official retail price of High speed Diesel (HD) at the existing consumer pumps of IOC nearest to the work site on the date of Issuance of (and amendments if any).

$F_i$  = The official retail price of HSD at the existing consumer pumps of IOC at nearest center for the 15<sup>th</sup> day of month of the under consideration.

$P_f$  = Percentage of fuel and lubricants component of the work.

**Note:** For the application of this clause, the price of High Speed Diesel has been chosen to represent fuel and lubricants group.



**49. Annexure - S**

(See clause 32 of GCC)

**Bank Guarantee Form for Mobilization and Construction Machinery Advance**

To  
The Executive Director  
Gwalior Smart City Development Corporation Limited  
Gwalior

In consideration of The Executive Director, Gwalior Smart City Development Corporation Limited, Gwalior (hereinafter called "GSCDCL"), having agreed to give interest bearing mobilization advance of Rs. \_\_\_\_\_ (In Words: Rupees

\_\_\_\_\_) as against the total amount of Rs. \_\_\_\_\_ (In Words: \_\_\_\_\_ Rupees \_\_\_\_\_) to M/s. \_\_\_\_\_ (hereinafter called "the Contractor" ) from the demand under the clause of the contract agreement No. \_\_\_\_\_ dated \_\_\_\_\_ based on the letter of award No.

\_\_\_\_\_ made between GSCDCL and M/s \_\_\_\_\_ an interest bearing mobilization advance at simple annual interest of 10%.

1. We <name of the bank>, having our Office at <Address of the bank> (hereinafter referred to as the Bank) at the request of the said Contractor do hereby undertake to pay GSCDCL, unconditionally and irrevocably, an amount not exceeding Rs. . . . . . (Rupees . . . . . Only) being 110% of the advance amount and the interest due thereon from time to time against any loss or damage caused to or suffered or would be caused to or suffered by the GSCDCL by reason of any breach by the said Contractor of any of the terms and conditions continued in the said Agreement.

2. We, the <name of the bank>, do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the GSCDCL stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the **GSCDCL** by reason of breach by the Contractor of any of the terms and conditions contained in the said Agreement or by reasons of Contractor' s failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by us

under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ Only).

3. We undertake to pay to the GSCDCL, any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this guarantee shall be a valid discharge of our liability for payment there-under and the Contractor shall have no claim against us for making such payments.

4. We, the Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the GSCDCL, under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the Executive Director, GSCDCL certifies that the terms and conditions of the said Agreement have been fully, properly carried out by the said Contractor and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the date \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.

5. We, the Bank further agree with the GSCDCL that the Authority shall have the fullest liberty without our consent and without effecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the GSCDCL against the said Contractor and to enforce or forbear from enforcing any or the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor for any forbearance, act or omission on the part of the Authority, or any indulgence by the GSCDCL to the said Contractor or by any such matter or thing whatsoever which under the law relating to the guarantees would, but for this provision, have effect of so relieving us from such liability.

6. This guarantee shall not be affected by any change in the constitution of the Contractor nor shall it be affected by any change in our constitution or by any amalgamation or absorption thereof or therewith or reconstruction or winding up, but will ensure to the benefit of you and be available to and be enforceable by you during the period from and including the date of issue of this guarantee through the period.

7. This guarantee shall be governed by and construed in accordance with the Indian Laws and we hereby submit to the exclusive jurisdiction of courts of Justice in India for the purpose of any suit or action or other proceedings arising out of this guarantee or the subject matter hereof brought by you may not be enforced in or by such court.

8. We, the Bank, lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Authority in writing.

9. Notwithstanding anything contained herein before, our liability under the guarantee is restricted to Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ Only) Our Guarantee shall remain in force till \_\_\_\_\_. Unless a claim under this guarantee is made before that date i.e. \_\_\_\_\_ all your rights under the said guarantee shall be forfeited and we shall be relieved and be discharged from all liability there-under.

Dated ..... this ..... day ..... 20XX.

Yours faithfully,

For and on behalf of the <name of the bank> ,

(Signature with Stamp & Seal)

Designation

<Name of the bank> <address of the bank>

This guarantee will attract stamp duty as a security bond.

A duly certified copy of the requisite Authority conferred on the official/s to execute the guarantee on behalf of the bank should be annexed to this guarantee for verification and retention thereof as documentary evidence in the matter.

**50. Annexure - T**

(See clause 33 of sections 3-GCC)

**INDENTURE BOND FOR SECURED ADVANCES**

Not Applicable

**51. Annexure - U**

(See clause 35 of GCC)

**Physical Completion Certificate**

Name of Work: .....

Agreement No.....Date.....

Amount of Contract Rs.....

Name of Agency: .....

Used MB No.....

Last measurement recorded

a) Page No. & MB No: \_\_\_\_\_

b) Date: \_\_\_\_\_

Certified that the above mentioned work was physically completed on.....  
(Date) and taken over on..... (Date) and that I have satisfied myself to best  
of my ability that the work has been done properly.

Date of issue

Engineer-in-Charge

GSCDCL

**52. Annexure - V**

(See clause 35 of GCC)

**Final Completion Certificate**

Name of Work: .....

Agreement No.....Date.....

Amount of Contract Rs.....

Name of Agency: .....

Used MB No.....

Last measurement recorded

a) Page No. & MB No: \_\_\_\_\_

b) Date: \_\_\_\_\_

Certified that the above mentioned work was physically completed on.....  
(Date) and taken over on..... (Date) and that I have satisfied myself to best  
of my ability that the work has been done properly.

Date of issue

Engineer-in-Charge

GSCDCL

### 53. Annexure - W

(See clause 39 of GCC)

#### **Salient Features of Some Major Labour Laws Applicable**

- a) **Workmen Compensation Act 1923:** - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) **Payment of Gratuity Act 1972:** - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days'(say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.
- c) **Employees P.F. and Miscellaneous Provision Act 1952:** The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%), The benefits payable under the Act are:
  - i. Pension or family pension on retirement or death as the case may be.
  - ii. Deposit linked insurance on the death in harness of the worker.
  - iii. Payment of P.F. accumulation on retirement/death etc.
- d) **Maternity Benefit Act 1951:** - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) **Contract Labour (Regulation & Abolition) Act 1970:** - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.
- f) **Minimum Wages Act 1948:** - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways is scheduled employment.
- g) **Payment of Wages Act 1936:** - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.
- h) **Equal Remuneration Act 1979:** - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making

discrimination against female employees in the matters of transfers, training and promotions etc.

- i) **Payment of Bonus Act 1965:** - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.
- j) **Industrial Disputes Act 1947:** - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- k) **Industrial Employment (Standing Orders) Act 1946:** - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets these certified by the designated Authority.
- l) **Trade Unions Act 1926:** - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- m) **Child Labour (Prohibition & Regulation) Act 1986:** - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.
- n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act 1979:** - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.
- o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996:** - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety



measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

- p) **Factories Act 1948:** - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

**54. Annexure - X**

**Calculation of Bid Capacity**

Not applicable

## **55. SECTION 4: CONDITIONS OF CONTRACT [Part II: Special Conditions of Contract (SCC)]**

### **55.1. General**

The data and information given in the Contract Document are based on the investigations, planning and designs carried out so far. The data considered for the project planning have been included in the Tender documents. The Contractor shall, therefore, satisfy himself about the adequacy and accuracy of the said data/information and interpretation thereof and collect fresh data/additional data/information and carry out/conduct further investigations and studies and get the approval of same from the employer. The Employer shall not be responsible for the accuracy/adequacy of the data/information and interpretation thereof by the Contractor.

### **55.2. Sufficiency of Bid**

**55.2.1.** The Contractor shall be deemed to have visited and carefully examined the Project Site and its surrounding to have satisfied himself to the nature and conditions of the means of transport and communications, whether by land or air, as available at present and as to possible interruptions thereto including the access and regress conditions for the Site. The Contractor is also deemed to have made enquiries, examined and satisfied himself as to the sites source for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus materials and accommodation for depots, colonies, workshops and other infrastructure facilities as may be necessary for executing and completing the Works, as also the sub-soil water and variations thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting the works including law & order.

**55.2.2.** Any neglect or omission or failure on the part of the Contractor in obtaining necessary and reliable information upon the foregoing or any other matter affecting the Contract shall not relieve him from any risks or liabilities or the entire responsibility for the completion of the Works in accordance with the Contract.

### **55.3. Safety, Security and Protection of the Environment**

- i. The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations.
- ii. The Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Works. This shall wherever possible be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated.
- iii. The Contractor shall take all the necessary precautions and abide by relevant rules and regulations of safety which are presently in force and which may come into force during the currency of the contract.

- iv. The Contractor shall also take such other additional precautions and resort to such other additional safety measures as may be directed from time to time by the Engineer-in-Charge. Violation of any rules, regulations and guidelines contained herein will entail immediate termination of the contract.
- v. In the event of any spoil, debris, waste or any deleterious substance from the Site being deposited on any adjacent land, the Contractor shall immediately remove all such material and restore the affected area to its original state to the satisfaction of the Employer.
- vi. The Contractor shall prevent any interference with the supply to or abstraction from, and prevent any pollution of, water resources (including underground percolating water) as a result of the execution of the Works.
- vii. The Contractor shall at all times ensure that all existing water courses /bodies within, and adjacent to the Site are kept safe and free from any debris and materials arising from the Works.
- viii. The Contractor shall devise and arrange methods of working to minimize dust, gaseous or other air-borne emissions and carry out the Works in such a manner as to minimize adverse impacts on air quality.
- ix. The Contractor shall utilize effective water sprays during delivery manufacture, processing and handling of materials when dust is likely to be created, and to dampen stored materials during dry and windy weather. Stockpiles of friable materials shall be covered with clean tarpaulins, with application of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement, except where this is contrary to the Specification.
- x. In the event that the Contractor is permitted to use gravel or earth, roads material for haulage, he shall provide suitable measures for dust palliation, if these are, in the opinion of the Engineer-in-Charge necessary. Such measures may include spraying the road surface with water at regular intervals.
- xi. The Contractor shall take all necessary measures so that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environmental requirements. The Contractor shall use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.
- xii. The Contractor shall control the disposal of all forms of waste generated by the construction operations and in all associated activities. No uncontrolled deposition or dumping shall be permitted. Wastes to be controlled shall include, but shall not be limited to, all forms of fuel and engine oils, all types of bitumen, cement, surplus aggregates, gravels, bituminous mixtures, etc. The Contractor shall make specific provision for the proper disposal of these and any other waste products, conforming to local regulations and acceptable to the Engineer-in-Charge.

- xiii. The Contractor shall plan and provide for remedial measures to be implemented in the event of occurrence of emergencies such as spillages of oil or bitumen or chemicals.
- xiv. The Contractor shall provide the Employer with a statement of the measures he intends to implement in the event of such an emergency which shall include a statement of how he intends to provide personnel adequately trained to implement such measures.
- xv. Should any pollution arise from the Contractor's activities he shall clean up the affected area immediately at his own cost and to the satisfaction of the Engineer-in-Charge and shall pay full compensation to any affected party.

Note: - In addition to above Contractor shall have to follow the instruction of IS codes for security and Safety (As per Handbook on construction and Safety Practices: SP 70: 2001 for which no separate payment shall be made. It is assumed that amount/cost required for the implementation of the safety and security, the cost of all the required resources (Human, machinery, equipments etc.), have been uploaded upon the other items under the BOQ. And no separate payment in this regard shall be made by Gwalior Smart City Development Corporation Limited.

#### **55.4. Protection of Trees and Vegetation**

The Contractor shall ensure that no trees or shrubs or waterside vegetation are felled or harmed except for those required to be cleared for execution of the Works. The Contractor shall protect trees and vegetation from damage to the satisfaction of the Employer. No tree shall be removed without the prior approval of the Employer and any competent authorities. Should the Contractor become aware during the period of the Contract that any tree or trees designated for clearance have cultural or religious significance he shall immediately inform the Employer and await his instructions before proceeding with clearance. In the event that trees or other vegetation not designated for clearance are damaged or destroyed, they shall be repaired or replaced to the satisfaction of the Employer, who shall also impose a penalty of twice the commercial value of any timber affected, as assessed by the Employer.

#### **55.5. Water Supply and Electricity during Construction**

The Contractor shall make his own arrangements at his own expense for water supply and electricity for construction, sectional testing if any and other purposes.

#### **55.6. Site Clearance**

Before handing over the work to the Authority, the Contractor shall remove all temporary structure like the site offices, cement godown, stores, labour hutments etc., scaffolding rubbish, left over materials tools and plants, equipment etc., clean and grade the site to the entire satisfaction of the Engineer-in-Charge. If this is not done the same will be got done by GSCDCL at his risk and cost.

**55.7. Site Documents**

- a) The following site documents shall mainly be maintained by the Contractor at site:
- b) Copy of contract documents and drawings.
- c) Computerized bill format.
- d) Site Order Book.
- e) Material testing registers / Quality Inspection Reports.
- f) Measurement books on computerized format.
- g) Progress bar chart.
- h) Sample approval register.
- i) Hindrance Register.
- j) Work Diary.
- k) Deviation/variation order registers.
- l) Material receipt and consumption register.

**55.8. Safety Guidelines**

- a) Proper and correct lifting methods shall be adopted.
- b) All lifting tools, tackles and wires ropes etc. shall be of tested quality for safe working loads. Wire ropes shall be of sound construction without any splaying.
- c) It is mandatory for all jobs done at a height of 2.5 M and more to use fall arrestor type safety belts & safety nets.
- d) While carrying out work in confined areas, proper ventilations and lighting arrangement should be made by the Contractor. Adequate precautions shall be taken while the work is in progress to ensure that naked light, fire, welding or any other hot work is not in progress in the vicinity of the area where painting is being carried out.
- e) If the work is to be carried out at height, safety of the personnel is of utmost importance. Therefore, all necessary precautions must be taken by the Contractor and he has to obtain work permit from authorized official of GSCDCL for working at height before start the Work.
- f) In addition to the above, Contractor has to adhere to the following safety checklist:

**A. CIVIL WORKS**

- During excavation, the excavated earth must be dumped at a safe distance from the edge of excavation. In no case, this shall be less than 1.5 meters from the top edge of the excavation.
- Safe cross walkways are to be provided at distances not more than 30 meters along a continuous trenching for pipelines etc.

- Hard hats (safety helmets), rubber boots, safety shoes, and hand gloves, etc. are required to be provided for supervising as well as other working personnel by the Contractor.
- Keep a watch on buried cables and underground systems. Ladders, gangways are to be provided at convenient places for carrying out required works. Ladders shall be firmly secured to ground and rungs of the ladders shall be properly secured and safe.
- Install Barricading as per IS code with the marking “Gwalior Smart City Works”.

## **B. ELECTRICAL WORKS**

- All temporary electrical connections should be got done to conform to statutory regulations and a certificate obtained from the authorities. The connection and the wiring to be maintained by competent and licensed supervisors and wiremen. As far as possible, the cables are to be safely buried to ensure free access to equipment and machineries movements.
- Hard hats (safety helmets) made out of insulating material to be used by personnel working in 'live' areas like substations, etc.
- Safety boots, necessary hand-gloves as required, shall be used.
- ‘Earthing’ of machineries and equipment shall be ensured. No open/ bare connections allowed. The arrangements should be checked periodically for damages to insulation and loose connections, etc. and rectified so that the wiring becomes nonhazardous.
- The areas of working during nights shall be properly illuminated with floodlights and hand- lamps as per the demand of the job.
- Danger signals and safety tags in the live areas shall be demonstrated properly. All connections to be switched off after the working hours.
- Isolation switches and main switches shall be accessible easily. Necessary precautions should be taken while excavating earthing pits.

## **C. ELECTRO-MECHANICAL WORKS**

- Hard hats (safety helmets), safety belts, eye goggles, face shields, safety boots, hand-gloves, respirators, etc as required/ directed shall be used.
- Proper, correct and safe lifting methods shall be adopted
- All lifting tools tackle and wires ropes etc shall be of tested quality for safe working loads. Wire ropes shall be of sound construction without any splaying.
- Checks to be exercised for broken wires and core proportion in the main body of the wire ropes to be rejected. Manufacturers guidelines/ standards instructions are to be followed for using wire ropes and slings with broken wires. Experience and common sense is of immense help.
- Usage of hoisting belts/ safety belts is must for personnel working at higher elevations.

- Only safe gangways / walkways shall be used for movement of personnel. Short cuts shall be avoided.
- Check connections to headman anchors before hoisting.
- All live wires to be crossed during hoisting shall be made dead near the vicinity of the area during hoisting/ rigging.
- Avoid keeping the loads supported by hoisting equipment for an unreasonable length of time.
- Ropes, cables, and slings must be protected with pads or wooden blocks at sharp edges.

#### **D. GENERAL**

- Safety starts from the individual on the job. Experience and common sense shall be generously used. In case of any doubt regarding safety, Engineer-in-Charge can be consulted.
- Proper communication and alertness on the job is to be ensured.
- Manholes and openings for ducts etc. shall be kept properly covered.
- Correct tools and tackles should be used for every work. Makeshift tools and tackles will result in accidents.
- Fire-fighting equipment shall be placed at designated locations and kept unobstructed.
- Do not use loose clothing, neckties, and etc. while on the job.
- Safety precautions recommended by the manufacturers/ vendors shall be strictly adhered to.
- All machinery, tools and tackles shall be maintained properly, and clearly.

#### **55.9. Completion Drawings**

The Contractor is required to submit the completion drawings (As built Drawings) for the work done by him. The completion drawing should provide adequate data to enable finding the exact location of the system in ground at a later date by any other new person. Two hard copies of the drawings will also be submitted along with the soft copy.

#### **55.10. Material Storage**

All materials shall be stored as per IS: 4082.

#### **55.11. Approvals**

All statutory approvals will have to be obtained by the Contractor. Necessary drawings will be provided by the Employer. However, the cost etc. is to be borne by the Contractor.



**55.12. Uncorrected defects**

**55.12.1.** If the Contractor has not corrected a Defect within the time specified in the Employer’s notice, the Employer will assess the cost of having the Defect corrected, and the Contractor will pay this amount or the amount shall be deducted from the contractor’s bill/ performance security as the case maybe.

**55.12.2.** If the Contractor fails to execute certain works even after written instruction from the Engineer-in-Charge and the Employer decides to execute the works on its own, the same will be executed by the Employer and the amount shall be deducted at 130% (one hundred Thirty Percent) of the rates of the Contract from the contractor. The same will be deducted from payment otherwise due to the Contractor or from the performance security.

**55.13. Insurance**

**55.13.1.** The Contractor shall provide, in the joint names of the Engineer-in-Charge and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts that is adequate to cover all the Contractor’s risks that may arise as part of works for the following events:

| <b>Item</b> | <b>Events</b>   |
|-------------|---|
| A.          | Loss of or damage to the works, Plants 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 |
| D.          | Personal injury or death  |

**55.13.2.** Policies and certificates for insurance shall be delivered by the Contractor to the Engineer-in-Charge for the Engineer’s approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

**55.13.3.** If the Contractor does not provide any of the policies and certificates required, the Engineer-in-Charge may affect the insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

**55.13.4.** Alterations to the terms of insurance shall not be made without the approval of the Engineer.

**55.13.5.** Both parties shall comply with any conditions of the insurance policies.

**55.14. Disposal of dismantled materials**

**55.14.1.** The Contractor shall dispose of the dismantled materials at designated site, as approved by Engineer-in-Charge. In case the Engineer-in-Charge directs the Contractor to deposit the dismantled materials to certain Department/ Agency, the Contractor shall deposit the materials to that particular Department/ Agency and shall submit receipt to GSCDCL, failing which the cost of transportation of the dismantled materials and applicable penalty shall be deducted from the Contractor's bills.

**55.15. Vetting/ Approval of design/ drawings**

**55.15.1.** The design/ Drawings shall be got vetted/ approved from the client by the Contractor. The client may refer the drawing to be got vetted from any engineering college/independent consultant for which no separate pavement shall be made on this account by GSCDCL. The cost will be borne by the Contractor. It shall be considered as incidental to the work and no extra payment will be made what so ever will not be made for the same.

**55.15.2.** In case some particular Clause is not included in the Contract, but was included in the published RFP document including Addenda/Corrigenda, the provisions as specified in the RFP shall be applicable.

**55.16. Stamp Duty**

**55.16.1.** The Contractor shall be responsible to ensure that applicable the Stamp Duty is paid as per applicable Statute. In case it is found that required Stamp Duty has not been paid, the Contractor shall be solely responsible for legal/ penal consequences.

**55.17. Extension of Time**

The following clauses added in the extension of Time clause 14 of the GCC

**55.17.1.** The contract is for completion of works and therefore non approval of Extension of Time (EOT) shall not in any way invalidate the contract. The contractor will have to complete the works.

**55.17.2.** In the event of delays attributable to the contractor, the EOT shall not be given by the Engineer-in-Charge and the Liquidated Damages shall be levied from the contractor in accordance with the provisions of the contract.

**55.18. Tests**

The following clauses added in the clause 17 of the GCC

**55.18.1.** Contractor must conduct 100% tests of materials in the site laboratory as per the required prescribed frequency. However, 20% of the tests shall be done in NABL accredited laboratories or the Circle level / Central departmental laboratories / Academic Institutions as decided by the Engineer-in-Charge and the cost of such testing shall be deducted from the payments due to Contractor.

**55.19. Payment for variations and/or Extra Quantities**

The following clauses added in the clause 21 of the GCC

**55.19.1.** The maximum variation shall be permitted up to 20% of the Contract value.

**55.20. Dispute Resolution System**

The following clauses added in the Test clause 21 of the GCC

**55.20.1.** The cost and expenses of arbitration proceedings will be paid as determined by the Arbitrator. However, the expenses incurred by each party in connection with the preparation, presentation, etc., shall be borne by each party itself.

**55.20.2.** Performance under the contract shall continue during the arbitration proceedings and payments due the Contractor by the Employer shall not be withheld, unless they are the subject matter of the arbitration proceedings.

## SECTION 5: AGREEMENT FORM

### AGREEMENT

This agreement, made on the \_\_\_\_\_ day of \_\_\_\_\_ between Gwalior Smart City Development Corporation Limited (GSCDCL), Integrated Command and Control Centre (ICCC), First Floor, Motimahal, Lashkar, Gwalior (M.P.)-474007, India (hereinafter called "the Employer")

and

M/s. \_\_\_\_\_ (Name of the Contractor)  
(hereinafter called "the Contractor").

Whereas the Employer is desirous that the Contractor execute \_\_\_\_\_ (Name of the Work) (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a cost of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ Only) excluding of GST.

NOW THIS AGREEMENT WITNESSED as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity with all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay to the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein 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.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
  - i. Letter of Acceptance;
  - ii. Contractor's Bid;
  - iii. RFP Document;
  - iv. Conditions of Contract: General and Special;
  - v. Contract Data;

- vi. Bid Data;
- vii. Drawings;
- viii. Bill of Quantities;
- ix. Scope of Work and Technical Specifications; and
- x. Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of \_\_\_\_\_ was hereunto affixed in the presence of:

Signed,            Sealed            and            delivered            by            the  
said \_\_\_\_\_ in the presence of:

Binding Signature of Employer \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

**SECTION 6: BILL OF QUANTITIES (BOQ)**

Attached separately