1

NOTICE INVITING EXPRESSION OF INTEREST (EOI)

EOI NO. RCIL/SR/ERS/2023-24/EOI/2 DTD. 01-09-2023

Expression of Interest (EOI) For

"SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY "

Issued by:

RailTel Corporation of India Ltd

(A Mini-Ratna PSU under Ministry of Railways)

Kerala Territory Southern Region,

1st Floor Eastern Entry Tower Ernakulam Junction Railway Station Ernakulam, 682016

<u>Disclaimer</u>

RailTel Corporation of India Ltd. (herein after called the RailTel) has prepared this Expression of Interest (EOI) document solely to assist prospective bidders in making their decision of whether bid or not to bid.

While the RailTel has taken due care in the preparation of information contained herein and believes it to be accurate, neither the RailTel or any of its Authorities or Agencies nor any of their respective officers, employees, agents or advisors give any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it. This information is not intended to be exhaustive and interested parties are required to make their own inquiries and do site visits that it may require in order to submit the EOI. The information is provided on the basis that it is non– binding on RailTel, any of its authorities or agencies or any of their respective officers, employees, agents or advisors. The RailTel reserves the right not to proceed with the bidding/EOI process at any stage without assigning any reasons thereof, or to alter the timetable reflected in this document or to change the process or procedure to be applied. It also reserves the right to decline to discuss the EOI further with any party submitting an EOI. No reimbursement of cost of any type will be paid to persons or entities submitting the EOI

EOI NOTICE

RailTel Corporation of India Limited,
Kerala Territory Office,
1st   Floor, Eastern Entry Tower,
Ernakulum South Railway Station,
Ernakulam-682016

EOI NO. RCIL/SR/ERS/2023-24/EOI/2 DTD. 01-09-2023

RailTel Corporation of India Ltd., (here after referred to as "RailTel") invites EOIs from RailTel's Empaneled Partners for Selection of Implementation Partner from RailTel Empaneled Business Associate for exclusive PRE-BID TEAMING ARRANGEMENT for the following

 "SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY "

The details are as under:

SCHEDULE OF EVENTS

Date of EOI Floating	01-09- 2023
Last date for submission of Bids against EOI	05-09- 2023 at 15:00 Hours
Opening of Bids received against EOI	05-09- 2023 at 15:30 Hours
Number of copies to be submitted	Single stage (Single Packet System)
EOI document cost inclusive tax (non-refundable)	Nil
Token EMD at the time of submission of bid	Rs. 5,00,000/-
EMD (Total)	Rs. 5,14,000/-
Bid Submission Mode	Through E-mail to – **ers.eoi6@railtelindia.com**

 Note: RailTel reserves the right to change the above dates at its discretion. Bids
 received after due date and time will be summarily rejected.

Sd/-
(JGM/TERRITORY MANAGER)
RailTel/Kerala Territory

Earnest Money Deposit (EMD)

1) **Token EMD payable**: Rs. 5,00,000/- at the time of submission of EoI in the form of **RTGS** only
2) **Remaining amount of EMD** : EMD to be submitted by the selected BA in the form of Bank Guarantee/Online Bank Transfer/Fixed Deposit immediately within 24 hrs on advise from RailTel before the submission of the bid to KSITL.
3) **Validity of the EMD**: The EMD shall be valid till the finalization of end customer RFP/Tender i.e award of order and till submission of Performance Guarantee of requisite value with due regards to the validity of the offer.

Bids without token EMD will be summarily rejected.

The EMD should be in the favor of RailTel Corporation of India Limited payable at Secunderabad through online bank transfer. The Partner needs to share the online payment transfer details like UTR No. date and Bank along with the proposal.

RailTel Bank Details for Submission of EMD / PBG:
Union Bank of India, **Account no.327301010373007, IFSC Code: UBIN0805050.**
Demand Draft should be submitted in favor of RailTel Corporation of India Limited payable at Secunderabad.

EMD should be valid till submission of Performance Guarantee as detailed in clause 14.

Token EMD will be forfeited in case of non-submission of remaining EMD and PBG in time.

Eligible Business Associates are required to direct all communications related to this Invitation for EOI document, through the following Nominated Point of Contact persons:

**Contact   Details
for this EOI:**

Level: 1 Contact: Shri. Nazeeb K T, Senior Manager
Email: nazeeb@railtelindia.com Contact: +91-9746769883

Level: 2 Contact: Shri. Anoop Jose. A, Jt. General Manager
Email: anoop@railtelindia.com Contact: +91-9746999166

TABLE OF CONTENTS

Note:

1. The response to EOI is invited from **Eligible Empaneled Partners of RailTel only.**

2. All the document must be submitted with proper indexing and page nos.

3. This is an exclusive pre-RFP partnership arrangement with empaneled business associate of RailTel for participating in the end customer RFP. Selected partner's authorized signatory has to give an undertaking that they will not submit directly or indirectly their bids and techno- commercial solution/association with any other Organization once selected through this EOI for pre- bid teaming arrangement (before and after submission of bid to prospective customer Organization by RailTel). **This undertaking has to be given with this EOI Response.**

4. Transfer and Sub-letting: The Business Associate has no right to give, bargain, sell, assign or sublet or otherwise dispose-off the Contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the present Contract or any part thereof.

   Bidder has to agree to comply with all OEM technical & financial documentation including MAF, Technical certificates/others as per end-to-end requirement mentioned in the end customer's RFP and further issued corrigendum's as mentioned below:

End customer Tender Ref. No.	KSITIL/TIZ/2023-24/08
Tender ID	2023_KSITI_598802_1
Date of floating	26-08-2023
Due date	07-09-2023
Floated on portal	e-Procurement Portal of Govt of Kerala (https://etenders.kerala.gov.in/)

5. Bidder also undertake to submit MAF of major items of the proposed solution and other documents required in the end Customer Organization's tender in favor of RailTel against the proposed products. The selected BA has to provide MAF from the OEM in the name of RailTel for bidding in the concerned tender of KSITIL, if their proposed solution is quoted to the customer.

6. The selected bidder will have to accept all Terms & Conditions of KSITIL RFP on back-to- back basis, wherever applicable.

7. Any corrigendum(s) issued by KSITIL against pertinent tender/RFP shall be the part and scope of this EOI document on back-to-back basis.

8. No exemption/relaxation is applicable to MSME/Startups.

9. Only, the eligibility clause/criteria and marks scoring criteria for SI/BA (Prospective BA/SI) as mentioned in KSITIL's RFP is not applicable on the bidder/BA applying against this EOI. Rest all Terms & Conditions of RFP floated for pertinent tender will be complied by SI/BA/bidders.

10. However, OEM considered by SI for this project have to mandatorily comply all the eligibility & technical criteria/compliance on back-to-back basis in line with end customer RFP and corrigendum(s) issued thereof.

11. **Please refer KSITIL RFP Payment terms as this will remain applicable on back-to-back basis on Successful bidders. Payment shall be made only after actual receipt of payment from KSITIL on submission of required documents.**

12. Bidder may check the price/commercial bid as per BOQ and match the same with FORMATS FOR SUBMISSION OF THE COMMERCIAL BID of KSITIL's RFP and if found any discrepancy, maybe brought to the notice of RCIL immediately and may modify their financial bid format as per KSITIL RFP financial bid document.

13. This is a customer centric bid on back-to-back basis and therefore the benefits of MSME shall not be applicable on this EoI & Work Order.

1. About RailTel

RailTel Corporation of India Ltd (RailTel) is one of the largest neutral telecom infrastructure providers in the country owning a Pan-India Optic fibre network on exclusive Right of Way (ROW) along Railway track. The OFC network presently reaches to over 4500 towns & cities of the country including several rural areas. With its Pan India high-capacity network, RailTel is working towards creating a knowledge society at various fronts. The portfolio of services provided by RailTel includes Data Centre & DR services, Tele-presence as a service, NLD services, IP-1 services, Internet and Broadband services on a pan-India basis.

Equipped with an ISO 9001, 20000-1:2011 & 27000 certification, RailTel offers a wide gamut of managed telecom services to Indian Telecom market including Managed lease lines, Tower co location, MPLS based IP-VPN, Internet, Data Centre services, NGN based voice carriage services to Telecom Operators, Dark fibre leasing to MSOs/LCOs. The major customer segment for RailTel comprises of Enterprises, Banks, Government Institutions/Department, Educational Institutions/Universities, Telecom Service Providers, Internet Service Providers, MSOs, etc. RailTel being a "Mini Ratna (Category-I)" PSU is steaming ahead in the enterprise segment with the launch of various services coupled with capacity augmentation in its Core network.

The main Project of RailTel on hand are KFON, KSWAN, Wi–Fi service at Kerala Govt. Secretariat etc.

2. Background of EOI

RailTel Corporation of India Ltd (hereafter referred to as 'RailTel') an ICT arm of Indian Railways has been in the forefront of building innovative platforms and solutions and vision to build range of Information and Communication Technology (ICT) Services for its customers.

In this context, RailTel intends to participate in response to the RFP floated by KSITIL, as above (hereafter referred to as 'KSITIL') and accordingly seeks to select a suitable partner for pre-bid arrangement through this EoI for the work of "SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY'.

RailTel invites EOIs from RailTel's Empaneled Partners for the selection of suitable partner for participating in above mentioned work for the agreed scope work. The empaneled partner is expected to have excellent execution capability and good understanding of customer local environment.

Bidder has to agree to comply with all OEM technical & financial documentation including MAF, Technical certificates/others as per end-to-end requirement mentioned in the end customer's RFP. Bidder also shall undertake to submit MAF of major items of the proposed solution and other documents required in the end Customer Organization tender in favor of RailTel against the proposed products. The selected BA has to provide MAF from the OEM in the name of RailTel for bidding in the concerned tender of KSITIL, if their proposed solution is quoted to the customer.

The details of pertinent tender are as below:

Tender Title: SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY, KSITIL RFP

Ref. No.: KSITIL/TIZ/2023-24/08 dated 26-08-2023; latest amendment/ Corrigendum / clarifications. **Floated on: KSITIL E tenders portal (https://etenders.kerala.gov.in)**

System Integrator (SI)/BA shall quote for single OEM make and model for each item description, subject to the confirmation of the given specification equivalence. The make and model shall be clearly mentioned in the proposal. However the subsistence/subcomponents offered shall be compatible with inter-operablity to the main system, if different makes/models offered. Deviation to be this will not be accepted/shall be summarily rejected.

3. Scope of Work & Partner Selection

The scope of work will be as mentioned in the pertinent end Customer organization RFP for "SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY" Vide Ref No:KSITIL/TIZ/2023-24/08 dated 26-08-2023 on the website https://etenders.kerala.gov.in/ with all latest amendment/Corrigendum/ clarifications.

The scope of work shall be as per KSITIL Tender KSITIL/TIZ/2023-24/08 dated 26-08-2023.on the website https://etenders.kerala.gov.in/ with all latest amendment/Corrigendum/ clarifications.

All materials that propose to use with the work shall be approved by the Employer / Engineer-in-charge. The scope of work is subject to addition / deletion by the Employer.

The following is the broad scope of work however, this list is only indicate you as not exhaust you , rather to serve as broad guidelines only. The RFP of the tenderer as enclosed is taken into cognizance for submitting EoI as per KSITIL Tender KSITIL/TIZ/2023-24/08 dated 26-08-2023.on the website https://etenders.kerala.gov.in/ with all latest amendment/Corrigendum/ clarifications.

a. The scope shall include the complete detailed design, engineering, supply,delivery, and storage at site, installation, testing and commissioning of a fully functional and complete IT Networking (Structured Cabling System) and few other accessories as mentioned in the BOQ. All accessories and fitting hardware such as brackets / mounting accessories together with associated work are included in the scope of work

b. All workstations in shall be provided minimum of 1Nos. of Data

c. Fiber cables shall be used between Server Room and IDF Location.

d. Entire System shall be with Cat6A System, patch Panels shall be used for patch in the rack.

e. The campus shall be provided with Wifi Connectivity for all areas inside the building and passive points for the same shall be provided in accordance tothe wifi coverage as per standards.

f. Campus Entry to Telecom Room near to Server Room shall be provided with Hume Pipes / trenches for the required cabling.

g. The entire system shall be as per concept, Technical Specifications.

h. Provide full time Technicians and Supervisory specialists at the job toassist in all phases of system installation, start up and commissioning.

i. Cat 6A cable/fiber cable connectivity with all required hardware up to purchaser's networking switches of LAN, locations of networking switches.

j.   Integrated of supply, testing and commissioning of structured cabling system with fluke test scanner

k.   Training & handing over of all materials, equipment and appliances.

l.   All work shall be in direct compliance with IT Design Standards. It is the responsibility of the contractor to work directly with KSITL / CRN team to achieve100% compliance.

m.   Furnish detailed scheduling information for the IT Networking System installation and testing to the Construction Project Manager/Owner for inclusion in the construction schedule. Provide detailed chart implementation schedule showing all tasks including but not limited to:

1.   Engineering

2.   Shop drawing and Product Data Preparation and Submission

3.   Equipment Procurement

4.   Shop Fabrication

5.   Raceway Installation Guidance to Electrical team

6.   Telecommunications Grounding System Installation

7.   Data Cabling installation

8.   System Equipment installation

9.   Network Programming with the Main Centre

10. Testing & Commissioning

11. Training

n.   These durations must be submitted to the Construction Project Manager/Owner within 7 calendar days after receipt of contract. The duration of this schedule must also comply with the completion dates of theoverall construction schedule.

o.   Provide coordination to ensure the infrastructure is made available, as early as possible to facilitate completion of Information Transport System wiring and terminations. Spaceshall be free of air- borne particles prior to installation of any CommunicationSystem component. This is liable for inspection/verification by the customer/ custodian/owner for fulfilling the above requirement

p.   Attend coordination meetings between Contractors to make everyone aware of progress and critical domains and areas of construction.

q.   Inspect conduit raceway system including back boxes, junction boxes, and Mortar boxes prior to installing any cabling. Notify the Owner/Engineer of any discrepancies immediately.

r.   Furnish and install all devices, equipment, and accessories resulting in complete, functional, and fully operational system as specified herein or indicated on the

Drawings.

s. Prior to installation, coordinate for ensuring the availability, feasibility and exactness location and installation of devices with necessary services.

t. Provide complete system test, Manufacturer's minimum 20-year performance certification and Owner/User training by the personnel responsible for the Information Transport System installation.

u. Coordinate the work of this Section with that of other Sections to ensure that the entire work of this project will be carried out in an orderly, complete and coordinated fashion.

v. Any other items/accessories required for installation, testing and commissioning of Communication system shall be considered. No extra cost shall be paid for miscellaneous items if required to complete the work as per the design concept

3.1 Warranty

The warranty would be valid for the performance of products, service and application for the period from the date of supply and as applicable in the **KSITIL RFP.** The bidder shall warrant that products to be supplied shall be new and free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards of materials of the type ordered and shall perform in full conformity with the specifications and drawings.

The BA/SI shall be accountable for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in design and/ or otherwise and shall remedy such defects at his own cost when called upon to do so by the Authority who shall state in writing in what respect the products are faulty.

If it becomes necessary for the bidder to replace or renew any defective portion/portions of the supplies under this clause, the provisions of the clause shall apply to the portion/portions of the equipment so replaced or renewed or until the end of the above-mentioned period, whichever may be later. If any defect is not remedied within a reasonable time, the Purchaser may proceed to do the work at the contractor's risk & cost, but without prejudice to any other rights which the Purchaser may have against the contractor in respect of such defects.

Replacement under warranty clause shall be made by the bidder free of all charges at site including freight, insurance, and other incidental charges.

3.2 Warranty Support

This shall be as per RFP terms and conditions

3.3   Service Level Agreement- per Quarter for each instance

<u>Failure affecting service interruption or degradation</u>

SL#	Service Level	Applicable Penalty
1	Within 2 days	No Penalty applicable
2	Between 2 to 10 days	50% of quarterly operation and maintenance charges
3	Between 10 to 20 days	75% of quarterly operations and maintenance charges

4	Between 20 to 30 days	90% of quarterly operationsand maintenance charges
5	Beyond 30 days	100% of quarterly operations and maintenance charges and the authority may forfeit the PG

Failure having no impact on services

SL#	Service Level	Applicable Penalty
1	Within 7 days	No Penalty applicable
2	Between 8 to 20 days	30% of quarterly operation and maintenance charges
3	Between 21 to 60 days	50% of quarterly operations and maintenance charges
4	Between 61 to 90 days	75% of quarterly operationsand maintenance charges
5	Beyond 90 days	100% of quarterly operations and maintenance charges and the authority shall forfeit the PBG.

3.4 Purpose of EOI

Detailed as above

3.5   Solution provider/BA need to offer solution with failure free environment and without any downtime in operations of KSITIL. **SLA shall be applied as per KSITIL's tender document and corrigendum released, if any on back-to-back basis**

3.6   Bidder may submit their response in form of duly signed and stamped and submit techno- commercial bid through Online mode vide email sent to **ers.eoi6@railtelindia.com**, within the stipulated date and time, as mentioned in this EOI document.

3.7.   Interested partners may note that this is a single stage, single Packet Bid.

3.8. Only those bids shall be opened, which have been submitted within the stipulated time as mentioned in this EOI document.

3.9. <u>Technical Bid contains following</u> :-

i.   Eligibility Criteria

S.N	Type	Description	Document Required
1	Existence / Origin	The company must be registered in India.	Certificate of Incorporation
2	General	The company must have: I. Valid PAN card. II. Been registered with GST. III. has paid ITR for last 3 financial year ending 31st March 2022.	I. Copy of PAN Card. II. Copy of GST registration certificate. III. Copy of ITR filed.
3	General	The company should not be blacklisted by any Government institution/ Government PSU	Self-declaration, in case this is discovered to be otherwise, the bidder will be declared ineligible at any stage of the tender.
4	Turnover	The bidder must have average annual turnover at least Rs. 4.11 Crores in the last three financial year ending **31st March 2023**	Audited Balance Sheet & CA certificate
5	Net Worth	The bidder must have positive net worth in last 3 FY's ending 31st March 2023.	Audited Balance Sheet & CA certificate

6	Experience	A. The bidder must have three Similar completed works costing not less than the amount of Rs. 2.05 Cr. B. The bidder must have two Similar completed works costing not less than the amount of Rs. 2.57 Cr C. The bidder must have One Similar completed works costing not less than the amount of Rs. 4.11 Cr	Order &completion Certificate issued by customer / PO issuing authority. If a project is ongoing, a certificate to that effect
7	Empanelment	Bidder must be empaneled with RailTel as Business associate.	Copy of Empanelment letter and Empanelment PBG submitted, if any.

*Similar works include Supply, installation, testing and commissioning of network switches, routers, CCTV and access controls etc.

     ii.   The Technical Compliance of the Scope of Work. However, format may be modified by bidder as per their choice, but item must be marked with OEM Name, MAF provided or not and Data Sheet attached.

     iii.   The Technical Compliance sheet provided with Hard Copy of Technical Specs.

     iv.   **Price quote in the attached format (Annexure 8).**

     v.   Compliance of OEM with their MAF's and all mandatory documents asked by KSITIL from OEM.

     vi.   Unconditional Acceptance of the Tender document of KSITIL and any Other/General Document of KSITIL Tender RFP along with corrigendum and addendum.

     vii.   Acceptance Letter of EoI

     viii.   Annexure Formats as mentioned in this EOI.

     ix.   All documents mentioned in checklist and annexures of this EOI.

     x.   The Seller agrees to undertake Warranty, Maintenance contract for a minimum **period as per KSITIL.** Undertaking in this regard is to be submitted along with the technical bid.

xi. Delivery Period Undertaking – As per pertinent tender floated by KSITIL.

The Supply, Installation, Testing and Commissioning and its related works should be completed within 75 days from the issue of LOA. Any delay by the Tenderer in providing the services shall invite LD clause @ 0.5% of total tender cost per week up to a maximum of 10%. Beyond this period, the Tenderer is liable to any or all the sanctions viz. invocation of Bank Guarantee
/ forfeiture of security deposit, Blacklisting.

xii. The bid should be duly signed and submitted by Authorized Signatory. The bidder has to submit notarized of non-judicial stamp paper of appropriate value Powerof Attorney having authorized signatory's nomination along with board resolution in favour of power of attorney.

xiii. The bidder has to mandatorily submit notarized Annexure-11 on non- judicialstamp paper of requisite value of Rs. 200, else bid shall be summarily rejected.

3.10. Prospective bidder's b i d evaluation will be done based o n above mentioned documents. Bids of those Bidders who submit Technical Documents without OEM Name, Make and Model, technical Compliance, and unconditional acceptance of the KSITIL hard Copies , will be summarily rejected

3.11.   Based on evaluation of outcome against 3.9, whoever may qualify as per 3.9.i and further complying technical requirement with supporting documents   of OEM MAF, datasheets, BOQ/BOM may be treated as Technically qualified partner for Stage-1.

3.12.   Bidders selected as per Para 3.11 above will be treated as eligible for financial bid opening.

3.13   <u>**Financial Bid:**</u>

The Annexure 8 of for financial quote to be submitted for evaluation

3.14   Selection of Bidder : as per outcome of Clause 3.9 above

The bidder will be selected on the **lowest quote (L-1)** basis for complete 'Scope of Work' as mentioned in the EOI document and Physical documents of technical specifications of KSITIL, subject to the respective overall bid is in compliance to the requirements of this EOI. The partner the selected will be termed as 'Commercially Suitable Partner (hereafter referred to as 'CSP')'. It is ascertained, that the final selection of CSP will be on the L-1 basis only. Further, RailTel reserves the right to have negotiation with the CSP if required.

3.15 The partner selected through this EOI shall be deemed to be responsible for delivering of complete 'Scope of Work' as mentioned in the KSITIL's tender document and subsequent corrigendum. However, RailTel at its discern, may take- up a certain portion / percentage of 'Scope of Work' by communicating to the CSP at any point of time during the engagement period. (The day at which 'CSP' is declared, will mark the start of engagement period. The period will be valid till final outcome of this tender is announced by KSITIL. In case, RailTel comes out to be winner of the KSITIL tender, then the engagement period will get auto-extended to the period RailTel serves KSITIL for the concerned tender, unless terminated earlier by RailTel as per terms and conditions mentioned in this EoI document). In this scenario, commercial engagement with the CSP will be for that portion / percentage only, which has not been taken by RailTel. Accordingly, resultant value of work will be derived on the basis of negotiated (in case) commercial bid of the CSP.

3.16 RailTel on the basis of inputs / factors available to it from various resources, past experiences of its ICT projects and on the basis of negotiated (in case) commercial bid of the CSP, will endeavor to place best techno-commercial bid in response to the pertinent KSITIL's tender. Further relationship with CSP will be based on the outcome pertinent KSITIL's tender.

4 General Requirements and Eligibility Criteria for Bidders

4.1. The interested bidder should be an Empaneled Partner with RailTel on the last date of bid submission of EOI & has to provide relevant documents to qualify as per Clause 3.9.i of this EOI.

4.2. The interested bidder should submit Earnest Money Deposit (EMD) if applicable, in the format as mentioned in this EOI document along with the bid.

4.3. The interested bidder should be in compliance to insertion of Rule 144(xi) in the GFR, 2017 vide office OM no. 6/18/2019-PPD dated 23-July-2020 issued by Ministry of Finance, Government of India, including revisions.

4.4. The interested bidder should submit an undertaking for maintaining of 'Local Content Compliance' and shall submit a certificate mentioning the 'Local Content Percentage' duly signed and stamped by statutory auditor or cost auditor or authorized signatory of the interested partner. This will not be a binding clause in cases where end

customer has not asked Local Content Clause/Make in India Clause in their Current RFP.

4.5 **The bidder has to mandatorily provide all Annexures of this EoI and corrigendum(s) thereof.**

4.6. The interested bidder should not be backlisted by any State / Central Government Ministry / Department / Corporation / Autonomous Body on the last date of submission of EOI.

4.7. There should not be any ongoing or past, arbitration case(s) between 'RailTel or Organizations under Indian Railways' and 'Interested Bidder' on the last date of submission of EOI.

4.8. The interested bidder shall not have a conflict of interest with one or more bidding parties. Participation of interested bidder(s) with a conflict-of-interest situation will result in the disqualification of all bids in which it is involved. A bidder may be in a conflict of interest with one or more parties if including but not limited to:

    a. Have controlling shareholders as his/her family members viz. spouse, son, daughter, father, mother or brother etc. in common or;

    b. Have a relationship with each other directly or through common third parties that puts them in a position to have access to information about or influence on the bid of another interested partner.

4.9. The interested bidder should not be seeking / extending / exploring similar arrangements /engagements with any other organization except RailTel, for the KSITIL tender.

4.10. The interested partner should have a valid Goods and Service Tax Identification Number (GSTIN), as on the last date of submission of EOI.

4.11. In addition to above clauses, bid of interested bidder should be in compliance to terms and conditions and technical requirements of the pertinent KSITIL tender as referred above.

Note: The interested bidder should submit duly signed and stamped EOI cover letter as per the format mentioned at Annexure-02 of this EOI document, as unconditional submission of meeting the clauses mentioned above, from Clause **4.1. to Clause 4.11**

5. Resources to be Deployed

i. The bidder shall carry out all necessary activities during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract.

ii. Adequate training, required to carry out the activities mentioned in the scope of work above, shall be provided by Bidder to all deployed resources.

iii. Boarding, lodging, transportation, and all other expenses of the deployed resources are to be borne by bidder,

iv. The Authority shall be at liberty to object to and require the bidder to remove from the works any person who in his opinion misconducts himself or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Authority to be undesirable. Such person shall not be employed again at works site without the written permission of the Authority and the persons so removed shall be replaced with in a week's time by competent substitutes.

v. The Authority has agreement with the bidder only, it is the responsibility of the bidder to ensure all due diligence is carried out for background verification of resources deployed. And in any case, the Authority will not be responsible for the violation of due diligence or offence committed by the bidder or any of its resources.

6 Proposal Preparation and Submission Cost

6.1. The interested partner is responsible for all costs incurred in connection with participation in this EOI process, including, but not limited to, cost incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation ofproposal, in providing any additional information required by RailTel to facilitate the evaluation process or all such activities related to the bid process. RailTel will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. This EOI document does not commit to award a contract or to engage in negotiations.

7 Amendment to EOI Document

7.1. At any time prior to the deadline for submission of bids, RailTel, may, for any reason can modify the EOI document by an amendment. All the amendments made in the document would be informed by displaying on RailTel's (www.railtelindia.com) website only. The interested bidders are advised to visit the RailTel website on regular basis for checking necessary updates. RailTel also reserves the rights to amend the dates mentioned in this EOI for bid process. RailTel may, at its discretion, extend the last date for receipt of EoI response Individual advices in this connection is not treated as mandatory.

8 Bid Validity Period

8.1.   Bid of Interested partners shall remain valid for the period of 120 days from the date of opening the price bid

8.2.   RailTel may request for an extension of the period of validity. The validity of the

'EMD', should also be suitably extended if called upon to do so by RailTel. The request and the responses thereto shall be made in writing through e-mail communication only. Further, whenever the bid validity extension is submitted by the interested partner, it should be ensured by interested partner that their PBG (Performance bank Guarantee) related to the empanelment should have minimum validity of 90 days from the last date of extended bid validity period.

9   Right to Terminate the Process

9.1. RailTel may terminate the EOI process at any time without assigning any reason. RailTel makes no commitments, express or implied, that this process will result in a business transaction with anyone. This EOI does not constitute an offer by RailTel. The interested bidder's participation in this process may result in RailTel selecting the CSP to engage in further discussions and negotiations toward execution of a contract. The commencement of such negotiations does not, however, signify a commitment by RailTel to execute a contract or to continue negotiations. RailTel may terminate negotiations at any time without assigning any reason.

10   Language of Bid

10.1. The bid prepared by the interested partner and all correspondence and documents relating to the bids exchanged by the bidder and RailTel, shall be written in English Language, provided that any printed literature furnished by the Bidder in another language shall be accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the Authorised Signatory of the interested partner.

11   Submission of Bid

11.1. The Bidder should take into account any Corrigendum to this EOI document that may have been published before submitting their EOI response. The bid is to be submitted in the mode as mentioned in this EOI document. EOI response submitted in any other mode will not be entertained.

11.2.   Bidders in their own interest are advised to submit the EOI response well intime before the last date and hence to avoid any inconvenience at the last moment.

11.3. An Organization / Bidder can submit only 'One EOI Response'. Submission of multiple EOI Response by bidder(s) may lead to rejection of all of its bid.

12 Rights to Accept / Reject any or all EoI Response

12.1. RailTel reserves the right to accept or reject any EOI Response, and to annul the bidding process and reject all Bids at any time prior to award of the Contract, without thereby incurring any liability to the affected interested bidder(s), or any obligation to inform the affected Bidders of the ground for RailTel's action.

13   Payment Terms

Back-to-back basis as per KSITM RFP No. KSITIL/TIZ/2023-24/08 dated 26.08.2023

1. The payment cycle for the Successful Bidder would start from the date of signing of contract or deployment of resources whichever is later. The payment to be made to the Successful Bidder shall be subject to the SLAs (Service Level Agreements) to be signed by the bidder post issuance of work order.

2. **Payment against Supply:** up to 70% of the invoice value or 50% of the rate quoted by BA whichever is less for the item is payable as assessed by RCIL/representative. BA shall produce original test certificate, warranty certificate of the manufacture for the materials for availing the above payment for the selected items and GST invoice for CAT6A/CAT6 cable, Patch cable, network/ server rack and CCTV camera etc.

3. **Payment against Installation:** up to 85% of the rate quoted for the item less initial payments till date, is payable as assessed by RCIL/representative on final completion of the entire supplies and installation work under Contract for which payments are claimed.

4. **Payment against Testing and commissioning:** 100% of the rate quoted by BA for the item less amount already paid and recovery for security deposits due if any is payable as assessed by RCIL/Authorized consultant in all aspects and acceptance of the same by RCIL/Authorized consultant.

5. The RCIL shall scrutinize and certify the bill to be submitted for payment to KSITIL within 30 days of submission of the correct bill by the BA.

However, detailed measurements shall be jointly recorded by the contractor in the presence of the representative of the Engineer in charge for reconciliation of quantities and records. Payment towards all interim bills shall be made by RCIL through direct beneficiary transfer

mechanism to the designated Bank / Treasury account of the BA on the bills certified and forwarded by the authorized as per RCIL practice.

13.1. Payment will be processed after receiving the GST invoice for the work / services and after RailTel has received the necessary payment based on certification and acceptance from KSITIL for the same work / services. Any deduction /Penalties levied by KSITIL will be carried **back-to-back** and will be deducted from SI/BA/CSP's invoices/Subject to the cause to deduction / penalty is due to deviation in terms and conditions of service standards by the CSP.

13.2. Documents list required at the time of payment/invoice submission by selected bidder shall be: -

- Valid Tax Invoice (in Triplicate).

  - Delivery Challan and e way bill

  - Factory Test Report

  - QA& COQ inspection certificate duly signed by OEM.

  - FAT Inspection Certificate or Approval of waiver for the same.

  - Packaging List

  - Purchaser's Inspection certificate

  - Consignee receipt

  - Warranty certificate of OEM

  - Insurance certificate

  - A certificate duly signed by the firm certifying that equipment/ materials being delivered are new and conform to technical specification.

  - A certificate duly signed by the firm certifying that the equipment/ materials being delivered are complete in all respect for the concerned items for which the payment is being released.

All payments shall be released after sign-off by the KSITIL. The KSITIL shall make all efforts to make the payment within 30 days of receipt of the invoice.

14   Performance Guarantee (PG)

1) **Value of Performance Guarantee**: The performance guarantee will be equivalent to 5% of the total accepted value of the work awarded to the BA
2) **Submission:** This can be submitted in the form of Bank Guarantee/Online Bank Transfer/Fixed Deposit of Nationalized bank/Scheduled /Govt treasury
3) **Validity:** The Performance Guarantee shall be valid/extended for a period of 3 months in addition to the successful completion period of the work in total.
4) The conditions of PBG on back to back basis as per KSITIL RFP

The PBG shall be discharged / returned by RailTel upon being satisfied that there has been due performance of the obligations of the CSP under the contract. However, no interest shall be payable on the PBG. In the event, CSP being unable to service the contract for whatsoever reason, RailTel would invoke the PBG at its discern. Notwithstanding and without prejudice to any rights whatsoever of RailTel under the contract in the matter, the proceeds of the PBG shall be payable to RailTel as compensation for any loss resulting from the CSP's failure to complete its obligations under the contract. RailTel shall notify the CSP in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the CSP is in default

.

14.4. In case the KSITIL has sought PBG of the contract in the terms of Indemnity Bond from RailTel, the selected bidder has to provide the equivalent value PBG from scheduled Bank to RailTel. No Indemnity Bond from Selected Bidder will be accepted in lieu of PBG from Scheduled Bank.

14.7. In case KSITIL has sought any other types of PBG, at present or in future or else Integrity Pact PBG (presently or in future), same remain applicable on selected Bidder. The Said PBG will be issued by Selected Bidder from Scheduled Bank favoring RailTel Corporation of India Limited. No Indemnity Bond in lieu of such PBG will be accepted by RailTel.

14.8   Integrity pact in the format if any, as per KSITIL to be provided by the Bidder.

15. Details of Commercial Bid / Financial Bid

15.1. Partner should submit commercial bid strictly as per the format mentioned by KSITIL or in subsequent corrigendums (if any).

15.2. The commercial bid should clearly bring out the cost of the services with detailed break-up of taxes.

15.3.   The rates mentioned in the commercial bid of the CSP will form basis of commercial transaction between RailTel and bidder.

15.4. The quantity of 'Line Items' may vary at the time of placing of Purchase Order or during the Contract Period, as communicated by KSITIL (in case) to RailTel. In such scenarios, the 'Per Unit' cost will be considered to arrive on contractual amount between RailTel and CSP.

15.5. It is also possible that KSITIL may surrender / increase, some or all of the quantities of service items ordered to RailTel during the contract period and accordingly the contractual amount between RailTel and CSP shall be considered, at sole discern of RailTel.

15.6. It is also possible that during the contract period, KSITIL may raise Purchase Order to RailTel for the line items (and respective quantities) which are not mentioned in the pertinent tender of KSITIL. In such scenario, RailTel at its sole discretion, may extend the scope of the contract with CSP by placing order to KSITIL, **on back-to- back basis**.

15.7. In addition to the Payment Terms, all other Contractual Terms will also be on '**back- to-back**' basis between RailTel and CSP, as mentioned in the pertinent KSITIL's tender. MAF (Manufacturer's Authorization Form) in the name of RailTel and another MAF in Bidders Name (separately with reference to this EOI) from the OEMs, whose product is mentioned in commercial bid format, should also be ensured by the partner. The MAF format and required content should be in-line with KSITIL's tender, if specifically asked by KSITIL in a particular format.

16.   Duration of the Contract Period

16.1. The contract duration shall be same as of KSITIL's contract duration with RailTel until otherwise terminated earlier. **Indicative contract duration is as per KSITIL RFP**, unless otherwise terminated earlier, as mentioned in this EOI document and subject to successful participation of RailTel in the pertinent KSITIL's tender.   The contract duration can be renewed /extended by RailTel at its discern, in case KSITIL extends / renews services with RailTel by virtue of extending / renewing / new issuance of one or more Purchase Order(s) placed by KSITIL to RailTel.

17.   Restrictions on 'Transfer of Agreement'

17.1. The CSP shall not assign or transfer its right in any manner whatsoever under the contract / agreement to a third party or enter into any agreement for sub- contracting and/or partnership relating to any subject matter of the contract / agreement to any third party either in whole or in any part i.e., no sub-contracting / partnership / third party interest shall be created.

18.   Suspension, Revocation or Termination of Contract / Agreement

18.1.   RailTel reserves the right to suspend the operation of the contract / agreement, at any time, due to change in its own license conditions or upon directions from the competent government authorities, in such a situation, RailTel shall not be

responsible for any damage or loss caused or arisen out of aforesaid action. Further, the suspension of the contract / agreement will not be a cause or ground for extension of the period of the contract / agreement and suspension period will be taken as period spent. During this period, no charges for the use of the facility of the CSP shall be payable by RailTel.

18.2. RailTel may, without prejudice to any other remedy available for the breach of any conditions of agreements, by a written notice of Three (03) month or as per KSITIL tender condition whichever is earlier issued to the CSP, terminate/or suspend the contract /agreement under any of the following circumstances:

a) The CSP failing to perform any obligation(s) under the contract / agreement.
b) The CSP failing to rectify, within the time prescribed, any defect as may be pointed out by RailTel.
c) Non adherence to Service Level Agreements (SLA) which RailTel has committed to KSITIL .
d) The CSP going into liquidation or ordered to be wound up by competent authority

e) If the CSP is wound up or goes into liquidation, it shall immediately (and not more three days) inform about occurrence of such event to RailTel in writing.

In such case, the written notice can be modified by RailTel as deemed fit under the circumstances. RailTel may either decide to issue a termination notice or to continue the agreement by suitably modifying the conditions, as deemed fit.

It shall be the responsibility of the CSP to maintain the agreed Quality of Service, even during the period when the notice for surrender/termination of contract / agreement is pending and if the Quality of Performance of Solution is not maintained, during the said notice period, it shall be treated as material breach liable for termination at risk and consequent of which CSP's PBG related to contract / agreement along with PBG related to the Empanelment Agreement with RailTel shall be forfeited, without any further notice.

f) Breach of non-fulfillment of contract / agreement conditions may come to the

notice of RailTel through complaints or as a result of the regular monitoring. Wherever considered appropriate RailTel may conduct an inquiry either Suo-moto or on complaint to determine whether there has been any breach in compliance of the terms and conditions of the agreement by the successful bidder or not. The CSP shall extend all reasonable facilities and shall endeavor to remove the hindrance of every type upon such inquiry. In case of default by the CSP in successful implementation and thereafter maintenance of services / works as per the conditions mentioned in this EOI document, the PBG(s) of CSP available with RailTel can be forfeited.

19.   Dispute Settlement

19.1 In case of any dispute concerning the contract / agreement, both the CSP and RailTel shall try to settle the same amicably through mutual discussion / negotiations. Any unsettled dispute shall be settled in terms of Indian Act of Arbitration and Conciliation 1996 or any amendment thereof. Place of Arbitration shall be New Delhi.

19.2 The arbitral tribunal shall consist of the Sole Arbitrator. The arbitrator shall be appointed by the Chairman & Managing Director (CMD) of RailTel Corporation of India Ltd.

19.3 All arbitration proceedings shall be conducted in English.

20.   Governing Laws

20.1. The contract shall be interpreted in accordance with the laws of India. The courts at New

Delhi shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.

21.   Statutory Compliance

21.1. During the tenure of this Contract nothing shall be done by CSP in contravention of any law, act and/ or rules/regulations, there under or any amendment thereof and shall keep RailTel indemnified in this regard.

21.2. The Bidder shall comply and ensure strict compliance by his/her employees and agents of all applicable Central, State, Municipal and Local laws and Regulations and undertake to indemnify RailTel, from and against all levies, damages, penalties and payments whatsoever as may be imposedby reason of any breach or violation of any law, rule, including but not limited to the claims against RailTel or its Customer under Employees Compensation Act, 1923,The Employees Provident Fund and Miscellaneous Provisions Act, 1952, The Contract Labour (Abolition and Regulation) Act 1970, Factories Act, 1948, Minimum Wages Act and Regulations, Shop and Establishment Act and Labour Laws which would be amended/modified or any new act if it comes in force whatsoever, and all actions claim and demand arising therefrom and/or related thereto.

22. Intellectual Property Rights

22.1. Each party i.e., RailTel and CSP, acknowledges and agree that the other party retains exclusive ownership and rights in its trade secrets, inventions, copyrights, and other intellectual property and any hardware provided by such party in relation to this contract / agreement.

22.2. Neither party shall remove or misuse or modify any copyright, trade mark or any other proprietary right of the other party which is known by virtue of this EoI and subsequent contract in any circumstances.

23. Severability

23.1. In the event any provision of this EOI and subsequent contract with CSP is held invalid or not enforceable by a court of competent jurisdiction, such provision shall be considered separately and such determination shall not invalidate the other provisions of the contract and Annexure/s which will be in full force and effect.

24. Force Majeure

24.1. If during the contract period, the performance in whole or in part, by other party, of any

obligation under this is prevented or delayed by reason beyond the control of the parties including war,hostility, acts of the public enemy, civic commotion, sabotage, Act of State or direction from Statutory Authority, explosion, epidemic, quarantine

restriction, strikes and lockouts (as are not limited to the establishments and facilities of the parties), fire, floods, earthquakes, natural calamities or any act of GOD(hereinafter referred to as EVENT) , provided notice of happenings of any such event is given by the affected party to the other, within twenty one (21) days from the date of occurrence thereof, neither party shall have any such claims for damages against the other, in respect of such non- performance or delay in performance.Provided service under this contract shall be resumed as soon as practicable, after such EVENT comes to anend or ceases to exist.

24.2. In the event of a Force Majeure, the affected party will be excused from performance during the existence of the force Majeure. When a Force Majeure occurs, the affected party after notifying the other party will attempt to mitigate the effect of the Force Majeure as much as possible. If such delaying cause shall continue for more than sixty (60) days from the date of the noticestated above, the party injured by the inability of the other to perform shall have the right, upon written notice of thirty (30) days to the other party, to terminate this contract. Neither party shallbe liable for any breach, claims, and damages against the other, in respect of non-performance or delay in performance as a result of Force Majeure leading to such termination.

25. Indemnity

25.1. The CSP agrees to indemnify and hold harmless RailTel, its officers, employees and agents (each an "Indemnified Party") promptly upon demand at any time and from time to time, from and against any and all losses, claims, damages, liabilities, costs (including reasonable attorney's fees and disbursements) and expenses (collectively, "Losses") to which the Indemnified party may become subject, in so far as such losses directly arise out of, in any way relate to, or result from:

a) Any mis-statement or any breach of any representation or warranty made by CSP or

b) The failure by the CSP to fulfill any covenant or condition contained in this contract by any employee or agent of the Bidder. Against all losses or damages arising fromclaims by third Parties that any Deliverables (or the access, use or other rights thereto), created by CSP pursuant to this contract, or any equipment, software, information, methods of operation or other intellectual property created by CSP pursuant to this contract, or the SLAs (i) infringes a copyright, trade mark, trade design enforceable in India, (ii) infringes a patent issues in India, or (iii) constitutes misappropriation or unlawful disclosure or used of another Party's trade secrets under the laws of India (collectively, "Infringement Claims"); or

c) Any compensation / claim or proceeding by any third party against RailTel arising out of

any act, deed or omission by the CSP or

d) Claim filed by a workman or employee engaged by the CSP for carrying out work relatedto this agreement. For the avoidance of doubt, indemnification of Losses pursuant to this section shall be made in an amount or amounts sufficient to restore each of the Indemnified Party to the financial position it would have been in had the losses not occurred.

25.2. Any payment made under this contract to an indemnity or claim for breach of any provision of this contract shall include applicable taxes.

26.   Limitation of Liability towards RailTel

26.1. The CSP (SI/BA) liability under the contract shall be determined as per the Law in force for the time being. The CSP shall be liable to RailTel for loss or damage occurred or caused or likely to occur on account of any act of omission on the part of the CSP and its employees (direct or indirect), including loss caused to RailTel on account of defect in goods or deficiency in services on the part of CSP or his agents or any person / persons claiming through under said CSP, However, such liabilityof the CSP shall not exceed the total value of the contract.

26.2. This limit shall not apply to damages for bodily injury (including death) and damageto real estate property and tangible personal property for which the CSP is legally liable.

27. Confidentiality cum Non-disclosure

27.1. The Receiving Party agrees that it will not disclose to third party/parties any information belonging to the Disclosing Party which is provided to it by the Disclosing Party before, during and after the execution of this contract. All such information belonging to the Disclosing Party and provided to the Receiving Party shall be considered Confidential Information. Confidential Information includes prices, quotations, negotiated issues made before the execution of the contract, design and other related information. All information provided by Disclosing Party to the Receiving Party shall be considered confidential even if it is not conspicuously marked as confidential.

27.2. Notwithstanding the foregoing, neither Party shall have any obligations regarding non- use or non-disclosure of any confidential information which:

27.2.1. Is already known to the receiving Party at the time of disclosure:

27.2.2. Is or becomes part of the public domain without violation of the terms hereof;

27.2.3. Is shown by conclusive documentary evidence to have been developed independently by the Receiving Party without violation of the terms hereof:

27.2.4. Is received from a third party without similar restrictions and without violation of thisor a similar contract.

27.3 The terms and conditions of this contract, and all annexes, attachments and amendments hereto and thereto shall be considered Confidential Information. No news release, public announcement, advertisement or publicity concerning this contract and/or its contents herein shall be made by either Party without the prior written approval of the other Party unless such disclosure or public announcement is required by applicable law.

27.4 Notwithstanding the above, information may be transmitted to governmental, judicial, regulatory authorities, if so, required by law. In such an event, the

Disclosing Party shall inform the other party about the same within 30 (thirty) Days of such disclosure.

27.5 This Confidentiality and Non- Disclosure clause shall survive even after the expiry or termination of this contract.

28   Assignment

28.1 Neither this contract nor any of the rights, interests or obligations under this contract shall be assigned, in whole or in part, by operation of law or otherwise by any of the Parties without the prior written consent of each of the other Parties. Any purported assignment without such consent shall be void. Subject to the preceding sentences, this contract will be binding upon, inureto the benefit of, and be enforceable by, the Parties and their respective successors and assigns.

29   Insurance

The CSP shall agree to take insurances to cover all the elements of the project under this EOI including but not limited to Manpower, Hardware, Softwareand Services etc. as per KSITIL tender specified terms.

30   Exit Management

30.1 Exit Management Purpose

30.1.1 This clause sets out the provision, which will apply during Exit Management period. The parties shall ensure that their respective associated entities carry out their respective obligation set out in this Exit Management Clause.

30.1.2 The exit management period starts, in case of expiry of contract, at least 03 months prior to the date when the contract comes to an end or in case

of termination contract,on the date when the notice of termination is sent to the CSP. The exit management period ends on the date agreed upon by RailTel or Three (03) months after the beginning of the exit management period, whichever is earlier.

30.2   Confidential Information, Security and Data:

CSP will promptly, on the commencementof the exit management period, supply to RailTel or its nominated agencies the following (if askedby RailTel in writing):

30.2.1 Information relating to the current services rendered and performance data relating to the performance of the services; documentation relating to the project, project's customized source code (if any); any other data and confidential information created as part of or is related to this contract;

30.2.2 All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable RailTel and its nominated agencies, or its replacing vendor to carry out due diligence in order to transition the provision of the services to RailTel or its nominated agencies, or its replacing vendor (as the case may be).

30.3 Employees : Promptly on reasonable request at any time during the exit management period, the CSP shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide RailTel a list of all employees (with job titles and communication address), dedicated to providing the services at the commencement of the exit management period;To the extent that any Transfer Regulation does not apply to any employee of the CSP, RailTel orthe replacing vendor may make an offer of contract for services to such employees of the CSP and the CSP shall not enforce or impose any contractual provision that would prevent any such employeefrom being hired by RailTel or any replacing vendor.

30.4 Rights of Access to Information: Besides during the contract period, during the exit management period also, if asked by RailTel in writing, the CSP shall be obliged to provide an accessof information to RailTel and / or any Replacing Vendor in order to make an inventory of the Assets (including hardware / software / active / passive), documentations, manuals, catalogues, archive data, Live data, policy documents or any other related material.

Note: RailTel at its sole discern may not enforce any or all clauses / sub-clauses under the

'Exit Management' clause due to administrative convenience or any other reasons as deemed fit.

31. Waiver

31.1. Except as otherwise specifically provided in the contract, no failure to exercise or delayin exercising, any right, power or privilege set forth in the contract will operate as a waiver of any right, power or privilege.

32. Changes in Contract Agreement

32.1. No modification of the terms and conditions of the Contract Agreement shall be made except by written amendments signed by the both CSP and RailTel.

ANNEXURE 1 - FORMAT FOR PROJECT

EXPERIENCE CITATIONS

SI. No.	Item	Bidder's Response
1	Name of Bidder entity	
2	Assignment Name	
3	Name & Address of Client	
4	Approximate Value of the Contract (in INR Crores)	
5	Duration of Assignment (months)	
6	Start Date (month/year)	
7	Completion Date (month/year)	
8	Narrative description of the project	
9	Details of Work that defines the scope relevant to the	
10	Documentary Evidence attached	

<u>**Annexure – 02**</u>

EOI COVER LETTER

(On Organization Letter Head)

EoI Ref No.:

Date:

To,
  The Joint General Manager (ERS),
  RailTel Corporation of India Limited,
  Kerala Territory Office,
  1st   Floor, Eastern Entry Tower,
  Ernakulam South Railway Station ,
  Ernakulam 682016

KSITIL Tender Ref. No KSITIL/TIZ/2023-24/08 dated 26-08-2023 on
https://etenders.kerala.gov.in portal

Dear Sir/Madam,

1. I, the undersigned, on behalf of M/s ...., having carefully examined the referred EOI offer to participate in the same, in full conformity with the said EOI and all the terms and conditions thereof, including corrigendum issued till last date of submission of EOI. It
is also undertaken and submitted that we are in abidance of Clause 4 (from Clause 4.1 to Clause 4.11) of EOI.

2. I agree to abide by this Proposal, consisting of this letter, our Pre-qualification, Technical and Commercial Proposals, for a period of 210 days from the date fixed for submission of Proposals as stipulated in the EOI and modifications resulting from contract negotiations, and it shall remain binding upon us and maybe accepted by you at any time before the expiration of that period.

3. I acknowledge that the Authority will be relying on the information provided in the Proposal and the documents accompanying the Proposal for selection of the Commercially Suitable Partner (CSP) for theaforesaid Service, and we certify that all information provided therein is true and correct; nothing has been omitted which

renders such information misleading; and all documents accompanying the Proposal are true copies of their respective originals.

4. I undertake, if our Bid is accepted, to commence our services as per scope of work as specified in the contract document.

5. Until a formal Purchase Order or Contract is prepared and executed, this Bid and supplement / additional documents submitted (if any), together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.

6. I hereby undertake and give unconditional acceptance for compliance of all terms & conditions of KSITILRFP issued vide ref no. RCC/NR/UPSO-I/ENG/PT-97/22-23 dated 09-08-2022 on https://etenders.kerala.gov.in portal, against this EOI based customer's requirement.

7. I hereby undertake that there will be no deviation from the Terms and Conditions of EOI and KSITIL's RFPissued vide ref no.: RCC/NR/UPSO-I/ENG/PT-97/22-23 dated 09-08-2022 on https://etenders.kerala.gov.inportal.

Signature of Authorized
Signatory

Name & Designation

Date ----------

Annexure - 03

Local Content Compliance
(On Organization Letter Head)

EoI Ref No.:   Date:

 Joint General Manager (ERS),
RailTel Corporation of India Limited,
Kerala Territory Office,1st Floor, Eastern
Entry Tower,
Ernakulam South Railway Station
Ernakulam 682016

KSITIL Tender Ref. No KSITIL/TIZ/2023-24/08 dated 26-08-2023 on https://etenders.kerala.gov.in portal

Dear Sir/Ma'am,

      I, the undersigned, on behalf of M/s ...., hereby submits that our technical solution for the 'Scope of Work' mentioned under the EoI document is in compliance of local content requirement and makes us equivalent to 'Class-I local supplier' / 'Class-II local supplier' (mention whichever is applicable) for the EoI under reference, as defined under the order No. P-45021/2/2017-PP(BE-II) dt. 04-June-2020 issued by Ministry of Commerce and Industry, Govt. of India.

I hereby certify that M/s ....fulfills all requirements in this regard and is eligible to be considered and for the submitted bid Local Content Percentage is   % (write in figures as well as in words).

I hereby acknowledge that in the event of acceptance of bid on above certificate and if the certificate is found to be false at any stage, the false certificate would be a ground for immediate termination of contract and further legal action in accordance with the Law, including but not limited to theencashment of Bank Guarantee related to Empanelment

and Performance Bank Guarantee (PBG), as available with RailTel, related to this EoI. Signature of Authorized Signatory

Name Designation

CHECKLIST OF DOCUMENTS FOR BID SUBMISSION

KSITIL Tender Ref. No KSITIL/TIZ/2023-24/08 dated 26-08-2023 on https://etenders.kerala.gov.in portal

S. No.	Document
1	EOI Cover Letter (Annexure-02)
2	Technical compliance sheet
3	Price bid
4	Local Content Compliance & Percentage Amount (ure-03)
5	**TECHNICAL BID COVER LETTER**
6	**COMMERCIAL BID COVER LETTER**
7	EMD as per EOI document
8	This EOI copy duly Signed and Stamped by the Authorized Signatory ofBidder
9	All Annexure/ Appendices/Formats/ Declarations as per **KSITIL Tender Ref. No KSITIL/TIZ/2023-24/08 dated 26-08-2023**addressing to RailTel.
10	Compliance of eligibility criteria related documents as per Clause 3
11	Any relevant document found suitable by bidder

Note:

1. The technical bid should have a 'Index' at the starting and all pages of bid should be serially numbered and should be traceable as per the 'Index'.

2. All the submitted documents should be duly stamped and signed by the AuthorizedSignatory at each page.

3. The above checklist is indicative only. RailTel may ask for additional documents from the bidders, as per the requirement.

FORMAT FOR TECHNICAL BID COVER LETTER (ANNEXURE 5)

(On Company Letter Head)

To,
 Joint General Manager (ERS),
 RailTel Corporation of India
Limited, Kerala Territory
Office,1ˢᵗ Floor, Eastern Entry
Tower,
 Ernakulam South Railway
Station ,Ernakulam 682016

Sub: Submission of the response to the Tender No. <<tender id>>. Request for Proposal
for Supply, Install, Test & Commission of ISP hardware and Software of Kerala Fibre Optic
Network

We, the undersigned, offer to provide services for Request for Proposal for Supply of
ISP hardware and Software of Kerala Fibre Optic Network for KSITIL in response to the request
for proposal dated <insert date> and tender reference no <> "Request for Proposal for Supply,
Installation, Testing & Commissioning of Data and Networking/CCTV for Building-1 TIZ
kalamassery . We are hereby submitting our proposal online, which includes the pre-
qualification, technical bid, and commercial bid.

We hereby declare that all the information and statements made in this technical bid are true
and accept that any misinterpretation contained in it may lead to our disqualification.

We undertake, if our proposal is accepted, to initiate the implementation services related
to the assignment not later than the date indicated in this tender.

We agree to abide by all the terms and conditions of the RfP and related corrigendum(s)/
addendum(s). We would hold the terms of our bid valid for 6 months from the date of
opening of the commercial bid as stipulated in the RfP. We hereby declare that as per
RfP requirement, we have not been black listed/ debarred by any Central/ State
Government and we are not the subject of legal proceedings for any of the foregoing.

We understand you are not bound to accept any proposal you receive. Signature of Bidder ....

43

Name ....

FORMAT FOR COMMERCIAL BID COVER LETTER (ANNEXURE 6)

To,

   The Joint General Manager (ERS),
   RailTel Corporation of India Limited,
   Kerala   Territory Office,1st   Floor,
   Eastern Entry Tower,
   Ernakulam South Railway
   Station ,Ernakulam 682016

Dear Sir,

We, the undersigned Bidder, having read and examined in detail all the tender documents with respect to **Request for Proposal for Supply, Installation, Testing & Commissioning of Data and Networking/CCTV for Building-1 TIZ Kalamassery**, do hereby propose to provide services as specified in the tender reference No.
.

Price and Validity

a. All the prices mentioned in our bid are in accordance with the terms & conditions as specified in the RFP. The validity of bid is 8 months from the date of opening of the commercial bid.

b. We are an Indian firm and do hereby confirm that our prices are inclusive of all duties, levies etc., excluding GST.

c. We have studied the clause relating to Indian Income Tax and hereby declare that if any income tax, surcharge on income tax, professional and any other corporate tax is altercated under the law, we shall pay the same.

Unit rates: We have indicated in the relevant schedules enclosed, the unit monthly rates for the purpose of accounting of payments as well as for price adjustment in case of any increase / decrease from the scope of work under the contract.

Deviations:

we declare that all the services shall be performed strictly in accordance with the RFP irrespective of whatever has been stated to the contrary anywhere else in our bid. Further, we agree that additional conditions, if any, found in our bid documents, shall not be given effect to.

We had remitted an EMD as specified in the tender document terms.

Tender pricing: we further confirm that the prices stated in our bid are in accordance with your instruction to bidders included in tender documents.

Qualifying data: we confirm having submitted the information as required by you in your instruction to bidders. In case you require any other further information/ documentary proof in this regard before evaluation of our tender, we agree to furnish the same in time to your satisfaction.

Bid price: we declare that our bid price is for the entire scope of the work as specified in the RFP. These prices are indicated in annexure-commercial bid format attached with our tender as part of the tender.

Performance bank guarantee: we hereby declare that in case the contract is awarded to us, we shall submit the performance bank guarantee. We hereby declare that our tender is made in good faith, without collusion or fraud and the information contained in the tender is true and correct to the best of our knowledge and belief. We understand that our tender is binding on us and that you are not bound to accept a tender you receive.

Signature of Bidder ……………………….   Place:

Name …………………….   Date:

TECHNICAL COMPLIANCE SHEET (ANNEXURE 7)

The OEM/MAKE specified are based on the existing network requirement for the present scope of work

Specification of Switches

Core Switch Type 1 Specification (Ref: 54)

S. No	24 Port 10G Fibre Switch - 2 No's (BOQ No:54) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24 Port 10G SFP+ switch with redundant fan modules and redundant hot swappable AC power supply.		
2	Mac Address Table Size of minimum 64000 entries		
3	Should have switching capacity of 480 Gbps and 600 Mpps		
4	Should have 8MB packet buffer		
5	Should support stacking or equalent feature for combining more than two switches into single logical unit and should support LAG or Multi- chassis Link aggregation (MC-LAG) for uplink/downlink connectivity redundancy.		
6	Should support 4000 VLAN IDs and 802.1Q Tagging.		
7	Should support IEEE 802.3ad Link aggregation(LACP) minimum 8 links.		
8	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
9	Should support IGMP v1/v2/v3 and IGMP Snooping.		
10	Should support LLDP or similar functionality.		
11	Should support jumbo frame (9000 Byte or above)		
12	Should support security features Broadcast, Multicast and Unicast Storm Control		
13	Should support 8K for IPv4 routes/4K for IPv6 routes and 2K multicast routes.		
14	Should support Layer-3 features Static routing for IPv4 and IPv6, OSPF, BGP, Multicast routing PIM-SM/SSM, Virtual RouterRedundancy Protocol (VRRP), BFD.		
15	Should Support flow export NetFlow/IPFIX, port mirroring.		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
16	Should support 802.1p priority queues.		
17	Should support 8 queues per port and shall support ingress policing and egress shaping.		
18	Should Support DHCP server, DHCP relay and DHCP snooping.		
19	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
20	Should support CLI, SSH v2.		
21	Should should have dedicated management and console port.		
22	Switch should comply to Operating Temperature range 0°C to 40 °C and Humidity 10% – 80% RH non-condensing		
23	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
24	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	48 Port L2 switch with 4X 10G Switch - 29 No's (BOQ No:55) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 48-Port Gigabit Ports, 4 x 10G SFP+ ports and redundant AC power supply.		
2	Mac Address Table Size of minimum 32000 entries		
3	Should have switching capacity of 176 Gbps and 220 Mpps		
4	Should have 2MB packet buffer		
5	Should support 4000 VLAN IDs and 802.1Q Tagging.		
6	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
7	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		

8	Should support IGMP v1/v2/v3 and IGMP Snooping.		
9	Should support LLDP or similar functionality.		
10	Should support jumbo frame (9000 Byte or above)		
11	Should support security features Broadcast, Multicast and Unicast Storm Control		
12	Should support IEEE 802.1X Authentication.		
13	Should support sticky MAC and MAC limiting.		
14	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
15	Should support 802.1p priority queues.		
16	Should support 8 queues per port and shall support ingress policing and egress shaping.		
17	Should Support DHCP snooping.		
18	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
19	Should support CLI, SSH v2.		
20	Should should have dedicated management and console port.		
21	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
22	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
23	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	24 Port L2 switch with 4X 10G Switch - (BOQ No:50) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24x ports 10/100/1000 BASE-T ports and 4x 1/10G SFP+ ports and redundant AC power supply.		
2	Mac Address Table Size of minimum 16000 entries		
3	Should have switching capacity of 128 Gbps and 160 Mpps		
4	Should have 1MB packet buffer		
5	Should support 4000 VLAN IDs and 802.1Q Tagging.		
6	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
7	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
8	Should support IGMP v1/v2/v3 and IGMP Snooping.		
9	Should support LLDP or similar functionality.		
10	Should support jumbo frame (9000 Byte or above)		
11	Should support security features Broadcast, Multicast and Unicast Storm Control		
12	Should support IEEE 802.1X Authentication.		
13	Should support sticky MAC and MAC limiting.		
14	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
15	Should support 802.1p priority queues.		
16	Should support 8 queues per port and shall support ingress policing and egress shaping.		
17	Should Support DHCP snooping.		
18	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
19	Should support CLI, SSH v2.		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
20	Should should have dedicated management and console port.		
21	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
22	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
23	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	24 Port PoE Switch - 20 No's (BOQ No:53) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24x ports 10/100/1000 BASE-T ports and 4x 1/10G SFP+ ports and redundant AC power supply.		
2	should have minimum POE power budget of 300 Watts.		
3	support 802.3af and 802.3at		
4	Mac Address Table Size of minimum 16000 entries		
5	Should have switching capacity of 128 Gbps and 160 Mpps		
6	Should have 1MB packet buffer		
7	Should support 4000 VLAN IDs and 802.1Q Tagging.		
8	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
9	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
10	Should support IGMP v1/v2/v3 and IGMP Snooping.		
11	Should support LLDP or similar functionality.		
12	Should support jumbo frame (9000 Byte or above)		
13	Should support security features Broadcast, Multicast and Unicast Storm Control		
14	Should support IEEE 802.1X Authentication.		
15	Should support sticky MAC and MAC limiting.		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
16	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
17	Should support 802.1p priority queues.		
18	Should support 8 queues per port and shall support ingress policing and egress shaping.		
19	Should Support DHCP snooping.		
20	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
21	Should support CLI, SSH v2.		
22	Should should have dedicated management and console port.		
23	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
24	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
25	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	Indoor Access Point - 61 No's (BoQ No :51) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	Access Point should Support IEEE 802.11a/b/g/n/ac/ax with 2 X2 MIMO with minimum 300 Mbps throughput on 2.4 Ghz and 700 Mbps throughput on 5 Ghz		
2	The Access Point should have auto-sensing 100/1000 Mbps RJ45 port and should have PoE and power injector Support		
3	The access point should be light weight and should support installations above drop ceiling, under ceiling or on wall		
4	LED should be available for activity indication		
5	Should have dual Radios and should support 1024 QAM		
6	Should support 20, 40, and 80 MHz Channels		
7	Should support 802.11 ax with DL MU-MIMO		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
8	Maximum conducted transmit power shall be minimum 18 dBm or more on both 2.4 and 5 GHz.		
9	Access Point should have antenna gain 4 dBi or better on 2.4 Ghz and 5 dBi or better on 5 Ghz.		
10	Should support minimum 8 simultaneous SSIDs.		
11	Should have dual Radios and should support 200 clients		
12	WLAN Solution must support personal and enterprise WPA2/ WPA3 authentication.		
13	Should support RADIUS based 802.1 x authentication including EAP PEAP, EAP-TTLS, and EAP-TLS		
14	Access points or solution should provide automatic redundancy In-case of active WLC fails		
15	Must have a dynamic or smart RF management features which allows WLAN to automatically and intelligently adapt to changes in the RF environment		
16	The access point should provide wireless IPS sensor support on both radios		
17	Security solution must provide air termination of Rogue Aps		
18	Access points must have WiFi Alliance certification		
19	Operating Temperature: 0°C to 50°C and Operating Humidity up to 90% RH non-condensing.		
20	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	WIRELESS LAN CONTROLLER (WLC) Solution - 1 No's (BOQ No: 52) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	WLC should support 1+1 failover for high availability.		
2	The proposed WLC must be compliant with IEEE CAPWAP or equivalent for controllerbased WLANs.		

3	The proposed WLC should be Cloudbased/Virtualized/hardware appliance/Integrated Switch or Firewall. For dedicated hardware appliance or servers for Virtualized ,19" rack mountable with 2 x 10G (or better) Ethernet interfaces. For Cloud based solution, hosting should be in India and Management portal for access should be provided.		
4	The proposed WLC should support centralized/distributed traffic forwarding architecture from day 1. It should be IPv6 ready from day one.		
5	The proposed controller should support minimum 4K concurrent users/devices and WLANs-50 or more.		
6	The proposed WLAN controller should be supplied with minimum 61 AP license from Day-1 and can scale up to 100 APs without change / additional hardware. Additional AP license will be procured in future.		
7	The wireless access points must securely download image from WLC and should be configured from WLC.		
8	The proposed WLC should support L2/L3 roaming for mobile clients.		
9	The proposed WLC should provide real-time radio power adjustments based on changing environmental conditions and signal coverage adjustments. It should also adjust radio channel automatically.		
10	Should support dynamic bandwidth selection among 20Mhz, 40 MHz, and 80Mhz.		
11	Controller should support Wi-Fi 6, 802.11ax technology.		
12	Should support web-based authentication to provide a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant.		
13	Should support port-based and SSID-based IEEE 802.1X authentication.		
14	Should support MAC authentication to provide simple authentication based on a user's MAC address.		

15	Should support AP grouping to enable administrator to easily apply AP based or radiobased configurations to all the APs in the same group.		
16	WLC should support Comprehensive Integrated Network Security Services. Wireless, built-in Wireless Intrusion Protection System (WIPS), and secure guest access with Captive web portal or equivalent solution.		
17	WLC should provide BYOD Support. It should provide device fingerprinting and required to help manage and secure user-owned devices.		
18	WLC should support guest access.		
19	WLC architecture should support tunnel forwarding and local forwarding.		
20	WLAN Solution should support captive portal with time-based access, Customize Guest page and must have option for self-guest registration options, so that guest can automatic register himself from day 1 or with equivalent solution.		
21	WLAN Solution should have feature to create captive portal guest users for authenticating using their User ID (Email Address/ Mobile Number/ Member ID) and the received pass code on Email or SMS in order to complete the registration process or any equivalent solution/ third-party components to full-fill the requirement.		
22	Should comply to Operating Temperature range 0°C to 40 °C and Humidity 10% – 80% RH non-condensing.		
23	All accessories required for mounting in 19" rack and required transceivers need to be considered.		
24	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

TECHNICAL SPECIFICATIONS FORCCTV & TALK BACK SYSTEM WORKS

1) *TECHNICAL SPECIFICATION OF CCTV SYSTEM*

GENERAL:

The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment's and appliances and labor necessary to commission the said system. The True IP Based CCTV System shall comprise of fixed dome indoor cameras, Outdoor cameras, Bullet Cameras, PTZ cameras power supply units, monitoring stations, Server, Hard disk storage devices, Video Management Software and other associated accessories. It shall also include cabling, necessary for installation of the system as indicated in the specification and Bill of Quantities. Any openings/chasing in the wall/ceiling required for the installation shall be made good in appropriate manner.

1. *SYSTEM DESIGN AND ARCHITECTURE:*

CCTV system should be designed such as to cover the strategic locations and sensitive areas of High end cameras with Night sense feature to be installed for this outdoor application. All outdoor speed domes shall be rugged and shall be weather proof as per specifications. Also the systems should utilize only industry standard protocol.

General positioning of the cameras are in the entrance security area, car parking, receptions, all the corridors, lobbies, Substations & standby waiting areas, corridors, all exits, plant rooms, electrical rooms, and external areas can be monitored. Interactive cameras can be used in certain areas, pan, tilt and zoom cameras are provided in critical areas that need to be observed in the event of some disturbance. A True IP cameras are

used for parking lot since it is having a large viewing area as well as the light will be less compared to other areas.

A digital IP-Surveillance system, images from a network camera are digitized once and they stay digital with no unnecessary conversions and no image degradation due to distance traveled over a network. In addition, digital images can be more easily stored and retrieved than in cases where analog video tapes are used. By using a data connection and computer networking, IP cameras can provide much better performance with no real limitations for future growth in resolution or other capabilities.

System should be programmed such that operator's intervention if required shall be minimal and the system should provide features like guard tours, preset positions and the preset positions will be linked to perimeter protection system/intrusion system in future. The Server should allow for recording of events both continuous and motion triggered as per requirement and recordings should be able to create evidences and support post event analysis.

2.   *HIGH RESOLUTION LED TELEVISION: BOQ No: 57*

Large Format Professional Display	
Screen Size	55"
Technology	LED Backlit
Native Resolution (Pixels)	3840 x 2160 (UHD)
Aspect Ratio	16:09
Brightness	500 cd/m2 (Minimum)
Native Contrast Ratio (Minimum)	4000:1 or more
Viewing Angle (Horizontal: Vertical)	178:178
Response Time (G to G)	8ms or less
Color Gamut	92% or better
Orientation	Portrait and Landscape
Speaker	Inbuilt 10 W + 10 W
Input Connectivity	

HDMI (2.0)	3 or more
DP 1.2(1)	1
USB Port	2 ports or more
LAN RJ45 (Required)	1 Port
External control	RS232C(in/out) thru stereo jack
Processor	1.1 GHz Quad-Core CPU or higher
Built In Storage	16 GB or more
Multimedia	*Video Decoder : MPEG-1/2/4, H.263, H.264/AVC, UHD H.264/AVC, VC-1, AVS+,HEVC, JPEG, PNG, VP8, VP9 *Audio Decoder : AC3 (DD), MPEG
Duty Cycle	24x7
Mounting arrangement	Wall Mount
Certifications	BIS, UL, FCC, EMC-Class B, Safety-60950-1
Power Supply	230 V AC, 50 Hz
Operating Temperature Range (Degree C)	0 ℃ ~ 40 ℃
Operating Humidity (%RH)	10 % ~ 80 %
Accessories to be supplied: AC Power cord,remote control, user manual, wall mount bracket	Yes
On Site OEM Warranty (Year)	3 years

1)4MP IR Bullet Camera (BOQ No: 60)

4MP IR Bullet camera		
Specification	**Description**	**Compliance (Y/N)**
Image sensor	1/2.7" progressive scan RGB CMOS	
Lens	Fixed 2.4 mm or better	
Resolution	2304x1728 to 320x240 (4:3) 2668x1512 to 640x360 (16:9)	
Minimum illumination	Color: 0.18 lux at 50 IRE, F2.1 B/W: 0.04 lux at 50 IRE, F2.1 0 lux with IR illumination on	
IR distance	20 Mtr or better	
Shutter speed	1/38500 s to 1/5 s	
Memory	1024 MB RAM, 512 MB Flash	
Memory Card slote	2TB	
Compute capabilities	Deep learning processing unit (DLPU)	

Video compression	H.264 (MPEG-4 Part 10/AVC) Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG	
Frame rate	25 fps with power line frequency 50 Hz	
Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG. Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265	
WDR	115dB or better	
Multi-view streaming	Up to 2 individually cropped out view areas in full frame rate	
Image settings	Compression, color, brightness, sharpness, contrast, white balance, exposure control, motion-adaptive exposure, text and image overlay, privacy masks, mirroring of images Rotation: 0°, 90°, 180°, 270°, including Corridor Format	
Pan/Tilt/Zoom	Digital PTZ	
Audio output	seamless pairing with IP speakers via edge-to-edge technology	
Security	Password protection, IP address filtering, HTTPSb encryption, IEEE 802.1x (EAP-TLS)b network access control, digest authentication, user access log, centralized certificate management, brute force delay protection, signed firmware, secure boot, signed video, Edge Vault, device ID, secure keystore (CC EAL4 certified)	
Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPSb , HTTP/2, TLSb, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, DHCPv4/v6, SOCKS, SSH, LLDP, MQTT v3.1.1	
Programming Interface	Open API for software integration, including VAPIX® and OEM Application Platform; One-click cloud connection ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specification at onvif.org	

Event conditions	I/O: manual trigger Device status: above operating temperature, above or below operating temperature, below operating temperature, within operating temperature, IP address removed, network lost, new IP address, system ready. Video: average bitrate degradation, tampering, day-night mode. Application: motion alarm, VMD 4, VMD3 Scheduled and recurring: scheduled event Edge storage: recording ongoing, storage disruption, storage health issues detected. MQTT subscribe	
Event actions	Record video: SD card and network share Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email. Pre- and post-alarm video or image buffering for recording or upload. Notification: email, HTTP, HTTPS, TCP and SNMP trap Overlay text, day/night mode. MQTT publish	
Data streaming	Event data	
Built-in installation aids	Pixel counter, Level grid	
Object Analytic	Object classes: humans, vehicles (types: cars, buses, trucks, bikes) Trigger conditions: line crossing, object in area, time in areaBETA Up to 10 scenarios Metadata visualized with trajectories and color-coded bounding, boxes, Polygon include/exclude areas Perspective configuration. ONVIF Motion Alarm event	
Applications Included	Object Analytics, Video Motion Detection, active tampering alarm Support for Camera Application Platform enabling installation of third-party applications	
Casing	IP66-/IP67-, NEMA 4X- and IK08-rated. Sustainability of PVC Free.	
Connectors	RJ45 10BASE-T/100BASE-TX PoE	
Power for PoE	Typical 5 W, max 13 W	
Operating conditions	-30 °C to 50 °C. Humidity 10–100% RH	
Approvals	BIS, UL, NDAA	
OeM	Shoud have service centre in India for past 10 years	
Warranty	5 Years	
	Camera to be non china make only	
	Cameras components / parts / assembly / software used in the offered hardware / software, should not be complying to GB28181, GB/T 28181-2011;GB/T28181-2011; GBT 28181-2011; GBT28181-2011 standards.	

Approved make	Axis, Bosch, Pelco	

2) 4MP IR Dome Camera (BOQ No: 58)

4MP IR Dome camera		
Specification	**Description**	**Compliance (Y/N)**
Image sensor	1/2.7" progressive scan RGB CMOS	
Resolution	2688x1512 to 320x240	
Lens	2.4 mm, F2.1	
Shutter speed	1/33500 s to 1/5 s	
Camera angle adjustment	Pan: ±180° Tilt: 0° to 60° (0° = lens directed at a right angle to camera base) Rotation: ±95° Can be directed in any direction and see the wall/ceiling	
Minimum illumination	Color: 0.19 lux , F2.1 B/W: 0.04 lux , F2.1 0 lux with IR illumination on	
IR illumination	20 Mtr or better	
Memory	1024 MB RAM, 512 MB Flash	
Memory card slot	2TB	
Compute capabilities	Machine learning processing unit.	
Frame rate	Up to 25/30 fps with power line frequency 50/60 Hz	
WDR	120dB or better	
Image settings	Compression, color saturation, brightness, sharpness, contrast, local contrast, white balance, day/night threshold, tone mapping, exposure control (including automatic gain control), exposure zones, defogging, dynamic text and image overlay, privacy masks, mirroring, rotation: 0°, 90°, 180°, 270° including Corridor Format	
ONVIF Profile	ONVIF G, S, and T. Support for Session Initiation Protocol (SIP) for integration with Voice over IP (VoIP) systems, peer to peer or integrated with SIP/PBX.	
Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG. Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265	
Multi-view streaming	Up to 2 individually cropped out view areas in full frame rate	
Pan/Tilt/Zoom	Digital PTZ	
Audio input/output	Two-way audio connectivity via the optional and I/O Interfaces with portcast technology	
Security	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1x (EAP-TLS), network access control, Digest authentication, User access log, Centralized Certificate Management, brute force delay protection, signed firmware, secure boot	
Installation aids	Pixel counter, adjustable IR-illumination intensity	

Applications	Motion Guard, Fence Guard, Loitering Guard, Video Motion Detection, active tampering alarm, Platform enabling for installation of third-party applications	
Casing	IP66- and NEMA 4X-rated, IK08 and product is free from PVC	
PoE Consumption with IR	Typical: 4.75 W, Max.: 8.75 W	
Compliance	-40°C to 65°C . Humidity 5-95% RH (non-condensing)	
OeM	Shall have service centre in India for past 10 years	
Warranty	5 Years	
	Camera to be non china make only	
	Cameras components / parts / assembly / software used in the offered hardware / software, should not be complying to GB28181, GB/T 28181-2011;GB/T28181-2011; GBT 28181-2011; GBT28181-2011 standards.	
Approved make	Axis, Bosch, Pelco	

DETAILED SPECIFICATION FOR SERVER (BOQ No: 61)

Sr.No	Technical Specification	Compliance (Yes/No)
1	The Video Recording Server shall be a 2U rack-mount enterprise classvideo recording server witgh accelerated performance using Video Accelerator (BVA).	
2	The Manufacturer shall certify that the Recording Server has been designed and built for the purpose of recording surveillance video.	
3	The Recording Server shall provide the capability for remote management, disaster recovery, and critical resource management	
4	Server to be capable to display the alarms & alerts within the VMS & displayed in the client also should provide predictive HDD failures.	
5	Alarms and alerts from server to VMS client must included below status points- • Hard Disk Status • Temperatures status • Fan Speed status •Power Supplies status •CPU/Network/Memory monitoring.	

6	Server to be capable to have a Server Restart feature from VMS application only.	
4	The Recording Server shall have dual dedicated operating system drives to facilitate accelerated boot and application load times.	
5	The Recording Server shall have redundant, hot-swappable, storage drives, cooling fans, and power supplies	
6	Video Storage - No of HDD Bays 18 -128TB RAW storage (8TB x 16qty) to be configured on RAID 6	
7	Video Storage supports both SATA / SAS - 3.5" / 2.5" - 7200 rpm / 10k rpm / 15k rpm Drives	
8	Processor : Dual Intel® Xeon® Silver 4216 Scalable Processor (16 Cores, 32 Threads, 3.20GHz Turbo Speed)	
9	Operating System - Windows Server 2019 Standard on 2 x 240GB M.2 NVMe SSD dedicated, RAID 1 configured only	
10	Video Management System – The Recording Server shall have the VMS pre-installed and configured at the assembly location only.	
11	Memory support - 1. Up to <192 GB> in 8 GB increments, <384 GB> in 16GB increments, <768 GB> in 32GB increments, with option for 1.5 TB LRDIMM	
12	RAM - Units have a basic configuration of 32 GB.	
13	Recording server must have Live Database storage on Video Accelerator Capacity - 1.6TB with IOPS -80,000 or 960GB SSD x 4untis	
14	Network Controller : 4x 1GbE RJ45 Ports and 2x 10GbE SFP+ Ports	
15	Remote Management: via dedicated iDRAC ENT port (Front: Micro-AB USB, Rear: RJ45)	
16	Additional Ports : Video output VGA (1) and Rear (2) USB 3.0, Front (2) USB 2.0, Internal (1) USB 3.0	
17	RAID suport 0, 1, 5, 6, 10 on Controller PERC H740P (8GB NV Cache)	
18	Power: 100–240 V AC, auto-ranging	
19	Power Supplies : 2 x <1100> W	
21	Cyber Security : Hardware root of trust enabled with secure boot options with Intel's Threat Detection Technology (TDT).	
22	Operating temperature: 50°F - 95° F (10°C - 35°C)	
23	Operating humidity : 10 - 80% non-condensing	

24	Warranty and Support - Manufacturer shall provide a five-year, on-site,next business day warranty, with a "Keep Your Hard Drive" feature.	

Video Monitoring, Recording & Management software (BOQ No:59)

SL No	Video Management System General Description	Compliance
1	The video management system (VMS) specified shall be a hardware agnostictruly open IP video security solution that provides seamless management of digital video, audio, plus other security disciplines such as access control across an IP network.	
2	The VMS is designed to provide the ultimate in flexibility from a standalone system through to a multi sited geographically dispersed fully integrated package.	
3	The VMS shall be truly open in terms of device support with over 300+ manufacturers and 6000+ devices.	
4	The VMS manufacturer shall be of Global repute and incorporated for at least 10 years from the date of publish of tender.	
5	The VMS software shall run on COTS (commercial off the shelf) hardware.	
6	The VMS software shall be ONVIF profile S, G, and T compliant and listed on the ONVIF web site.	
7	The VMS system shall feature client / server architecture and distribute server configuration updates to all connected clients automatically.	
8	The VMS software shall require only three types of servers, with the following roles.	
8.1	Recording server. This incorporates all necessary VMS function and management.	
8.2	VCA / LPR server. This performs all video analytics / LPR related functions.	
8.3	Failover server (optional)	
9	The VMS software shall have its own database management tools, including a maintenance scheduler.	
10	The VMS software shall not require any MS software to operate other than the MS operating system. In particular it shall not require MS SQL or Frameworks.	
11	The VMS server application shall run on any MS Windows OS version from Windows 10 and for from Windows Server 2003 to current (Server 2019)	
12	VMS Clients shall run on any MS software in 32- and 64-bit modes from Windows XP through to Windows 10.	
13	The VMS software shall use a single executable installer package that contains all required VMS system software elements.	
14	All VMS software updates and upgrades shall be supplied as a single executable installation package. The only exception being small patches required for small or urgent features.	

15	The VMS shall feature the following licensing model:	
15.1	Licensing systems shall be offline based on a physical USB dongle key.	
15.2	Unlimited surveillance clients with no charge for the software.	
15.3	Free software support free of charge for project lifetime.	
15.4	Free of charge upgrades within the same version for minimum of 6 years.	
15.5	The software shall not command any ongoing maintenance fees or similar charges.	
16	The VMS shall feature an embedded web client object to allow for display and navigation of web pages within the surveillance client. This also allows for integration with 3rd party web-based systems.	
17	The VMS shall provide a fully documented API (application programming interface) document to allow 3rd party software integration. There shall be no charge for the API document or support relating to it.	
18	For larger systems the VMS shall support centralized surveillance client configuration.	
19	For larger systems the VMS shall support centralized server registration.	
20	The VMS shall allow the creation and display of an instruction / disclaimer message that will be displayed to a user at login. The user must accept the instruction / disclaimer before they can proceed.	
	Architecture and Security	
	The VMS system shall allow:	
21	An overall unlimited system size in terms of cameras and supported devices. Expansion shall be supported via camera license packs.	
22	Images to beviewed and recorded at up to 30fps per camera.	
23	Devices such as IP cameras, video encoders, DVRs, NVRs,video interphones, and cameras in supported Android and Apple mobile devices.	
24	Live video display and recording of Windows computer desktop screen.	
25	Storage and transmission of images in MJPEG, MPEG4, MxPEG,H.264 and H.265 formats and at any available resolution.	
26	Multi streaming where media devices such as cameras feature multiple streams with differing resolutions and compression methods.	
27	Live viewing and recording of Fisheye, panomorphic and multi imager cameras, having the benefit of deep integration of the manufacturer's SDK / API.	
28	Tools to set filters and effects on camera images.	
29	Alarm I/O boards to an overall unlimited number. Expansion shall be supported via softwarelicense packs.	
30	Multi-tasking, meaning all processes are autonomous and do not affect any other processes.	
31	Utilization of multiple processors where fitted. The software shall divide its tasks between processors to improve performance and can decode multi-threaded-multicore with a definable RTP timestamp buffer available for its camera connections.	
32	Compatibility with Unicode characters.	
33	An integrated embedded RTSP media server. Allowing the software to provide real time streaming via RTSP from the recording server(s) to any 3rd party software application.	
34	Support for RTSP and RTSPS with TLS/SSL.	

35	Support for IPV6.	
36	Support for remote access to the server with no software-imposed limit of connections per server.	
37	Support for IP filters.	
38	The software to maintain a comprehensive log which contains and monitors items such as:	
38.1	Access to servers.	
38.2	User actions.	
38.3	System alerts.	
38.4	System errors.	
38.5	Device activity.	
38.6	VCA and LPR recognition and classes.	
38.7	Google maps coordinates for events.	
39	Support for DNS.	
40	Support of TCP and UDP (unicast and multicast) protocols between clients and servers.	
41	Support SRTP for surveillance clients in Multi-cast.	
42	Support for the distribution of video via multicast on demand.	
43	A complete user rights system with an unlimited number of individual user profiles. User profiles shall denote which aspects and features are allowed for every user profile.	
44	A complete audit system for control of users and groups.	
45	Support for user groups to allow the allocation of the same user configuration and permissions for all users within a group.	
46	A schedule to control user logins.	
47	Support of the expiry and blocking of user accounts.	
48	Support for at least 999 levels of PTZ control priority, with a priority allocated to each user. PTZ usage per user may also be calendar controlled.	
49	Inclusion of users through auto synchronization of Windows active directory users.	
50	Support for double factor of authentication using an integrated one-time password application based on 2FA authenticator.	
51	Capability of enforcing the use of strong passwords.	
52	Support ofa user-based privacy mode, privacy shall be enforced based on user privileges and specific cameras.	
53	Support for unidirectional and bidirectional audio with audio zoning.	
54	Integrated software services control application.	
55	Cyber Security:	
55.1	The software must support a strong password policy and must be stored in a salted MD5.	
55.2	The software shall support AES256 encryption in Unicast when it is available in the camera.	
55.3	The software shall support recording encryption AES128 and AES256.	
55.4	The software shall support SSL encryption server to sever and server to clients.	
55.5	The integrated web server shall support Https and SSL.	

55.6	The passwords for all connected devices shall be stored with encryption.	
55.7	The passwords for server access, stored in client computers (when using auto login) shall be stored with encryption.	
55.8	The software shall support encryption for export using AES256.	
56	The softwaretosupport standard native privacy blurring of images for selected users and user groups. The privacy blurring is CPU based and requires no extra hardware, and is included with each channel license.	
57	The software shallprovide options to disable certain Windows features such as print screen. It must also be possible to modify the client behavior to prevent it being minimized or closed.	
58	When email is to be included in event actions the software shall include a playback link for video and embedded VCA.	
59	The software shall support activation or de activation of any object on event. Objects types are cameras, alarm devices, and analytics configurations.	
60	The VMS shall support report authentication through a bar code feature. The system shall create a bar code to all issues reports and each report is then saved on the server. To later check on a report that has been issued by the system, simply request the report through the bar code and the system will recover and display the report.	
61	The VMS shall include useful engineering tools so speed up installation in the camera registration screen, such as Ping of the device IP address and media (stream) preview.	
62	The software shall support SNMP trap version 2.0/3.0.	
63	The VMS shall support the export of information about installed objects, such as cameras etc. The export shall be to a .csv file including details such as:	
63.1	Model.	
63.2	Port.	
63.3	IP address.	
63.4	Camera name.	
63.5	Description.	
63.6	Users.	
63.7	Status (activated or de activated).	
63.8	Shortcut.	
63.9	Recording path.	
63.1	Relay details.	
63.11	Media (stream) profiles.	
63.12	Recording type.	
63.13	Recording days.	
63.14	Recording pre and post times.	
64	The software to show the operational status of very camera on the system via the admin client, on demand.	
65	The software shall be capable of triggering events on failure and re instatement of connected devices.	
	Failover	
66	The software must have a failover system that does not rely on any third-party software utility such as MS Cluster.In addition:	

66.1	The failover system shall be fully customization and can be 1:1, 1: N, and N: N.	
66.2	A failover server should take over the operation of a failed server within 3-10 seconds of the failure being detected.	
66.3	The failover server will take over all programmed duties of the failed server unless programmed otherwise.	
66.4	It must be possible to create events on failover to inform operators of a failover situation.	
66.5	The configuration for desired failover cameras shall be achieved with a simple export feature. This will inform the failover server of the active (alive) server and cameras it will replace in the event of the active (alive) server failure.	
66.6	After a failover when the previously failed server is back in service a fail back will take place within 3-10 seconds of the re instatement of the live server.	
66.7	It must be possible to create events on failback to inform operators of a failback situation.	
66.8	Failover capability must take over not only the VMS and I/O devices, but also VCA, LPR, maps and operational maps.	
	Recording	
67	The software shall manage the storage of content with unlimited size per camera. It shall also indicate the actual output size to each connected logical dive.	
68	Provision of a timeline of recorded images showing the points where there are recordings, as well as audio, motion or analytic metadata and bookmarks.	
69	Recording triggered by motion detection.	
70	Event recording.	
71	Audio recording from supported devices.	
72	Pre and post alarm image timer with up to 60 seconds pre alarm and 60 seconds post alarm.	
73	Scheduled recording.	
74	Digital certificate for recordings.	
75	Automatic disk management using asystem with programmable record period settings (such as 30 days)	
76	Protection against the natural deletion of recordings. In such cases images can only be deleted by a user with sufficient rights.	
77	Automatic changing of recorded frame rate and resolution on any event condition.	
78	Bookmarking of recordings as follows:	
78.1	Creation of bookmark when recording profile is changed. This may be automatically triggered by any type of event or manually by an operator with sufficient rights.	
78.2	Automatic placement of bookmarks on the video time line for playback purposes.	
78.3	Bookmarks may also be created simultaneously across multiple cameras.	
78.4	Bookmarks also allow for choice of colour, initial and final times, and operator observations.	
78.5	Option for locking bookmarks against the natural deletion process.	

79	Edge recording, where the VMS system will allow:	
79.1	The automatic downloading and merge of recordings stored in the memory cards of supported devices.	
79.2	A self-healing option where the system can be configured to automatically download recordings from edge device media following a communications system failure. Downloaded footage will then fill in the gaps in local recording.	
79.3	Automatic downloading of recordings from edge media on any VMS system event.	
79.4	Downloading of recordings via scheduled events, creating a scenario where recordings can be downloaded automatically at a scheduled time.	
79.5	Automatic creation of bookmarks whenever downloaded video is merged with the main recordings, allowing a clear identification on the time line to distinguish between the main recordings and downloaded recordings.	
79.6	A complete activity log and capable of triggering specific events when edge recording becomes active.	
79.7	Support for direct playback from the edge device media.	
80	Support for recording video from the cameras of Android and Apple mobile devices is enabled so that.	
80.1	Video and audio from any supported mobile device shall be treated as any VMS camera channel with the same feature set.	
80.2	The mobile camera application must send video transcoded into H.264 to the server at a resolution and frame rate which is user selectable up to full HD (1920x1080) and up to 30fps. Bi directional audio and GPS coordinates must also be included where the mobile device supports them.	
81	Support for metadata recoding, allowing the marking of the video content and time line with event information from motion detection,VCA, plus other applications that are capable of generating metadata.	
82	The software tosupport video archiving to secondary storage. Archiving must secure the video as well as audio and metadata. The archiving must be able to schedule the operation over the seven days of a week and synchronized for a required number of days. The VMS must allow archiving in any cloud base storage.	
	Clients,Live Displays, and Events	
83	The client software shall support Nvidia and Intel quick sync GPU decoding for video processing of live views and also playback functions.	
84	The client software shall support multi CPU thread decoding for multi megapixel cameras.	
85	The client software shall support video buffering with different settings for mixed and moving (PTZ) cameras.	
86	The client software shall support the viewing of cameras from various servers in the same screen display.	
87	The client software shall allow users to select the desired video stream for live viewing when multiple video streams are available. The software may also be programmed to automatically change the viewed media stream when a camera is selected.	
88	The client software shall support the creation of a view that mixes cameras, maps, web pages, VCA, LPR, operational maps, and audio devices.Views can be saved as private or public.	

89	The VMS software shall provide object links navigation (navigate through objects by using overlay links in both live and playback modes) These links can be related to cameras, I/O, VCA, LPR, Maps, Events, Http commands, and views.	
90	The client software shall support up to eight monitors per client workstation with customizable screen styles up to a 400 image (20x20) screen mode.	
91	The client software shall feature an embedded-on screen keyboard that can be accessed by a simple two keys combination.	
92	The software shall support sequence views as follows:	
92.1	A sequence of single screen images, which can be cycled on a timed basis. PTZ cameras that support preset positions can have these presets cycled on a time basis.	
92.2	A sequence view can combine single cameras, multiscreen views, VCA views, LPR views, Maps, and operational maps.	
92.3	Sequence views can be defined as private or public.	
92.4	The sequenced view must have no delay more than half a second to display the next view using background buffering.	
93	The VMS software shall support a purpose designed fully integrated system control keyboard that is USB connected. The keyboard must be preprogrammed with dedicated buttons for direct access of features of the client. The keyboard shall provide access to live view, playback, cameras and screen selection, virtual matrix control, and playback.	
94	The keyboard shall also feature a multi axis PTZ twist top joystick to allow simultaneous pan, tilt, and zoom control of a camera. This keyboard must have at least 24 keys providing direct access to client functionalities.	
95	The client software shall feature a dedicated PTZ control keyboard setup page, to allow precise control should network latency be encountered.	
96	The software shall support operation via a virtual matrix (video wall), this feature shall be included with the software and command no license fee.	
97	The virtual matrix must not require any additional server hardware.	
98	The virtual matrix shall be presented to clients as a list of monitors that aredefined for this purpose, where the operator can select a desired monitor and send live images, playback sessions, maps, and screen styles via the clients keyboard and mouse or dedicated control keyboard.	
99	Virtual matrix features shall also include:	
99.1	Programmable titles for all monitors that comprise the video wall.	
99.2	The name of the object being displayed on the monitor or video wall.	
99.3	TheVisible status of objects in the list of video wall monitors.	
100	The software shall feature an alarm "pop up" window, which when triggered by any event may be distributed to any number of operators.	
101	The pop-up window shows alarm information, including:	
101.1	A live steam from the camera relating to the event. In cases where multiplecameras relate to an event, they will be presented in a multiscreen format suited to the total number of cameras for the event.	
101.2	The name of the server that issued the event notification.	
101.3	The camera name(s) and date and time at the point of event trigger.	

101.4	A playback button to allow access to recorded video from the start of the event.	
102	The client software shall allow the display of all cameras, including VCA cameras in the same screen layout. In the case of VCA cameras it must be possible to play back VCA related incidents and events from the client screen layout.	
103	The VMS shall provide a security feature that shall disconnect a specific user after a pre-defined period of inactivity has elapsed.	
104	The software shall support a web-based surveillance client in HTML5 capable of receiving live video in H.264, H.265, and MPEG4 decoding in the web client.	
105	Client applications for mobile devices shall be free of charge and available by the app store on supported devices.	
106	The software shall feature customizable camera events to allow support for features that do not fit into a cameras pre-defined event types. For instance, creation of an event for a video intercom call button.	
107	The software shall, on event be capable of communicating with 3rd party systems via Http and Https.	
108	The software shall support a virtual I/O feature to allow the combination of differing alarm triggers, for instance a sensor with a VA trigger. This provides the possibility of logical AND or "double knock" between event types.	
	Playback and Export	
109	The software shall permit the playback and export of various cameras simultaneously, synchronized together, and in any available screen style.	
110	The software shall support an instant playbackfeature via right click of a camera in live mode. Each client will allow programming of what happens on instant review by starting from 5-20 seconds before the point of playback.It shall also be possible to start instant review playing backwards from the moment selected.	
111	The software shall support instant access to playback by right click of a camera along with useful pre-selected times (such as 5 minutes ago)	
112	The software shall feature a thumbnail search with programmable times that can be adjusted down to 1 second.	
113	The software shall support a colour coded timeline when playing back video. Different colours shall denote different types of recording such as video, audio, motion or analytic metadata.	
114	The software shall support the placement of bookmarks on the playback timeline.	
115	The software shall support dragging and dropping of cameras from the tree and a live viewinto the player to facilitate rapid playback access.	
116	The software shall feature search toolsutilizing comprehensive search filters.	
117	The software shall provide a number of security features that may be applied to video exports.	
117.1	The software shall provide encryption of exported video in AES256.	
117.2	The software shall be capable of splitting a video export based on the size of the media used.	
117.3	The software must allow native export by default as well as AVI, MP4 and JPEG formats.	
117.4	The software shall provide password protection for video exports.	

117.5	The software shall provide a watermark feature for video exports.	
117.6	The software shall support JPEG time lapse export from video exported in native format.	
118	The software shall support sequence exporting. This allows the export of a sequence of cameras by following the progress of an event from camera to camera as it took place. The exported media will then reflect the actual event as it unfolded and was observed by an operator.	
119	The software player shall support turbo exporting.	
120	The software player shall be able to play back archived media with direct access.	
121	The software shall provide the facility for local recording to the local hard disk drive of the client machine. This shall be achieved by asingle click on the record icon (per camera) in live mode.	
122	The client software shall support direct playback of video analytics cameras with all analytics features including object trails and other metadata features.	
	Maps	
123	The VMS shall support maps with the following features:	
123.1	The synoptic map shall allow the use of images in many formats such as JPEG, WMF, BMP, GIF, and PNG.	
123.2	The map engine must support Google map import engine and must be able to populate cameras based on the location coordinates of each camera.	
123.3	The map engine must support multiple layers of google map allowing specific zoomed map region. The layers will automatically allign positions based on the under-layer map coordinates.	
123.4	The software shall support online Google map with automatic camera and event positioning. A Google API key is also required for this feature.	
123.5	There shall be allowance for an unlimited number of maps.	
123.6	Links shall allow navigation of maps as well as operational online Google maps.	
123.7	Icons placed on a static map may have a static beam dynamic beam denoting direction and approximate lens coverage, this requires the retrieval of absolute position coordinates.	
123.8	Camera dynamic beams may be changed in terms of colour and opacity.	
123.9	Visual status of icons for IP Pingable devices such as switches, routers, servers etc.	
123.1	Support of both static (synoptic) and active (operational Google online maps).	
123.11	Static (synoptic) maps shall support the field of view representation for fixed cameras.	
123.12	The operator should be able to select any camera that is on screen and use the "locate on map" function, causing the system to open maps that have this object and it shall be displayed prominently, facilitating the location of alarmed objects on maps with large density of objects	
123.13	The operational map should have the option of night mode, making viewing more pleasant in dark environments.	
	Analytics Metadata Search	

123.14	The VMS should have a metadata search feature which makes it easier for the operator to search the events available in the system. This search should allow filtering by the metadata received by Analytics (either via Server process analytic engine or edge analytics from the devices), making all data received by the system available in a filterable and easily located manner.	
123.15	Filters such as color, age, classification, height, speed and many others can be used to search with the desired detail, making searches such as "40% red car above 40km/h" possible if the system has data to do so. In addition, the metadata search screen itself should present all the objects that fit within the selected filters, also presenting a player in the lower right corner so that the operator can visualize the event happening with fluidity. This search will only be performed on cameras that have analytics metadata recording enabled	

3) *TECHNICAL SPECIFICATION OF TALK BACK SYSTEM (BOQ No: 63)*

DESCRIPTION :

Talk back speaker having inbuilt 6W speaker, Unidirectional Microphone with Pre-amp and call button to communicate with main control room during the emergency condition. It provide two way communication between building management and person occupying 'Refuge Area' During an emergency evacuation - typing a fire. Up to 600it can communicate with Cat6 cable, User simply press the button to initiate call (Occupy area). Future communication is hands free at the refuge point or by the user at the control panel. Calls are reset either at the control panel or via the remote, when the refuge area Occupant has been evacuated to safety. Talk back unit will support external speaker unit will support external speaker only for one way announcement. It can be surface mounted or concealed.

3. *FUTURE :*

- Multizone communication and Ease to operate.
- Distacne more than 700 metre
- Sound pressure level 98dB
- Acoustic inside enclose to reduce extra noise
- Integration with other system like, Fire alarm BMS etc.
- Polypropylene drive for long lasting

4. *SPECIFICATION:*

Power tap@100V	6W
SPL(1W/1M)	90dB
Max. SPL	98dB
Frequency Response	50-18KHz
Input Sensitivity	200 Ohm
S/N Ratio	68dB
Finish	Baffle: MS, Green
Dimension	180 x 140 x 60
Weight	2kg
Mounting	Surface / Concealed

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

MAKE OF MATERIAL ON THE SUPPLY PART

	Description	Preferred Makes
	SUGGEST MAKES OF MATERIAL IT NETWORKING SYSTEM	
I	**IT Networking Passive - Structured Cabling System**	
1	Cat 6A & Cat 6 UTP Cables	Panduit-PANNet / Commscope-Systimax / R&M/molex
2	Cat 6A & 6 I/O, face Plates	Panduit-PANNet / Commscope-Systimax / R&M/molex
3	Cat 6A & 6 Patch Panels	Panduit-PANNet / Commscope-Systimax / R&M/molex
4	Cat 6A & 6 Patch Cords	Panduit-PANNet / Commscope-Systimax / R&M/molex
5	OS 2 Fiber Cable	Panduit-PANNet / Commscope-Systimax / R&M//molex
6	Fiber LIU, Splice trays, with all components	Panduit-PANNet / Commscope-Systimax / R&M//molex
7	Fiber Pig tails, Connectors, Adapters & all Fiber Accessories	Panduit-PANNet / Commscope-Systimax / R&M//molex
8	OS2 Fiber patch Cords	Commscope-Systimax / R & M / Panduit-//molex PANNet
9	Wiring Block	Commscope-Systimax / R & M / Panduit-//molex PANNet
10	Multipair Telephone cables	Delton / Finolex / DOT Approved
11	Switches	HP / Cisco / Juniper / Extreme
12	Wireless Controller and Access Point	HP / Cisco / Juniper / Extreme
13	Camera	Axis/Pelco/Bosch
14	Server & Storage	HP/Dell
15	Network / Server Racks	Rittal / APW President / Valrack /
16	PVC conduit and accessories	Universal / Balco/Avonplast/equivalent brands
17	Cable tray & Accessories	OBO/Profab/ Niedax/ equivalent brands
18	PVC raceways	OBO/DEHN/Legrand/MK/ equivalent brands
19	PVC insulated copper conductor	Havells/Polycab/ RR Kabel/ equivalent brands
20	VMS	Milestone / Digifort/Axis

PRICE BID

To be uploaded as pdf (On Organization Letter Head) EOI

NO. RCIL/SR/ERS/2022-23/EOI/2 DTD. 01-09-2023

TO,

The Joint General Manager (ERS),
RailTel Corporation of India Limited, Kerala
Territory Office,1st Floor, Eastern Entry Tower, Ernakulam
South Railway Station ,Ernakulam 682016

Sl. No.	Item Description	Qty	Units	Basic rate including AMC in Figures	Total Amount including AMC	GST (%)	GST (Rs)	Total cost incl GST
1	**Passive Items**							
2	od136399/2023_2024 : Supplying, Erection, termination, testing and commissioning of 12 Fiber LIU 1U LC TYPE MM OM3 as	20.0000	no					
3	od136402/2023_2024 : Supplying, Erection, termination, testing and commissioning of 48 Fiber LIU 1U LC TYPE SM as per	10.0000	no					
4	od136405/2023_2024 : Supplying, Laying, testing and commissioning of 24 Core 9/125 micron loose tube Single modefiber cable as per detailed	3000.0000	RM					
5	od136407/2023_2024 : Supplying, termination, testing, commissioning and Fixing of Back box complete with all respects	350.0000	no					
6	od136413/2023_2024 : Supplying, Erection, termination, testing and commissioning of 24 Fiber LIU 1U LC TYPE MM OM3 as	13.0000	no					
7	od136416/2023_2024 : Supplying, Erection, termination, testing and commissioning of 48 Fiber LIU 1U LC TYPE MM OM3 as	3.0000	no					
8	od136420/2023_2024 : Supply and testing of Category 6 UTP Patch Cable LSZH 1M
	250.0000	no					
9	od136422/2023_2024 : Supply, laying, testing and commissioning of Category 6 UTP Cable (LSZH)
	6587.0000	metre					
10	od136423/2023_2024 : Supply and fixing of 200mm x 40 mm PVC Raceway with cover, bend, accessories
	200.0000	metre					
11	od136424/2023_2024 : Supplying, Erection, termination, testing and commissioning of MDF Box with Back Mount Frame - Krone	1.0000	no					
12	od136425/2023_2024 : Supplying, Erection, termination, testing and commissioning of MDF Box with Back Mount Frame - Krone	1.0000	no					

13	od136426/2023_2024 : Supply and fixing of Label Holder
	30.0000	no					
14	od136428/2023_2024 : Supplying, termination, testing and commissioning of Category 6A UTP I/O Female Module as per	1410.0000	no					
15	od136429/2023_2024 : Supplying, Erection, termination, testingand commissioning of Riser Cable Indoor - 10 Pair
	500.0000	RM					
16	od136430/2023_2024 : Supplying, Erection, termination, testingand commissioning of Riser Cable Indoor - 25 Pair
	50.0000	RM					
17	od136431/2023_2024 : Supplying, Erection, termination, testingand commissioning of Riser Cable Indoor - 100 Pair
	300.0000	RM					
18	od136432/2023_2024 : Supplying, Erection, termination, testingand commissioning of Riser Cable Outdoor Armoured - 200	300.0000	RM					
19	od136433/2023_2024 : Supply and fixing of 42U- 800mm Width1000mm Depth floor mounted Closed Rack as per specification and as directed by	4.0000	no					
20	od136434/2023_2024 : Supply and fixing of 42U Open Rack as per specification and as directed by the Engineer -	2.0000	no					
21	od136435/2023_2024 : Supply and fixing of 15U Wall mount Closed Rack as per specification and as directed by engineer in	16.0000	no					
22	od136436/2023_2024 : Supplying, Erection, termination, testingand commissioning of Riser Cable Indoor - 20 Pair
	1000.0000	RM					
23	od136437/2023_2024 : Supplying, Erection, termination, testing and commissioning of MDF Box with Back Mount Frame - Krone	1.0000	no					
24	od136438/2023_2024 : Supply and fixing of 100mm x 40 mm PVC Raceway with cover, Bend, accessories as per detailedspecification.	100.0000	metre					
25	od136439/2023_2024 : Supply, installation, testing and commissioning of LC - LC 3mtr Multimode OM3 LSZH Patch	125.0000	no					
26	od136440/2023_2024 : Supplying, termination, testing, commissioning and Fixing, of LC OS2 Singlemode Pigtails as	120.0000	no					
27	od136441/2023_2024 : Supply and erection of Dual Port Faceplate for CAT 6 & 6A as per detailed spec and as	250.0000	each					
28	od136442/2023_2024 : Supply and erection of Quad Port Faceplate for CAT 6&6A as per detailed specification.
	250.0000	each					

29	od136443/2023_2024 : Supplying, termination, testing, commissioning and Fixing of Category 6 UTP I/O Female	750.0000	no					
30	od136444/2023_2024 : Supplying, Erection, termination, testingand commissioning of Category 6A 24 Port loaded Patch panel	85.0000	no					
31	od136445/2023_2024 : Supplying and testing of Category 6A U/UTP Multi-Stranded Patch Cable 2M(LSZH) as complete with	1840.0000	no					
32	od136446/2023_2024 : Supplying, Laying, testing and commissioning of 12 Core fiber cable , 50/125 micron Multimode indoor Tight Buffer	1500.0000	RM					
33	od136448/2023_2024 : Supplying, termination, testing, commissioning and Fixing of LC Multimode OM3 Duplex adapter as complete	133.0000	no					
34	od136449/2023_2024 : Supplying, termination, testing, commissioning and Fixing of LC OM3 Multimode Pigtails for Fiber Shelve, as	420.0000	no					
35	od136450/2023_2024 : Supplying, Laying, testing and commissioning of 6 Core fiber cable , 50/125 micron Multimode indoor Tight Buffer	2200.0000	RM					
36	od136451/2023_2024 : Supplying, Erection, termination, testing and commissioning of Category 6 24 Port Unloaded Patch panel	12.0000	no					
37	od136452/2023_2024 : Supplying, termination, testing, commissioning and Fixing, of LC Singlemode Duplex adapteras per detailed	110.0000	no					
38	od136453/2023_2024 : Supply and fixing of RoloSplice Kit E/W 2 Fusion Splice Trays, for 1U Shelf as per detailed specificationand as directed by	20.0000	no					
39	od136454/2023_2024 : Supplying, installation, testing and commissioning of LC - LC 3mtr OS2 Patch Chords LSZH for SingleMode as complete	100.0000	no					
40	od136456/2023_2024 : Supply and Surface laying of 2C x 1.5 Sqmm FRLS armoured cable as per tender specification and asdirected by Site-In-Charge.	700.0000	metre					
41	od136458/2023_2024 : Supplying and Fixing of RoloSplice Kit E/W 2 Fusion Splice Trays, for 1U Shelf as complete with all respects	87.0000	no					
42	od136460/2023_2024 : Supply and erection of Single Port Faceplate for CAT6 & 6A as complete with all respects	705.0000	each					
43	1.53.1 : Supplying and drawn of UTP 4 pair CAT 6 LAN cable inthe existing surface/recessed steel/PVC conduit as required1 run of Cable	6000.0000	metre					
44	od146355/2023_2024 : Supplying, Laying, termination, testing and commissioning of Category 6A U/UTP Cable (LSZH) as per	61750.0000	metre					

45	4.6.2 : Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness notless than 50	100.0000	metre					
46	4.6.4 : Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness notless than 50	200.0000	metre					
47	1.21.2 : Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/ recess includingcutting the wall and	7000.0000	metre					
48	1.21.3 : Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/ recess includingcutting the wall and	4000.0000	meter					
49	od146315/2023_2024 : Supply, installation, testing and commissioning of 24 port Switch Type 2 as	24.0000	each					
50	od146317/2023_2024 : Supply, Installation, Testing and Commissioning of Wireless
Access Point as per the technical	61.0000	each					
51	od146318/2023_2024 : Supply, Installation, Testing and Commissioning of Wireless
Controller as per the technical specification	1.0000	each					
52	od146319/2023_2024 : Supply, Installation, Testing and commissioning of 24 Port POE
switch Type 4 as perspecification	20.0000	each					
53	od146320/2023_2024 : Supply, installation, testing and commissioning of Core Switch Type 1 as	2.0000	each					
54	od146342/2023_2024 : Supply, installation, testing and commissioning of 48
Port Switch	29.0000	each					
55	od144608/2023_2024 : Supply, Installation, Testing and commissioning of 55 " LED	4.0000	each					
56	od144819/2023_2024 : Supply, Installation, Testing and commissioning of Indoor Dome Type 2	167.0000	each					
57	od144836/2023_2024 : Supply, Installation, Testing and commissioning of VMS Software as per specification.
	217.0000	each					
58	od144842/2023_2024 : Supply, Installation, Testing and commissioning of Indoor/Outdoor Bullet Camera Type 1 as per	50.0000	each					
59	od144851/2023_2024 : Supply, Installation, Testing and commissioning of Server and Storage as per	2.0000	each					
60	od144866/2023_2024 : Supply, Installation, Testing and commissioning of Workstation for monitoring as per specification as follows i7	2.0000	each					

61	od144875/2023_2024 : Supply, Installation, Testing and commissioning of Talk Back System complete	33.0000	each					
62	od144882/2023_2024 : Supply, Installation, Testing and commissioning of CCTV Camera Pole with minimum of 50MMdia pole with 6M	8.0000	each	82				
63	od144885/2023_2024 : Supply, Installation, Testing and commissioning of Media Convertors (for outdoor	4.0000	each					
	TOTAL							

The RFP published by KSITIL for the work vide **KSITIL/TIZ/2023-24/08 dated 26-08-2023** as circulated may please be referred for any clarifications.

The submission of EMD,PBG and Agreement with RCIL Non Judicial paper will be sacrosanct for the selected Bidder

	BA: Signature…... Name …...
	Designation …..Company Seal

 *Detailed sheet with split up of taxes to be enclosed by the bidder

 Any software /hardware other than above, to achieve the objective of cited work shall be facilitated by the prospective BA/SI without additional financial implications .

PROFORMA FOR PERFORMANCE BANK GUARANTEE

(On Stamp Paper of ₹ Two Hundred/requisite value)

To,

The Joint General Manager (ERS),
RailTel Corporation of India Limited, Kerala
Territory Office,1st   Floor, Eastern EntryTower,
Ernakulam South Railway Station ,Ernakulam 682016

KSITIL Tender Ref. No.: KSITIL/TIZ/2023-24/08 dated 26-08-2023on
https://etenders.kerala.gov.in portal

1. In consideration of the RailTel Corporation of India Limited (CIN: L64202DL2000GOI107905),having its

registered office at Plate-A, 6th Floor, Office Block Tower-2, East Kidwai Nagar, New Delhi – 110023 (herein after

called "RailTel") having agreed to exempt .... (CIN

: ………) having its registered office at ………………… (hereinafter called "the said Contractor") from the

demand, under the terms and conditions of Purchase Order No .... dated

……….. made between RailTel and..................for (hereinafter called "the said Agreement") of security deposit

for the due fulfilment by the said Contractor of the terms and condition contained in the said Agreement, or

production of a Bank Guarantee for Rs. ……………. (Rs.

…….. Only). We .... (indicate the name and address and other particulars of

the Bank) (hereinafter referred to as 'the Bank') at the request of................contractor do hereby undertake

to pay RailTel an amount not exceeding Rs. …………. (Rs ……… Only) against any loss or damage caused to

or suffered or would be caused to or suffered by the RailTel by reason of any breach by the said Contractor of

any of the terms or conditions contained in the said Agreement.

2. We, ... the Bank do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on demand from the RailTel stating that the amount is claimed is due by way of loss or damage by the said Contractor of any of terms or conditions contained in the said Agreement by reason of the 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 the Bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs ………… (Rs...Only).

3. We, …………………. the Bank undertake to pay the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceedings 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 Bond shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.

4. We, ………………. the Bank further agree that the Guarantee herein contained shall remain in fullforce 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 RailTel under or by virtue of the said Agreement have been fully paid an its claims satisfied or discharged or till RailTel certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said contractor and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before ....We shall be discharged from all liability under this Guarantee thereafter.

5. We, ………………… the Bank further agree with the RailTel that the RailTel shall have fullest libertywithout our consent and without affecting in any manner our obligations hereunder to vary any of theterms and conditions of the Agreement or to extend time of to postpone for anytime or from time totime any of the powers exercisable by the RailTel against the said Contractor and to forbear or enforceany of 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 to the said Contractor or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.

This Guarantee will not be discharge due to the change in the constitution of the Bank or the Contractor.

(.......... indicate the name of Bank ……) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of RailTel in writing.

Dated the ………… Day of ………… 2021 for ....(Name of Bank) In the

presence of Witnesses:

1. Signature With Date   2. Signature With Date Name   Name

Encl: SFMS PBG Report

NON-DISCLOSURE AGREEMENT

This Non-Disclosure Agreement (this "Agreement") is made and entered into on this＿＿＿day of ,＿＿
2021 (the "Effective Date") at ＿.

<div align="center">By and between</div>

RailTel Corporation of India Limited, (CIN: L64202DL2000GOI107905), a Public Sector Undertaking under Ministry of Railways, Govt. of India, having its registered and corporate office at Plate-A, 6th Floor, Office Block, Tower -2, East Kidwai Nagar, New Delhi-110023 & Southern Region office at 1-10-39 to

44, 6A, 6th Floor, Gumidelli Towers, Begumpet Airport Road, Opp. Shoppers Stop, Hyderabad- 500

016, (hereinafter referred to as 'RailTel'), which expression shall unless repugnant to the context or meaning thereof, deem to mean and include its successors and its permitted assignees of the ONE PART,

<div align="center">And</div>

) (CIN:＿＿＿＿), a company duly incorporated under

the provisions of Companies Act, having its registered office at

, (hereinafter referred to as '＿＿＿＿＿＿'), which expression shall unless repugnant to the context or meaning thereof, deem to mean and include its successors and its permitted assignees of OTHER PART

RailTel and＿＿＿＿＿＿shall be individually referred to as "Party" and jointly as "Parties"

WHEREAS, RailTel and＿＿＿＿ , each possesses confidential and proprietary information related to its business activities, including, but not limited to, that information designated as confidential or proprietary under Section 2 of this Agreement, as well as technical and non- technical information, patents, copyrights, trade secrets, know-how, financial data, design details and specifications, engineering, business and marketing strategies and plans, forecasts or plans, pricing strategies, formulas, procurement requirements, vendor and customer lists,

inventions, techniques, sketches, drawings, models, processes, apparatus, equipment, algorithms, software programs, software source documents, product designs and the like, and third party confidential information (collectively, the "Information");

WHEREAS, the Parties have initiated discussions regarding a possible business relationship for

. _____

WHEREAS, each Party accordingly desires to disclose certain Information (each Party, in such disclosing capacity, the "Disclosing Party") to the other Party (each Party, in such receiving capacity, the "Receiving Party") subject to the terms and conditions of this Agreement.

NOW THEREFORE, in consideration of the receipt of certain Information, and the mutual promises made in this Agreement, the Parties, intending to be legally bound, hereby agree as follows:

1. Permitted Use.

(a) Receiving Party shall:

    (i)   hold all Information received from Disclosing Party in confidence;

    (ii)   use such Information for the purpose of evaluating the possibility of entering into a commercial arrangement between the Parties concerning such Information; and

    (iii)   restrict disclosure of such Information to those of Receiving Party's officers, directors, employees, affiliates, advisors, agents and consultants (collectively, the "Representatives") who the Receiving Party, in its reasonable discretion, deems need to know such Information, and are bound by the terms and conditions of (1) this Agreement, or (2) an agreement with terms and conditions substantially similar to those set forth in this Agreement.

(b) The restrictions on Receiving Party's use and disclosure of Information as set forth above shall not apply to any Information that Receiving Party can demonstrate:

(i)   is wholly and independently developed by Receiving Party without the use ofInformation of Disclosing Party;

(ii)   at the time of disclosure to Receiving Party, was either (A) in the public domain, or (B) known to Receiving Party;

(iii)   is approved for release by written authorization of Disclosing Party; or

(iv)   is disclosed in response to a valid order of a court or other governmental body in the India or any political subdivision thereof, but only to the extent of, and for the purposes set forth in, such order; provided, however, that Receiving Party shall first and immediately notify Disclosing Party in writing of the order and permit DisclosingParty to seek an appropriate protective order.

(c)Both parties further agree to exercise the same degree of care that it exercises to protect its own Confidential Information of a like nature from unauthorized disclosure, but in no event shall a less than reasonable degree of care be exercised by either party.

2. **Designation.**

    (a) Information shall be deemed confidential and proprietary and subject to the restrictions of this Agreement if, when provided in:

        (i)   written or other tangible form, such Information is clearly markedas proprietary or confidential when disclosed to Receiving Party;or

        (ii)   oral or other intangible form, such Information is identified as confidential or proprietary at the time of disclosure.

3.   **Cooperation.** Receiving Party will immediately give notice to Disclosing Party of anyunauthorized use or disclosure of the Information of Disclosing Party.

4. **Ownership of Information**. All Information remains the property of Disclosing Party and no license or other rights to such Information is granted or implied hereby.

Notwithstanding the foregoing, Disclosing Party understands that Receiving Party may currently or in the future be developing information internally, or receiving information from other parties that may be similar to Information of the Disclosing Party. Notwithstanding anything to the contrary, nothing in this Agreement will be construed as a representation or inference that Receiving Party will not develop products, or have products developed for it, that, without violation of this Agreement, compete with the products or systems contemplated by Disclosing Party's Information.

5. **No Obligation**. Neither this Agreement nor the disclosure or receipt of Information hereunder shall be construed as creating any obligation of a Party to furnish Information to the other Party or to enter into any agreement, venture or relationship with the other Party.

6. **Return or Destruction of Information.**

(a) All Information shall remain the sole property of Disclosing Party and all materials containing any such Information (including all copies made by Receiving Party) and its Representatives shall be returned or destroyed by Receiving Party immediately upon the earlier of:

    (i)   termination of this Agreement;

    (ii)   expiration of this Agreement; or

    (iii)   Receiving Party's determination that it no longer has a need for such Information.

(b) Upon request of Disclosing Party, Receiving Party shall certify in writing that all Information received by Receiving Party (including all copies thereof) and all materials containing such Information (including all copies thereof) have been destroyed.

7. **Injunctive Relief**: Without prejudice to any other rights or remedies that a party may have, each party acknowledges and agrees that damages alone may not be an adequate remedy for any breach of this Agreement, and that a party shall be entitled to seek the

remedies of injunction, specific performance and/or any other equitable relief for any threatened or actual breach of this Agreement

8. **<u>Notice.</u>**

(a) Any notice required or permitted by this Agreement shall be in writing and shall bedelivered as follows, with notice deemed given as indicated:

    (i)   by personal delivery, when delivered personally;

    (ii)   by overnight courier, upon written verification of receipt; or

    (iii)   by certified or registered mail with return receipt requested, upon verification of receipt.

(b) Notice shall be sent to the following addresses or such other address as either Party specifies in writing.

RailTel Corporation of India limited:

Attn:

Address

:

Phone: Email.:

Attn:

Address:

Phone:

Email

9. <u>Term, Termination and Survivability.</u>

(a) Unless terminated earlier in accordance with the provisions of this agreement, this Agreement shall be in full force and effect for a period of   years from the effective date hereof.

(b) Each party reserves the right in its sole and absolute discretion to terminate this Agreement by giving the other party not less than 30 days' written notice of such termination.

(c) Notwithstanding the foregoing clause 9(a) and 9 (b) , Receiving Party agrees that its obligations, shall:

    (i)   In respect to Information provided to it during the Term of this agreement, shall survive and continue even after the expiry of the term or termination of this agreement; and

    (ii)   not apply to any materials or information disclosed to it thereafter.

10.   <u>Governing Law and Jurisdiction</u>. This Agreement shall be governed in all respects solelyand exclusively by the laws of India without regard to its conflicts of law principles. The Parties hereto expressly consent and submit themselves to the jurisdiction of the courts of New Delhi.

11.   <u>Counterparts.</u> This agreement is executed in duplicate, each of which shall be deemed tobe the original and both when taken together shall be deemed to form a single agreement

12.   <u>No Definitive Transaction</u>. The Parties hereto understand and agree that no contractor agreement with respect to any aspect of a potential transaction between the Parties shall be deemed to exist unless and until a definitive written agreement providing for such aspect of the transaction has been executed by a duly authorized representative of each Party and duly deliveredto the other Party (a "Final Agreement"), and the Parties hereby waive, in advance, any claims inconnection with a possible transaction unless and until the Parties have entered into a Final Agreement.

13.   <u>Settlement of Disputes:</u>

(a) The parties shall, at the first instance, attempt to resolve through good faith negotiation and consultation, any difference, conflict or question arising between the parties hereto relating to or concerning or arising out of or in connection with this agreement, and such negotiation or

consultation shall begin promptly after a Party has delivered to another Party a written request for such consultation.

(b) In the event of any dispute, difference, conflict or question arising between the parties hereto, relating to or concerning or arising out of or in connection with this agreement, is not settled through good faith negotiation or consultation, the same shall be referred to arbitration by a sole arbitrator.

14. The sole arbitrator shall be appointed by CMD/RailTel out of the panel of independent arbitrators maintained by RailTel, having expertise in their respective domains. The seat and the venue of arbitration shall be New Delhi. The arbitration proceedings shall be in accordance with the provision of the Arbitration and Conciliation Act 1996 and any other statutory amendments or modifications thereof. The decision of arbitrator shall be final and binding on both parties. The arbitration proceedings shall be conducted in English Language. The fees and cost of arbitration shall be borne equally between the part

15. <u>CONFIDENTIALITY OF NEGOTIATIONS</u>

Without the Disclosing Party's prior written consent, the Receiving Party shall not disclose to any Person who is not a Representative of the Receiving Party the fact that Confidential Information has been made available to the Receiving Party or that it has inspected any portion of the Confidential Information or that discussions between the Parties may be taking place.

16. <u>REPRESENTATION</u>

The Receiving Party acknowledges that the Disclosing Party makes no representation or warranty as to the accuracy or completeness of any of the Confidential Information furnished by or on its behalf. Nothing in this clause operates to limit or exclude any liability for fraudulent misrepresentation.

17. <u>ASSIGNMENT</u>

Neither this Agreement nor any of the rights, interests or obligations under this Agreement shall be assigned, in whole or in part, by operation of law or otherwise by any of the Parties without the prior written consent of each of the other Parties. Any purported assignment without such consent shall be void. Subject to the preceding sentences, this Agreement will be binding upon, inure to the benefit of, and be enforceable by, the Parties and their respective successors and assigns.

18. EMPLOYEES AND OTHERS

Each Party shall advise its Representatives, contractors, subcontractors and licensees, and shall require its Affiliates to advise their Representatives, contractors, subcontractors and licensees, of the obligations of confidentiality and non-use under this Agreement, and shall be responsible for ensuring compliance by itsand its Affiliates' Representatives, contractors, subcontractors and licensees with such obligations. In addition, each Party shall require all persons and entities who are not employees of a Party and who are provided access to the Confidential Information, to execute confidentiality or non- disclosure agreements containing provisions no less stringent than those set forth in this Agreement. Each Party shall promptly notify the other Party in writing upon learning of any unauthorized disclosure or use of the Confidential Information by such persons or entities.

19. NO LICENSE

Nothing in this Agreement is intended to grant any rights to under any patent, copyright, or other intellectual property right of the Disclosing Party, nor will this Agreement grant

the Receiving Party any rights in or to the Confidential Information of the Disclosing Party, except as expressly set forth in this Agreement.

20. RELATIONSHIP BETWEEN PARTIES:

Nothing in this Agreement or in any matter or any arrangement contemplated by it is intended to constitute a partnership, association, joint venture, fiduciary relationship or other cooperative entity between the parties for any purpose whatsoever. Neither party has any power or authority to bind the other party or impose any obligations on it and neither party shall purport to do so or hold itself out as capable of doing so.

21. UNPULISHED PRICE SENSITIVE INFORMATION (UPSI)

agrees and acknowledges that_____ , its Partners, employees, representatives etc.,by virtue of being associated with RailTel and being in frequent communication with RailTel and itsemployees, shall be deemed to be "Connected Persons" within the meaning of SEBI (Prohibition of InsiderTrading) Regulations, 2015 and shall be bound by the said regulations while dealing with any confidential and/ or price sensitive information of RailTel. shall always and at all times

comply with the obligations and restrictions contained in the said regulations. In terms of the said regulations, shall abide by the restriction on communication, providing or allowing access toany Unpublished Price Sensitive Information (UPSI) relating to RailTel as well as restriction on trading of itsstock while holding such Unpublished Price Sensitive Information relating to RailTel

22.   **MISCELLANEOUS**.

This Agreement constitutes the entire understanding among the Parties as to the Information and supersedes all prior discussions between them relating thereto. No amendment or modification of this Agreement shall be valid or binding on the Parties unless made in writing and signed on behalf of each Party by its authorized representative. The failure or delay of any Party to enforce at any time any provision of this Agreement shall not constitute a waiver of such Party's right thereafter to enforce each and every provision of this Agreement. In the event that any of the terms, conditions or provisions of this Agreement are held to be illegal, unenforceable or invalid by any court of competent jurisdiction, the remaining terms, conditions or provisions hereof shall remain in full force and effect. The rights, remedies and obligations set forth herein are in addition to, and not in substitution of, any rights, remedies or obligations which may be granted or imposed under law or in equity.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date set forth above.

:	RailTel Corporation of India Limited:
By	By
_ Name:	_ Name:
Title:	Title:

Witnesses:

Pre Bid Agreement

(To be executed in presence of Public notary on non-judicial stamp paper of the value of Rs. 100/-. The stamppaper has to be in the name of the BA)

This Pre-Bid Agreement (the "**Agreement**") is made at New Delhi on this_____Day of

(month) 2022.

BETWEEN

M/s. RailTel Corporation Of India Limited, (CIN: L64202DL2000GOI107905) a company registered under the Companies Act 1956, having its registered and corporate office at Plate-A, 6th Floor, Office Block, Tower-2, East Kidwai Nagar, New Delhi India – 110 023 and Southern Regional office at 1-10-39 to 44, 6A, 6th Floor, Gumidelli Towers, Begumpet Airport Road, Opp. Shoppers Stop, Hyderabad-500 016 (hereinafter referred to as**"RailTel"** which expression shall, unless repugnant to the context or meaning thereof, be deemed toinclude its successors and permitted assigns) of the **FIRSTPART. AND**

M/s._XXXX_, (CIN:_____) a company registered under the Companies Act 1956, having its registered office at and its Corporate Office located at_____, (hereinafter referred to as **"_XXXX_"** which expression shall, unless repugnant to the context or meaning thereof, be deemedto include its successors and permitted assigns) of the **SECOND PART.**

RailTel and_____shall be hereinafter individually referred to as "**Party**" andcollectively as "**Parties**."

WHEREAS,

A) RailTel is a "Mini Ratna (Category-I)" CPSU of Ministry of Railways, having exclusive right of way along Indian Railways and has created an OFC backbone and associated transport and network infrastructure to provide carrier class telecom services. RailTel has Unified License issued by DoT to provide a range of telecom services. RailTel also has two tier III certified data centres at Secunderabad and Gurugram. RailTel has created a slew of digital services like cloud, hosting, hosted Video Conferencing service, Aadhar Services, Content delivery platform, WiFi as a service etc. RailTel has strong capabilities in managing telecom infrastructure, MPLS network infrastructure, data centre services likeIaaS (Infrastructure as a Service) and PaaS (Platform as a Service).

B) _____ (DETAILS OF SECOND PART)

C) RailTel had floated an **EOI No:** _____

dated_____**pursuant to the RFP floated by End Customer for"**_____

for End Customer Organization for agreed Scope of Work"(hereinafter referred as "The said

work/project/tender"), and subsequently, based on the offer submitted by M/s XXXX towards the

RailTel's EOI, M/s XXXX has been selected by RailTel as Business Associate for the said Project.

D) RailTel is in the process of participating in the tender issued by end customer, complete details of which have

deliberately not been shared with XXXX and XXXX has waived its right toget the RFP document of end

customer owing to confidentiality concern raised by the end customer. However, a limited scope of work on

'need to know basis' and as detailed in clause

1.7 below, which will be carried out by XXXX has been shared with XXXX and based on the representation of

"XXXX" that "XXXX" has read the said limited Scope of Work and has understood the contents thereof and that

"XXXX" has sufficient experience to execute the said limited and defined scope of work, the Parties have

mutually decided to form a " Business association" wherein RailTel shall act as the "Bidder" and "XXXX" shall

act as the "business associate" in terms of the said Tender and in accordance to the terms agreed hereunder;

E) RailTel shall submit Rupees YYYY as BG against pre integrity pact at the time of submission of bidas an

Integrity Pact bank guarantee to end customer and accordingly "XXXX" shall submit Rupees ZZZZ asBG of

pre integritypacton back to back

 basis to RailTel before final submission of the said bid to end customer. **(This is applicable on cases to case**

basis as per KSITIL requirement. May please read in conjunction of the current RFP.)

F) Party hereby acknowledges that RailTel has received Rs.

/-(Rs._____) from M/s XXXX as per the Terms and

conditions of EOI no.

dated_____.

G) The Parties are thus entering into this Agreement to record the terms and conditions of

theirunderstanding and the matters connected therewith.

RailTel has agreed to extend all the necessary and required support to "XXXX" during the entire

contract period.

NOW, THEREFORE, in consideration of the mutual covenants set forth herein it is hereby agreed by and between the Parties hereto as under:

1. **SCOPE OF CO-OPERATION**

1.1. Parties have agreed to form a "business association" to co-operate with each other on an exclusive basis with respect to execution of the said Project.

1.2. It has been further agreed between the Parties that Parties shall not bid individually for the said Project nor shall they enter into any arrangement with other parties for the purpose of bidding for the said Project during the validity of this Agreement.

1.3. The Parties also agree that the terms of the said EOI for limited and defined scope of work along with the Corrigendum's issued thereafter shall apply mutatis-mutandis to this Agreement.

1.4. The Parties further agree that they shall, enter into a 'Definitive Agreement' containing elaborate terms and conditions, role and responsibilities and respective scope of work of this Agreement after declaration of RailTel as the successful bidder of the said Project.

1.5. RailTel shall submit the PBG amounting Rs. XXXXX, earnest money deposit / EMD declaration (whichever is applicable) and performance bank guarantee to **End customer** and accordingly"XXXX" shall submit to RailTel, BG amounting to Rs._____as the earnest moneydeposit. Further, XXXX shall also pay the performance bank guarantee in proportionate to theextent of its defined scope of work.

1.6. RailTel may further retain some portion of the work mentioned in the end organization's RFP, where RailTel has competence so that overall proposal becomes most winnable proposal.

XXXX agrees, undertakes and acknowledges that following shall be Scope of Work of XXXX outof the total project work.:

2. Technical Terms – As per KSITIL document

3. **TERM AND TERMINATION**

3.1. This Agreement shall come into force as of the date of signing and shall continue to be in full force and effect till the complete discharge of all obligations, concerning the carrying out of the

said Project, except terminated earlier by the Parties in terms of this Agreement or in terms of the said project, whichever is applicable.

3.2. This Agreement can be terminated by either Parties forthwith in the event of happeningof the following events:

(a) End customer announces or notifies the cancellation of the said Project and / or withdrawing the said RFP.

(b) The receipt of an official communication that End customer chooses not to proceed withRailTel for the said Project or RailTel is not short listed by End customer.

(c) Material breach of any of the terms and conditions of this Agreement by either of the Parties and the same is not rectified by the defaulting Party beyond 15 (fifteen) days (ora reasonable time period as mentioned under the notice issued by the other Party) fromthe date of receipt of notice from the other Party to cure the said breach.

3.3. Parties agree and understand that as of the execution of this Agreement they are contractually bound and obligated to perform the services, obligations and the scope of work entrusted, should RailTel be declared as the successful bidder of the said Project. Any Party shall not withdraw its participation subsequent to execution of this Agreement, at any point in time except in case of material breach of any of the terms of the Agreement.

3.4. In case "XXXX" breach the terms of Agreement i.e. defaulting party in such case the balance unsupplied quantity or service shall be completed by RailTel i.e. non-defaulting party and cost for completion of that balance unsupplied quantity or service of such defaulting party shall be executed by RailTel at the risk and cost of such defaulting party.

4. Liability:

It is understood that the parties are entering into this pre-bid teaming agreement for requirement of submission of bid against the RFP floated by end customer for Implementation of Network Security System and Integration for end Customer Organization. Parties acknowledge and agree that "XXXX" shall be completely liable for the successful execution of this project, in relation to its defined scope of work (as detailed in clause
1.7 above), fully complying the end customer requirements . Accordingly, it is agreed that notwithstanding anything contained in the RFP document, "XXXX" shall be liable to RailTel withregard to its obligations and liability to complete theagreed and defined scope of work as detailed in clause 1.7 above..

5. EXCLUSIVITY

Parties agree to co-operate with each other for the purpose of the said Project on an exclusive basis with respect to applying for, submitting and execution of the said Project including providing oftechnical demo, proof of concept for the agreed and defined scope of work.

6. PAYMENT TERMS

The payment terms between the parties shall be only on receipt of payment from end customer.

7. TAXES

Parties agrees that they will comply with the Indian Income Tax Act in force from time to time and pay Indian Income Tax, as may be imposed / levied on them by the Indian

Income Tax Authorities, for the payments received by them for the Project under this agreement and any other taxes, cess, surcharge, etc. for their respective scope of works;

8. INDEMNIFICATION

8.1 Parties agree to and undertake to indemnify and hold each other, its officers, directors, agents and employees harmless, from and against any and all claims, demands, causes of action, losses, damages, costs and expenses (including attorney's reasonable fees, costs of investigation and defence) arising out of or resulting from any claim, action or other proceeding(including any proceeding by any of the indemnifying party's employees, agents or contractors)based upon:

i.   any breach or contravention of any of the terms, conditions, covenants of this Agreement by the Party;

ii.   Unethical business practices;

iii.   any acts or omission of the Party and/ or any of its employees, agents or contractors, and the liability for damages to property arising from or out of party operations in connection with the performance of this agreement;

iv.   any claim for taxes that might arise or be imposed due to this performance of Services hereunder;

v.   any representation or warranty or information furnished by the Party being found to be false;

vi.   Parties failure to pay all applicable compensation to its respective personnel;

vii.   death or personal injury to any person;

viii.   destruction or damage to any property by acts or omissions of either Party, its representatives or personnel;

ix.   any violation/non-compliance by the Party with any applicable laws governmental regulationsor orders;

x.   any third party liability;

xi   improper handling or misuse of the Confidential Information of the Party(ies) by the Party

8.2 XXXX shall be liable to all risks and consequences (including the risk of payments) suffered in the performance of services under the Project and undertakes to indemnify RailTel from and against any non payments (of RailTel's share payable to RailTel), recoveries and claim from End Customer or any other cost or losses incurred due to default/non performance on part of XXXX.

9. COMPLIANCES TO STATUTORY OBLIGATIONS

9.1.   Parties shall also obtain and keep in place necessary insurance policies, mediclaim policies, group insurance schemes of adequate value to cover their workmen, supervisors, etc. with regard to any accidents, injury or the liability under the Employee Compensation Act.

9.2.   Parties shall observe and be responsible for the compliance of all labour laws (including labour cess) as per government notifications and shall maintain necessary records for the same and shall submit the same to RailTel when so required.

9.3.   Parties shall duly maintain all records / registers required to be maintained by them under various labour laws mentioned above and shall produce the same before the concerned Statutory Authorities whenever required and called upon to do so.

10.   LEGAL STATUS

This Agreement constitutes a contractual relationship and shall relate solely to the Projectand shall not extend to other activities or be construed to create a corporation, body corporate,

partnership or any other form of legal entity.

11.   REPRESENTATIONS AND COVENANTS

11.1.   Each Party represents and warrants to the other Party as follows:

11.1.1. That it has full capacity, power and authority and has obtained all requisite consents and approvals to, enter into and to observe and perform this Agreement and to consummate the transactions contemplated hereunder. Each of the Persons / personnel executing this Agreement on behalf of the each of the Parties have full capacity and authority to sign and execute this Agreement on behalf of the respective Parties;

11.1.2. The execution, delivery and consummation of, and the performance by it, of this Agreement shall not conflict with, violate, result in or constitute a breach of or a default under, (a) any contract by which it or any of its assets or properties, are bound oraffected, and/or (b) its constitutional documents;

11.1.3. This Agreement constitutes its legal, valid and binding obligations, enforceable againstit, inaccordance with their terms under Applicable Statutory Law(s);

11.1.4. It has the right, authority and title to execute this Agreement;

12.   SUBCONTRACTING BETWEEN PARTIES

If a Party subcontracts certain supplies or services pertaining to its scope of work to the other party,then the resulting relationship between such parties shall be governed by a separate subcontract. This Agreement shall not in any way be affected thereby except as stated otherwise in this Agreement

13.   GOVERNING LAW AND JURISDICTION

The construction, validity and performance of this Agreement shall be governed in all respects by theLaws of India. The Parties hereby submit to the exclusive jurisdiction of the Indian courts at Delhi only.

14.   GOOD FAITH NEGOTIATION AND DISPUTE RESOLUTION

The parties shall, at the first instance, attempt to resolve through good faith negotiation and consultation, any difference, conflict or question arising between the parties hereto relating to or concerning or arising out of or in connection with this agreement, and such negotiation or consultation shall begin promptly after a Party has delivered to another Party a written request for suchconsultation.

In the event of any dispute, difference, conflict or question arising between the parties here to, relatingto or concerning or arising out of or in connection with this agreement, is not settled through good faith negotiation or consultation, the same shall be referred to arbitration by a sole arbitrator.

The sole arbitrator shall be appointed by CMD/RailTel out of the panel of independent arbitrators maintained by RailTel, having expertise in their respective domains. The seat and the venue of arbitration shall be New Delhi. The arbitration proceedings shall be in accordance with the provision of the Arbitration and Conciliation Act 1996 and any other statutory amendments or modifications thereof. The decision of arbitrator shall be final and binding on both parties. The arbitration proceedings shall be conducted in English Language. The fees and cost of arbitration shall be borneequally between the parties.

15.   FORCE MAJEURE

"Force Majeure Event" shall mean any event beyond the reasonable control of the affected Party including acts of God, fires, earthquakes, strikes, pandemic, epidemics, lock down, and labor disputes, acts of war or terrorism, civil unrest, economic and financial sanctions, or acts or omissionsof any Governmental Authority occurring on or after the Signature Date.

No Party shall be liable to the other if, and to the extent, that the performance or delay in performance of any of its obligations under this Agreement is prevented, restricted, delayed or interfered with, due

to a Force Majeure Event.The Party affected by Force Majeure Event shall promptly inform the other Party in writing and shallfurnish within 30 (thirty) days thereafter, sufficient proof of the occurrence and expected duration ofsuch Force Majeure Event. The Party affected by Force Majeure Event shall also use all reasonable endeavours to mitigate the negative effects of such Force Majeure Event on such Party's ability to perform its contractual obligations. In the event of a Force Majeure Event, the Parties shall immediately consult with each other in order to find an equitable solution and shall use all reasonableendeavours to minimise the consequences of such Force Majeure Event.

The occurrence of a Force Majeure Event shall however, not relieve a Party of any obligation to payany sum due under this Agreement prior to the occurrence of the Force Majeure Event.

If the Force Majeure lasts for more than 6 (six) months, the Parties may mutually decide in writing on the future course of action with respect to this Agreement.

16.   INTELLECTUAL PROPERTY RIGHTS

16.1.   Each Party shall remain the sole owner of all industrial or intellectual property rights, Technical Data, Know-How, designs, specifications and the like, generated or acquired before the signature, or beyond the scope of this agreement.

16.2.   Each Party shall remain the sole owner of all industrial or intellectual property rights, technical data, know-how, design specifications and the like generated solely by that Party during the course of the performance of this agreement and shall not be free to used it by the other party and if the other party uses that intellectual property rights prior permission shall be taken with payingnecessary fees for such rights.

16.3.   In case of joint development, the work-share and associated ownership of intellectual property of each Party shall be mutually agreed upon and defined in advance in the definitive agreement for the specific program. However, should any invention be jointly made by the Parties inthe performance of this agreement, without neither Party being in a position to reasonably claim theownership of said intellectual property right, the said right shall be jointly owned by the Parties andthe corresponding measures of protection for both Parties of the said right as may be practicable shall be mutually agreed by both Parties and cost for such registration of such right shall be borne by the parties proportionately as per the ownership of the rights.

16.4 As on date, Parties confirms that there are no infringements of any Intellectual Property Rightsof the products contemplated under this agreement, in accordance with the laws prevailing in the country.

16.5. The Parties undertake and confirm that the Technology / Knowhow / Design owned by each ofthem and intended to be put into use for execution of various Projects pursuant to this agreement hasbeen originally developed by each of such Parties. The Parties are entitled to all the Intellectual Property Rights in Technology / Knowhow / Design intended to be put into use for execution of various Projects and no third-party Intellectual Property Rights have been put intouse either in their original or modified form without proper authorisation of such third party. The Parties further vouchsafes that the foregoing undertaking is actuated by truth and accuracy and no misrepresentation is being put into use for inducing each other to enter into this agreement.

17.   CONFIDENTIALITY

17.1.   During the term of this agreement, either party may receive or have access to technical information, as well as information about product plans and strategies,

promotions, customers and related non-technical business in formation which the disclosing party considers to be confidential ("Confidential Information as per RFP tender document"). In the event Confidential Information is tobe disclosed, the Confidential Information must be marked as confidential at the time of disclosure, or if disclosed orally but stated to be confidential, and be designated as confidential in writing by the disclosing party summarizing the Confidential Information disclosed and sent to the receiving party within thirty (30) days after such oral disclosure.

17.2. Confidential Information may be used by the receiving party only with respect to the performance of its obligations under this Agreement, and only by those employees of the receiving party and its subcontractors who have a need to know such information for purposes related to this Agreement, provided that such subcontractors have signed separate agreements containing substantially similar confidentiality provisions. The receiving party must protect the Confidential Information of the disclosing party by using the same degree of care to prevent the unauthorized use, dissemination or publication of such Confidential Information, as the receiving party uses to protect its own confidential information of like nature.

17.3. The obligations is not applicable to any information which is:

17.3.1. Already known by the receiving party prior to disclosure;

17.3.2. Publicly available through no fault of the receiving party;

17.3.3. Rightfully received from a third party without being responsible for its confidentiality;

17.3.4. Disclosed by the disclosing party to a third party without being responsible for itsConfidentiality on such third party;

17.3.5. Independently developed by the receiving party prior to or independent of the disclosure;

17.3.6. Disclosed under operation of law;

17.3.7. Disclosed by the receiving party with the disclosing party's prior written approval.

17.4 XXXX agrees and acknowledges that XXXX, its Partners, employees, representatives etc.,by virtue of being associated with RailTel and being in frequent communication with RailTel and its employees, shall be deemed to be "Connected Persons" within the meaning of SEBI (Prohibition of Insider Trading) Regulations, 2015 and shall be bound by the said regulations while dealing with any confidential and/ or price sensitive information of RailTel. XXXX shall always and at all times complywith the obligations and restrictions contained in the said regulations. In terms of the said regulations, XXXX shall abide by the restriction on communication, providing or allowing access to any Unpublished Price Sensitive Information (UPSI)relating to RailTel as well as restriction on trading of its stock while holding such Unpublished Price Sensitive Information relating to RailTel

17.5 Notwithstanding anything contained in this agreement, XXXX undertakes, agrees and acknowledges that being RailTel's Business Associate, XXXX shall maintain utmost confidentiality in relation to said Project. XXXX further, undertakes that any information relating to said Project which isor will be disclosed/ divulged by RailTel on need to know basis, will be received and treated by XXXXas strictly confidential and XXXX shall not, without the prior written consent of the RailTel or as expressly permitted herein, disclose or make available to any other person such information.

18. NOTICES

Notices, writings and other communications under this Agreement may be delivered by hand, by registered mail, by courier services or facsimile to the addresses as set out below:

To RailTel Corporation Of India Limited

To: RailTel Corporation of India Ltd Kind Attn: Executive Director / Southern Region

Address: 1-10-39 to 44, 6A, 6th Floor, Gumidelli Towers, Begumpet Airport Road, Opp. Shoppers Stop, Hyderabad- 500 016 No.: +91-40-27788000

To XXXX

To: XXXX

Kind Attn: Address: Mob.

No.:   Email:

19. AMENDMENT

No amendment or modification or waiver of any provision of these presents, nor consent to any departure from the performance of any obligations contained herein, by any of the Parties hereto, shall in any event be valid and effective unless the same is in writing and signed by the Parties or their duly authorized representative especially empowered in this behalf and the same shall be effective only in respect of the specific instance and for the specific purpose for which it is given.

20. PRIOR UNDERSTANDING

This Agreement contains the entire Agreement between the Parties to this Agreement with respect to the subject matter of the Agreement, is intended as a final expression of such Parties' agreement with respect to such terms as are included in this Agreement is intended as a complete and exclusive statement of the terms of such agreement, and supersedes all negotiations, stipulations, understanding, Agreements, representations and warranties if any, with respect to such subject matter, which precede or accompany the execution of this Agreement.

21. GENERAL

21.1. Binding Effect:

This Agreement shall be binding upon and inure to the benefit of the Parties here to and their respective legal successors.

21.2. Counterparts:

This Agreement may be executed simultaneously in 2 (two) counterparts, each of which shall be deemed to be original and all of which together shall constitute the same Agreement.

21.3. Non-Partnership:

21.3.1. This Agreement shall be on a principal-to-principal basis and shall not create any principal- agent relationship between the Parties.

21.3.2. Nothing in this Agreement shall be deemed to constitute a partnership or joint venture between the Parties or otherwise entitle either Party to have an authority to bind the other Party for any purpose.

21.4. Severability:

In the event any provision of this agreement is held invalid or un-enforceable by a court of competent jurisdiction, such provision shall be considered separately and such determination shall not invalidate the other provisions of this agreement and annexure/s which will be in full force and effect.

21.5. Waiver:

A failure by any Party to exercise or enforce any rights conferred upon it by this Agreement shall not be deemed to be a waiver of any such rights or operate so as to bar the exercise or enforcement thereof at any subsequent time.

21.6. Time is of essence:

Time is the essence of this agreement and the Parties herein agree and acknowledge to abide by the same.

22. Miscellaneous

22.1.   No Party to this agreement will have any rights or obligations arising from or in relation to this agreement in excess of those rights and obligations expressly declared herein.

22.2.   No Party to this agreement is entitled to sell, assign or otherwise transfer any of its rights and/or obligations arising from or in relation to this agreement to any third party, without the prior written consent of the other Party of this agreement.

22.3.   Each Party shall be solely responsible for its own actions or failures to act and for its own commitments and undertakings. Neither Party shall present itself as the representative or agent of the other Party, nor shall it have the power or the authority to commit the other Party, unless it receives the other Party's prior written consent.

22.4.   No release shall be made by any Party to the news media or the general public relating to this agreement and/or the subject matter thereof without prior written approval of the other Party..

22.5.   During the term of this agreement, each party shall refrain from taking any action or attempt to take any action with the intent of impairing or causing prejudice to the business relationship, whether existing or prospective that subsists between the other party and its customers and business partners. Each party shall also desist from inducing or influencing or attempting to induce or influence any customer or business partner, whether existing or prospective of the other party, resulting into prejudice or detriment to business prospects of the other party.

Furthermore, Parties shall not compete with or cause detriment to the business prospects of each other by making use of confidential information, whether in its embodied or disembodied form, shared pursuant to this agreement.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the day and year first above written.

For RailTel Corporation Of India Limited   For XXXX

Authorised Signatory   Authorized Signatory

Name: Name:

Designation: Designation:

In Presence of witness:

Signature: Signature:

Name: Name:

Address: Address

Annexure 12

FORMAT FOR AFFIDAVIT TO BE UPLOADED BY BA ALONGWITH THE EOI DOCUMENTS

(To be executed in presence of Public notary on non-judicial stamp paper of the value of Rs. 3100/-.The paper has to be in the name of the BA) **

I_____ (Name and designation)** appointed as the attorney/authorized signatory of the BA (including its constituents), M/s (hereinafter called the BA) for the purpose of the EOI documents forthe work of _____ as per the EOI No.

of (RailTel Corporation of IndiaLimited), do hereby solemnly affirm and state on the behalf of the BA including its constituents as under:

1. I/we the BA (s), am/are signing this document after carefully reading the contents.
2. I/we the BA(s) also accept all the conditions of the EOI and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the EOI documents from RailTel website www.railtelindia.com. I/we have verified the content of the document from the website and there is no addition, no deletion or no alternation to be content of the EOI document. In case of any discrepancy noticed at any stage i.e., evaluation of EOI, execution of work or final payment of the contract, the mastercopy available with the RailTel Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. I/we also understand that my/our offer will be evaluated based on the documents/credentials submittedalong with the offer and same shall be binding upon me/us.
6. I/we declare that the information and documents submitted along with the EOI by me/us are correct andI/we are fully responsible for the correctness of the information and documents, submitted by us.
7. I/we undersigned that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of EOI, it shall lead to forfeiture of theEOI EMD besides banning of business for five years on entire RailTel. Further, I/we (insert name of the BA)** and all my/our constituents understand that my/our constituents understand that my/our offer shall be emd rejected.
8. I/we also understand that if the certificates submitted by us are found to be false/forged or incorrect atany time after the award of the contract, it will lead to termination of the contract, along with forfeiture of EMD/SD and Performance guarantee besides any other action provided in the contract including banning of business for five years on entire RailTel.

VERIFICATION

DEPONENT

SEAL AND SIGNATURE OF THE BA

I/We above named EOI do hereby solemnly affirm and verify that the contents of my/our above affidavitare true and correct. Nothing has been concealed and no part of it is false.

DEPONENT

SEAL   AND

SIGNAURE OF THE BA Place:
Dated:

**The contents in Italics are only for guidance purpose. Details as appropriate, are to be filled in suitably byBA. Attestation before Magistrate/Notary Public.

KERALA STATE INFORMATION TECHNOLOGY INFRASTRUCTURE LTD (KSITIL)

THIRUVANANTHAPURAM

TENDER NO: KSITIL/ TIZ/2023-24/08

TENDER FOR

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY

PREQUALIFICATION & TECHNO COMMERCIAL BID

(BID 1)

KERALA STATE IT INFRASTRUCTURE LTD
1ST FLOOR, SANKETHIKA, P F LANE,
PATTOM PALACE P.O, TRIVANDRUM – 695 004
Ph: 0471-2474006, email: info@ksitil.org

1

FUNDING AGENCY

Kerala Infrastructure Investment Fund Board (KIIFB)
2nd Floor, Felicity Square, MG Road,
Statue, Thiruvananthapuram-695 001

OWNER

Kerala Startup Mission (KSUM)
G3B, Thejaswini, Technopark Campus
Kariyavattom, Trivandrum, Kerala 695581

SPECIAL PURPOSE VEHICLE (SPV)

Kerala State IT Infrastructure Limited (KSITIL)
01st Floor, Sankethika, PF Lane,
Pattom Palace PO, Thiruvananthapuram- 695 004

2

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY

TENDER NO: KSITIL/ TIZ/2023-24/08

CONTENTS

3

I. NOTICE INVITING TENDER

TENDER NO: KSITIL/ TIZ/2023-24/08

KSITIL invites e-Tenders under two-part bid system (Bid I Prequalification & Techno Commercial bid and Bid II Price bid – in item rate wise) are invited from eligible contractors for the Supply, installation, testing and commissioning of data & networking /CCTV for Building-1 at TIZ Kalamassery.

Name of Work	Supply, installation, testing and commissioning of data & networking /CCTV & for Building-1 at TIZ Kalamassery.
Probable Amount of Contract (PAC)	Rs.5,1406844 /- (Exclusive of GST)
Period of Completion	03 months
Earnest Money Deposit	Rs. 2,00,000/-
Price of Tender Form	Rs.10,000/- + GST@18% (Rs.11,800/-)
Last date of submission of Tender	Up to 03:00 PM on 07/09/2023
Pre bid clarification	Prebid Clarification may be forwarded on or before 02-09-2023 to gm@ksitil.org/ jithy@ksitil.org /santhosh@ksitil.org . Reply to the clarifications shall be uploaded in e-tender portal and this will be an integral part of tender document. (Contact person: Mr. Santhosh K M @9497228635)
Date of opening of Techno commercial bid	at 03:00 PM on 08/ 09/2023
Firm period of the Tender	120 days from the date of opening of price bid.

Date:26/08/2023   Managing Director

Place: Thiruvananthapuram

4

II. MINIMUM ELIGIBILITY CRITERIA

1. Bidders shall be an established Networking firm/Original equipment manufacturer (OEM) or System Integrator of the OEM and should have minimum 7 years proven experience in Supply, installation, testing and commissioning of network switches, routers, CCTV and access controls etc. *(Certificate of incorporation/ partnership deed and Work completion certificate issued by client prior to 2015 shall be submitted as proof)*.

2. Experience of having successfully completed similar works during last seven years which should be either of the following:

   a. Three similar completed works costing not less than the amount of Rs.2.05 Crs.

   Or

   b. Two similar completed works costing not less than the amount of Rs.2.57Crs.

   Or

   c. One similar completed works costing not less than the amount of Rs.4.11 Crs.

   (Notarized copies of work completion certificate issued by client/owner to be submitted showing the details such as detailed scope of work, value of the contract, completed value, project start date and end date etc. The value of executed completed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to the previous day of last date of submission of bids.)

3. The bidder should have an average annual turnover of Rs.4.11 Crore for last three financial years (2019-20, 2020-21 & 2021-22).*(Audit balance sheet and turnover certificate duly certified by the Chartered Accountant and attested by Notary Public shall be furnished as proof)*.

4. The bidder should also be a profit-making organization for last three consecutive financial years. (2019-20, 2020-21 & 2021-22)*(Audit balance sheet detailing the P/L and profit and loss certificate duly certified by the Chartered Accountant and attested by Notary Public shall be furnished as proof).*

5

5. The bidder should produce a banker's solvency certificate issued by any nationalized/scheduled Bank of value at least Rs.1.71 cr issued not prior to six months from the date of submission of bids.

6. Offers from joint venture will not be accepted. *(Declaration in company letter head signed and sealed by the authorized signatory.)*

@Definition of similar works Supply, installation, testing and commissioning of network switches, routers and CCTV system.

Scanned copies of documentary evidence for the eligibility criteria and Articles of Incorporation shall be notarized and uploaded in the e-tender website.

Hard copies either in original or notarized copy in a separate sealed cover super scribed "Pre-Qualification Criteria for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV OF BUILDING-1 TIZ KALAMASSERY" should be submitted to the head office of Kerala State Information Technology Infrastructure Ltd., 1st Floor, Sankethika, PF Road, Vrindavan Gardens, Pattom P O, Thiruvananthapuram- 695004Ph. No: 0471-2474006 within 2 days of opening of cover-I. This is only for verification and does not relieve the bidder from adhere the e-tender norms. *Hard copy of PRICE BID should not be submitted.* The Price Bid must be submitted online only.

(Performance / Completion certificate with completed value issued by an Officer not below the rank of an Executive Engineer in case of Government/ Public sector Organization and the Managing Director /Chief Project Manager in case of other companies shall be attached with the tender. The completion certificate issued by Client/Owner shall only be considered.)

B. **REJECTION OF APPLICATION**

Applications, which are incomplete, ambiguous and not accompanied by the documents asked for. Even though an applicant may satisfy the minimum criteria of KSITIL for empanelment, his application is liable for rejection, if he has record of poor performance such as abandoning of work, not properly completing the work, delay in completion of work, poor quality of work, financial failure/weakness etc.

Application in respect of which canvassing in any form is resorted to by the applicants.

6

If the applicant made misleading or false representation or deliberately suppressed the information in the application form and documents etc. or resorts to unfair methods in creating circumstances for the acceptance of his application.

Any entity which has been barred by the Central / State Government of India, or any entity controlled by Central/State Govt. from participating in any project, and the bar subsists as on date of proposal, are not eligible to participate in the empanelment.

Managing Director
KSITIL, Thiruvananthapuram

7

III. **PERFORMA FOR PRE-QUALIFICATION OF CONTRACTORS**

I. <u>General Information</u>

1) Name of the firm :

2) Address :

3) Contact person and Designation :

    Phone

    Fax

    Email

    Cell Phone

4) Place and year of :

    Incorporation of the firm

5) Registration No. :

    (Copy to be enclosed)

6) Constitution of the firm :

    (Pvt. Ltd., Public or Proprietary),

7) Name & qualification of the Chief :

    Executive of the firm

8

8) Details of type of contractor license held   :

9) Details of Supervisory License   :

II.   *Organization Structure of the Firm*

Technical Chief of the Organization

a. Name   :

b. Designation   :

c. Address   :

d. Fax   :

   Email

   Cell Phone

e. Qualification   :

f. Age   :

9

III. a) **Details of Top Technical Personnel to be provided as in**

II above.

b) **Details of Field/Supervisory Staff to be provided as in**

II above.

IV **Details of Projects handled**

    Details of completed projects in the   :
last 7 years with of contract value

more than Rs. 2.18 crore.

(Furnish in Annexure I)

(Completion certificates of client/ owner

shall be enclosed)

2)   Details of ongoing projects with contract value   :

    more than Rs.2.18 Crore (Furnish in Annexure II)

3)   Information on works for which   :

    bids have been submitted and

    are yet to be completed as on

    date of this bid.

    (Furnish in Annexure III & IV).

4)   Details of Machinery, Tools and   :
    Equipment/Measuring Equipment

10

owned (form enclosed

(Furnish in Annexure V).

V. *Financial Information*

1) Turn over for the last 3 years   :

(Furnish in Annexure VI)

2) Permanent Account No. (IT)   :

3) Tax Identification No. (TIN)   :

4) GST Registration No.   :

5) Audited Balance sheet during   :
the last 3 years

(Enclose copies for the last three years)

6) Solvency Certificate issued by   :

Scheduled /Nationalized Bank.

11

7)   Whether any legal cases are   :

      pending against the firm for the

      last five years, (Specific for supply & installation of Furniture

       Please furnish details

       (Furnish in Annexure VII)

(Sample Format)

Details of completed projects in the last 7 years reach of contract value of Rs. 2.04 Crores and above

Project Name	Name of the Client	Description of Work	Contract No.	Value of Contract (Rs in crores)	Date of Purchase Order	Stipulated Period of Completion	Actual period of completion	Remarks, Explain reasons for delay, if any.

Enclose satisfactory completion certificate and date of completion from the concerned Engineer-in-charge not below the rank of Executive Engineer in the case of Govt. or Chief executive/Chief Project Manager in the case of Private Organization. (The completion certificate shall be from the Client/Owner only.)

SIGNATURE OF BIDDER

13

(Sample Format)

Details of ongoing projects costing Rs. 2.04 Crores and abov**e**

Project Name	Name of Client	Description of Work	Contract No.	Value of Contract (Rs. In crore)	Date of Work Order	Stipulated Period of Completion	% progress achieved	Remarks

Enclose a progress certificate from the concerned Engineer-in-Charge not below the rank of Executive Engineer in the case of Govt. or Chief Executive/Chief Project Manager in the case of Private Organization.

SIGNATURE OF BIDDER

14

(Sample Format)

INFORMATION ON WORKS WITH EXISTING COMMITMENTS

Description of Work	Place and State	Name and address of Client	Value of Contract	Stipulated period of completion	Remarks

SIGNATURE OF BIDDER

15

(Sample Format)

TENDERS SUBMITTED BUT PENDING FINALIZATION

Description of Work	Place and State	Estimated value of works	Stipulated period of completion	Date when decision is expected	Remarks

SIGNATURE OF BIDDER

16

(Sample Format)

Turn Over for the last 3 years

Sl. No.	Year	Turn Over	Remarks
1.	2019-20		
2.	2020-21		
3.	2021-22		

Enclose certificate from the Chartered Accountant.

SIGNATURE OF BIDDER

17

(Sample Format)

Details of legal cases pending against the firm for the last seven years

SL. NO.	ORGANISATION AGAINST WHOM THE LITIGATION IS INVOLVED	BRIEF DETAILS OF DISPUTE	AMOUNTS INVOLVED (Rs. …..)	PRESENT STATUS	Remarks

SIGNATURE OF BIDDER

18

(Sample Format)

Details of Key Personnel to be provided for the work

Sl. No.	Key Personnel	Name & Qualification	Years of Experience
1			
2			
3			
4			
5			

- Owner /consultant shall have the right to demand augmentation of the staff if required.

Note. A project manager, project engineer should be present on a full basis at site.

SIGNATURE OF BIDDER

19

3. INSTRUCTIONS TO BIDDERS

3.1   e- TENDERING GUIDELINES

KSITIL is a Government of Kerala Undertaking under the administrative control of Department of Information Technology, Government of Kerala. Government of Kerala has decided that the tenders floated by various Public Sector Undertakings are to be switched over to e-Tendering system. Accordingly, KSITIL will also adopt e-tendering procedure hereafter

Following Special instructions are being issued to the Vendors for the e-submission of the bids on line through the respective tender site:

- Bidders shall get themselves registered in the Kerala Government e-Procurement System through the portal https://etenders.kerala.gov.in
- Digital Signature certificate / registration of Class II/III has to be obtained from one of the authorized Certifying Authorities.
- The registered e-token should be used by the bidder only and should not be misused by others.
- Bidders may submit the bid documents online through the portal https://etenders.kerala.gov.in
- Bidders should login to the portal with the user credentials obtained during registration.
- Bidders can upload well in advance, the documents such as certificates, company credentials etc., under relevant option and these can be selected as per tender requirements and then sent along with bid documents during bid submission.
- Bidders can download the tenders from the portal and after downloading the same, the Bidder should go through them carefully and then submit the documents as required.
- Bidders have to upload the filled-up price bid format available along with the respective tenders.
- In case any clarification is needed, this may be obtained online through the tender site, or through the contact details. Bidder should also take into account the corrigendum published, if any, before submitting the bids online.
- Bidders should keep ready the bid documents that have to be submitted as indicated in the tender schedule and they should be in PDF/xls. formats. If there is more than one document, they can be clubbed together.
- Bidder should make the EMD and Tender Fee payment through the online facility.
- Bidders shall read the terms & conditions and accept the same to proceed further to submit the bids.
- Bidders have to submit the tender document online well in advance before the prescribed time to avoid any delay or during the submission process.
- After the bid submission, a print out of the acknowledgement number, given by the e-tendering system should be kept as a record of evidence for online submission of bid for the particular tender.
- The Tender Inviting Authority would not be responsible for any sort of delay or other difficulties whatsoever faced during the submission of bids online by the bidders.

20

- The tendering system will provide a successful bid updating message after uploading all the bid documents & then a bid summary will be shown with the bid no, date & time of submission of the bid with all other relevant details.
- The documents uploaded by the bidders should be digitally signed using the e-token of the bidder and then submitted.
- Bidder should log into the portal well in advance for bid submission so that the bid is submitted on time i.e. on or before the bid submission end time (as per Server System Clock). Bidder would be solely responsible for any such delay on their part.
- Maximum size of any single document that can be uploaded through the portal is 20 MB.
- Bidders should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected.
- The time settings fixed in the server side & displayed at the top of the tender site, will be valid for all procedures of requesting, bid submission, bid opening etc., in the e-tender system. The bidders should follow this time during bid submission.
- All the data being entered by the bidders would be encrypted to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons during bid submission & also remains so until the time of bid opening. In short, the submitted tender documents become readable only after the tender opening by the authorized personnel.
- The interested bidders can enroll themselves on the portal https://enters.kerala.gov.in using the option "Click Here" to Enroll. This enrollment is free at this point of time. Possession of a Valid Class II/III Digital Signature Certificate (DSC) in the form of smart card/e-token in your name is a prerequisite for registration and participating in the bid submission activities through this web site. Digital signature certificate can be obtained from the authorized Certifying Agencies, details of which are available in the web site mentioned above under the link Information about DSC. Please note that the same DSC can be used for participating in other e-tendering also. This is only a one-time procedure and would normally be valid for 2 years.
- The portal https://enters.kerala.gov.in has user manuals with detailed guidelines on enrollment and participation in the online bidding process. The user manuals can be downloaded for ready reference.
- Bidders can also attend the training/familiarization programme on e-tendering system conducted by the Kerala Govt Tenders information system in association with NIC at the following address:

Kerala State IT Mission
E-Government Procurement PMU & Helpdesk
Basement floor of Pension Treasury Building, Uppalam Road
Statue, Thiruvananthapuram
Phone: 0471-2577088, 2577188
(On all working days from 10.30am to 5.30pm)

- Bidders may contact the above address and arrange for "Hands on Training", if needed or also can obtain clarification over phone. We would request you to please obtain the DSC as above, familiarize with e-tendering process.
- The bidder should obtain the DSC as above, familiarize with e-tendering process.
- Ineligible bidders or bidders who do not possess valid & active registration, on the date of bid submission, are strictly advised to refrain themselves from participating in this tender. If such instances are noticed, the same shall be treated as "fake bidding" by the respective bidder and such bidder shall be blacklisted as per SPV rules in force.

3.1.1 e- TENDERING PROCESS

a. ONLINE BIDDER REGISTRATION PROCESS

Bidders should have a Class II or above Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.

Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471- 2577088, 2577188, 2577388 or 0484 – 2336006, 2332262 - through email: etendershelp@kerala.gov.in for assistance in this regard.

b. ONLINE TENDER PROCESS:

The tender process shall consist of the following stages:

i. **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fees shall be payable at the time of bid submission as stipulated in this tender document.
ii. **Pre-bid meeting**: Date will be provided in the NIT
iii. **Publishing of Corrigendum:** All corrigenda shall be published on www.etenders.kerala.gov.in and shall not be available elsewhere.
iv. **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in. No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances.
v. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online). Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid.

vi. **Opening of Financial Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the financial bid on the date and time mentioned in critical date's section.

c. <u>DOCUMENTS COMPRISING BID</u>

(i). **The First Stage** (Pre-Qualification or Technical Cover based on 1 cover or 2 cover tender system):

(ii). Pre-Qualification or Technical proposal shall contain the scanned copies of documents proving pre-qualification criteria and other documents as required by KSITIL:

(iii) The department doesn't take any responsibility for any technical snag or failure that has taken place during document upload.

(vi) **The Second Stage** (Financial Cover or as per tender cover system):

The Bidder shall complete the Price bid as per format given for download along with this tender.

Note: The blank price bid should be downloaded and saved on bidder's computer without changing file-name otherwise price bid will not get uploaded. The bidder should fill in the details in the same file and upload the same back to the website.

Fixed price: Prices quoted by the Bidder shall be fixed during the bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable/ variable price quotation will be treated as non - responsive and rejected.

Single tender received in response to the first tender call shall be rejected.

d. <u>TENDER DOCUMENT FEES AND EARNEST MONEY DEPOSIT (EMD)</u>

The Bidder shall pay a tender document fees and Earnest Money Deposit or Bid   Security as referred in the NIT. Bid security is required to protect the purchaser   against risk of Bidder's conduct, which would warrant the forfeiture of security.

Online Payment modes: The tender document fees and EMD can be paid in the following manner through e-Payment facility provided by the e-Procurement system:

State bank of India Multi Option Payment System (SBI MOPS Gateway): Bidders are required to avail Internet banking Facility in any of below banks for making tender remittances in e-Procurement System.

23

A) Internet banking Options (Retail)			
1	Allahabad bank	32	Kotak Mahindra bank
2	Axis bank	33	Lakshmi Vilas bank
3	Andhra bank	34	Mehsana Urban Co-op bank
4	Bandan bank	35	NKGSB Co-operative bank
5	Bank of Bahrain and Kuwait	36	Oriental Bank of Commerce
6	Bank of Baroda	37	Punjab and Maharashtra Cooperative Bank
7	Bank of India	38	Punjab National Bank
8	Bank of Maharashtra	39	Punjab and Sind Bank
9	Bassein Catholic Co-operative Bank	40	RBL Bank
10	BNP Paribas	41	Saraswat Cooperative Bank
11	Canara Bank	42	Shamrao Vitthal Cooperative Bank
12	Catholic Syrian Bank	43	South Indian Bank
13	Central Bank of India	44	Standard Chartered Bank
14	City Union Bank	45	State Bank of India
15	Corporation Bank	46	Syndicate Bank
16	Cosmos Bank	47	Tamil Nadu Mercantile Bank
17	DCB Bank	48	Tamil Nadu Cooperative Bank
18	Dena Bank	49	The Kalyan Janata Sahakari Bank
19	Deutsche Bank	50	TJSB Bank (Erstwhile Thane Janata Sahakari Bank
20	Dhanalaxmi Bank	51	UCO Bank
21	Federal Bank	52	Union Bank of India

24

22	HDFC Bank	53	United Bank of India
23	ICICI Bank	54	Vijaya Bank
24	IDBI Bank	55	YES Bank
25	Indian Bank		
26	Indian Overseas Bank		
27	IndusInd Bank		
28	Jammu & Kashmir Bank		
29	Janata Sahakari Bank		
30	Karnataka Bank		
31	Karur Vysya Bank		

B) Internet banking Options (Corporate)

1	Bank of Baroda	21	Laxmi Vilas Bank
2	Bank of India	22	Oriental Bank of Commerce
3	Bank of Maharashtra	23	Punjab & Maharashtra Coop Bank
4	BNP Paribas	24	Punjab & Sind Bank
5	Canara Bank	25	Punjab National Bank
6	Catholic Syrian Bank	26	RBL Bank
7	City Union Bank	27	ShamraoVitthal Co-operative Bank
8	Corporation Bank	28	South Indian Bank
9	Cosmos Bank	29	State Bank of India
10	Deutsche Bank	30	Syndicate Bank
11	Development Credit Bank	31	UCO Bank
12	Dhanalaxmi Bank	32	Union Bank of India
13	Federal Bank	33	UPPCL

25

14	HDFC Bank	34	Vijaya Bank
15	ICICI Bank	35	Axis Bank
16	Indian Overseas Bank		
17	Janta Sahakari Bank		
18	Jammu & Kashmir Bank		
19	Karur Vysya Bank		
20	Kotak Bank		

During the online bid submission process, bidder shall select SBI MOPS option and submit the page, to view the Terms and Conditions page. On further submitting the same, the e-Procurement system will re-direct the bidder to MOPS Gateway, where two options namely SBI and Other banks* will be shown. Here, Bidder may proceed as per below:

a) SBI Account Holders shall click SBI option to with its Net banking Facility., where bidder can enter their internet banking credentials and transfer the Tender Fee and EMD amount.

b) Other bank Account Holders may click Other banks option to view the bank selection page. Here, bidders can select from any of the 54 banks to proceed with its Net banking Facility, for remitting tender payments.

*Transaction Charges for Other banks vide SBI Letter No. LHO/TVM/AC/2016-17/47 – 1% of transaction value subject to a minimum of Rs. 50/- and maximum of Rs. 150/-

* Bidders who are using Other banks option under SBI MOPS Payment Gateway, are advised by SBI to make online payment 72 hours in advance before tender closing time.

Any transaction charges levied while using any of the above modes of online payment has be borne by the bidder. The supplier/contractor's bid will be evaluated only if payment status against bidder is showing "Success" during bid opening.

SUBMISSION PROCESS

For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.

It is necessary to click on "Freeze bid" link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.

26

4.0   EMD/ SECURITY DEPOSITS

4.1   EMD

4.1.1. The EMD of **Rs.2,00,000/- (Rupees Two Lakhs only)** shall be remitted through online payment mechanism for e-procurement system of Govt. of Kerala www.etenders.kerala.gov.in.

4.1.2. Bidders shall remit the tender fees **(Rs.11800/- including GST)** and **EMD (Rs. 2,00,000/-)** by using the online payment options of e-Procurement system only. Bidders are advised to visit the "Downloads" of e-Procurement website (www.etenders.kerala.gov.in) for detailed instructions on making online payment using internet banking facility. KSITIL/NIC/SBT/ TCC shall not be responsible for any kind of delay in payment status confirmation.

4.1.3. EMD deposited with ACCEPTING AUTHORITY will be forfeited,

   i) if a bidder withdraws his bid during the period of validity specified.

   ii) if the successful bidder fails within the time limit to sign the contract document or fails to furnish the required performance guarantee, additional performance guarantee and security deposits.

4.1.4. EMD of the successful bidder will be refunded without any interest to the Contractor after remittance of the performance security deposit and execution of the agreement. EMD of the unsuccessful tenderers will be refunded without any interest after AOC through online process.

4.2.   PERFORMANCE GUARANTEE, ADDITIONAL PERFORMANCE GUARANTEE AND PERFORMANCE SECURITY DEPOSIT

4.2.1 The successful TENDERER shall deposit performance guarantee an amount equal to 5% of the awarded contract value within 14days of award of the work which shall be retained till the end of Defects Liability Period. At least 50% of this deposit shall be collected in the form of Govt. of Kerala Treasury Fixed Deposit pledged in favor of Managing Director/General Manager, KSITIL and rest in the form of Bank Guarantee from Nationalized/Scheduled bank/Kerala Financial Corporation valid for the entire period of construction plus defect liability period.

4.2.2. Additional performance Guarantee will be required to be deposited, if the quoted amount of item of work by the bidder is between 10% to 25% below the estimated rate. Additional performance guarantee will be required in all cases where quoted rate falls below 10% of the estimate cost but the maximum permissible lower limit is 25% below the estimated cost. The 10% standard exemption will be applicable to all estimates quoted below estimate cost

up to 25 %. If the rate quoted by the bidder for an item of work is X% below estimate cost where 'X' lies above 10%, the additional performance guarantee for that item of work is equal to (X-10) % of the estimate amount for that item of work. The total additional performance guarantee for the whole work is total of individual additional performance guarantee for each item of work calculated as above. This will be released only after satisfactory completion of entire scope of work without any interest.

4.2.3. Performance security deposit is the retention amount deducted from the running bill of the contractors in addition to the performance guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against bank guarantee on its accumulation to a minimum amount of Rs. 5 Lakhs subject to the condition that the amount of bank guarantee except last one shall not be less than Rs. 5 Lakhs. This amount will be released after passing of final bill as in the case of refund of deposit.

4.2.4. If the successful bidder fails to furnish the required Performance Guarantees enter into contract, within 14 days of issue of work order , without a valid reason, further ten days' time will be allowed at the request of the bidder, for which the successful bidder has to remit a fine equal to 1% of the Contract price as per his quote amount subject to a minimum of Rs.1,000/- and maximum of Rs.25,000/-. This fine shall be remitted in KSITIL and original receipt shall be submitted at the office of the Agreement Authority before executing agreement. After remitting performance guarantees, the successful bidder has to execute an agreement with Agreement Authority in the format prescribed by the Authority. The Value of the stamp paper shall be 0.1% of contract value, minimum of Rs.500/- and maximum of Rs.1 Lakh.

4.2.5. All the deposits of EMD, PERFORMANCE GUARANTEE, ADDITIONAL PERFORMANCE GUARANTEE AND SECURITY DEPOSIT will not bear any interest whatsoever.

5.   TAXES AND DEDUCTIONS:

Income tax and surcharge on Income tax, contribution to Kerala workers welfare fund board at the rate prevailing at the time of payment will be deducted from each running bill and final bill. Also, GST @ 2% will be recovered from each bill.

6.   STATUTORY PAYMENTS

6.1.   All statutory payments in connection with the employment of the Workmen & Employees State Insurance for this work will be borne by the Contractor at the prevailing rates.

6.2. The contractor is the employer of all the workers engaged for this work and should therefore take all required registrations and pay premiums correctly to labour welfare funds/Employees State Insurance, PF, CESS Act 1996 etc.

6.3. The contractor will be responsible for the payment of minimum wages and compliance under the various enactments regarding the workers deployed by him.

7. The contractor should quote their rates exclusive of GST. GST as applicable will be paid extra.

8. The deduction towards statutory deductions shall be changed if the government revises the rate. Any tax omitted, to be deducted in any part bill shall be deducted in the subsequent bills/final bill.

9. However, it shall be the responsibility of the contractor to ensure that all the statutory requirements like filing of returns etc. are met with as per the prevailing norms.

10. PERIOD OF VALIDITY

The tender shall remain valid for acceptance for a period of 120 days from the date of opening of price bid (Cover-II). If any bidder withdraws his tender before the said period or makes any modifications in terms and conditions of the tender, then the "KSITIL" has the liberty to forfeit the said Earnest Money Deposit.

11. INSPECTION OF SITE

Every bidder is expected to inspect the site of the proposed work and acquaint himself with the site conditions approaches, availability of raw materials, geological and weather conditions etc. before quoting his rates.   He must go through all the drawings, specifications and other tender documents. Any further clarifications in the drawings and documents can be had from the Architect/Consultants/KSITIL.

12. QUANTUM OF WORK

A schedule of approximate quantities for various items accompanies this tender. It shall be understood that the Architect/Consultant/ "KSITIL" do not accept any responsibility for the correctness or completeness of this schedule in respect of items and quantities and this schedule is liable to alteration by deletions, deductions, or additions at the discretion of the

Architect / Consultant /"KSITIL" without affecting the terms of the contract. The "KSITIL/CONSULTANT" reserves the right to increase or decrease the quantum of work at site without assigning any reason.

13.   ALL INCLUSIVE RATES

The contractor's rate must be firm and include the cost of transportation of material to the site, all taxes, and the fixing or placing in position for which the item of work is intended to be operated but **excluding GST.** The rates quoted by the Contractor shall be firm throughout contract period and there shall be no upward revision of the rates quoted by the contractor for any reason whatsoever. In addition to the statutory deductions towards Income Tax, Labour Welfare Fund etc. shall be deducted and paid to state government at the applicable rates. And also, deductions shall be made towards any other tax imposed by the government prior to the last date for submission of Tender. Also, any claim on account of variation in the rates of taxes prevailing as on the last date for submission of Tender, will not be considered.

14. INTERPRETING SPECIFICATIONS

In interpreting the specifications, the following order of decreasing importance shall be followed:

a) Schedule of quantities/BOQ

b) Special Conditions of Contract

c) Drawings

d) Technical specifications

e) Instructions to Bidders & General Conditions of Contract

Matters not covered by the specifications given in the contract shall be covered by the relevant Indian Standard Codes. If such codes on a subject have not been framed, the decision of the Architect/ Consultant shall be final.

15.   No alterations shall be made by the bidder in the Notice Inviting Tenders, Instructions   to the contractors, Contract form, Conditions of the Contract, Drawings and Specifications and if any such alterations are made or any special conditions attached, the tender is liable to be rejected.

30

16. The acceptance of a tender shall rest with the Authorized Representative of the "KSITIL", who does not bind himself to accept the lowest tender and reserves to himself the authority to reject any or all the tenders received without assigning any reason(s) whatsoever.

17. The authorized representative of the "KSITIL" reserves the right of accepting the whole or any part of the tenders received and the bidder shall be bound to perform the same at the rate quoted.

18. The work shall be carried out under the direction and supervision of the Architect/Consultant/ KSITIL or their representative at site. On acceptance of the tender, the contractor shall intimate the name of his accredited representative who would be supervising the construction and would be responsible for taking instructions for carrying out the work.

19. The Architect's/Consultant's/ KSITIL's decision with regard to the quality of the material and workmanship will be final and binding, any material rejected by the Architect/Consultant/ KSITIL shall be immediately removed by the contractor.

20. SUB-LETTING:

   No part of the contract shall be sublet without the written permission and approval of the Architect/Consultant and the KSITIL nor shall transfers be made by 'Power of Attorney' authorizing others to carry out the work or receive payment on behalf of the bidder.

21. DEFECTS LIABILITY PERIOD:

   Any defect developed within 'Defect Liability Period' of 36 months will have to be rectified by the contractor at their own cost and in case the defects are not rectified by the contractor in time, The Consultant/" KSITIL" or their representative shall get the work done at the risk and cost of the contractor. Please refer GO(P) No.161/2019/Fin dated 25/11/2019 issued by Finance (Industries& Public Works-B) Department, Government of Kerala.

22. DELAYS IN COMMENCEMENT:

   The contractor shall not be entitled to any compensation for any loss suffered by him on account of delays in commencing or executing the work, whatever the cause for such delays may be including delays in procuring Government Controlled or other materials.

31

23. OCCUPATION IN PART:

If the KSITIL wants to occupy areas in part, the contractor shall complete the work of these areas in conjunction with the KSITIL and hand over the same to the KSITIL without affecting any of the clause of contract agreement.

24. The contractor should inspect the source of material, their quality, quantity and availability. The material must strictly comply with the relevant I.S. specifications.

25. The contractor must co-operate and co-ordinate with other contractors involved in other works on the site. The contractor should also note that they shall have to clear the site of vegetation, debris etc. before the commencement of the work and that no extra payment is permissible on this account.

26. PERIOD OF CONSTRUCTION:

Time is the essence of the contract. The total work has to be completed within the time stipulated in the Notice Inviting Tender. Commencement of the work shall be considered from the 14th day on receipt of work order or the date of handing over the site whichever is later. The time allowed for carrying out the Work as entered in the tender shall be strictly observed by the Contractor and shall be deemed to be of the essence of the Contract and shall be reckoned from the date of award of the Contract. The Work shall proceed with due diligence until Final Completion. The Contractor shall submit a revised WBS schedule (Time Schedule) in MS Project in line with KIIFB norms indicating the milestones which shall be the basis for bill payments and the overall completion time and submit the same for the approval of the Engineer-in-Charge. The Contractor shall comply with the time schedule as approved by the Engineer-in-Charge.

27. VOID

28. LIQUIDATED DAMAGE(LD)

The work must be completed and handed over within the stipulated time as per tender conditions. If the Contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of Contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as compensation/ Liquidated damages @ 1(one) percent of the contract price per week of delay or part thereof. The aggregate of such compensation / compensations shall not

32

exceed 10 (ten) percent of the contract value. This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the Employer.

KSITIL shall have the right to terminate the contract and the balance work will be arranged at the risk and cost of the Tenderer unless and until the period of completion is suitably extended by KSITIL due to valid reasons. KSITIL shall also have the liberty to offload works/ some of items of works when there is a delay in execution, which could likely to delay the completion of whole work. These works /item of works shall be executed with other agency at the risk and cost of the Contractor.

29. CONTRACTOR'S STORE AND SITE OFFICE:

Suitable area near the site of work to the extent available shall be allotted to the contractor free of cost for storing his tools and plants, materials and for his site office and cement go-down. However, the structure will be provided by him at his own expense and he will be solely responsible for guarding his property and shall cover his property with requisite insurance against theft, fire etc.

30. PROCEDURE FOR PREPARATION AND SUBMISSION OF CONTRACT CERTIFICATES AND OTHER BILLS FOR PAYMENT

30.1. Contract Certificate:

30.1.1. When the Contractor has carried out works to such extent to justify calling for an interim contract certificate referred as 'RA Bills' as per the provisions of the contract, he shall proceed to prepare and submit for payment papers in the following manner.

30.1.2. All papers should carry the name of work the date of the measurement recording, the contract no., chronological serial no. of the contract, page numbers should be serially marked.

30.2. Measurements

30.2.1. The measurements/ quantity shall be recorded by the SPV/Architect/Consultant's Engineer jointly with Contractors authorized representative and record them directly in the Measurement Books and shall be signed at the end of each session of measurement or the day's work as the case may be, by both the parties (SPV/Architect/Consultant's Engineer and the Contractor). Initials of the Engineer with date should be put on every page. The measurements are to be check measured by another senior level Engineer of the Architect/Consultant/ KSITIL.

33

30.2.2. The M. book shall be in the custody of the Engineer of the SPV/Architect/Consultant and should be handed over to KSITIL after the completion of the work.

30.2.3. Extra or deviated items as claimed by the Contractor shall not be recorded in the M. book until they are approved by the competent authority.

30.2.4. The Contractor shall then prepare his detailed bill, in quadruplicate in the name of the KSITIL (Original, duplicate, triplicate) based on the certified measurements/ quantity, and the accepted rates applicable for each item. There shall be an abstract of the value of works measured for each. The quantities given herein shall be the total up to date quantities. The deduction to be made such as Retention money (Performance Security Deposit), Income tax, Labour Welfare Fund, advances already made on earlier bills, cost of materials if any issued etc. will be made and the net amount will be arrived at. Contractor shall prepare bills in triplicate based on the measurements recorded on M. book and shall be submitted to the Architect/Consultant with a covering letter addressed to the KSITIL. He will retain the quadruplicate for his reference. A copy of the covering letter should be sent to the KSITIL. Original bill and documents will be retained by KSITIL.

30.2.5. The SPV/Architect /Consultant shall then process the bill making correction, if any, required and forward the original and one copy to KIIFB for payment.

30.2.6. Extra items, which are not ordered in writing by the KSITIL, should not be included in the measurements.

30.3.   Certificate of Payments:

30.3.1. The contractors shall be paid payment by Kerala Infrastructure Investment Fund Board (KIIFB) based on the bill certified by KSITIL/CONSULTANT team from time to time by installments under Interim Certificates to be issued by the KSITIL/Architect/Consultant, to the contractor on account of the works executed.

30.3.2. The payment to the Contractor for the performance of the works under the Contract will be made by KIIFB based on the agreed Mile stones and as per the guidelines and conditions specified herein. All payment made during the Contract shall be Direct Beneficiary Transfer (DBT) through account payments only. The final payment will be made on completion of all the works and on fulfilment by the Contractor of all his liabilities under this contract.

34

30.3.3. Bills shall be submitted by the contractor monthly for the work in progress or final bill on completion of the work as per the specification, terms and conditions of the contract. The contractor shall not make any claim for interest or for damages for any delay in settling the bills. No such claims shall be admitted by SPV/Client/KIIFB. Should the contractor be unable to prepare the bill for himself, the Engineer In charge shall depute a subordinate to measure the work performed in the presence of the Bidder, whose counter signature to the measurement list will be a sufficient warrant to the Engineer In Charge to prepare the bill for him. However, payment will be based on the milestones specified in the tender. The SPV has no liability to make payment to the contractor on their invoices. It is specifically and distinctly understood that the 'SPV' acts purely as agents of the principal, namely the 'Owner' and the ownership in the property in the goods 'as goods or in some other form' is transferred directly from the 'Contractor' to the 'Owner'.

30.3.4. Void

30.3.5. Architect/ CONSULTANT/KSITIL shall have power to withhold any Certificate if the works or any parts thereof are not being carried out to his satisfaction.

30.3.6. The Architect/Consultant/KSITIL shall have power to withhold any Certificate for making any correction in any previous Certificate which shall have been issued by him.

30.3.7. No payment shall be made to the Contractor if the Contractor fails to ensure the works and keep them insured till the issue of the Virtual Completion Certificate.

30.3.8. The contractor may raise the interim bills once in a month for a minimum value of 50 Lakhs

30.4.   Right of Technical Scrutiny:

The KSITIL shall have a right to cause a technical examination of the works by any of the persons or organizations as appointed by the KSITIL and all bill of the contractor including all supporting vouchers, abstracts etc. of all bills. If as a results of this examination or otherwise any sum is found to have been over paid or over certified it shall be lawful for the KSITIL to recover the sum from any payment due to the contractor this works or any other work or works being carried out by the contractors elsewhere under the KSITIL.

30.5.   Abandonment of works:

35

If at any time after the acceptance of the tender, the KSITIL shall, for any reasons whatsoever not require the whole or works any part of the works to be carried out, the Architect shall give notice in writing to the contractor who shall have no claim to any payment of compensation or otherwise whatsoever on account of any profit or advantage which he might have derived from the execution of the whole works.

30.6.   Return of Surplus materials:

Notwithstanding anything to the contrary surplus contained in any or all the clause of this materials contract, where any material for the execution of the contract is procured with the assistance of the KSITIL by purchases made under orders or permits or licenses issued by Government, the Contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose of them without the prior written permission of the KSITIL and return it to the KSITIL, if required by the KSITIL, at the price to be determined by the Architect having due regard to the condition of the materials, the price to be determined not to exceed the purchase price thereof inclusive of GST and other such levies paid by the contractor in respect thereof. In the event of breach of the aforesaid condition, the contractor shall, in addition to being liable to action for contravention of the terms of licenses or permit and criminal breach of trust, be liable to honor for all moneys, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

30.7.   Right of KSITIL to terminate Contract in the event of death of contractor if individual

Without prejudice to any of the rights or remedies under this contract, if the contractor, being an individual, dies the KSITIL shall have the option of terminating the contract without incurring any liability for such termination.

31. **WATER AND ELECTRICITY**:

The contractor shall make his own arrangement for water and electricity required for the works. The KSITIL will not be responsible for the supply of either electricity or water.

32. **INSURANCE:**

The successful contractor shall take necessary All Risk Insurance Policy, jointly in the name of the KSITIL and the contractor, and the original policy shall be deposited with the KSITIL.

This document will form part of the tender document and the agreement executed by the successful bidder.

Managing Director, KSITIL,

36

Place:

Date:

I/We hereby declare that I/We have read and understood the above instructions and the terms and conditions mentioned above are binding on me/us.

SIGNATURE OF THE BIDDER

Date

37

5. **GENERAL CONDITIONS OF CONTRACT**

1. GUIDELINES TO THE TENDERERS

This bid document describes the complete scope, responsibilities and deliverables required from the bidders. To facilitate and create a common platform for preparing bid document, KSITIL has appointed an Architectural cum Engineering and Project Management Consultant. A design basis report & schematic design is included in this document.

Prior to submission of bids, a pre-bid meeting and a site visit shall be arranged between bidders and Architects/Consultants'/KSITIL team to provide for uniform bid understanding amongst all. The mutually clarified and agreed points of the meeting shall be circulated to all bidders. Such confirmation, clarification and minutes of meeting shall form part of bid documents.

Bidders are invited to submit their complete and competitive Technical and Financial offers for evaluation by Architects/Consultant's/KSITIL as per mandated timelines outlined in subsequent sections.

This project has been approved by KIIFB as per the details provided in the NIT. Payment to the contractor shall be made directly by KIIFB through Direct Beneficiary Transfer (DBT) upon certification of completion of the Mile Stones mentioned in this tender by the SPV.

2. PROJECT OUTLINE AND SUMMARY

The proposed work for data & networking located in building 1 (Wing A&B). CCTV system considered for entire campus. Please refer schematic diagram for networking and nod matrix for CCTV.

The contract document consists of the Agreement, Work order, Corrigendum if any, General Instructions, Notice Inviting Tender, General Conditions of the Contract, Special Conditions, suggested bar chart, incorporated in the document before the execution and the Contract Drawings prepared by KSITIL/Principal Consultant/ Engineer-in-charge from time to time. The following words and expressions shall have the meanings stated. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

Bid	means the set of BID DOCUMENTS submitted by a BIDDER for submitting a competitive quotation for the execution of Works in accordance with the Conditions of Contract, Technical Specifications, the Bill of Quantities and Drawings.

Bid Document	means as above definition of BID.
Bidder	means the member firms who shall have a Main Member firm / Company which will be the firm primarily responsible for the discharge of all technical, financial, contractual obligations for the execution of the Works. KSITIL shall only recognize the Main Member as the BIDDER for the BID for the actual performance of the contract even if legal responsibility will be continued to be joint and several of each of the member firms / companies in the Collaboration in case of any court actions and execution of court orders
Works	means the All works under approved scope to be executed in the Project – Supply & installation of Furniture for Building 1 & 2 at TIZ, Kalamassery, Kochi.
Contract	shall mean the Contract entered between KSITIL and the successful Bidder on award of Contract for the Works.
The Contractor/ Tenderer	shall mean an individual, proprietary firm, firm in partnership, limited company, corporation or a cooperative society who will responsible for the construction of all the components of work and to whom the Principal contract shall be awarded under single point responsibility for project construction.
Owner	Kerala Start up Mission
Funding Agency	Kerala Infrastructure Investment Fund Board (KIIFB), 2nd Floor, Felicity Square, MG Road, Statue, Thiruvananthapuram -695001
Special Purpose Vehicle (SPV)	Kerala State Information Technology Infrastructure Ltd., 1st Floor, Sankethika, PF Road, Vrindavan Gardens, Pattom P O, Thiruvananthapuram- 695004
"Principal Consultant/ Engineer-in-charge	KSITIL / M/s C R NarayanaRao(Consultants) Pvt. Ltd,No.10,Karpagambal Nagar,Mylapore,Chennai-600004

"Laws"	"All national (or state) legislation, statutes, ordinances and other laws, and regulations and by-laws of any legally constituted public authority. This Contract shall be governed by and construed in accordance with the laws and regulations of, and from time to time applicable in, India.
"Letter of Bid"	means the document entitled letter of bid, which was completed by the Tenderer and includes the signed offer to the KSITIL for the Works.
Specification"	"means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.
"Drawings"	means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the KSITIL in accordance with the Contract.
"Schedules"	means the document(s) entitled schedules, completed by The Contractor and submitted with the Letter of Bid, as included in the Contract. Such document may include the Bill of Quantities, data, lists, and schedules of rates and/or prices.
"Nominated Subcontractor"	means any qualified person for the particular work mentioned in the Contract as a subcontractor engaged with the Approval of KSITIL, or any person appointed as a subcontractor, for a part of the Works; and the legal successors in title to each of these persons.
"Purchase order":	The letter issued by KSITIL confirming the award of a contract by KSITIL to the Contractor, stating the amount of the award, the award date, etc.
"Site handing over"	The 'Notice to Proceed Site Activities; issued by the "KSITIL" to the Contractor in writing authorizing the Contractor to proceed with the Services at site.
"Party" and "Parties	KSITIL, Appointed Consultant and the Contractor

40

"Programme":	The program specified for bidding process in below section.
"Project Team":	Working team of M/s KSITIL, M/s C R Narayana Rao (Consultants) Pvt Ltd
"Third Party":	Any other person or entity as the context requires.
"Contract Document	The documents as part of this tender /Contract.
"Contract Sum":	The sum which KSITIL/body assigned by Govt. of Kerala will pay to the Contractor forming part of the Bid as modified thereafter and accepted by KSITIL as entered in the Articles of Agreement or such other sum as may be payable at all times and in the manner specified herein.
"Drawings"	"The drawings of the Works, as included in the Contract, and any additional and modified drawings issued by or approved by (or on behalf of) KSITIL in accordance with the Contract.
"Approved, Directed, Selected, Required":	The written approval, direction, selection or requirement of KSITIL, KSITIL, Design Consultant, Project Management Consultants (PMC),
"Letter of Acceptance"	Received and accepted Letter of Intent (LOI) duly signed by authorized person of Bidder or an exclusive acceptance letter in response to the Letter of Intent given by KSTIL/ including any annexed memoranda comprising agreements between and signed by both Parties. If there is no such letter of acceptance, the expression "Letter of Acceptance" means the Contract Agreement and the date of issuing or receiving the Letter of Acceptance means the date of signing the Contract Agreement as per KSITIL's standard agreement between KSITIL and the Main contractor.
Performance Guarantee	Successful bidder shall deposit performance guarantee, an amount equal to 3% of the awarded contract value within 14 days of award of the work and shall be execute agreement. Performance guarantee shall be retained till the end of Defects Liability Period. At least 50% of this deposit shall be collected in the form of Treasury Fixed Deposit and rest in the form of Bank Guarantee from Nationalized/Scheduled bank/Kerala Financial

41

Performance Security Deposit	Corporation valid for the entire period of construction plus defect liability period.

Performance security deposit is the retention amount deducted from the running bill of the contractors in addition to the performance guarantee. This will be @2.5% of the gross amount of each running bill so that the amount so retained shall be 2.5% of the value of the work done till then. This can be released against bank guarantee on its accumulation to a minimum amount of Rs. 5 Lakhs subject to the condition that the amount of bank guarantee except last one shall not be less than Rs. 5 Lakhs. This amount will be released after passing of final bill as in the case of refund of deposit. |
Additional Performance guarantee	Additional performance Guarantee will be required to be deposited, if the quoted amount of item of work by the bidder is between 10% to 25% below the estimated rate. Additional performance guarantee will be required in all cases where quoted rate falls below 10% of the estimate cost but the maximum permissible lower limit is 25% below the estimated cost. The 10% standard exemption will be applicable to all estimates quoted below estimate cost up to 25 %. If the rate quoted by the bidder for an item of work is X% below estimate cost where 'X' lies above 10%, the additional performance guarantee for that item of work is equal to (X-10) % of the estimate amount for that item of work. The total additional performance guarantee for the whole work is total of individual additional performance guarantee for each item of work calculated as above. This will be released only after satisfactory completion of entire scope of work without any interest. GO(P). No.7/2021/FIN dated 07/01/2021 is applicable for Additional performance Guarantee.
"Scope of works"-	The scope of works to be provided by KSITIL for the project as given in below in the tender.
"Work"	Of the Tenderer means the permanent Works and the Temporary Works, or either of them as appropriate.
"Temporary Works"	Means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and

42

		completion of the Permanent Works and the remedying of any defects.
	"The Site"	The land or place of the works and shall include any buildings, construction, erections thereon and any other land (inclusive) as aforesaid allotted by KSITIL for the contractor to complete the work. It would include any such other land adjacent to the site or otherwise, which may be acquired by owner/Govt of Keralafor the purpose of the works.
	"Bid"	The Offer and all other documents which the bidder has submitted, as included in the Contract.
	"Variation (change Order)"	as used in the Conditions includes but without limitation, any addition, omission, substitution, alteration or modification of any performance requirement of the design, quality or quantity, scope of works as shown upon described by or referred to in this Contract documents or in any documents properly prepared and approved by KSITIL for purposes of the Works other than not in accordance with this Contract, to be effected solely at the approval of KSITIL.

3. **DEFINITIONS**

The contract document consists of the Agreement, General Instructions, Notice Inviting Tender, General Conditions of the Contract, Special Conditions Technical Specifications and Schedule of quantities, suggested bar chart, tender drawings including all modifications thereof incorporated in the document before the execution and the Contract Drawings prepared by the Engineer-in-charge from time to time. These form the contract.

The Employer/ Owner: **Kerala Start up Mission**

Funding Agency: **KERALA INFRSTRUCURE INVESTMENT FUND BOARD**

Special Purpose Vehicle: **KERAL STATE IT INFRASTRUCTURE LIMITED**

Consultant: **C R Narayana Rao (Consultants) Pvt. Ltd**

The Contractor, also mentioned herein as Main Contractor / Principal Contractor/ Civil contractor:

All those mentioned as such in the Agreement and shall include their legal representatives, assigns,

43

or successors. They are treated throughout the Contract Document as if each were of the singular number and masculine gender.

"The Site" shall mean the site of the contract work including any building and erections thereon and any other land allotted by the Employer for Contractor's use.

Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an office of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

The term "Work" of the Contractor includes labour or material or both.

All time limits stated in the contract document are of the essence of the contract.

The law of the place of work shall govern the construction under this contract.

The date of virtual completion of the work or specified portion of the work is the date when execution is fully completed including check list works to the entire satisfaction of the Employer, in accordance with the Contract Documents as modified by any change or variation orders agreed to by the parties, so that the Employer can take over project for the use it was intended.

The words 'Bidder' / 'Tenderer' shall mean the specialized construction agency / agencies who tender for the work.

4.CONTRACT DOCUMENT

The following documents shall constitute the contract document.

I.Tender Notice.

II.Tender Form

III.Articles of Agreement

IV.General Instructions & Notice Inviting Tender

V.Conditions of Contract

VI.Special Conditions / Instructions

VII.Technical Specifications

VIII.Preamble and Priced Bill of Quantities.

44

IX.Tender drawings duly signed by the tenderer.

X.Suggested Bar Chart accepted by the Bidder or Bidder's alternate / detailed bar chart accepted by the Employer.

XI.Letters and documents including the covering letter of the tenderer, minutes of meeting, if any, post tender and the letter of acceptance by the **KSITIL** and award letter by the Employer.

XII.Corrigendum, if any

The Contract Document is complementary. What is called for in any one shall be as binding as if called for by all.

The Contract Document shall remain in the custody of the Employer, so as to be available at all reasonable times for the inspection of the Contractor. Immediately after the execution of the contract one copy of the Contract Document with all supporting documents shall without charge be supplied by the Employer to the Contractor and one copy of the Contract Document to the Engineer-in-charge.

Provided that nothing contained in the said Specifications, Descriptive schedule or other document shall impose any obligation beyond those imposed by the Contract Document namely by the Contract Drawing, the Contract Bills, the Articles of Agreement and these conditions and General Instructions and Notice Inviting Tender.

After the award of the Contract, the Contractor shall without charge be supplied with all such further drawings and details as may be prepared by the Engineer-in-charge and his Consultant, from time to time as the work proceeds as are reasonably necessary either to explain or amplify the Contract Drawings or to enable the Contractor to carry out and complete the work in accordance with these Conditions. Provided all such drawings shall be a reasonable development of the work described in the Contract Document. The detailed drawings shall be issued depending on the progress of work achieved at site

The Contractor shall keep one copy of the Specifications, Descriptive schedule or other like document referred to in this clause and one copy of the Contract Drawing and such other drawings and details supplied to him from time to time and referred to in this clause and written instructions referred to in various clauses upon the site so as to be available to the Engineer-in-charge or his representative at all reasonable times.

None of the documents here-in-before mentioned shall be used by the Contractor for any purpose other than this contract and neither the Employer nor the Engineer-in-charge shall divulge or use except for the purpose of this contract any of the prices in the contract bills.

4. TYPE OF CONTRACT

This is an item-rate contract. The Contract shall be for the items covered in the Schedule of Quantities

45

referred as "Price Bid" of Tender document. The Contractor shall be paid for the actual quantity of work done (duly approved by the Principal Consultant/ Engineer-in-charge/KSITIL Representative), as measured at site, at the accepted rates as quoted by him in the Contract Bills or as modified and agreed thereupon before acceptance.

The Contract is for General Builder's Work (ELV works) including any rectification / replacement during Defects Liability Period of three years from the date of handing over of the entire scope of works including the checklist works.

The Schedule of Quantities shall be read together with preamble to Bill of quantities, technical specifications and drawings as well as special conditions of contract.

Any variation, either addition or deletion in any one of the items required by the **Employer/KSITIL** during execution of work based on the unit rates quoted will be done so without any additional claims on the same on account of deletion or addition and bills shall be purely on the basis of measurements at site.

5. SCHEDULE OF QUANTITIES

The schedule of Quantities given in Contract Bill is provisional and is meant to indicate the intent of the work and to provide a uniform basis for tendering. The Employer reserves the right to increase or decrease any of the quantities or to totally omit any item of work and the Contractor shall not claim any extras or damages on these grounds.

Each item is to be priced individually, and in case any item / items are not priced, its value will be deemed to be included in the rates contained elsewhere in the Bill of Quantities.

In the event of acceptance of the tender, the item / items for which rates have not been quoted and priced shall be executed to full quantity at the Contractor's cost without charging extra.

Where the Contractor has not quoted against and entered the tender, for item / items in the bill of quantities and the tender had been accepted on the basis that the cost of the item / items of work was included in the rates of other items of the tender and thereafter compared with other tenders to ensure uniform basis of tendering and comparison, then the Contractor shall execute the full quantity of the said item / items in the bill of quantities at his own cost without charging extra. If the said item / items of work cannot be executed in full for any reason, the value of such work / works to the extent not executed as assessed by the Engineer-in-charges / KSITIL shall be deducted from any bills, notwithstanding the fact that the contract sum of the value of work done exceeds or decreases from the value of work at the time of award of work. The decision of the Engineer-in-charges / KSITIL in all such cases shall be final and binding on the parties.

Any variation either addition or deletion in any of the items required by the Employer (Engineer in Charge/KSITIL) during execution of work will be based on the unit rates quoted.

46

6. CONTRACT DRAWINGS

In general, the Drawings shall indicate dimensions, position and type of furniture to be supplied; the Specifications shall indicate the qualities and the methods; and the Schedule of Quantities shall indicate the quantum and the rate for each item of work. Any work indicated on the Drawings and not mentioned in the Specifications or vice versa shall be furnished as though fully set forth in both. The same interpretation shall apply between Schedule of Quantities and Drawings. Work not specifically detailed, called for, marked or specified shall be the same as similar parts that are detailed, marked or specified.

The Contractor's work shall not deviate from the Drawings and the Specifications. The Engineer-in-charge's interpretation of these documents shall be final.

Errors or inconsistencies or mismatching discovered between the Schedule of quantities and the Drawings and Specifications shall be promptly brought to the attention of the Engineer-in-charge/General Manager, through the Engineer-in-charge, for interpretation or correction. Local conditions, which may affect the work, shall likewise be brought to the Engineer-in-charge's/KSITIL's attention. The interpretation given by the Managing Director/General Manager, KSITIL shall be final and binding on the Contractor. No compensation is payable to the contractor on this account. If at any time, it is discovered that work is being done which is not in accordance with the final interpretations of the Engineer-in-charge/Managing Director, KSITIL and Contract Drawings and Specifications, the Contractor shall correct the work immediately at his cost and expenses. Corrections of defective work shall not be a basis for any claim for extension of time. The Contractor shall not carry on work except with the knowledge of the Engineer-in-charge.

Figured dimensions on the Scale Drawings and large size details shall govern. Large size details shall take precedence over small scale drawings. Any work done before receipt of such details, if not in accordance with the same, shall be removed and replaced or adjusted, as directed by the Engineer-in-charge without expense to the Employer. The general conditions apply with equal force to all the work including authorized extra works.

Bar bending schedule(s) for reinforcement steel shall be furnished by the contractor to the Engineer-in-charge at least fifteen days prior to the fabrication of the reinforcement.

7. CONTRACT SUM

The Contract sum shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these conditions, and subject to clauses of these conditions any error whether of Arithmetic or otherwise in the computation of the Contract Sum shall be deemed to have been accepted by the parties hereto.

The quoted rates shall also include expenses towards all Quality Control tests prescribed in the CPWD specifications and/or IS codes and/ or as directed by the Engineering In-Charge/KIIFB and to be done at Government/Aided Engineering Colleges or Polytechnic Colleges or NABL Accredited laboratories.

8. CONTRACT BILLS

The quality and quantity of the work included in the contract sum shall be deemed to be that which is set out in the Contract Bills which Bills unless otherwise expressly stated in respect of any specified item shall be deemed to have been prepared in accordance with the principles of the standard method of measurement of building works issued by the Bureau of Indian Standards but save as aforesaid nothing contained in the Contract Bills shall override, modify or affect in any way whatsoever the application or interpretation of that which is contained in these conditions.

Any error in description or in quantity or omission of items from the Contract Bills shall not vitiate this Contract but shall be corrected and deemed to be a variation required by the Engineer-in-charge/Employer.

9. SCOPE AND INTENT

Scope:

The general character and the scope of the work is illustrated and defined by the Specifications and the Schedule of Quantities herewith attached and by the signed Drawings. If the Contractor shall find any discrepancy in or divergence between the Contract Drawings and/or the Contract Bills he shall immediately give to the Engineer-in-charge a written notice specifying the discrepancy or divergence and the Engineer-in-charge shall issue instructions in regard thereto.

Extent:

The Contractor shall carry out and complete the work in every respect in accordance with this Contract and with the directions of and to the reasonable satisfaction of the Engineer-in-charge. The Engineer-in-charge may in his absolute discretion and from time to time issue further drawings, details and/or written instructions, written directions and written explanations all of which are collectively referred to as Engineer-in-charge's instructions. All such Drawings and instructions shall be consistent with Contract Document, true developments thereof and reasonably inferable there from.

Intent:

The intention of the Document is to include all labour and materials, equipment and transportation at all lead and lift and taxes necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Document, true developments thereof and reasonably inferable there from as made clear in clause (3) above. Materials of work described in words, which so applied, have a well-known technical or trade meaning shall be held to refer to such recognized standard.

10. ENGINEER-IN-CHARGE'S / EMPLOYER'S INSTRUCTIONS

48

The Contractor shall forthwith comply with and duly execute any works comprised in such instructions issued to him by the Engineer-in-charge in regard to any matter in respect of which the Engineer-in-charge is expressly empowered by these conditions to issue instructions provided always that verbal instructions, directions and explanations given to the Contractor or his work representative by the Engineer-in-charge shall if involving a variation be confirmed in writing.

If within seven days after receipt of a written notice from the Engineer-in-charge, requiring compliance with an instruction the Contractor does not comply therewith, the Employer may employ and pay other persons to execute any work whatsoever which may be necessary to give effect to such instructions and all cost incurred with such employment shall be fully recoverable from the Contractor by the Employer as a debt or may be deducted by him from any monies due or to become due to the Contractor under this Contract.

Upon receipt of what purports to be instructions issued to him by the Engineer-in-charge the Contractor may request the Engineer-in-charge to specify in writing the provision of these conditions which empowers the issue of the said instruction. The Engineer-in-charge shall forthwith comply with any such request, and if the Contractor shall thereafter comply with the said instruction, then the issue of the same shall be deemed for all purposes of this Contract to have been empowered by the provision of these Conditions specified by the Engineer-in-charge in answer to the Contractor's request.

All instructions issued by the Engineer-in-charge shall be in writing. Any instruction issued orally shall be of immediate effect but shall be confirmed in writing by the Contractor to the Engineer-in-charge within seven days, and if not dissented from in writing by the Engineer-in-charge to the Contractor within seven days from receiptofthe Contractor's confirmation shall take effect as from the expiration of the latter said seven days.

Provided always, that if the Engineer-in-charge within seven days of giving such an oral instruction shall himself confirm the same in writing, then the Contractor shall not be obliged to confirm as aforesaid, and the said instruction shall take effect as from the date of the Engineer-in-charge's confirmation.

Provided always that if neither the Contractor nor the Engineer-in-charge shall confirm such an oral instruction in the manner and at the time aforesaid but the Contractor shall nevertheless comply with the same, then the Engineer-in-charge may confirm the same in writing at any time prior to the issue of the Final Certificate, and the said instruction shall thereupon be deemed to have taken effect on the date on which it was issued.

11. CO-OPERATION

In the case of works indicated on the Drawings but not included in the contract the Contractor shall extend co-operation for any Sub-Contractor or supplier who may be approved by the Employer. The Contractor shall do the needful that may be required to make its several parts come together properly and fit to receive or be received by work of other Contractors shown upon or reasonably implied by

49

the Drawings and Specifications for the project.

The Contractor shall not endanger any work by cutting, excavating or otherwise altering the work and shall not cut or alter the work of any other Contractor save with the consent of the Engineer-in-charge.

12. SETTING OUT

The Engineer-in-charge shall determine any lines levels which may be required for the execution of the work and shall furnish to the Contractor by way of accurately dimensioned drawings such information as shall enable the Contractor to start with the Work.

The Contractor shall execute the work and shall be responsible for the accuracy of the same. He shall provide all the instruments and attendance required by the Engineer-in-charge or the client Engineer-in-charge for checking the work. He shall entirely at his own cost amend to the satisfaction of the Engineer-in-charge or the client Engineer-in-charge any error found at any stage which may arise through inaccurate execution.

13. PLACE OF WORK:

Visit : Before tendering, the Contractor shall have visited and examined the place of work and satisfied himself as to the communication facilities and correct dimensions of the work and the facilities for obtaining any special articles called for in the Contract Document and shall have obtained generally his own information on all matters affecting execution of the work(s).

No extra charge made in consequence of any misunderstanding or incorrect information on any of these points, or on the grounds of insufficient description, will be allowed. Should the Contractor after visiting the place of work, find any discrepancies, omissions, ambiguities or conflicts in or among the Contract Document, or be in doubt as to their meaning, he shall bring the questions to the Engineer-in-charge's attention, not later than four days before the last date for submission of the tender.

Possession: The Contractor shall be allowed admittance to the works place on the 'Date of Commencement' stated in the Annexure and he shall thereupon and forthwith begin the work and shall regularly proceed with and complete the same on or before the 'Date of Completion' stated in the Annexure subject nevertheless to the provision for extension of time hereinafter contained.

14. SAMPLES AND SHOP DRAWINGS:

After the award of the Contract, the Contractor shall furnish for the approval of the Engineer-in-charge, with such promptness as to cause no delay in his work or in that of any other Sub-Contractor, samples and shop drawings required by the specifications or by the Engineer-in-charge. Samples shall be delivered as directed by the Engineer-in-charge.

50

A schedule giving dates for the submission of samples shall be included in the schedule described under clause 15. Unless specifically authorized all samples must be submitted for approval within seven days of signing the Contract and not less than fifteen days before the date the particular work involved is scheduled to begin.

The Engineer-in-charge shall check and approve such samples, with reasonable promptness only for conformity with the design concept of the project and for compliance with the information in the Contract Documents. The Work shall be in accordance with the approved samples.

15. PROGRESS CHART

The Contractor shall prepare programme charts in MS Project and submit the same for approval of the Engineer-in-charge and for his record within Two weeks of the Award of the Contract. The charts shall indicate the expected date of commencement and completion of each of the items of the work and shall be in a form approved by the Engineer-in-charge. The programme chart shall be reviewed by the Engineer-in-charge and the Contractor shall modify the same in Consultation with the Engineer-in-charge / employer. This chart shall be binding on the contractor as far as the progress of individual items of work is concerned. The chart shall be revised only with the express approval of the Employer and Engineer-in-charge. Approval of Revised chart shall not be construed as approval of extension of time of completion. The chart shall also indicate the scheduling of samples, Shop Drawings and approvals.

16. ACCESS FOR ENGINEER-IN-CHARGE/EMPLOYER TO THE WORKS

The Engineer-in-charge / Employer and his / their authorized representatives shall at all reasonable times have access to the Works and other places of the Contractor where work is being prepared for the Contract as defined in relevant clauses of these Conditions) the Contractor shall have a term in the so as to secure a similar right of access to those places for the Engineer-in-charge and his representatives and shall do all things reasonably necessary to make such right effective.

17.   ENGINEER-IN-CHARGE'S / EMPLOYER'S STATUS AND DECISIONS:

The Engineer-in-charge shall be the representative of **KSITIL** during the Construction Period. The Engineer-in-charge or the Engineer-in-charge' Engineer's shall be available at the site to monitor the progress and the quality of the work and to determine in general if the work is proceeding in accordance with the Contract Document on behalf of the special purpose vehicle (KSITIL). During inspection by the Engineer-in-charge and on the basis of his observations he shall keep the Employer informed of the progress of the work, shall endeavor to guard the Employer against Defects and deficiencies in the work of the Contractor and he shall reject work which fails to conform to the Contract document. He shall have authority to act on behalf of the Employer to the extent expressly provided in the Contract Document or otherwise in writing which shall be shown to the Contractor. He shall have authority to stop the work whenever such stoppage may be necessary in his reasonable opinion to ensure the proper execution of the Contract.

Decision :

The Engineer-in-charge with consent of employer from time to time issue further Drawings, Details and/or written instructions, written directions and written explanations in regard to :

A. Variation or modification of the design.

B. The quality or quantity of works or the additions or omission or substitution of any work.

C. Any discrepancy in or divergence between the Drawings and / or specifications.

D. The removal and/or re-execution of any works executed by the Contractor.

E. The dismissal from the works of any persons employed thereon.

F. The opening up for inspection of any work covered up.

G. The amending and making good of any Defects under Defects Liability Period.

H. The removal from the site of any materials brought thereon by the Contractor and the substitution of any other material therefor.

I. Assignment and giving on sub-contract

J. Delay and extension of time.

K. The postponement of any work to be executed under the provision of this Contract.

Dismissal:

The Contractor shall on the request of the Engineer-in-charge immediately dismiss from the works any person employed thereon by him who may in the opinion of the Engineer-in-charge be incompetent or misconducts himself and such person shall not be again employed on the work without the permission of the Engineer-in-charge.

19. ENGINEER OR ENGINEER-IN-CHARGE

The term "Engineer or Engineer-in-charge" shall mean the person engaged by KSITIL acting under the orders of the Managing Director/General Manager, KSITIL to inspect the works; the Contractor shall afford the Engineer or Engineer-in-Charge every facility and assistance for inspecting the works and materials and for checking and measuring time and materials. The Engineer or Engineer-in-Charge or representative of the Engineer-in-charge shall have power to set out works or to revoke,

52

alter, enlarge or relax any requirements of the Contract or to sanction any day work, additions, alterations, deviations or omissions, or any extra work with approvals from KSITIL.

The Engineer or Engineer-in-Charge or any representative of the Engineer-in-charge, shall have power to give notice to the Contractor or to his representative of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the Engineer-in-charge, is obtained. The works will from time to time be examined by the Engineer-in-charge, the Engineer or the Engineer-in-charge's representative but such examination shall not in any way exonerate the Contractor from the obligation to remedy any Defects which may be found to exist at any stage of the works or after the same is completed. Subject to the limitation of this clause the Contractor shall take instructions only from the Engineer-in-charge.

20. CONTRACTORS FIELD ORGANIZATION AND EQUIPMENT

Resident Engineer:

The Contractor shall constantly keep on his work during its progress one or more qualified and competent and experienced for the scope of works (Theatre Dolby surrounding system, AV and sound engineering works) Project Manager/Resident Engineer who will be responsible for the carrying out of the works to the true meaning of the Drawings, Specifications and Schedule of the Quantities, Engineer-in-charges / KSITIL instructions and directions to the satisfaction of the Engineer-in-charge. Any directions or instructions given to him by the Engineer-in-charge shall be deemed to have been issued to the Contractor. Attention is called to the importance of requesting instructions from the Engineer-in-charge before undertaking any work where Engineer-in-charge's directions or instructions are required. Any such work done in advance of such instructions will be liable to be removed.

Equipment

The contractor shall provide and install all necessary cranes, hoists, ladders, scaffolding, tools, tackles, plants, etc., all transport for labour, materials and plant necessary for the proper carrying on execution and completion of work to the satisfaction of the Engineer-in-charge.

Site Laboratory

The contractor shall provide all necessary measuring equipments, like digital balance inside the site premises for ease of checking

Watchmen

The contractor shall always make his own security arrangements to guard the site and premises , at his own expense. The security arrangements shall be adequate to maintain and control on the movement of materials and labour. The contractor shall extend the security to the material stored

53

and /or fixed by the sub-contractors.

Storage of materials

The contractor shall provide, erect and maintain proper sheds for proper storage and protection of materials etc., and also for the execution of work which may be prepared on the site.

The Contractor shall provide and erect all necessary sanitary conveniences for workmen, maintain in a clean and orderly condition and clean and deodorize the ground after removal.

The materials brought in by the Contractor to the site shall be stored and accounted. The materials brought to the site must be stores as per recommended practices by the relevant codes

Scaffolding, Staging and Guard Rails

The contractor shall provide scaffolding, staging, guardrails, temporary stairs which shall be required during construction. The support for the scaffolding, staging, guardrails and temporary stairs shall be strong and adequate for the situation. The temporary access to the various parts of the building under construction shall be rigid and strong enough to avoid any chance of mishaps. The arrangement proposed shall be subject to the written approval of the Engineer-in-charge.Where asked for, the contractor shall provide all necessary documentation certifying the structural stability and safety through an approved and authorized agency, of all such said erections.

Arrangement of Execution of work

The Contractor shall arrange for all materials and labour (equipment, Watchman, Storage of materials, Sanitary convenience, Scaffolding, Telephone, etc.) necessary including its transportation for proper execution and completion of the work to the satisfaction of the Engineer-in-charge.

House Keeping:

The Contractor shall be required to maintain the site and surroundings in a neat and orderly manner, free of accumulating debris, haphazard stacking of materials, unhygienic and unsafe environment, cleaning of the site at all levels inside and outside, removal of unwanted materials, packing cases etc., shall be undertaken once on daily basis.

21.A)   Safety Code and Safety Rules

There shall be maintained in a readily accessible place first aid appliances including adequate supply of sterilized dressings and cotton wool.

An injured person shall be taken to a public hospital without loss of time, in cases where the injury

54

necessitates hospitalization.

Suitable and strong scaffolds should be provided for workmen for all works that cannot safely be done from ground.

No portable single ladder shall be over 8 meters in length. The width between the side rails shall not be less than 30 cm. (clear) and the distance between two adjacent rungs shall not be more than 30cm. When a ladder is used an extra mazdoor shall be engaged for holding the ladder.

The excavation material shall not be placed within 1.5 meters of the edge of the trench or half of the depth of trenches whichever is more. All trenches and excavations shall be provided with necessary fencing and lighting.

Every opening in the floor of a building or in a working platform be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be one meter.

No floor, roof or other part of the structure shall be so overloaded with debris or materials as to render it unsafe.

Workers employed on mixing and handling material such as asphalt, cement mortar or concrete and lime mortar shall be provided with protective footwear and rubber hand-gloves.

Those engaged in welding works should be provided with welder's protective eye-shields and gloves. All persons at site shall wear shoes and protective safety helmets approved for construction sites.
No paint containing lead or lead products shall be used except in the form of paste or readymade paint.

Suitable facemasks should be supplied for use by the workers when the paint is applied in the form of spray or surface having lead paint dry rubbed and scrapped.

Overalls shall be supplied by the Contractor to the painters and adequate facilities shall be provided to enable the working painters to wash during the period of cessation of work.

Hoisting machines and tackle used in the works, including their attachments, anchorage and supports shall be in perfect condition.

The ropes used in hoisting or lowering material or as a means of suspension shall be of durable quality and adequate strength and free from Defects.

B)   SAFETY RULES TO BE FOLLOWED BY THE CONTRACTOR DURING EXECUTION OF WORK:

55

1.	All the staff working at site will wear helmets.

2.	All electrical equipment used by them Contractor will have double earthing and will be connected through an ELCB.

3.	No temporary electrical connections with loose wire will be permitted. For all electrical connections, proper sockets and plugs will be used and wiring / cabling clamped.

4.	Electrical hand tools like drilling machine will be of 220 volts type.

5.	ELCB's will be used wherever power & electrical connections are taken by the Contract.
6.	Firefighting portable extinguishers will be used and located at appropriate locations.

7.	All staff working at heights will use safety belts and standard platforms with 42" height railing.

8.	All the staff working will as far as possible wear shoes.

9.	All electricians will have wiremen's license.

10.	Standard ladders made of steel or aluminum will be used, non-standard ladders will not be permitted.

11.	Inflammable materials like Petrol, Kerosene, Wax etc., will not be allowed to be stored at site stores. Special storage space with fire protection arrangements will be provided.

12.	Each Contractor will keep a well-furnished FIRST AID box with easy accessibility. Respiratory protective equipment should be available with the Contractor.

13.	Welding mechanics and electricians will wear rubber gloves.

14.	Personal protecting equipment like Ear Muffler, Goggles, Gloves, Safety Belt, Safety Helmet, Rubber Shoes, etc., should be used and available in contractor's stores.

15.	Use of asbestos to be prevented.

16.	If correct manual handling is not used, it can result in back injuries. Therefore all workers should be trained in safe manual handling. Special object require special handling.

17.	All scaffolding will be of steel and double stage.

18.	Contractors to ensure that all equipment tools, brought on to the premises will be in a safe condition have recently been checked and that all personnel using the equipment and tools have been trained in their safe use.

56

19.   Contractor to ensure that whilst on site premises, he will comply with all health and safety legislation as required by the Employer.

20.   All the platforms, scaffolding and catwalks should have railings of 1 Mt. height and 100 mm toe board. All the catwalks should be minimum 450 mm wide and of grill type. All ladders should have hand rails.

21.   **Void**

Directions of traffic movement permitted at site and sign boards for steel yard/aggregate store/kitchen/mess hall/lab etc. need to be displayed.

22A.PAYMENT TO LOCAL BODIES

All payments to statutory bodies towards ESI, PF of his employees or labour etc. and for adhering to Contract Labour Laws shall be borne by the Contractor within his quoted rates.

a.   **TAXES:** The rates quoted to be inclusive of all taxes/duties/Cess etc., but excluding GST and Kerala flood Cess. GST and Kerala flood Cessat applicable rate shall be paid extra.

23. STATUTORY OBLIGATIONS, NOTICES, FEES AND CHARGES

The Contractor shall comply with and give all notices required by any Government authority, and instrument, rule or order made under any Act of Parliament or State Legislature or any regulation or Bye-law of any local authority relating to the work or with whose system the same is or will be connected. The Contractor before making any variation from the Contract Drawings or Contract Bills necessitated by such compliance shall give to the Engineer-in-charge a written notice specifying and giving reasons for such variations and the Engineer-in-charge may issue instructions in regard thereto. If within 10 days of having given the said written notice the Contractor does not receive any instructions in regard to the matters therein specified, he shall proceed with the work confirming to the Act of Parliament, or State Legislature instrument, rule, order, regulations or Bye-law in question and any variation thereby necessitated shall be deemed to be a variation required by the Engineer-in-charge.

The Contractor shall pay and indemnify the Employer against liability in respect of any fees or charges (including any rates and taxes) legally demandable under any Act of Parliament, or State Legislature instrument, rule or order or any regulation or Bye-law or any local authority in respect of the Work.

57

24. ROYALTIES AND PATENT RIGHTS

All royalties or other sums payable in respect of the supply and use in carrying out the Work as desired by or referred to in the Contract Bills of any patented articles, process or inventions shall be deemed to have been included in the Contract sum, and the Contractor shall indemnify the Employer from and against all claims, proceedings, damages, costs and expenses which may be brought or made against the Employer or to which he may be put by reason of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, processes and inventions. This clause shall apply equally to trademarks and Copyrights also. and the Contractor shall indemnify the Employer in like manner.

25. LICENSES AND PERMITS FOR MATERIALS UNDER GOVERNMENT CONTROL

Licenses and Permits for all materials shall be obtained by the Contractor through written authorization by the Employer. The Contractor shall include in his tender all transport charges and other expenses like transit insurance etc., likely to be incurred to bring the materials / equipment to the Site in good and sound condition.

26. WATER / POWER FOR CONSTRUCTION

The CONTRACTOR has to make his own arrangements for water and power required, meet all the expense in connection therefore, and the tender rates will be deemed to include for all the above expenses and charges. The Employer will entertain no claim whatsoever regarding the same.

If the Contractor proposes to make his own arrangements for the supply of water other than from the supply authority, he shall furnish at his cost the water analysis to the Engineer-in-charge for approval before use in the building work.

27. ASSIGNMENT OR GIVING ON SUB-CONTRACT

The Contractor shall not without the written consent of the Engineer-in-charge assign the whole or any part of the Contract, and shall not without the written consent of the Engineer-in-charge (which consent shall not be unreasonably withheld to the prejudice of the Contractor) be given on sub-contract any portion of the work.

28. SUB CONTRACTOR:

Sub-contracting of works in full or parts is not permitted in this contract. For specialized works, agencies with adequate skills and licenses can be deployed by the Contractor, with consent from KSITIL, but responsibility of full work will be wholly upon the awarded contractor without any fail.

That the nominated Direct Sub-Contractor shall carry out and complete the sub-contract works in every respect to the reasonable satisfaction of the Engineer-in-charge/ Employer and in conformity with the requirement of the Contract.

58

That the nominated Direct Sub-Contractor shall observe, perform and comply with all the provisions of this Contract on the part of the Contractor to be observed, performed and complied with (other than relevant clauses of these conditions, if applicable) so far as they relate and apply to the Sub-Contract works or to any portion of the same.

Employer will not be liable for any claims made by the Sub-Contractors against the Contractor.

That payments in respect of any work, materials or goods comprised in the Sub-Contract shall be made within fourteen days after receipt by the Contractor of the Engineer-in-charge's certificate under clause 33 of these conditions which states as due an amount calculated by including the total value of such work, materials or goods, and shall when due be subject to sums mentioned in sub-paragraph.

That the Engineer-in-charge and his representative shall have right of access to the workshops and other places of the nominated Direct Sub- Contractor as mentioned in **clause 16** of these conditions.

That the Sub-Contract work shall be completed within the period or (where they are to be completed in sections) periods therein specified, that the Contractor shall not without the written consent of the Engineer-in-charge grant any extension of time for the completion of Sub- Contract work or any section thereof, and that the Contractor shall inform the Engineer-in-charge of any representations made by the nominated Direct Sub- Contractor as to the cause of any delays in the progress of completion of the Sub-Contract work or of any section thereof.

Before issuing any certificate under relevant clausesof these conditions the Engineer-in-charge may request the Contractor to furnish to him reasonable proof that all amounts included in the calculation of the amount stated as due on previous certificates in respect of the total value of work materials or goods executed or supplied by any nominated Direct Sub-Contractor have been duly discharged and if the Contractor fails to comply with any such request the Engineer-in-charge shall issue a certificate to that effect and thereupon the Employer may himself pay such amounts to any nominated Direct Sub-Contractor concerned and deduct the same from any sums due or to become due to the Contractor.

The Contractor shall not grant to any nominated Direct Sub-Contractor any extension of the period within which the Sub-Contract work or (where the Sub-Contract works are to be completed in sections) any section thereof is to be completed without the written consent of the Engineer-in-charge.   Provided always that the Contractor shall inform the Engineer-in-charge of any representation made by the nominated Direct Sub-Contract work or any section thereof and that the consent of the Engineer-in-charge shall not be unreasonably with-held.

If any nominated Direct Sub-Contractor fails to complete the Sub- Contract work or (where the Sub-Contract works are to be completed in sections) any section thereof within the period specified in the Sub- Contract or within the extended time granted by the Contractor with the written consent of the Engineer-in-charge then if the same ought reasonably so to have been completed the Engineer-

59

in-charge shall certify in writing accordingly. Any such certificates shall be issued to the Contractor and immediately upon issue the Engineer-in-charge shall send a duplicate copy thereof to the nominated Direct Sub-Contractor.

If the Engineer-in-charge desires to secure final payment to any nominated Direct Sub-Contractor before final payment is due to the Contractor, and if such Sub-Contractor has satisfactorily indemnified the Contractor against any latent Defects then the Engineer-in-charge may in an Interim Certificate include an amount to cover the said final payment and thereupon the Contractor shall pay such nominated Direct Sub-Contractor the amount so certified. Upon such final payment the amount named in the appendix to these conditions as limit of retention fund shall be reduced by the sum which bears the same ratio to the said amount as does such Sub-Contractor's price to the Contract Sum, and save for latent Defects the Contractor shall be discharged from all liability for the work materials or goods executed or supplied by such Sub- Contractor under the Sub-Contract to which the payment relates.

Neither the existence nor the exercise of the foregoing powers nor anything else contained in these conditions shall render the Employer in any way liable to any nominated Direct Sub-Contractor.

Where the Contractor in the ordinary course of his business directly carried out works for which Prime Cost or Provisional Sums are included in the Contract Bills and the Engineer-in-charge is prepared to receive tenders from the Contractors for such items, then the Contractor shall be permitted to tender for the same or any of them but without prejudice to the Employer's right to reject the lowest or any tender. If the Contractor's tender is accepted he shall not assign the work without the consent in writing of the Engineer-in-charge.

It shall be a condition of any tender accepted under this paragraph that **clause32** of these conditions shall apply in respect of the Item Work included in the tender as if for the reference therein to the Contract Drawings and the Contract Bills there were references to the equivalent documents included or referred in the Tender.
The Contractor shall for general attendance upon Sub-Contractors including free use of plant scaffolding and is to allow them the use of sanitary conveniences, storage facilities for storing materials, other amenities and affording them all reasonable facilities for carrying out their Contracts.

29. VOID

30. VOID

31. SEPARATE CONTRACTS.

The Employer reserves the right to let other Contractors in connection with the work under similar general conditions. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and co-ordinate his work with theirs. If any part of Contractor's work depends for proper

execution or results upon the work of any other Contractor, or Sub-Contractor, the Contractor shall inspect and promptly report to the Engineer-in-charge any Defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the reception of his work, except as to Defects which may develop in the other Contractor's or Sub-Contractor's work after the execution of the work. To ensure the proper execution of his subsequent work the Contractor shall measure work already in place and shall at once report to the Engineer-in-charge any discrepancy between the executed work and the Drawings.

32. EXTRA ITEMS

32.01 Any item of work that does not find a place in the schedule of quantities, in the original Tender or in the accepted Tender or Contract as has been directed by the Owner / Consultant to execute, is deemed as an extra item of work.All such works that are necessary to be carried out under the direction of the Owner/Consultant shall be carried out by the Contractor. No such variation will violate the Contract.

32.02 Extra items of work thus carried out by the Contractor will be paid at the rates worked out by Owner/Consultant in the following manner.

a. Cost of materials actually used by the Contractor and /or by theoretical analysis of consumption of materials at work, at no more than prevailing local market rates, actually incorporated in the work.

b. Cost of labour actually used at the Site and /or by theoretical analysis of labour utilization on the work at no more than prevailing local market rates, actually incorporated in the Work.

c. 1% of the costs in respect of (a) and (b) above, towards water charges, can be added, if required as per the Engineer-in –charge.

d. 15% of the costs in respect of (a), (b) and (c) above, towards Contractor's establishment, electricity charges, tool & plants, all other costs, overhead & profit plus applicable taxes shall be added.

e. For this purpose, the Contractor shall submit to the Engineer-in- Charge detailed analysis of the rate proposed by the Contractor supported by relevant vouchers along with the estimated quantity of work item involved.

32.03 In the case of all extra items whether additional, altered or substituted, if accepted rates for identical items are provided for in the Contract such rates shall be applicable. The contractor shall bear all additional costs for unloading or other such works done.

32.04 In the case of extra items whether altered or substituted, for which similar items exists in

61

167

the Contract, the rates shall be derived from the original item by appropriate adjustment of cost of affected components, on the basis of provision of standard data book of CPWD data / DSR 2018 with rates from Revised CPWD data / DSR 2018 (In sync with PRICE Software) and DSR 2018 shall be considered for E&M . The % excess or reduction of the contract rate for the original item with reference to the estimated rate shall then be applied in deriving the rate for such items.

32.05   In the case of extra items, whether additional altered or substituted, for which the rates can only be partly derived from similar items in the Contract and CPWD data and DSR 2018 and partly from market rates the rate will be worked out as follows:

The contractor will immediately after the execution of the work as mentioned above shall communicate to the Engineer and Consultant the rate claimed for the item with supporting documents as regards the prevailing market rates. The Consultant shall examine those reports and work out the rate in the following manner.-

32.06   In the case of extra item whether additional, altered, substituted, for which the rates cannot be derived either from similar items of work in the Contract or from the departmental schedule or rates, the rate will be worked out fully on the basis of prevailing market rates (giving due consideration to the analysis of the rate furnished by the contractor with supporting documents). The Contractor immediately *after execution* of the work as mentioned above and shall within 14 days of the receipt of order to carry out the said extra item of work, communicate to the Engineer/Consultant the rate which he proposes to claim for the item, supported by analysis of the rate claimed and the Consultant shall determine, the rate on the basis of the market rate excluding GST giving due consideration to the rate claimed by the contractor and forward the same to KSITIL. In the case the requirement for labour such item is available in the CPWD data / DSR 2018 (PRICE SOFTWARE) ; this shall be taken as the basis for working out rate. If this is not available observed data during the actual execution of work will be taken as the basis The % excess or deduction in the contract rate over the estimate rate shall not be applied in this case.

32.07   The Contractor shall make his own arrangement for water and electricity required for the work. The Owner takes no responsibility for the supply of either electricity or water. While all efforts will be made to finalize the rate before the extra item of work is ordered, the contractor shall not stop the work on account of non-finalization of the rates.

The quoted rates with deviation of more than (+) 25% over Technical Sanction Estimate rates may be treated as Abnormally High Quoted Rates (AHQR) item. In respect of

62

AHQR item, the contract rate is applicable for the scheduled quantities in the contract only.

If the quantities of contract items (except AHQR items), substituted items or contract cum substituted items exceed 25% of the respective quantities in the contract schedule of quantities, then such items (over 25% of schedule quantity) shall be treated as deviated item, rates of which shall be finalized as described further in this document.

For deviated quantities, i.e., quantities in excess of 25% over agreement schedule quantities, the admissible rates shall be limited to estimate rate modified by overall tender excess/tender deficit, as the case may be, subject to a maximum of PWD local market rates prevailing at the time of ordering.

The items that are taken up with partial substitution or in lieu of items of work in the contract shall be treated as substituted items, rates of which shall be finalized as described further in this document.

If the rates for the extra, additional, altered or substituted items of work cannot be determined in the manner specified above, then the rates for such work shall be determined on the basis of actual /theoretical consumption of materials, and actual / theoretical use of labour, as detailed below; consideration of actual or theoretical consumption shall be at sole discretion of the Engineer-in-Charge.

33. CERTIFICATE AND PAYMENTS

At the period of Interim Certificate named in the Annexure to these conditions the Engineer-in-charge shall issue a certificate stating the amount due to the Contractor from the Employer, and the Contractor be entitled to payment therefor within the period for honoring certificates named in the Annexure to these conditions. Interim valuations shall be made whenever the Engineer-in-charge considers them to be necessary for the purpose of ascertaining the amount to be stated as due in an Interim Certificate.

The amount stated as due in an Interim Certificate shall subject to any agreement between the parties as to stage payments, be the total value of the work properly executed and of the materials and goods delivered to or adjacent to the work for use thereon up to and including a date not more than seven days before the date of the said Certificate less any amount which may be retained by the Employer (as provided in this clause of this condition) and less any installments previously paid under this Condition, provided that such certificate shall only include the value of the said materials and goods as and from such time as they are reasonably, properly and not prematurely brought to or placed adjacent to the work and then only if adequately protected against weather or other casualties.

The Employer may retain the percentage of the total value of the work, materials and goods referred to in this clause of this condition, which is named in the Annexure to these conditions as retention

63

percentage. Provided always that when the sum of the amounts so retained equals the amount named in the said Annexure as limit of retention fund or that amount as reduced in pursuance of clause 28 of these conditions, as the case may be, no further amounts shall be retained by virtue of this clause.

The amounts retained by virtue of this Clause of this Condition shall be subject to the following rules: -
The Employer's interest in any amounts so retained shall be fiduciary as trustee for the Contractor (but without obligation to invest), and the Contractor's beneficial interest therein shall be subject only to the right of the Employer to have recourse thereto from time to time for payment of any amount which he is entitled under the provisions of this Contract to deduct from any sum due or to become due to the Contractor.

On the issue of the certificate of virtual completion, the Engineer-in-charge shall issue a certificate for release of one half of the total amounts then so retained and the Contractor shall be entitled to payment of the amount released within the period for honoring certificate named in the Annexure to these Conditions.

The measurement and valuation of the work shall be completed within the period of final measurement and valuation stated in the Annexure to these Conditions, and the Contractor shall be supplied with a copy of the priced bills of variation not later than the end of the said period and before the issue of the Final Certificate under this Clause of this Condition.

Either before or within a reasonable time after Virtual Completion of the work the Contractor shall send to the Engineer-in-charge all documents necessary for the purposes of the computations required by these Conditions including all documents relating to the accounts of Sub-Contractors.

In the settlement of accounts the amounts paid or payable under the appropriate contracts by the Contractor to the amounts paid or payable by virtue of clause 23 of these Conditions in respect of fees the amounts paid or payable in respect of any insurance maintained in compliance with clauses 48 and 49 of these conditions, the Tender Sum (or such other sum as is appropriate in accordance with the terms of the tender) for any work for which a tender made under clause 28 of these conditions is accepted and the value of any work executed by the Contractor for which a provisional sum mentioned in the Contract Bills or arising under Engineer-in-charge's instructions issued under clause 32 of these Conditions as the case may be, and the balance, after allowing in all cases prorate for the Contractor's profit at the rates shown in the Contract Bills, shall be added to or deducted from the Contract Sum. Provided that no deduction shall be made in respect of any damages paid or allowed to the Contractor.

So soon as is practicable but before the expiration of the period the length of which is stated in the Annexure to these Conditions from the end of the Defects Liability Period also stated in the said Annexure or from completion of making good Defects under **clause 42** of these conditions or from receipt by the Engineer-in-charge of the Documents referred to in this Clause of this Condition, whichever is the latest, the Engineer-in-charge shall issue the Final Certificate. The Final Certificate shall state :

64

The sum of the amount paid to the Contractor under Interim Certificate and the amount named in the said Annexure as limit of Retention Fund.

The Contract Sum adjusted as necessary in accordance with the terms of these conditions, and the difference (if any) between the two sums shall be expressed in the said Certificate as a balance due to the Contractor from the Employer or to the Employer from the Contractor as the case may be, and subject to any deductions authorized by these conditions, the said balance shall as from the fourteenth day after the issue of the said Certificate be a debt payable as the case may be by the Employer to the Contractor or by the Contractor to the Employer.

The said certificate shall be conclusive evidence in any proceedings arising out of this Contract that the works have been properly carried out and completed in accordance with the terms of this Contract and that any necessary effect has been given to all the terms of this Contract which require an adjustment to be made to the Contract sum, except and in so far as any sum mentioned in the said certificate is erroneous by reason of :-

Fraud dishonesty or fraudulent concealment relating to the works, or any part thereof, or to any matter dealt with in the said Certificate: or

Any defect (including any omission) in the works, or any part thereof which reasonable inspection or examination at any reasonable time during the carrying out of the works or before the issue of the said Certificate could not have disclosed: or

Any accidental inclusion or exclusion of any work, materials, goods or figure in any computation or any arithmetical error in any computation.

Save as aforesaid no Certificate of the Engineer-in-charge shall of itself be conclusive evidence that any works materials or goods to which it relates are in accordance with this Contract.

34. CLAIM FOR EXTRA

When any instruction or decision given at site involves extra work or where the Contractor may plan to claim an extra, it shall be the responsibility of the Contractor to inform the Engineer-in-charge/KSITIL of the extra amount and get written authorization from the Engineer-in-charge and or the Employer before proceeding with the work involved. The Contractor shall not withhold the execution of extra items pending for approval of the rate claimed by him. The entire work shall be commenced immediately on instruction from Engineer-in-charge/ employer and completed as per instructions notwithstanding the approval of rate claimed by the Contractor.

Any modification carried out for expediting or simplifying work at the request of the Contractor or his representatives shall not be taken as the basis for claiming an extra. However, if such modification shall also involve an extra, the rate for such modification shall be settled in advance as per procedure in clause (32) above and written authorization obtained by the Contractor from the Engineer-in-charge before proceeding with the work involved. If no such information is given by

65

the Contractor in writing to the Engineer-in-charge such modification shall not be accepted as the basis for extra charge.

35. DEDUCTION FOR UNCORRECTED WORK

If the Engineer-in-charge deems it inexpedient to correct work damaged or not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefore.

36. FLUCTUATIONS

The Contractor shall not claim any extras for fluctuation of price and the Contract Price shall not be subject to any rise or fall of prices and shall be firm throughout the tenure of the contract.

37. UNFIXED GOODS AND MATERIALS

Unfixed materials and goods intended for, delivered to and placed on or adjacent to the work shall not be removed except for use upon the work unless the Engineer-in-charge has consented in writing to such removal which consent shall not be unreasonably withheld. The removal of the materials from site shall be done as per directions and instructions of KSITIL. Where the value of any such materials or goods has in accordance with clause 33 of these conditions been included in any Interim Certificate under the Contract for which the Contractor has received payment, such materials and goods shall become the property of the Employer, but subject to clause 49 of these conditions (if applicable) the Contract shall remain responsible for loss or damage to the same.

38. MATERIALS AND WORKMANSHIP

All materials and workmanship shall be as per the relevant code of I.S.I. Specification and of approved type and the Contractor shall immediately remove from the works any material and/or workmanship which in the opinion of the Engineer-in-charge are defective or unsuitable and shall substitute proper materials and/or workmanship at his own cost. The term approval used in connection with this contract shall mean the approval of the Engineer-in-charge/Employer.

The Contractor shall if required submit satisfactory evidence as to the kind and quality of material.

Where special makes or brands are called for they are mentioned as a standard. Others of equal quality may be used provided approval is first obtained in writing from the Engineer-in-charge. Unless substitutions are requested no deviation from the Specification will be permitted. Failure to propose the substitution of any article within 7 days after signing of the Contract will be deemed sufficient cause for denial of the request for substitution.

The Contractor shall indicate and submit evidence in writing of those materials or articles called for in the Specifications that are not obtainable for installation in the work within the Time Limits of the Contract. Failure to indicate the above, within 7 days after the signing of the Contract, will be deemed sufficient cause for the denial of request for the extension of the Contract time.

66

All materials shall be delivered so as to ensure a speedy and uninterrupted progress of the work. Such material shall be stored so as to cause no obstruction and so as to prevent overloading of any portion of the structure, and the Contract shall be entirely responsible for damage or loss by weather or other cause.

Within 7 (Seven) days after signing the Contract, the Contractor shall submit for approval of the Engineer-in-charge a complete list of all material he and his Sub-Contractors propose to use in the work of definite brand or make which differ in any respect from those specified; also the particular brand of any article where more than one is specified as a standard. He shall also list items not specifically mentioned in the Specifications but which are reasonably inferred and necessary for the completion of the work.

Workmanship: Workmanship shall be as per the relevant code of I.S. Specification and of approved type and the contractor shall immediately remove from the works any workmanship, which in the opinion of the Engineer-in-charge are defective or unsuitable and shall substitute workmanship at his own cost. The term approval used in this connection with this contract shall mean the approval of the Engineer-in-charge.

Inspection:

All materials and workmanship shall be subject to inspection, examination, and test by the Engineer-in-charge at any and all times during manufacture and/or construction. The Engineer-in-charge shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall be satisfactorily replaced with proper material without additional charge therefore and the Contractor shall promptly segregate and remove the rejected material from the Works. If the Contractor fails to proceed at once with the replacement of rejected materials and / or the correction of defective workmanship, the Employer may by contract or otherwise replace such materials and/or correct such workmanship and charge the cost thereof and a procurement charge @ 15% of the respective item rates shall be imposed on the Contractor and recovered from his bills / any outstanding payments. or may terminate after giving reasonable notice the right of the Contractor to proceed further with the work.

The Contractor shall furnish promptly without additional charge all reasonable facilities, labour and materials necessary for the safe and convenient inspection and test that may be required by the Engineer-in-charge.

39. DEFECTS

The Contractor shall make good at his own cost and to the satisfaction of the Engineer-in-charge, all Defects, shrinkages or small faults, arising in the opinion of the Engineer-in-charge from work or materials not being in accordance with the Drawings or Specifications or Schedule of Quantities or the Instructions of the Engineer-in-charge, which may appear within "Defects Liability Period" referred to in the Annexure.

67

Such Defects, shrinkages shall upon directions in writing of the Engineer-in-charge, and within such reasonable time as shall be specified therein be amended and made good by the Contractor, at his own cost unless the Engineer-in-charge shall decide that he ought to be paid for such amending and making good and in case of default the Employer may employ and pay other Contractor to amend and make good such Defects, shrinkage, settlements or other faults and all damages loss and expense consequent thereon or incidental thereto shall be made good and borne by the Contractor and such damage, loss or expense shall be recoverable from him by the Employer or may be deducted by the Employer upon the Engineer-in-charge's certificate in writing from any amount due or may become due to the Contractor or the Employer may, in lieu of such amending and making good by the Contractor deduct from any moneys due to the Contractor a sum to be determined by the Engineer-in-charge as equivalent to the cost of amending such work and in the event of the Retention Amount being insufficient recover the balance from the Contractor, together with any expenses the Employer may have incurred in connection therewith.

40. POSSESSION, COMPLETION AND POSTPONEMENT

On the date for commencement stated in the Annexure to these condition, possession of the site shall be given to the Contractor who shall thereupon begin the works and regularly and, diligently proceed with the same, and who shall complete the same on or before the date for Completion stated in the said Annexure subject nevertheless to the provisions for extension of time contained in clause 42 of these conditions.

KSITIL may issue instructions in regard to the postponement of any work to be executed under the provisions of this Contract.

41.   If at any time or times before Virtual Completion of the work the Employer with the consent of the Contractor shall take possession of any part or parts of the same as may be needed by the Employer on any exigencies then notwithstanding anything expressed or implied elsewhere in this Contract: -

Such part or parts shall not be deemed to be Virtually Complete.

Virtual Completion of such part or parts shall be considered for the purpose of taking over only and all provisions under this contract shall be complied with till the entire work is completed and Engineer-in-charges / KSITIL Certificate issued to that effect.

42. EXTENSION

Upon it becoming reasonably apparent that the progress of the Works is delayed, the Contractor shall forthwith give written notice of the cause of the delay to the Engineer-in-charge/Employer, and if in the opinion of the Engineer-in-charge, the completion of the Work is likely to be or has been delayed beyond the date for completion stated in the Annexure to these conditions or beyond any extended time previously fixed under this clause extension of time of completion can be considered only in the following circumstances

By force majeure. Or By reason of civil commotion,   Or By reason of the Contractor not having received in due time necessary instructions, drawings, details or levels from the Engineer-in-charge for which he specifically applied in writing on a date with regard to the actual progress of work achieved at site or to any extension of time then fixed under this clause was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same. Or   By delay on the part of artists, tradesmen or others directly engaged by the Employer in executing works not forming part of this Contract.

Or

By reason of the opening up for inspection of any work covered up or of the testing of any of the work, materials or goods in accordance with clause 38 of these conditions (including making good in consequence of such opening up or testing) unless the inspection of test showed that the work materials or goods were not in accordance with this Contract.

Then the Engineer-in-charge shall so soon as he is able to estimate the length of the delay beyond the date or time aforesaid make in writing a fair and reasonable Extension of Time for completion of the works, provided always that the Contractor shall use constantly his best endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the Engineer-in-charge to proceed with the work.

Delay on the part of subcontractors employed by the contractor or nominated subcontractors and strike or lockout by manufacturer of materials and laborer's of contractor will not be a cause for grant of extension of time.

Non-granting of extension of time shall not absolve the contractor from fulfilling his obligations under the contract and he shall complete the entire work as per contract unless the contract is terminated by the employer

Extension, if and when granted, shall be without any financial considerations and the Contractor shall not raise or make any claims whatsoever, for the same.

43. DAMAGES FOR NON-COMPLETION:

If the Contractor fails to complete the quantum of works within the specified period during the course of execution and final completion by the date specified in these Conditions or within any extended time fixed under clause 40 of these conditions and the Employer / Engineer-in-charge certifies in writing that in his opinion the same ought reasonably so to have been completed, the Contractor shall pay or allow to the Employer a sum calculated at the rate stated in the appendix as agreed Liquidated Damages (not as penalty) for the period during which the said work shall so remain or have remained incomplete, the Employer may deduct such damages from any monies otherwise payable to the Contractor under this Contract.

The tenderers are required to submit with the tender a preliminary Bar Chart / Pert Chart showing activities with corresponding resource allocation and time planned for various activities to achieve

69

a co- coordinated completion as per the specified completion period taking into account all local weather, site and other prevailing conditions. The Employer and Engineer-in-charge will constantly monitor the progress of work. Time is the essence of the contract and the project is time bound.

On award of work the successful tenderer shall, in consultation with the Employer and Engineer-in-charge produce a detailed and final Bar Chart / Pert Chart in MS Project, indicating physical progress of work on a weekly basis.

Over and above this, if on the expiry of agreed contract period, the work remains incomplete for the building, liquidated damages will be imposed on the Contractor as stipulated in the first part of this condition on the total contract value.

44. VIRTUAL COMPLETION AND DEFECTS LIABILITY PERIOD

When in the opinion of the Engineer-in-charge the Works are practically completed, the Engineer-in-charge shall prepare a joint check list of outstanding work / rectification of defect with the contractor who shall complete the same within a period to be decided by the Employer. Only on completion of the check list works to the total satisfaction of the Employer, the acceptance certificate will be issued.

Any Defects shrinkages or other faults which shall appear within the "Defects Liability Period" stated in the Annexure to these conditions and which are due to materials and workmanship not in accordance with this Contract shall be specified by the Engineer-in-charge in a Schedule of Defects which he shall deliver to the Contractor not later than 14 days after the expiration of the said Defects Liability Period and within a reasonable time after receipt of such Schedule the Defects Shrinkages and other faults therein specified shall be made good by the Contractor and (unless the Engineer-in-charge shall otherwise instruct in which case the Contract Sum shall be adjusted accordingly) entirely at his own cost.

Notwithstanding clause of this Condition the Engineer-in-charge may whenever he considers it necessary so to do, issue instructions requiring any defect, shrinkages or other fault which shall appear within the Defects Liability Period named in the Annexure to these conditions and which is due to materials and workmanship not in accordance with this Contract to be made good and the Contractor shall within a reasonable time after receipt of such instructions comply with the same (and unless the Engineer-in-charge shall otherwise instruct in which case the Contract sum shall be adjusted accordingly) entirely at his own cost. Provided that no such instruction shall be issued after 14 days from the expiration of the said Defects Liability Period.

When in the opinion of the Engineer-in-charge any Defects shrinkages or other defaults which he may have required to be made good under this clause of this Condition shall have been made good he shall issue a certificate to that effect, and completion of making good Defects shall be deemed for all the purposes of this Contract to have taken place on the day named in such certificates.

 However, the work shall be deemed complete only after all checklist works identified jointly by the

Owner, Engineer-in-charge and the contract has been completed to the entire satisfaction of the Owner/Engineer-in-charge, before issue of completion certificates.

In no case shall the Contractor be required to make good at his own cost any damage which may appear after Virtual Completion of the work, unless the Engineer-in-charge shall certify that such damage is due to injury which took place before Virtual Completion of the Works.

45. VOID

46. PAYMENTS WITHHELD

The Engineer-in-charge may withhold or on account of a subsequently discovered evidence nullify the whole or a part of any certificate to such extent as may be necessary in his reasonable opinion to protect the Employer from loss on account of :

Defective work not remedied.

Failure of the Contractor to make payments properly to Sub-Contractor or for materials or labour.

A reasonable doubt that the Contract can be completed for the balance then unpaid.

Damage to another Contractor.

Claims filed on reasonable evidence indicating probable filing of claims.

When the above grounds are removed payment shall be made for amounts withheld because of them.

47. INSURANCE:

i)   The Contractor shall be responsible for all injury or damage to persons, animals or things, and for all damage to property which may arise from any factor omission on the part of the Contractor or any sub-Contractor or any Contractor or any of their employees.

ii)   The liability under this clause shall cover also, inter alia, any damage to structures, whether immediately adjacent to the works or otherwise, any damage to roads, streets, footpaths, bridges as well as damage caused to the buildings and other structures and works forming the subject matter of this contract. The Contractor shall also be responsible for any damage caused to the buildings and other structures and works forming the subject matter of this contract due to rain, wind, frost or other inclemency of weather.

The Contractor shall indemnify and keep indemnified the Employer and hold him harmless in respect of all and any loss and expenses arising from any such injury or damage to persons or property as aforesaid and also against any claim made in respect of injury or damage, whether

71

under any statute or otherwise and also in respect of any award or compensation or damage consequent upon such claim.

iii) The Contractor shall, at his own expense, effect and maintain till the issue of the virtual completion certificate under this contract, with an insurance company approved by the Employer, an All Risks Policy or Insurance including earthquake risk in the joint names of the Employer and the Contractor (the name of the former being placed first in the policy) against all risk as per the standard comprehensive All Risk Policy for the amount of Contract and deposit such policy or policies with the Employer before commencing the works.

iv) The Contractor shall reinstate all damage of every sort mentioned in this clause so as to deliver up the whole of the works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to property of third parties.

v) The Contractor shall also indemnify and keep indemnified the Employer against all claims which may be made against the Employer, by any person in respect of anything which may arise in respect of the works or in consequence thereof and shall, at his own expense, effect and maintain, until the virtual completion of the contract, with an Insurance Company approved by the Employer a policy of Insurance in the joint names of the Employer and the Contractor (name of the former being placed first in the policy) against such risks and deposit such policy or policies before commencement of the works. The minimum limit of the coverage under the Policy shall be Rs.5 lakhs for every accident or occurrence, there being no limit on the number of such accidents or occurrences.

vi) The Contractor shall also indemnify the employer against all which may be upon the Employer, whether under the workmen's compensation Act or any other statute in force, during the currency of this contract or at common Law in respect of any employee of the Contractor or of any Sub-Contractor and shall at his own expense effect and maintain until the Virtual completion of the contract, with an insurance Company, approved by the Employer, a Policy of Insurance against such risks and deposit such policy or policies with the Employer from time to time during the currency of this contract.

vii) In default of the Contractor insuring as provided above, the Employer may so insure and may deduct the premiums paid from any moneys due or which may become due to the Contractor.

viii) The Contractor shall be responsible for any liability which may not be covered by the Insurance Policies referred to above and also for all other damages to any person, animal or defective carrying out of this contract, whatever, may be the reasons due to which the damage shall have been caused.

ix) The Contractor shall also indemnify and keep indemnified the Employer against all and any cost, charges or expenses arising out of any claim or proceedings relating to the works and also in respect of any award of damages or compensation arising there from.

72

x) Without prejudice to the other rights of the Employer against Contractor in respect of such default, the Employer shall be entitled to deduct from any sums payable to the Contractor the amount of any damages, compensation costs, charges and other expenses paid by the Employer and which are payable by the Contractor under this clause.

xi) The Contractor shall, upon settlement by the Insurer of any claim made against the Insurer pursuant to a policy taken under this clause, proceed with due diligence to rebuild or repair the works destroyed or damaged. In this event all the monies received from the Insurer in respect of such damage shall be paid to the Contractor and the Contractor shall not be entitled to any further payment in respect of the expenditure incurred for rebuilding or repairing of the materials or goods destroyed or damaged.

xii) The Contractors, in case of re-building or reinstatement after fire, shall be entitled to such extension of time for completion as the Engineer-in-charge may deem fit, but shall, however, not be entitled to reimbursement by the Employer of any shortfall or deficiency in the amount finally paid by the insurer in settlement of any claim arising as set out herein.

xiii) Without prejudice to his liability under this clause, the Contractor shall also cause all nominated sub-Contractors to effect, for their respective portions of the works, similar policies of insurance in accordance with the provisions of this clause and shall produce or cause to produce to the Employer such policies. The Contractor shall not permit a nominated sub-Contractor to commence work at the site unless the said insurance policies are submitted. In the event of failure of the sub-Contractor to take out such a policy of insurance before commencing the works at the site, the Contractor shall be responsible for any claim or damage attributable to the said sub-Contractor.

48. INJURY TO PERSONS AND PROPERTY OF EMPLOYER:

The Contractor shall be liable for and shall indemnify the Employer against any liability, loss, claim or proceedings whatsoever arising under any statute or at common law in respect of personal injury to or the death of any person whomsoever arising out of or in the course of or caused by the carrying out of the works, unless such claim arises due to any act or neglect of the Employer or of any person for whom the Employer is responsible.

Except for such loss or damages as is at the risk of the Employer under clause 49 of these Conditions (if applicable) the Contractor shall be liable for and shall indemnify the Employer against any expense, liability, loss, claim or proceedings in respect of any injury or damage whatsoever to any property movable or immovable in so far as such injury or damage arises out of or in the course of or by reason of the carrying out of the works, and provided always that the same is due to any negligence, omission or default of the Contractor, his servants or agents or of any Sub-Contractor, his servant or agent.

49. INSURANCE AGAINST INJURY TO PERSONS AND PROPERTY:

73

Without Prejudice to his liability to indemnify the Employer under clause 47 of these conditions, the Contractor shall maintain and shall cause any Sub-Contractor to maintain:

Such insurances as are necessary to cover the liability of the Contractor or as the case may be of such Sub-Contractor, in respect of personal injuries or deaths arising out of or in the course of or caused by the carrying out of the work; and

Such insurances as may be specifically required by the Contract Bills in respect of injury or damage to property movable or immovable arising out of or in the course of or by reason of the carrying out of the work, and caused by any negligence, omission or default of the Contractor, his servants or agents or, as the case may be of such Sub- Contractor, his servants or agents.

The Contractor shall produce or cause any Sub-Contractor to produce for inspection the relevant policy or policies of insurance together with the receipts in respect of premiums paid under such policy or policies as and when required so to do by the Engineer-in-charge provided always that as and when may be reasonably required by the Engineer-in-charge the production by either the Contractor or any Sub-Contractor of a current certificate of insurance from the company or firm which shall have issued the policy or policies aforesaid shall be a good discharge of the Contractor's obligation to produce or to cause the production of the policy or policies and the receipts in respect of premium paid.

The Contractor shall maintain in the joint names of the Employer and Contractor such insurances as may be required in respect of any expense, liability, loss, claim or proceedings which the Employer may incur or sustain by reason of injury or damage to property real or personal arising out of or in the course of or by reason of the carrying out of the work, and caused otherwise than by the negligence, omission or default of the Contractor, his servants or agents or any Sub-Contractor, his servants or agents.

Any such insurance as is referred to in the immediately preceding paragraph shall be placed with insurers to be approved by the Engineer-in-charge and the Contractor shall have to deposit with him the policy or policies and the receipts in respect of premiums paid for the scrutinizing of the Engineer-in-charge.

Should the Contractor or any Sub-Contractor make default in insuring or in continuing to insure as provided in this clauses of this conditions the Employer may himself insure against any risk with respect to which the default shall have occurred and may deduct a sum equivalent to the amount paid in respect of premiums from any monies due to or become due to the Contractor.

50. INSURANCE OF THE WORKS AGAINST FIRE etc.

The Contractor shall in the joint names of the Employer and Contractor insure against loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion for the full value thereof all work executed and all unfixed materials and goods intends for, delivered to and placed on or adjacent to the work, but excluding temporary building plant, tools and equipment owned or hired by the Contractor or any

74

Sub-Contractor and shall keep such work materials and goods so insured until Virtual Completion of the work. Such insurances shall be with insurers approved by the Engineer-in-charge and the Contractor shall deposit with the Engineer-in-charge the policy or policies and the receipts in respect of premiums paid: and should the Contractor make default in insuring or continuing to insure as aforesaid the Employer may himself insure against any risk with respect of which the default shall have occurred and deduct a sum equivalent to the amount paid by him in respect of premium from any monies due to or to become due to the Contractor.

Provided always that if the Contractor shall independently of his obligations under this contract maintain a policy of insurance which covers (inter alia) the said work, materials and goods against the aforesaid contingencies to the full value thereof then the maintenance by the Contractor of such policy shall if the Employers interest is endorsed thereon, be a discharge of the Contractor's obligation to insure in the joint names of the Employer and Contractor and the production by the Contractor as and when may reasonably be required by the Engineer-in-charge of a current certificate of insurance from the company or firm which shall have issued the said policy shall be a discharge of the Contractor's obligation to deposit with the Engineer-in-charge a policy or policies and the receipts in respect of premiums paid.

Upon settlement of any claim under the insurances aforesaid the Contractor with due diligence shall restore work damaged, replace or repair unfixed materials or goods which have been destroyed or injured, remove or dispose of any debris and proceed with the carrying out and completion of the work. All monies received from such insurances shall be paid to the Contractor by installments under certificates of the Engineer-in-charge issued at the period of interim certificates named in the Annexure to these conditions. The Contractor shall not be entitled to payment in respect of the restoration of work damaged, the replacement and repair of any unfixed materials or goods and the removal and disposal of debris other than the monies received under the said insurances.

All work executed and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the works (except temporary buildings, plant, tools and equipment owned or hired by the Contractor or any Sub-Contractor) shall be at the sole risk of the Contractor as regards loss or damage by fire, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion. If any loss or damage affecting the work or any part thereof or any such unfixed materials or goods is occasioned by any one or more of the said contingencies then:

The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the Contractor under or by virtue of this Contract.

The Contractor with due diligence shall restore work damaged, replace or repair any unfixed materials or goods which have been destroyed or injured, remove and dispose of any debris and proceed with carrying out and completion of the work.

51. TERMINATION BY THE EMPLOYER

Default:

If the Contractor shall make default in any one or more of the following respects, that is to say :-

If he without reasonable cause wholly suspends the carrying out of the works before completion thereof, or If he fails to proceed regularly and diligently with the works, or If he refuses or persistently neglects to comply with a written notice from the Engineer-in-charge requiring him to remove defective work or improper materials or goods and by such refusal or neglect the work is materially affected, or

If he fails to comply with the provision of clause 27.

Then the Engineer-in-charge may give him the notice by registered post or recorded delivery specifying the default, and if the Contractor either shall continue such a default for 14 days after receipt of such a notice and shall at any time thereafter repeat such a default (whether previously repeated or not), then the Employer without prejudice to any other rights or remedies may within 10 days after such continuance or repetition of default by notice by registered post or recorded delivery forth with determine the employment of the Contractor under this Contract, provided that such notice shall not be given unreasonably or vexatiously.

Bankruptcy of Contractor:

In the event of the Contractor becoming bankrupt or making a composition or arrangement with his creditors or being a company having a winding up order made or (except for purposes of reconstruction) a resolution for voluntary winding up passed or a receiver or manager of his business or undertaking duly appointed or possession taken by or on behalf of the holders of any debentures secured by a floating charge, of any property comprised in or subject to the floating charge, the employment of the Contractor under this Contact shall be forthwith automatically determined but the said employment may be reinstated and continued if the Employer and the Contractor his trustee in bankruptcy, liquidator, receiver or manager as the case may be shall so agree.

The Employer shall be entitled to determine the employment of the Contractor under this Contract, if the Contractor shall have offered or given or agreed to give to any person any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of this Contract with the Employer, or for showing or forbearing to show favour or dis favour to any person in relation to this Contract or any other Contract with the Employer, or if the like acts shall have been done by any person employed by the Contractor or acting on his behalf (whether with or without the knowledge of the Contractor), or if in relation to this Contract or any other Contract with the Employer the Contractor or any person employed by him or acting on his behalf shall have committed any offence under the prevention of corruption act, or shall have given any fee or reward the receipt of which is an offence under the Local Government Act.

In the event of the employment of the Contractor being determined as aforesaid and so long as it has not been reinstated and continued, the following shall be the respective rights and duties of the Employer and Contractor.

76

The Employer may employ and pay other persons to carry out and complete the works and he or they may enter upon the Works and use all temporary buildings, plant, machinery, appliances, goods and materials intended for, delivered to and placed on or adjacent to the works and may purchase all materials and goods necessary for the carrying out the completion of the Works.

The Contractor shall if so required by the Employer or Engineer-in-charge within 14 days of the date of termination assign to the Employer without payment the benefit of any Agreement for the supply of materials or goods and/or for the execution of any works for the purposes of this Contract but on the terms that a supplier or Sub- Contractor shall be entitled to make any reasonable objection to any further assignment thereof by the Employer. In any case the Employer may pay any supplier or Sub-Contractor for any materials or goods delivered or Works executed for the purpose of the Contract (whether before or after the date of termination), in so far as the price thereof has not already been paid by the Contractor. The Employer's rights under this paragraph are in addition to his rights to pay Contractors as provided in clause 28 and payments made under this paragraph may be deducted from any sum due or to become due to the Contractor.

The Contractor shall as and when required in writing by the Engineer-in-charge so to do (but not before) remove from the works any temporary buildings, plant, tool, equipment's, goods and materials belonging to or hired by him. If within a reasonable time after any such requirements has been made the Contractor, has not complied therewith then the Employer may (but without being responsible for any loss or damage) remove and sell any such property of the Contractor , holding the proceeds less all costs incurred to the credit of the Contractor .

The Contractor shall allow or pay to the Employer in the manner hereinafter appearing the amount of any direct loss and/or damage caused to the Employer by the termination. Until after completion of the works under this Clause the Employer shall not be bound by any provisions of this Contract to make any further payment to the Contractor , but upon such completion and the verification within a reasonable time of the accounts therefor the Engineer-in-charge shall certify the amount of expense properly incurred by the Employer and the amount of any direct loss and/or damage caused to the Employer by the termination and if such amounts when added to the monies paid to the Contractor before the date of termination exceed the total amount which would have been payable on due completion in accordance with this Contract, the difference shall be a debt payable to the Employer by the Contractor and if the said amounts, when added to the said monies be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor . The Employer reserves the right to recover such debts from any of the monies/guarantees available at his disposal, and the Contractor shall accept the same not have any claims against such recoveries whatsoever.

52. CO-ORDINATION OF WORK

At the commencement of work, and from time to time, the Contractor shall confer and with the Engineer-in-charge for the purpose of the co-ordination and execution of the various phases of the work.

77

The Contract shall ascertain the Sub-Contractors, persons engaged on separate contracts in connection with the Works, the extent of all chasings, cuttings and forming of all openings, holes, grooves, etc. as may be required to accommodate the various services, the Contractor shall ascertain the routes of all services and the positions of all floor outlets, traps, etc. in connection with the installation of plant and services and arrange for the Construction of work accordingly.

The breaking and cutting of completed work must be avoided.

53. LABOUR

The Contractor shall employ no child labour under 18 years of age on the work. If female labour is engaged the Contractor shall make necessary provision for safeguarding small children and keeping them clear of the site of operations. No labour shall reside within the compound except authorized guards.

54. PROTECTION OF TREES AND SHRUBS

Trees and Shrubs designated by the Engineer-in-charge shall be protected from damage during the course of the work and the earth level shall not be changed within three feet of such trees. Where necessary such trees and shrubs shall be protected by means of temporary fencing.

55. ANTIQUITIES

All fossils and other objects of interest or value which may be found at the site or in excavating the same during the progress of the work shall become the property of the Employer. The Contractor shall carefully take out and preserve all such objects and shall immediately or as soon as conveniently may be after the discovery of such articles deliver the same into the possession of the Engineer-in-charge or of the Engineer-in-Charge uncleaned and as excavated.

If in the opinion of the Engineer-in-charge compliance with the provisions of the preceding Clause has involved the Contractor in direct loss and/or expense for which he would not be reimbursed by a payment made under any other provision in this Contract then the Engineer-in-charge shall ascertain the amount of such loss and/or expense, any amount from time to time so ascertained shall be added to the Contract sum, and if an Interim Certificate is issued after the date of ascertainment any such amount which would otherwise be stated as due in such certificates.

56. EXCEPTED MATTERS

The decision, opinion, direction, certificate (except for payment) with respect to all or any of the matters under clauses 6, 10,17,19, 20, 27, 28, 38, 42 and 50 hereof (which matters are herein referred to as the excepted matters) shall be final and conclusive and binding on the parties hereto and shall be without appeal. If any disagreement or any other decision, opinion, direction, certificate or valuation of the Engineer-in-charge or any refusal of the Engineer-in-charge to give any of the same shall be subject to a reference to Arbitration as covered under Indian Arbitration Act in force.

57. DISPUTES

MATTER TO BE SETTLED BY SPV:

All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the works or after their completion shall be referred by the Tenderer to the KSITIL and the KSITIL shall within a reasonable time after their presentation make and notify decisions thereon in writing.

The decisions, directions, clarifications, measurements, drawings and certificates with respect to any matter, the decision for which is specially provided for by these or other special conditions to be given and made by the KSITIL or by the Architect/Consultant on behalf of the KSITIL are matters which are referred to hereinafter as accepted matters and shall be final and binding upon the Tenderer and shall not be set aside on account of non-observance of any formality, any omission, delay or error in procedure in or about the same, or on any other grounds or for any reason and shall be without Appeal.

57.01 Disputes if any arising out of or in any way connected with this Agreement shall be deemed to have arisen in Thiruvananthapuram and only the courts in Thiruvananthapuram shall have jurisdiction to determine the same.

58. PROTECTION AND CLEANING

The Contractor shall protect and preserve the work from all damage or accident by providing any temporary coverings, boxing or other construction as required by the Engineer-in-charge. This protection shall be provided for all property adjacent to the site as well as on the site.

The Contractor shall properly clean the work as it progresses and shall remove all rubbish and debris from the site from time to time as is necessary and as directed. On completion the Contractor shall ensure that the premises and/or site are cleaned surplus materials debris, sheds etc. removed, areas under floors cleared or rubbish gutters and drains cleared, and handed over to the clerk- of-works so that the whole is left fit for immediate occupation or use and to the satisfaction of the Engineer-in-charge.

59. TOLERANCE

The Contractor shall exercise every care to ensure that all structural members are sufficiently plumb and true to dimensions called for on the drawings to receive prefabricated finishing elements such as doors, windows, cabinet work, ceramic work, concrete, tiles etc. Any variations may require rectification in the structural members or may involve remaking or replacing the finishing elements, fabricated to fit into the openings or spaces, as called for on the Drawings.

In case of separate Contract, the Contractor whose work does not conform to dimensions called for, shall be liable for all the expenses which may have to be incurred for rectification or replacement as may be required by the Engineer-in-charge for the proper installation of the finishing elements. The

79

Engineer-in-charge's decision in this respect shall be final and binding on the parties concerned.

60. FORCE MAJEURE

Neither party shall be liable for any failure or delay in performance under this agreement if the failure/delay is caused by natural calamity, general strike, curfew, riot, war, or any act of god which prevents normal activities or reasons beyond the control of the party. In such cases, the party affected by this clause shall give written notice to the other party with full details, within a week of the occurrence of the cause. If the force majeure condition affects the completion schedule, the time of completion shall be revised to the extent of loss of time caused by force majeure.

Place :

Date :   **Signature of the Tenderer**

80

DECLARATION BY BIDDER

187

I ……………………………………………………. hereby declare that I am not related to an Employee of the KSITIL, Thiruvananthapuram who is in charge of or having control of this work. I agree that if at any stage it is proved that this declaration is untrue, the Earnest Money / Security Deposit paid by me will be forfeited and the Contract entered will stand cancelled. It is understood that the relationship with KSITIL Thiruvananthapuram Employee referred to herein will be restricted to my father, Mother, Son, Daughter, Brother, Sister, Direct Uncle, Nephew, Father –in-Law, Mother-In-Law, Brother-in-Law, Sister-in-law and first Cousin of the Employee concerned.

SIGNATURE OF THE BIDDER

Place:
Date :

Managing Director
KSITIL,Thiruvananthapuram

81

SPECIAL CONDITIONS OF CONTRACT

General

1. The following clauses shall be considered as an extension and not in limitation of obligation of the Contractor.

Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, Specifications of work, Drawings and any other documents forming part of this Contract wherever the context so requires.

Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, then the provisions of the Special Conditions of Contract shall be deemed to override the provisions of the General Conditions of Contract and shall to the extent of such repugnancy or variations prevail.

Two - Cover System

The tender shall be of two-bid system, as described elsewhere in the tender document. The submission of tender shall comply with the requirements as detailed in the two-bid-system.

KSITIL will adopt a comprehensive methodology for evaluating the tenders received for the said works. The Price bids of pre-qualified bidders only will be opened. The pre-qualified Tenderer who submits the lowest bid without any conditions and who conforms to the tender conditions in totality without any deviation and who accepts to complete the said works in the stipulated time will be given the highest preference, subject to there being no disproportionately high rates quoted by the lowest Tenderer for any of the items in the Schedule of quantities or in any of the quote rate items only or in the attendance charges payable to the Tenderer. Where KSITILfinds that the lowest Tenderer, in spite of being the lowest in the overall price bid, has quoted disproportionately high rates under any of the items listed above or otherwise, **KSITIL** will reserve the right to discuss / negotiate with the lowest Tenderer towards rationalizing of the quoted rates for such items either in comparison with the estimated rates or with the rates of other Tenderers. Likewise, KSITIL reserves the right to discuss / negotiate with the lowest Tenderer towards achieving conformity with the tender conditions. The Tenderers should note that KSITIL reserves the right to reject any conditional tenders and the decision of **KSITIL** on such matters shall be binding on the Tenderer. Also the negotiations shall be done only on the items for which the contractor has quoted abnormally high compared to the estimate rate. There will be no negotiation for rates which are below the estimate rate. The quoted rate with deviation of more than (+) 25% (twenty five percent) over the estimate rates shall be treated as Abnormally High Quoted Rates Item (AHQR). In respect of AHQR items, the contract rate is applicable for the scheduled quantities in the agreement only.

82

3   **Location of Site and Accessibility:**

The Site of work is at KINFRA Technology Innovation Zone at Kalamassery, Kochi located 5 km away from Kalamassery railway station and 20 km away from Cochin International Airport. The site is well connected with other districts and nearby states.

4.   **SCOPE OF WORK:**

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV OF BUILDING-1 TIZ KALAMASSERY.

All materials that propose to use with the work shall be approved by the Employer / Engineer-in-charge.

The scope of work is subject to addition / deletion by the Employer.

5.   **SITE VISIT:**

The tenderer shall inspect the site and obtain required details for proper execution of work successfully within the specified time limit. The responsibility for obtaining all such data / details rests with the tenderer and no claim to extra at a later date will be entertained by KSITIL to the failure of the tenderer to make sufficient investigation prior to tendering.

The tenderer shall investigate the following items during the site inspection referred above and to provide in his tendered rates for assuming full responsibility for services and amenities there for, which will not be payable separately by KSITIL: -

❖   Availability of power for construction.

❖   Availability of water for construction.

❖   Means of disposal of storm water from the site.

❖   Means of disposal of water due to de-watering at the site

Feasibility and availability to make timely procurement of all construction materials (both in quality and quantity) as well as of Indian or Foreign origin, labour, construction equipment, support facility etc. required for executing the work as per the contract.

To examine nature of protection required for neighboring property in carrying out sheet piling, mass excavation and de-watering operations and to ensure full safety.

The costs of making any tests, whether prior to award of tender or during construction shall be borne by the Contractor.

83

Adequacy of space within the site required for construction purposes as well as for stacking material, fabrication yard, erection of site offices, field laboratory, sheds for generator, compressor etc. essential during construction period and any other connected requirements specifically not mentioned herein or otherwise shall be taken care of by the tenderer. The tenderer should make his own arrangements for all the above requirements. No labour camp is allowed inside the KSITIL campus and the contractor shall make his own arrangements for the labour camp, transportation of labour, materials etc. and the cost incurred thereon should be covered within the quoted rates.

6. Tenderer shall include in his quoted rates all duties, levies, surcharge etc. levied by the central, State and Local Governments, Statutory bodies, Public utility companies, transit insurance for safety of materials / goods / equipment & machinery in transit and other similar incidentals etc., **excluding GST. GSTat applicable rate shall be paid extra along with running bill and final bills**. No extra payment will be entertained on account of these.

7. **TIME SCHEDULE:**

The period of completion of the whole work shall be **03 Calendar Months**. The successful tenderer shall prepare and submit for approval a Master time schedule in line with the requirements of the Employer indicating level-wise completion dates keeping the end date as specified for the completion of entire work. The Contractor should follow and comply strictly with the approved Master time schedule and adhere to the level-wise completion dates indicated in the approved Master Time schedule. It is to be noted that the Contractor will have no claim for revision of rates, other conditions, any compensation or loss suffered by him on this account.

8. **Void**

9. a.) Drawings:

All the detailed drawings required for the execution of the work may not be available immediately after awarding the work. Some of the drawings which are available will be supplied in the first instance and the remaining drawings as required progressively and in accordance with the program of work, well in time for procurement of materials and execution. The contractor shall be issued 2 copies of each working drawings and detailed drawings

The Contractor shall give adequate notice to the Engineer-in-charge / KSITIL of any further drawings or specifications that may be required for the execution of the work or otherwise

84

under the contract, well in advance. Good for construction drawings will be released to the contractor progressively depending on the actual accomplishment & requirement at site.

Two copies of all drawings, the Schedule of Quantities and Specification shall be furnished by **Consultant/KSITIL** to the **CONTRACTOR** for his own use until the completion of the Contract.

All-important drawings are to be mounted on boards and placed in racks and indexed.

As and when revision drawings are issued, the **CONTRACTOR** shall withdraw all superseded drawings from the site. If, after issue of revision drawings, faulty construction is done as per superseded drawings, then, the faulty work shall be pulled down and reconstructed by the **CONTRACTOR** to conform to revision drawings, all at the risk, cost and expenses of the **CONTRACTOR**. No extension of time will be admissible on this account.

b.) SHOP DRAWINGS / COORDINATION DRAWINGS

It is the responsibility of the Contractor to prepare fully detailed shop drawings / fabrication drawings and material specification for specialist works and submit in triplicate to Engineer-in-charges / KSITIL for approval. All shop drawings shall reflect the design intent as provided in the construction drawings and shall not be deviated without prior permission. The shop drawings shall be based on the actual site conditions and shall take into account all coordination as may be required in order to avoid any clash or interference with other service lines or any other building features. No payment shall be made KSITIL extra against this.

The shop drawings shall be fully supported by necessary design calculations wherever applicable or as directed by the Engineer-in-charges / KSITIL through the Contractor. Such design calculations shall be carried out by a competent agency and shall also comply with relevant Indian / International standards as applicable.

All charges for preparing the shop drawings, coordination drawings, preparation of design, getting the same proof checked including carrying out any other modifications as necessary shall be fully covered in the quoted rates of the Contractor and no extra shall be payable for adherence of the above requirement.

The checking and approval of drawings shall not relieve the CONTRACTOR from the responsibility for correctness of the engineering design, workmanship, material errors or omissions if any. No detailed shop drawing shall be accepted by the ENGINEER-IN-CHARGE unless it is complete and has been checked and approved by a qualified engineer of the independent agency and is accompanied by a detailed plan showing location and all relevant details

85

Within one month of completion of work including specialized works the specialist works the contractor shall submit fully detailed as - complete drawings to explain the installation in totality. Such as-built drawings shall be submitted to the Engineer-in-charges / KSITIL in triplicate. After scrutiny and observations by the Employer / Engineer-in-charge, the Contractor shall submit the final version thereof in hard copy format in triplicate as well as electronic format.

10. **CONTRACTOR'S RESPONSIBILITY WITH OTHER AGENCIES**

Without repugnance to any other condition, it shall be the responsibility of the **CONTRACTOR** executing the work to work in close co-operation and co- ordinate the works with the Mechanical, Electrical, Air-conditioning and Intercommunication **SUBCONTRACTORS** and other Agencies or their authorized representatives in providing the necessary grooves, recesses, cuts and openings etc., in walls, slabs, beams and columns etc., and making good the same to the desired finish as per Specifications for the placement of electrical, Intercommunication cables, Conduits, Air-conditioning inlet and outlet grills and other Equipment etc. where required. For the above said requirements in the false ceiling and other partitions, the **CONTRACTOR** before starting up the work shall in consultation with the Electrical, Mechanical, Intercommunication, Air-conditioning **SUBCONTRACTORS**, and other Agencies prepare and put up a joint scheme, showing the necessary openings, grooves, recesses, cuts, the methods of fixing required for the work of the aforesaid, and the finishes therein, to the **ENGINEER-IN-CHARGE and** get the approval. The **ENGINEER-IN-CHARGE** before communicating his approval to the scheme, with any required modifications, shall get the final agreement of all the Agencies, which shall be binding. No claim shall be entertained on account of the above.

The **CONTRACTOR** shall conform in all respects with the provisions of statutory regulation ordinances or byelaws of any local or duly constituted authorities or public bodies which may be applicable from time to time to the WORK or any temporary works. The **CONTRACTOR** shall keep the **OWNER** indemnified against all penalties and liabilities of every kind, arising out of non-adherence to such statutes, ordinances, laws, rules, regulations etc.

11. **OTHER AGENCIES AT SITE**

The CONTRACTOR shall have to execute the WORK in such place and condition where other Agencies will be engaged for other WORKS such as Site Grading, Filling and Levelling, other civil works etc. No claim shall be entertained due to WORK being executed in the above circumstances.

12. **PERMISSION FROM STATUTORY BODY:**

86

13. All rules and regulations of labour department, contract labour laws, Provident Fund & ESI and connected laws, Comprehensive All risk Insurance requirements (as applicable for direct award of works) and all other laws of the land are to be complied with by the tenderer.

14. **TERMINATION OF CONTRACT:**

If the Tenderer has abandoned the contract or has failed to proceed with the work due to negligence or the progress on any particular item or items is slow or has failed to execute the work in accordance with the terms and conditions of the contract, is persistently or frequently neglecting to carryout his obligation under the contract, then it shall be lawful for the KSITIL to terminate the contract forthwith under written notice and to proceed with the balance of the work through any other agencies. During the course of execution of the job, in case the Tenderer has done any substandard work, he shall be asked in writing to dismantle and redo the same at his own expenses. If the Tenderer fails to comply with the above instructions immediately, then the KSITIL shall proceed with the above rectification work, through another agency or agencies. Similarly, if the Tenderer goes slow on any particular item or items of work, the KSITIL shall have the right to execute this item or items through another agency or agencies, including its own department.

15. **PROCEDURE FOR MEASUREMENT / BILLING OF WORK IN PROGRESS**

a) All measurement shall be in metric system. All the works in progress will be jointly measured by the representative of the Engineer-Incharge/KSITIL, and contractors' authorized agent progressively. Measurements will be recorded by the contractor or his authorized representative and signed by contractor or his authorized representative in the measurement book to be provided by the contractor.

In case of disputes as to the mode of measurement of any work the Engineer-in-charge's/ KSITIL's directions shall be followed.

b) contractor will submit a Bill in approved Performa to the Consultant/engineer-in-charge/KSITIL based on measurements recorded in m.book for the various items executed during a month. The Consultant/ engineer-in-charge/KSITIL shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim, as far as admissible, adjusted, if possible, before the presentation of the bill.

c) For interim certificates on running account bill, payment will be paid within 45 working days after effective submission of correct invoices by Contractor.

d) KSITIL / Engineer-in-charge will not be responsible for delay in releasing the payments due to errors in the bills submitted by the contractor.

87

16. All running account payments shall be regarded as payment for Work actually done and completed.

The payment to the Contractor for the performance of the works under the Contract will be made by KIIFB based on the agreed Mile stones and as per the guidelines and conditions specified herein. All payment made during the Contract shall be Direct Beneficiary Transfer (DBT) through account payments only. The final payment will be made on completion of all the works and on fulfilment by the Contractor of all his liabilities under this contract.

All payments under the Contract shall be in Indian Rupees only.

Bills shall be submitted by the contractor monthly for the work in progress or final bill on completion of the work as per the specification, terms and conditions of the contract. The contractor shall not make any claim for interest or for damages for any delay in settling the bills. No such claims shall be admitted by SPV/Client/KIIFB. Should the contractor be unable to prepare the bill for himself, the Engineer In charge shall depute a subordinate to measure the work performed in the presence of the Bidder, whose counter signature to the measurement list will be a sufficient warrant to the Engineer In Charge to prepare the bill for him. However payment will be based on the milestones specified in the tender. The SPV has no liability to make payment to the contractor on their invoices. It is specifically and distinctly understood that the 'SPV' acts purely as agents of the principal, namely the 'Owner' and the ownership in the property in the goods 'as goods or in some other form' is transferred directly from the 'Contractor' to the 'Owner'. Selected bidder will be required to produce income-tax and GST certificates or any other statutory remittance certificates applicable under law before final payment is made for the work, and before security deposits released.

17. PAYMENT OF CONTRACTOR'S BILL

The amount payable on the final bill shall be the Value of the bill, less all payments made on the running account bills.

The Final Bill shall be presented by the contractor along with a 'NO CLAIM CERTIFICATE' in a format acceptable to the OWNER along with such other documents as directed by the OWNER within one months from the date of completion.

The running bills will be settled within 45 days from the submission of correct invoice to the consultant/ Architect.

PAYMENT TERMS FOR THE SUPPLY, INSTALLATION, TESTING AND COMMISSIONING:

Against Supply: up to 70% of the invoice value or 50% of the rate quoted whichever is less for the item is payable as assessed by KSITIL/Consultant. Contractor shall produce original test certificate, warranty certificate of the manufacture for the materials for availing the above payment for the selected items. (CAT6A/CAT6 cable, Patch cable, network/ server rack and CCTV camera)

Against Installation: Amount to 85% of the rate quoted for the item less initial payments till date, is payable as assessed by KSITIL/Consultant on final completion of the entire supplies and installation work under Contract for which payments are claimed.

Against Testing and commissioning: 100% of the rate quoted for the item less amount already paid and security deposits due if any is payable as assessed by KSITIL & Consultant in all aspects and acceptance of the same by KSITIL & Consultant.

a) The SPV shall scrutinize and certify the bill for payment to KIIFB within 30 days of submission of the correct bill by the contractor.

    However, detailed measurements shall be jointly recorded by the contractor in the presence of the representative of the Engineer in charge for reconciliation of quantities and records.

    Payment towards all interim bills shall be made by KIIFB through direct beneficiary transfer mechanism to the designated Bank / Treasury account of the contractor on the bills certified and forwarded by SPV.

18. **RECEIPT FOR PAYMENT**

Receipt for payment made on account of work when executed by a firm must be signed by a person holding due power of attorney in this respect on behalf of contractor, except when described in Tender as a Limited Company in which case the receipt must be signed in the name of the Company by one of its principal officers or by some other person having authority to give effectual receipt for the Company.

19. **MAKES**

i)   Wherever makes have not been indicated in the approved make list, such items shall be of ISI marked/reputed brands/UL certified. Contractor, if he feels so, may indicate his preferred make of such item while submitting his offer. However, all such items should have approval of Engineer-In-Charge and his decision in this regard will be final.

89

ii) Wherever "equivalent" mentioned against makes, suitable evidence shall be produced and get the prior approval of such makes from the Engineer-In-Charge

21. TESTS

The Contractor shall produce samples of all the materials well in advance so that there is sufficient time for testing of the materials and clearance of the same before incorporation in the work.

All the materials to be used in and on every part of the works shall be subjected, from time to time, to such tests as the Engineer-in-Charge may direct. Such tests shall be performed at the expenses of the Contractor. The samples for tests shall be in all cases selected by the Engineer-in-Charge and supplied by the Contractor as part of the contract. If at any time, any material so tested, fails to meet the acceptance criteria, the same shall be removed from the site of works and other materials substituted therefore, but in the absence of any specified test/acceptance criteria, the decision of the Engineer-in-Charge shall be final and binding as to whether the said material or materials shall be used on the works, or removed forthwith and other suitable, approved material substituted.

The Contractor shall produce on demand from the Engineer-in-Charge, the manufacturer's test certificates certifying that the materials conform to the technical specifications.

All tools, instruments, plants and labour/operating personnel for the tests shall be provided by the Contractor at his own cost.

For any tests as directed by the Engineer-in-Charge, that have to be carried out at an outside laboratory, the cost of such tests, materials transport etc., shall be borne by the Contractor.

22. PENALTY FOR DELAY

The work must be completed and handed over within the stipulated time as per tender conditions. If the Contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of Contract or extended date of completion, he shall without prejudice to any other right or remedy available under the law to the Employer on account of such breach, pay as compensation/ Liquidated damages @ 1(one) percent of the contract price per week of delay or part thereof. The aggregate of such compensation / compensations shall not exceed 10 (ten) percent of the contract value. This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the Employer.

90

KSITIL shall have the right to terminate the contract and the balance work will be arranged at the risk and cost of the Tenderer unless and until the period of completion is suitably extended by KSITIL due to valid reasons. KSITIL shall also have the liberty to offload works/ some of items of works when there is a delay in execution, which could likely to delay the completion of whole work. These works /item of works shall be executed with other agency at the risk and cost of the Contractor.

23. The rate quoted shall remain firm for any variation up to +/- 25% of the total contract price. The firm period shall include time extension if any / including time extension, variation of contract price shall be +/- 25%.

24. VOID

25. Extension of time of completion of work.

In case the completion is delayed due to reasons not attributable to the contractor, the Tenderer may request for time extension quoting the reasons with sufficient documentary evidence to substantiate such request at least 30 days before the last working day as per contract. After analyzing the reasons, and based on the recommendation of the Architect/ Consultant the owner will consider granting appropriate time extension without levy of penalty. Such granting of time extension shall not entitle the Tenderer to claim any damages or cost escalation due to any reasons whatsoever. It is to be noted that monsoon and other normal weather conditions cannot be accepted as reasons for delay in completion.

26. SITE INSTRUCTION BOOK

Contractor shall maintain a site instruction book where instructions by engineer-in-charge /KSITIL shall be recorded and the contractor is bound to follow the site instructions. If there is any variation between instruction at site or with respect to contract the decision of Managing Director/General Manager, KSITIL will be final.

The successful tenderer / contractor shall make post execution survey and report as soon as the works are completed duly checked all the actual dimensions with that required as per drawings and specifications. Any Defects noticed beyond permissible tolerances shall be made good by the Contractor as per instructions of the Engineer-in-charge without any extra cost and time.

The Engineer-in-charges / KSITIL representatives shall conduct a joint inspection with the Contractors' authorized representative at every stage of execution of work and record any deviations or any quality Defects any such issues which require immediate attention /

91

action from the Contractor to make good or rectify such Defects or observations jointly recorded. The same shall be done without any extra cost. Failure / delay in holding such joint inspections shall not absolve the Contractor from his responsibilities to rectify any Defects which may be subsequently noticed at any time after the respective stages of work.

27.   Site organization programme proposed to be adopted during execution of work and quality assurance and quality control procedures shall be submitted along with the tender.

INSURANCE:

28   The Contractor shall be responsible for any injury to persons, animals or things and for all structural damage to property which may arise from the operation or neglect of himself and or any nominated Direct Sub- Contractors, Contractor's Employees and or third party whether such injury or damage arising from carelessness, accident or any other cause whatsoever, in any way connected with the execution of work.

The Contractor shall take required insurance cover with an approved insurance company as provided in the contract and deposit with the Employer well before commencement of work. The Contractors attention is drawn to clauses 47, 48, 49 & 50of the Conditions of the Contract, regarding insurance.

29.   VOID

30.   SCOPE OF SERVICE:

A separate scope of services, describing the scope, intent and extent of the works put to Tender as given in Bills of Quantities shall be referred to.

31.   The Contractor shall ensure that their workmen do not use the premises for any illegal or immoral purposes, or as temporary accommodation. All workers must leave the site on a daily basis and no cooking is permitted anywhere in the area.

Rude and obscene behavior, including foul and abusive language, will not be allowed. Offenders will be asked to remove themselves from the premises and shall not be permitted to return.

32.   While executing the work, considerable amount of shifting and re-shifting of materials are likely to be involved. These shall be done by the Contractor, and no payment against these works shall be separately paid for by the Employer. No labour camp will be permitted inside the campus where the proposed work is planned. The Contractor shall arrange the labour camp outside site premises if necessary on contractor's own. All local rules shall be strictly followed in setting up and running labour camps. Sanitary & Hygiene conditions inside labour camp shall be as per the required standards.

92

33. Any expenditure on these provisions shall be covered within Contractor's quoted rates and no extra claims on these accounts are admissible.

All tenderer are expected to note the aforesaid provisions before tendering for the work.

34. SETTING OUT :

a) The Contractor shall be entirely responsible for the proper and accurate setting out of the works. The Contractor shall build and maintain throughout the contract period proper permanent centre line pillars for each column and grid line and datum Benchmark within his quoted rates. These shall not be disturbed at any time of the contract period. Recovery pegs to locate the intersection of the gridlines for each column shall be set by the Contractor. The contractor should always keep a minimum of one total station at all times during the work progress and the Total station survey equipment should be removed or relocated only after obtaining Engineer-in-charge/KSITIL's written approval only.

b) Should therefore be any variation in the actual construction with reference to the foregoing, the same shall be made good at his cost and risk before handing over for possession by the Employer.

c) The successful tenderer / Contractor shall make post construction survey and report as soon as the structural works for each floor are completed duly checking all the dimensions as cast, verticality of the columns / walls, levels of slabs / beams soffits / stairs etc. Any Defects noticed beyond permissible tolerances shall be made good by the Contractor as per instructions of the Engineer-in-charge without any extra cost and time.

d) The successful contractor should also submit a survey drawing of all the floor plans, elevation drawings along with the deviations from the final GFC drawings and also rectify the defects deviations before handing over to other specialist vendors such as façade works etc. No additional payment and time what soever will be paid/ entertained by KSITIL on account of contractor's deviation during execution

35. JOINT INSPECTION:

The Employer's/ Engineer-in-charge's representatives shall conduct joint inspection with the Contractor's authorized representative at every stage of the work, immediately upon completion of such stage of works. KIIFB representatives shall also conduct a joint inspection from time to time during the course of work. The purpose of the joint inspection is to observe and record any deviations from the specified tolerances / levels, plumb or any

93

quality Defects or any such issues which require immediate attention / action from the Contractor to make good or rectify such Defects or observations jointly recorded. Such joint inspections can be held at any time as deemed fit and shall be binding on the Contractor to act upon and implement without any extra cost the directions arising out of such joint inspections. Failure / delay in holding such joint inspections shall not absolve the Contractor from his responsibilities to rectify any Defects which may be subsequently noticed at any time after the respective stages of work.

36.   PROJECT CONSTRUCTION PROGRAMME:

Soon after the award of contract, the Tenderer shall submit to the Engineer-in-charge / Consultant/ KSITIL for his approval a programme to match with the planned completion of the whole job showing the order of procedure and method in which he proposes to carry out the works and shall whenever required by the Engineer-in-charge/Consultant or Engineer-in-charge/Consultant's representative, furnish further detailed programme in an approved format and particulars in writing of the Contractor's arrangements for carrying out the works and of the constructional plant and temporary works, which the Tenderer intends to supply, use or construct as the case may be. The submission and approval, if any, by the Engineer-in-charge/ KSITIL or his representative of such programme or particulars shall not relieve the Tenderer of any of his duties or responsibilities under the contract. The schedule to be prepared by the successful Tender shall be in line with the milestones.

The work shall proceed with as per programme schedule of various stages of construction shown in the Work Break down Structure (WBS)/ Milestone.

The Contractor shall submit a revised WBS schedule (Time Schedule) in MS Project in line with KIIFB norms indicating the milestones which shall be the basis for bill payments and the overall completion time and submit the same for the approval of the Engineer-in-Charge. The Contractor shall comply with the time schedule as approved by the Engineer-in-Charge.

The Main Contractor shall, upon acceptance of his tender, deliver to the Engineer-in-charge a Construction Programme in MS Project, which shall be prepared as follows:

a   The Construction Programme shall be prepared in network form, with subject works as required to adequately detail the critical activities.

b   The date of practical completion shall be the target date for completion of the programmed period, with allowances as necessary being made for inspections, rectifications and the like.

c   Full details shall be provided of the duration and of inter-dependencies between every significant activity necessary for the completion of the works, including work and activities of

94

nominated suppliers and subcontractors. All durations shown shall be measured in working weeks, and no activity shall exceed 4 weeks (except for the deliveries of plant and materials)

d   The network shall be analyzed, either manually or by computer, and the following information Provided:

The critical path and other near critical paths with less than 4 working weeks' float.
The earliest and latest start and finish times for each activity.
The total float time for each activity.

e.   For the purpose of preparing the construction Programme significant activities will include

The calling of tender for prime cost items to be let to nominated suppliers or subcontractors.
The preparation or provision of necessary information by the Engineer-in-charge or through him, the Employer.
The obtaining of approvals from authorities
The provision and proposal of workshop drawings.
Off-site activities such as structural steel prefabrication.

f.   The estimated requirements for labour, heavy plant, cranes, concrete pumps and the like shall be set out in the programme on a weekly basis.

g.   Any restrictions imposed by shortage or limited availability of labour, materials, equipment or public holidays or annual leave shall be shown in the programme.

h.   The drawn programme will be so set out that the general method and sequence of construction and the utilization of resources are clearly shown, and that the critical activities form a chart related in time.

i.   Delay by Inclement weather:

The Contractor shall allow for inclement weather to occur throughout the contract period, and the preparation of the programme shall include a sufficient period to accommodate any delays to the works, which may be experienced as a result of weather conditions.

The Contractor must follow his planning schedule and must adhere to the targets / programme by deploying adequate resources.

The Contractor shall mobilize all plant, machineries, equipment's etc. required to adhere to the time schedule of various activities and events as per MS Project/Work Break down Structure (WBS)/ Milestone well in advance.

95

37. PROGRESS REPORT:

a.   Contractor shall submit a daily progress report on planned quantities of work and achieved quantum of work along with planned manpower and actual manpower deployed for each category of workers so that the work can be completed within the scheduled date of completion.

b.   The Contractor shall submit progress report every week, which shall indicate but not be limited to the following:

i.   Milestone of project accomplishment during the period under consideration.
ii.   Bottleneck if any and action proposed.
iii.   Actual vs Planned progress in percent.
iv.   Activities completed in the reporting period.
v.   On-going current activities.
vi.   Critical activities to be undertaken and completed in current month.
vii.   Slippage's and action proposed.
viii.   Progress Photos
ix.   Cash Flow details
x.   Corrective actions and Catch up plan

In the event of overall slippage exceeding permissible limit as decided by the Engineer-in-charge, the Contractor shall submit a report for the slippages and shall revise their planning schedule. The Contractor shall submit a report-explaining course of action to be taken to overcome such slippage in future and steps taken to meet revised target dates.

38.   WORKING HOURS, WORKING ON HOLIDAYS AND NIGHT WORK:

All works shall be carried out between the normal working hour of each working day as adopted locally for similar works and also as per local labour regulations.

Permission of the Engineer-in-charge, will be required should the Contractor wish to work outside normal working hours and on holidays. No extension of time may be granted should such permission be withheld for any cause.

Contractor may be prepared to arrange for 24 Hr. work schedule and sufficient lighting arrangements for full project period.

Time is the essence of contract. Work shall be arranged on 24 hr basis including holidays other than National Holidays to achieve the scheduled progress complying to labour contract act. Rate quoted will have to be inclusive of wages for overtime or working during holidays etc.

In case night work is to be done due to the exigencies of the work, it is the Contractor's responsibility. Night works shall happen with prior approval from Engineer in charge and shall be with proper lights provided in the entire site area and with safety aspects full covered

To obtain advance permission from the Engineer-in-charge and also the security staff specifying the number of persons who will be employed and duration.

To provide adequate area lighting for efficient execution of the work without accident risks and quality deterioration. The arrangements are to be the full satisfaction of the Engineer-in-charge. The Contractor is wholly responsible for any accidents or bad quality of work due to inadequate arrangements made by him and he will fully indemnify the Engineer-in-charge for any lapse.

Installation of heavy equipment's like Tower Cranes if any, Builders' Hoists, may be previously planned and installation details shall be submitted for checking prior to implementation.

No extra claim will be entertained for the overtime and night work and any direct or indirect costs and expenses incurred by him on this account.

39. **NORMS TO BE FOLLOWED AS PER STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY**

ENVIRONMENTAL MANAGEMENT PLAN

AIR POLLUTION

- The construction area will be screened properly.
- Regular maintenance and inspection of the machineries should be conducted.
- Water should be sprinkled periodically to suppress the dust generation.
- Personnel masks should be provided to workers.
- The material transport vehicle should be adequately covered.

Solid waste Management

- The construction waste should be handled properly by the construction contractor.
- Provision of separate waste bins for bio-degradable, and domestic waste should be made and management shall be conformance with the waste management proposal.
- Regular inspection of the camp should be done by the project executing agency to confirm the compliance with the routine waste management practices.

ENVIRONMENT, HEALTH AND SAFETY STANDARDS:

a. Particular attention of the tenderers is invited to maintaining Environment, Health and Safety standards during the construction period which covers all aspects of site activities both under

97

direct control of the successful tenderer and also those in which the successful tenderer is involved indirectly.

b. The tenderers shall strictly adopt and follow in a systematic manner the EHS policy of the Employer. If the Contractor has his own internal EHS policy covering construction activities, he shall submit the same to the Employers and the Engineer-in-charges and get them vetted before implementation.

C) FIRE AND SAFETY PRACTICES:

In particular, attention of the Tenderers is invited to **clause no. 3.4.3 - Part 4 – Fire and Safety – Page No. 19 – "Occupation of Building under Construction" of National Building Code of India 2016**. Please note that the tenderer shall carefully go through the requirements of NBC and undertake that he will fully comply with the NBC requirements on Fire Safety at all times. The tenderers shall also ensure that they comply with all the statutory requirements covering the above aspects.

D) HANDLING & DISPOSAL OF WASTES DURING THE CONSTRUCTION STAGE: -

.i)The attention of the Contractor is drawn to the Statutory regulations both at State and Central level covering the procedures to be adopted for handling and disposal of wastes generated during Construction stage. It is incumbent on the Contractors to comply with the regulations in all respects at every stage of the Construction till the Project is handed over. Any specific reporting systems required as per Statutory regulations, rules or guidelines laid down by any Statutory Authority in this respect shall be followed and suitable documents maintained by the Contractor at all times.

ii) The tenderers shall maintain proper records at site and submit monthly reports to the Employers and the Engineer-in-charges outlining the compliance, results of periodical internal audit, details of non-conformities and also corrective action taken and the effect of the corrective action taken. The Employer and the Engineer-in-charge reserve the right to impose suitable recoveries on the Contractor for non-compliance of the above conditions. This subject comes under the "excepted matters" and is non-negotiable, and the decision of the Employer / Engineer-in-charge is final and binding on the Contractor.

iii) The entire responsibility of implementing EHS, Fire Safety and handling & disposal of wastes during construction stage practices at site lies on the Contractor whether or not Employer / Engineer-in-charges have approval of Contractor's EHS practices and the quoted rates are deemed to include all the provisions therein

40. USE OF PUBLIC ROADS ETC.:

98

All operations necessary for the execution of the works shall so far as compliance with the requirements of the Contract be carried on in a manner such that it will not interfere unnecessarily or improperly with the convenience of the public or the access to, use and occupation of public or private roads and footpaths to or of properties whether in the possession of the Employer or not. The Contractor shall indemnify the Employer in respect of all claims, proceedings, damages, charges, expenses whatsoever, arising out of or in relation to any such matters in so far as the Contractor is responsible therefor. All trucks shall leave work site after passing through Wash Trough for cleaning heavy dirt and mud stuck to types in view of environmental compliances. No additional claims shall be made to maintain such cleanliness and compliances and the standard should be maintained till the end of work. All debris shall be cleared and disposed responsibly and at approved dump yards only at regular intervals.

41. SITE ORGANIZATION :

The Contractor is required to provide a Management Team dedicated full time to the Project

Any employee of contractor if found not suitable for the standards of project site will have to be removed and replaced if directed so by Employer.

42. CONFINEMENT TO SITE:

The Contractor is at all times to confine his storage and activities to within the areas indicated on the site plan. The Employer reserves the right to nominate the approaches to the site across its land. Vehicles may be parked outside the Contractor's areas only with the Engineer-in-charge's permission and where directed by the Engineer-in-charges / KSITIL.

43. ADVERTISING BY CONTRACTOR:

The Employer reserves the right to all advertising on the site. No advertisement or sign shall be erected or displayed on the site except the sign specified and such other signs as the Engineer-in-charges / KSITIL may permit on application.

44. NAME BOARD AND PUBLICITY

The contractor is not entitled to do any publicity on account of the project. Contractor shall not put any hoarding, publish any advertisement, put any banner or circulate any pamphlet or adopt any other publicity methods except with prior written approval of the Engineer-in-Charge. A name board may be made and displayed by the Contractor at his own cost at the Site at some approved place on the day of commencement of construction. The content and size of the Name Board shall be got approved from the Engineer-in- Charge. The contents of the board shall be as follows: -

99

i.   Name of the Project.

ii.   Name of the Owner

iii.   Name of the SPV.

iv.   Name of Contracting Agency, Contract Amount, Date of Start and Expected date of Completion, built-up area of project, Key features etc.

45.   **LABOUR REPORTS:**

To achieve the scheduled progress the required daily strength of various trade of labours and directly employed by him shall be reported by the contractor on a daily basis. A chart of daily labour strength in each category shall be displayed at Contractor's Site Office for verification any time. Contractor to submit a labour histogram in long term month planning within 30 days of start of work at site, to suit his schedule and the same will be checked on a daily basis in the reports for progress review.The Contractor shall deliver weekly to the Engineer-in-charges / KSITIL a schedule of the numbers of workmen employed on the works by trade during the previous week. This schedule shall show daily alterations in the strength of the labourforce and shall include Nominated Specialist Contractor's labour. If the progress is not as scheduled, the labour strength shall be increased to such levels. to bring back the targeted progress. Contractor should also under such conditions submit crash programme, indicating the increased man power required and mobilized to bring the progress back on track.

46.   **SITE MEETINGS:**

The Engineer-in-charges / KSITIL will convene site meetings weekly at a pre-arranged time to discuss or problems which may have arisen or seem likely to arise during the course of the works.

The Engineer-in-charge shall chair the meetings at which the Contractor's Foreman and any other person whom the Engineer-in-charge consider desirable, including the Contractor's subcontractors shall be present, and the Contractor shall make all arrangements to ensure their presence.

The Engineer-in-charges / KSITIL shall record the business of the meeting and shall arrange for copies to be distributed to all present prior to the next meeting.

Any queries by Contractor may be raised at meeting will be addressed by Consultant in 48 hours, and a decision will however be given in a maximum period of 7 days. Any violation

100

of above or lack of clarity on such raised queries if remaining unattended shall be brought to the direct notice of Project Manager KSITIL for immediate resolution.

47. APPROVED MAKES OF MATERIALS:

The Engineer-in-charges/Employer shall approve procurement of all materials by the successful tenderer from the sources/COMPANIES given in the Technical specification. and as of the General Instructions and Notice Inviting Tender.

48.. **VOID**

49. **VOID**

50. **VOID**

51. IMPORTANT POINTS

1. The Contractor shall execute contract agreement in the prescribed format in Kerala stamp paper within 14 days after award of contract. The Value of the stamp paper shall be 0.1% of contract value, minimum of Rs.500/- and maximum of Rs.1 Lakh.

2. Online Tenders/bids are to be accompanied with a preliminary agreement executed in Kerala stamp paper work Rs.500/-.Tenders/bids received online without the details mentioned Instructions to the Bidders will not be considered and shall be summarily rejected.

3. The tender shall be valid for 120 days from the date of opening of price bid.

4. All materials, tools and tackles, equipment, labour skilled and semi-skilled including their housing, sanitation, procurement of food stuff, medical aid etc. are to be arranged by the contractor. Cost of Transportation of labour and materials shall be borne by the contractor.

6. The contractor shall stock the material at the site of work strictly as per the instructions of Engineer-in-charge keeping in view of the operational requirements of KSITIL.

7. In the event of any dispute of any kind related to the works, decisions of the Engineer-in-charge shall be final and binding.

8. The contractor shall be responsible for any damage resulting from his negligence to existing facilities/installations and will restore, replace or repair any such damages at his cost to the complete satisfaction of the Engineer-in-charge.

101

9. The bidder has to select the equipment meeting the general/technical specifications mentioned in the tender.

10. Any variation in terms and conditions from general/special condition for payment, security deposit, etc. are not acceptable to KSITIL.

11. The bidder's printed terms and conditions shall not be considered for evaluation. Hence, no such documents need to be attached.

12. KSITIL reserve the rights to delete any portion of the schedule from the scope of supply of the contractor and supply the same directly. Contractor shall carry out the installation, testing and commissioning of the item as per the rates available in the BOQ.

13. Performance guarantee:- Performance guarantee shall be submitted by the contractor within 14 days from the date of acceptance of work order, along with execution of agreement.

14. Necessary co-ordination with civil contractor and other agency/ contractors working at site shall be the responsibility of the contractor.

15. KSITIL will not be responsible for the supply of water and Electric power to the contractor. The contractor shall make his own arrangements for construction power if required and make necessary payments to the departments concerned.

16. The contractor should carry out the work in different phases as directed by engineer in charge so that supply intrusion is kept as minimal.

17.The Bidder shall release and indemnify the client / its personnel / agents from and against all liability in respect thereof, and shall himself be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the act.

18. The contractor is bound to obey all the guidelines set for the KIIFB funded projects times to time.

19. The quoted rates shall also include expenses towards all Quality Control tests prescribed in the CPWD specifications and/or IS codes and/ or as directed by the Engineering In-Charge and to be done at Government/Aided Engineering Colleges or Polytechnic Colleges or NABL Accredited laboratories.

20. Contractor has to complete entire work in line with interior packages and should not run behind the interior work progress.

21. Bidder shall keep ready his list of probable approved brands and items in each line item ready for preparing his shop drawings starting in a time interval not less than 10 days of work award.

102

22. Last 30 days of contract will be predominantly used for settling snags, attending corrections, completing testing and final fine tuning etc. only.

23. Bidder shall understand that no payment request can be made for partially completed BOQ items unless otherwise specified in the contract and shall be prepared with a fund flow ready to cover works for a minimum of 60 days of work, without a break, before first bill payment will be realized.

I/We hereby declare that l/we have read and understood the above instructions and the terms and conditions mentioned above are binding on me/us.

Date   SIGNATURE OF THE TENDERER.

Place   Managing Director,

                                                                        KSITIL

FORMS OF DIFFERENT DEEDS

ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made on _____at Thiruvananthapuram, betweenThe General Manager on behalf of Managing Director, Kerala State IT Infrastructure Ltd. (KSITIL), having their Registered Office at 01st Floor, Sankethika, PF Lane, Pattom Palace PO, Trivandrum – 695004 hereinafter called the "KSITIL "(which expression shall, unless it be repugnant to the context or meaning thereof, mean and include its successors and assigns) of THE FIRST PART `and_____,   having   its   Registered   Office   at _____, hereinafter called the "Contractor" (which expression shall, unless it be repugnant to the context or meaning thereof, mean and include its successors) of THE SECOND PART.

103

Whereas "KSITIL" is desirous of Supply, installation, testing and commissioning of data & networking /CCTV & access control system for Building-1 at TIZ Kalamassery. (herein after called the "Work") and has caused Drawings & Specifications describing the work.

AND WHEREAS the Contractor has offered to carry out the work and the KSITIL has agreed to award the work to the Contractor on certain terms and conditions which the parties are desirous of recording.

NOW THIS AGREEMENT WITNESSETH AND IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. The KSITIL and the Contractor agree that The Letter of Intent / Work order issued by KSITIL and all correspondence between KSITIL and the contractor prior to issue of LOI/ Work order along with the Notice Inviting Tender, Instructions to bidders Tender Form, General Conditions of Contract, Special Conditions, Technical Specifications, Unit Specifications, Detailed Specifications, Schedule/Bill of Quantities and Contract Drawings, etc. defined in greater detail as "Contract Documents" in the General Conditions shall form an integral part of this Agreement.

2. For the consideration hereinafter mentioned the Contractor shall, upon and subject to the "Contract Documents" annexed hereto carry out the said Work.

3. In consideration of the Contractor carrying out the Work, KSITIL shall pay to the Contractor a sum of Rs._____ (hereinafter referred to as the "Contractor Sum") or such other sums as shall be payable hereunder at the times and in the manner specified herein and the General Conditions annexed hereto.

4. The said Contract Documents hereto shall be read and construed as forming part of this Agreement and the parties hereto shall respectively abide by and submit themselves to the Contract Documents. The Contractor has no right to assign this agreement without the consent of KSITIL.

5. The Contract shall be an ITEM RATE CONTRACT. The Contract Sum as stated herein is subject to addition & deduction. The Contract Sum payable to the Contractor shall be determined by applying the quoted Item/Unit Rates in the Schedule/Bills of Quantities attached hereto or such other rates as may be agreed to in writing as variation to the Contract to the as-built quantities measured upon completion of the Work. If any item is omitted by the lowest bidder, the bidder shall execute the same at "Zero" cost.

6. The Contractor has scrutinized all Drawings, Schedule/Bill of Quantities, Specifications and Conditions of Contract and has visited the site to co-relate the drawings and design intent to the site conditions and Contractor confirms that his prices included in the Schedule/Bill

104

of Quantities have been determined on the basis of such scrutiny of the documents and site conditions.

7. The quantities of pay items shall be measured net after installation in accordance with the units of measurements indicated against each item irrespective of any local custom or practice to the contrary. The Contractor has allowed for all wastage and additional costs, if any, in his prices.

8. The detailed drawings and item descriptions in the Schedule/Bill of Quantities are not exhaustive. They are indicative of the general design intent. The Contractor's price is inclusive of all component and finishes required to achieve the design intent of each individual item and for co-ordination of details for inter-related items.

9. All disputes arising out of or in any way connected within this agreement shall be deemed to have arisen in Thiruvananthapuram and only courts in Thiruvananthapuram shall have jurisdiction to determine the same.

10. The work has to be completed and handed over within the stipulated time as per tender conditions. If the contractor fails to maintain the required progress in terms of the agreed time and progress chart or to complete the work and clear the site on or before the date of completion of contract or extended date of completion, he shall prejudice to any other right or remedy available under the law to the employer on account of such breach, pay as compensation, liquidated damage @1 (one) percent of the contract price per week of delay or part thereof. The aggregate of such compensation/ compensations shall not exceed 10 (ten) percentage of the contract value. This will also apply to items or group of items for which separate period of completion has been specified. The amount of compensation may be adjusted or set off against any sum payable to the contractor under this or any other contract with the employer. KSITIL shall have the right to terminate the contract and the balance work will be arranged at the risk and cost of the contractor unless and until the period of completion is suitably extended by KSITIL due to valid reasons. KSITIL shall also have the liberty to offload works/ some of items of works when there is a delay in execution, which could likely to delay the completion of whole work. These works /item of works shall be executed with other agency at the risk and cost of the Contractor.

IN WITNESS WHEREOF the KSITIL has set and subscribed its hands and seals and the Contractor has caused its Common Seal to be affixed hereunto on the Day and Year herein above written.

SIGNED SEALED AND DELIVERED BY Mr._____, the duly constituted attorney for the KSITIL _____.

Signature of KSITIL: _____

105

In the presence of: Mr. _____

signature of Witness: _____

SIGNED SEALED AND DELIVERED BY Mr. _____, the duly constituted attorney for the Contractor _____.

Signature of Contractor: _____

In the presence of: Mr. _____

Signature of Witness: _____

PERFORMANCE BOND – DEFECT LIABILITY

Owner …………………………….

Principal (Contractor) :…………………………….

Surety …………………………..

Name of Work :…………………………….

Contact No. & Date :…………………………….

NOW ALL MEN BY THESE PRESENTS THAT WE, …………………………………...

……… ………………………………providing for the …………………… having our office at ……………………… as stated above bind ourselves, our heirs, executers, administrators and successors jointly and severely, firmly by these presents subject to the provisions of the aforesaid contract on demand and without demur on the claim being made to the Principal.

THE CONDITIONS OF THIS OBLIGATION IS SUCH, that whereas the ……………..

…..……………….…………………. On date as shown above for the ………………...

106

……

………………………………………………………………………………………..

…………………………………………………… has executed the said contract as per defined scope of their work and as per terms and conditions of the said order,…….. has to be give a guarantee for defect liability period for a period of 36 months from the date of completion i.e 3 years from ………… to ……………

Therefore, through their ……………………………, do hereby agree and undertake to guarantee the satisfactory performance of the said work during the period of five yearsi.e. from ……………. to ……………….. and undertake to pay over, make good or reimburse to ……………………….. For all losses and damages within scope of …………….. defined work which the principal may sustain by reason of failure or default on the part of the ……………so to do.

This bond will not cover any accidental damages to the structure, any time after completion of works, which are beyond reasonable control including, but not limited to:-

1.   Structure subjected to loads not considered in design.

2.   Exterior excavations leading to erosion and under mining of RE Structures.

3.   Failure due to malfunctioning of surface / sub-surface cross drainage works/ utilities / services etc

4.   War, invasion act of foreign enemies and rebellion, revolution, Insurrection or military or usurped power of civil war or any other act of sabotage/terrorism.

5.   Any disturbances in wall as a result of distresses in adjoining structures.

6.   Any modification / alternation carried without the consent of ………………

This bond will be in full force and effect during the period of said five years that would be taken for the validity of the said guarantee period and it shall continue to be enforceable till all the claims, if any, of ………………………………….. under or by virtue of the contract have been fully paid and certified by …………………………

In witness whereof the above bond parties have executed this instrument under their seals on the date indicated below and name and seal of each party being hereto fixed and these presents duly signed by its undersigned representatives.

AUTHORISED SIGNATORY

Witness By:

107

Witness by:

Signature

Signature

Name:

Name

Address

Address

Bank Guarantee Format

To

Kerala State IT Infrastructure Limited (KSITIL)

1st Floor, Sankethika , PF Road,

Vrindavan Gardens, Pattom,

Thiruvananthapuram, 695004

Guarantee No:

Amount of Guarantee: Rs._____

Guarantee Cover from: dd/mm/year

Last date for lodgement of claim: dd/mm/year

108

This indenture made on __ day of ____ 2022 between M/s._____ (hereinafter called the said "Contractor" which expression shall unless the context requires otherwise include its heirs, executors, administrators and legal representatives) of the first part and M/s. ____ (Name of Bank), a body corporate constituted under the banking companies acquisition and transfer act 1971 having its Head Office at _____ and one of its branches at _____ (hereinafter referred to as the said Bank) which shall its successors and assignees of the second part and the Kerala State IT Infrastructure Limited, hereinafter called "KSITIL" which expression shall include its successors and assignees of the third part.

WHEREAS the Contractor has to pay to KSITIL, the security deposit in respect of the works tendered to be performed as per Tender document No: KSITIL/___/___/__ & Work Order No: KSITIL/__/__/__ dated ____.

AND whereas the full value of Security Deposit is liable to be forfeited to KSITIL on the happening of the contingencies mentioned in the tender or in the contracts.

AND WHEREAS the Contractor desires to secure exemption from payment of security deposit, has offered to furnish a guarantee of the bank for the sum of Rs.____/- (Rupees _____ only) to KSITIL for the purpose of securing such exemption.

AND WHEREAS KSITIL has agreed to accept the guarantee of the bank as herein provided in lieu of the Contractor depositing Security Deposit.

NOW IT IS HEREBY AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. If the Contractor commits any breach of the terms and conditions of the tender or contract in respect of which the contractor has been exempted from depositing the Security Deposit because of this guarantee furnished by the bank to KSITIL and KSITIL has become entitled to forfeit the security deposit or any part thereof the Bank hereby unconditionally and irrevocably agrees and undertakes to pay to KSITIL on demand and without demur the amount of security deposit required to be furnished by the contractor under the conditions of the tender or of the contract in respect of which the breach is committed to the extent of Rs._____/- (Rupees _____ only).

2. We, ____(name of the bank), further agree that the KSITIL shall be sole judge of and as to whether the said contractor has committed any breach or breaches of any terms and conditions of the tender / contract and the extent of loss, damage, costs, charges and

109

expenses caused to or suffered by KSITIL or account thereof to the extent of security deposit required to be deposited by the contractor in respect of the said tender or the contract and the decision of KSITIL that the said amount or amounts or loss, damage, costs, charges and expenses caused to or suffered by KSITIL shall be final and binding on us.

3. We, the said 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 contract in respect of which the contractor has been exempted from making a deposit of the security by virtue of this guarantee and till all the dues of KSITIL under the said contract or by virtue of any of the terms and conditions governing the said contract(s) have been fully and properly carried out the said contractor.

4. KSITIL shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee or indemnity, from time to time vary any of the terms and conditions of the said contract or to extend time and from time to time any powers any of the powers exercisable by it against the said contractor and either to enforce or forbear form enforcing the any of the terms and conditions governing the said contract or securities available to the KSITIL and the said bank shall not be released from its liability under these presents by any exercise aforesaid or by reason or by reason of time being given to the said contractor or of any other forbearance, act or omission on the part of the KSITIL or any indulgence by the KSITIL to the said contractor or of any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of so releasing the bank from its such liability.

5. We, the said bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of the KSITIL in writing and agree that any change in the constitution of the said Contractor or the said bank shall not discharge our liability hereunder.

Notwithstanding anything contained herein.

1. Our liability under this Bank Guarantee shall not exceed Rs.____ (Rupees_____ only)

2. The Bank Guarantee shall be valid up to dd/mm/year

3. We are liable to pay the guarantee amount or any part there of under this bank guarantee only and only if you serve upon us a written claim or demand on or before dd/mm/year.

Dated the ____ day of _____ (month) at _____ 2023

110

PRELIMINARY AGREEMENT

(To be furnished in Kerala Non -Judicial stamp paper worth Rs.500/-)

Preliminary Agreement entered into on this……………………..day of…………………Two thousand and twenty between the General Manager on behalf of Managing Director, Kerala State IT Infrastructure Ltd, having their Registered Office at Kerala State IT Infrastructure Limited,1st Floor, Sankethika , PF Road, Vrindavan Gardens, Pattom, Thiruvananthapuram, 695004(hereinafter called KSITIL) of the one part andM/s.…………………………..(here enter full name and address of the Bidder) hereinafter called the Bidder of the other part for the execution of the agreement as well as for the execution of the Supply & installation of Furniture for Building 1& 2 at TIZ, Kalamassery.

WHEREAS the KSITIL invited tenders for the work of Supply, installation, testing and commissioning of data & networking /CCTV & access control system for Building-1 at TIZ Kalamassery.by Tender No…………………Dated…………(here enter Tender No & E- tender ID).

I/We undersigned hereby offer to construct the proposed work in strict accordance with the contract/bid document for the consideration to be calculated in terms of the priced schedule of quantities.

111

I/We undertake to complete the whole of the works as per the attached schedule from the date of issue of intimation by you that our tender has been accepted and upon being permitted to enter site. I/We further undertake that on failure, subject to the conditions of the contract relating to extension of time, I/We shall pay agreed `Liquidated Damages' for the period during which the work shall remain incomplete.

I/We hereby deposit with you as Earnest money Rs. _____ /- (Rupees _____) [carrying no interest] by means of online payment in the e-GP web site of Kerala in favour of KSITIL and I/We agree that this sum shall be forfeited in the event of the Employer accepting my/our tender and I/We fail to take up the contract when called upon to do so as per clause 4.1.3 of the bid document. I/We further agree for the deduction of 2.5% from the `Interim Payment/RA Bill' and up to a maximum of 2.5% of the contract value towards the 'Performance Security Deposit', which will be returned as per the relevant clauses in the agreement.

I/We will furnish the Performance Guarantee Bond as per the approved format, if our bid is accepted. Bid Security deposited shall be treated as security for the proper fulfillment of the same and shall execute an agreement for the work in the prescribed form. If I/We fails to do this or maintain a specified rate of progress ,the performance guarantee (both treasury fixed deposit and irrevocable KSITIL Guarantee) and Performance Security Deposit if any deducted from the RA Bills shall be forfeited to KSITIL and fresh tenders shall be called for or the matter otherwise disposed off. If as a result of such measures due to the default of the Bidder to pay the requisite deposit, sign contract or take possession of the work any loss to KSITIL due to the same will be recovered from me/us as arrears of revenue, but should it be a saving to KSITIL.

I/We shall have no claim whatever to the difference. Recoveries on this or any other account will be made from the sum that may be due to us on this or any or other subsisting contracts or under the Revenue Recovery act or otherwise KSITIL may decide.

I/We further agrees that, in the case of becoming the lowest bidder in this tender and in the event of failure on part of me/us to produce any of the original documents, or submit the performance guarantee, or enter into agreement with the first part within the specified time limit, the first part may take appropriate action as provided in the bid document. In such a situation, if the second lowest bidder gets awarded with the work at his quoted rate, I shall agree to pay to the first part compensation towards the loss on account of award of work at a higher amount. Recoveries on this or any other account will be made from the sum that may be due to us on this or any or other subsisting contracts or under the Revenue Recovery act or otherwise the KSITIL may decide.

NOW THEREFOR IN THE PRESENCE OF WITNESS it is mutually agreed as follows.

1.   The terms and conditions for the said contract having been stipulated in the said tender document and forms to which the I/We have agreed and a copy of which is here to be

112

appended which forms the part of this agreement, it is agreed that the terms and conditions stipulated therein shall bind the parties to this agreement except to the extent to which they are abrogated or altered by express terms and conditions herein agreed to and in which respect the express provisions herein shall supersede those of said tender form.

2. I/We hereby agreed and undertake to perform and fulfill all the operations and obligations connected with the execution of the said contract for the Supply, installation, testing and commissioning of data & networking /CCTV for Building-1 at TIZ Kalamassery awarded in favor of me /us.

3. If the Bidder does not come forward and to execute the original agreement after the said work is awarded and selection notice issued in his favour or commits breach of any of the conditions of the contract as stipulated in clause of the notice inviting tenders as quoted above, within the period stipulated then the KSITIL may rearrange the work other wise or get it done departmentally at the risk and the cost of the Bidder and the loss so sustained by the KSITIL can be realized from the Bidder under the Revenue recovery Act as if arrears of land revenue as assessed quantified and fixed by an adjudicating authority or any other officer or officers authorized by KSITIL in this behalf, taking into consideration the prevailing P.W.D rates and after giving due notice to the Bidder. The decision taken by such authority officer or officers shall be final and conclusive and shall be binding on the Bidder.

4. The Bidder further agrees that any amount found due to the KSITIL under or by virtue of this agreement shall be recoverable from the Bidder from his EMD and his properties movable and immovable as arrears of Land Revenue under the provision of the Revenue Recovery Act for the time being in force or in any other manner as the KSITIL may deem fit in this regard.

5. The Bidder further assures that it is clearly understood that the settlement of claims either by part bills or by final bills will be made only according to the availability of budget provision and allotment of funds made with the Divisional officer in charge of the work under the respective heads of account in which the work is sanctioned and arranged and also subject to the seniority of such bills. No claims for interest or for damages whatsoever shall be made for the related settlement of claims of bills.

IN WITNESS WHEREOF the KSITIL has set and subscribed its hands and seals and the Contractor has caused its Common Seal to be affixed hereunto on the Day and Year herein above written.

SIGNED SEALED AND DELIVERED BY Mr._____, the duly constituted attorney for M/s. Kerala State IT Infrastructure Limited (KSITIL).

Signature of KSITIL: _____

113

In the presence of : Mr. _____

Signature of Witness: _____

SIGNED SEALED AND DELIVERED BY Mr. _____, the duly constituted attorney

for the Contractor _____.

Signature of Contractor: _____

In the presence of : Mr. _____

Signature of Witness: _____

DECLARATION

(To be submitted on your company letter head)

Date:

To

The Managing Director,

Kerala State IT Infrastructure Ltd.,

Sir,

Sub: SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA &
NETWORKING /CCTV FOR BUILDING-1 AT TIZ KALAMASSERY.

Ref: Tender No: …………………….…………

114

With reference to above, we hereby declare that we accept all tender conditions without any deviation. Conditions if any already attached to Bid stands withdrawn.

(Signature, Name and Seal of the Company)

ORGANISATIONAL STRUCTURE

1.   Name and address of the Applicant
2.   Telephone No. /Fax No/E-Mail address.
3.   Legal Status (attach copies of original Document defining the legal status)
a.   Individual / Proprietary Firm
b.   A Firm of Partnership
c.   A Limited Company.
4.   Particulars of registration with various Government bodies (Attach attested photo-copy)
a.   Registration Number.
b.   Organization / Place of registration

5.   Names and Titles of Directors and officers with designation of those concerned with this work with Designation of individuals authorized to act for the organization.

6.   Was the Applicant ever required to suspend work for a period of more than six months continuously after the work was commenced? If so, give the name of the project and give reasons thereof.

7.   Has the Applicant or any constituent Partner in case of Partnership firm, ever abandoned

115

the awarded work before its completion? If so, give the name of the project and give reasons thereof.

8. Has the Applicant or any constituent Partner in case of Partnership firm, ever been debarred / black listed for Tendering in any organization at any time? If so, give details:

9. Has the Applicant or any constituent Partner in case of Partnership firm, ever been convicted by a court of law? If so, give details.

10. In which field of Electrical Engineering, specialization and interest is in?

11. Any other information considered relevant but not included above.

<div align="right">

SIGNATURE OF THE TENDER

APPENDIX- II

</div>

<div align="center">

II. PRE-QUALIFICATION APPLICATION

</div>

Name of work: ………………………………………………………………………..

To

…………………………………………………………………………

…………………………………………………………………………….

Dear Sir,

Having examined the pre-qualification document indicating scope of works and time frame of the work I / We hereby submit all the necessary information for pre-qualifying me/us for bidding for the above-mentioned work. The relevant Certificates are enclosed.

The application is made by me / us on behalf of…………………………….. ………………………………………………………… (Group firms) in the capacity of ………………………………………duly authorized to submit the offer.

The necessary evidence admissible in law in respect of authority to me/us on behalf of the group of firms for applying and for completion of the Contract document is attached herewith.

<div align="right">

116

</div>

I / We understand that Company reserves the right to reject any application without assigning any reason.

SIGNATURE OF THE APPLICANT

(Name in brackets, including title and

Capacity in which application is made)

Encl: 1.   Schedule duly filled in the prescribed form.

2.   Evidence of authority to sign.

3.   Latest brochures & relevant Certificates.

117

ESSENTIAL PREQUALIFICATION REQUIREMENT

ANNUAL TURNOVER

I. **Annual turnover data** form Audited Balance sheet and Profit and loss Account of the firm for the last three-years shall be enclosed.

The information supplied should be the annual turnover of the tenderer in terms of contract receipts and value of work in progress to be billed ,and shall not include interest on deposits and sale of disposable materials. .

Annual turnover & annual profit/(loss) data for the last 3 years is to be provided in the following format and certified by the Company's Auditors.

Financial Year	Annual Turnover in Lakhs	Profit before Tax in Lakhs/
1. 2019-20		
2. 2020-21		
3. 2021-22		

Certified that the figures are from the Balance sheets of respective financial years

II. Financial arrangement for carrying out the proposed work.

III. Income Tax PAN details

IV. GST Registration details.

DATE: **AUDITOR'S SIGNATURE WITH STAMP**

DATE: **TENDERER'S SIGNATURE WITH STAMP**

118

DETAILS OF PROJECTS COMPLETED – DURING LAST SEVEN YEARS.

Please fill in information about the relevant projects completed over the last seven years					
Name of the Employer with Contact No & Card NO	Location	Year of the work done	Contract price (₹. In lakhs)	Scope of works	Completion Certificate enclosed (Yes/No)

119

DETAILS OF PROJECTS IN PROGRESS

Give information about all projects in progress including those where the company has received the letter of intent but a formal Contract has not yet been awarded							
Employer	Engineer responsible for supervision	Location and description of work	Scope of works	Value of Contract	Value of supply/ works completed	% practical completion	Scheduled date of completion of the supply / work
1	2	3	4	5	6	7	8

120

ESSENTIAL PRE-QUALIFICATION REQIREMENT FORMAT

FOR BANKER'S SOLVENCY CERTIFICATE

To

The Managing Director,
Kerala State IT Infrastructure Ltd (KSITIL)

Dear Sir,

SOLVENCY CERTIFICATE

Ref: 1. Tender Name:

  2. Tender No:

This is to certify that to the best of our knowledge and information, M/s ………………………..
…………….. , (*address*) …………………………., *a customer of our Bank is respectable and be treated as good for an engagement up to a sum of Rs ……… (Solvency amount)……….only as on ……………. (Date of certificate)*

This certificate has been issued without any risk and responsibility on the part of the Bank or any of its officers.

This certificate is issued at the specific request of the customer.

Yours faithfully,

for ……………………Bank

Seal & Signature of Bank Officer with Designation

(Letter head)

121

DECLARATION

We hereby declare that we read and understood that terms and conditions of contract, specifications, drawings, schedule of requirements, etc. and hereby agree to abide by them. In token of, we also understand that otherwise this tender is liable to be rejected.

We hereby confirm that only the relevant entries asked for, have been made within the Tender documents issued to us. We also confirm that in the event of any entry in this tender document, other than the relevant entry, shall make this tender invalid.

We hereby confirm that we are authorized to sign on behalf of the bidder.

Signature of the bidder

Date:

122

UNDERTAKING BY THE CONTRACTOR (In letter head)

Sub: SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV OF BUILDING-1 TIZ KALAMASSERY.

.

Ref: Tender No: KSITIL/TIZ /2022-23 /

Having examined the Terms and conditions, technical specifications and the drawings included in or referent in the tender documents, the receipt of which is hereby duly acknowledge, we offer to complete the project as detailed in the work schedule, in conformity with the technical specifications and drawings and the terms and conditions as mentioned in or referred to in the in the said tender documents for the sum as quoted in the Priced part or such other sums as may be ascertained in accordance with the work schedule attached herewith and part of this bid and the said conditions.

Our acceptance to all the conditions of the tender document in this bid form shall persist over any other terms and conditions, deviations, if any, given in our bid.

We undertake, if our bid is accepted, to commence and complete Construction of Building , Structural & Civil works as specified in the tender document, from the date of receipt of your work order.

If our bid is accepted, we will obtain the bank guarantee as per the terms and conditions for the due performance of the contract.

We agree to abide by this bid for the period of 120 days from the date of opening of price bid it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your Letter of Intent shall constitute a binding contract between us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We understand that you are not bound to accept the lower or any bid you may receive.

Signature of Tenderer (Seal & Date)

123

Performance Evaluation

I.   General Information

1	Name & Address of the Contractor	
2	Name of Work	
3	Work order / Award ref. No	
4	Brief details regarding the scope of work	
5	Time of completion	
6	Date of Commencement of work	
7	Required Date of completion of the work	
8	Actual Date of completion	
9	Gross amount of the work completed.	
10.	Total builtup area completed	
11	Details of the compensation levied for delay if any.	
12	Quantitative Details of work	
13	Whether receptive towards instructions	

124

II Performance of the Contractor

SL No:	Parameter	Opinion				
		Excellent	Very Good	Good	Satisfactory	Poor
1	Timely execution					
2	Quality Consciousness					
3	Integrity in works					
4	Financial Soundness					
5	Mobilization of sufficient Manpower					
6	Mobilization of Sufficient Materials at site in time					
7	Quality of Engineers/ Supervisors engaged at site.					
8	General Performance					

Name of Officer   :
Designation   :
Ph. No   :
Address of the firm   :
E-mail ID   :
Place   :
Date   :

125

SUBMITTALS BY CONTRACTORS

SUBMITTAL LIST
Annexure – 'E'

Schedule of Main Contractor's Site Management Staff

Bidders must enter below the name, qualifications and experience of their key full time site personnel in the proposed site organization.

Name	Qualification	Position available from start of work	Experience	Period when

126

KERALA STATE INFORMATION TECHNOLOGY INFRASTRUCTURE LTD (KSITIL) THIRUVANANTHAPURAM

TENDER NO: KSITIL/ TIZ/2023-24/8

TENDER FOR
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DATA & NETWORKING /CCTV FOR BUILDING-1 TIZ KALAMASSERY

DETAILED TECHNICAL SPECIFICATION

(BID 1)

KERALA STATE IT INFRASTRUCTURE LTD
1ST FLOOR, SANKETHIKA, P F LANE,
PATTOM PALACE P.O, TRIVANDRUM – 695 004
Ph: 0471-2474006, email: info@ksitil.org

TENDER NO: KSITIL/ TIZ/2023-24/08

FUNDING AGENCY

Kerala Infrastructure Investment Fund Board (KIIFB)
2nd Floor, Felicity Square, MG Road,
Statue, Thiruvananthapuram-695 001

OWNER

Kerala Startup Mission (KSUM)
G3B, Thejaswini, Technopark Campus
Kariyavattom, Trivandrum, Kerala 695581

SPECIAL PURPOSE VEHICLE (SPV)

Kerala State IT Infrastructure Limited (KSITIL)
01st Floor, Sankethika, PF Lane,
Pattom Palace PO, Thiruvananthapuram- 695 004

TABLE OF CONTENTS

1.0 INTRODUCTION

This document intends to provide a standard specification that will be used for KSITL, facilities requiring cabling installation. This document provides the minimum performance criteria for the components and sub-systems comprising a complete cabling system that shall accommodate infrastructure requirements in excess of ten years.

Product specifications, general design considerations, installation guidelines and Bill of Quantities are provided in this written document. If the bid documents are in conflict, thewritten specification shall take precedence. The successful vendor shall meet or exceed all requirements for the cabling system described in this document. The cable infrastructure project requires structured cabling system. If all requirements are complied with, 20-Year Performance Warranty shall back the cabling system. The performance warranty shall be facilitated by the Contractor and be established between the OEM supplier and Client,.

The successful contractor is required to furnish all labor, supervision, tooling, and miscellaneous mounting hardware and consumables for the cabling system installed. After installation, the Contractor shall submit all documentation to support the warranty requirements in accordance with the warranty requirements, and to apply for said warranty on behalf of Client. The warranty will cover the components and labor associated with the repair/replacement of any defective link within the warranty period, when the defect is a valid warranty claim.

1.1 SCOPE

This document defines the cabling system and subsystem components to include cable, termination hardware, supporting hardware, and miscellany required to furnish, and to install a complete cabling infrastructure supporting voice and data. The intent of this document is to provide relevant information to allow the vendor to bid the labor, supervision, tooling, materials, and miscellaneous mounting hardware and consumables

to install a complete IT Networking Passive system. However, it is the responsibility of thevendor to propose any, and, all items required for a complete system whether or not it is identified in the specification, drawings and bill of materials attached to this specification.

1.2   Scope Of Work And Responsibility

a) The scope shall include the complete detailed design, engineering, supply, delivery, and storage at site, installation, testing and commissioning of a fully functional and complete IT Networking (Structured Cabling System) and fewother accessories as mentioned in the BOQ. All accessories and fitting hardware such as brackets / mounting accessories together with associated work are included in the scope of work.

b) All workstations in shall be provided minimum of 1Nos. of Data

c) Fiber cables shall be used between Server Room and IDF Location.

d) Entire System shall be with Cat6A System, patch Panels shall be used for patch in the rack.

e) The campus shall be provided with Wifi Connectivity for all areas inside the building and passive points for the same shall be provided in accordance to the wifi coverage as per standards.

f) Campus Entry to Telcom Room near to Server Room shall be provided with HumePipes / trenches for the required cabling.

g) The entire system shall be as per concept, Technical Specifications.

h) Provide full time Technicians and Supervisory specialists at the job to assist in allphases of system installation, start up and commissioning.

i) Cat 6A cable/fiber cable connectivity with all required hardware up to purchaser's networking switches of LAN, locations of networking switches.

j) Integrated of supply, testing and commissioning of structured cabling systemwith fluke test scanner.

k) Training & handing over of all materials, equipment and appliances.

l) All work shall be in direct compliance with IT Design Standards. It is the responsibility of the contractor to work directly with KSITL / CRN team to achieve 100% compliance.

m) Furnish detailed scheduling information for the IT Networking System installation and testing to the Construction Project Manager/Owner for inclusion in the construction schedule. Provide detailed chart implementation schedule showing all tasks including but not limited to:

1. Engineering
2. Shop drawing and Product Data Preparation and Submission
3. Equipment Procurement
4. Shop Fabrication
5. Raceway Installation Guidance to Electrical team
6. Telecommunications Grounding System Installation
7. Data Cabling installation
8. System Equipment installation
9. Network Programming with the Main Centre
10. Testing & Commissioning
11. Training

n) These durations must be submitted to the Construction Project Manager/Owner within 7 calendar days after receipt of contract. The duration of this schedule must also comply with the completion dates of the overall construction schedule.

o) Provide coordination to ensure communication spaces are completed, cleaned and free of airborne particles as early as possible to facilitate completion of Information Transport System wiring and terminations. Space shall be free of air- borne particles prior to installation of any Communication System component. The Owner shall inspect and approve the condition of these rooms prior to the installation of any Hardware equipment.

p) Attend coordination meetings between Contractors to make everyone aware of critical areas of construction.

q) Provide coordination with the other trades to complete the inspection described in paragraph.

r) Inspect conduit raceway system including back boxes, junction boxes, and mortarboxes prior to installing any cabling. Notify the Owner/Engineer of any discrepancies immediately.

s) Furnish and install all devices, equipment, and accessories resulting in complete, functional, and fully operational system as specified herein or indicated on the Drawings.

t) Prior to installation, coordinate exact location and installation of devices with other services.

u) Provide complete system test, Manufacturer's minimum 20-year performance certification and Owner/User training by the personnel responsible for the Information Transport System installation.

v) Coordinate the work of this Section with that of other Sections to ensure that theentire work of this project will be carried out in an orderly, complete and coordinated fashion.

w) Any other items/accessories required for installation, testing and commissioning of Communication system shall be considered. No extra cost shall be paid for miscellaneous items if required to complete the work as per the design concept.

1.4 Applicable Documents

The cabling system described in this specification is derived in part from the recommendations made in industry standard documents. The lists of documents below (or the latest revisions) have bearing on the desired cabling infrastructure are incorporated into this specification by reference:

<u>Industry Standards for Communications Cabling</u>

Current versions of the major Industry standards governing communications wiring:

ANSI/TIA/EIA-568 :

Commercial Building Telecommunications Cabling Standard Part 1: General Requirements

Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted-Pair Cabling Components

Optical Fiber Cabling Components Standard

Transmission Performance Specifications for 4-pair 100 Ohm Category 6 CablingStandard for Installing Commercial Building Telecommunications Cabling

<u>ITU-T G.652 SMF</u> <u>as specified by the IEEE 802.3z standard for SM Fiber.</u>

ANSI/TIA/EIA-569

Commercial Building Standard for Telecommunications Pathways and Spaces (w/Addenda 1-5A)

ANSI/TIA/EIA-606

Administration Standard for the Telecommunications Infrastructure of CommercialBuildings

ANSI/TIA/EIA-607

Commercial Building Grounding and Bonding Requirements for Telecommunications

Building Industry Consulting Service International (BICSI)

TelecommunicationsDistribution Methods Manual (12th Edition)

In addition, communications wiring installations in D&T must comply with the following:

ANSI/NFPA 70

National Electrical Code (NEC)

ANSI/IEEE C2-2002, National Electrical Safety Code

State and local fire codes as interpreted by the Fire Marshall's dept. in whose jurisdiction the Client office resides. The component manufacturers' recommendations and installation guidelines. If a conflict exists between applicable documents, then the order in the list above shall dictate the order of precedence in resolving conflicts. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents, the vendor is responsible to determine and adhere to the most recent release when developing the proposal for installation.

2.0   GENERAL REQUIREMENTS :

a) The intent of the specification is to define the functional & design requirements for the IT Networking Passive System.

b) The Contractor shall be responsible for selection, design, engineering, manufacture, testing at manufacturer's works/site, installation and commissioning of the system to the satisfaction of Employer. All the cable trays/raceways, Hume Pipes, erection hardware's etc. are also deemed to be included in contractor's scope monitoring, overview and supporting the Civil/ Electrical Contractor, even if not specified in bill of materials.

c) The Contractor's scope shall also include successful demonstration of performance testing specified herein complete in all respects along with cables, cable trays, junction boxes, earth wire and accessories like standard brackets, nut-bolts, glands, lugs, conduit sleeves, etc., as required, to complete the proper installation of all the equipment's supplied as covered in this specification.

d) All equipment, accessories and facilities required for completeness of this system shall be furnished by the Contractor within the quoted price, whether these are specifically mentioned herein or not.

e) The proposed Passive Communication System offered by the Tenderer shall be from the manufacturer Listed in the Approved Makes.

f) The system and all the equipment shall conform to the latest edition of Indian / International standards as applicable.

g) Documentation to be submitted shall include but not be limited to :

- Schematic drawings
- Rack elevation Drawings
- System with all the components shown,
- Data sheets and catalogues of equipment offered.
- Operation and maintenance (O&M) manuals.

h) The Tenderer shall furnish warranty for the entire system for a defect liability period after final official hand over post installation and acceptance from the owner. This period shall include maintenance, replacement of parts, and regular periodic visit by qualified personnel of the Contractor and attending to emergency calls at short notice.

3.0   QUALITY ASSURANCE

A.   GENERAL

- Contractor shall Furnish and install only new equipment and materials required (less than 6 Months from manufacture), unused without blemish or defect.

- Each major component of equipment shall have the manufacturer's name, model number and rating on a plate securely affixed in a noticeable place. The nameplate of a distributing agent will not be acceptable.

- UL label, or other data, shall be die-stamped into the surface of the equipment.

- Performance as defined in schedules and in the specifications shall be

interpreted as minimum Performance.

- All equipment of the same type shall be the product of one manufacturer.
- The original factory condition of manufactured equipment shall not be modified without the written approval of the Engineer.

B.   Qualifications
Project Manager/Lead Technician

- Trained and certified by Structure Cabling OEM vendor.
- Minimum 5 years' experience as Lead Technician on system projects of similarsize and scope.
- Should have minimum 2 PPM certified staff on rolls

Project Technicians

- Trained and certified by Cabling OEM vendor.
- Minimum 2 years' experience on system projects of similar size and scope.

4.0   SUBMITTALS

a) Bill of Materials : Provide complete bill of materials for all major components, accessories, and hardware to be provided in order to provide a complete functioning system.

b) Three (3) hard copies and electronic copy of the shop drawing/product data submittal shall be transmitted to the Engineer/Owner.

c) Submittal must consist of a complete package, bound in a binder, including, Product Data for each Section Specifications, and Shop Drawings as applicable. The Submittal shall include the following:

1. A Title Page complete with the following required information:

   - Owner name
   - Project name.
   - Date.
   - Name and address of the Contractor.
   - Name and address of any Subcontractors.

2. An Index Page complete with the following required information:

   - Name of the Supplier.
   - Name of the Manufacturer.
   - Title, section and paragraph of the Specification Sections.
   - Products in order as specified in related specification section.

3. Each Specification section shall be separated, collated in order, and complete with the following information:

   - Title sheet.
   - Descriptive purpose of the system, stating each product function.
   - Each Data Sheet shall have the specific reference to the Specification it is to be used for, noting the section and paragraph.

d) Shop Drawings

1. All drawings shall be created using an industry recognized computer aided design program. Recognized program is AutoCad 2009 or later. PDF files shall also be submitted.

2. Submit Shop Drawings on minimum ½ size (A2) sheets and upon request will have to submit on Full Size (A1).

3. Submittals consisting of reproduced copies of the original bidding documents will be rejected. The contractor is required to develop a complete set of drawings specific to the final configuration of the system based on the manufacture and models of all components included. Shop drawings are to include all changes noted in addenda, as well as any changes included in Engineer's special instructions or change orders issued prior to the submittal of the shop drawings.

4. Submit shop drawings in accordance with the contract documents indicating:

   - Location and layout of all field equipment on floor plans.
   - Large scale floor plan and elevation view drawings of all Communication rooms depicting all racks, equipment, outlets, etc.
   - Size and spacing of all anchors, wall penetrations, joinery construction, etc., required for complete system installation.
   - Riser diagrams identifying all signal, power and ground circuitry.
   - Block diagram(s) depicting system integration details.
   - Elevations of all security equipment racks showing equipment mounting locations.
   - Wire management details for the installation of cable harnesses inside racks, equipment cabinets, consoles, control panels and other areas of exposed cable.
   - Point to point wiring diagrams for all equipment and devices (active and passive). Depicting cabling as scheduled in the contract documents, or deviation from it.

e) Product Data

1. Product Data showing multiple products, models or options shall be clearly marked identifying the specific product, model and options, which are submitted

for review. Unmarked submittals or facsimile copies shall not be acceptable and will be returned without review.

2. Submit Product Data for all equipment showing:

   • Original Data Sheets Only. Fax copies are not acceptable.

   • Product performance, mechanical and electrical specifications.

   • Manufacturer's installation instructions.

   • Product test compliance certificates if required, Product test compliance certificates as required.

   • Certifications from the submitted manufacturers that the Contractor's designated shop fabrication and field installation personnel are trained on the installation of each system. Include names, experience and responsibility for both.

   • An as-built camera matrix spreadsheet indicating all camera information and ALL settings as directed by the Engineer.

f) Samples

1. Contractor should Provide samples as requested for review and approval

g) Test Plan and Documentation

1. Submit a complete testing plan for all systems for approval with the shop Drawing/Product Data submittal.

2. Plan submitted must include field-testing of each and every field device and control function.

3. Plan submitted must include examples of testing documentation. Shop testing documentation must be submitted for approval prior to control system shipment to job site. Field-testing documentation must be submitted when requesting final Demonstration/Inspection (described below).

4. Detailed testing agenda and testing documentation forms for all systems.

h) Training Plan and Documentation

1. Submit a complete training syllabus for all systems for approval.
2. Outline the "hands-on" training sessions to be provided to the Owner. The operation, programming/debugging, troubleshooting, repair and maintenance of all systems shall be covered.

i) Operating and Maintenance Data

1. Provide 3 copies of each operating and maintenance manual. Manuals shall be bound in binders with a detailed table of contents. Provide electronic copy in PDF & .DOC formats as well.
2. The O & M manuals shall be cross-referenced to the Record Documents and contain the following information for all systems:
    - Product catalog cut sheets and specifications of all equipment.
    - "Hands-on" operational description of all equipment and performance features in each system using clear and understandable terminology.
    - Detailed programming instructions for all systems and all software programs.
    - Troubleshooting procedures to diagnose malfunctions in each system.
    - Repair procedures for all equipment.
    - Preventative maintenance procedures for all equipment.

    Table listing the model numbers for all equipment in each system including the names and phone numbers of the manufacturer and their representative directly responsible for this project.

THE DETAILED TECHNICAL SPECIFICATIONS OF IT NETWORKING SYSTEM HAS BEEN MENTIONED BELOW.

1) Industry requirements

The following installation, documentation, component and system industry specifications shall be met or exceeded:

Passive Components:

General Requirements

- ANSI/TIA/EIA – 568.1-D
- ANSI/TIA/EIA – 568.2-D
- ANSI/TIA/EIA -568.3-D
- ISO/IEC/11801:2010 and addenda
- CENELEC EN 50173:2000 and amendments
- TIA 1179

The optical fibre SCS shall serve as the transport infrastructure for data, video and voice telephony signals throughout the network from designated demarcation points to outlets located at various Desktop, Workstation, Data Centre, Intelligent Building facilities or other locations as indicated on the contract drawings and described herein.

These options shall include at a minimum the following:

1. Pre-terminated SCS consisting of factory terminated and tested optical fibre assemblies.

2. Field configurable options to facilitate either field termination or fusion splicing to pigtails.

All Indoor optical fibre cables and cable assemblies shall utilise Low Smoke Zero Halogen (LSZH) materials and be fully compliant with industry standards regarding fire safety.

The fibre-optic SCS shall comply with the relevant sections below regarding components, in accordance with the type of fibre optic system being deployed:

1.4 OS2 Single mode Fibre Specifications (BOQ ref NO:1.33)

1.4.1 The OS2 Singlemode Fibre SCS shall comply with the following standards

1.4.1.1 ISO/IEC 11801:2010

1.4.1.2 EN 50173-1:2011

1.4.1.3 EN 50173-2:2010

1.4.1.4 ANSI/TIA-568.3- D

1.4.1.5 IEC 60603-7-4

1.4.1.6 IEEE 802.3 applications as outlined in

section 21.4.1.7 IEC 60794-1-2 E1

1.4.1.8 IEC 60793-2-50:2004, B 1.3

1.4.1.9 Local/National Codes and Regulations

1.4.2 shoud change -The OS2 optical fibre glass shall be manufactured from High-Grade Silicaglass and cores doped with Germanium. Singlemode fibres manufactured from natural quartz will not be accepted.

1.4.2   Application Support

1.4.2.1 The OS2 Singlemode Fibre SCS shall be capable of supporting, at minimum, thefollowing IEEE Ethernet applications:

100M	100BASE-LX10
1G	1000BASE-LH
	1000BASE-BX10
	1000BASE-LX10
	1000BASE-PX10-D
	1000BASE-PX10-U
	1000BASE-PX20-D
	1000BASE-ZX
10G	10GBASE-LR
	10BASE-LX4
	10GBASE-ER
40G	40GBASE-LR4
100G	100GBASE-LR4

1.4.2.2 Additionally the OS2 singlemode Fibre SCS shall be capable of supporting thefollowing Fibre Channel Applications Standards, per Technical Committee 11 of INCITS:

1GFC
2GFC
4GFC
8GFC
10GFC
16GFC

1.4.3 OS2 Singlemode Fibre Specifications (BOQ Ref No:4)

1.4.3.1   The OS2 singlemode fibres shall fully meet or exceed the specifications in:1.4.4.1.1 EN 50173-1:2011

1.4.4.1.2 ISO/IEC 11801:2010

1.4.4.1.3 IEC/EN 60793-2-50 (b1.3 fibre)

1.4.3.1.4 ANSI/TIA-492CAAB

1.4.3.1.5 ITU-T G.652.D

1.4.3.2   The OS2 singlemode fibre shall comply with the following physical specifications:

Physical Characteristics	
Cladding Diameter	125.0 ± 0.7 µm
Core/Clad Offset	≤ 0.5 µm
Coating Diameter (Uncoloured)	245.0 ± 10 µm
Coating Diameter (Coloured)	254.0 ± 7 µm
Coating/Cladding Concentricity Error, Max.	12 µm
Clad Non-Circularity	≤ 1.0 %
Proof stress level (GPa)	≥ 0.7 (≈ 1 %)

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

1.4.4.3 The OS2 single mode fiber shall comply with the following mechanicalspecifications:

Mechanical Characteristics	
Proof Test	100 kpsi (0.69 Gpa)
Strip force (peak) (N)	1.0 ≤ Fpeak. Strip ≤ 8.9
Fibre Curl	≥ 4 m
Dynamic fatigue Parameter (nd)	≥ 18
Macrobending, Max. (100 turns)	0.05 dB (1,310/1550 nm @50mm) 0.05 dB (1,625 nm @ 60 mm)
Macrobending, Max. (1 turn @32 mm mandrel)	0.05 @1,550 nm
Tensile strength	4000N
Crush resistance	4000 N
Impact Strength	25 Nm
Torsion	±180
Bending radius Operation	15 X D
Bending radius Installation	10 X D

1.4.4.4   The OS2 single mode fiber shall comply with the following mechanical specifications:

Optical Characteristics, Wavelength Specific			
	1310 nm	1385 nm	1550 nm
Max Attenuation Loose Tube Cable	0.36 dB/km	0.31 dB/km	0.24 dB/km
Max Attenuation Tight Buffer Cable	0.50 dB/km	0.50 dB/km	0.50 dB/km
Mode Field Diameter	9.2 ± 0.3 μm	9.6 ± 0.6 μm	10.4 ± 0.5 μm
Group Refractive Index	1.467	1.468	1.468
Dispersion, Max.	3.5 ps/(nm-km) from 1,285 to 1,330 nm		18 ps/(nm-km)

1.4.4.5   The OS2 single mode fiber shall comply with the following optical andenvironmental specifications:

Optical Characteristics, General	
Points defects, Max.	0.10dB
Cut-Off Wavelength	≤ 1260
Zero Dispersion Wavelength	1,302 – 1,322 nm
Zero Dispersion Slope, max.	0.090 ps/[km-nm-nm]
Polarization Mode Dispersion Link Design Value	≤ 0.2 as per IEC/EN 60794-3
Polarization mode dispersion (PMD) coefficient, cabled (ps/√km)	≤ 0.5
Index of Refraction	1.466/ 1.467 @ 1310/1550 nm

Environmental Characteristics	
Temperature Dependence -20° C to +70° C	≤ 0.05dB
Temperature humidity Cycling 14°F to 185°F (-10°C to 85°C) up to 95% RH	≤ 0.05dB
Water Immersion, 73.4°F (23°C)	≤ 0.05dB
Heat Aging, 185°F (85°C)	≤ 0.05dB

1.   OPTICAL FIBRE CABLING BOQ Ref No: 4

2.1   Indoor/Outdoor Cabling

Outdoor cabling must be available for campus-based networks or those requiring a simplified transition point between outdoor cabling and building cable. Indoor/outdoor cabling meets the fire safety requirements of an indoor environment, along with the rigors of an outdoor environment such as extended temperature range, and water blocking capabilities.

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

2.1.1   The fibre optic SCS shall be available with a wide range of outdoor cabling which include the following designs:

2.1.1.1 Standard all-dielectric central tube

2.1.1.2 All dielectric stranded loose-tube

2.1.1.3 Metallic central tube

2.1.1.4 Metallic stranded loose tube

2.1.1.5 All dielectric rodent resistant stranded loose tube

2.1.2   Indoor/Outdoor Cabling shall be available with 900micron Tight buffered up to 72Fiber

2.1.3   For LSZH indoor/outdoor tight-buffered fiber cables using a multi-unit construction, all sub-unit buffer tubes shall be colored. Numbered tubes of identical color will not be accepted.

2.1.4   The LSZH version of the indoor/outdoor cabling must comply with the following Fire Safety standards:

2.1.4.1 ISO/IEC 60332-1: Flame Test

2.1.4.2 ISO/IEC 60754-2: Acidity

2.1.4.3 ISO/IEC 61034-2: Smoke Density

2.1.5   Outdoor LSZH cabling shall comply with appropriate sections of IEC 60794-2.

- **OPTICAL FIBRE PATCH CORDS**

3.1   LC/UPC (SM), compliant with ITU-T-G.657.A1 (Compatible with G.652-D)

3.2   Optical fiber patch cords shall be available in simplex or duplex configurations.

3.3   Outer Jacket: LSZH shall meet IEC 60332 Flame Rating

3.4   Fiber patch cords will utilize indoor rated cordage with LSZH rating.

3.5   The following connector types must be used:

- LC/UPC (MM), compliant with 60793-2-10 & IEC 61300-2-2

3.6   Maximum tensile strength [N] Installation 200, Operation 100

3.7   Compressive strength [N/10cm] Short term 250, Permanent 100

3.8   Heat of combustion [MJ/m] 0.08

4   OPTICAL FIBRE APPARATUS: FIELD TERMINATED SYSTEMS (BOQ Ref: 1)

4.1   Fibre-Optic shelves

4.1.1   Fibre Optic shelves shall have field installable distribution modules and distribution panels.

4.1.4   Fibre optic shelves will be used 1U designs.

4.1.5   The distribution modules shall accommodate LC duplex connectors in removable/fixed panels. Modules shall be available as front plate only or with integral slack spool management.

4.1.6   Distribution modules with integral slack management shall be optionally available with pre-populated fibre pigtails. Fiber pigtails can be supplied separately also.

4.1.7   Distribution modules shall be specifically designed for the respective cable/connector type

4.1.8   Distribution modules shall possess plastic covers on the front of the housing to prevent dust or other debris from entering unused ports.

4.1.9   Distribution panels shall also be used with LC adapters compliant plugs into a patch panel port.

4.1.10   Fiber patch panels shall be compatible with standards-compliant IEC 61754-20 for LC-Duplex adapters.

4.1.10   Pre-terminated fiber shelves shall be available in 2U sliding configuration to support up to 48 -duplex LC ports as well as in 4Uconfiguration supporting up to 96 duplex LC ports. Can be as a combination of multiple 1U units.

4.1.11   Patch panels should be as easy to install/terminate.

4.1.12   Patch panels shall be compatible with mounting on 19" based hardware per EIA- 3

4.1.13   Optional Push/Pull Tab High Density Patch Cords shall be used for Maximize Panel Density, better access and management.

4.2   Fibre Adapters

4.2.1   Fiber adapters will be multimode fiber.

4.2.2   The following fibre adapters must be available in duplex adapterconfigurations as part of distribution modules and panels:

4.2.2.1.1   LC adapter compliant with IEC 61754-20 and TIA 604-10-A.

4.2.2.1.2   Fiber adapters must be color coded to ensure correct.

4.3   Fiber Pigtails

4.3.1   Optical fibre pigtails shall be used standard 900 micron tight buffered orwith additional strength elements.

4.3.2   The following connector types must be used:

4.3.3   LC/UPC (SM), compliant with ITU-T-G.657.A1 (Compatible with G.652-D)

4.3.3.1   LC/UPC (MM) compliant with IEC 61754-20

4.3.3.2   Outer Jacket: LSZH shall meet IEC 60332 Flame Rating

4.4   Splice Trays

4.4.1   Splice trays must be used for the 1U shelves to secure fusion splices.

4.4.2   24F Splice trays layered structured must be stackable

4.5   6F/ 12F / 24F / 48F, 1U Rack Mount Fiber Enclosure (LIU) including Splice Trays and Adapter Strips (1,2,6,7)

1.   Type 1U Rack Mount Fiber Enclosure (LIU) including Splice Trays and Adapter Strips which accepts loose tube & distribution cable

2.   Fiber Interface Unit   /Fiber Patch Panel Typically used in Server rooms, Network rooms, Data Centres and Small offices Can be mounted directly on any 19" rack or cabinet. It should be able to accommodate a variety of Fiber connectors and terminated to fiber cables using Splicing or other methods.

3.   Fiber LIU should be 1U, 19 Inch Rack Mount.

4.   12/24/48 Port should be available in 1U Rack Mount LIU.

Features & Compatibility

The Fiber Panels are designed with fixed mount adapter plate assemblies.

5.   Sliding design, this panel allows easy access during installation or rework without disturbing previously terminated fiber cable.

This also offers multiple cable entries to provide various customized solutions as per the customers' requirement.

This panel comes with adaptor plates which are preloaded with coupler and can snap in for installation and can be removed easily for future changes.

6. 900µm Tight buffer pigtails are provided with this panel. This panel is preloaded with Splice tray & necessary fiber management accessories.

6. Material   Panel be constructed with SPCC (Cold rolled steel sheet)

Standards   Conformance to Single Mode (ANSI/TIA-568.3-D, Telcordia GR-326-CORE, Telcordia GR-1221-CORE, ISO/IEC 11801, IEC 61754 & IEC 61300 series), Multi Mode (ANSI/TIA-568.3-D, IEC 61300-3-4, IEC 61300-3-6, IEC 60874-1, ISO/IEC 11801)

7. Adapter Types   of Pigtails consist of LC, SC, FC, ST, MTRJ, and E2000 Connectors.

8. Pigtails Type Pigtails shall be constructed with bend Insensitive Fiber

9. Insertion Loss   ≤0.2 dB (Singlemode) , ≤0.3 dB (Multimode)

10. Return Loss ≥50 dB (UPC), (Singlemode) , ≥60 dB (APC) (Singlemode), ≥35 dB (UPC) (Multimode),

11. Repeatability ≤0.1dB

12. Durability   ≤0.2 dB, 1000mattings

13. Ferrule Material   Zirconia Ceramic

14. Operating Temperature   -25 °C to +70 °C

15. Regulatory Compliances/Certifications   OEM should be an ISO9001, ISO 14001 and ISO 45001 should have its Manufacturing units, Components and Finished Goods Warehouse & R&D labs in India. The OEM shall be CE Certified. All Related documents to be submitted.

The system integrator should be certified by the proposed OEM and shall be having 04 certified engineer on the same. (Documents to be

enclosed)

16.   OEM offered must be in India / SAARC for at-least 8 years or more.Should have Indian Technical Support Centre, Warehouse and RMA centre in India.

17.   Authorization   OEM Authorization and Compliance to be submitted on OEM's Letter head duly Signed and Stamped by Authorized Signatory alongwith SI Aurhorised Partnership Certificate

5   DOCUMENTATION

The Optical Fibre Structured Cabling System (SCS) shall be provided with a complete set of documentation such that the design, installation and commissioning of the systemcan be done properly.

This documentation shall consist of the following, to be included in the bid response:

5.1.5.1.1 Design and Installation guidelines, which shall include configurations for typicallocal-area network and data centre applications

5.1.5.1.2 Performance specifications, which shall state the maximum supportable distancefor all protocols which are anticipated to be transported by the SCS. These specifications must be provided in table format to list the number of permissible connections, by connection type, along with the guaranteed distance based on connection number and type, for a given protocol.

5.1.5.1.3 Field testing guidelines based on use of Power Meters to determine insertion loss of a given link.

5.1.5.1.4 A link loss calculator must also be provided. This link-loss calculator must be capable of calculating the expected maximum loss for a given fibre link, based

on length, fibre type, number and type of connectors and splices. The calculation shall be used as "pass/fail" criteria after installation to ensure that the actual insertion loss meets the manufacturer's guidelines.

CATEGORY 6A/ CLASS E$_A$ UTP CABLING SYSTEM REQUIREMENTS (BOQ ref No: 44)

Furnish and install, complete with all accessories, a Category 6A/ Class E$_A$ Unshielded Twisted Pair (UTP) Structured Cabling System (SCS). The SCS shall serve as the transport infrastructure for data, video and voice telephony signals throughout the network from designated demarcation points to outlets located at various Desktop, Workstation, Data Centre, Intelligent Building facilities or other locations as indicated on the contract drawings and described herein.

The Category 6A/ Class E$_A$ UTP Structured Cabling System (SCS) shall comply with the following requirements:

1. STANDARDS COMPLIANCE

The Category 6A U/ UTP ,U/FTP Structured Cabling System (SCS) shall comply with the following Standards

- **ISO/IEC 11801:2010**
- **RP3 compliant as defined by EN 50174-2:2018,**
- **ISO/IEC 14763-2:2019 and ANSI/TIA-568-C2 , TIA/EIA-854**
- **IEC 61156-5, IEC 60332-1 , REACH compliant , RoHS Compliant**
- **Local/National Codes and Regulations**

⬚

2. APPLICATION SUPPORT

2.1 The Category 6A/ Class U/UTP U/FTP SCS shall be capable of following below IEEE Ethernet Applications :

802.3	1BASE5
802.3i	10BASE-T 10 Mbit/s over twisted pair

802.3u	100BASE-TX, 100BASE-T4, Fast Ethernet at 100 Mbit/s w/auto negotiation	
802.3y	100BASE-T2 100 Mbit/s (12.5 MB/s) over low quality twisted pair	
802.3z	1000BASE-X Gbit/s Ethernet over Fiber-Optic at 1 Gbit/s	
802.3ab	1000BASE-T Gbit/s Ethernet over twisted pair at 1 Gbit/s	
802.3an	10GBASE-T 10 Gbit/s Ethernet over unshielded twisted pair	2.2
802.3bt (PoE++)	IEEE 802.3bt from Type 1 to Type 4, and CISCO UPoE+ 100W	
802.3az	Energy Efficient Ethernet	

Additonally the Category 6A U/UTP U/FTP SCS shall be capable of supporting the following Fibre Channel Applications Standards, per Technical Committee 11 of INCITS:

1GFC-BASE-T
2GFC-BASE-T
4GFC-BASE-T

3.   STRUCTURED COPPER CABLING CHANNEL PERFORMANCE

3.1.1   Guaranteed Values in Worst-Case 100 Metre, 4 Connector Channel:

It is critical that guaranteed worst-case values are provided to ensure the SCS can support 10G transmission without risk. "Average value" or "Typical Value" is not acceptable as they do not account for lower performance channels.

The Proposed Catgory 6A U/UTP U/FTP SCS, when configured as a worst-case the 100 metre, 4 connection channel shall meet the following specifications:

Note that these specifications meet or exceed the ISO/IEC IS 11801:2010, Class E_A channel requirements when configured as a worst-case 100 metre, 4 connection channel.

The Guaranteed channel performance for a 4 connector channel should meet the following guaranteed performance criteria.

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

	Test Result @ 500 Mhz
Insertion Loss	45.3dB
NEXT	33.8dB
PSNEXT	#REF!
ELFEXT	13.8dB
PSELFEXT	18.8dB
RL	15.2dB
DELAY	536nS/100m
TCL	23.0dB
PS ANEXT	52dB
PS AACRF	24.2dB

3.1.2 The channel performance (including Alien Crosstalk performance) shall be guaranteed for the worst-case six-around-one channel configuration.

3.2 Third-Party Verification of Category 6A/ Class EA UTP Channel

3.2.1 The SCS must be tested by an ISO 17025 accredited 3rd Party test facility to the following standards:

3.2.1.1.1 EIA/TIA 568C: Category 6A Channel

3.2.1.1.2 ISO/IEC 11801 Amendment 1: Class EA Channel

3.2.1.1.3 3rd Party verification for channel testing must be provided as part of the bid response.

3.3 Support for Short Channels (< 15 meters) and Patch Cords

3.3.1 Based on the requirement for short channels in the Enterprise and Data Centre, the Category 6A/ Class EA UTP SCS must be able to support channels that are significantly shorter than the minimum 15 meters stated in the cabling standards. Basedon the number of connectors, the SCS must be able to support the following minimum horizontal lengths:

Number of Connectors	Minimum Length (Meters)
4	5

3	5
2	3

As part of a compliant channel, the SCS must be able to support patch cordslengths of 1 meter minimum, and equipment cords of 2-meter minimum.

4. **CATEGORY 6A/ CLASS E$_A$ UTP STRUCTURED CABLING SYSTEM COMPONENTS**

The SCS must consist of individual components provided by the same manufacturer. "Mix and Match" products are not allowed as there is no guarantee that the overall channel will meet Category 6A or Class E$_A$ Channel requirements if constructed with components from different vendors.

The components provided shall consist of:

a) Horizontal cable

b) Information Outlets

c) patch panel

d) Patch panel than can be upgraded to intelligent panels

e) Patch-cords

f) Zone cords (outlet-to-plug)

g) Pre-Terminated cable assemblies

4.1 Horizontal Cable

4.1.1 When configured in worst-case 100 metre channels with full cross-connects and consolidation points with the other products proposed, the cable shall be capable of delivering the minimum guaranteed channel performance specified insection 3.0

4.1.2 The length of each individual run of horizontal cable from the telecommunications closet on each floor to the telecommunications outlet shallnot exceed 90 metres, and shall be continuous without any joints or splices.

4.1.3   Contractor shall observe the bending radius and pulling strength requirements ofthe 4-pair UTP cable during handling and installation.

4.1.4   The cable shall be round in construction, with a maximum nominal diameter of7.24mm

4.1.5   The minimum bend radius for the 4-pair UTP cable under no load shall be 29mm.

4.1.6   The cable will consist of eight 23 AWG copper conductors. Copper-cladaluminium is not permitted.

4.1.7   The cable and cordage shall be used in Low-Smoke, Zero Halogen (LSZH)compatibility.

4.1.8   The LSZH version must comply with the following Fire Safety standards:

    4.1.8.1   ISO/IEC 60332-1: Flame Spread

    4.1.8.2   ISO/IEC 60754: Acidity

    4.1.8.3   ISO/IEC 61034: Smoke Density

4.1.9   Insulation should be of Polyethylene with $\leq \varnothing$ 1.22 mm thickness.

4.1.10 The cable and cordage shall be UTP components that do not include internal orexternal shields, screened components or drain wires.

4.1.11 Should provide test report along with the cable. The test parameters shall

include NEXT, PSNEXT, Return Loss, Attenuation, ELFEXT and PSELFEXT.

4.1.12 The print string will also include markings in meters or feet.

4.1.13 The Cat6A/ Class E$_A$ horizontal cable shall be available to order in the followingoptions:

4.1.13.1 Cardboard box in 305 meter (1000 foot) lengths

4.2   Information Outlets (BOQ Ref No:)

4.2.1   Information outlets shall consist of 8-pin modular (RJ-45) jacks which arelabelled with both the T568B and T568A wiring schemes.
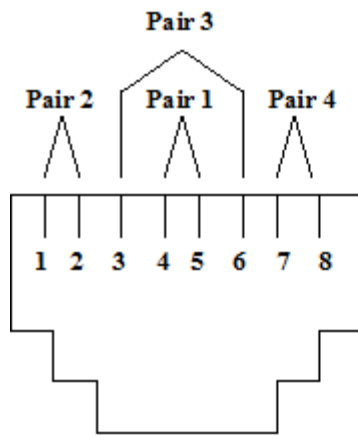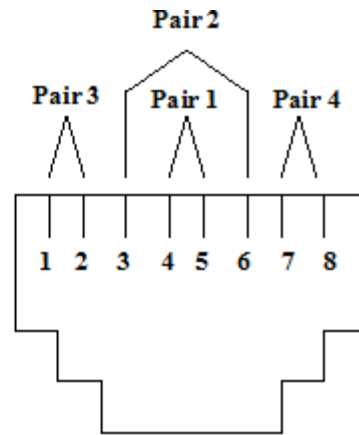
T568A pin assignment   **T568B pin assignment**

4.2.2   The 8-pin modular (RJ-45) jacks shall comply with IEC 60603-7-4.

4.2.3   The information outlet shall support tool-free installation

4.2.4   The information outlet should be PCB free and with parallel pair termination without crossover in acc. with TIA 568-A/B

4.2.5   When configured in worst-case 100 meter channels with full cross-connects

and consolidation points with the other products proposed in this tender, the outlet shall be capable of delivering the minimum guaranteed channel performance specified in section 3.0.

4.2.6 Complies with Cat.6A requirements of the standards ISO/IEC 11801 ed. 2.2, June 2011, EN 50173-1 May 2011, as well the U.S. standard Cat.6A according to TIA 568.2-D, re-embedded tested in acc. with IEC 60603-7-41 and 60512-27-100, interoperable and backwards compatible with Category 6 and Category 5e.

4.2.7 The information outlet with gold-plated bronze contacts for >1000 mating cycles

4.2.8 Information outlet should have dust cover to protect it from dust particles.

4.2.9 The information outlet should be halogen-free and heavy-metal free in acc. with EU directives *RoHS 2*

4.2.10 The information outlet must be able to accept termination of solid conductors with nominal diameter of between 0.40mm to 0.57mm (26 to 23 AWG)

4.2.11 The information outlet must be PoE and PoE+ compatible according to IEC60512-99-001

4.3   Modular patch panel system: (BOQ Ref No: 30)

4.3.1   The Patch panel should have a capacity for 24 snap-in connection modules shielded / unshielded or FO adapters snap-in frame

4.3.2   The patch panel type shall be compliant with IEC 60603-7-4.

4.3.3   The adapters shall have RJ45 jack in the front and Insulation Displacement Connector (IDC) at the rear of the module.

4.3.4   The patch panels shall be available in the following configurations:

4.3.4.1 1U 24-port enabled panel.

4.3.4.2 The Panels shall be Staggered design to reduce alien cross talk.

4.3.4.3 The upgrade to and system shall be performed through the addition of an

overlay panel that does not require tools for installation.

4.3.4.4 Integrated cable tie shelf must be provided with the panel. These integrated cable tie shelf provide proper pair positioning, control, and strain relief features to the rear termination area of the panel.

4.3.4.5 Compliance to ISO/IEC 11801 Amendment 2 for Cat 6A components.

4.3.4.6 When configured in worst-case 100 meter channels with full cross-connects andconsolidation points with the other products proposed in this tender, the panel shall be capable of delivering the minimum guaranteed channel performance specified in section3.0.

4.4 Modular RJ45 Patch Cords (BOQ Ref no: 8)

4.4.1 Cords shall be equipped with 8-pin modular plugs on each end.

4.4.2 All cords shall be round, and consist of copper conductors, tightly twisted into individual pairs.

4.4.3 Nominal cordage diameter shall not exceed 7.24 mm.

4.4.4 Cords shall have lockable solution where the physical security is a Prime Importance

4.1.1 Plugs shall be designed with an anti-snag latch to facilitate easy removal during move, add and change processes.

4.1.2 The cordage must consist of 8 Multi Strand 26 AWG copper conductors. Copper clad aluminum is not permitted.

4.1.3 The cordage will be used Low-Smoke, Zero Halogen (LSZH) compatibility.

4.1.4 The LSZH version must comply with the following Fire Safety standards:

4.1.4.1   ISO/IEC 60332-1: Flame Spread

4.1.4.2   ISO/IEC 60754: Acidity

4.1.4.3   ISO/IEC 61034: Smoke Density

4.1.5   Complies with the Category 6A specifications of the IEC 60603-7-41 /IEC 60603-7-51 connector standard

4.1.6   10G Performance when installed as a complete 6A Solution

4.1.6   Should provide test report along with materials. The test parameters shallinclude NEXT, PSNEXT, Return Loss, Attenuation, ELFEXT and PSELFEXT.

4.1.7   Fulfills the requirements of Category 6A, Class EA (500MHz) according to thepresent standard of TIA-568.2 and ISO/IEC 11801

4.1.8   The patch cords will have insertion life of 750 cycles minimum.

4.1.9   When configured in worst-case 100 metre channels with full cross-connects and consolidation points with the other products proposed in this tender, the patch cords shall be capable of delivering the minimum guaranteed channel performance specifiedin section 3.0.

4.2   Zone Cords

4.2.1   Fulfills the requirements of Category 6A, Class EA (500MHz) according to thepresent standard of TIA-568.2 and ISO/IEC 11801

4.2.2   The cordage used in the zone cords shall meet all requirements specified in section 4.5.

4.2.3   Zone cord connector types shall be an unshielded modular 8-pin connectors compliant with IEC 60603-7-4, as described in 4.2 (outlet) and 4.5 (plug).

4.2.4   Zone cables shall consist of Multi stranded AWG26/7 copper cabling with factory terminated plug on one end and a factory terminated information outlet on

the other end.

4.2.5   When configured in worst-case 100 meter channels with full cross-connects and consolidation points with the other products proposed in this tender, the zone cords shall be capable of delivering the minimum guaranteed channel performance specified in section 3.0.

5.   DOCUMENTATION

The Category 6A/ Class E$_A$ Unshielded Twisted Pair (UTP) Structured Cabling System (SCS) shall be provided with a complete set of documentation such that the design, installation and commissioning of the system can be done properly.

5.1   This documentation shall consist of the following, to be included in the bid response:

5.1.1   Design and Installation guidelines, which shall include configurations for typical local-area network and data center applications for 2, 3 and 4 connector channels

5.1.2   Performance specifications, which shall state the maximum supportable distance

for all protocols which are anticipated to be transported by the SCS

5.1.3   Zone cabling guidelines

5.1.4   Power separation guidelines

5.2   Information Outlets

5.2.1   Information outlets shall consist of 8-pin modular (RJ-45) jacks which are labelledwith both the T568B and T568A wiring schemes.

KERALA INNOVATION TECHNOLOGY ZONE BUILDING
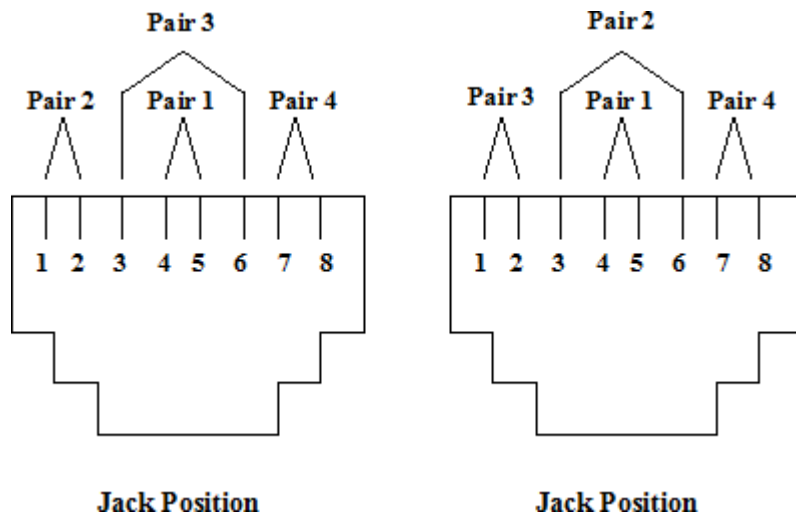
T568A pin assignment   **T568B pin assignment**

5.2.2   The 8-pin modular (RJ-45) jacks shall comply with IEC 60603-7-4.

5.2.3   The information outlet shall support tool-free installation.

5.2.4   The information outlet should be PCB free and with parallel pair termination without crossover in acc. with TIA 568-A/B

5.2.5   As part of a Cat. 6 channel, the connection module exceeds the minimum requirements of the IEEE 802.3™ Section Four standard on 10GBASE-T performance, as well as the requirements for Class EA performance acc. to ISO/IEC 11801 and Cat. 6A performance according to TIA 568.2-D

5.2.6   Information outlet should have dust cover to protect it from dust particles

5.2.7 3rd Party Verification test certificates shall be provided to show compliance to ISO/IEC 11801 testing for category 6 components.

5.2.8 Information outlet should have dust cover/shutter to protect it from dust particles

5.2.9 3rd Party Verification test certificates shall be provided to show compliance to ISO/IEC 11801 testing for category 6 components

5.3   MPTL Configuration

5.3.1   Modular Plug Terminated Link shall confirm to ANSI/TIA-568.2-D

5.3.2   IP20 Rated Re-usable Plugs shall be uses for POE Applications.

5.3.3   Plugs shall comply to EN 50173 & ISO/IEC 11801, IEC 60512-99-001:2012 & IEC 60512-9-   3:2011

5.3.4   3rd Party Verification test certificates shall be provided to confirm the Channel performance

1) Cable - Cat6 (UTP)
2) Connection Module – Shielded Cat6
3) Patch cord - Cat6
4) Face Plate - Single/Dual
5) 19" 1U Patch Panel - Unloaded & Rear cable manager
6) Outdoor Fiber Cable - Multimode(OM3)
7) 19" Rack Mount Fiber Panel – 12F/24F – SC Multimode (OM3)
8) Fiber Pigtail - SC Multimode (OM3)
9) Fiber Patch cord – Multimode (OM3) SC/LC, Duplex

Cable - Cat6 (UTP) (BOQ Ref 43)

CAT6 (U/UTP) 4 Pair Cable should be of 23 AWG Copper with integral cross -member pair separator for uniform characteristic impedance 100 Ohm and should be capable enough to handle Data transmission frequencies of up to 450 MHz.

Compliant with Standards:
  ➢ ISO/IEC 11801 ed. 2.2: June 2011
  ➢ IEC 61156-5 2nd ed.
  ➢ EN 50173-1
  ➢ EN 50288-6-1
  ➢ TIA 568-C.2
  ➢ Fire classification: IEC 60332-1
  ➢ IEC 60754-2
  ➢ IEC 61034

Cable Type & Construction:
  ➢ Cable overall diameter: Ø 5.8 - 6.3 mm.

➢ Conductor diameter: AWG 23

➢ Stranding: 4 pairs

➢ Cable shielding: U/UTP

➢ Category: Cat. 6

Fire Ratings:

➢ Cable jacket material: LSZH

➢ IEC 60332-1

➢ IEC 60754-2

➢ IEC 61034

Outer Jacket Color:

➢ Light gray, RAL 7035

Mechanical Properties:

➢ Bending radius: ≥ 35mm without load and ≥ 55mm with load

➢ Temperature range: - 20°C to + 60°C

➢ Ultimate Breaking Strength: >400 N (90 lbf)

Electrical Properties (at 20°C ± 5°C):

➢ DC loop resistance: ≤ 19.0 Ω / 100 m

➢ Resistance unbalance: ≤ 2 %

➢ Nominal velocity of propagation: 67%

➢ Mutual Capacitance: 4.4pF/100m max.

➢ Capacitance unbalances: ≤160 pF/100m max.

Connection Module - Cat6 (UTP) BOQ Ref:

RJ45 connection module of Category 6, for the establishing of transmission channels of class E with up to 4 plugged connections. Suitable for 10GBase-T applications in acc. with IEEE 802.3an up to 500 MHz and 55 m.

Complies with Cat.6 requirements of the standards:

➢ ISO/IEC 11801 ed. 2.2, June 2011,

➢ EN 50173-1 May 2011,

➢ TIA 568-C.2

➢ De-embedded tested in acc. with IEC 60603-7-4

➢ Interoperable and backwards compatible with Cat.5e and Cat.5

Technical Specification   38

Cat.6 Connection Module should meet the following Features:

- ➢ Should exceed IEEE 802.3an minimum requirements for 10GBASE-T performance up to 500MHz
- ➢ Should be compatible with Cat. 6 standard patch cords and cables
- ➢ Full mechanical and electrical backward compatibility with Cat. 5e/5
- ➢ RJ-11/12/45 compatible
- ➢ Tool-free Easy-Lock connection of installation cables
- ➢ Wiring option according to TIA 568 A and B
- ➢ Label with color wiring chart
- ➢ Gold-plated bronze contacts for >1000 mating cycles
- ➢ IDC contacts with single-wire strain relief and >20 insertion cycles
- ➢ Contact resistance <50 mOhm
- ➢ Dielectric strength >1000 Veff.
- ➢ Includes dust cover
- ➢ Halogen-free materials and heavy-metal free in acc. with EU directives RoHS 2
- ➢ Housing material: Polycarbonate (UL-94-V0)

Patch cord - Cat6 (UTP)

- ➢ CAT 6 (UTP) Patch cords should be Flexible cable, Shielded, LSZH and have IDC contact technology for all the conductor terminations for better performance and not piercing type contact technology. Should have options for various color coding schemes and should available in various lengths. Should support optional locking mechanism for security purpose wherein the patch cords can be locked on servers and all RJ45 ports.

Compliant with Standards:

- ➢ ISO/IEC 11801 2nd Edition Compliant with Cat.6 Class E (250 MHz) component standards
- ➢ Cat. 6 component standard IEC 60603-7-4
- ➢ Cat. 6 component standard IEC 60603-7-5
- ➢ Fulfilled the standard IEC 61935-2:2010
- ➢ Strain-relief function in acc. with TIA 568-C
- ➢ EN 50173-1, May 2011 (DIN EN 50173-1)

Patch Cable Type & Construction:

Cable: U/UTP

- ➢ Outer jacket: LSZH
- ➢ Conductor diameter copper strand: AWG26/7
- ➢ Outer diameter: 4.5 to 6.0 mm
- ➢ Wire type: stranded wire
- ➢ Cable length [m]:1mtr,2mtr,3mtr and 5mtr (Should be available different lengths on request)

Floor Mount Rack (BOQ NO:19)

1. General Requirements

- ➢ Rack should have 100% assured compatibility with all equipment's conforming to **DIN41494** (General Industrial Standard for equipment's) or Equivalent **EIA /ISO / EN** Standard

- ➢ The Rack should be 2115mm in height, 800mm in width and 1000mm in depth

2. Physical Specifications

- ➢ Rack should support static load of 750 kgs on Casters and 1250kgs on levelers.

- ➢ The Vendor should have a perforated CONVEX front door and split rear Door Options

- ➢ Rack should have 2 side panels and grounding and bonding accessories pre-installed by the manufacturer.

3. Equipment Access & Installation

- ➢ The Rack should have 42U usable Space

- ➢ The Rack should have 4No's adjustable, 19" verticals with punched 10mm square hole and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern offers greater mounting flexibility, with numbered U positions

- ➢ The OEM should include 20 No of Mounting hardware for equipment fixing.

- ➢ The front and rear doors should be easily detachable. And easily Openable

- ➢ The doors of the rack should be reversible such that it can be mounted on either side.

- ➢ The rack should have side panels which can be removed without using tools, using easy finger latches for fast access to cabling and equipment.

- ➢ Side panels should flush with the frame, so the overall width of the unit does not change with the side panels installed.

- ➢ OEM should include ganging kits for coupling rack

4. Material Requirements

➢ All weight bearing components should be made from steel with a thickness not less than 1.6 mm, 19" equipment mounting angle should be 2.0MM and other parts not less than 1mm

- ➢ All sheet metal parts should be Pre Treated and powder coated meeting ASTM Standard.

5. Grounding Requirements

➢ All enclosure components i.e. frame and door should be bonded together and to rackground point

➢ OEM to provide rack ground point, Provision to further ground to Telecom Ground bus barSystem

➢ Grounding and bonding as per UL Standards

6. Certifications, Environmental and Safety Requirements

➢ Racks should be manufactured by **ISO9001:2015, ISO14001:2004 & OHSAS18001:2007** Certified company and should have proper EHS Policy.

➢ Products must be **UL** Certified

➢ Manufacturer must certify that the products are **RoHS** Compliance

➢ Manufacturer must certify that the products are Comply DIN41494 and EquivalentEIA/ISO/EN /CEA Standard.

➢ The rack should comply minimum of IP 20 rating for protection against touch, ingress offoreign bodies and ingress of water.

➢ The enclosure should both protect the user from mechanical hazards and generally meetthe requirements for a mechanical enclosure (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.

7. Ventilation and Thermal Management

➢ The unit should have ventilated front and rear doors to provide adequate airflow requiredby the major server and Network manufacturers.

➢ Provision to Fix Exhaust Fans with 360CFM Fan Module on the top

8. Rack Power Distribution Units

Type Of PDU	Normal
Phase	1Phase
Rating	7.3 KVA

Current	32A
Type Of Out Let	5/15A Indian Round Pin
No Of Out let	12
PDU Mounting	Vertical
Space Requirement	0U

9. Cable Management

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

42U 800 width Racks

➤ The manufacturer should supply 2 No finger type cable management with detachabledoor for management of Horizontal Cables
➤ 2 No Closed Type Cable Organizer for management of Horizontal and power cables
➤ 2 No 300mm Cable basket for management of Vertical Cables

10. Accessories

➤ The manufacturer should offer shelves with the ability to support up to 100 kg of non-rackmount equipment.

11. Security

➤ Rack should be with swing handle locking with Common Key

➤ Provision for Intelligent Locking / Digital locking / number locking feature which hasprovision to support IP based for future integration.

OEM should Ensure this without any modification on the Door

Riser Cable Specification: (BOQ Ref :15,16,17,18 and 22)

Category 3 Voice Grade Vertical Riser Cable:

1.1 These cables shall be of sufficient pairs as indicated on the schematic and shall be suitable for voice backbone.

1.1.1 Performance/Cable Characteristics:

- Exceed ANSI/TIA/EIA 568-B.2-1
- Balanced twisted pairs, 24AWG
- Unshielded construction
- 16 MHz bandwidth
- HDPE insulation
- Impedance of 100 ± 15 ohms
- Installation temperature -20 deg C to 50 deg c
- Cable sheath colour: GRAY

Vertical Cat 3 Copper Cabling:

- Label each end of the riser cable and termination panel specifying the building name (if applicable), building number (if applicable), pair count, IDF/MDF Rack reference (source/feed) and service/system/usage detail.

- Labels shall be installed 20 cm to 30 cm at the source and destination ends and at regular intervals (every service room and at every visible point, minimum 20 metre).

- Each pair terminated shall be labelled with the pair number.

- A schedule highlighting the pair numbers, cross connect details for multiple line delivery shall be laminated and affixed at the IDF and MDF rack.

Krone Disconnection Modules:

Conductor diameter of connectable wires

2 wires per contact ……0.40 to 0.63 mm

1 wire per contact ……0.63 t0 0.8 mm AWG 22 to AWG 26

Insulation diameter of connectable wires ……0.7 to 1.6 mm

Properties

Connection frequency………… > 200 times

Test access plug in cycles …… > 250

Electrical values

Contact resistance ……< 2.5 m ohms

Insulation resistance….. > 50 000 Mega ohms

Dielectric strength …… 2 KV rms

Impulse current …..... 5 kA (8/20 micro sec)

Current carrying capacity ………2 A

Environmental

Temperature operation……- 5 C to +60 C

Relative humidity ……95%, no water condensation, no ice

Materials

Plastics ……..PBT, resistant against aggressive chemicals (PVC softener)

Plastics flammability class ……… UL 94 V0

Contact ……………………Special brass, silver plated

Open Rack Specification   (BOQ No:20)

1. General Requirements

➢ Rack should have 100% assured compatibility with all equipment's conforming to **DIN41494** (General Industrial Standard for equipment's) or Equivalent

➢ The Rack should have 2 Post, 6mm Tapped Hole and Universal 12.7mm-
15.875mm- 15.875mm alternating hole pattern offering greater mounting
flexibility, with numbered U positions.

➢ The Tapped hole should be Free from paint for Easy screw fixing and Grounding of
equipment's

2. Physical Specifications

➢ The maximum should have the below dimensions;

Height	Width
2147	514

➢ The Rack will be Free Standing and should support a static load of at least 1,500
kg. Total installed equipment weight.

➢ The OEM should include 60 No of Mounting hardware for equipment fixing.

3. Material Requirements

➢ Racks are made from special Aluminum Alloy Extrusion. 2 Pillars should be
with 5MM, Bottom Angle will be 8 MM & Top Angle will be 5 MM
➢ All sheet metal parts should be Pre Treated and powder coated meeting ASTM Standard.

4. Cable Management

a. High Density Vertical Cable Organizers

➢ OEM should have 8-Inch-wide High density Vertical Cable Organizers

➢ Vertical Cable Organizer to be designed for High density cabling.

➢ Vertical Cable Organizer to be double sided with minimum of 20 Inch Depth for
stability and Handling volume cables

➢ Cable Organizer Fingers will be spaced as Per U Spacing of Open Rack

➢ OEM Should provide Bobbin for Management of cable

➢ Centre member of Cable Organizer should have Necessary Opening for cable
movement from Front to Back Section and Punched hole s for Cable Dressing

b. High Density Horizontal Cable Organizers

➢ OEM should have 2U Options

➢ OEM should have Front Only option

➢ Opening should be on Hinged door and Removable type

c. Run way Kit and Accessories

➢ OEM should have 20 Inch Universal Runway system to Support handle Cable Above the Rack
➢ OEM should have all Necessary accessories to Mount & Take support Runways on The rack/ Ceiling/ Wall

5. Grounding Requirements

➢ OEM to provide rack ground point, Provision to further ground to Telecom Ground bus bar System

➢ Grounding and bonding as per UL Standards

6. Certifications, Environmental and Safety Requirements

➢ Racks should be manufactured by **ISO9001:2015, ISO14001:2004 & OHSAS18001:2007** Certified company and should have proper EHS Policy.

➢ Products must be **UL** Certified

➢ Manufacturer must certify that the products are **RoHS** Compliance

➢ Manufacturer must certify that the products are Comply DIN41494 and Equivalent EIA/ISO/EN /CEA Standard.

➢ The enclosure should both protect the user from mechanical hazards and generally meet the requirements for a mechanical enclosure (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.

7. Rack Power Distribution Units

➢ Rack should have 2 no. Power Distribution Units with 6No 5/15A Indian Round Pin with PDU Rating 3.6KVA with 5mtr input cable

8. Accessories

Shelving
➢ The manufacturer should offer various fixed with the ability to support up to 20 kg of non-rack mount equipment.

9. Equipment Access & Installation

➢ The Rack should have 45U usable Space

➢ The Rack should include at least 20 sets of M6 Screws

➢ The Rack should provide 42U of equipment vertical mounting space, each vertical mounting rail should be marked on both sides with lines showing the top and bottom of each U and the number U space with DIN Std M6 tapped holes

10. Security

➢ High Density Vertical Cable Organizer should have Lock & Key arrangement

11. Mounting

➢ Rack should be free standing with 4 Holes for Grouting to Floor/ Raised Floor

➢ Additional Support to be given by Runway Kit from the wall.

Wall Mounted Rack Specification (BOQ No:21)

1. General Requirements

➢ Racks should be manufactured out of steel sheet punched, formed, welded and powder coated

➢ Rack should have 100% assured compatibility with all equipment's conforming to **DIN41494** (General Industrial Standard for equipment's) or Equivalent **EIA /ISO / EN** Standard

➢ Rack should have 2 No Adjustable, 19" verticals with Punched 9mm Square Hole and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern offering greater mounting flexibility and maximizes usable mounting space

➢ The Racks should be 550mm in width and 600 in depth for Network application

2. Physical Specifications

➢ The Rack should have below dimension;

Height	Width	Depth
749	550	600

➢ Standard for Rack configuration should be welded frame integrated with side panel and vented top cover.

3. Equipment Access & Installation

➢ The front door should open to allow easy access.

➢ Rack should have 1 Packet of mounting hardware, Pack of 20.

4. Material Requirements

➢ All weight bearing components should be made from steel with a thickness not lessthan 1mm

➢ All sheet metal parts should be Pre Treated and powder coated meeting ASTM Standard.

5. Grounding Requirements

➢ All enclosure components i.e. frame and door should be bonded together and to rackground point

➢ OEM to provide rack ground point, Provision to further ground to Telecom Ground bus barSystem

➢ Grounding and bonding as per UL Standards

6. Certifications, Environmental and Safety Requirements

➢ Racks should be manufactured by **ISO9001:2015, ISO14001:2004 & OHSAS18001:2007** Certified company and should have proper EHS Policy.

➢ Products must be **UL** Certified

➢ Manufacturer must certify that the products are **RoHS** Compliance

➢ Manufacturer must certify that the products are Comply DIN41494 and EquivalentEIA/ISO/EN /CEA Standard.

➢ The rack should comply minimum of IP 20 rating for protection against touch, ingress offoreign bodies and ingress of water.

➢ The enclosure should both protect the user from mechanical hazards and generally meetthe requirements for a mechanical enclosure (stability, mechanical strength, aperture sizes, etc.) as defined in IEC 60950 Third Edition.

7. Ventilation and Thermal Management

➢ The unit should have sufficient ventilation to provide adequate airflow required by the

major Network manufacturers.

➢ Provision to Fix Exhaust Fans of 180CFM Fan Module on the top

8. Rack Power Distribution Units

➢ Rack should have 1 no. Power Distribution Units with 6No 5/15A Indian Round Pin with PDU Rating 3.6KVA

9. Cable Management

➢ Rack should have 1 no. Horizontal Cable Organizer with plastic loops.

➢ Rack should have provision for cable Entry and Exit from both top and bottom

10. Accessories

Shelving

➢ Rack should have 1 no. Cantilever Shelf for mounting NON Rack mountable Equipment's.

11. Security

➢ Rack should have Front Toughened Glass Door with lock and key

TECHNICAL SPECIFICATIONS FOR NETWORK SWITCHES & WiFi SYSTEMS

Specification of Switches

Core Switch Type 1 Specification (Ref: 54)

S. No	24 Port 10G Fibre Switch - 2 No's (BOQ No:54) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24 Port 10G SFP+ switch with redundant fan modules and redundant hot swappable AC power supply.		
2	Mac Address Table Size of minimum 64000 entries		
3	Should have switching capacity of 480 Gbps and 600 Mpps		
4	Should have 8MB packet buffer		
5	Should support stacking or equalent feature for combining more than two switches into single logical unit and should support LAG or Multi- chassis Link aggregation (MC-LAG) for uplink/downlink connectivity redundancy.		
6	Should support 4000 VLAN IDs and 802.1Q Tagging.		
7	Should support IEEE 802.3ad Link aggregation(LACP) minimum 8 links.		
8	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
9	Should support IGMP v1/v2/v3 and IGMP Snooping.		
10	Should support LLDP or similar functionality.		
11	Should support jumbo frame (9000 Byte or above)		
12	Should support security features Broadcast, Multicast and Unicast Storm Control		
13	Should support 8K for IPv4 routes/4K for IPv6 routes and 2K multicast routes.		
14	Should support Layer-3 features Static routing for IPv4 and IPv6, OSPF, BGP, Multicast routing PIM-SM/SSM, Virtual RouterRedundancy Protocol (VRRP), BFD.		
15	Should Support flow export NetFlow/IPFIX, port mirroring.		

16	Should support 802.1p priority queues.		
17	Should support 8 queues per port and shall support ingress policing and egress shaping.		
18	Should Support DHCP server, DHCP relay and DHCP snooping.		
19	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
20	Should support CLI, SSH v2.		
21	Should should have dedicated management and console port.		
22	Switch should comply to Operating Temperature range 0°C to 40 °C and Humidity 10% – 80% RH non-condensing		
23	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
24	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	48 Port L2 switch with 4X 10G Switch - 29 No's (BOQ No:55) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 48-Port Gigabit Ports, 4 x 10G SFP+ ports and redundant AC power supply.		
2	Mac Address Table Size of minimum 32000 entries		
3	Should have switching capacity of 176 Gbps and 220 Mpps		
4	Should have 2MB packet buffer		
5	Should support 4000 VLAN IDs and 802.1Q Tagging.		
6	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
7	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

8	Should support IGMP v1/v2/v3 and IGMP Snooping.		
9	Should support LLDP or similar functionality.		
10	Should support jumbo frame (9000 Byte or above)		
11	Should support security features Broadcast, Multicast and Unicast Storm Control		
12	Should support IEEE 802.1X Authentication.		
13	Should support sticky MAC and MAC limiting.		
14	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
15	Should support 802.1p priority queues.		
16	Should support 8 queues per port and shall support ingress policing and egress shaping.		
17	Should Support DHCP snooping.		
18	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
19	Should support CLI, SSH v2.		
20	Should should have dedicated management and console port.		
21	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
22	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
23	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

S. No	24 Port L2 switch with 4X 10G Switch - (BOQ No:50) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24x ports 10/100/1000 BASE-T ports and 4x 1/10G SFP+ ports and redundant AC power supply.		
2	Mac Address Table Size of minimum 16000 entries		
3	Should have switching capacity of 128 Gbps and 160 Mpps		
4	Should have 1MB packet buffer		
5	Should support 4000 VLAN IDs and 802.1Q Tagging.		
6	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
7	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
8	Should support IGMP v1/v2/v3 and IGMP Snooping.		
9	Should support LLDP or similar functionality.		
10	Should support jumbo frame (9000 Byte or above)		
11	Should support security features Broadcast, Multicast and Unicast Storm Control		
12	Should support IEEE 802.1X Authentication.		
13	Should support sticky MAC and MAC limiting.		
14	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
15	Should support 802.1p priority queues.		
16	Should support 8 queues per port and shall support ingress policing and egress shaping.		
17	Should Support DHCP snooping.		
18	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
19	Should support CLI, SSH v2.		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
20	Should should have dedicated management and console port.		
21	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
22	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
23	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	24 Port PoE Switch - 20 No's (BOQ No:53) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	19" Rack mountable 24x ports 10/100/1000 BASE-T ports and 4x 1/10G SFP+ ports and redundant AC power supply.		
2	should have minimum POE power budget of 300 Watts.		
3	support 802.3af and 802.3at		
4	Mac Address Table Size of minimum 16000 entries		
5	Should have switching capacity of 128 Gbps and 160 Mpps		
6	Should have 1MB packet buffer		
7	Should support 4000 VLAN IDs and 802.1Q Tagging.		
8	Should support IEEE 802.3ad Link aggregation(LACP) minimum 4 links.		
9	Should support IEEE 802.1d STP, IEEE 802.1w RSTP and IEEE 802.1s MSTP and STP protection features like spanning-tree bpdu guard, bpdu filter or similar functionality.		
10	Should support IGMP v1/v2/v3 and IGMP Snooping.		
11	Should support LLDP or similar functionality.		
12	Should support jumbo frame (9000 Byte or above)		
13	Should support security features Broadcast, Multicast and Unicast Storm Control		
14	Should support IEEE 802.1X Authentication.		
15	Should support sticky MAC and MAC limiting.		

S. No		Compliance Y/N	Cross Reference in Datasheet/Solution Guide
16	Should Support flow export sFlow/NetFlow/IPFIX, port mirroring.		
17	Should support 802.1p priority queues.		
18	Should support 8 queues per port and shall support ingress policing and egress shaping.		
19	Should Support DHCP snooping.		
20	Should support management features includig SNMP v2c/v3, NTP/SNTP, RADIUS admin login.		
21	Should support CLI, SSH v2.		
22	Should should have dedicated management and console port.		
23	Switch should comply to Operating Temperature range 0°C to 45 °C and Humidity 10% – 80% RH non-condensing.		
24	All accessories required for switch mounting for 19" rack and required transceivers need to be considered.		
25	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	Indoor Access Point - 61 No's (BoQ No :51) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	Access Point should Support IEEE 802.11a/b/g/n/ac/ax with 2 X2 MIMO with minimum 300 Mbps throughput on 2.4 Ghz and 700 Mbps throughput on 5 Ghz		
2	The Access Point should have auto-sensing 100/1000 Mbps RJ45 port and should have PoE and power injector Support		
3	The access point should be light weight and should support installations above drop ceiling, under ceiling or on wall		
4	LED should be available for activity indication		
5	Should have dual Radios and should support 1024 QAM		
6	Should support 20, 40, and 80 MHz Channels		
7	Should support 802.11 ax with DL MU-MIMO		

S. No	Specification		
8	Maximum conducted transmit power shall be minimum 18 dBm or more on both 2.4 and 5 GHz.		
9	Access Point should have antenna gain 4 dBi or better on 2.4 Ghz and 5 dBi or better on 5 Ghz.		
10	Should support minimum 8 simultaneous SSIDs.		
11	Should have dual Radios and should support 200 clients		
12	WLAN Solution must support personal and enterprise WPA2/ WPA3 authentication.		
13	Should support RADIUS based 802.1 x authentication including EAP PEAP, EAP-TTLS, and EAP-TLS		
14	Access points or solution should provide automatic redundancy In-case of active WLC fails		
15	Must have a dynamic or smart RF management features which allows WLAN to automatically and intelligently adapt to changes in the RF environment		
16	The access point should provide wireless IPS sensor support on both radios		
17	Security solution must provide air termination of Rogue Aps		
18	Access points must have WiFi Alliance certification		
19	Operating Temperature: 0°C to 50°C and Operating Humidity up to 90% RH non-condensing.		
20	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

S. No	WIRELESS LAN CONTROLLER (WLC) Solution - 1 No's (BOQ No: 52) Minimum specifications:	Compliance Y/N	Cross Reference in Datasheet/Solution Guide
1	WLC should support 1+1 failover for high availability.		
2	The proposed WLC must be compliant with IEEE CAPWAP or equivalent for controllerbased WLANs.		

3	The proposed WLC should be Cloudbased/Virtualized/hardware appliance/Integrated Switch or Firewall. For dedicated hardware appliance or servers for Virtualized ,19" rack mountable with 2 x 10G (or better) Ethernet interfaces. For Cloud based solution, hosting should be in India and Management portal for access should be provided.		
4	The proposed WLC should support centralized/distributed traffic forwarding architecture from day 1. It should be IPv6 ready from day one.		
5	The proposed controller should support minimum 4K concurrent users/devices and WLANs-50 or more.		
6	The proposed WLAN controller should be supplied with minimum 61 AP license from Day-1 and can scale up to 100 APs without change / additional hardware. Additional AP license will be procured in future.		
7	The wireless access points must securely download image from WLC and should be configured from WLC.		
8	The proposed WLC should support L2/L3 roaming for mobile clients.		
9	The proposed WLC should provide real-time radio power adjustments based on changing environmental conditions and signal coverage adjustments. It should also adjust radio channel automatically.		
10	Should support dynamic bandwidth selection among 20Mhz, 40 MHz, and 80Mhz.		
11	Controller should support Wi-Fi 6, 802.11ax technology.		
12	Should support web-based authentication to provide a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant.		
13	Should support port-based and SSID-based IEEE 802.1X authentication.		
14	Should support MAC authentication to provide simple authentication based on a user's MAC address.		

15	Should support AP grouping to enable administrator to easily apply AP based or radiobased configurations to all the APs in the same group.		
16	WLC should support Comprehensive Integrated Network Security Services. Wireless, built-in Wireless Intrusion Protection System (WIPS), and secure guest access with Captive web portal or equivalent solution.		
17	WLC should provide BYOD Support. It should provide device fingerprinting and required to help manage and secure user-owned devices.		
18	WLC should support guest access.		
19	WLC architecture should support tunnel forwarding and local forwarding.		
20	WLAN Solution should support captive portal with time-based access, Customize Guest page and must have option for self-guest registration options, so that guest can automatic register himself from day 1 or with equivalent solution.		
21	WLAN Solution should have feature to create captive portal guest users for authenticating using their User ID (Email Address/ Mobile Number/ Member ID) and the received pass code on Email or SMS in order to complete the registration process or any equivalent solution/ third-party components to full-fill the requirement.		
22	Should comply to Operating Temperature range 0°C to 40 °C and Humidity 10% – 80% RH non-condensing.		
23	All accessories required for mounting in 19" rack and required transceivers need to be considered.		
24	Warranty: Five Years support and support to be provided directly by OEM during the warranty period		

TECHNICAL SPECIFICATIONS FORCCTV & TALK BACK SYSTEM WORKS

1) TECHNICAL SPECIFICATION OF CCTV SYSTEM

GENERAL:

The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment's and appliances and labor necessary to commission the said system. The True IP Based CCTV System shall comprise of fixed dome indoor cameras, Outdoor cameras, Bullet Cameras, PTZ cameras power supply units, monitoring stations, Server, Hard disk storage devices, Video Management Software and other associated accessories. It shall also include cabling, necessary for installation of the system as indicated in the specification and Bill of Quantities. Any openings/chasing in the wall/ceiling required for the installation shall be made good in appropriate manner.

SYSTEM DESIGN AND ARCHITECTURE:

CCTV system should be designed such as to cover the strategic locations and sensitive areas of High end cameras with Night sense feature to be installed for this outdoor application. All outdoor speed domes shall be rugged and shall be weather proof as per specifications. Also the systems should utilize only industry standard protocol.

General positioning of the cameras are in the entrance security area, car parking, receptions, all the corridors, lobbies, Substations & standby waiting areas, corridors, all exits, plant rooms, electrical rooms, and external areas can be monitored. Interactive cameras can be used in certain areas, pan, tilt and zoom cameras are provided in critical areas that need to be observed in the event of some disturbance. A True IP cameras are

used for parking lot since it is having a large viewing area as well as the light will be less compared to other areas.

A digital IP-Surveillance system, images from a network camera are digitized once and they stay digital with no unnecessary conversions and no image degradation due to distance traveled over a network. In addition, digital images can be more easily stored and retrieved than in cases where analog video tapes are used. By using a data connection and computer networking, IP cameras can provide much better performance with no real limitations for future growth in resolution or other capabilities.

System should be programmed such that operator's intervention if required shall be minimal and the system should provide features like guard tours, preset positions and the preset positions will be linked to perimeter protection system/intrusion system in future. The Server should allow for recording of events both continuous and motion triggered as per requirement and recordings should be able to create evidences and support post event analysis.

HIGH RESOLUTION LED TELEVISION: BOQ No: 57

Large Format Professional Display	
Screen Size	55"
Technology	LED Backlit
Native Resolution (Pixels)	3840 x 2160 (UHD)
Aspect Ratio	16:09
Brightness	500 cd/m2 (Minimum)
Native Contrast Ratio (Minimum)	4000:1 or more
Viewing Angle (Horizontal: Vertical)	178:178
Response Time (G to G)	8ms or less
Color Gamut	92% or better
Orientation	Portrait and Landscape
Speaker	Inbuilt 10 W + 10 W
Input Connectivity	

HDMI (2.0)	3 or more
DP 1.2(1)	1
USB Port	2 ports or more
LAN RJ45 (Required)	1 Port
External control	RS232C(in/out) thru stereo jack
Processor	1.1 GHz Quad-Core CPU or higher
Built In Storage	16 GB or more
Multimedia	*Video Decoder : MPEG-1/2/4, H.263, H.264/AVC, UHD H.264/AVC, VC-1, AVS+,HEVC, JPEG, PNG, VP8, VP9 *Audio Decoder : AC3 (DD), MPEG
Duty Cycle	24x7
Mounting arrangement	Wall Mount
Certifications	BIS, UL, FCC, EMC-Class B, Safety-60950-1
Power Supply	230 V AC, 50 Hz
Operating Temperature Range (Degree C)	0 ℃ ~ 40 ℃
Operating Humidity (%RH)	10 % ~ 80 %
Accessories to be supplied: AC Power cord,remote control, user manual, wall mount bracket	Yes
On Site OEM Warranty (Year)	3 years

1)4MP IR Bullet Camera (BOQ No: 60)

4MP IR Bullet camera		
Specification	**Description**	**Compliance (Y/N)**
Image sensor	1/2.7" progressive scan RGB CMOS	
Lens	Fixed 2.4 mm or better	
Resolution	2304x1728 to 320x240 (4:3) 2668x1512 to 640x360 (16:9)	
Minimum illumination	Color: 0.18 lux at 50 IRE, F2.1 B/W: 0.04 lux at 50 IRE, F2.1 0 lux with IR illumination on	
IR distance	20 Mtr or better	
Shutter speed	1/38500 s to 1/5 s	
Memory	1024 MB RAM, 512 MB Flash	
Memory Card slote	2TB	
Compute capabilities	Deep learning processing unit (DLPU)	

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

Video compression	H.264 (MPEG-4 Part 10/AVC) Main and High Profiles H.265 (MPEG-H Part 2/HEVC) Main Profile Motion JPEG	
Frame rate	25 fps with power line frequency 50 Hz	
Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG. Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265	
WDR	115dB or better	
Multi-view streaming	Up to 2 individually cropped out view areas in full frame rate	
Image settings	Compression, color, brightness, sharpness, contrast, white balance, exposure control, motion-adaptive exposure, text and image overlay, privacy masks, mirroring of images Rotation: 0°, 90°, 180°, 270°, including Corridor Format	
Pan/Tilt/Zoom	Digital PTZ	
Audio output	seamless pairing with IP speakers via edge-to-edge technology	
Security	Password protection, IP address filtering, HTTPSb encryption, IEEE 802.1x (EAP-TLS)b network access control, digest authentication, user access log, centralized certificate management, brute force delay protection, signed firmware, secure boot, signed video, Edge Vault, device ID, secure keystore (CC EAL4 certified)	
Supported protocols	IPv4, IPv6 USGv6, HTTP, HTTPSb , HTTP/2, TLSb, QoS Layer 3 DiffServ, FTP, SFTP, CIFS/SMB, SMTP, Bonjour, UPnP®, SNMP v1/v2c/v3 (MIB-II), DNS, NTP, RTSP, RTP, SRTP, TCP, UDP, IGMPv1/v2/v3, RTCP, DHCPv4/v6, SOCKS, SSH, LLDP, MQTT v3.1.1	
Programming Interface	Open API for software integration, including VAPIX® and OEM Application Platform; One-click cloud connection ONVIF® Profile G, ONVIF® Profile M, ONVIF® Profile S, and ONVIF® Profile T, specification at onvif.org	

Event conditions	I/O: manual trigger Device status: above operating temperature, above or below operating temperature, below operating temperature, within operating temperature, IP address removed, network lost, new IP address, system ready. Video: average bitrate degradation, tampering, day-night mode. Application: motion alarm, VMD 4, VMD3 Scheduled and recurring: scheduled event Edge storage: recording ongoing, storage disruption, storage health issues detected. MQTT subscribe	
Event actions	Record video: SD card and network share Upload of images or video clips: FTP, SFTP, HTTP, HTTPS, network share and email. Pre- and post-alarm video or image buffering for recording or upload. Notification: email, HTTP, HTTPS, TCP and SNMP trap Overlay text, day/night mode. MQTT publish	
Data streaming	Event data	
Built-in installation aids	Pixel counter, Level grid	
Object Analytic	Object classes: humans, vehicles (types: cars, buses, trucks, bikes) Trigger conditions: line crossing, object in area, time in areaBETA Up to 10 scenarios Metadata visualized with trajectories and color-coded bounding, boxes, Polygon include/exclude areas Perspective configuration. ONVIF Motion Alarm event	
Applications Included	Object Analytics, Video Motion Detection, active tampering alarm Support for Camera Application Platform enabling installation of third-party applications	
Casing	IP66-/IP67-, NEMA 4X- and IK08-rated. Sustainability of PVC Free.	
Connectors	RJ45 10BASE-T/100BASE-TX PoE	
Power for PoE	Typical 5 W, max 13 W	
Operating conditions	-30 °C to 50 °C. Humidity 10–100% RH	
Approvals	BIS, UL, NDAA	
OeM	Shoud have service centre in India for past 10 years	
Warranty	5 Years	
	Camera to be non china make only	
	Cameras components / parts / assembly / software used in the offered hardware / software, should not be complying to GB28181, GB/T 28181-2011;GB/T28181-2011; GBT 28181-2011; GBT28181-2011 standards.	

Approved make	Axis, Bosch, Pelco	

2)4MP IR Dome Camera (BOQ No: 58)

4MP IR Dome camera		
Specification	**Description**	**Compliance (Y/N)**
Image sensor	1/2.7" progressive scan RGB CMOS	
Resolution	2688x1512 to 320x240	
Lens	2.4 mm, F2.1	
Shutter speed	1/33500 s to 1/5 s	
Camera angle adjustment	Pan: ±180° Tilt: 0° to 60° (0° = lens directed at a right angle to camera base) Rotation: ±95° Can be directed in any direction and see the wall/ceiling	
Minimum illumination	Color: 0.19 lux , F2.1 B/W: 0.04 lux , F2.1 0 lux with IR illumination on	
IR illumination	20 Mtr or better	
Memory	1024 MB RAM, 512 MB Flash	
Memory card slot	2TB	
Compute capabilities	Machine learning processing unit.	
Frame rate	Up to 25/30 fps with power line frequency 50/60 Hz	
WDR	120dB or better	
Image settings	Compression, color saturation, brightness, sharpness, contrast, local contrast, white balance, day/night threshold, tone mapping, exposure control (including automatic gain control), exposure zones, defogging, dynamic text and image overlay, privacy masks, mirroring, rotation: 0°, 90°, 180°, 270° including Corridor Format	
ONVIF Profile	ONVIF G, S, and T. Support for Session Initiation Protocol (SIP) for integration with Voice over IP (VoIP) systems, peer to peer or integrated with SIP/PBX.	
Video streaming	Multiple, individually configurable streams in H.264, H.265 and Motion JPEG. Controllable frame rate and bandwidth VBR/ABR/MBR H.264/H.265	
Multi-view streaming	Up to 2 individually cropped out view areas in full frame rate	
Pan/Tilt/Zoom	Digital PTZ	
Audio input/output	Two-way audio connectivity via the optional and I/O Interfaces with portcast technology	
Security	Password protection, IP address filtering, HTTPSa encryption, IEEE 802.1x (EAP-TLS), network access control, Digest authentication, User access log, Centralized Certificate Management, brute force delay protection, signed firmware, secure boot	
Installation aids	Pixel counter, adjustable IR-illumination intensity	

Applications	Motion Guard, Fence Guard, Loitering Guard, Video Motion Detection, active tampering alarm, Platform enabling for installation of third-party applications	
Casing	IP66- and NEMA 4X-rated, IK08 and product is free from PVC	
PoE Consumption with IR	Typical: 4.75 W, Max.: 8.75 W	
Compliance	-40°C to 65°C . Humidity 5-95% RH (non-condensing)	
OeM	Shall have service centre in India for past 10 years	
Warranty	5 Years	
	Camera to be non china make only	
	Cameras components / parts / assembly / software used in the offered hardware / software, should not be complying to GB28181, GB/T 28181-2011;GB/T28181-2011; GBT 28181-2011; GBT28181-2011 standards.	
Approved make	Axis, Bosch, Pelco	

DETAILED SPECIFICATION FOR SERVER (BOQ No: 61)

Sr.No	Technical Specification	Compliance (Yes/No)
1	The Video Recording Server shall be a 2U rack-mount enterprise classvideo recording server witgh accelerated performance using Video Accelerator (BVA).	
2	The Manufacturer shall certify that the Recording Server has been designed and built for the purpose of recording surveillance video.	
3	The Recording Server shall provide the capability for remote management, disaster recovery, and critical resource management	
4	Server to be capable to display the alarms & alerts within the VMS & displayed in the client also should provide predictive HDD failures.	
5	Alarms and alerts from server to VMS client must included below status points- • Hard Disk Status • Temperatures status • Fan Speed status •Power Supplies status •CPU/Network/Memory monitoring.	

6	Server to be capable to have a Server Restart feature from VMS application only.
4	The Recording Server shall have dual dedicated operating system drives to facilitate accelerated boot and application load times.
5	The Recording Server shall have redundant, hot-swappable, storage drives, cooling fans, and power supplies
6	Video Storage - No of HDD Bays 18 -128TB RAW storage (8TB x 16qty) to be configured on RAID 6
7	Video Storage supports both SATA / SAS - 3.5" / 2.5" - 7200 rpm / 10k rpm / 15k rpm Drives
8	Processor : Dual Intel® Xeon® Silver 4216 Scalable Processor (16 Cores, 32 Threads, 3.20GHz Turbo Speed)
9	Operating System - Windows Server 2019 Standard on 2 x 240GB M.2 NVMe SSD dedicated, RAID 1 configured only
10	Video Management System – The Recording Server shall have the VMS pre-installed and configured at the assembly location only.
11	Memory support - 1. Up to <192 GB> in 8 GB increments, <384 GB> in 16GB increments, <768 GB> in 32GB increments, with option for 1.5 TB LRDIMM
12	RAM - Units have a basic configuration of 32 GB.
13	Recording server must have Live Database storage on Video Accelerator Capacity - 1.6TB with IOPS -80,000 or 960GB SSD x 4untis
14	Network Controller : 4x 1GbE RJ45 Ports and 2x 10GbE SFP+ Ports
15	Remote Management: via dedicated iDRAC ENT port (Front: Micro-AB USB, Rear: RJ45)
16	Additional Ports : Video output VGA (1) and Rear (2) USB 3.0, Front (2) USB 2.0, Internal (1) USB 3.0
17	RAID suport 0, 1, 5, 6, 10 on Controller PERC H740P (8GB NV Cache)
18	Power: 100–240 V AC, auto-ranging
19	Power Supplies : 2 x <1100> W
21	Cyber Security : Hardware root of trust enabled with secure boot options with Intel's Threat Detection Technology (TDT).
22	Operating temperature: 50°F - 95° F (10°C - 35°C)
23	Operating humidity : 10 - 80% non-condensing

| 24 | Warranty and Support - Manufacturer shall provide a five-year, on-site,next business day warranty, with a "Keep Your Hard Drive" feature. | |

Video Monitoring, Recording & Management software (BOQ No:59)

SL No	Video Management System General Description	Compliance
1	The video management system (VMS) specified shall be a hardware agnostictruly open IP video security solution that provides seamless management of digital video, audio, plus other security disciplines such as access control across an IP network.	
2	The VMS is designed to provide the ultimate in flexibility from a standalone system through to a multi sited geographically dispersed fully integrated package.	
3	The VMS shall be truly open in terms of device support with over 300+ manufacturers and 6000+ devices.	
4	The VMS manufacturer shall be of Global repute and incorporated for at least 10 years from the date of publish of tender.	
5	The VMS software shall run on COTS (commercial off the shelf) hardware.	
6	The VMS software shall be ONVIF profile S, G, and T compliant and listed on the ONVIF web site.	
7	The VMS system shall feature client / server architecture and distribute server configuration updates to all connected clients automatically.	
8	The VMS software shall require only three types of servers, with the following roles.	
8.1	Recording server. This incorporates all necessary VMS function and management.	
8.2	VCA / LPR server. This performs all video analytics / LPR related functions.	
8.3	Failover server (optional)	
9	The VMS software shall have its own database management tools, including a maintenance scheduler.	
10	The VMS software shall not require any MS software to operate other than the MS operating system. In particular it shall not require MS SQL or Frameworks.	
11	The VMS server application shall run on any MS Windows OS version from Windows 10 and for from Windows Server 2003 to current (Server 2019)	
12	VMS Clients shall run on any MS software in 32- and 64-bit modes from Windows XP through to Windows 10.	
13	The VMS software shall use a single executable installer package that contains all required VMS system software elements.	
14	All VMS software updates and upgrades shall be supplied as a single executable installation package. The only exception being small patches required for small or urgent features.	

15	The VMS shall feature the following licensing model:	
15.1	Licensing systems shall be offline based on a physical USB dongle key.	
15.2	Unlimited surveillance clients with no charge for the software.	
15.3	Free software support free of charge for project lifetime.	
15.4	Free of charge upgrades within the same version for minimum of 6 years.	
15.5	The software shall not command any ongoing maintenance fees or similar charges.	
16	The VMS shall feature an embedded web client object to allow for display and navigation of web pages within the surveillance client. This also allows for integration with 3rd party web-based systems.	
17	The VMS shall provide a fully documented API (application programming interface) document to allow 3rd party software integration. There shall be no charge for the API document or support relating to it.	
18	For larger systems the VMS shall support centralized surveillance client configuration.	
19	For larger systems the VMS shall support centralized server registration.	
20	The VMS shall allow the creation and display of an instruction / disclaimer message that will be displayed to a user at login. The user must accept the instruction / disclaimer before they can proceed.	
	Architecture and Security	
	The VMS system shall allow:	
21	An overall unlimited system size in terms of cameras and supported devices. Expansion shall be supported via camera license packs.	
22	Images to beviewed and recorded at up to 30fps per camera.	
23	Devices such as IP cameras, video encoders, DVRs, NVRs,video interphones, and cameras in supported Android and Apple mobile devices.	
24	Live video display and recording of Windows computer desktop screen.	
25	Storage and transmission of images in MJPEG, MPEG4, MxPEG,H.264 and H.265 formats and at any available resolution.	
26	Multi streaming where media devices such as cameras feature multiple streams with differing resolutions and compression methods.	
27	Live viewing and recording of Fisheye, panomorphic and multi imager cameras, having the benefit of deep integration of the manufacturer's SDK / API.	
28	Tools to set filters and effects on camera images.	
29	Alarm I/O boards to an overall unlimited number. Expansion shall be supported via softwarelicense packs.	
30	Multi-tasking, meaning all processes are autonomous and do not affect any other processes.	
31	Utilization of multiple processors where fitted. The software shall divide its tasks between processors to improve performance and can decode multi-threaded-multicore with a definable RTP timestamp buffer available for its camera connections.	
32	Compatibility with Unicode characters.	
33	An integrated embedded RTSP media server. Allowing the software to provide real time streaming via RTSP from the recording server(s) to any 3rd party software application.	
34	Support for RTSP and RTSPS with TLS/SSL.	

35	Support for IPV6.	
36	Support for remote access to the server with no software-imposed limit of connections per server.	
37	Support for IP filters.	
38	The software to maintain a comprehensive log which contains and monitors items such as:	
38.1	Access to servers.	
38.2	User actions.	
38.3	System alerts.	
38.4	System errors.	
38.5	Device activity.	
38.6	VCA and LPR recognition and classes.	
38.7	Google maps coordinates for events.	
39	Support for DNS.	
40	Support of TCP and UDP (unicast and multicast) protocols between clients and servers.	
41	Support SRTP for surveillance clients in Multi-cast.	
42	Support for the distribution of video via multicast on demand.	
43	A complete user rights system with an unlimited number of individual user profiles. User profiles shall denote which aspects and features are allowed for every user profile.	
44	A complete audit system for control of users and groups.	
45	Support for user groups to allow the allocation of the same user configuration and permissions for all users within a group.	
46	A schedule to control user logins.	
47	Support of the expiry and blocking of user accounts.	
48	Support for at least 999 levels of PTZ control priority, with a priority allocated to each user. PTZ usage per user may also be calendar controlled.	
49	Inclusion of users through auto synchronization of Windows active directory users.	
50	Support for double factor of authentication using an integrated one-time password application based on 2FA authenticator.	
51	Capability of enforcing the use of strong passwords.	
52	Support ofa user-based privacy mode, privacy shall be enforced based on user privileges and specific cameras.	
53	Support for unidirectional and bidirectional audio with audio zoning.	
54	Integrated software services control application.	
55	Cyber Security:	
55.1	The software must support a strong password policy and must be stored in a salted MD5.	
55.2	The software shall support AES256 encryption in Unicast when it is available in the camera.	
55.3	The software shall support recording encryption AES128 and AES256.	
55.4	The software shall support SSL encryption server to sever and server to clients.	
55.5	The integrated web server shall support Https and SSL.	

55.6	The passwords for all connected devices shall be stored with encryption.	
55.7	The passwords for server access, stored in client computers (when using auto login) shall be stored with encryption.	
55.8	The software shall support encryption for export using AES256.	
56	The softwaretosupport standard native privacy blurring of images for selected users and user groups. The privacy blurring is CPU based and requires no extra hardware, and is included with each channel license.	
57	The software shallprovide options to disable certain Windows features such as print screen. It must also be possible to modify the client behavior to prevent it being minimized or closed.	
58	When email is to be included in event actions the software shall include a playback link for video and embedded VCA.	
59	The software shall support activation or de activation of any object on event. Objects types are cameras, alarm devices, and analytics configurations.	
60	The VMS shall support report authentication through a bar code feature. The system shall create a bar code to all issues reports and each report is then saved on the server. To later check on a report that has been issued by the system, simply request the report through the bar code and the system will recover and display the report.	
61	The VMS shall include useful engineering tools so speed up installation in the camera registration screen, such as Ping of the device IP address and media (stream) preview.	
62	The software shall support SNMP trap version 2.0/3.0.	
63	The VMS shall support the export of information about installed objects, such as cameras etc. The export shall be to a .csv file including details such as:	
63.1	Model.	
63.2	Port.	
63.3	IP address.	
63.4	Camera name.	
63.5	Description.	
63.6	Users.	
63.7	Status (activated or de activated).	
63.8	Shortcut.	
63.9	Recording path.	
63.1	Relay details.	
63.11	Media (stream) profiles.	
63.12	Recording type.	
63.13	Recording days.	
63.14	Recording pre and post times.	
64	The software to show the operational status of very camera on the system via the admin client, on demand.	
65	The software shall be capable of triggering events on failure and re instatement of connected devices.	
	Failover	
66	The software must have a failover system that does not rely on any third-party software utility such as MS Cluster.In addition:	

66.1	The failover system shall be fully customization and can be 1:1, 1: N, and N: N.
66.2	A failover server should take over the operation of a failed server within 3-10 seconds of the failure being detected.
66.3	The failover server will take over all programmed duties of the failed server unless programmed otherwise.
66.4	It must be possible to create events on failover to inform operators of a failover situation.
66.5	The configuration for desired failover cameras shall be achieved with a simple export feature. This will inform the failover server of the active (alive) server and cameras it will replace in the event of the active (alive) server failure.
66.6	After a failover when the previously failed server is back in service a fail back will take place within 3-10 seconds of the re instatement of the live server.
66.7	It must be possible to create events on failback to inform operators of a failback situation.
66.8	Failover capability must take over not only the VMS and I/O devices, but also VCA, LPR, maps and operational maps.
	Recording
67	The software shall manage the storage of content with unlimited size per camera. It shall also indicate the actual output size to each connected logical dive.
68	Provision of a timeline of recorded images showing the points where there are recordings, as well as audio, motion or analytic metadata and bookmarks.
69	Recording triggered by motion detection.
70	Event recording.
71	Audio recording from supported devices.
72	Pre and post alarm image timer with up to 60 seconds pre alarm and 60 seconds post alarm.
73	Scheduled recording.
74	Digital certificate for recordings.
75	Automatic disk management using asystem with programmable record period settings (such as 30 days)
76	Protection against the natural deletion of recordings. In such cases images can only be deleted by a user with sufficient rights.
77	Automatic changing of recorded frame rate and resolution on any event condition.
78	Bookmarking of recordings as follows:
78.1	Creation of bookmark when recording profile is changed. This may be automatically triggered by any type of event or manually by an operator with sufficient rights.
78.2	Automatic placement of bookmarks on the video time line for playback purposes.
78.3	Bookmarks may also be created simultaneously across multiple cameras.
78.4	Bookmarks also allow for choice of colour, initial and final times, and operator observations.
78.5	Option for locking bookmarks against the natural deletion process.

79	Edge recording, where the VMS system will allow:	
79.1	The automatic downloading and merge of recordings stored in the memory cards of supported devices.	
79.2	A self-healing option where the system can be configured to automatically download recordings from edge device media following a communications system failure. Downloaded footage will then fill in the gaps in local recording.	
79.3	Automatic downloading of recordings from edge media on any VMS system event.	
79.4	Downloading of recordings via scheduled events, creating a scenario where recordings can be downloaded automatically at a scheduled time.	
79.5	Automatic creation of bookmarks whenever downloaded video is merged with the main recordings, allowing a clear identification on the time line to distinguish between the main recordings and downloaded recordings.	
79.6	A complete activity log and capable of triggering specific events when edge recording becomes active.	
79.7	Support for direct playback from the edge device media.	
80	Support for recording video from the cameras of Android and Apple mobile devices is enabled so that.	
80.1	Video and audio from any supported mobile device shall be treated as any VMS camera channel with the same feature set.	
80.2	The mobile camera application must send video transcoded into H.264 to the server at a resolution and frame rate which is user selectable up to full HD (1920x1080) and up to 30fps. Bi directional audio and GPS coordinates must also be included where the mobile device supports them.	
81	Support for metadata recoding, allowing the marking of the video content and time line with event information from motion detection,VCA, plus other applications that are capable of generating metadata.	
82	The software tosupport video archiving to secondary storage. Archiving must secure the video as well as audio and metadata. The archiving must be able to schedule the operation over the seven days of a week and synchronized for a required number of days. The VMS must allow archiving in any cloud base storage.	
	Clients,Live Displays, and Events	
83	The client software shall support Nvidia and Intel quick sync GPU decoding for video processing of live views and also playback functions.	
84	The client software shall support multi CPU thread decoding for multi megapixel cameras.	
85	The client software shall support video buffering with different settings for mixed and moving (PTZ) cameras.	
86	The client software shall support the viewing of cameras from various servers in the same screen display.	
87	The client software shall allow users to select the desired video stream for live viewing when multiple video streams are available. The software may also be programmed to automatically change the viewed media stream when a camera is selected.	
88	The client software shall support the creation of a view that mixes cameras, maps, web pages, VCA, LPR, operational maps, and audio devices.Views can be saved as private or public.	

89	The VMS software shall provide object links navigation (navigate through objects by using overlay links in both live and playback modes) These links can be related to cameras, I/O, VCA, LPR, Maps, Events, Http commands, and views.	
90	The client software shall support up to eight monitors per client workstation with customizable screen styles up to a 400 image (20x20) screen mode.	
91	The client software shall feature an embedded-on screen keyboard that can be accessed by a simple two keys combination.	
92	The software shall support sequence views as follows:	
92.1	A sequence of single screen images, which can be cycled on a timed basis. PTZ cameras that support preset positions can have these presets cycled on a time basis.	
92.2	A sequence view can combine single cameras, multiscreen views, VCA views, LPR views, Maps, and operational maps.	
92.3	Sequence views can be defined as private or public.	
92.4	The sequenced view must have no delay more than half a second to display the next view using background buffering.	
93	The VMS software shall support a purpose designed fully integrated system control keyboard that is USB connected. The keyboard must be preprogrammed with dedicated buttons for direct access of features of the client. The keyboard shall provide access to live view, playback, cameras and screen selection, virtual matrix control, and playback.	
94	The keyboard shall also feature a multi axis PTZ twist top joystick to allow simultaneous pan, tilt, and zoom control of a camera. This keyboard must have at least 24 keys providing direct access to client functionalities.	
95	The client software shall feature a dedicated PTZ control keyboard setup page, to allow precise control should network latency be encountered.	
96	The software shall support operation via a virtual matrix (video wall), this feature shall be included with the software and command no license fee.	
97	The virtual matrix must not require any additional server hardware.	
98	The virtual matrix shall be presented to clients as a list of monitors that aredefined for this purpose, where the operator can select a desired monitor and send live images, playback sessions, maps, and screen styles via the clients keyboard and mouse or dedicated control keyboard.	
99	Virtual matrix features shall also include:	
99.1	Programmable titles for all monitors that comprise the video wall.	
99.2	The name of the object being displayed on the monitor or video wall.	
99.3	TheVisible status of objects in the list of video wall monitors.	
100	The software shall feature an alarm "pop up" window, which when triggered by any event may be distributed to any number of operators.	
101	The pop-up window shows alarm information, including:	
101.1	A live steam from the camera relating to the event. In cases where multiplecameras relate to an event, they will be presented in a multiscreen format suited to the total number of cameras for the event.	
101.2	The name of the server that issued the event notification.	
101.3	The camera name(s) and date and time at the point of event trigger.	

101.4	A playback button to allow access to recorded video from the start of the event.
102	The client software shall allow the display of all cameras, including VCA cameras in the same screen layout. In the case of VCA cameras it must be possible to play back VCA related incidents and events from the client screen layout.
103	The VMS shall provide a security feature that shall disconnect a specific user after a pre-defined period of inactivity has elapsed.
104	The software shall support a web-based surveillance client in HTML5 capable of receiving live video in H.264, H.265, and MPEG4 decoding in the web client.
105	Client applications for mobile devices shall be free of charge and available by the app store on supported devices.
106	The software shall feature customizable camera events to allow support for features that do not fit into a cameras pre-defined event types. For instance, creation of an event for a video intercom call button.
107	The software shall, on event be capable of communicating with 3rd party systems via Http and Https.
108	The software shall support a virtual I/O feature to allow the combination of differing alarm triggers, for instance a sensor with a VA trigger. This provides the possibility of logical AND or "double knock" between event types.
	Playback and Export
109	The software shall permit the playback and export of various cameras simultaneously, synchronized together, and in any available screen style.
110	The software shall support an instant playbackfeature via right click of a camera in live mode. Each client will allow programming of what happens on instant review by starting from 5-20 seconds before the point of playback.It shall also be possible to start instant review playing backwards from the moment selected.
111	The software shall support instant access to playback by right click of a camera along with useful pre-selected times (such as 5 minutes ago)
112	The software shall feature a thumbnail search with programmable times that can be adjusted down to 1 second.
113	The software shall support a colour coded timeline when playing back video. Different colours shall denote different types of recording such as video, audio, motion or analytic metadata.
114	The software shall support the placement of bookmarks on the playback timeline.
115	The software shall support dragging and dropping of cameras from the tree and a live viewinto the player to facilitate rapid playback access.
116	The software shall feature search toolsutilizing comprehensive search filters.
117	The software shall provide a number of security features that may be applied to video exports.
117.1	The software shall provide encryption of exported video in AES256.
117.2	The software shall be capable of splitting a video export based on the size of the media used.
117.3	The software must allow native export by default as well as AVI, MP4 and JPEG formats.
117.4	The software shall provide password protection for video exports.

117.5	The software shall provide a watermark feature for video exports.	
117.6	The software shall support JPEG time lapse export from video exported in native format.	
118	The software shall support sequence exporting. This allows the export of a sequence of cameras by following the progress of an event from camera to camera as it took place. The exported media will then reflect the actual event as it unfolded and was observed by an operator.	
119	The software player shall support turbo exporting.	
120	The software player shall be able to play back archived media with direct access.	
121	The software shall provide the facility for local recording to the local hard disk drive of the client machine. This shall be achieved by asingle click on the record icon (per camera) in live mode.	
122	The client software shall support direct playback of video analytics cameras with all analytics features including object trails and other metadata features.	
	Maps	
123	The VMS shall support maps with the following features:	
123.1	The synoptic map shall allow the use of images in many formats such as JPEG, WMF, BMP, GIF, and PNG.	
123.2	The map engine must support Google map import engine and must be able to populate cameras based on the location coordinates of each camera.	
123.3	The map engine must support multiple layers of google map allowing specific zoomed map region. The layers will automatically allign positions based on the under-layer map coordinates.	
123.4	The software shall support online Google map with automatic camera and event positioning. A Google API key is also required for this feature.	
123.5	There shall be allowance for an unlimited number of maps.	
123.6	Links shall allow navigation of maps as well as operational online Google maps.	
123.7	Icons placed on a static map may have a static beam dynamic beam denoting direction and approximate lens coverage, this requires the retrieval of absolute position coordinates.	
123.8	Camera dynamic beams may be changed in terms of colour and opacity.	
123.9	Visual status of icons for IP Pingable devices such as switches, routers, servers etc.	
123.1	Support of both static (synoptic) and active (operational Google online maps).	
123.11	Static (synoptic) maps shall support the field of view representation for fixed cameras.	
123.12	The operator should be able to select any camera that is on screen and use the "locate on map" function, causing the system to open maps that have this object and it shall be displayed prominently, facilitating the location of alarmed objects on maps with large density of objects	
123.13	The operational map should have the option of night mode, making viewing more pleasant in dark environments.	
	Analytics Metadata Search	

123.14	The VMS should have a metadata search feature which makes it easier for the operator to search the events available in the system. This search should allow filtering by the metadata received by Analytics (either via Server process analytic engine or edge analytics from the devices), making all data received by the system available in a filterable and easily located manner.
123.15	Filters such as color, age, classification, height, speed and many others can be used to search with the desired detail, making searches such as "40% red car above 40km/h" possible if the system has data to do so. In addition, the metadata search screen itself should present all the objects that fit within the selected filters, also presenting a player in the lower right corner so that the operator can visualize the event happening with fluidity. This search will only be performed on cameras that have analytics metadata recording enabled

3)TECHNICAL SPECIFICATION OF TALK BACK SYSTEM (BOQ No: 63)

DESCRIPTION :

Talk back speaker having inbuilt 6W speaker, Unidirectional Microphone with Pre-amp and call button to communicate with main control room during the emergency condition. It provide two way communication between building management and person occupying 'Refuge Area' During an emergency evacuation - typing a fire. Up to 600it can communicate with Cat6 cable, User simply press the button to initiate call (Occupy area). Future communication is hands free at the refuge point or by the user at the control panel. Calls are reset either at the control panel or via the remote, when the refuge area Occupant has been evacuated to safety. Talk back unit will support external speaker unit will support external speaker only for one way announcement. It can be surface mounted or concealed.

FUTURE :

- Multizone communication and Ease to operate.
- Distacne more than 700 metre
- Sound pressure level 98dB
- Acoustic inside enclose to reduce extra noise
- Integration with other system like, Fire alarm BMS etc.
- Polypropylene drive for long lasting

SPECIFICATION:

Power tap@100V	6W
SPL(1W/1M)	90dB
Max. SPL	98dB
Frequency Response	50-18KHz
Input Sensitivity	200 Ohm
S/N Ratio	68dB
Finish	Baffle: MS, Green
Dimension	180 x 140 x 60
Weight	2kg
Mounting	Surface / Concealed

KERALA INNOVATION TECHNOLOGY ZONE BUILDING

MAKE OF MATERIAL ON THE SUPPLY PART

	SUGGEST MAKES OF MATERIAL IT NETWORKING SYSTEM	
	Description	Preferred Makes
I	**IT Networking Passive - Structured Cabling System**	
1	Cat 6A & Cat 6 UTP Cables	Panduit-PANNet / Commscope-Systimax / R&M/molex
2	Cat 6A & 6 I/O, face Plates	Panduit-PANNet / Commscope-Systimax / R&M/molex
3	Cat 6A & 6 Patch Panels	Panduit-PANNet / Commscope-Systimax / R&M/molex
4	Cat 6A & 6 Patch Cords	Panduit-PANNet / Commscope-Systimax / R&M/molex
5	OS 2 Fiber Cable	Panduit-PANNet / Commscope-Systimax / R&M//molex
6	Fiber LIU, Splice trays, with all components	Panduit-PANNet / Commscope-Systimax / R&M//molex
7	Fiber Pig tails, Connectors, Adapters & all Fiber Accessories	Panduit-PANNet / Commscope-Systimax / R&M//molex
8	OS2 Fiber patch Cords	Commscope-Systimax / R & M / Panduit-//molex PANNet
9	Wiring Block	Commscope-Systimax / R & M / Panduit-//molex PANNet
10	Multipair Telephone cables	Delton / Finolex / DOT Approved
11	Switches	HP / Cisco / Juniper / Extreme
12	Wireless Controller and Access Point	HP / Cisco / Juniper / Extreme
13	Camera	Axis/Pelco/Bosch
14	Server & Storage	HP/Dell
15	Network / Server Racks	Rittal / APW President / Valrack /
16	PVC conduit and accessories	Universal / Balco/Avonplast/equivalent brands
17	Cable tray & Accessories	OBO/Profab/ Niedax/ equivalent brands
18	PVC raceways	OBO/DEHN/Legrand/MK/ equivalent brands
19	PVC insulated copper conductor	Havells/Polycab/ RR Kabel/ equivalent brands
20	VMS	Milestone / Digifort/Axis

79

BUILDING - 1(WING -A) GROUND FLOOR DATA POINT LAYOUT

Floor plan labels:

- 800MM HIGH SILL WALL+ STRUCTURAL GLAZING
- AHU
- DUCT OPENING @ BOTTOM OF BEAM 900wx600ht.
- ELECTRICAL ROOM
- 2.4M WIDE CORRIDOR
- STUDIO ROOM
- WITH ACOUSTIC PANEL
- TRUE CEILING PAINT IN BLACK COLOUR
- 6 SEAT MEETING - 1
- SOLO CIRCLE IN WHITE COLOUR
- 6 SEAT MEETING - 2
- TRAINING ROOM
- BREAK OUT
- SNACK COUNTER
- FLEXI CUBICLES
- FLEXI CUBICLES
- COFFEE LOUNGE
- 23 SEAT OFFICE-5
- SHARED WORKING SPACE-36 SEATS
- 34 SEAT OFFICE-6
- CENTER PIECE
- CORRIDOR 2.7m WIDE
- MINI BREAK OUT
- MINI BREAK OUT
- 21 SEAT OFFICE-1
- SEAT OFFICE-2
- 10 SEAT OFFICE-3
- SEAT OFFICE-4
- OPEN TO ALL
- LOUNGE
- Base Level 1340MM
- 900MM HIGH SILL WALL + STRUCTURAL GLAZING
- AHU
- DUCT OPENING @ BOTTOM OF BEAM 900wx600ht.
- HUB ROOM
- STRUCTURAL GLAZING WITH LOUVERS
- H.TOILET
- L.TOILET
- G.TOILET
- 400x400 AEROCON PILASTER
- WALL UPTO 1800mm high +STRUCTURAL GLAZING
- FULL HEIGHT AEROCON BLOCK WALL
- WALL UPTO 1800mm high +STRUCTURAL GLAZING
- G.TOILET
- JC
- L.TOILET
- SLAB PROJECTION AT GROUND FLOOR LVL.
- SLAB PROJECTION AT GROUND FLOOR LVL.
- 900MM HIGH SILL WALL+ STRUCTURAL GLAZING
- PUNCHED WINDOW
- PUNCHED WINDOW+STRUCTURAL GLAZING
- 900MM HIGH SILL WALL +STRUCTURAL GLAZING
- ADMIN WS 8 nos
- DISC
- DISC
- CABIN-3
- CABIN-2
- CABIN-1
- MUSEUMS
- LIFT
- LIFT
- FIRE CONTROL ROOM
- SPCO
- ACO
- 10 EQUAL TREADS
- GRANITE LEDGE IN PLAN
- GUEST ROOM
- ENTRANCE LOBBY DOUBLE HEIGHT
- 900MM HIGH SILL WALL+ STRUCTURAL GLAZING
- FLOOR PROJECTION ABOVE
- DN
- MD
- MD

LEGEND:-

SYMBOL	DISCRIPTION
	UPS & RAW POWER
	400X400MM GI JUNCTION BOX
	225X225MM GI JUNCTION BOX
	150X150MM GI JUNCTION BOX
	75X75MM GI JUNCTION BOX
▬	300MM CABLE TRAY (UPS & RAW POWER)
▬	EXISITING CABLE TRAY (UPS & RAW POWER)
▬	150 MM CABLE TRAY (UPS & RAW POWER)
—	25mm UPS RIGID PVC CONDUIT (UPS)

NOTES:-

1. HUMPS AND UNLEVELED FLOOR MUST BE HACKED TO ENSURE ACCURATE LEVELING OF THE RACEWAY.
2. THE END POINTS OF RACEWAY SHOULD BE PROTECTED WITH SUITABLE RUBBER WASHERS TO AVOID THE DIRECT CONTACT TO THE SHARP EDGE.
3. USE RIBBON SCREED ON WHICH THE RACEWAYS ARE TO BE LAID TO GIVE FULL SUPPORT OF THE RACEWAY BASE AND TO PREVENT NOISE WHEN WALKED ON.
4. WHEN THE RACEWAYS ARE SET IN THE POSITION AND LEVELED, THEY SHOULD BE SECURELY FASTENED TO THE FLOOR BY MEANS OF FIXING FLOOR BRACKETS/SUPPORTS BY USING SUITABLE ADEQUATE NO. STRIPS.
5. DIFFERENT CIRCUIT OF SAME PHASE MAY BE TAKEN IN SAME CONDUIT PROVIDED THE NUMBER OF WIRES DRAWN INTO THE CONDUITS IS WITHIN THE PERMISSABLE LIMIT.
6. THE RACEWAY SHALL BE PROTECTED WITH AN ADHESIVE BASED FILM TO PREVENT THEM FROM BEING STAINED BY WET CEMENT BEFORE SCREEDING COMMENCES.
7. CIRCUIT OF ATLEAST DIFFERENT PHASES MAY BE TAKEN IN SEPARATE CONDUIT.
8. THE RACEWAY SHALL BE EARTHED AT THE BOXES AND AT THE JOINTS WITH 14SWG BARE COPPER WIRE WITH SCREWS.
9. JOINTS SHOULD BE SEALED WITH METAL –TO –METAL SEALENT TO PREVENT SCREED SEEPAGE IN TO THE SYSTEM
10. POP BOX SHALL BE PROVIDED IN CABINS AND MEETING ROOMS AS PER BOQ AND AS PER SITE REQUIREMENTS
11. UPS & RAW POWER CIRCUITS SHOULD BE SEGREGATED.

THE EXACT FINAL ROUTING & QUANTITIES OF FLOOR TRUNKING CHANNEL SHALL BE AS PER OVER ALL INTERIOR FURNITURE LAYOUT AND TO SUIT SITE CONDITION AS REQUIRED AND ALSO COORDINATED WITH IT TEAM FOR IT RACEWAY.

REV.	DESCRIPTION	DATE	BY	CHD.
R2				
R1	ISSUED FOR CONSTRUCTION	06.06.2023	KEC	CRN
R0	ISSUED FOR EXECUTION	11.10.2022	KEC	

AMENDMENT

GRAPHIC SCALE:

CLIENT:
KERALA STATE IT INFRASTRUCTURE LTD.

PROJECT:
KERALA TECHNOLOGY INNOVATION ZONE - KSUM

DRAWING TITLE:
BUILDING - 1(WING -A) GROUND FLOOR DATA POINT LAYOUT

SCALE : 1:100	SUBMITTED BY : KEECHERY	REV
DATE : 11.10.2022		
DRAWING NO.		R2
SUV-KRL-WA-ELC-GF-PWR-19		

Design | Interiors | Engineering | Construction management

C.R.Narayana Rao (Consultants) Private Limited

CRN
C.R.NARAYANA RAO

No. 10, Karpagambal Nagar,
Mylapore, Chennai-600 004.
India.
www.crn.co.in

LEGEND:-

SYMBOL	DESCRIPTION
	6A SOCKET CONTROLLED BY 6A SWITCH (RAWPOWER)
	6/16A SOCKET CONTROLLED BY 16A SWITCH. (RAWPOWER)
▬	DATA POINT
	2Nos. 6/16A SOCKET CONTROLLED BY 16A SWITCH (UPS POWER)
	POP UP BOX

BUILDING - 1(WING -A)-GF DATA POINT LAYOUT

Drawing Labels

900MM HIGH SILL WALL+ STRUCTURAL GLAZING

900MM HIGH SILL WALL + STRUCTURAL GLAZING

900MM HIGH SILL WALL+ STRUCTURAL GLAZING

900MM HIGH SILL WALL+ STRUCTURAL GLAZING

GLASS PARTITION TO DETAIL

SNACKS BAR COUNTERS

REFER SEPERATE DETAIL

SPACE BELOW SEATING AREA CAN BE USED FOR SNACKS BAR STORAGE

PARTITION WALL

GLASS PARTITION TO DETAIL

AHU DUCT OPENING ABOVE

ELECTRICAL ROOM

AHU DUCT OPENING ABOVE

HUB ROOM

900mm HIGH SILL WALL

DUCT OPENING ABOVE STRUCTURAL GLAZING WITH LOUVERS

BEAM SEEN IN PLAN

BEAM SEEN IN PLAN

STRUCTURAL GLAZING WITH LOUVERS 900MM HIGH SILL WALL

DUCT OPENING ABOVE

G.TOILET

H.TOILET

G. TOILET

JC

L.TOILET

L.TOILET

THEATRE

STAGE FFL 121.35

FFL 120.60

FFL 120.60

400x400 AEROCON PILASTER

400x400 AEROCON PILASTER

BEAM SEEN IN PLAN

SUNKEN SLAB AS PER STRUCTURAL DWG

100mm THK. PLASTER BAND

LOUNGE FFL 120.60

SUNKEN SLAB AS PER STRUCTURAL DWG

900MM HIGH SILL WALL +STRUCTURAL GLAZING

900MM HIGH SILL WALL +STRUCTURAL GLAZING

PUNCHED WINDOW

PUNCHED WINDOW

GLASS PARTITION TO DETAIL

FCO

FCO

SPCO

ACO

OFFICE WS -10

OFFICE WS-35

LIFT

400x400 AEROCON PILASTER

400x400 AEROCON PILASTER

STORAGE ROOM

GLASS PARTITION TO DETAIL

OFFICE ws - 16

OFFICE WS-25

LIFT

FULL HEIGHT AEROCON BLOCK WALL

HANDRAIL TO DETAIL

GLASS PARTITION TO DETAIL

GLASS PARTITION TO DETAIL

OFFICE ws - 10

1st FLOOR SLAB PROJECTION SEEN IN PLAN

900MM HIGH SILL WALL+ STRUCTURAL GLAZING

+3450MM FROM FF FL LVL

ENTRANCE LOBBY BELOW DOUBLE HEIGHT +3800MM FROM FF FL LVL

OFFICE ws - 11

400x400 AEROCON PILASTER

400x400 AEROCON PILASTER

+3450MM FROM FF FL LVL

FIN

FIRST FLOOR BEAM SEEN IN PLAN

Legend - UPS & RAW POWER

SYMBOL	DESCRIPTION
	UPS & RAW POWER
	400X400MM GI JUNCTION BOX
	225X225MM GI JUNCTION BOX
	150X150MM GI JUNCTION BOX
	75X75MM GI JUNCTION BOX
	300MM CABLE TRAY (UPS & RAW POWER)
	EXISITING CABLE TRAY (UPS & RAW POWER)
	150 MM CABLE TRAY (UPS & RAW POWER)
	25mm UPS RIGID PVC CONDUIT (UPS)
	25mm RAW POWER RIGID PVC CONDUIT (RAW)
	VERTICAL DROP

LEGEND

SYMBOL	DESCRIPTION
	6A SOCKET CONTROLLED BY 6A SWITCH (RAW POWER)
	6/16A SOCKET CONTROLLED BY 16A SWITCH. (RAW POWER)
	DATA POINT
	2Nos. 6/16A SOCKET CONTROLLED BY 16A SWITCH (UPS POWER)

LEGEND

SYMBOL	DESCRIPTION
	LIGHTING DISTRIBUTION BOARD (LDB)
	POWER DISTRIBUTION BOARD (PDB)
	UPS DISTRIBUTION BOARD (UPS DB)
	E.LIGHTING DISTRIBUTION BOARD (ELDB)

NOTES:-

1. HUMPS AND UNLEVELED FLOOR MUST BE HACKED TO ENSURE ACCURATE LEVELING OF THE RACEWAY.
2. THE END POINTS OF RACEWAY SHOULD BE PROTECTED WITH SUITABLE RUBBER WASHERS TO AVOID THE DIRECT CONTACT OF THE SHARP EDGE.
3. USE RIBBON SCREED ON WHICH THE RACEWAYS ARE TO BE LAID TO GIVE FULL SUPPORT OF THE RACEWAY BASE AND TO PREVENT NOISE WHEN WALKED ON.
4. WHEN THE RACEWAYS ARE SET IN THE POSITION AND LEVELED, THEY SHOULD BE SECURELY FASTENED TO THE FLOOR BY MEANS OF FIXING FLOOR BRACKETS/SUPPORTS BY USING SUITABLE ADEQUATE AL. STRIPS.
5. DIFFERENT CIRCUIT OF SAME PHASE MAY BE TAKEN IN SAME CONDUIT PROVIDED THE NUMBER OF WIRES DRAWN INTO THE CONDUITS IS WITHIN THE PERMISSIBLE LIMIT.
6. THE RACEWAY SHALL BE PROTECTED WITH AN ADHESIVE BASED FILM TO PREVENT THEM FROM BEING STAINED BY WET CEMENT BEFORE SCREEDING COMMENCES.
7. CIRCUIT OF ATLEAST DIFFERENT PHASES MAY BE TAKEN IN SEPARATE CONDUIT.
8. THE RACEWAY SHALL BE EARTHED AT THE BOXES AND AT THE JOINTS WITH 14SWG BARE COPPER WIRE WITH SCREWS.
9. JOINTS SHOULD BE SEALED WITH METAL –TO –METAL SEALENT TO PREVENT SCREED SEEPAGE IN TO THE SYSTEM
10. POP BOX SHALL BE PROVIDED IN CABINS AND MEETING ROOMS AS PER BOQ AND AS PER SITE REQUIREMENTS
11. UPS & RAW POWER CIRCUITS SHOULD BE SEGREGATED.

THE EXACT FINAL ROUTING & QUANTITIES OF FLOOR TRUNKING CHANNEL SHALL BE AS PER OVER ALL INTERIOR FURNITURE LAYOUT AND TO SUIT SITE CONDITION AS REQUIRED. AND ALSO COORDINATED WITH IT TEAM FOR IT RACEWAY.

Revision Table

REV.	DESCRIPTION	DATE	BY	CHD.
R2	ISSUED FOR EXECUTION	11.10.2022	KEC	
IR1	ISSUED FOR CONSTRUCTION	06.08.2022	KEC	CRN

AMENDMENT

GRAPHIC SCALE:

CLIENT:

KERALA STATE IT INFRASTRUCTURE LTD.

PROJECT:

KERALA TECHNOLOGY INNOVATION ZONE - KSUM

DRAWING TITLE:

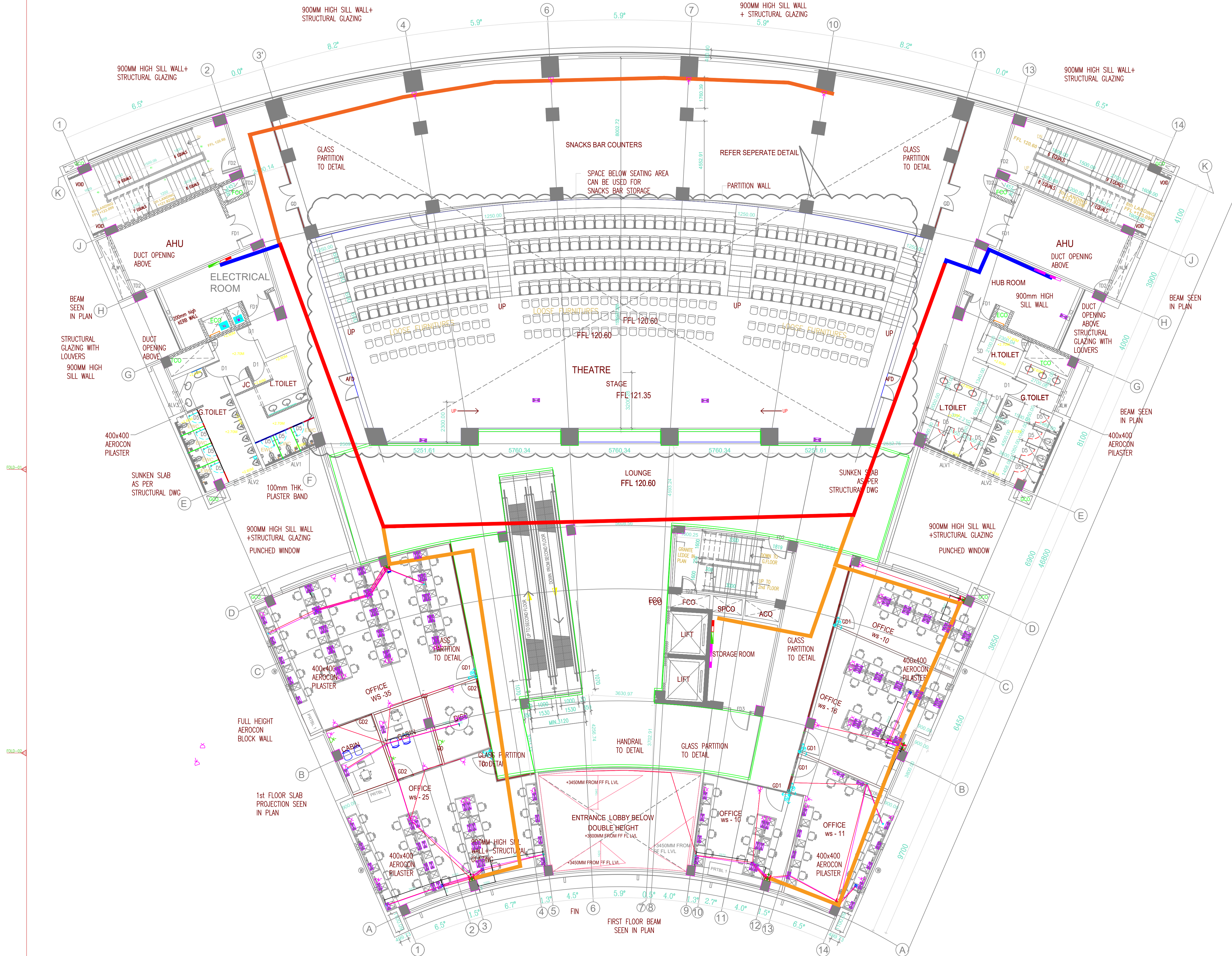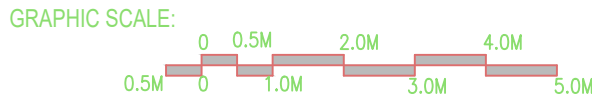BUILDING - 1(WING -A) FIRST FLOOR DATA POINT LAYOUT

SCALE : 1:100	SUBMITTED BY : KEECHERY	REV
DATE : 11.10.2022		

DRAWING NO:

SUV-KRL-WA-ELC-1F-PWR-20 | R2

Design | Interiors | Engineering | Construction management

C.R.Narayana Rao (Consultants) Private Limited

No. 10, Karpagambal Nagar, Mylapore, Chennai-600 004, India. www.crn.co.in

CRN
C R NARAYANA RAO

LEGEND

SYMBOL	DESCRIPTION
	LIGHTING DISTRIBUTION BOARD (LDB)
	POWER DISTRIBUTION BOARD (PDB)
	UPS DISTRIBUTION BOARD (UPS DB)
	E.LIGHT DISTRIBUTION BOARD (ELDB)

SYMBOL	DISCRIPTION
UPS & RAW POWER	
	400X400MM GI JUNCTION BOX
	225X225MM GI JUNCTION BOX
	150X150MM GI JUNCTION BOX
	75X75MM GI JUNCTION BOX
	300MM CABLE TRAY (UPS & RAW POWER)
	EXISITING CABLE TRAY (UPS & RAW POWER)
	150 MM CABLE TRAY (UPS & RAW POWER)
	25mm UPS RIGID PVC CONDUIT (UPS)
	25mm RAW POWER RIGID PVC CONDUIT (RAW)
	VERTICAL DROP

NOTES:-
1. HUMPS AND UNLEVELED FLOOR MUST BE HACKED TO ENSURE ACCURATE LEVELING OF THE RACEWAY.
2. THE END POINTS OF RACEWAY SHOULD BE PROTECTED WITH SUITABLE RUBBER WASHERS TO AVOID THE DIRECT CONTACT OF THE SHARP EDGE.
3. USE RIBBON SCREED ON WHICH THE RACEWAYS ARE TO BE LAID TO GIVE FULL SUPPORT OF THE RACEWAY BASE AND TO PREVENT NOISE WHEN WALKED ON.
4. WHEN THE RACEWAYS ARE SET IN THE POSITION AND LEVELED, THEY SHOULD BE SECURELY FASTENED TO THE FLOOR BY MEANS OF FIXING FLOOR BRACKETS/SUPPORTS BY USING SUITABLE ADEQUATE AL. STRIPS.
5. DIFFERENT CIRCUIT OF SAME PHASE MAY BE TAKEN IN SAME CONDUIT PROVIDED THE NUMBER OF WIRES DRAWN INTO THE CONDUITS IS WITHIN THE PERMISSIBLE LIMIT.
6. THE RACEWAY SHALL BE PROTECTED WITH AN ADHESIVE BACKED FILM TO PREVENT THEM FROM BEING STAINED BY WET CEMENT BEFORE SCREEDING COMMENCES.
7. CIRCUIT OF ATLEAST DIFFERENT PHASES MAY BE TAKEN IN SEPARATE CONDUIT.
8. THE RACEWAY SHALL BE EARTHED AT THE BOXES AND AT THE JOINTS WITH 14SWG BARE COPPER WIRE WITH SCREWS.
9. JOINTS SHOULD BE SEALED WITH METAL –TO –METAL SEALENT TO PREVENT SCREED SEEPAGE IN TO THE SYSTEM
10. POP BOX SHALL BE PROVIDED IN CABINS AND MEETING ROOMS AS PER BOQ AND AS PER SITE REQUIREMENTS
11. UPS & RAW POWER CIRCUITS SHOULD BE SEGREGATED.

THE EXACT FINAL ROUTING & QUANTITIES OF FLOOR TRUNKING CHANNEL SHALL BE AS PER OVER ALL INTERIOR FURNITURE LAYOUT AND TO SUIT SITE CONDITION AS REQUIRED AND ALSO COORDINATED WITH IT TEAM FOR IT RACEWAY.

REV.	DESCRIPTION	DATE	BY	CHD.
R2	ISSUED FOR EXECUTION	11.10.2022	KEC	
R1	ISSUED FOR CONSTRUCTION	06.08.2022	KEC	CRN

A M E N D M E N T

GRAPHIC SCALE:

CLIENT:

KERALA STATE IT INFRASTRUCTURE LTD.

PROJECT:
KERALA TECHNOLOGY INNOVATION ZONE - KSUM

DRAWING TITLE:
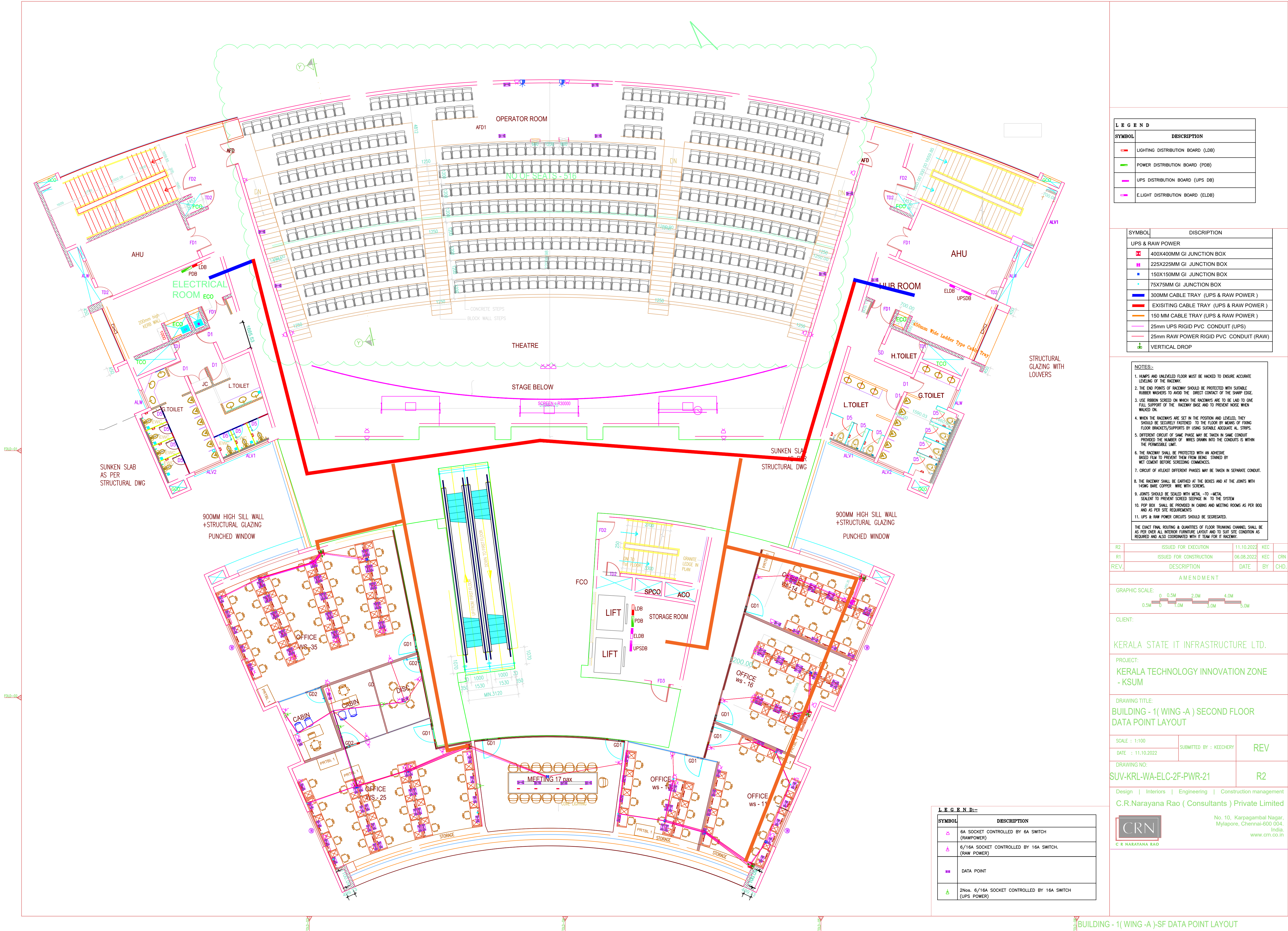**BUILDING - 1(WING -A) SECOND FLOOR DATA POINT LAYOUT**

SCALE : 1:100	SUBMITTED BY : KEECHERY	REV
DATE : 11.10.2022		

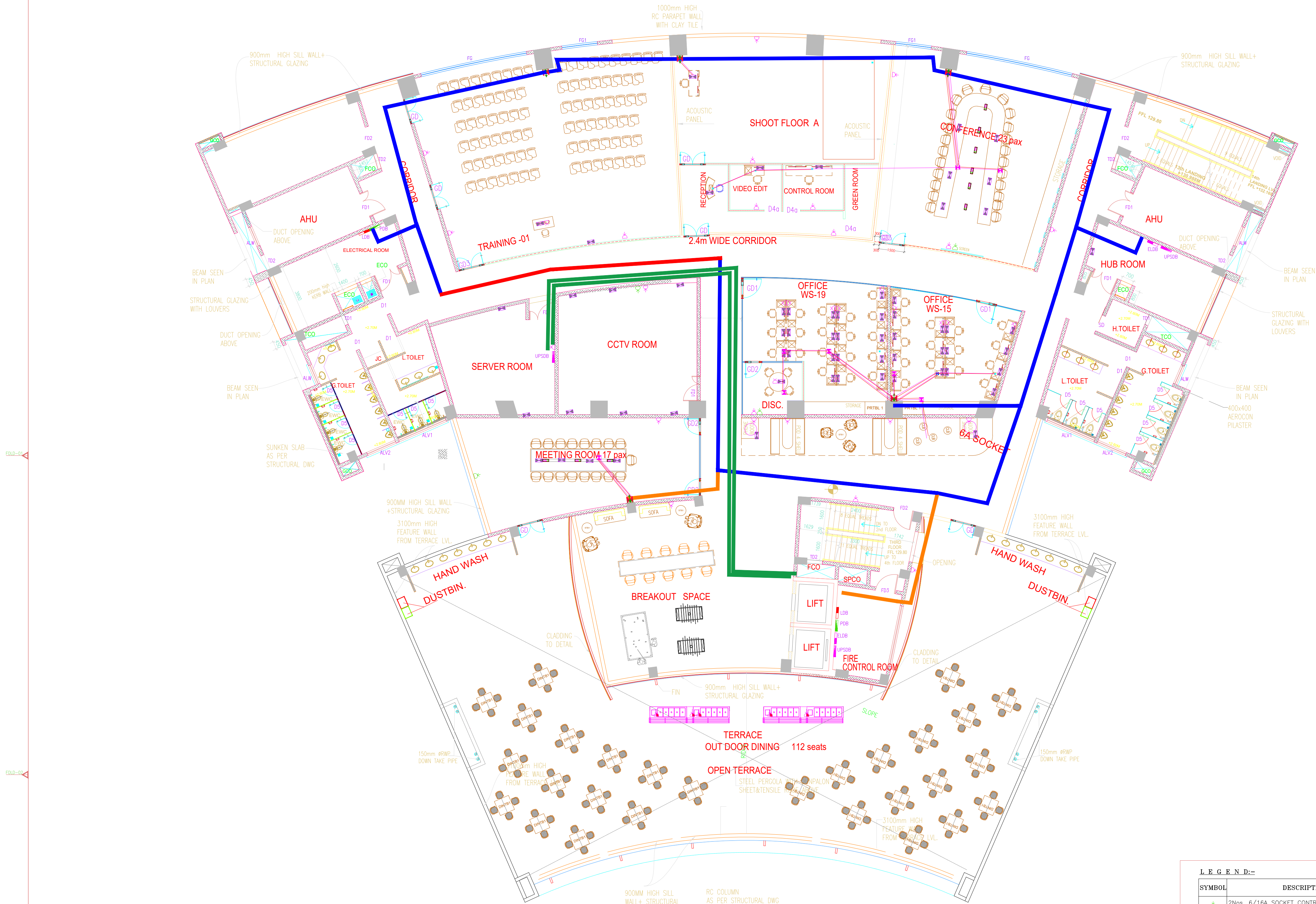| DRAWING NO:	
SUV-KRL-WA-ELC-2F-PWR-21	R2

Design | Interiors | Engineering | Construction management
C.R.Narayana Rao (Consultants) Private Limited

No. 10, Karpagambal Nagar,
Mylapore, Chennai-600 004,
India.
www.crn.co.in

LEGEND:-

SYMBOL	DESCRIPTION
	6A SOCKET CONTROLLED BY 6A SWITCH (RAWPOWER)
	6/16A SOCKET CONTROLLED BY 16A SWITCH. (RAW POWER)
	DATA POINT
	2Nos. 6/16A SOCKET CONTROLLED BY 16A SWITCH (UPS POWER)

Drawing labels: OPERATOR ROOM, THEATRE, STAGE BELOW, SCREEN-R30000, NO OF SEATS 510, AHU, ELECTRICAL ROOM, HUB ROOM, H.TOILET, L.TOILET, G.TOILET, SUNKEN SLAB AS PER STRUCTURAL DWG, 900MM HIGH SILL WALL +STRUCTURAL GLAZING PUNCHED WINDOW, STRUCTURAL GLAZING WITH LOUVERS, OFFICE WS-35, OFFICE WS-25, OFFICE WS-16, OFFICE WS-11, LIFT, STORAGE ROOM, SPCO, ACO, FCO, MEETING 17 pax, CABIN, DISC, STORAGE

BUILDING - 1(WING -A)-SF DATA POINT LAYOUT

L E G E N D

SYMBOL	DESCRIPTION
	LIGHTING DISTRIBUTION BOARD (LDB)
	POWER DISTRIBUTION BOARD (PDB)
	UPS DISTRIBUTION BOARD (UPS DB)
	E.LIGHTING DISTRIBUTION BOARD (ELDB)

LEGEND:-

SYMBOL	DISCRIPTION
UPS & RAW POWER	
	400X400MM GI JUNCTION BOX
	225X225MM GI JUNCTION BOX
	150X150MM GI JUNCTION BOX
	75X75MM GI JUNCTION BOX
	300MM CABLE TRAY (UPS & RAW POWER)
	EXISITING CABLE TRAY (UPS & RAW POWER)
	300MM CABLE TRAY (FOR SERVER ROOM)
	150 MM CABLE TRAY (UPS & RAW POWER)
	25mm UPS RIGID PVC CONDUIT (UPS)
	25mm RAW POWER RIGID PVC CONDUIT (RAW)
	VERTICAL DROP

NOTES:-

1. HUMPS AND UNLEVELED FLOOR MUST BE HACKED TO ENSURE ACCURATE LEVELING OF THE RACEWAY.
2. THE END POINTS OF RACEWAY SHOULD BE PROTECTED WITH SUITABLE RUBBER WASHERS TO AVOID THE DIRECT CONTACT OF THE SHARP EDGE.
3. USE RIBBON SCREED ON WHICH THE RACEWAYS ARE TO BE LAID TO GIVE FULL SUPPORT OF THE RACEWAY BASE AND TO PREVENT NOISE WHEN WALKED ON.
4. WHEN THE RACEWAYS ARE SET IN THE POSITION AND LEVELED, THEY SHOULD BE SECURELY FASTENED TO THE FLOOR BY MEANS OF FIXING FLOOR BRACKETS/SUPPORTS BY USING SUITABLE ADEQUATE AL. STRIPS.
5. DIFFERENT CIRCUIT OF SAME PHASE MAY BE TAKEN IN SAME CONDUIT PROVIDED THE NUMBER OF WIRES DRAWN INTO THE CONDUITS IS WITHIN THE PERMISSIBLE LIMIT.
6. THE RACEWAY SHALL BE PROTECTED WITH AN ADHESIVE BKGED FILM TO PREVENT THEM FROM BEING STAINED BY WET CEMENT BEFORE SCREEDING COMMENCES.
7. CIRCUIT OF ATLEAST DIFFERENT PHASES MAY BE TAKEN IN SEPARATE CONDUIT.
8. THE RACEWAY SHALL BE EARTHED AT THE BOXES AND AT THE JOINTS WITH 14SWG BARE COPPER WIRE WITH SCREWS.
9. JOINTS SHOULD BE SEALED WITH METAL -TO -METAL SEALENT TO PREVENT SCREED SEEPAGE IN TO THE SYSTEM
10. FLUSH MOUNTING FLOOR BOX SHALL BE PROVIDED AS PER BOQ AND AS PER SITE REQUIREMENTS.
11. UPS & RAW POWER CIRCUITS SHOULD BE SEGREGATED.

THE EXACT FINAL ROUTING & QUANTITIES OF FLOOR TRUNKING CHANNEL SHALL BE AS PER OVER ALL INTERIOR FURNITURE LAYOUT AND TO SUIT SITE CONDITION AS REQUIRED AND ALSO COORDINATED WITH IT TEAM FOR IT RACEWAY.

R2	ISSUED FOR EXECUTION	11.10.2022	KEE	
R1	ISSUED FOR CONSTRUCTION	08.06.2022	KEE	CRN
REV	DESCRIPTION	DATE	BY	CHD

A M E N D M E N T
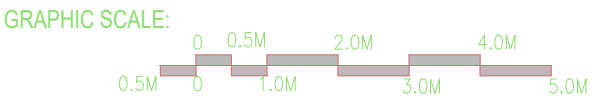
GRAPHIC SCALE:

CLIENT:

KERALA STATE IT INFRASTRUCTURE LTD.

PROJECT:

KERALA TECHNOLOGY INNOVATION ZONE - KSUM

DRAWING TITLE:

BUILDING - 1(WING -A) THIRD FLOOR DATA POINT LAYOUT

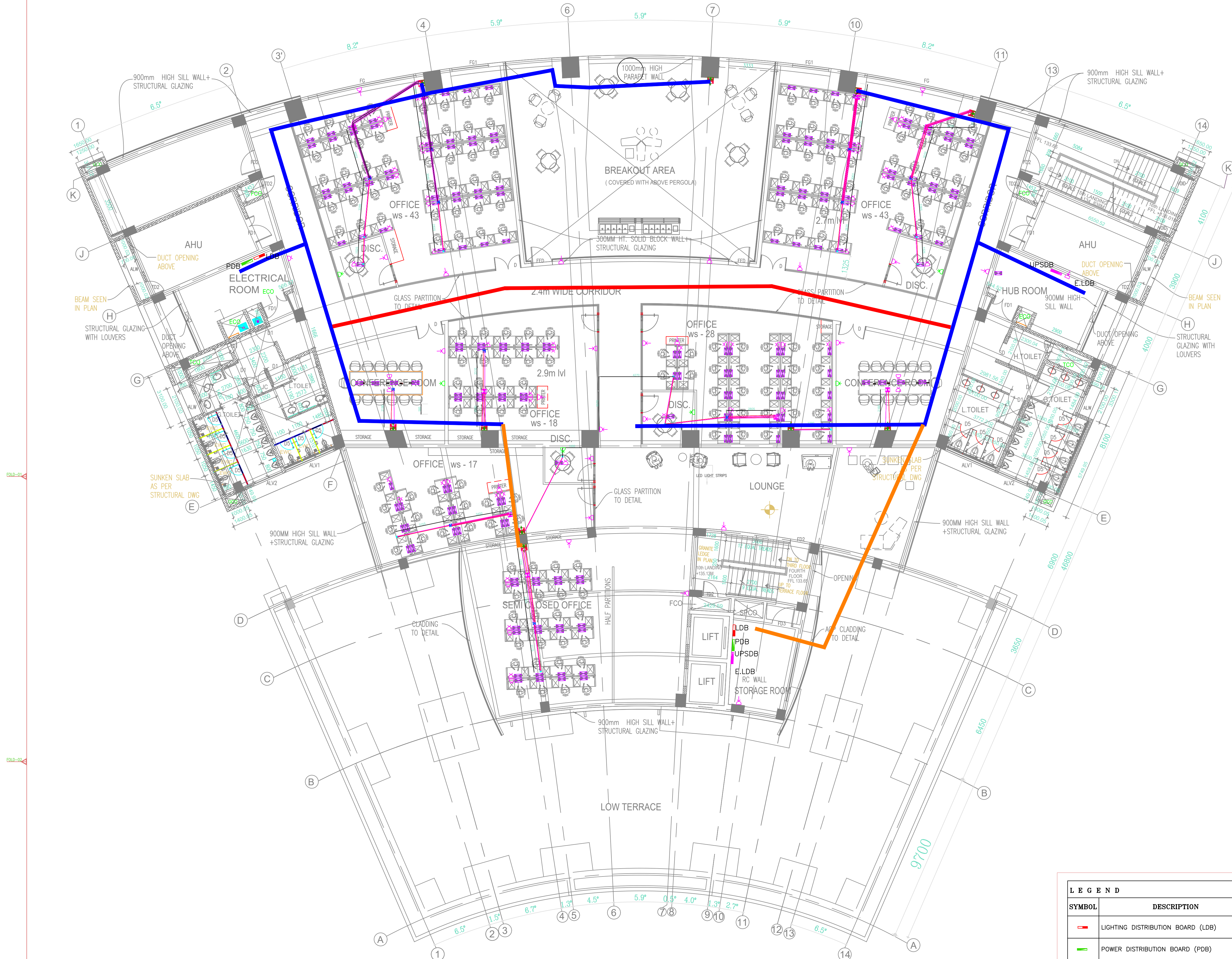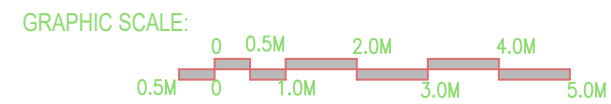| SCALE : 1:100 | SUBMITTED BY : KEECHERY | **REV** |
| DATE : 11.10.2022 | | |
| DRAWING NO: SUV-KRL-WA-ELC-3F-PWR-22 | | **R2** |

Design | Interiors | Engineering | Construction management

C.R.Narayana Rao (Consultants) Private Limited

No. 10, Karpagambal Nagar, Mylapore, Chennai-600 004, India. www.crn.co.in

CRN
C R NARAYANA RAO

L E G E N D:-

SYMBOL	DESCRIPTION
	2Nos. 6/16A SOCKET CONTROLLED BY 16A SWITCH (UPS)
	6A SOCKET CONTROLLED BY 6A SWITCH (RAWPOWER)
	6/16A SOCKET CONTROLLED BY 16A SWITCH. (RAWPOWER)
	DATA POINT

BUILDING - 1(WING -A)-FF DATA POINT LAYOUT

LEGEND:-

SYMBOL	DISCRIPTION
	UPS & RAW POWER
	400X400MM GI JUNCTION BOX
	225X225MM GI JUNCTION BOX
	150X150MM GI JUNCTION BOX
	75X75MM GI JUNCTION BOX
	300MM CABLE TRAY (UPS & RAW POWER)
	EXISITING CABLE TRAY (UPS & RAW POWER)
	150 MM CABLE TRAY (UPS & RAW POWER)
	25mm UPS RIGID PVC CONDUIT (UPS)
	25mm RAW POWER RIGID PVC CONDUIT (RAW)
	VERTICAL DROP

L E G E N D:-

SYMBOL	DESCRIPTION
	6A SOCKET CONTROLLED BY 6A SWITCH (RAWPOWER)
	6/16A SOCKET CONTROLLED BY 16A SWITCH. (RAWPOWER)
	2Nos. 6/16A SOCKET CONTROLLED BY 16A SWITCH (UPSPOWER)
	DATA POINT

NOTES:-

1. HUMPS AND UNLEVELED FLOOR MUST BE HACKED TO ENSURE ACCURATE LEVELING OF THE RACEWAY.
2. THE END POINTS OF RACEWAY SHOULD BE PROTECTED WITH SUITABLE RUBBER WASHERS TO AVOID THE DIRECT CONTACT OF THE SHARP EDGE.
3. USE RIBBON SCREED ON WHICH THE RACEWAYS ARE TO BE LAID TO GIVE FULL SUPPORT OF THE RACEWAY BASE AND TO PREVENT NOISE WHEN WALKED ON.
4. WHEN THE RACEWAYS ARE SET IN THE POSITION AND LEVELED, THEY SHOULD BE SECURELY FASTENED TO THE FLOOR BY MEANS OF FIXING FLOOR BRACKETS/SUPPORTS BY USING SUITABLE ADEQUATE AL. STRIPS.
5. DIFFERENT CIRCUIT OF SAME PHASE MAY BE TAKEN IN SAME CONDUIT PROVIDED THE NUMBER OF WIRES DRAWN INTO THE CONDUITS IS WITHIN THE PERMISSIBLE LIMIT.
6. THE RACEWAY SHALL BE PROTECTED WITH AN ADHESIVE BASED FILM TO PREVENT THEM FROM BEING STAINED BY WET CEMENT BEFORE SCREEDING COMMENCES.
7. CIRCUIT OF ATLEAST DIFFERENT PHASES MAY BE TAKEN IN SEPARATE CONDUIT.
8. THE RACEWAY SHALL BE EARTHED AT THE BOXES AND AT THE JOINTS WITH 14SWG BARE COPPER WIRE WITH SCREWS.
9. JOINTS SHOULD BE SEALED WITH METAL –TO –METAL SEALENT TO PREVENT SCREED SEEPAGE IN TO THE SYSTEM
10. POP BOX SHALL BE PROVIDED IN CABINS AND MEETING ROOMS AS PER BOQ AND AS PER SITE REQUIREMENTS
11. UPS & RAW POWER CIRCUITS SHOULD BE SEGREGATED.

THE EXACT FINAL ROUTING & QUANTITIES OF FLOOR TRUNKING CHANNEL SHALL BE AS PER OVER ALL INTERIOR FURNITURE LAYOUT AND TO SUIT SITE CONDITION AS REQUIRED AND ALSO COORDINATED WITH IT TEAM FOR IT RACEWAY.

REV.	DESCRIPTION	DATE	BY	CHD.
R2	ISSUED FOR EXECUTION	11.10.2023	KEC	
R1	ISSUED FOR CONSTRUCTION	06.08.2022	KEC	CRN

A M E N D M E N T

GRAPHIC SCALE:

BUILDING - 1(WING -A)-4F DATA POINT LAYOUT

L E G E N D

SYMBOL	DESCRIPTION
	LIGHTING DISTRIBUTION BOARD (LDB)
	POWER DISTRIBUTION BOARD (PDB)
	UPS DISTRIBUTION BOARD (UPS DB)
	LIGHTING DISTRIBUTION BOARD (LDB)