रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड

पश्चिमी क्षेत्र

RAILTEL CORPORATION OF INDIA LIMITED

Western Region

ई-निविदा दस्तावेज़

E-TENDER DOCUMENT

ई-निविदा सं.: रेलटेल/निविदा/खु.नि./प.क्षे./01/2024-25/ कमरे का स्थानांतरण

E-Tender No. : RailTel/Tender/OT/WR/01/2024-25/Shifting of Rooms

दिनांक/Date**: 11.12.2024**

कार्य का नाम:- एसडीएच-एनओसी और ग्राउंड फ्लोर उपकरण कक्ष परिसंपत्तियों का स्थानांतरण।

Name of the Work: - Shifting of SDH-NOC and Ground floor Equipment Room Assets.

कार्यालय का पता :-	**Office Address** :-
प्रधान कार्यकारी निदेशक	Principal Executive Director
पश्चिमी क्षेत्र, रेलटेल कॉरपोरेशन ऑफ इंडिया लिमिटेड	Western Region, RailTel Corporation of India
पश्चिमी रेलवे सूक्ष्म तरंग प्रांगण,	Western Railway Microwave Complex,
सेनापति बापट मार्ग, महालक्ष्मी (पश्चिम),	Senapati Bapat Marg, Mahalaxmi (West)
मुंबई – 400013	Mumbai - 400013

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ई-निविदा सूचना/E- TENDER NOTICE

रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड, पश्चिम रेलवे सूक्ष्म तरंग प्रांगण, सेनापति बापट मार्ग, महालक्ष्मी (पश्चिम),मुंबई-400013, एसडीएच-एनओसी और ग्राउंड फ्लोर उपकरण कक्ष परिसंपत्तियों का स्थानांतरण के लिए खुली ई-निविदा आमंत्रित करता है।

RailTel Corporation of India Ltd., Western Railway Microwave Compound, Senapati Bapat Marg, Mahalaxmi (West), Mumbai–400013 invites Open E-Tender for the work of Shifting of SDH-NOC and Ground floor Equipment Room Assets..

1	ई-निविदा संख्या/E-Tender No.	रेलटेल/निविदा/खु.नि./प.क्षे./01/2024-25/ कमरे का स्थानांतरण RailTel/Tender/OT/WR/01/2024-25/Shifting of Rooms
2	निविदा दस्तावेजों को जमा करने की अंतिम तिथि और समय /Last date & time for submission of tender documents	**01.01.2025 तक/up to 15:00 बजे/hrs**
3	निविदा दस्तावेजों के खुलने की तिथि और समय /Opening date & time of tender documents.	**01.01.2025 को/at 15:30 बजे/hrs.**
4	प्रस्तावों की वैध्यता /Validity of offer	**90 दिन/days**-निविदा खुलने की तिथि से/from the date of opening of tender.
5	अनुमानित लागत /Approximate Cost	**रु./**Rs**. 2,70,09,505/-**
6	निविदा दस्तावेज की लागत/Cost of Tender document	NIL
7	बयाना राशि जमा/Earnest Money Deposit	**रु./Rs. 5,41,000/-**

8	कार्य पूर्ण करने की अवधि /Work Completion period	एलओए की तारीख से/ from date of LOA -**02 महीने /Months**
9	निविदा दस्तावेजों की उपलब्धता और निविदा दस्तावेजों को जमा करने के लिए वेब पता /Web address for availability of tender documents and submission of tender documents	https://railtel.enivida.com
10	बिडिंग प्रारंभ तिथि /Biding Start Date	**11.12.2024**

(i) दरों में कर शामिल होना चाहिए, हालांकि, बोली लगाने वाले द्वारा लगाए गए सभी करों का विवरण अलग से दिखाना है। निविदाकर्ता को अपने "कर बीजक" जमा करते समय भी सभी करों का विवरण प्रस्तुत करना होगा। निविदाकर्ता को अपने "कर चालान" जमा करते समय अपना जीएसटीआईएन नंबर भी जमा करना होगा। इसके अलावा, ठेकेदार को राज्यों के लिए जीएसटीआईएन पंजीकरण प्रमाण पत्र की प्रति ,जहां लागू हो, प्रस्तुत करनी है। पीएफ खाता और ईएसआई पंजीकरण संख्या ठेकेदार के पास भी अवश्य उपलब्ध होना चाहिए। सभी वैधानिक प्रावधान ठेकेदार द्वारा किए जाने हैं। यदि सफल निविदाकार सीजीएसटी/आईजीएसटी/यूटीजीएसटी/एसजीएसटी अधिनियम के तहत पंजीकृत होने के लिए उत्तरदायी नहीं है, तो रेलटेल आरसीएम के तहत उसके/उनके बिल से लागू जीएसटी काटेगा और संबंधित कर प्राधिकरण को जमा करेगा। विक्रेता को जीएसटी रिटर्न अवश्य दाखिल करना है और जीएसटी प्रक्रिया के अनुसार रेलटेल खाते में जीएसटी का क्रेडिट अवश्य ट्रांसफर करना है।

The rates should be inclusive of taxes, however, breakup of all the taxes charged by the bidder shall be shown separately. The tenderer has to submit the breakup of all taxes at the time of submission of their “Tax invoices” also. The tenderer has also to submit their GSTIN No. at the time of submissions of their “Tax invoices”. In addition to it, the contractor should submit copy of GSTIN registration certificate for the states wherever applicable.PF Account & ESI registration no. should also be available with the contractor. All the statutory provisions have to be made by the contractor. In case of the successful tenderer is not liable to be registered under CGST/IGST/UTGST/SGST Act, the RailTel shall deduct the applicable GST from his/their bill under RCM and deposit the same to the concerned tax authority. Vendor should file GST return and transfer credit of GST in RailTel account as per GST procedure.

(ii) सभी भविष्य की जानकारी अर्थात इस निविदा के लिए शुद्धिपत्र/परिशिष्ट/संशोधन आदि केवल ई-निविदा पोर्टल पर ही पोस्ट किए जाएंगे।

All future information viz. corrigendum/addendum/amendments etc. for this tender shall be posted on e-tender portal only.

(iii) प्रस्ताव उक्त तिथि को उन बोलीदाताओं की उपस्थिति में **"ऑनलाइन"** खोले जाएंगे, जो उपस्थित होना चाहते हैं। यदि उक्त तिथि को अवकाश होता है तो उसे अगले कार्य दिवस पर खोला जायेगा ।

The offers shall be opened **"ONLINE"** on above said date, in the presence of those bidders, who choose to be present. If the above said date happens to be a holiday, the same shall be opened on the next working day.

(iv) देर से/विलंबित/अपूर्ण निविदाएं और ईएमडी और निविदा दस्तावेज शुल्क पर घोषणा के बिना निविदाएं सरसरी तौर पर खारिज कर दी जाएंगी।

Late/Delayed/incomplete tenders and tenders without declaration on EMD and tender document fee will be summarily rejected.

(v) निविदा केवल वेबसाइट https://railtel.enivida.com/ के माध्यम से देखी और जमा की जा सकती है।

निविदा दस्तावेज की मुद्रित प्रति रेलटेल कार्यालय से नहीं बेची जाएगी। निविदा दस्तावेज रेलटेल की वेबसाइट www.railtelindia.com पर देखे जा सकते हैं।

Tender can be viewed and submitted through website https://railtel.enivida.com/ only. Printed copy of tender document will not be sold from RailTel Office. Tender document can be seen on RailTel's website www.railtelindia.com

(vi) ई-निविदा के संबंध में निविदा दस्तावेज लागत (टीडीसी) और बयाना जमा (ईएमडी) का भुगतान केवल आईआरईपीएस पोर्टल पर उपलब्ध विकल्प के माध्यम से ऑनलाइन ही स्वीकार किया जाएगा।

Payment of Tender Document Cost (TDC) and Earnest Money Deposit (EMD), in respect of e-tendering, will be accepted online through option available on ENivida portal only.

(vii) निविदा दस्तावेज में उल्लिखित पात्रता मानदंड को पूरा करने के लिए निविदाकर्ता अपने दावे के समर्थन में दस्तावेज प्रस्तुत करेगा। निविदाकर्ता द्वारा प्रस्तुत किए गए प्रमाण-पत्रों के समर्थन में दस्तावेजों/प्रमाणपत्रों की प्रति के प्रत्येक पृष्ठ को निविदाकर्ता या निविदाकर्ता फर्म के अधिकृत प्रतिनिधि द्वारा स्व-सत्यापित/डिजिटल रूप से हस्ताक्षरित किया जाएगा। स्व-सत्यापन में हस्ताक्षर, मुहर और तिथि (प्रत्येक पृष्ठ पर) शामिल होगी। निविदाकर्ता द्वारा स्पष्ट रूप से "निर्धारित पात्रता मानदंड को पूरा करने के दावे का समर्थन करने वाले दस्तावेज" के रूप में स्पष्ट रूप से घोषित किए गए दस्तावेजों पर ही उनकी निविदा का मूल्यांकन करने के लिए विचार किया जाएगा।

The tenderer shall submit documents in support of his/their claim to fulfil the eligibility criteria as mentioned in the tender document. Each page of copy of documents / certificates in support of credentials, submitted by tenderer, shall be self-attested /

digitally signed by the tenderer or authorized representative of the tendering firm. Self – attestation shall include signature, stamp and date (On each page). Only those documents which are declared explicitly by the tenderer as “documents supporting the claim of qualifying the laid down eligibility criteria”, will be considered for evaluating his/their tender.

(viii) निविदाकर्ता एक गैर-न्यायिक स्टाम्प पेपर पर एक नोटरीकृत हलफनामा प्रस्तुत करेंगे, जिसमें कहा जाएगा कि वे अयोग्य ठहराए जाने के लिए उत्तरदायी नहीं हैं और बोली के साथ जमा किए गए उनके सभी विवरण/दस्तावेज सत्य और तथ्यात्मक हैं। बोलीदाता द्वारा प्रस्तुत किए जाने वाले हलफनामे का मानक प्रारूप निविदा दस्तावेज (फॉर्म 15) में दिया गया है। बोलीदाता द्वारा शपथ पत्र प्रस्तुत न करने पर उसकी/उनकी बोली को सरसरी तौर में अस्वीकार कर दिया जाएगा। और यह अनिवार्य रूप से निविदाकार के लिए अनिवार्य होगा कि वह सहायक दस्तावेजों की पहचान करें, उनका उल्लेख करें और उन्हें विधिवत स्वप्रमाणित करें, जिसके द्वारा वे निविदा दस्तावेज में उल्लिखित योग्यता मानदंड को पूरा कर रहे हैं।

The tenderers shall submit a notarized affidavit on a non-judicial stamp paper stating that they are not liable to disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is given in tender document **(Form 15)**. Non submission of an affidavit by the bidder shall result in summarily rejection of his/their bid. And it shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.

कार्यकारी निदेशक /
Principal Executive Director,
पश्चिमी क्षेत्र/Western Region,
कृते रेलटेल कॉर्पोरेशन ऑफ इंडिया लिमिटेड /
For and on behalf of RailTel Corporation of India Limited

CHECKLIST FOR SUBMISSION OF OFFER

Tender should submit their offer on online only, on website https://railtel.enivida.com/

Sr. No.	Item	Remarks (Submitted/ Not Submitted)
1	Tender Document Cost (TDC) (On line payment)	
2	Earnest Money Deposit (EMD) (On line payment)	
3	Offer Letter duly signed by authorized signatory (Form 1)	
4	Upload Digitally Signed Copy of Tender Document/ Corrigenda/Addenda	
5	Eligibility / Credential Certificate (For the work above Rs. 50 Lakh)	
6	Affidavit Form No. 15 (duly Notarized)	
7	Power of Attorney to Signing the Bid	
8	GST Registration Details	
9	Break-up of taxes/duties as per proforma	
10	Additional Documents enclosed with offer, if any	

RailTel's Bank account details for Tender Document Cost & Earnest money Deposit are as below:-

1	Name of the Branch & Address	State Bank of India, Churchgate Branch, Maharshi Karve Marg, Mumbai- 400 020
2	Name of Account Holder	RailTel Corporation of India Limited
3	Account No.	11037321307
4	IFSC Code	SBIN0001821
5	Branch Code	001821

Signature of the Tenderer

CHAPTER-1 PREAMBLE

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1.13 Performance Bank Guarantee

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Preamble

1.0 Name of work: Shifting of SDH-NOC and Ground floor Equipment Room Assets.

1.1 Scope of Work: As per Schedule of Requirement (SOR) of Shifting of SDH-NOC and Ground floor Equipment Room Assets.

The scope of work shall broadly comprise of

(a) Supply, dismantling, shifting, installation, testing and commissioning of all assets including existing assets from existing SDH NOC room to newly constructed SDH NOC room including all the accessories and all other items required to meet the end objective which includes Networking and Electrical works.

(b) Supply, dismantling, construction of False ceiling and False flooring etc including shifting, installation, testing and commissioning of all assets including existing assets from existing Equipment room at Ground floor to vacant existing SDH NOC room including all the accessories and all other items required to meet the end objective which includes Networking, Civil and Electrical works.

Contractor shall deploy multiple teams to execute work simultaneously and completion of all work in stipulated due timeline.

1.2 Tender Bid

The e-tender can be viewed and submitted through web site https://railtel.enivida.com/ only. The tenderer / bidder must have Class-III Digital signature Certificate and must be registered on ENivida portal. Only registered tenderer/bidder can participate in e-tendering. All relevant documents must be uploaded at the time of participating in e-tendering. Manual offers are not allowed for e-tender and any such manual offer received shall not be opened/accepted.

Last date& time of submission of queries/clarifications: One week before bid start date. It is requested that any queries/clarifications regarding the tender may be sent through e-mail to pratyush@railtelindia.com (in word format) by authorized person only.

1.3 Qualifying Criteria:

For qualifying in the tender, the tenderer shall be required to meet the eligibility requirement as given in Para 3.16 of tender document. Fulfilling of eligibility criteria as mentioned in the tender document is pre-requisite for the consideration of the offer of the tenderer.

1.4 Last date of Submission

The tenderer shall submit their offer online only up to date mentioned in e-Tender Notice.

1.5 Date of Opening of Tender

The tenders will be opened as per schedule mentioned in e-tender notice at the address as below: - Principal Executive Director, RailTel Corporation of India Limited, Western Railway Microwave Complex, Senapati Bapat Marg, Mahalaxmi, Mumbai - 400 013. Phone: 91 (22) 24923907, Fax 91 (22) 24923913.

1.6 RailTel reserves the right:-

a) To verify, if so desired, the correctness of documentary evidence furnished by the tenderer.

b) To carry out capability assessment of the bidder(s) including referral to in-house information.

c) RailTel shall not be responsible for any delay in the receipt of tender and reserves the right to accept/reject any or all tenders.

d) To change / modify the existing location/site of the work as per requirement.

1.7 Work Load:

The tenderer to submit the present work load of the telecom contracts in hand as per the format (Form No 9). The performance of the tenderer with regard to satisfactory execution of more than one contract simultaneously in the past shall be taken into account.

1.8 Validity of Offer

The tenderer shall keep the offer open as mentioned in e-tender notice. Within that period the tenderer, can't withdraw his offer. This period can be extended further, if required, by mutual agreement from time to time. Any contravention of the above condition will make the tenderer liable for forfeiture of his Earnest Money.

1.9 Completion Period of Work:

As mentioned in e-Tender Notice.

1.10 Address for correspondence :-

Principal Executive Director,
RailTel Corporation of India Limited,
Western Railway Microwave Complex,
Senapati Bapat Marg, Mahalaxmi (W), Mumbai - 400 013
Phone: 91 (22) 24923907, Fax 91 (22) 24923913

1.11 Earnest Money :

(i) Earnest Money as per Tender Notice shall be submitted online only.

(ii) The EMD may be forfeited if a bidder withdraws his offer or modifies the terms and conditions of the offer before validity period and in the case of a successful bidder, if the bidder fails to accept the Letter of Acceptance and furnish Performance Security as per time lime line given.

(iii) Tenders not accompanied by Earnest Money shall be summarily rejected.

(iv) Earnest Money of the unsuccessful bidder will be discharged/returned as promptly as possible.

1.12 Security Deposit

Security deposit shall be 5% of the contract value as detailed in Para 4.16 of tender document. The amount shall be recovered from the running bills of the contract (@10% of per bill amount) and no other mode of collecting SD shall be accepted.

1.13 Performance Bank Guarantee

The successful bidder is required to give a Performance Bank Guarantee in the form of an irrevocable Bank Guarantee amounting to 5% of the contract value for schedule as perform for successful completion of the work as detailed in Para 4.16.2 of Tender document No other form of bank guarantee will be accepted except schedule bank guarantee.

Note:

1) A separate advice of the BG will invariably be sent by the BG issuing bank to the RailTel's Bank through SFMS and only after this the BG will become acceptable to RailTel. It is therefore in own interest of bidder to obtain RailTel's bank IFSC code, its branch and address and advise these particulars to the BG issuing bank and request them to send advice of BG through SFMS to the RailTel's Bank.

2) Any performance security up to a value of Rs. 5 Lakhs is to be submitted through online transfer only.

No Interest on Earnest Money and Performance Security:

No interest shall be paid on the amount of earnest money and Performance Security held by RailTel, at any stage.

1.14 Specifications

Reference of specifications of the important equipments and materials required for execution of the contract is given in the Technical Specification. The work shall be executed in compliance with all the technical requirements given therein. Drawings are indicative. In case of any mismatch or confusion, the decision of EIC shall be final.

1.15 Schedule of Requirement

The various items to be supplied and execution of the work by the tenderer for the section are indicated in Schedule of Requirement of this tender document. Payment of supplied items shall be done along with the payment of execution after the measurement.

1.16 Work to be done by RailTel

To arrange clearances/Permissions from Railway/PSU in connection with execution of work. Provision of maintenance blocks on demand of contractor through Site Engineer/In-charge to work on live networks.

1.17 Materials to be supplied by RailTel :

No item will be supplied by RailTel. Complete Supply, Installation, Testing & Commissioning is under scope of contractor.

1.17.1 Transportation of materials: The contactor shall be responsible for transporting the materials required to execute the work under this contract.

1.17.2 Disposal of Empty Cable Drums: The contractor shall be responsible to dispose of the empty cable drums after laying of the cables. The cost of various sizes of empty cable drums recoverable from the contractor.

1.17.2.1 It shall be obligatory on part of the contractor to dispose off the empty cable drums at his/their level and the amount fixed at the rate of Rs. 259/- per drum for various empty cable drums shall be recovered from the bill for the work for which the drum(s) was/were issued or from any other amount due to the contractor or the Security Deposit.

1.17.2.2 The contractor shall not be allowed to dump the empty cable drums in RailTel/Railway/Public place which may cause inconvenience to the department / public. If the contractor does not dispose off the empty cable drums within 7 days of the becoming empty, the department shall be at liberty to dispose off the drums in any manner deemed fit and also recover the amount fixed in this contract from the bill/ security deposit/ any other amount due to the contractor.

1.17.2.3 Supply of materials: There are some materials required to be supplied by the contractor for execution of works under this contract like Bricks, cement, wire, Mesh and steel for protection, etc., besides using other consumables which do/ do not become the part of the asset, The contractor shall be strictly in accordance with the specifications.

1.18 Materials to be supplied by Contractor

Any additional small value item which is not mentioned in the SoR but is required to complete the work shall be provided by the contractor without any additional cost.

1.19 Submission

1.19.1 The tenderer shall submit all the required information in the relevant forms attached to this document and suitably numbering each page of the bid documents with a content list indicating availability of various documents with their serial numbers. In the absence of numbering of pages and the content list, there is a likelihood of any important document going unnoticed for which the tenderer shall be solely responsible.

1.19.2 Before submitting a tender the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates he enters in the tender forms are adequate and all inclusive to accord with the provisions for the completion of the entire satisfaction of the Engineer.

1.19.3 Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST/Integrated Goods and Services Tax Axct,2017(IGST)/ Union Goods and Services Tax Axct,2017(UGST)/ respective state's Goods and Services Tax Act (SGST) also, as notified by Central/State Govt. & as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefits of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.

1.19.4 The successful tenderer who is liable to be registered under CGST/IGST/UGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UGST/SGST Act to RCIL immediately after the award of contract without which no payment shall be released to the contractor. The contractor shall be responsible for deposition of applicable GST to the concerned authority.

1.19.5 In case the successful tenderer is not liable to be registered under CGST/IGST/UGST/SGST Act, the RCIL shall deduct the applicable GST from his/ their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.

Labour Cess shall be deducted from bills as applicable under Liability to pay cess under building and other construction workers welfare Act, 1996 and deposited in relevant state where work is being executed.

1.20 Warranty Support

All material supplied & works executed should be covered under warranty as per Para 5.15 and 5.29 of tender document.

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CHAPTER - 2

SCHDELUE OF RATE / REQUIREMENT

(Please see Page No. 246-284)

CHAPTER - 3

INSTRUCTIONS TO TENDERERS AND CONDITIONS OF TENDERING

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INSTRUCTIONS TO TENDERERS AND CONDITIONS OF TENDERING

3.1 GENERAL INSTRUCTIONS

3.1.1 Tender is invited by RailTel, Western Region Mumbai, from established and reliable contractors for the work detailed in chapter 1.

3.1.2 The Special Conditions of Contract, Instructions to Tenderers and Conditions of Tendering, Technical Specifications & Supplement, Preamble including Schedule of Requirements and all Annexures & Forms etc. shall, hereafter, be collectively referred to as the "Tender documents ". These regulations for Tender and Contracts shall be read in conjunction with the General Conditions of contract and shall be subject to modifications, additions or suppression, overwrite by Special conditions of contract and/or special specifications, if any, annexed to the tender document.

3.2 INTERPRETATIONS

The following terms wherever occurring in the tender document and wherever used throughout the execution of the work, shall, unless excluded by or repugnant to the context, have the meaning attributed thereto as follows:

a) "**CONTRACT**" Means the Contract resulting from the acceptance by the Purchaser of this Tender whether in whole or in part.

b) "**CONTRACTOR**" Means the successful Tenderer, i.e., the Tenderer whose Tender has been accepted either in whole or in part.

c) "**CONTRACTOR's REPRESENTATIVE**" Shall mean a person in supervisory capacity who shall be so declared by the Contractor and who shall be authorized under a duly executed power of attorney to receive materials issued by the Purchaser to the Contractor for the works. He shall be responsible for proper execution of works at each or all places and shall take orders from Purchaser's Engineers and carry out the same.

d) "**ENGINEER / ENGINEER-IN-CHARGE**" Shall mean an executive of RailTel in charge of works and shall include the superior executives of RailTel He is responsible for ensuring that all field works covered by the contract are carried out in accordance with approved designs, drawings & specifications and conditions of contract as agreed to.

e) "**ENGINEER'S REPRESENTATIVE** " Shall mean the supervisor of RailTel in direct charge of the works.

f) "**EQUIPMENT**" Means all or any equipment considered necessary by the Purchaser's Engineers for satisfactory operation, as a whole, of the installations.

g) "**MONTH**" Means any consecutive period of thirty days.

h) "**MATERIALS**" Means all equipments, components, fittings and other materials including raw materials required to complete the work..

i) "**PURCHASER**" Means RailTel Corporation of India Limited, Western Railway Microwave Compound, Senapati Bapat Marg, Mahalaxmi-Mumbai- 400 013

j) "**PURCHASER'S ENGINEER**" Means the Principal Executive Director of RailTel or successor who will decide all matters relating to design, manufacture, and installation and commissioning of the plant and equipment at site.

k) "**SUB-CONTRACTOR**" Means an individual or a firm of Contractor or a Company registered under Indian Company Act or an approved supplier of materials to whom the Contractor sublets portions of the contract.

l) **"CONSIGNEE"** Means the person specified in the Acceptance of Tender to whom Stores are to be delivered at the destination.

m) **"INSPECTING OFFICER"** Means the person, or organization specified in the contract for the purpose of inspection of stores of work under the contract and includes his/their authorized representative.

n) **"RailTel" Means** RailTel Corporation of India Limited, Western Region, Western Railway Microwave Complex, Senapati Bapat Marg, Mahalaxmi-Mumbai- 400 013.

o) **"SITE"** Means the areas to be taken up by the permanent works, together with any other area or areas as shall be determined by the Purchaser's Engineer, which may be placed at the disposal of the Contractor for the purpose of the contract and also such area or areas used for store yards, works yards or workshop in proximity of the works as the Purchaser's Engineer may have authorized as an extension of the site, irrespective of the terms and conditions under which they are occupied by the Contractor.

p) "**TENDERER**" Means and includes any firm of engineers or Contractors or any company or body, corporate or otherwise, who submit the Tender which has been invited.

q) "**WORK OR WORKS**" Means all or any of the items of the work for which the Tenderer /Contractor has Tendered/contracted according to the specifications, drawings and Annexure hereto annexed or to be implied there from, or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings, being in conformity with the original specifications, drawings, Annexure and schedules and also such instructions and drawings additional to the aforementioned as may from time to time be issued by the Purchaser's Engineer during the progress of the contracted work.

r) "**Near Relative":**

The near relatives of all RailTel Employees either directly recruited or on deputation are prohibited from participation in tenders and execution of works in the different units of RailTel. The detailed guidelines in this regard are given in the following paragraphs:-

i) The near relatives for this purpose are defined as:

* Members of a Hindu Undivided family,

* They are husband and wife,

* The one is related to the other in the manner as father, mother, son (s) & son's wife (daughter-in-law), Daughter(s), & daughter's husband (son-in-law), brother(s) & brother's wife, sister(s) & sister'(s)husband (brother-in-law).

ii) As per Government of India's CCS Conduct rule 4, no Government servant shall in the discharge of his official duties deal with any matter or sanction any contract to any company or for any other person if any member of his family is employed in that company or firm or under that person or if he or any member of his family is interested in such matter or contract in any other manner and the Govt. Servant shall refer every such matter or contract to his official superior. This clause is applicable to all RailTel employees in view of this as soon as any RailTel employee becomes aware of the above aspect, he must intimate this to the prescribed authority.

iii) The Company or firm or any other person is not permitted to tender for works in RailTel Unit in which his near relative(s) is (are) posted. The tender/work will be cancelled and earnest money/security deposit will be forfeited at any stage whenever it is so noticed. The department will not pay any damages to the company or firm or the concerned person. The company or firm or the person will also be debarred for further participation in the concerned unit.

* The format of the certificate to be given is

"I
……S/o……..r/o……
… hereby certify that none of my relative(s) as defined in the tender document is/ are employed in RailTel unit. In case at any stage, it is found that the information given by me is false/ incorrect, RailTel shall have the

absolute right to take any action as deemed fit/without any prior intimation to me".

s) "**WRITING**" Includes all matters written, typewritten or printed either in whole or in part.

t) "**Constructional Plant**" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or the temporary works (as hereinafter defined) but do not include materials or other things intended to form or forming part of the permanent work. (i) "Temporary Works" shall mean all temporary works of every kind required for the execution, completion and/or maintenance of the works. (ii) "Period of maintenance" shall mean the specified period of the maintenance from the date of completion of the work as certified by the Engineer.

u) Singular and Plural: Works importing the singular number shall also include the plural and vice versa where the context requires.

v) Headings & marginal headings: The headings and marginal headings in these general conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or the contract.

w) **Sub section:** Distance in between two long haul Railway stations**.**

3.3 LOCAL CONDITIONS

3.3.1 It will be imperative on each tenderer to fully acquaint him with all the local conditions and factors which would have any effect on the performance of the contract and cost of the stores. The purchaser shall not entertain any request for clarifications from the tenderer regarding such local conditions. No request for the change of price or time schedule of delivery of stores shall be entertained after the offer is accepted on account of any local condition or factor.

3.3.2 The intending tenderer is advised to study the tender document carefully. Any submission of a quotation by the tenderer shall be deemed to have been done after a careful study and examination of these documents with full understanding of the implication thereof. These conditions and specifications shall be deemed to have been accepted unless otherwise, specifically commented upon by the Tenderer in his quotation. Failure to adhere to anyone or all these instructions may render his offer liable to be ignored without any reference.

3.3.3 Should a tenderer find discrepancies in, or omission from, the drawings or any of the Tender documents or he has any doubt to their meaning, he should at once notify the RailTel who may send a written clarification to all Tenderers.

3.4 COMPLIANCE TO TENDER CONDITIONS, SPECIFICATIONS & DRAWINGS

3.4.1 The tenderer shall indicate Paragraph by Paragraph for each section of the tender document that either his tender complies in every respect with the requirements of each clause and sub clause or if not, precisely how they differ from the requirements of the tender. In later case, the tenderer shall enclose a separate statement as per proforma given, indicating only the deviations for any clause or sub clause of Special Conditions of Contract, Instructions to Tenderers and Conditions of Tendering, Technical Specifications, Preamble etc. which he proposes with justifications for deviations proposed. The purchaser reserves the right to accept or reject these deviations and his decision thereon shall be final (see Form 5).

3.4.2 The equipment offered and execution of work shall be in accordance with the drawings and specifications. Details of variation from the drawings and specifications, if any, should be clearly indicated separately for each annexure with justification for deviations proposed. The Purchaser reserves the right to accept or reject these deviations and his decision thereon shall be final.

3.4.3 Firms should give details of similar works carried out giving details of the name of the project, date of award, length of the section, value of the contract, the original execution period and the actual execution time taken.

3.4.4 The tenderer should serially number all the pages of tender submitted.

3.5 EARNEST MONEY

3.5.1 The tenderer shall furnish an amount given in “Para-1.11 of tender document”

3.5.2 **The Earnest Money should be in any of the following forms**

Earnest Money as per Tender Notice shall be submitted online only.

3.5.3 The tenderers shall hold the offer open till such date as specified in Para 1.8 of the tender document. It being understood that the tender documents have been sold/issued to the tenderer and the tenderer has been permitted to tender in consideration of the stipulation on his part that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to RailTel. If the tenderer fails to observe or comply with the foregoing stipulation, the aforesaid amount deposited as Earnest Money shall be liable to be forfeited by RailTel.

3.5.4 **The Earnest Money may be forfeited**

a) If tenderer withdraws its tender during the period of tender validity specified in Para 1.8 of tender document.

b) In the case of successful tenderer, If the tenderer fails to sign the contract in accordance with Para 5.2 of Special Conditions of Contract and to furnish Performance Bank Guarantee in accordance with Para 1.13 of tender document.

3.5.5 The Earnest Money of unsuccessful tenderer will save as herein before provided, be returned within reasonable time to the unsuccessful tenderer but RailTel shall not be responsible for any loss or depreciation that may happen to the security for the due performance of the above stipulation to keep offer open for the period specified in the tender documents or to the Earnest Money while in their possession nor be liable to pay interest thereon.

3.5.6 If the tender is accepted, the amount of Earnest Money will be held as security deposit for due and faithful fulfillment of contract.

3.5.7 The tender not accompanied by Earnest Money as mentioned in Para 3.5.1 of the tender document will be **summarily rejected**.

3.6 SUBMISSION OF OFFERS

3.6.1 All offers in the prescribed forms should be submitted online before the time and date fixed. Offers submitted after the stipulated time and date will be summarily rejected.

3.6.2 In case the date of opening happens to be a holiday, the tender will be opened at the same time on the next working day.

3.6.3 All offers shall be either type written or written neatly in indelible ink in English. Each page of the offer must be numbered consecutively. A reference to total number of pages comprising the offer must be made at the top right hand corner of the top page. The supporting documents should be submitted either in original or duly signed by the authorized signatory of the tenderer. The original documents shall be produced for verification when called for.

3.6.4 **Quote in Figures and Words**

The tenderer is advised to quote percentage rate above/below/at Par of the RailTel's total estimated cost for SOR. Tenderer should give only one option. In case he gives more than one option, the offer will be summarily rejected.

3.6.5 **Attestation of alterations**

No scribbling is permissible in the tender documents. Tender containing erasures and alterations in the tender documents are liable to be rejected. Any correction made by the tenderer/ tenderers in his/their entries must be signed (not initialled) by him/them.

3.6.6 The tenderer shall submit his tender online. The offer shall consist of the following :-

The tender documents down loaded from web site shall be submitted with each page duly signed and stamped along with digital signature class-III.

i) Offer letter complete. (Form No.1) (i.e., Schedule of Requirements without rate quote)

ii) Earnest Money in prescribed form. (Para 3.5 of tender document)

iii) Constitution of Firm and Power of Attorney (in case of partnership firm).

iv) Clause wise compliance to tender conditions by signing of each page of tender

document& statement of deviations .(Form No.5)

v) Any other information desired to be submitted by the tenderer.

vi) Registration with labor commissioner

vii) GST registration number.

viii) Affidavit as per Form -15

Note: The rate quoted in the offer by the contractor shall be inclusive of all the relevant factors taken into consideration and these should be firm and without any variation clauses.

3.7 CONSTITUTION OF FIRM AND POWER OF ATTORNEY

3.7.1 Any individual(s) signing the tender or other documents connected therewith should specify whether he is signing:-

(a) As sole proprietor of the concern or as attorney of the sole proprietor;

(b) As a partner or partners of the firm;

(c) As a Director, Manager or Secretary in the case of Limited Company duly authorized by a resolution passed by the Board of Directors or in pursuance of the authority conferred by Memorandum of Association.

3.7.2 In the case of a firm not registered under the Indian Partnership Act, all the partners or the attorney duly authorized by all of them should sign the tender and all other connected documents. The original Power of Attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification, if required.

3.7.3 The RailTel will not be bound by Power of Attorney granted by the tenderer or by the changes in the composition of the firm made subsequent to the execution of the contract agreement.

3.7.4 In case where the Power of Attorney partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by Advocate, authorized translators of Courts and Licensed Petition Writers should be supplied by the Contractor(s) while tendering for the work.

3.7.5 The duly notarized Power of Attorney, Partnership Deed, Memorandum of Joint Venture as the case may be in original or duly signed.

3.8 VALIDITY OF OFFER

The tenderer should keep the offers valid for the period as mentioned in Para 1.8 of tender document.

3.9 RATES DURING NEGOTIATION

The tenderer/s shall not increase his/their quoted rates in case the RailTel Administration negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the tenderer/s.

3.10 PERIOD OF COMPLETION AND TIME PROGRESS GRAPH

The works/work are/is to be completed within a period as mentioned in Para 1.9 of the tender document from the date of issue of Letter of Acceptance of the tender.

3.11 OPENING OF TENDER:

The tender will be opened at the time & date of the tender given in the Para1.5,in the presence of such Tenderers/Authorized Representatives who choose to be present

3.12 NON-TRANSFERABILITY AND NON-REFUNDABILITY

The tender documents are not transferable. The cost of tender documents is not refundable.

3.13 ERRORS, OMISSIONS & DISCREPANCIES

The Contractor(s) shall not take any advantage of any mis-interpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the Engineer without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the mis-interpretation shall be entertained.

3.14 WRONG INFORMATION BY TENDERER

If the tenderer/s deliberately gives/give wrong information in his/their tender which creates/create circumstances for the acceptance of his/their tender the RailTel reserves the right to reject such tender at any stage.

3.15 AMENDMENT OF BID DOCUMENTS:

3.15.1 At any time, prior to the date for submission of bids, the RAILTEL may, for any reason whether suo-moto or in response to clarification requested by a prospective Bidder, modify the bid documents by amendments.

3.15.2 The amendments shall be posted on website only. All bidders should download from website. These amendments will be binding on all bidders. Those who are downloading tender document from website should download the clarification also and submit with the tender document.

3.15.3 In order to afford prospective bidders reasonable time to take the amendments into account in preparing their bids, the RAILTEL may, at its discretion, extend the deadline for the submission/opening of bids suitably.

3.16 Qualifying Criteria :

3.16.1 **General**

For work amounting more than Rs.50 lakhs only:

3.16.1.1 The tenderer should submit the details of experience of similar works or services in the projects executed / under execution which should clearly bring out expertise in the work as per Form no. 13.

3.16.1.2 The tenderer/s must submit along with his/their tender, certificates from the original user for whom the project was undertaken, certifying the date of award of contract, date of completion, date of commissioning and the present working state of the system so established and contractual payments received till the date of submission of the tender. The tenderer shall submit these certificates for all the projects that he has executed which only satisfy the minimum requirements in each case. The certificates are to be submitted in original or their true copies duly signed by the tenderer, preferably as per Form no. 2.

3.16.2 Technical Capability and meaning of similar single work:

3.16.2.1 **For work amounting more than 50 lakhs** :Tenderer must have executed works of similar nature, as indicated in para 3.16.2.2 below, successfully and satisfactorily of values as indicated below.

3.16.2.2 **Definition of similar single work is under**

The tenderer must have successfully completed any of the following during

last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
- Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- One similar work each costing not less than the amount equal to 60% of advertised value of the tender.

Similar work means, any IT networking or OFC & Quad Cable or Composite Cable work or any Signalling or Telecommunication work or any electrical work"

The work should have been executed for Govt./PSU/Telecom Services Providers/ Infrastructure Providers.

3.16.3 **Financial:**

For work amounting more than Rs.50 lakhs : The tenderer must have received cumulative turnover in the previous three financial years and the current financial year up to the date of inviting of tender, at least 150% of the advertised value of the tender. The tenderers shall submit Certificates to this effect which may be an attested Certificate from the concerned department / client or Audited Balance Sheet duly certified by the Chartered Accountant/Certificate from Chartered Accountant duly supported by Audited Balance Sheet. (Note: Client certificate from other than Govt. Organization should be duly supported by Form 16A/26AS generated through TRACES of Income Tax Department of India).

3.16.4 **Engineering Organization**

The tenderer shall depute required number of Engineers and experienced supervisors at the given site of work for planning, supervision and execution of the work. The qualification and experience of these proposed personnel should be enclosed along with the bid.

3.16.5 **Construction and Maintenance Machinery**

For work amounting more than Rs.50 lakhs: The tenderer should furnish the details of the machinery and plants to be deployed, in case the tenderer plans to use mechanized trenching.

3.17 EVALUATION OF OFFER.

3.17.1 The authority for the acceptance of the tender rests with the Purchaser. The tenders received will be evaluated by the Purchaser to ascertain the best acceptable tender in the interest of the Purchaser.

3.17.2 However, the purchaser shall not be bound to accept the lowest or any tender. The purchaser reserves the right to accept any tender in respect of the whole or any portion of the work specified in the tender paper or to sub-divide the work among different Tenderers or to reduce the work or to accept any tender for less than the tendered quantities.

Inter se position of the offers will be determined on the basis of total cost on destination basis, which will include basic rate, custom duty, CGST, SGST, IGST, GST, labour cess, freight, insurance and any other charges or cost quoted by the tenderer, including GST payable.

3.18 Make in India:

3.18.1 As per clause no. 3 (b) of the PPP-MII Order dated 16.09.2020, only bidders offering minimum 20% of local content of supply portion of their offered bid (Class-I Local suppliers/bidders-minimum 50% LC and Class-II Local Suppliers/bidders- minimum 20% LC as per PPP-MII Order) are eligible to participate in this tender. Bid of bidders offering less than 20% local content of supply portion of their offered bid will be **SUMMARILY REJECTED**.

3.18.2 As per DPIIT's OM dated 4th March 2021, services such as transportation, insurance, installation, commissioning, training and after sales service support like AMC/CMC etc. can't be claimed as local value addition.

3.18.3 The margin of purchase preference shall be 20% and shall be given to 'Class-I local suppliers / bidders. 'Margin of purchase preference' means the maximum extent to which the price quoted by a Class-I local suppliers/bidders may be above the L1 (Class-II local suppliers/bidders) for the purpose of purchase preference.

3.18.4 In cases of tender with value greater than Rs. 10 crores, the Class- I / Class- II local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content. Contact details of Statutory auditor or cost auditor along with UDIN No. shall be mandatorily mentioned.

The bidder need to declare the percentage of overall local content in quoted supply items as per Form-17 (MII).

For the purpose of this policy, all terms used vide aforesaid policy shall be governed by the definitions specified in Para 2 of the policy document notified by DIPP vide letter No. P-45021/2/2017-B.E.-II dated 16.09.2020.

3.19 AGREEMENT

The successful tenderer/s shall be required to execute an agreement with RailTel for carrying out the work as per the tender document.

3.20 TENDERER'S ADDRESS

Tenderer shall state in the tender his postal address with PIN, Telephone No., Fax No. email id if any, fully and clearly. Any communication sent to the tenderers by post at his said address shall be deemed to have reached the tenderer duly & timely, notwithstanding the fact that the communication could not reach the tenderer at all or in

time for whatever reason. Important documents shall be sent by Registered Post/Courier.

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CHAPTER - 4

GENERAL CONDITIONS OF CONTRACT

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GENERAL CONDITIONS OF CONTRACT

DEFINITIONS AND INTERPRETATION

4.1 Definitions:

4.1.1 The meaning of terms/interpretations shall be taken as defined in Chapter- 3,

(INSTRUCTIONS TO TENDERERS AND CONDITIONS OF TENDERING).

4.2 General Obligations

4.2.1 Execution Co-relation and intent of contract documents: The contract documents shall be signed in triplicate by the RailTel and the Contractor. The contract documents are complementary, and what is called for by any one shall be as binding as if called for all; the intention of the documents is to include all labour and materials, equipments and transportation necessary for the proper execution of work. Materials or work not covered by or properly inferable from any heading or class of the specifications shall not be supplied by the RailTel to the contractors unless distinctly specified in the contract documents. Materials or works described in words, which so applied, have a well-known technical or trade meaning shall be held to refer to such recognized standards.

4.2.2 If a work is transferred from the jurisdiction of one region of RailTel to another region or to a Project authority or vice versa while the contract is in subsistence, the contract shall be binding on the Contractor and the other region in the same manner & take effect in all respects as if the Contractor and the other region were parties thereto from the inception and the corresponding officer or the competent authority in the other region will exercise the same powers and enjoy the same authority as conferred to the Predecessor RailTel/Project under the original contract/agreement entered into.

4.2.3 If for administrative or other reasons the contract is transferred to the other region of RailTel the contract shall notwithstanding anything contained herein contrary thereto, be binding on the Contractor and the other region in the same manner and take effect in all respects as if the contractor and the other region had been parties thereto from the date of this contract.

4.3 Law governing the contract

4.3.1 The Contract shall be governed by the law for the time being in force in the Republic of India.

4.3.2 Compliance to regulations and by-laws – The Contractor shall conform to the provision of any statute relating to the works and regulations and bye-laws of any local authority and of any water and lighting companies or undertakings, with whose system the work is proposed to be connected and shall before making any variation from the drawings or the specifications that may be necessitated by so confirming give to the Engineer notice specifying the variation proposed to be made and the reason for making the variation and shall not carry out such variation until he has received instructions from the Engineer in respect thereof. The Contractor shall be bound to give all notices required by statue, regulations or by-laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

4.4 Communications to be in writing – All notices, communications, references and complaints made by the RailTel or the Engineer or the Engineer's representative or the Contractor interest concerning the works shall be in writing and no notice, communication, references or complaint not in writing shall be recognized.

4.5 Service of Notices on Contractors – The Contractor shall furnish to the Principal Executive Director/RailTel the name, designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given to the contract if delivered to the Contractor or his authorized agent or left at or posted to the address so given and shall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by contractor to the Principal Executive Director/RailTel.

4.6 Occupation and use of land – No land belonging to or in the possession of the Railway/RailTel shall be occupied by the contractor without the permission of the RailTel. The Contractor shall not use, or allow to be used; the site for any purposes other than that of executing the works.

4.7 Assignment or subletting of contract - The Contractor shall not assign or sublet the contract or any part thereof or allow any person to become interested therein in any

manner whatsoever without the special permission in writing of the RailTel. Any breach of this condition shall entitle the RailTel to rescind the contract under Para 4.62 of these conditions and also render the contractor liable for payment to the RailTel in respect of any loss or damage arising or ensuring from such cancellation. Provided always that execution of the details of the work by petty contractor under the direct and personal supervision of the contractor or his agent shall not be deemed to be sub-letting under this clause. The permitted subletting of work by the contractor shall not establish any contractual relationship between the sub-contractor and the RailTel and shall not relieve the Contractor of any responsibility under the Contract.

4.8 Assistance by the RailTel for the stores to be obtained by the Contractor-

Owing to difficulty in obtaining certain materials (including Tools & Plants) in the market, the RailTel may have agreed without any liability therefore, to endeavor to obtain or assist the Contractor in obtaining the required quantities of such materials as may be specified in the Tender. In the event of delay or failure in obtaining the required quantities of the aforesaid materials, the Contractor shall not be deemed absolved of his own responsibility and shall keep in touch with the day-to-day position regarding their availability and accordingly adjust progress of works including employment of labour and the RailTel shall not in any way be liable for the supply of materials or for the non-supply thereof for any reasons whatsoever not for any loss or damage arising in consequence of such delay or non-supply.

4.9 Railway Passes – No free Railway passes shall be issued by the RailTel to the Contractor or any of his employee/worker.

4.10 Carriage of materials – No forwarding orders shall be issued by the RailTel for the conveyance of Contractor's materials, tools and plant by Rail which may be required for use in the works and the contractor shall pay full freight at public tariff rates therefore.

4.11 Force Majeure Clause -If at any time, during the continuance of this Contract, the performance, in whole or part, by either party, of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, act of the public enemy, Civil Commotion, Sabotage, Fires, Floods, Earth quakes, explosions, strikes, epidemics, quarantine restrictions, lockouts, any statute, statutory rules/ regulations, order of requisitions issued by any Government Department or Competent Authority of acts of God (here-in-after referred to as event) then provided notice of the happening of any such event is given by either party to the other within twenty one days from the date of occurrence thereof, neither party shall, by reason of such event, be entitled to terminate this Contract nor shall either party have any claim for damage against the

other in respect of such non- performance or delay in performance, and the obligations under the Contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, provided further that if the performance in whole or part of any obligation under this Contract is prevented or delayed by reason of any such event beyond a period as mutually agreed to by the RailTel and the Contractor after any event or 60 days in the absence of such an agreement whichever is more, either party may at its option terminate the Contract provided also that if the contract is so terminated under this clause the RailTel may at the time of such termination take over from the Contractor at prices as provided for in the contract, all works executed or works under execution.

4.12 **Representation on Works** – The Contractor shall, when he is not personally present on the site of the works place, keep a responsible agent at the works during working hours who shall, on receiving reasonable notice, present himself to the Principal Executive Director/RailTel and orders given by the Engineer or the Engineer's Representative to the agent shall be deemed to have the same force as if they had been given to the Contractor. Before absenting himself, the Contractor shall furnish the name and address of his agent for the purpose of this clause and failure on the part of the Contractor to comply with this provision at any time will entitle the RailTel to rescind the contract under Para 4.62 of these conditions.

4.13 **Relics and Treasures** – All gold, silver, oil and other minerals of any description and all precious stones, coins, treasures, relics, antiquities and other similar things which shall be found in or upon the site shall be property of the RailTel and the Contractor shall duly preserve the same to the satisfaction of the RailTel and shall from time to time deliver the same to such person or persons as the RailTel may appoint to receive the same.

4.14 **Excavated material** – The Contractor shall not sell or otherwise dispose of or remove except for the purpose of this contract, the sand, stone, clay ballast, earth, rock or other substances or materials which may be obtained from any excavation made for the purpose of the works or any building or produced upon the site at the time of delivery of the possession thereof but all the substances, materials, buildings, and produce shall be the property of the RailTel provided that the Contractor may, with the permission of the Principal Executive Director/RailTel, use the same for the purpose of the works either free of cost or pay the cost of the same at such rates as may be determined by the Engineer.

4.15 **Indemnity by Contractors** – The Contract shall indemnify and save harmless the RailTel from and against all actions, suit proceedings, losses, costs, damages, charges, claims, and demands of every nature and description brought or recovered

against the RailTel by reason of any act or omission of the Contractor, his agents or employees, in the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

4.16 Security Deposit

4.16.1 The Earnest Money deposited by the Contractor with his tender will be retained by the RailTel as part of security for the due and faithful fulfillment of the contract by the contractor. The balance to make up the security deposit, the rates for which are given below, shall be recovered by percentage deduction from the Contractor's "on account" bills.

(a) Unless otherwise specified in the special conditions, if any, the Security Deposit/rate of recovery/mode of recovery shall be as under:-

(i) Security Deposit for each work should be 5% of the contract value.

(ii) The rate of recovery shall be at the rate of 10% of the bill amount till the full security deposit is recovered.

(iii) Security Deposits will be recovered only from the running bills of the contract and no other mode of collecting SD such as SD in the form of instruments like BG, FD etc. shall be accepted towards Security Deposit.

(b) Refund of SD –The Security Deposit for execution of work shall be released after a period of 12 months commencing immediately after commissioning of the work and issue of Provisional Acceptance Certificate, which will be enforceable by RailTel, and issue of the certificate of final acceptance of entire system specified in the tender and submission of PBG for the maintenance obligations, provided that all the stipulations of the clause have been fulfilled by the Contractor and all claim and demands made against the RailTel for and in respect of damage or loss by, from or in consequence of the works have been finally satisfied, provided further that in the event of different maintenance periods having become applicable to different parts of the works pursuant to Para 4.48.1 of these condition, the expression "expiration of the period of warranty" shall for the purpose of this clause, be deemed to mean the expiry of the latest of such periods. The security deposit shall be released only after the expiry of the maintenance period and after passing the final bill based on "No Claim Certificate".

It has now been decided that:

i) After the work is physically completed, security deposit recovered from the running bills of a contractor can be returned to him if he so desires, in lieu of irrevocable Bank Guarantee for equivalent amount to be submitted by him.

ii) In case of contracts of value Rs. 50 crore and above, irrevocable Bank Guarantee can also be accepted as a mode of obtaining security deposit.

(c) No interest will be payable upon the Earnest Money and Security Deposit or amount payable to the Contractor under the Contract.

(d) Should the tenderer fail to observe or comply with the foregoing stipulation the amount deposited as security for the due performance of the above stipulation shall be forfeited by the RailTel.

4.16.2 INTRODUCTION OF PERFORMANCE GUARANTEES (P.G.):

The procedure for obtaining Performance Guarantee is outlined below:-

(a) The successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty one) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty one) days and upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21(Twenty one) days, i.e. from 22nd day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the RailTel, submission of PG can be accepted on the next working day.

In all other cases, if the Contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated RailTel shall be entitled to forfeit Earnest Money Deposit and other dues payable against that contract.

(b) The successful bidder shall submit the Performance Guarantee amounting to 5% of the contract value in the form of Irrevocable Bank Guarantee from scheduled commercial bank (either private or PSU) but not from cooperative Bank or NBFC. For performance security of up to Rs. 5 lacs, please refer para 1.13

(c) The Performance Guarantee should be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. The P.G. shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the contractor shall get the validity of Performance Guarantee extended to cover such extended time, for completion of work plus 60 days.

(d) The value of PBG to be submitted by the contractor will not change for variation up to 25% (either increase or decrease). In case during the course of execution, value of the

contract increases by more than 25% of the original contract value, an additional Performance Guarantee amounting to 5%(Five percent) for excess value over the original contract value shall be deposited by the contractor.

(e) The Performance Bank Guarantee (PBG) shall be released after the physical completion of the work based on the Provisional Acceptance Certificate issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily. The Security Deposit shall, however, be released only after expiry of the maintenance period and issue of the certificate of final acceptance of entire system specified in the contract and after passing the final bill based on 'No Claim Certificate' from the contractor.

(f) Whenever the contract is rescinded, the security deposit shall be forfeited and the Performance Bank Guarantee shall be en-cashed the balance work shall be got done independently without risk and cost of the failed contractor. The failed contractor shall be debarred from participating in the tender for executing the balance work. If the failed contractor is a JV or partnership firm, then every member or partner of such a firm shall be debarred from participating in the tender for the balance work either in his/her individual capacity or as a partner of any other JV/Partnership firm.

(g) The Engineer shall not make a claim under the Performance Bank Guarantee except for amounts to which the RailTel's entitled under the contract (Notwithstanding, and /or without prejudice to any other provisions in the contract agreement) in the event of:

(i) Failure by the contractor to extend the validity of the Performance Bank Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Bank Guarantee.

(ii) Failure by the contractor to pay RailTel any amount due either as agreed by the contractor or determined under any of the clauses/conditions of the agreement, within thirty days of the service of the notice to this effect by Engineer.

(iii) The contract being determined or rescinded, the Performance Bank Guarantee shall be forfeited in full and shall be absolutely at the disposal of the RailTel Corporation of India Ltd.

NOTE : " A separate advice of the BG will invariably be sent by the BG issuing bank to the RailTel's Bank through SFMS(Structured Financial Messaging System) and only after this the BG will become acceptable to RailTel. It is therefore in own interest of bidder to obtain RailTel's bank IFSC code, its branch and address and advise these particulars to the BG issuing bank and request them to send advise of BG through SFMS to the RailTel's bank.

The RailTel's bank details are as under :

Account No. : 317801010036605.

A/c Name : RailTel WR collection A/c.

Bank Name : Union Bank of India.

Branch Name : Mahalaxmi branch.

Branch Address : 22, Bhulabhai Desai Road, Mahalaxmi chambers, Mahalaxmi, Mumbai-400026.
IFSC Code : UBIN0531782.
Swift Code : UBININBBLOP.

4.17 Completion Period – As given in e-Tender Notice

4.17.1 Subject to any requirement in the contract as to completion of any portion or portions of the works before completion of the whole, the contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses:

4.17.1.1 If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the clause thereof shall arise and in any case not less than one month before the expiry of the date fixed for completion of the works.

4.17.1.2 If in the opinion of the Engineer the progress of work has any time been delayed by any act or neglect of RailTel's employees or by other contractor employed by the RailTel under Para 4.20.4 of these conditions or in executing the work not forming part of the contract but on which contractor's performance necessarily depends or by reason of proceeding taken or threat-tended by or dispute with adjoining or neighboring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the contractor not having received in due time necessary instructions from the RailTel for which he shall have specially applied in writing to the Engineer or his authorized representative then, upon happening of any such event causing delay, the contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening but shall nevertheless make constantly his best endeavors to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for necessary extension of time. The engineer on receipt of such request from the contractor shall consider the same and shall grant such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby. No other

compensation shall be payable for works so carried forwarded to the extended period of time, the same rates, terms and conditions of contract being applicable as if such extended period of time was originally in the original contract itself.

4.17.1.3 In the event of any failure or delay by the RailTel to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the RailTel due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the contractor to damages or compensation therefore but in any such case, the RailTel may grant such extension or extensions of the completion date as may be considered reasonable.

4.17.2 Extension of time for delay due to contractor – The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract. If the contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in clause 4.11 and 4.17.1 above, the RailTel may, if satisfied that the works can be completed by the contractor within reasonable short time thereafter, allow the contractor further extension of time as the Engineer may decide. On such extension the RailTel will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the contractor as agreed damages and not by way of penalty as mentioned in para 5.35.1 of special conditions of contract.

4.17.2.1 For the purpose of this clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued. Provided also, that the total amount of liquidated damages under this condition shall be as per para 5.35.1 of special conditions of contract. Provided further, that if the RailTel is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the RailTel shall be entitled, without prejudice to any other right or remedy available in that behalf, to appropriate the contractor's security deposit and rescind the contract under clause 4.62 of these conditions, whether or not actual damage is caused by such default..

4.18 Illegal Gratification

4.18.1 Any bribe, commission, gift or advantage given, promised or offered by or on behalf to the Contractor or his partner, agent or servant or anyone on his behalf, to any officer or employees of the RailTel, or to any person on his behalf in relation to

obtaining or the execution of this or any other contract with the RailTel shall, in addition to any criminal liability which he may incur, subject the contractor to the rescission of the contract and all other contracts with the RailTel and to the payment of any loss or damage resulting from such decision and the RailTel shall be entitled to deduct the amounts so payable from any moneys due to the Contractor (s) under this contract or any other contracts with the RailTel.

4.18.2 The Contractor shall not lend or borrow from or have or enter into any monitory dealings or transactions either directly or indirectly with any employee of the RailTel and if he shall do so, the RailTel shall be entitled forthwith to rescind the contract an all other contracts with the RailTel. Any question or dispute as to the commission or any shall offence or compensation payable to the RailTel under this clause shall be settled by the Principal Executive Director of RailTel, in such a manner as shall consider fit and sufficient and his decision shall be final and conclusive. In the event of rescission of the contract under this clause, the Contractor will not be paid any compensation whatsoever except payments for the work done up-to-date of rescission.

4.19 Execution of Works

4.19.1 Contractor's understanding – It is understood and agreed that the Contract has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the progress of the works, the general and local conditions, the labour conditions prevailing therein and all other matters which can in any way affect the works under the contract.

4.19.2 Commencement of works – The Contractor shall commence the works immediately after receipt of LoA from the RailTel and shall proceed with the same with due expedition and without delay. The work should be started with due intimation to RailTel.

4.19.3 **Accepted programme of work:**

The Contractor who has been awarded the work shall as soon as possible but not later than 7 days from the date of receipt of the acceptance letter in respect of contracts with initial completion period of **12 months** or less or not later than 15 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organization (in terms of labour and supervisors) plant and

machinery that he intends to utilize (from time to time) for execution of the work within stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the contractor shall and endeavor to fulfill this programme of work. The progress of work will be watched accordingly and the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude the contractor in achieving earlier completion of item or whole of the works than indicated in the programme.

4.19.4 Setting out of works

The Contractor shall be responsible for the correct setting out of all works in relation to original reference at his cost. The Contractor shall execute the work true to specifications, drawings, plans and dimensions as mentioned in the contract document and as directed by the Engineer's representative and shall check these at frequent intervals. The Contractor shall provide all facilities like labour and instruments and shall cooperate with the Engineer's representative at all time, during the progress of the works. Any error shall appear or arise in any part of the work, the Contractor, on being required so to do by the Engineer's representative shall, at his own rectify such errors, to the satisfaction of the Engineer's representative. Such checking shall not absolve the Contractor of his own responsibility of maintaining accuracy in the work.

4.20 Compliance to Engineer's Instructions

4.20.1 The Engineer shall direct the order in which the several parts of the works shall be executed and the Contractor shall execute without delay all orders given by the Engineer from time to time but the Contractor shall not be relieved thereby from responsibility for the due performance of the works in all respects.

4.20.2 **Alterations to be authorized** – No alterations in or additions to or omissions or abandonment of any part of the works shall be deemed authorized, except under instructions from the Engineer, and the Contractor shall be responsible to obtain such instructions in each and every case in writing from the Engineer.

4.20.3 **Extra Works**

Should works over and above those included in the contract require to be executed at the site, the contractor shall have no right to be entrusted with the execution of such works, which may be carried out by another contractor or contractors or by other means at the sole discretion of the RailTel.

4.20.4 **Separate Contracts in connection with works**

The RailTel shall reserve the right to let other contracts in connection with the works. The Contractor shall afford other contractors reasonable opportunity for the storage of their materials and the execution of their works and shall properly connect and coordinate his work with theirs. If any part of the Contractor's work depends for proper execution or result upon the work of another contractor(s), the Contractor shall inspect and promptly report to the Engineer any defects in such works that render it unsuitable for such proper execution and results. The Contractor's failure so to inspect and report shall constitute as 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 work after the execution of his work.

4.21 Instructions of Engineer's Representative

Any instructions or approval given by the Engineer's representative to Contractor in connection with the works shall bind the Contractor as though it had been given by the Engineer provided always as follows: -

4.21.1 Failure of the Engineer's representative to disapprove any work or materials shall not prejudice the power of the Engineer thereafter to disapprove such work or material and to order the removal or breaking up thereof.

4.21.2 If the Contractor shall be dissatisfied by reason of any decision of the Engineer's representative he shall be entitled to refer the matter to the Engineer who shall there upon confirm or vary such decision.

4.22 Adherence to specifications and drawings

4.22.1 The whole of the works shall be executed in perfect conformity with the specifications and drawings of the contract. If the Contractor performs any works in a manner contrary to the specifications or drawings or any of them and without such reference to the Engineer, he shall bear all the costs arising or ensuring there- from and shall be responsible for all loss to the RailTel.

4.22.2 **Drawings and specifications on the works**:

4.22.2.1 The contractor shall keep one copy of Drawings and specifications at the site, in good order, and such contract documents as may be necessary, available to the Engineer or the Engineer's Representative.

4.22.2.2 The supply of equipment and materials shall include supply of one set of printed documents from original equipment manufacturers with each equipment as given in technical supplement.

4.22.3 Ownership of Drawings and Specifications – All drawings and Specifications and copies thereof furnished by the RailTel to the Contractor are deemed to be the property of the RailTel. They shall not be used in another works and with the exception of the signed contract set, shall be returned by the Contractor to the RailTel on completion of the work or termination of the Contract.

4.22.4 Compliance with Contractor's request for details – The Engineer shall furnish with reasonable promptness, after receipt by him of the Contractor's request for the same, additional instructions by means of drawings of otherwise, necessary for the proper execution of the works or any part thereof. All such drawings and instructions shall be consistent with the Contract Documents and reasonably inferable there from.

4.22.5 **Meaning and Intent of specification and drawings**

If any ambiguity arises as to the meaning and intent of any portion of the Specifications and Drawings or as to execution or quality of any work or material, or as to the measurements of the works, the decision of the Engineer thereon shall be final subject to the appeal (within 7 days of such decision being intimated to the Contractor) to the competent authority in RailTel who shall have the power correct any errors, omissions, or discrepancies in aforementioned items and whose decision in the matter in dispute or doubt shall be final and conclusive.

4.23 Working during night

The Contractor shall not carry out any work between sunset and sunrise without the previous permission of the Engineer. Hence, no "night duty" shall be payable to the contractor for the portion/part of the works to be undertaken during the night.

4.24 Damage to Govt. /RailTel property or private life and property

The Contractor shall be responsible for all risk to the works and for trespass and shall make good at his own expense all loss or damage whether to the works themselves or any other property of the Railways/RailTel or the lives, persons or property of others from whatsoever cause in connection with the works until they are taken over by the RailTel and this although all reasonable and proper precautions may have been taken by the Contractor, and in case the RailTel shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid by reason of any act, or any negligence or omissions on the part of the Contractor the amount of any costs or charges including costs and charges in connection with legal proceedings, which the RailTel may incur in reference thereto, shall be charged to the Contractor. The RailTel shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the Contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid, any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defense or compromise, and the incurring of any such expenses shall not be called in question by the Contractor.

4.25 Sheds, Stores houses and Yards

The Contractor shall at his own expense provide himself with sheds, storehouses and yards in such situations and in such numbers as in the opinion of the Engineer is requisite for carrying on the works and the Contractor shall keep at each such sheds, store houses and yards a sufficient quantity of materials and plant in stock so as not to delay the carrying out of the works with due expedition and the Engineer and the Engineer's representative shall have free access to the said sheds, store houses and yards at any time for the purpose of inspecting the stock of materials or plant so kept in hand, and any materials or plant which the Engineer may object to shall not be brought upon or used in the works, but shall be forthwith removed from the sheds, store houses or yards by the contractor. The Contractor shall at his own expenses provide and maintain suitable mortar mills, soaking vats or any other equipments necessary for the execution of the works.

4.26 Provision of efficient and competent staff

The Contractor shall place and keep on the works at all times efficient and competent staff to give the necessary directions to his workmen and to see that they execute their work in sound and proper manner and shall employ only such supervisors, workmen and laborers in or about the execution of any of these works

as are careful and skilled in various trades and callings. The Contractor shall at once remove from the works any agents, permitted petty/sub-contractor, supervisor, workman or laborers who shall be objected to by the Engineer and if and whenever required by the Engineer, he shall submit a correct return showing the names of all staff and workmen employed by him. In the event of the Engineer being of the opinion that the Contractor is not employing on the works a sufficient number of staff and workmen as is necessary for the proper completion of the works within the time prescribed, the Contractor shall forthwith on receiving intimation to this effect take on the additional number of staff and labor specified by the Engineer within seven days of being so required and failure on the part of the Contractor to comply with such instructions will entitle the RailTel to rescind the contract under Para 4.62 of these conditions.

4.27 Workmanship and Testing

4.27.1 The whole of the works and/or supply of materials specified and provided in the contract or that may be necessary to be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner with materials of the best and most approved quality of their respective kinds, agreeable to the particulars contained in or implied by the specifications and as referred to in and represented by the drawings or in such other additional particulars. Instructions and drawings may be found requisite to be given during the carrying on of the works and to the entire satisfaction of the Engineer according to the instructions and directions, which the Contractors may from time to time receive from the Engineer. The materials may be subjected to tests by Mean of such machines, instruments and appliances as the Engineer may direct and wholly at the expense of the Contractor.

4.27.2 Removal of Improper work and materials – The Engineer or the Engineer's representative shall be entitled to order from time to time:

4.27.2.1 The removal from the site within the time specified in the order of any materials, which in his opinion are not in accordance with the specifications or drawings.

4.27.2.2 The substitution of proper and suitable materials, and

4.27.2.3 the removal and proper re-execution, notwithstanding any previous tests thereof or "on account" payments therefore, of any work which in respect of materials or workmanship is not in his opinion in accordance with the specifications and in case of default on the part of the Contractor in carrying out such order the RailTel shall

be entitled to rescind the contract under Para 4.62 of tender document of these conditions.

4.28 Facilities for Inspection

The Contractor shall afford the Engineer and the Engineer's Representative every facility for entering in and upon every portion of the work at all hours for the purpose of inspection or otherwise and shall provide all labour, materials, instruments, appliances and things of every kinds required for the purpose and the Engineer and the Engineer's representative shall at all-time have free access to every part of the works and to all places at which materials for the work are stored or being prepared.

4.29 Examination of work before covering up

The Contractor shall give two days notice to the Engineer or the Engineer's Representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the Reach of Measurements in order that the work may be inspected or that correct dimension may be taken before being so covered, placed beyond the reach of measurement in default whereof, the same shall at the option of the Engineer or the Engineer's Representative be uncovered and measured at the contractor's expense or no allowance shall be made for such work or materials.

4.30 Temporary works

All Temporary works necessary for the proper execution of the works shall be provided and maintained by the Contractor and subject to the consent of the Engineer, shall be removed by him at his expenses when they are no longer required and in such manner as the Engineer shall direct. In the event of failure on the part of the Contractor to remove the temporary works, the Engineer will cause them to be removed and cost as increased by supervision and other incidental charge shall be recovered from the Contractor. If temporary huts are provided by the Contractor on the RailTel/Railway land for labour engaged by him and the work is completed but the contractor's labour refused to vacate and have to be removed by the RailTel, necessary expenses incurred by the RailTel in connection therewith shall be borne by the Contractor.

4.31 Contractor to supply water for works

4.31.1 Unless otherwise provided in the contract, the contractor shall be responsible for arrangements to obtain supply of water for the works.

4.31.2 Contractor to arrange supply of Electric power for works.

4.31.3 **Electric supply from the Railway system**

The RailTel may supply to the Contractor part or whole of the electric power wherever available and possible, required for execution of works from the Railway's existing electric supply systems at or near the site of works on specified terms and conditions and such charges as shall be determined by the RailTel and payable by the contractor provided the cost of arranging necessary connection to the Railway's Electric supply systems, and laying of underground/overhead conductors, circuit protection, electric power meters, transmission structure, shall be borne by the Contractor and that the contractor shall not be entitled to any compensation or reason for delay for interruption or failure of the Electric supply system.

4.32 Property in material and Plants: Deleted

4.33 Tools, Plant and Materials Supplied by the RailTel: NIL

4.33.1 The Contractor shall take all responsible care of all tools, plants and materials or other property whether of a like description or not belonging to the RailTel and committed to his charge for the purpose of the works and shall be responsible for all damage or loss caused by him, his agents permitted petty/sub-contractor or his workmen or others while they are in his charge. The Contractor shall sign accountable receipts for tools, plants and materials made over to him by the Engineer and on completion of the works shall handover the unused balance of the same to the Engineer in good order and repair, fair wear and tear excepted and shall be responsible for any failure to account for the same or any damage done thereto.

4.34 Precaution during progress of work

4.34.1 During the execution of works, unless otherwise specified the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavations and works and shall ensure that no damage, injury, loss is caused or likely to be caused to any person or property.

4.34.2 Roads and water courses: Existing roads or water courses shall not be blocked, cut through, altered, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer. All compensations claimed for any authorized closure, or his agent or his staff shall be recoverable from the Contractor by deduction from any sums which may become due to him in terms of contract or otherwise according to law.

4.34.3 Provision of access to premises: During progress of work in any street or thoroughfare, the Contractor shall make adequate provision of the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or meant for lightning which may be interrupted by reason of the execution of the works and shall react and maintain at his own cost barriers, lights and other safeguards as prescribed by the Engineer, for the regulation of the traffic, and provide watchmen necessary to prevent accidents. The works shall in such cases be executed night and day if so ordered by the Engineer and with such vigour so that the traffic way be impeded for as short a time as possible.

4.34.4 Safety of Public: The Contractor shall be responsible to take all precautions to ensure the safety of the public or Railway/RailTel's property and shall post such look out men as may in the opinion of the Engineer be required to comply with regulations pertaining to the work.

4.35 Use of Explosives:

Explosive shall not be used on the works or on the site by the Contractor without the permission of the Engineer and then only in the manner and to the extent to which such permission is given. Where explosives are required for the works, the same shall be stored in a special magazine to be provided by and at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain the necessary license for the storage and the use of explosives and all operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Railway/RailTel in respect thereof.

4.36 Suspension of works

4.36.1 The Contractor shall on the order of Engineer suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer. If such suspension is: -

(a) Provided for in the contract, or

(b) Necessary for the proper execution of the works or by the reason of act of God or by some default on the part of the Contractor, and or

(c) Necessary for the safety of the works or any part thereof.

4.36.2 The Contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the works; but in the event of any suspension ordered by the Engineer for reasons other than aforementioned and when each such period of suspension exceeds 14 days, the Contractor shall be entitled to such extension of time for completion of the works as the engineer may consider proper having regard to the period or periods of such suspensions and to such compensations as the Engineer may consider reasonable in respect of salaries or wages paid by the Contractor to his employees during the periods of such suspensions.

4.36.3 Suspension lasting more than 3 month – If the progress of the works or any part thereof is suspended on the order of the Engineer for more than three months at a time, the Contractor may serve a written notice on the Engineer requiring permission within 15 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is not granted within that time the Contractor by further written notice so served may, but is not bound to, elect to treat the suspension where it affects part only of the works as an omission of such part or where it affects the whole of the works, as an abandonment of the contract by the RailTel.

4.37 Rates for items of works

The rates entered in the accepted Schedule Of Requirements of the Contract are intended to provided for works duly and properly completed in accordance with the general and special conditions of the contract and the specifications and drawings together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of Para 4.42 of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence and labour, supply including full freight of materials, stores, tools and all apparatus and plant required on the works, except such tools, plant or materials as may be specified in the contract to be supplied to the Contractor by the RailTel, the erection, maintenance and removal of all temporary works and buildings, all arrangements for the safety of the public or of employees during the execution of works, all sanitary and medical arrangements for labour camps as may be prescribed by the RailTel, the setting of all work and of the construction, repair and upkeep of all

center lines, bench marks and level pegs thereon, site clearance, all fees, duties, royalties, rent and compensation to owners for surface damage or taxes and impositions payable to local authorities in respect of land, structures and all material supplied for the work or other duties or expenses for which the Contractor may become liable or may be put to under any provision of law for the purpose of or in connection with the execution of the contract, and all such other incidental charges or contingencies as may have been specially provided for in the specifications.

4.38 Demurrage and wharfage dues

4.38.1 Demurrage charges calculated in accordance with the scale in force for the time being on the RailTel and incurred by the Contractor failing to load or unload any goods of materials within the time allowed by RailTel for loadings as also wharfage charges, of materials not removed in time as also charges due on consignments booked by or to him shall be paid by the Contractor, failing which such charges shall be debited to the Contractor's account in the hands of the RailTel and shall be deducted from any sums which may become due to him in terms of the contracts.

4.39 Rates for extra items of works

4.39.1 Any item of work carried out by the Contractor on the instructions of the Engineer which is not included in the accepted schedule of rates shall be executed at the rates set forth in the "Schedule Of Requirements' modified by the tender percentage and such items are not contained in the latter, at the rate agreed upon between the Engineer and the Contractor before the execution of such items of work and the contractors shall be bound to notify the Engineer at least seven days before the necessity arises for the execution of such items of works that the accepted Schedule Of Requirements does not include rate or rates for the extra work involved. The rates payable for such items shall be decided at the meeting to be held between the Engineer and Contractor, in as short a period as possible after the need for the special item has come to the notice. In case the Contractor fails to attend the meeting after being notified to do so or in the event of no settlement being arrived at, the RailTel shall be entitled to execute the extra works by other means and the contractor shall have no claim for loss or damage that may result from such procedure.

4.39.2 Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereunto fore mentioned, then and in such a case the Contractor shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid according to the rates as shall be fixed by the Engineer. However if the contractor is not satisfied with the decision of the Engineer in this respect he may appeal to the competent authority of RailTel within 30 days of

getting the decision of the Engineer, supported by analysis of the rates claimed. The competent authority of RailTel's decision after hearing both the parties in the matter would be final and binding on the Contractor.

4.40 Handing over of works

4.40.1 The Contractor shall be bound to hand over the works executed under the contract to the RailTel complete in all respect to the satisfaction of the Engineer. The Engineer shall determine the date on which the work is considered to have been completed, in support of which his certificate shall be regarded as sufficient evidence for all purposes. The engineer shall determine from time to time, the date on which any particular section of the work shall have been completed, and the contractor shall be bound to observe any such determination of the Engineer.

4.40.2 Clearance of Site on Completion: On completion of the works the contractor shall clear away and remove from the site all constructional plant, surplus material, rubbish and temporary works of every kind and leave whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer. No final payment in settlement of the accounts for the work shall be paid, held to be due or shall be made to the contractor till, in addition to any other condition necessary for such final payment, site clearance shall have been affected by him, and such clearance may be made by the Engineer at the expense of the Contractor in the event of his failure to comply with this provision within 7 days after receiving notice to that effect. It Should become necessary for the Engineer to have the site cleared at the expense of the Contractor, the RailTel shall not be held liable for any loss or damage to such of the Contractor's property as may be on the site and due to such removal there from which removal may be affected by means of public sales of such materials and property or in such a way as deemed for and convenient to the Engineer.

4.41 Variations in Extent of Contract

4.41.1 Modification to Contract to be in writing – In the event of any of the provisions of the Contract requiring to be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the RailTel and the Contractor, and no work shall proceed under such modifications until this has been done. Any verbal or written arrangement abandoning, modifying, extending, reducing or supplementing the Contract or any of the terms thereof shall be deemed conditional and shall not be binding on the RailTel unless and until the same is incorporated in a formal instrument and signed by the RailTel and the Contractor and till then the RailTel shall have the right to repudiate such arrangement.

4.42 Powers of Modification to Contract

4.42.1 The Engineer on behalf of the RailTel shall be entitled by order in writing to enlarge or extend, diminish or reduce the works or make any alterations in their design, character, position, site quantities, dimensions or in the method of their execution or in the combination and use of materials for the execution thereof or to order any additional work to be done or any works not to be done and the Contractor will not be entitled to any compensation for any increase / reduction in the quantities of work but will be paid only for the actual amount of work done and for approved materials supplied against a specific order.

4.42.2 Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity for each individual item of the contract would be up to ±25% of the quantity originally contracted. The contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation, whatsoever upto the limit of ±25% variation in quantity of individual items of works.

4.42.3 **Valuation of Variations** – The enlargements, extensions, diminution, reduction, alterations or additions referred to in sub-clause (2) of this clause shall in no degree affect the validity of the contract but shall be performed by the Contractor as provided therein and be subject to the same conditions, stipulations and obligations as if they had been originally and expressively included and provided for in the specifications and drawings and the amounts to be paid therefore shall be calculated in accordance with the accepted schedule of rates. Any extra items/quantities of work falling outside the purview of the provisions of sub-clause (2) above shall be paid for at the rates determined under clause 4.39 of these conditions.

4.43 Claims

4.43.1 Monthly Statement of Claims - The contractor shall prepare and furnish to the Engineer once in every month an account giving full and detailed particulars of all claims for any additional expenses to which the Contractor may consider himself entitled to and of all extra or additional works ordered by the Engineer which he has executed during the preceding month and no claim for payment for and such work will be considered which has not been included in such particulars.

4.43.2 **Signing of "No Claim" Certificate** – The Contractor shall not be entitled to make any claim whatsoever against the RailTel under or by virtue of or arising out of this contract, nor shall the RailTel entertain or consider any such claim, if made by the Contractor, after he shall have signed a 'No Claim' certificate in favour of the RailTel, in such form as shall be required by the RailTel, after the works are finally measured

up. The Contractor shall be debarred from disputing the correctness of the items covered by “No Claim Certificate” or demanding a preference to arbitration in respect thereof.

4.44 MEASUREMENTS, CERTIFICATES AND PAYMENTS

Qualities in schedule annexed to Contract- The quantities set out in the accepted Schedule of Requirements with items of works quantified are the estimated quantities of the works and they shall not be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfillments of his obligations under the contract.

4.45 **Measurements of Works**: The Contractor shall be paid for the works at the rates in the accepted Schedule of Requirements and for extra works at rates determined under Para 4.39 of these conditions on the measurements taken by the Engineer or the Engineer’s representative in accordance with the rules prescribed for the purpose by the RailTel. The quantities for items the unit of which in the accepted Schedule Of Requirements is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and half and above being taken as one; for item the unit of which in the accepted Schedule Of Requirements is single, the quantities shall be calculated to places of decimals. Such measurements will be taken of the work in progress from time to time and at such intervals as in the opinion of the Engineer shall be proper having regard to the progress of works. The date and time on which “on account” or final measurements are to be made shall be communicated to the Contractor who shall represent at the site and shall sign the results of the measurements (which shall also be signed by the Engineer or the Engineer’s representative) recorded in the official measurements book as an acknowledgement of his acceptance of the accuracy of the measurements. Failing the Contractor’s attendance the work may be measured up in his absence and such measurements shall, not-withstanding such absence, be binding upon the Contractor whether or not he shall have signed the measurement book provided always that any objection made by him to measurement shall be duly investigated and considered in the manner set out below:

(a) It shall be open to the Contractor to take specific objection to any recorded measurements or Classification on any ground within seven days of the date of such measurements. Any re-measurement taken by the Engineer or the Engineer’s representative in the presence of the Contractor or in his absence after due notice has been given to him in consequences of objection made by the contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurement. (b) If an

objection raised by the Contractor is found by the Engineer to be incorrect, the Contractor shall be liable to pay the actual expenses incurred in measurements.

4.46 "On-Account" Payments

4.46.1 The Contractor shall be entitled to be paid from time to time by way of "On-Account" payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer's or the Engineer's Representative's certificates of measurements shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Para 4.16 of these conditions, a retention of ten percent by way of security deposits, until the amount of security deposit by way of retained Earnest Money and such retentions shall amount to 5% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate if the works or any part thereof are not being carried out to his satisfaction.

4.46.2 Rounding off amounts: The total amount due shall be rounded off to the nearest rupee i.e. sums less than 50 paisa shall be omitted and sums of 50 paisa and more upto Rs. 1/- will be reckoned as Rs. 1/-.

4.46.3 On-Account Payments not prejudicial to final settlements: "On Account" payments made to the Contractor shall be without prejudice to the final making up of the accounts (except where measurement are specifically noted in the Measurement Book as "Final Measurements" and as such have been signed by the Contractor) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such account not of any particular quantity of work having been executed not of the manner of its execution being satisfactory.

4.46.4 Manner of payment: Unless otherwise specified payments to the Contractor will be made through RTGS.

4.47 Maintenance of works:

The contractor shall at all times during the progress and continuance of the works and also for the period of warranty specified in the tender form after the date of passing of the certificate of completion by the Engineer or any earlier date

subsequent to the completion of the works that may be fixed by the Engineer be responsible for and effectively maintain and uphold in good substantial sound and perfect conditions all and every part of the work and shall make good form time to time and at all times as often as the Engineer shall require. Any damage or defect that may during the above period arise in or be discovered or be in any way connected with the works, provided that such damage or defect is not directly caused by errors in the contract documents, act of providence or insurrection or civil riot, and the Contractor shall be liable for and make good to the RailTel or other persons legally entitled thereto whenever required by the Engineer so to do, all losses, damage, costs and expenses they or any of them may incur or be put or be liable, by reason or in consequence of the operations of the contractor or of his failure in any respect. For this purpose the tenderer will submit their strategy for providing maintenance support including the staff that will be available along with the set of spares for attending to various faults/problems during maintenance period.

4.48 Certificate of Completion of works

4.48.1 As soon as in the opinion of the Engineer the whole work have been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a Provisional Acceptance Certificate in respect of the works and period of warranty shall commence from the date of issue of Last Provisional Acceptance Certificate Minor defects pointed out while issuing PACs shall be attended by the contractor within reasonable period of time to the satisfaction of Engineer.

4.48.2 Contractor not absolved by Provisional completion Certificate (PAC): The Certificate of completion in respect of the works referred to in Para 4.48.1 of this clause shall not absolve the Contractor from his liability to make good any defect, imperfection, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawing or specifications or instructions of the Engineer, which defect, imperfections, shrinkages or faults hall upon the direction in writing of the Engineer, be amended and made good by the Contractor at his own cost; and in case of default on the part of Contractor the Engineer may employ, labour and material or appoint another Contractor to amend and make good such defect, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

4.49 Approval only by Final Acceptance Certificate (FAC)

No certificate other than Final Acceptance Certificate referred to in Para 4.50 of the conditions shall be deemed to constitute approval of any work or other matter in respect of which it is issued or shall be taken as an admission of the due performance of the contract or any part thereof or of the accuracy of any demand made by the Contractor or of additional varied work having been ordered by the Engineer nor shall any other certificate conclude or prejudice any of the powers of the Engineers.

4.50 Final Acceptance Certificate:

4.50.1 The contract shall not be considered as completed until a maintenance Certificate shall have been signed by the Engineer stating that the works have been completed and maintained to this satisfaction. The maintenance certificate shall be given by the Engineer upon the expiration of the period of or as soon thereafter as any work ordered during such period pursuant to Para 4.48.2 of these conditions shall have been completed to the satisfaction of the Engineer and full effect shall be given to this Clause notwithstanding the taking possession of or using the works or any part thereof by the RailTel.

4.50.2 **Cessation of RailTel's Liability:** The RailTel shall not be liable to the Contractor for any matter arising of or in connection with the contract of the execution of the works unless the Contractor shall have made a claim in writing in respect thereof before the issue of the Maintenance Certificate (FAC) under this clause.

4.50.3 **Unfulfilled obligations -** Notwithstanding the issue of the Maintenance Certificate the Contractor and (subject to Para 4.50.2) RailTel shall remain liable for the fulfillment of any obligation incurred under the provision of the contract prior to the issue of the maintenance Certificate which remains unperformed at the time such certificate is issued and for the purposes of determining the nature and extent of any such obligations the contract shall be deemed to remain in force between the parties thereto.

4.51 Final payment:

4.51.1 On the Engineer's certificate of completion in respect of the works an adjustment shall be made and the balance of account based on the Engineer or the Engineer's representative's on the accepted schedule or rates and for extra works on rates determined under Para 4.39 of these conditions shall be paid to the Contractor subject always to any deduction which may be made under these presents and further subject to the Contractor having delivered to the Engineer either a full account in detail of all claims he may have on the RailTel in respect of the works or having

delivered “No Claim” Certificate and the Engineer having after the receipt of such account given a certificate in writing that such claim are correct, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things removed, disturbed or injured in consequence of the works have been property replaced and made good and all expenses and demands incurred by or made upon the RailTel for or in the respect of damage or good and all expenses and demands incurred by or made upon the RailTel for or in the respect of damage or good and all expenses and demands incurred by or made upon the RailTel for or in the respect of damage or loss by from kin consequence of the works, have been satisfied agreeably and in conformity with the contract.

4.51.2 **Post payment Audit –** It is an agreed term of contract that the RailTel reserves to itself the right to carry out a post-payment audit and or technical examination of the works and the final bill including all supporting vouchers, abstracts, etc., and to make a claim on the contractor for the refund any excess amount paid to him if as a result of such examination any over-payment to him is discovered to have been made in respect of any work done or alleged to have been done by him under the contract.

4.51.3 **Production of vouchers etc. by the Contractor**

(i) For a contract of more than one crore of rupees, the contractor shall, whenever required, produce for examination by the Engineer any quotation, invoice, cost or other account, book of accounts, voucher, receipt letter, memorandum, paper of writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in any way relating to the execution of this contract or relevant for verifying or ascertaining cost of execution of this contract (the decision of the Engineer on the question of relevancy of any documents, information or return being final and binding on the parties). The contractor shall similarly produce vouchers, etc., if required to prove to the Engineer, that materials supplied by him, are in accordance with the specifications laid down in the contract.

(ii) If any portion of the work in a contract of value more than one crore of rupees be carried out by the a sub -contractor or any subsidiary or allied firm or company (as per Para 4.7 of the General Conditions of Contract), the Engineer shall have power to secure the book of such sub-contract or any subsidiary or allied firm or company, through the contractor, and such book shall be open to his inspection.

(iii) The obligations imposed by Para 4.51.3 (i) and (ii) above is without prejudice to the obligations of the contractor under any statute rules or orders binding on the contractor.

4.52 Withholding and lien in respect of sums claimed

Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the contractor, the RailTel shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the contractor and for the purpose aforesaid, the RailTel shall be entitled to withhold the said security deposit or the security if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the RailTel shall be entitled to withhold and have a lien to the extent of the such claimed amount or amounts referred to supra from any sum or sums found payable or which at any time thereafter may become payable to the contractor under the same contract or any other contract with this or any other RailTel or any Department of the Central Government pending finalization or adjudication of any such claim. It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above, by the RailTel's will be kept withheld or retained as such by the RailTel till the claim arising out of or under the contract is determined by the arbitrator (if the Contract is covered by the arbitration clause) or by the competent court as the case may be and that the contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the RailTel shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company, as the case may be whether in his individual capacity or otherwise.

4.52.1 **Lien in respect of claims in Other Contracts –** Any sum of money due and payable to the contractor (Including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the RailTel, against any claim of this or any other RailTel or any other Department of the Central Government in respect of payment of a sum of money arising out of or under any other contract made by the contractor with this or any other Department of Central Government. It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the RailTel will be kept withheld or retained as such by the RailTel till the Claim arising out of or under any other contract is either mutually settled or determined by arbitration, if the other contract is governed by arbitration clause or by the competent court as the case may be and contractor shall have no claim for interest of money withheld or retained under this clause and duly notified as such to the contractor.

4.53 Signature on Receipts for Amounts

Every receipt which may become payable or for any security which may become transferable to the Contractors under these presents, shall, if signed in the partnership name by any one of the partners of a Contractors firm be a good and sufficient discharge to the RailTel in respect of the moneys or security purported to be acknowledged thereby and in the event of death of any of the Contractor partners during the pendency of the contract it is hereby expressly agreed that every receipt by any one of the surviving Contractor partners shall if so signed as aforesaid be good and sufficient discharge as aforesaid provided that nothing in this clause contained shall be deemed to prejudice or effect any claim which the RailTel may

hereafter have against the legal representative of any contractor partner so dying, for or in respect of any breach of any of the conditions of the contract, provided also, that nothing in this clause contained shall be deemed to prejudice or effect the respective rights or obligations of the Contractor partners and of the legal representative of any deceased Contractor partners interest.

4.54 LABOUR

4.54.1 **Wages to Labour –** The Contractor shall be responsible to ensure compliance with the provisions of the Minimum Wages Act, 1948 (hereinafter referred to as the "said Act") and the Rules made there-under in respect of any employees directly or through petty contractors or sub-contractors employed by him on road construction or in building operations or in stone breaking or stone crushing for the purpose of carrying out this contract. If in compliance with the terms of the contract, the contractor supplied any labour to be used wholly or partly under the direct orders and control of the RailTel whether in connection with any work being executed by the contractor or otherwise for the purpose of the RailTel such labour shall, for the purpose of this clause, still be deemed to be persons employed by the Contractor. If any moneys shall as a result of any claim or any claim or application made under the said Act be directed to be paid by the RailTel's, such moneys shall be deemed to be moneys payable to the RailTel by the Contractor and on failure by the Contractor to repay any moneys paid by it as aforesaid within seven days after the same shall have been demanded, the RailTel's shall be entitled to recover the same form any moneys due or accruing to the contractor under this or any other Contractor with the RailTel's.

4.54.2 **Apprentices Act –** The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act 1961 and the Rules and Orders issued there- under from time to time in respect of apprentices directly through petty contractors or sub-contractors employed by him for purpose of carrying out the contract. If the Contractor directly or through petty contractor or sub-contractors fails to do so, his failure will be a breach of the contract and the RailTel may, in its discretion, rescind the contract. The

contractor shall also be liable for any pecuniary liability arising on account of any violation of the provisions of the Act.

4.55 **Provisions of Payments of Wages Act**

The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made thereunder in respect of all employees directly or through petty contractors or sub-contractors employed by him in the works. If in compliance with the terms of the contract, the contractor directly or through petty contractors or sub - contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer such labour shall nevertheless be deemed to comprise persons employed by the contractor, and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on moneys due to the contractor in terms of the contract. The RailTel shall be entitled to deduct from any moneys due to the contractor (Whether under this contract or any other contract all moneys paid or payable by the RailTel by way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this clause shall be final and binding upon the contractor.

4.55.1 Provision of Contract Labour (Regulation and Abolition) Act, 1970

(1) The Contractor shall comply with the provision of the Contract Labour (Regulation and Abolition) Act, 1970 and the Contract Labour (Regulation and Abolition) Act, Central Rules, 1971 as modified from time to time, whenever applicable and shall also indemnify the RailTel from and against any claims under the aforesaid Act and the Rules

(2) The Contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to fulfill this requirement shall attract the penal provision of the Contract arising out of the resultant non-execution of the work.

(3) The Contractor shall pay to the labour employed by him directly or through sub-contractors the wages as per provisions of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the

contract to the contrary, because to be paid the wages to labour indirectly engaged on the work including any engaged by his sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

(4) In respect of all labour directly or indirectly employed in the work for performance of the contractor's part of the contract the contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and the Rules wherever applicable.

(5) In every case in which, by virtue of the provisions of the aforesaid Act or the Rules, the RailTel is obliged to pay any amount of wages to a workmen employed by the contractor or his sub-contractor in execution of the work or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Act and the Rules or to incur any expenditure in providing welfare and health amenities required to be provided under the aforesaid Act the Rules or to incur any expenditure on account of the contingent liability of the RailTel due to contractor's failure to fulfill his statutory obligations under the aforesaid Act or the Rules the RailTel will recover from the contractor, the amount of wages so paid or the amount of expenditure so incurred, and without prejudice to the rights of the RailTel under section 20, sub-section (2) and section 2 sub - section (4) of the aforesaid Act, the RailTel shall be at liberty to recover such amount or part thereof by deducting it from the security deposit and/or from any sum due by the RailTel to the contractor whether under the contract or otherwise. The RailTel shall not be bound to contest any claim made against it under sub-section (1) of section 20 and sub-section (4) of section 21 of the aforesaid Act except on the written request of the contractor and upon his giving to the RailTel full security for all costs for which the RailTel might become liable in contesting such claim. The decision of the RailTel regarding the amount actually recoverable from the contractor as stated above shall be final and binding on the contractor.

(6) All contractors are required to upload details of their LOAs, engaged workmen, wage

payment details, PF/ESI details, bonus details etc., on monthly basis. The details so uploaded

shall be available in public domain.

A. Contractor is to abide by the provision of payment of Wages act & Minimum Wages act. Contractor shall register his firm/company etc. and upload requisite details of labour and their payment in Shramikkalyan portal. These details shall be available in public domain. The Registration/ updation of Portal shall be done as under.

(a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration on the portal within 7 days of receipt of such request.

(b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all LOAs issued in his favour.

(c) The contractor once registered on the portal shall provide details of his Letter of Acceptance (LOA)/ Contract Agreements on Shramikkalyan portal within 15 days of issue of any LOA for approval of concerned engineer. Engineer shall update (if required) and approve the details of LOA filled by contractor within 7 days of receipt of such request.

(d) After approval of LOA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on Shramikkalyan portal on monthly basis.

(e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.

B. While processing payment of any 'On Account bill' or 'Final bill' or release of 'Advances' or 'Performance Guarantee/ Security deposit', Contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wages period in Shramikkalyan portal till ……Month…….Year."

4.56 Reporting of Accidents to Labour

The Contractor shall be responsible for the safety of all employees directly or through petty contractors or sub-contractors employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works to the Engineer or the Engineer's Representative and shall make every arrangement to render all possible assistance.

4.57 Provisions of Workmen's Compensation Act

In every case in which by virtue of the provision of Section 12 sub-section (1) of the Workmen's Compensation Act, 1923, RailTel is obliged to pay compensation to a workman directly or through the petty Contractor employed by the Contractor or sub-contractor in executing the work, RailTel will recover from the contractor the amount of the compensation so paid, and, without prejudice to the right of RailTel under Section 12 sub-section (2) of the said Act. RailTel shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due by RailTel to the Contractor whether under these conditions or otherwise, RailTel

shall not be bound to contest any claim made against it under Section 12, sub-section (1) of the said Act except on the written request of the Contractor and upon his giving to RailTel full security for all costs for which RailTel might become liable in consequence of contesting such claim.

4.58 RailTel not to provide quarters for Contractor

No quarters shall be provided by the RailTel for the accommodation of the contractor or any of his staff employed on the work.

4.59 Labour camps

(1) The Contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals for his staff and workman directly or through the petty contractors or sub-contractors and for temporary crèche (Bal-Mandir) where 50 or more women are employed at a time. Suitable sites on Railway/RailTel land, if available, may be allotted to the Contractor for the erection of labour camps either free of charge or on such terms and conditions that may be prescribed by the RailTel. All camp sites shall be maintained in clean and sanitary conditions by the Contractor at his own cost.

(2) **Compliance to Rules for Employment of Labour**

The Contractor(s) shall conform to all laws, bye-laws, rules and regulations for the time being in force pertaining to the employment of local or imported labour and shall take all necessary precautions to ensure and preserve the health and safety of all staff employed directly or through petty Contractors or sub - contractors on the works.

(3) **Preservation of Peace –** The Contractor shall take requisite precautions and use his best endeavors to prevent any riotous or unlawful behavior by or amongst his workmen and others employed directly or through petty contractor or sub- contractors on the works and preserve the health and safety of all staff employed directly or through petty Contractors or sub -contractors on the works.

(4) **Sanitary Arrangement –** The contractor shall obey all sanitary rules and carry out all sanitary measures that may time to time be prescribed by the RailTel Medical Authority and permit inspection of all sanitary arrangements at all times

by the Engineer, the Engineer's Representative or the Medical Staff of the RailTel. Should the Contractor fail to make adequate sanitary arrangements, these will be provided by the RailTel and the cost therefore recovered from the contractor.

(5) **Outbreak of Infectious Disease –** The Contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer or the Engineer's Representative on the advice of the Railway/RailTel Medical Authority. Should Cholera, Plague or other infectious disease break out, the Contractor shall burn the huts, beddings, clothes and other belongings of or used by the infected parties and promptly erect new huts on healthy sites as required by the engineer, failing which within the time specified in the Engineer's requisition, the work may be done by the RailTel and the cost therefore recovered from the Contractor.

(6) Treatment of Contractor's staff in Railway Hospitals – Deleted

(7) **Medical facilities at site –** The contractor shall provide medical facilities at the site as may be prescribed by the engineer on the advice of the medical authority in relation to the strength of the contractor's resident staff, and workmen.

(8) **Use of Intoxicants –** The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned, occupied by or within the control of the Contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

(9) **Non-employment of Female Labour** – The contractor shall see that the employment of female labour in cantonment areas, particularly in the neighborhood of soldier's barracks, should be avoided as far as possible.

(10) Restrictions on the employment of retired Engineers of Railway/Govt. services within two years of their Retirement– The contractor shall not, if he is a retired government engineer of Gazetted rank, who has not completed two years from the date of retirement, in connection with his contract in any manner whatsoever without obtaining prior permission of the President and if the contractor is found to have contravened this provision, it will constitute a breach of contract

Administration will be entitled to terminate the contract at the risk and cost of the contractor and forfeit his security deposit.

4.60 Non-Employment of Labourers below the age of 15

(1) The Contractor shall not employ children below the age of 15 as labourers directly or through petty contractors or sub-contractors for the execution of work.

(2) **Medical Certificate of Fitness for Labour** – It is agreed that the contractor shall not employ a person above 15 and below 19 years of age for the purpose of execution of work under this contract unless a medical certificate of fitness in the prescribed from granted to him by a certifying surgeon certifying that he is fit to work as an adult is obtained and kept in the custody of the contractor or a person nominated by him in this behalf and the person carries with him, while at work, a token giving a reference to such certificate. It is further agreed that the responsibility for having the adolescent examined medically at the time of appointment or periodically till he attains the age of 19 years shall devolve entirely on the contractor and all the expense to be incurred on this account shall be borne by him and no fee shall be charged from the adolescent or his parent for such medical examination.

(3) **Period of Validity of Medical Fitness Certificate** - A certificate of fitness granted or renewed for the above said purposes shall be valid only for a period of one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if in his opinion the holder of it is, no longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so required by the person concerned, stated his reasons in writing for doing so.

(4) **Medical Re-examination of Labourer** - Where any official appointed in this behalf by the Ministry of Labour is of the opinion that any person employed in connection with the execution of any work under this contract in the age group 15- 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in this regard, a notice requiring that such person shall be examined by a certifying surgeon and such person shall not, if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified that he has been granted a certificate of illness or a fresh certificate or a fresh certificate of illness, as the case may be.

4.61 Determination of Contract

4.61.1 **Right of RailTel to determine the contract:** The RailTel shall be entitled to determine and terminate the contract at any time, should in the RailTel's opinion, the

cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the RailTel of such determination and the reasons therefore shall be conclusive evidence thereof.

4.61.2 **Payment on determination of contract:** Should the contract be determined under Para 4.61.1and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the RailTel shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfactions of the Engineer. The RailTel's decision on the necessity and propriety of such expenditure shall be final and conclusive.

4.61.3 The contractor shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

4.62 TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR:

4.62.1 (A) If the Contractor:

(i) becomes bankrupt or insolvent, or

(ii) Make an arrangement with or assignment in favour of his creditors, or

(iii) Being a Company or Corporation, go into liquidation (other than voluntary), liquidation for the purpose of amalgamation or reconstruction, or

(iv) have an execution levied on his goods or property on the works, o assign the contract or any part thereof otherwise than as provided in Para 5.21 of SC, or

(v) have an execution levied on his goods or property on the works, or assign the contract or any part thereof otherwise than as provided in Para 5.21 of SCC, or

(vi) persistently disregard the instructions of the RailTel's Engineer with regard to work quality or progress during execution of work or contravene any provision of the contract, or

(viii) fail to adhere to the agreed programme of work by a margin of 10% of the Stipulated period, or fail to remove materials from the site or to pull down and

replace the work after receiving from the Engineer's notice to the effect that the said materials or works have been condemned or rejected, or

(ix) Fail to take steps to employ competent or additional staff and labour as required under Para 4.26 of tender document.

(x) Fail to afford the Engineer or Engineer's representative proper facilities for inspecting the works or any part thereof as required under Para 4.28 of tender document, or

(xi) Promise offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of RailTel or any person on his or on their behalf in relation to the execution of this or any other contract with the RailTel,

(xii) At any time after the tender relating to the contract has been signed and submitted by the contractor, being a partnership firm admit as one of its partners or employ under it or being an incorporated company elect or nominate or allow to act as one of its directors or employ under it in any capacity whatsoever any retired engineer of the gazetted rank or any other retired gazetted officer working before his retirement, whether in the executive or administrative capacity, or whether holding any pensionable post or not, in the Engineering Department of the Railways for the time being owned and administered by the President of India before the expiry of two years from the date of retirement from the said service of such Engineer or Officer unless such Engineer or Officer has obtained permission from the President of India or any officer duly authorized by him in this behalf to become a partner or a director or to take employment under the contract as the case may be, or

(B) Fail to give at time of submitting the said tender:

(a) The correct information as to the date of retirement of such retired engineer or retired officer from the said service, or as to whether any such retired engineer or retired officer was under the employment of the contractor at the time of submitting the said tender, or

(b) The correct information as to such engineers or officers obtaining permission to take employment under the contractor, or

(c) Being a partnership firm the correct information as to, whether any of its partners was such a retired engineer or retired officer, or

(d) Being an incorporated company, the correct information as to, whether any of its directors was such a retired engineer or retired officer, or

(e) being such a retired engineer or retired officer suppress and not disclose at the time of submitting the said tender the fact of his being such a retired engineer or a retired officer or make at the time of submitting the said tender a wrong statement in relation to his obtaining permission to take the contract or if the contractor be a partnership firm or an incorporated company to be a partner of director of such firm or company as the case may be or to seek employment under the contractor. Then and in any of these said clauses, the Engineer on behalf of the RailTel may serve the Contractor with a notice in writing to that effect and if the Contractor does not, within 7 days after the delivery to him of such notice, proceed to make good his default in so far as the same is capable of being made good and carry on the work or comply with such directions as aforesaid to the entire satisfaction of the Engineer, the RailTel shall be entitled after giving 48 hours notice in writing under the hand of the Engineer to rescind the contract as a whole or in part or parts (as may be specified in such notice) and adopt either or both the following courses: A final termination notice will be issued by RailTel after expiry of 48 hrs notice.

4.62.2 **RIGHT OF RAILTEL AFTER TERMINATION OF CONTRACT OWING TO DEFAULT OF CONTRACTOR:**

In the event of any or several of the courses, referred in Para 4.62.1 of tender document above, being adopted:

(a) The Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and Contractor shall not be entitled to recover or be paid any sum for any works thereto not actually performed under the contract, unless or until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.

(b) The Engineer or Engineer's Representative shall be entitled to take possession of any materials, tools, implements, machinery or buildings on the works or on the property on which these are being or ought to have been executed, and to retain the (employ the same) in the further execution of the works or any part thereof until the completion of the works without the Contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.

(c) The Engineer shall, as soon as may be practicable after removal of the Contractor fix and determine expert or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall

certify what amount (if any) has at the time of termination of the contract been reasonably earned by or would reasonably accrue to the Contractor in respect of the work then actually done by him under the contract what was the value of any unused or partially used materials, any constructional plants and any temporary works upon the site. The legitimate amount due to the contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

4.63 **Matters finally determined by the RailTel:** All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract shall be referred by the contractor to the RailTel and the RailTel shall be 120 days receipt of the Contractor's representation make and notify decisions on all matters referred to by the contractor in writing provided that matters for which provision has been made in Para 4.8, 4.18, 4.22.5,4.29, 4.43.2,4.45(a), 4.55, 4.55.1(5), 4.57,4.61.1, 4.61.2 and 4.62.1(A) of General Condition of Contract or in any clause of the Special Conditions of the Contract shall be deemed as 'excepted matters' and decisions of the RailTel's authority, thereon shall be final and binding on the contractor provided further that 'excepted matters' shall stand specifically excluded from the purview of the arbitration clause and not be referred to arbitration.

4.64 SETTLEMENT OF DISPUTE AND ARBITRATION

4.64.1 Any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by a sole arbitrator in accordance with provisions contained in Arbitration and Conciliation Act, 1996 as amended and the award made in pursuance thereof shall be binding on the parties. The venue of such arbitration or proceedings thereof shall be New Delhi.

4.64.2 All arbitration proceedings shall be conducted in English. Resources against any Arbitral award so rendered may be entered into court having jurisdiction or application may be made to such court for the order of enforcement as the case may be.

4.64.3 The Arbitral Tribunal shall consist of the sole Arbitrator if the value of claim is uptoRs. 10 Lakhs. The arbitrator will be appointed by the Managing Director of RailTel Corporation of India Ltd. If the value of claim or amount under dispute is more than Rs. 10 Lakhs, the matter shall be referred to the adjudication of arbitral council. Chairman cum Managing Director/RailTel shall furnish a panel of three names to the contractor, out of which the contractor will recommend one name to be his nominee and then Chairman cum Managing Director/RailTel shall appoint out of the panel, one name as RailTel's nominee and these two arbitrators with mutual consent

appoint a third arbitrator who shall act as deciding. The award of the sole arbitrator or the Arbitral council, as the case may be, shall be final and binding on both the parties, i.e. Contractor and RailTel Corporation of India Ltd.

4.64.4 Each of the parties agree that no withstanding that the matter may be referred to Arbitrator as provided therein, the parties shall nevertheless pending the resolution of the controversy or disagreement continue to fulfill their obligation under this Agreement so far as they are reasonably able to do so.

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CHAPTER - 5

SPECIAL CONDITIONS OF CONTRACT

Para **Subject**

5.1 Tender Document

5.2 Agreement

5.3 Security Deposit

5.4 Contractor's Office & Stores depot

5.5 Use of Railway Land

5.6 Program of work.

5.7 Competent Supervisors

5.8 Stores to be supplied by RailTel

5.9 Engagement of Qualified Engineer

5.10 TEST &MEASURING INSTRUMENTSAND SPECIAL TOOLS ETC.

5.11 STORES TO BE SUPPLIED BY CONTRACTOR

5.12 Supply of Technical Literatures, Documentation Drawings &Completion Plan etc.

5.13 Spares

5.14 Long term availability of spares & System support

5.15 Quality Assurance

5.16 Not used

5.17 Inspection of Materials

5.18 Inspection of Works

5.19 Quantum of work and variation in Quantities

5.20 Not used

5.21 Subletting and Assignment

5.22 Execution of Works

5.23 Not used

5.24 Maintenance of Works

5.25 Clearance of Site

5.26 Provisional Acceptance

5.27 Maintenance of work till issue of Last PAC

5.28 Final Acceptance

5.29 Warranty

5.30 Training

5.31 Infringement of Patents

5.32 License as per Govt. of India Contract Labour Act

5.33 Defaults and Delays

5.34 Loss Sustained Due to Default and Delay

5.35 Penalty for Delay in Completion

5.36 Adherence of time schedule

5.37 Contractors liabilities for Costs and Damages

5.38 Prices

5.39 Measurement of Works

5.40 Terms of Payments

5.41 Final Payment

5.42 Final Settlement

5.43 Certificate for CENVAT BENEFITS on bills

5.44 Deductions from On Account Payment Bills

5.45 Taxes

5.46 Mobilization Advance

5.47 Insurance

5.48 Force Majeure Clause

5.49 Trade Receivables Discounting System (TReDS)

5.50 Settlement of dispute and Arbitration.

SPECIAL CONDITIONS OF CONTRACT

5.1 TENDER DOCUMENTS

5.1.1 The goods and services required, bidding procedure and contract terms are prescribed in the tender documents. The set of tender documents issued for the purpose of bidding includes following together with any addendum and corrigendum thereto.

5.1.2 If the Tender submitted by a Tenderer is accepted and the contract awarded to the Tenderer, the various works coming under the purview of the contract shall be governed by tender documents mentioned above.

5.1.3 Any special conditions stated by the Tenderer in the covering letter submitted along with the tender shall be deemed to be a part of the Contract to such extent only as have been explicitly accepted by the RailTel .

5.2 AGREEMENT

5.2.1 The successful Tenderer shall within 15 days after having been called upon by notice to do so be bound to execute an agreement based on accepted rates and conditions, in such form as the RailTel may prescribe, and lodge the same with the RailTel together with the conditions of contract, specifications and Schedule Of Requirements referred to therein duly completed. The form for agreement is included in , Chapter - 6 (Form No.3).

5.2.2 In the event of any tenderer whose tender is accepted, refused to execute the Contract documents as herein before provided RailTel may determine that such tenderer has abandoned the contract and thereupon his tender and the acceptance thereof shall be treated and RailTel shall be entitled to forfeit the full amount of the Earnest Money and to recover the liquidated damage for such default.

5.3 SECURITY DEPOSIT

Refer para 4.16 of chapter-4.

5.4 CONTRACTOR'S OFFICE & STORES DEPOT

The Contractor shall within 10(ten) days of issue of letter of acceptance of tender establish an office and store depot at a convenient place for receiving and storing equipments and materials and progressing field work expeditiously in consultation and with the approval of the purchaser's Engineer. He shall intimate the address thereof to which all correspondence should be sent. Any communication sent to the contractor by post at his said address shall be deemed to have reached the contractor duly and in time. Important documents shall be sent by Registered post.

5.5 USE OF RAILWAY LAND :

Use of Railway land required by the Contractor for construction of temporary offices, quarter(s), hutments etc. for the staff and for storing materials etc. will be permitted to him/them subject to approval by Railways, if available at the charges prescribed by the Railways. The land will be restored to Railways by the Contractor(s) in the same condition as when taken over or in vacant condition as desired by the Engineer after completion of the work or at any earlier day as specified by the Engineer. Failure to do so will make the Contractor(s) liable to pay the cost incurred by the Railway for getting possession of land.

5.6 PROGRAMME OF WORK

5.6.1 Refer Para 4.19,4.20,4.21,4.22,4.23 and 4.26.

5.6.2 The contractor will program his work in such a manner so as not to interfere in the working and movement of traffic.

5.7 COMPETENT SUPERVISORS

Refer Para 4.26 .

5.8 STORES TO BE SUPPLIED BY RAILTEL.

Refer Para 1.17.

5.9 ENGAGEMENT OF QUALIFIED ENGINEER:

Not used.

5.10 TEST &MEASURING INSTRUMENTSAND SPECIAL TOOLS ETC.

5.10.1 Special tools & instruments required for installation and commissioning of the work as detailed in preamble shall be arranged by contractor at his own cost.

5.10.2 All tests and measuring instruments and other arrangements required for carrying out all the acceptance tests etc shall be provided by the contractor at his own cost.

5.11 STORES TO BE SUPPLIED BY CONTRACTOR

Refer Para 1.18

5.12 SUPPLY OF TECHNICAL LITERATURES, DOCUMENTATION DRAWINGS, INSTRUCTION BOOK & COMPLETION PLANS ETC.

5.12.1 The contractor shall supply complete documentation in Electronic form and Hard Copies. One set of tracings with 3 sets of prints for cable route plans drawn in CAD giving complete details. Necessary corrections as desired shall be done and final tracings should get approved. After completion of work, the As built drawings shall be made indicating OFF sets from center of nearest Railway track and all protective works. The offsets, route markers, joint & coupler's locations shall also be pointed out on OHE mast& any other landmark as per EIC. 3 sets of tracings & six sets of prints along with 3 CDs of as built drawings shall be supplied.

5.12.2 The contractor shall also submit the drawings of protective works like bridges/HDD/track, or Road crossing , LC gate, ROB, RUB , joint pits etc. proposed and being executed at site for approval of RailTel /Railways.

The cable route plan should also contain information regarding important chainages from relevant land mark ,location of jointing chambers, pull through chambers, culverts bridges etc RCC and GI Locations, locations of road crossing/track crossings preferably from two independent reference points.

5.13 SPARES

Deleted.

5.14 LONG TERM AVAILABILITY OF SPARES AND SYSTEM SUPPORT

Deleted.

5.15 QUALITY ASSURANCE

All the materials supplied are technically inspected and accepted by purchase's representatives. In the event of RailTel waving off the inspection, the quality assurance department of the manufacturer shall carry out all the tests as per the specification and issue a certificate indicating clearly the test results and the adherence to the technical specifications. This is without prejudice to the purchaser's right to accept or reject the supplies if not found in conformity to its requirement.

5.16 Not used

5.17 INSPECTION OF MATERIALS

5.17.1 All equipment's, materials, fittings and components supplied by the contractor are required to be inspected as per the codes and specifications by the purchaser or consignee or his representative before accepting the delivery.

5.17.2 Deleted

5.17.3 All materials shall be procured from the manufacturers of reputed/their authorized dealers. Such materials are to be accepted by the Engineer. The

contractor may be required to produce test certificate from the manufacturer wherever called for by the Engineer.

5.17.4 The inspection charges, if any, payable to the purchaser's representative for carrying out the inspection shall be borne by the purchaser. However contractor shall pay the inspection charges to the purchaser's representative/agency for carrying out the inspection. Reimbursement will be done by RailTel later based on submission of claim along with documentary proof by contractor as per actual Inspection Charges paid.

5.17.5 The cost of equipment and materials, all tests and / or analysis performed for inspection shall be borne by the contractor.

5.17.6 Deleted

5.17.7 Items of SOR shall be inspected by Authorized representative of RailTel.

5.18 INSPECTION OF WORKS

Method of measurements:

The measurement of the work shall be done for activity wise as and when the item of work is ready for measurement.

5.19 QUANTUM OF WORK AND VARIATION IN QUANTITIES

5.19.1 **Modification to contract to be in writing:** In the event of any of the provisions of the contract requiring to be modified after the contract documents have been signed, the modifications shall be made in writing and signed by the RailTel and the Contractor and no work shall proceed under such modifications until this has been done. Any verbal or written arrangement abandoning, modifying, extending, reducing or supplementing the contract or any of the terms thereof shall be deemed conditional and shall not be binding on the RailTel unless and until the same is incorporated in a formal instrument and signed by the RailTel and the Contractor, and till then the RailTel shall have the right to repudiate such arrangements.

5.19.2 **Powers of modification to contract :** The Engineer on behalf of the RailTel shall be entitled by order in writing to enlarge or extend, diminish or reduce the works or make any alterations in their design, character position, site, quantities, dimensions or in the method of their execution or in the combination and use of materials for the execution thereof or to order any additional work to be done or any works not to be done and the contractor will not be entitled to any compensation for any increase/reduction in the quantities of work but will be paid only for the actual amount of work done and for approved materials supplied against a specific order.

(i) Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be up to 25% of the quantity originally contracted, except in case of foundation work. The contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation whatsoever up to the limit of 25% variation in quantity of individual item of works.

(ii) Quantities operated in excess of 125% of the agreement quantity of the concerned item shall be paid 98% of the rate awarded for that item in this tender.

(iii) Quantities operated in excess of 140% of but up to 150% of the agreement

quantity of the concerned item shall be paid at 96% of the rate awarded for that item in this tender.

(iv) Variation in quantities of individual items beyond 150% will be executed through fresh tenders or by negotiating with the existing contractor with finance concurrence and approval of competent authority.

(v) The contract signing authority can decrease the items up to 25% of individual item without finance concurrence.

(vi) For decrease beyond 25% for individual items, finance concurrence and approval of competent authority shall be taken after obtaining "No Claim Certificate" from the contractor.

(vii) In case of earthwork, the variation limit of 25% shall apply to the gross quantity of earth work and variation in the quantities of individual classifications of soil shall not be subject to this limit.

5.19.2.3 **Valuation of variations :-** The enlargements, extensions, diminution, reduction, alterations or additions referred to in sub-clause (5.19.2) of this clause shall in no degree affect the validity of the contract but shall be performed by the Contractor as provided therein and be subject to the same conditions, stipulations and obligations as if they had been originally and expressively included and provided for in the specifications and drawings and the amounts to be paid therefore shall be calculated in accordance with the accepted schedule of rates.

NOTE :1 Handling vitiation during Variation in Contract Quantities:

1 Handling Vitiation during Variation in Contract Quantities In the contract, as a result of variations, a contract shall be considered "vitiated" only when, the following percentage variation in contract value between tenderers are noticed to have been exceeded.

Sr.No	**Value of contract**	**Percentage difference between present contractor and new L-1 as a result of variation. (Percentage shall be calculated with base as the revised contract quantities multiplied by the rates of the present contractor)**
1	Small value contracts (Tender	10

	value less than Rs. 50 Lakhs)	
2	Other than small value contracts (Tender value equal to or more than Rs. 50 Lakhs)	5

1.1 When the percentage difference between present Contractor and new L-1 is noticed as becoming beyond the values specified above, the following action shall be taken.

It should be immediately examined whether it is practicable to bring in a new agency to carry out the extra quantity of work keeping in view the progress of the work in accordance with the original contract and the nature and lay-out of the work. If it is found that there will be no serious practical difficulty in meeting the additional quantity of work done by another agency, then fresh tenders for the extra quantity may be Invited otherwise negotiating the rate with the existing contractor for arriving at a reasonable rate for the additional quantities of work, may be adopted.

1.2 **The above shall be regulated as under:**

a) The case shall be decided by the tender accepting authority (competent for the revised quantity) and shall not be treated as a case of single Tender.

b) Executives while executing the work shall make all efforts to ensure that no vitiation takes place in normal circumstances, vitiation should be an exception rather than a routine affair. Efforts should be made to invite bids on the basis of percentage above/below/at par.

c) Vitiation should always be computed with respect to the items, rates, quantities and conditions as available at the time of Tender Opening and subsequent changes/additions by way of new items will not be counted for computing vitiation.

2. System of Verification of Tenderers credentials:

2.1 The tenderer shall submit along with the tender document, documents in support of his/their claim to fulfill the eligibility criteria as mentioned in the tender document. Each page of the copy of documents/certificates in support of credentials, submitted by the tenderer, shall be self-attested/digitally signed by the tenderer or authorized representative of the tendering firm. Self-attestation shall include signature, stamp and date (on each page). Only those documents which are declared explicitly by the tenderer as “documents Supporting the claim of qualifying the laid down eligibility criteria", will be considered for evaluating his/their tender.

2.2"The tenderers shall submit a notarized affidavit on a non-judicial stamp paper stating that they are not liable to the disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as Form 15.

Non submission of an affidavit by the bidder shall result in summary rejection of his/their bid. And it shall be mandatorily incumbent upon the tenderer to Identify, state and submit the supporting documents duly self-attested by which they/he Is qualifying the Qualifying Criteria mentioned In the Tender Document. It will not be obligatory on the part of the RailTel to scrutinize beyond the submitted document of tenderer as far as his qualification for the tender is concerned"

With the submission of the affidavit as mentioned above, the practice of verification of tenderer's documents by the RailTel may be dispensed with Following clause may also be added to the Instruction to Bidders.

a) The RailTel reserves the right to verify all statements, Information and document submitted by the bidder in his tender offer, and the bidder shall, when so required by the RailTel, make available all such Information, evidence and document as may be necessary for such verification. Any such verification or lack of such verification, by the RailTel shall not relieve the bidder of its obligations or liabilities here under nor will it affect any right of the RailTel there under.

b) In case of any wrong information submitted by the tenderer, the contract shall be terminated, Earnest Money Deposit (EMD), Performance Guarantee (PG) and Security Deposit (SD) of contract forfeited and agency barred for doing business on entire RailTel for 05 (Five) years.

5.20 Not used

5.21 SUBLETTING AND ASSIGNMENT

5.21.1 The contractor may sublet a part of the work under this contract and enter into contract with suppliers for supply of materials. The credentials of subcontractors shall be subjected to scrutiny and approval of RailTel.

5.21.2 The contractor shall arrange for effective supervision of sub contractor's work and remain solely responsible for materials supplied and for works carried out on his behalf by the sub-contractor.

5.22 EXECUTION OF WORK

All the works shall be executed in strict conformity to the provisions of the contract document and with such explanatory detailed drawings, specifications and instructions as may be approved from time to time based on detailed design and engineering carried out by contractor in line with requirements as per contract document. The contractor shall be responsible for ensuring that the work throughout are executed in the most substantial, proper and workman like manner with the quality of material and workmanship in strict accordance with the specifications and as per sound industrial practices and to the entire satisfaction of the RailTel. **Contractor shall deploy multiple teams at various sections to execute work simultaneously and completion of all work in stipulated due timeline.**

5.23 Not used

5.24 MAINTENANCE OF WORKS

The contractor shall at all times during the progress and continuance of the works and also for the period of maintenance specified in the tender form and after the date of passing of the certificate of completion by the RailTel 's representative or any other earlier date subsequent to the completion of the works that may be fixed by RailTel 's representative be responsible for and effectively maintain and uphold in good, substantial, sound and perfect condition all and every part of the works and shall make good from time to time and at all times, as often as the RailTel 's representative shall require, any damage or defect that may, during the above period, arise in or be discovered or be in any way connected with the works provided that such damage or defect is not directly caused by errors in the contract documents, act of providence or insurrection or civil riot and the contractor shall be liable for and shall pay and make good to the RailTel or other persons legally entitled thereto whenever required by the RailTel 's representative so to do, all losses, damages, costs and expenses they or any of them may incur or be put or be liable to, by reason or inconsequence of the operations of the contractor or his failure in any respect.

5.25 CLEARANCE OF SITE

At the end of the work at each location the Contractor shall as a part of his Contractual obligation leave the area completely neat and clean.

5.26 PROVISIONAL ACCEPTANCE CERTIFICATE (PAC)

5.26.1 Immediately after the completion of the work, the contractor shall certify and advise the RCIL in writing that the installation is (i) complete (ii) ready for satisfactory commercial service and (iii) ready to be handed over.

5.26.2 The test or tests specified in Technical supplement (chapter 7) will be conducted jointly by RCIL and contractor as soon as possible after receipt of advice of completion of one sub - section by RailTel from the contractor. The test schedule shall be finalized by mutual discussion between the contractor and M/s RailTel Corporation of India Limited, Mumbai. Any component, modules, sub assemblies or equipment, losses in OFC failing during the commissioning test shall be replaced/repaired free of cost by tenderer.

5.26.3 Purchaser's Engineer shall issue a Provisional Acceptance Certificate (PAC) for successful commissioning of work covering all materials and services included in the Schedule of works after the final acceptance test as per the approved test procedures have been completed and the performance has been found to meet the specifications. PAC shall not be held up for want of minor deficiency which shall be attended by the contractor within reasonable time to the satisfaction of Engineer. RailTel's decision in this respect shall be final. The Provisional Acceptance Certificate shall be signed by both the parties.

5.27 MAINTENANCE OF WORK TILL ISSUE OF PAC

5.27.1 After the work has been completed & placed in service and Provisional Acceptance certificate issued by Purchaser's Engineer, the contractor shall be responsible for proper maintenance supervision of the work for a period of twelve months from the date of PAC.

For this purpose he shall prepare a maintenance plan and make available the services of qualified maintenance engineer stationed at the location approved by Purchaser's Engineer who will guide and supervise the work of RailTel maintenance staff. The maintenance engineer of the tenderer will visit the total installation at least once in a month.

5.27.2 Deleted.

5.27.3 During this period of maintenance supervision if any lacuna is noticed in the functioning, as a result of any work, the contractor free of cost will rectify the same. During such rectification if any faulty equipment/modules need replacement or repair, they shall be provided by the contractor from the set of equipment or modules that the contractor should bring to the site of installation in addition to all the materials to be supplied against this contract. Use of spare modules covered under the Schedule of material of this tender shall not be permitted to be used during installation, commissioning and period of maintenance supervision.

5.27.4 The contractor shall be responsible for proper maintenance of the work at his own cost until PAC for work is issued. During this period, the tenderer shall have to attend any failure.

5.28 FINAL ACCEPTANCE CERTIFICATE (FAC)

5.28.1 The final acceptance of the works shall take effect from the date of expiry of the period of warranty as defined in Para 5.29 i.e. on expiry of the warranty period from the date of issue of Provisional Acceptance Certificates or brought into commercial operation, provided in any case that the contractor has complied fully with his obligations in respect of each item under the contract. The FAC will be issued for completed work along with its value.

5.28.2 Notwithstanding the issue of Final Acceptance Certificate the contractor and the purchaser (subject to Sub Clause as above) shall remain liable for fulfilment of any obligation incurred under the provision of the contract prior to the issue of Final Acceptance Certificate which remains unperformed at the time such certificate is issued and for determining the nature and extent of such obligation the contract shall be deemed to remain in force between the parties hereto.

5.29 WARRANTY

5.29.1 All equipment /material supplied by the Contractor shall be guaranteed against the defects for a period of 12 months from the date of issue of Provisional Acceptance Certificate for each link. The contractor shall provide comprehensive warranty maintenance for all the items supplied by him against this tender.

5.29.2 Contractor will ensure availability of adequate spares for providing replacement of faulty material , items during the warranty.

5.29.3 If any equipment/material supplied by the contractor becomes defective during the warranty ,the same shall be replaced by the contractor and total cost of such replacement shall be borne by the contractor. The replaced material will also be guaranteed for the remaining period of original warranty.

5.30 Training

5.30.1 Deleted

5.30.2 The contractor shall at every stage of installation; testing and commissioning provide all facilities for adequate training of RailTel personnel who may be deputed to work on the project.

5.31 INFRINGEMENT OF PATENTS:

(a) The Contractor is forbidden to use any patents or registered drawings, processes or patterns in fulfilling his contract without prior consent in writing of the owner of such patents, drawings, patterns or trademarks except where these are specified by the Purchaser himself. Royalties where payable for the use of such patented processes, registered drawings or patterns shall be borne exclusively by the Contractor. The Contractor shall advise the Purchaser of any proprietary rights that may exist on such processes, drawings or patterns which he may use of his own accord.

(b) In the case of patents taken out by the Contractor of the drawings or patterns registered by him or of those patents, drawings or patterns

for which he holds a license, the signing of the contract automatically gives the Purchaser the right to repair by himself the purchased articles covered by the patent or by any person or body chosen by him and to obtain from any sources he desires the component parts required by him for carrying out the repair work. In the event of infringement of any patent rights due to above action of the Purchaser he shall be entitled to claim damages from the Contractor on the grounds of any loss of any nature which he may suffer e.g. in the case of attachment because of counterfeiting.

5.32 LICENSE AS PER GOVT. OF INDIA CONTRACT LABOUR ACT

The Contractors are required to produce license as enjoined in the Government of India Contract Labour (Regulation and Abolition) Act, 1978 with latest amendments, if any. They shall not be allowed to undertake or execute any work through contract Labour except under and in accordance with a license issued under the said Act in that behalf by the authorized licensing Officer.

5.33 DEFAULTS AND DELAYS

The Contractor shall execute the work with due diligence and expedition, keeping to the approved time schedule. Should he refuse or neglect to comply with any reasonable orders given to him in writing by the Purchaser's Engineers in connection with the work or contravene the provision of the Contract or the progress of work lags persistently behind the time schedule due to his neglect, the Purchaser shall be at liberty to give seven days notice in writing to the Contractor requiring him to make good the neglect or contravention complained of and should the Contractor fail to comply with the requisitions made in the notice within seven days from the receipt thereof, it shall be lawful for the purchaser to take the work wholly or in part out of the Contractor's hands without any further reference and get the work or any part thereof, as the case may be, completed by other agencies at the expense of the Contractor without prejudice to any other right or remedy of the Purchaser.

5.34 LOSS SUSTAINED DUE TO DEFAULTS AND DELAYS

In the event of any loss to the purchaser on account of execution and/or completion of the work or any part thereof by agencies other than the

contractor, in terms of Para 5.33 of the tender document, the contractor shall be liable to reimburse the loss to purchaser without prejudice to the other rights and remedies of the purchaser and the reimbursement in full or in part, as the case may be, shall be met at the option of the purchaser form out of all or any of the following sources via :

(a) i) Any amount due and payable to the contractor by the purchaser on any account whatsoever;

ii) The Contractor's security deposit in the hands of the purchaser as far as available, and;

iii) Any other assets whatsoever of the contractor;

(b) In the event of re-imbursement from out of sources (I) and/or (ii) above mentioned, the purchaser shall have the right of appropriation sue motto.

5.35 PENALTY FOR DELAY IN COMPLETION

5.35.1 The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in clause 5.48, the RailTel may, if satisfied that the works can be completed by the contractor within reasonable short time thereafter, allow the contractor for further extension of time (Performa Annex. II) as the Engineer may decide. On such extension the RailTel will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the contractor as agreed damages and not by way of penalty a sum equivalent to ½ of 1% of the contract value of the works for each week or part of the week.

For the purpose of this clause, the contract value of the works shall be taken as value of work as per contract agreement including any supplementary work order/contract agreement issued. Provided also, that the total amount of liquidated damages under this condition, shall not exceed the under noted percentage value or of the total value of the item or groups of items of work for which a separate distinct completion period is specified in the contract.

(i) For contract value up to Rs. 2 lacs — 10 % of the value of the contract.

(ii) For contract value above Rs. 2 lacs — 10% of the 1st 2 lakh and 5 % of the balance

iii) The competent authority while granting extension of currency of the contract may also levy token penalty as deemed fit based on the merit of case.

Provided further, that if the RailTel is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the RailTel shall be entitled without prejudice to any other right or remedy available in that behalf; to appropriate the contractor's security deposit and rescind the contract under 49 of these conditions, whether or not actual damage is caused by such default.

5.35.2 **Penalty for cutting/damaging the existing cables of RAILTEL and the existing underground facilities of third parties: -**

(a) During excavation of trench utmost care is to be taken by the contractor so that the existing underground cables are not damaged or cut. In-case any damage/cut is done to the existing cables, a penalty as per the schedule given below willbe charged from the contractor or the amount will be deducted from his running bills as per Railway Board's Telecom Circular No.17/2013:-

Size of existing UG/ OFC cut/ damaged	Amount of penalty per cut/ damage
Only Quad cable and signaling cable	Rs. 1.0 Lakhs (Rs. One lakh only)
Only OFC	Rs. 1.25 Lakhs (Rs. One lakh & twenty five thousand only)
Both OFC & Quad	Rs. 1.50 Lakhs (Rs. One lakh & fifty thousand only)
Electrical cable	Rs. 1.0 Lakhs (Rs. One lakh only)

Besides the above penalty, the contractor shall carry out such repairs for restoration of the damaged cable free of charge. The cost of jointing kit shall also be borne by the contractor. If contractor fails to repair the damage, the cost of repair (including cost of labour & jointing kit) shall be recovered from the contractor.

(b) Contractor shall either pay to third parties all expenditure incurred for restoring services which are damaged by Contractor while carrying out the work or the same amount will be deducted from his bills. Such expenditure shall be intimated to Contractor either by Engineer-In-Charge or concerned third parties in writing. The amount deducted by the Contractor from his bill shall be paid to concerned third parties by Engineer-In-Charge.

(c) Engineer-in-charge at his absolute discretion shall reserve the right to reject any bill submitted by the Contractor prior to making payment by him to third parties for the damages caused or to deduct same amount from his bill.

(d) Penalty to damage stores/materials supplied by the RAILTEL while laying:

The contractor while taking delivery of materials supplied by the RAILTEL at the designated place shall thoroughly inspect all items before taking them over. In case of execution of the work, if any material is found damaged/working unsatisfactorily, then a penalty equivalent to the cost of material + 10% as penalty shall be recovered from the contractor's payments/securities.

(e) However, contractor will not be penalized for any defect in workmanship of the materials, which are directly supplied by RailTel.

5.35.3 If Railways/any other stakeholders of this project imposes any penalty on account of bad workmanship or delays, the same shall be charged to the contractor back to back.

5.35.4 Issue of work order (Not Applicable)

5.36 ADHERENCE OF TIME SCHEDULE

5.36.1 Timely completion of the work is the essence of the contract. While delay in execution will attract penalty.

5.36.2 If any delay as aforesaid in Para 5.35 of tender document shall have arisen from any cause which the Purchaser may agree as being a reasonable ground for extension of time the purchaser's engineer or his representative may allow such additional time as he may in his absolute discretion consider to be reasonably justified by the circumstances of the case. Such extensions shall be granted, on request from contractor, with liquidated damages in the Form No.11.

5.37 CONTRACTOR'S LIABILITIES FOR COSTS AND DAMAGES

Please Refer Para 4.52 of the tender document.

5.38 PRICES

5.38.1 This tender consists of a percentage bidding system. The estimated prices of each and every item of the schedule are indicated in the Schedule of Requirements. The tenderer is expected to quote the %age above(+) / below(-) /at PAR the RailTel's total estimated cost indicated in the schedule.

The percentage above/below/at par finalized for the entire schedule shall be firm and on all-inclusive basis (inclusive all incidental charges for transport, loading/ unloading and handling of materials, commission for arranging dispatch by rail direct from manufacturer's factory and completing all necessary formalities in this respect, such as submission of forwarding notes, arranging placement of Wagon, collection of banker's charges for Bank guarantee, Indemnity Bonds inclusive of cost of Stamp etc. , if any, levied by the RailTel).

5.38.2 The prices shall include all taxes, GST and levies applicable on this Contract. Therefore, they should quote their rate taking into account the rate of GST on this work as livable. It is clarified that required form applicable for this purpose will be supplied to the Contractor as applicable in the state where the Contract is being executed.

5.38.3 The rate quoted by the tenderer shall include cost of commissioning and testing and all costs of Administration of Contract, Insurance Premium, Banker's charges for guarantees, cost of storage, loading-unloading and handling of materials and for any road transport which the contractor may use for carriage of materials to his depot and the site of work. The prices shall include the cost of works and adjustments necessary to be done by the contractor during or after tests carried out by the purchaser.

5.38.4 The rate to be quoted by the Tenderers should take into account the credit availed on imports under the CENVAT scheme. The tenderer should give a declaration that any set off in respect of duties on imports as admissible under law is being totally and unconditionally passed on to the purchaser in the price quoted by him (see Para 5.43).

5.38.5 While the price quoted in the contract are inclusive of all taxes i.e. GST levied by any statutory authority, the purchaser shall make any deduction toward GST if statutorily required to do so. The deducted GST shall be remitted to the concerned authority and the purchaser shall in no way be responsible for any disputes between the tax authorities and the contractor in this regard.

5.38.6 All taxes, duties and levies arising out of the transaction between the contractor and his sub-contractor/supplier for this work will be included in the rates quoted by the contractor in the relevant Schedule.

The rates are all inclusive of taxes but the tenderer has to submit the breakup of all taxes as per Form no 16 annexed with the Tender Document.

5.38.7 Arrangement for permits/license for materials will not be made by the RailTel or any assistance given. The Contractor will have to make his own arrangement.

5.38.8 As per provision of GST, for all taxable supplies made by the vendor, vendor will issue valid tax invoice in accordance with GST Act in order to enable RailTel to avail input tax credit. For all the taxable supplies made by the vendor,

the vendor shall furnish all the details of such taxable supplies in the relevant returns to be filed under GST Act. If the vendor fails to comply with any of the above, the vendor shall pay to purchaser any expense , interest, penalty as applicable under the GST Act.

In case of incorrect reporting of the supply made by the vendor in the relevant return, leading to disallowance of input credit to purchaser, the vendor shall be liable to pay applicable interest under the GST act to the credit of purchaser. The same provisions shall be applicable in case of credit notes.

5.39 MEASUREMENT OF WORKS

5.39.1 Refer Para 5.18 of tender document.

5.39.2 MEANING AND INTERPRETATION BY RAILTEL TO BE FINAL

All measurement, method of measurement, meaning an intent of specifications provided by purchaser's Engineer shall be final and binding.

5.40 TERMS OF PAYMENT

5.40.1.1 On Account Payment:-Ref para 4.46

5.40.1.2 Rounding off amounts:-Ref para 4.46

5.40.1.3 On account payments not prejudicial to final settlement: -Refer para 4.46

5.40.1.4 The vendor should have Registration No. as per provision of GST

5.40.2 Manner of payment: - Ref para 4.46.

5.40.3 Not Applicable

5.40.4 **PROGRESS PAYMENT FOR EXECUTION OF WORK (SCHEDULE OF SERVICES)**

5.40.4.1 95% (Ninety percent) of the progress payment for each Schedule of Works/Services shall be made after successful completion of Supply,

Shifting, Installation, Testing and Commissioning (SITC), joint measurement, testing and handover to the satisfaction of Engineer.

5.40.4.2 Balance 5% (Five percent) value of the works/services completed shall be made after the issue of Provisional Acceptance Certificate.

5.40.4.3 Labour Cess shall be deducted from bills as applicable under Liability to pay cess under building and other construction workers welfare Act,1996 and deposited in relevant state where work is being executed.

5.40.4.4 Trade Receivables Discounting System (TReDS)

"RailTel is registered with m1xchange TReDS platform having Buyer registration "BUYER00001496". The URL for m1xchange Platform is https://www.m1xchange.com. MSE suppliers/vendors are required to register themselves on m1xchange Platform for availing the facility of bill discounting on TReDS Portal. The Bidder is mandatorily required to submit its TReDS registration number (as provided by M1xchange portal) and GRN (Goods/service Receipt Note) Number (as provided by RailTel on Delivery of Goods/Service) while submitting the invoices if requires to avail TReDS facility.

MSE vendor will bear all costs relating to availing the facility of discounting on TReDs platform including but not limited to Registration charges, Transaction charges for financing, Discounting Charges, Interest on Financing, or any other charges known by any name shall be borne by MSE vender.

MSE vendor hereby agrees to indemnify, hold harmless and keep RailTel and its affiliates, Directors, officers, representatives, agents and employees indemnified, from any and all damages, losses, claims and liabilities (including legal costs) which may arise from Sellers submission, posting or display, participation, in any manner, on the TReDS platform or from the use of Services or From the Buyer's breach of any of the terms and conditions of the usage terms or of this Agreement and any Applicable law on a full indemnity basis.

RailTel shall not be liable for any special, indirect, punitive, incidental or consequential damages or any damages whatsoever (including but not limited to damages for loss of profit or savings, business interruption, loss of information), whether in contract, tort, equity or otherwise or any other damages resulting from using TReDS platform for discounting their (MSE Vendor's) invoices.

5.40.4.5 Bill passing authority will be GM / Project and paying authority will be JGM/Finance.

5.41 FINAL PAYMENT

5.41.1 Deleted.

5.41.2 **Post Payment Audit:** Refer clause 4.51.2

5.42 FINAL SETTLEMENT

On expiry of the warranty period and issue of the Final Acceptance Certificate of the entire installations and commissioning of each "Link", the "Link" wise security deposit will be refunded to the Contractor after adjustment of any dues payable by the contractor

5.43 CERTIFICATE FOR CENVAT BENEFITS ON BILLS

a) The purchaser will not be responsible for payment of taxes and duties paid by the supplier under misapprehensions of law or misclassification and in such cases even if the suppliers bill contain an element of tax or duty which is not payable by the purchaser, such payment would be disallowed.

b) The claim for GST, if any, on each bill should be supported by the following certificates:-

i) Certified that the amount of `……..claimed as GST in this bill is in accordance with the provision of the rules in all respects and the same has been actually paid to the GST authorities in respect of the stores covered by the bills.

ii) Quarterly certificate to the effect that no refund of GST already reimbursed against this contract has been obtained during the quarter ending. In the event of any such refund being obtained by the seller, the same should be passed on to the purchaser.

iii) Certificate: - The tenderers will have to give the following certificates in their offer:-

"We hereby declare that in quoting the above price, we have taken into effect, the full effect of the duty set-off on 'Central excise and counter veiling duties' available under the existing scheme. We further agree to pass on such additional duties and set off as may become available in future in respect of all the inputs used for the manufacture of the final product, on the date of the supply under scheme, by way of reduction in price and advise the purchaser accordingly."

iv) Payment of GST will be released only after submission of GST to authorities and details given in return for GST.

5.44 DEDUCTION FROM ON ACCOUNT PAYMENT BILLS

(i) All costs, damages or expenses, which RailTel may have been paid or incurred which under the provisions of contract are Contractor's obligations will be deducted by RailTel from progress payment Bills/Invoice of Contractor, as and when it is understood that such an expense has been incurred or paid for.

(ii) All such claims of RailTel shall, however, be duly supported by appropriate and certified vouchers, receipts or explanations as are available to enable the Contractor to identify such claims.

5.45 TAXES

5.45.1 The Contractor and all personnel employed by him shall pay such taxes like Income Tax as are payable under statutory laws of India and the Purchaser **WILL NOT ACCEPT** any liability for the same.

5.45.2 Deduction of Income Tax at source as per provisions of Finance Act and Income Tax in force shall be made from the Contractor/Sub-Contractor and the amount so deducted may be credited to the Central Government.

5.45.3 Wherever the law makes it statutory for the Purchaser to deduct any amount towards GST on Works , the same will be deducted and remitted to the concerned authority.

5.45.4 Any change in statutory duties/taxes, imposition/removal of any duty taxes shall be to RailTel account.

5.45.5 In case the successful tenderer is not liable to be registered under CGST/IGST/UGST/SGST Act, the RCIL shall deduct the applicable GST from his /their bill under RCM and deposit the same to concerned Authority.

5.45.6 Any statutory revision/variation in taxes /duties shall be to the RailTel's account and shall be admissible on the production of valid documentary evidence. For this tenderer shall submit the taxes/duties structure considered by him while quoting the rates.

5.45.6 **GST related clauses W.E.F 01.07.2017**

1. The price quoted in the offer should be firm, fixed indicating the breakup and inclusive of ,all taxes & duties like import, custom, Anti-Dumping, CGST, SGST, IGST, UTGST etc the offer should be inclusive of packing, forwarding. freight up to destination, insurance charges.

2. Bidder shall issue valid invoice to RailTel for availing proper credit of CGST/ case of award of Contract GST will not be reimbursed in the absence of valid tax invoice.

3. For all the taxable supplies made by the vendor, the vendor shall furnish all the details of such taxable supplies in the relevant returns to be filed under GST Act.

4. If the vendor fails to comply with any of the above, the vendor shall pay to purchaser any expense, interest penalty as applicable under the GST Act

5. In case of incorrect reporting of the supply made by the vendor in the relevant return, leading to disallowance of input credit to purchaser, the vendor shall be liable to pay applicable interest under the GST Act to the credit of purchaser. The same provisions shall be applicable in case of debit/credit notes

6. Tenderer shall quote all inclusive rates, but there shall be break up of basic price and all type of applicable taxes such as SGST/CGST/IGST/UT GST along with respective HSN/SAC Code under GST Law (Including tax under reverse charges payable by the recipient).

7. Wherever the law makes it statutory For the Purchaser to deduct any amount towards G5T at sources, the same will be deducted and remitted to the concerned authority.

8. In regards to works contract, the tenderer should have registration no. for GST in respective state where work to he executed and shall furnish GST registration certificate along with tender.

9. The imposition of any new tax and/or increase/ in the aforesaid taxes, duties levies, after the last stipulated date for the receipt of tender including extensions if any and the bidder there upon necessarily and properly pays such taxes/levies/cess, the bidder shall be reimbursed the amount so paid provided such payments if any, is not, in the opinion of RailTel attributable to delay in execution of work within the control of bidder. The bidder shall, within a period of 30 days of the imposition of any such tax or levy or cess , give a written notice thereof to Rail Tel that the same is given pursuant to this condition, together with all necessary information including details of input credit relating thereto. In the event of non-payment/default in payment of any of the above taxes. RailTel reserves the right to with-hold the dues/ payment of bidder and make payment to state/Central Government authorities as may be applicable. However if the rates are reduced after the last stipulated date for receipt of tender, bidder has to pass on the benefits to RailTel.

10. **Incase of imported equipment :**

Anti-Dumping duty if applicable on the equipment proposed to be supplied by 0EM/ Tenderer as per extant instructions of Ministry of Commerce/Finance Government of India has to be borne by the tenderer and shall be deducted from the amount payable to the bidder at the, time of making payment to the firm . if this duty amount is paid to Custom Authority by RailTel.

11. **Evaluation Criteria:**

Inter se position of the offers will be determined on total unit rate on CIP destination basis which will include basic rate, custom duty, CGST, SGST, IGST , GST, freight, insurance and any other charge or cost quoted by the tenderer, including GST payable. On reverse charge by RailTel, wherever applicable.

5.46 MOBILIZATION ADVANCE

No mobilization advance will be given to the contractor.

5.47 INSURANCE

5.47.1 The Contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the Contractor or the Purchaser at common law or under any statute in respect of accidents to persons who shall be employed by the contractor in or about the site for the purpose of carrying out the works on the site. The Contractor shall also take out and keep in force a policy or policies of Insurance against all recognized risks to their offices and depots. Such insurance shall in all respects be to the approval of the Purchaser and if he so requires in his name.

5.47.2 **INSURANCE OF MATERIALS & INSTALLATIONS**

The Contractor shall take out and keep in force a Policy or policies of Insurance for all materials including materials/ equipments supplied by RailTel irrespective of whether used up in the portion of work already done or kept for the use in the balance portion of the work until such works are provisionally handed over to the RailTel. For this purpose, the works are deemed to have been provisionally handed over when provisional acceptance certificate is issued for the locations.

5.47.3 The Contractor shall not be liable for losses/damages to the materials either used up in the

portion of work done or his material kept for use at site, in consequence of Mutiny, or other

similar causes over which the Contractor has no control and which cannot be insured. Such

losses or damages shall be the liability of the Purchaser and if required by the Purchaser, be

made good by the contractor at the cost of the Purchaser.

5.47.4 The Contractor should, however, insure the stores brought to site, against risks in consequence of war and invasion, as required under the Emergency Risk (Goods) Insurance Act enforce from time to time.

5.47.5 It may be noted that the beneficiary of the insurance policy should be RailTel or the policies should be pledged in favor of RailTel. The contractor shall keep the policy/policies current till the installations are provisionally handed over to the purchaser. It may also be noted that in

the event of contractor's failure to keep the policy current and alive, renewal of policy will be done by purchaser for which the cost of the premium plus 20% of premium shall be recovered from the contractor.

5.47.6 For the purpose of enabling the contractor to take the insurance cover in connection with this contract, the purchaser's Engineer will advise the approximate price of all the RailTel supply materials to the Contractor.

5.48 FORCE MAJEURE CLAUSE

Refer para 4.11 of chapter -4

5.48.1 Refer para 4.17 of chapter-4

5.49 Trade Receivables Discounting System (TReDS)

5.49.1 “RailTel is registered with m1xchange TReDS platform having Buyer registration “BUYER00001496”. The URL for m1xchange Platform is https://www.m1xchange.com. MSE suppliers/vendors are required to register themselves on m1xchange Platform for availing the facility of bill discounting on TReDS Portal. The Bidder is mandatorily required to submit its TReDS registration number (as provided by M1xchange portal) and GRN (Goods/service Receipt Note) Number (as provided by RailTel on Delivery of Goods/Service) while submitting the invoices if requires to avail TReDS facility.

5.49.2 MSE vendor will bear all costs relating to availing the facility of discounting on TReDs platform including but not limited to Registration charges, Transaction charges for financing, Discounting Charges, Interest on Financing, or any other charges known by any name shall be borne by MSE vender.

5.49.3 MSE vendor hereby agrees to indemnify, hold harmless and keep RailTel and its affiliates, Directors, officers, representatives, agents and employees indemnified, from any and all damages, losses, claims and liabilities (including legal costs) which may arise from Sellers submission, posting or display, participation, in any manner, on the TReDS platform or from the use of Services or From the Buyer’s breach of any of the terms and conditions of the usage terms or of this Agreement and any Applicable law on a full indemnity basis.

5.49.4 RailTel shall not be liable for any special, indirect, punitive, incidental or consequential damages or any damages whatsoever (including but not limited to damages for loss of profit or savings, business interruption, loss of information), whether in contract, tort, equity or otherwise or any other damages resulting from using TReDS platform for

discounting their (MSE Vendor's) invoices.

5.50 SETTLEMENT OF DISPUTE AND ARBITRATION

(1) **Right of RailTel to determine the contract: -** The RailTel shall be entitled to determine and terminate the contract at any time should, in the RailTel's opinion, the cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the RailTel of such determination and the reasons therefore shall be conclusive evidence thereof.

(2) **Payment on determination of contract: -** Should the contract be determined under sub Para 5.49(1) of tender document of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the RailTel shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfaction of the Engineer. The RailTel's decision on the necessity and propriety of such expenditure shall be final and conclusive.

(3) The Contractor shall have no claim to any payment of compensation or otherwise. Howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

(4) Arbitration:-

(a) Any dispute or differences of any kind whatever arising in connection with the Contract or the carrying out of the works (whether during the progress of the works or after their completion and whether before or after the determination, abandoned or breach of the Contract) shall be referred to and settled by the sole arbitrator in accordance with the provisions contained in arbitration and conciliation Act, 1996.

(b) The sole arbitrator shall be appointed by the CMD of RailTel Corporation of India Limited. It is expressly understood between the parties that no objection shall be raised at time after execution hereof to the appointment of the arbitrator by the MD of RailTel Corporation of India Limited including that the person appointing the arbitrator is connected to and / or employed with RailTel Corporation of India Limited.

(c) The venue of the arbitration shall be New Delhi (India). The arbitration proceedings shall be conducted in English and the cost of the arbitration shall be borne between the parties in equal proportion.

(d) The arbitrator shall give a reasoned award, which shall be binding on the parties.

****

CHAPTER – 6

FORMS OF TENDER

Form No. 1	:	Offer Letter
Form No. 2	:	Qualifying Criteria / User's Certificate
Form No. 3	:	Agreement
Form No. 4	:	Proforma for Performance Guarantee Bond Deposit
Form No. 5	:	Statement of Deviations
Form No. 6	:	Standing Indemnity Bond for on Accounts Payments and Stores Supplied by RailTel
Form No. 7	:	System performance guarantee.

Form No. 8	:	Manufacturer Authorization Form
Form No. 9	:	Works in hand
Form No. 10	:	Acknowledgement of receipt of materials from RailTel
Form No. 11	:	Extension of period of completion of work
Form No. 12	:	Not used
Form No. 13	:	Qualification Experience
Form No. 14	:	RTGS format.
Form No. 15	:	Affidavit
Form No. 16	:	Tax Breakup
Form No. 17	:	Make in India

Form No.1

OFFER LETTER

From: Date:

_____

_____

_____

To:

Principal Executive Director,

RailTel Corporation of India Limited,

Western Region,
Mumbai.

Sub:

Ref: E-Tender No.

I/We the undersigned hereby offer to execute the agreement for the above work within fifteen days from the date of issue of letter of acceptance of the tender in strict compliance within the provision detailed in the tender paper attached.

I/We agree that this tender shall not be restricted or withdrawn and shall remain opened for acceptance for and during the period of 90 days from the date of opening of the tender.

I/We fully understand the terms and conditions as contained in the tender paper and we agree that the same shall apply to My/Our tender and I/We shall be bound by them.

Earnest money deposit & Tender document cost details are as follows :-

Tender document cost :- ……

Earnest Money Deposit (EMD) :- ……

The full value of the Earnest Money shall be forfeited without prejudice to any other right or remedies if:

(i) If we do not submit the Performance Bank Guarantee/Security Deposit in the event the LOA for any section is awarded to us, within stipulated time.

(ii) I/We do not execute the contract document within 7 days after the receipt of notice by the RailTel Corporation that such documents are ready.

(iii) I/We do not commence work within 7 Days from the date of issue of letter of acceptance or as per Clause 4.19 of the contract document.

(iv) If we withdraw our offer after opening of the tender.

(v) If we do not accept the order in the event the same is awarded to us.

Until a formal agreement is prepared and executed, submission of this offer letter shall constitute a binding contract between us subject to modification as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer.

I/We hereby agree to execute the work and place our teams as required, within the scheduled date mentioned above. In the event of shortcomings in the provision of equipment / placement of team within the stipulated date, RailTel shall be at liberty to impose penalty, if any, as has been stipulated in the tender document.

Yours Sincerely,

Signature & Seal of the Tenderer

Place: -

Date: -

Witnessed by:

1. Signature:

Name:

Address:

2. Signature:

Name:

Address:

Form No. 2

QUALIFYING CRITERIA *(For Tender amounting more than 50 lakh Rupees)*

USER's CERTIFICATE

Name of the Firm	
Contract No. & date	
Scope of Work	
Contract Amount (in Indian Rupees)	
Completion Period as per original contract	

Completion Period with extension	
Data of Commencement	
Actual date of Successful Completion	

Name :

Dated :

Designation :

Signature of the Contractor with

Company Seal

Note: The relevant User's certificate to be attached.

Form No. 3

AGREEMENT

CA No. _____ for "Name of work:- _____ "This AGREEMENT is made this _____ day of _____ Year, by and between RailTel Corporation of India Limited. (A Govt. of India Undertaking) having its Registered office at Plate-A, 6th Floor, Office Block, Tower-2, East Kidwai Nagar, New Delhi-110023, and Regional Office at Western Railway Microwave Complex, opposite Ambika Mills, Senapati Bapat Marg, Mahalaxmi (West), Mumbai-400013 acting in the premises through Principal Executive Director /Western Region (hereinafter referred to as 'RailTel', which expression should unless repugnant to the context or meaning thereof include its successors and permitted assigns) of the one part;

And _____having its Registered office at _____ acting in the premises through _____ (hereafter referred to as "Contractor", which expression should unless repugnant to the context or meaning thereof include its successor and permitted assigns) of the other part.

Whereas in response to a call for Tender by RailTel for the work of …… through OFC Network at Annexure 'A' read with Corrigendum…….. Issued by RailTel hereto, the Contractor has submitted a Tender as per Annexure 'B' hereto

AND WHEREAS the said Tender of the Contractor has been accepted for the work of " _____ "as per copy of Letter of Acceptance of Tender No. _____. complete with enclosures at the accepted rates and agreed deviations from tender papers as per Annexure-C hereto at contract value of `_____(Rupees _____ Only) duly accepted by the contractor.

Now this agreement witnesses that in consideration of the premises and the payment to be made by the Purchaser (RailTel) to the Contractor provided for herein, the Contractor shall supply all equipment and materials and execute and perform all works for which the said

Tender of the Contractor has been accepted strictly according to the various provisions in Annexure 'B' and 'C' hereto and upon such supply, execute and performance to the satisfaction of the purchaser (RailTel) and the purchaser (RailTel) shall pay to the Contractor at the rates accepted as per the said Annexure 'C' and in terms of the provisions therein.

IN WITNESS whereof both the parties have hereunto set and subscribed their respective hands and/or seals on the day and year respectively mentioned against their respective signatures.

Signed and delivered by Shri _____ for and on behalf of RailTel Corporation of India Ltd.

The contract within named in the presence of:

1. Signature :

   Date :

   Name in Block Capitals :

   Address :

2. Signature :

   Date :

   Name in Block Capitals :

   Address :

Signed and delivered by Shri. _____ for and on behalf of _____ , the contractor within named in the presence of :

1. Signature :

Date :

Name in Block Capitals :

Address :

2. Signature :

Date :

Name in Block Capitals :

Address :

Annexure – A : Tender Paper No. _____ with corrigendum, if any.

Annexure – B : Firm's offer.

Annexure – C : Letter of Acceptance No. _____ with all enclosures.

Annexure – D : Copy of Contract Performance Guarantee.

Form No. 4

Proforma for Performance Bank Guarantee

PERFORMANCE BANK GURANTEE BOND

(On Stamp Paper of Rs. One Hundred)

(To be used by approved Scheduled Banks)

1. In consideration of the RailTel Corporation of India Limited: Plate-A, 6th Floor, Office Block, Tower-2, East Kidwai Nagar, New Delhi-110023 and Regional office at RailTel Corporation of India Ltd, Address of Regional office…… (herein after called "the RailTel") having agreed to exempt …….. (Hereinafter called "the said Contractor(s)") from the demand, under the terms and conditions of an Agreement No. …… …… dated …… made between …… and …….. for (hereinafter called " the said Agreement") of security deposit for the due fulfillment by the said Contractor (s) of the terms and conditions contained in the said Agreement, or production of a Bank Guarantee for Rs. …….. (Rs. …….. only). We, ……(indicate the name of the Bank) hereinafter referred to as " the Bank") at the request of …….. ……. Contractor(s) do hereby undertake to pay the RailTel an amount not exceeding Rs. ……. 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(s) of any of the terms or conditions contained in the said Agreement.

2. We, …….. Bank **and our local branch at …… (indicate detail address of local Branch with code no.)** 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 caused to or would be caused to or suffered by the RailTel by reason of breach by the said Contractor(s) of any of terms or conditions contained in the said Agreement or 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. ……

3. We, …….. bank undertake to pay to the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Supplier(s) in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal.

4. The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor(s) / Supplier(s) shall have no claim against us for making such payment.

5. We, ……. Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the RailTel under or by virtue of the said Agreement have been fully paid and 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(s) and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before the ……. (1) …….. We shall be discharged from all liability under this Guarantee thereafter.

6. We,……We, ……. (indicate the name of Bank) Further agree with the RailTel that the RailTel shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Agreement or to extend time of to postpone for any time or from time to time any of the powers exercisable by the RailTel against the said contractor(s) and to forbear or enforce any 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(s) or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor(s) 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.

7. This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s) Supplier(s).

8. **We,** the …… Bank further agree that this guarantee shall be invokable at our place of business at ……/New Delhi (indicate detailed address of local New Delhi Branch with code no.). The branch at New Delhi is being advised accordingly.

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

Dated the day of 2021

for ……..

(Indicate the name of the Bank)

Witness

1. Signature

   Name

2. Signature

   Name

Form No. 5

STATEMENT OF DEVIATIONS

PROFORMA FOR STATEMENT OF DEVIATIONS

1. The following are the particulars of deviations from Preamble, requirement of the Instructions to Tenderers and Conditions of Tendering and Special conditions of Contract.

Preamble (Chapter 1)

Clause	Deviation	Remarks (including justification)

Instructions to Tenderers and Conditions of Tendering (Chapter 3)

Clause	Deviation	Remarks (including justification)

Special Conditions of Contract (Chapter 5)

Clause	Deviation	Remarks (including justification)

2. The following are the particulars of deviations from requirement of the **Technical specifications (Chapter 7)**

Clause	Deviation	Remarks (including justification)

Note: Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “no deviations”.

SIGNATURE AND SEAL OF TENDERER

Form No. 6

STANDING INDEMNITY BOND

(For on Account Payments and Stores supplied by RailTel)

(On Stamp paper of Requisite Value)

We, M/s _____ hereby undertake that we hold at our Stores Depot/s at _____ for and on behalf of RailTel Corporation of India Limited in the premises through Principal Executive Director or his successor hereinafter referred to as "the Purchaser" all materials for which 'On Account' payments have been made to us against the Contract for ---------- vide letter of Acceptance of Tender No. _____ and the materials handed over to us by the Purchaser for all purpose of execution of the said Contract, until such time the materials are duly erected or otherwise handed over to him.

We shall be entirely responsible for the safe custody and protection of said materials against all risk till they are duly delivered as erected equipment to the purchaser or as he may direct otherwise and shall indemnify the Purchaser against any loss, damage or deterioration whatsoever in respect of the said materials while in our possession and against disposal of surplus materials. The said materials shall at all times be open to inspection by any engineer authorized by the Director / Projects (whose address will be intimated in due course).

Should any loss, damage or deterioration of materials occur or surplus materials disposed off and refund becomes due, the purchaser shall be entitled to recover from us the full cost as per prices included in the Contract (as applicable) and also compensation for such loss or damage, if any, along with the amount to be refunded without prejudice to any other remedies available to his by deduction from any sum due or any sum which at any time hereafter becomes due to us under the said or any other Contract.

Dated this _____ day of _____ 2021

for and on behalf of

M/s _____ (Contractor)

Signature of witness

Name and witness in Block letters

Address

Form No. 7

SYSTEM PERFORMANCE GUARANTEE

PROFORMA FOR THE SYSTEM PERFORMANCE GUARANTEE

To

The Principal Executive Director/RCIL, Mumbai

I / We ……. hereby guarantee that the design on the basis of which we have submitted our Tender No**.** _____ ; has been carefully made to conform to the end objectives in the tender documents and to technical specification therein. We further guarantee that in the event of the performance of the system, when installed, not

complying with the end objectives or with the specifications contained in the tender documents, we shall provide further inputs to enable the RailTel to realize the end objectives contained in these documents without any additional payment for any additional equipment which may be required in this regard. We further guarantee that all the expenses for providing the additional inputs under the System Guarantee will be borne by us. We further guarantee that these additional inputs will be provided by us to make the system workable within 1 month from the date on which this guarantee is invoked by the Purchaser. The guarantee is valid for a period of one year from the date of commissioning of the system.

(Signature of Firm's Authorized Officer)

Seal

Signature of witness:

1. …….

2. …….

Form No. 8

Manufacturer's Authorization Form

Dated:

GM/Proj/RailTel/ WR

RailTel Corporation of India Ltd.

……

……....

……....

Subject: Manufacturer Authorization form (MAF) to M/s …… for ……

Ref: Tender No……..dated…….

Dear Sir,

We, M/s……, are established and reputed manufacturer and service provider of ……..(Product details), having our registered office at ……..

We hereby authorise M/s …….. (bidder name), Office ……. to participate in bid and subsequently upon award of the bid to execute the supply and Installation & Commissioning of our range of products against your above said bid.

We further extend our warranty for …… years for our range of products offered by M/s ……. against the above-said bid.

Thanking you,

Best regards,

Authorised Signatory

Form No. 9

WORKS IN HAND *(For Tender amounting more than 50 lakhs Rupees)*

Sr. No	System & Name of the Project	Party's name & address for whom the work is being done	Total Contract Value (`)	Schedule period of execution (in months)	%age progress in terms of work already done	Likely date of comple -tion	No. of exten- sions granted	Payments received till date (`)	Re- marks

Form No. 10

ACKNOWLEDGMENT

FOR RECEIVING MATERIALS FROM RAILTEL

Station:

Date:

Sub: Receipt of Material from RailTel

It is hereby acknowledged that the following materials have been received in full and good condition by me on at for the work under the Agreement no. ……... dated ……

Sr. No.	Description of Material (Meter/No.)	Quantity	Remarks if any

Witnessed by:

_____	_____
(Signature of Engineer's Representative with Designation)	(Signature of Contractor or Contractor's Representative)

Form No. 11

EXTENSION OF PERIOD OF COMPLETION OF WORK
ON CONTRACTOR'S ACCOUNT

No. **Date:**

To,

……..

……..

Sub: (i) (Name of Work)

(ii) Acceptance Letter No.

(iii) Undertaking / Agreement No.

Ref: …….(Quote specific application of the Contractor for extension to date, if received).

Dear Sir,

The stipulated date for completion of the work mentioned above is ……..from the progress made so far and the present rate of progress, it is unlikely that the work will be completed by the above date (or However, the work was not completed on this date)

Expecting that you may be able to complete the work if some time is by given the Principal Executive Director, RailTel Corporation of India Limited, Mumbai although not bound to do so, hereby extends the time for completion from …… to ……..…… .

Please note that an amount equal to 0.5% of the total value of the contract per week or part thereof (rounded off to the nearest whole number) subject to a maximum of 10% of the total contract value of the works as a recovery for delay in the completion of the work after the expiry of (1) ……. will be recovered from as mentioned in Para 5.35 of the special conditions of contract for the extended period notwithstanding the grant of this extension. You may proceed with the work accordingly.

The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.

Please intimate within a week of the receipt of this letter your acceptance of the extension on the conditions stated above.

Please note that in the event of declining to accept the extension on the above said conditions or, in the event of your failure after accepting or acting up to this extension to complete the work by (2) ……..here mention the extended date), further action will be taken in terms of relevant Para of special conditions of contract.

Yours faithfully,

For& on behalf of RailTel Corporation of India Limited

Note:

1. Give here the stipulated date for completion without any penalty fixed earlier.
2. Here mention the extended date.

Sub: (i) (Name of Work)

(i) Acceptance Letter No.

Form No. 13

QUALIFICATION & EXPERIENCE ***(For Tender amounting more than 50 lakhs Rupees)***

Details of works executed and under execution by Tenderer during the last 3 years (current year and last three financial years) should be furnished in the following format.

Sl No	Name of Project & Description of work	Party's name & address for whom the work was done	Total Value of the Contract (Rs)	Date of award of work and schedule period of execution (in months)	Date of completion and actual period of execution (in months)	Total contractual payment received	Remarks

Note: A certificate from the organization for whom the work was executed should be submitted to indicate that the contract was satisfactorily executed.

(Signature and Seal of the Manufacturer/Contractor)

Form No. 14

The Joint General Manager (Finance)

RailTel Corporation of India Ltd. (Regional Office)

Western Railway Microwave Complex,

Senapati Bapat Marg,

Mahalaxmi, Mumbai – 400 013.

Sub. : Option for Payment through RTGS/NEFT

Sir,

You are requested to remit the payment due to us through RTGS/NEFT into our Current Account.

The detail required duly verified by our bank for Online payment is provided here under for needful please.

DETAIL REQUIRED FOR PAYMENT THROUGH RTGS/NEFT

1.	Beneficiary Name :	M/s ……..
2.	Beneficiary Address :	
3.	PAN No.	
4.	GSTIN (list)	
5.	Bank A/c No. :	
6.	Name of Bank :	
7.	Bank Branch Address:	
8.	Branch Id Code :	
9.	Current Account No.	
10.	RTGS / IFSC Code :	
11.	NEFT/ IFSC Code :	
12.	MICR no.	

I do hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, RailTel will not be held responsible. Further, I undertake that till we request a change, paying authority may kindly continue to make the payments in our account as per above detail.

For …….. **Verified above Bank Particulars for Online payments**

Authorized Signatory **Bank's Authorized Signatory**

Form: 15

FORMAT FOR AFFIDAVIT TO BE SUBMITTED BY TENDERER ALONGWITH THE TENDER DOCUMENTS

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

I .....(Name and designation)*" appointed as the attorney/authorized signatory of the tenderer (including its constituents),

M/s _____(hereinafter called the tenderer) for the purpose of the Tender documents for the work of _____as per the tender No. _____of (_____ RCIL), do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer (s), am/are signing this document after carefully reading the contents.

2. I/we the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.

3. I/we hereby declare that I/we have downloaded the tender documents from RailTel's website www.railtelindia.com **or** https://railtel.enivida.com/**. I/we have verified the content of the document from the website and there is no addition, no deletion or no alternation in the content of the Tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy 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 submitted along with the offer and same shall be binding upon me/us.

6. I/we declare that the information and documents submitted along with the tender by me/us are correct and I/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 tenders, it shall lead to forfeiture of the tender EMD besides banning of business for five years on entire RCIL**. Further, I/we (name of the tenderer)**_____ and all my/our constituents understand that my/our offer shall be summarily rejected.**

8. I/we also understand that if the certificates submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will read 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 RCIL**.**

DEPONENT SEAL AND SIGNAURE OF THE TENDERER

VERIFICATION

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

DEPONENT SEAL AND SIGNAURE OF THE TENDERER

Form No. 16

TAX BREAK UP

S.N.	Item description	Unit	Quantity	Base price Rs.	GST %	Any other Tax %	Unit price including Tax	Total Cost Rs

TIN No.
PAN No.
GST No.

Signature and Seal of tenderer

***

Form No. 17

Date: …..2023

Make in India DECLARATION

To

Principal Executive Director/WR

RailTel Corporation of India Ltd.

Mahalaxmi, Mumbai-13

Subject: MII Declaration for SOR item

Tender Ref :

Dear Sir,

With reference to above subject and reference, we hereby declare that overall local content for quoted supply items are …….% Make in India.

Place:

Date:

Seal and signature of the bidder

****

CHAPTER-7

TECHNICAL SPECIFICATION AND INSTRUCTIONS

Para No. Subject

7.1 Introduction

About RailTel

RailTel western region office Building at Western Railway Microwave Complex, Senapati Bapat Marg, Mahalakshmi, Mumbai is G+2 building.

The building already houses a Equipment room at Ground floor. The Existing Equipment room Houses 31 Racks with both DC & AC Power Requirements. Cooling is the Precision Air conditioning 6 No in N+1 Configuration. The Equipment room also houses a Smart row Cooling Solution with 3 no of Racks & 2 No In -row AC Units.

RailTel is planning to set up a New Tier -III Equipment room on the Ground floor after the shifting of the existing Equipment room to the First Floor at the existing NOC Room. The migrated Equipment room shall use the existing Power & Cooling Infrastructure. The existing NOC Room will be shifted to the area by dismantling the existing office area & Cabins.

This tender is only for constructing the New NOC Room at Office rea, Shifting of Existing NOC room to new Constructed NOC Room , Constructing Equipment room at NOC room Space & shifting the Ground floor Equipment room to first floor using the Existing DC Facility Equipment’s, Panels & other equipment’s.

7.2 Project Background

Under this tender, bidders are required to set up a 12 Racks Equipment room & shifting SDH NOC Room at First Floor & shifting the Ground floor Equipment to first floor.

7.3 Scope of Work

Implementation of the Equipment room at First Floor, RailTel Corporation of India Limited, Mahalaxmi, Mumbai. with the following subsystems:

Civil and interior work comprising of construction of fire rated walls, partitions, false ceiling, flooring, and associated works as per specifications.

Necessary Electrical works for connection with LT panels in accordance with the running Data Center norms.

Design, installation, testing and commissioning of PAC Units System for the Server Farm.

Safety and Security System: Design, supply, installation, testing and commissioning of security systems comprising the following components:

Fire Alarm System

Gas based fire suppression system

Access control system

CCTV surveillance system

Water leakage detection system

Rodent Repellant System

Passive networking solution: Design, supply, installation, testing and commissioning of fiber and copper based cabling system for the Equipment Room.

Warranty and Maintenance Support for a period of One year from the date of completion of the project and acceptance by RailTel.

Scope covers the ITC of 12 racks as per SOW and hence any additional supply/works, which are not explicitly mentioned in this RFP but required to complete the installation, are in the scope of the bidder.

The complete project consists of following phases:

Functional Areas

Equipment Room

RailTel is proposing to construct a Equipment room meeting best standard practice. The Equipment room should have the following functional areas:

Server farm

NOC Room

NOC Room

The proposed layout of various functional areas of the Equipment room is given in 'First Floor Layout' drawing.

The bidder is required to visit the site and carry out a site survey prior to submission of the bids. The bidder needs to take into consideration the present set up and the necessary rearrangements required and include them in the technical and price bid.

UPS System Comprising of the following:

The UPS Power for the Server room is to be tapped from Existing UPS 0/P panels.

The power distribution shall be as per existing Power distribution.

Server Farm

It is proposed to house about 12 racks in the server farm area. The server farm area is on the First floor. The proposed layout is shown in 'First Floor Layout' drawing.

Power Supply Distribution

Existing Power distribution will be shifted to ground floor

7.4 Technical Specification for Civil Works

7.4.1 Scope of Work for Civil & Interior Works

The civil work includes furnishing the data centre area in all aspects. The works includes but not limited to the following:

Closing of Glass Windows with 115mm Brick wall.

230mm Brick wall

Glazing & Glass works

Fire retardant painting

False Flooring

False Ceiling

Fire rated doors

Thermal insulation

Room Signage’s

The selected bidder should adhere to the following civil and interior specifications:

7.4.2 Technical Specifications for Civil & Interior Works

Brick work

230mm Brick wall

Providing and constructing Brick wall of 230 mm additional walls till slab level in superstructure using in cement mortar 1:4, using 2 nos. with 1:6 CM 12mm thk plastered and finished to match the existing wall. The junction of existing & new wall or brick wall and RCC surface to be plastered after placing wiremesh 6" wide on either side. The brick wall will be done at the ground floor post dismantling of existing ground floor DC.

The bricks shall be made of suitable clay and shall be thoroughly burnt at the maturing temperature of clay. They shall be free from cracks, flaws and nodules of free lime. They shall have rectangular face with sharp straight edge at right angle. They shall be of uniform colour and texture. These bricks generally should conform to IS 2222

Half or cut bricks shall not be used except as closer where necessary to complete the bond. Closers in such cases, shall be cut to the required size and used near the ends of the wall. Header bond shall be used preferably in all courses in curved plan for ensuring better alignment.

The walls shall be taken up truly in plumb or true to the required batter where specified. All courses shall be laid truly horizontal and all vertical joints shall be truly vertical.

12mm Cement plaster on both sides of the wall.

Half Brick wall

The Glass window side of the Data Centre Area & Noc room to be closed using 115mm brick work. MS Bars to be installed at every 4ft to provide the strength. 100mm high bund wall needs to be constructed on the Peripheral side of Pac Units to avoid water. 12mm Cement plaster on both sides of the wall.

Flooring

Raised Flooring for Data Centre

Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50 mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings,as specified and as directed by Engineer-in-charge consisting of:

(a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25 mm outer diameter, fully welded on to the G.I. Base plate of size 100mm x 100mm x 3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5 mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug.

(b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor

panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the architectural drawings, as specified and as directed by the Engineer-in-charge.

c) Providing and fixing Access Floor panel of 600x600x35 mm medium grade Filled Steel anti static high pressure Lamination of 1250H grade (FS1250H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and

20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is filled with Pyrogrip noncombustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm.The panel is to withstand a Concentrated Load of 567 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 2450 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All

specification must be printed on the side of the panel to ensure the quality of the product.

Vitrified flooing: Providing and laying of pre-polished first class vitrified tile flooring of 600mm X 600mm size, laid to pattern & design, with paper thin joint, set in 20 mm thick cement mortar 1:4, suitably roughened cement slurry and pointing of joints with laticrete to match the colour of tiles, curing, oxalic acid washing etc., complete. (works at all levels). The contractor shall provide and lay the tiles as per the designs approved by Employer/Consultant/Architect . (For Repaifr of Damaged Vitrified tiles.

False Ceiling

Gypsum false ceiling

False ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm Centre to center, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm center to center, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm center to center, shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm center, with 25mm long dry wall screws @ 230 mm interval, including fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering up to 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills, diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with : 12.5 mm thick tapered edge gypsum fire resistant board conforming to IS: 2095-Part I.

Metal False ceiling

Gl Clip in Metal Ceiling System of 600x600 mm module which includes providing and fixing 'C' wall angle of size 20x30x20 mm made of 0.5 mm thick pre painted steel along the perimeter of the room with help of nylon sleeves and wooden screws at 300 mm center to center, suspending the main C carrier of size 10x38x10 mm made of G.I steel 0.7 mm thick from the soffit with help of soffit cleat 37x27x25x1.6 mm, rawl plugs of size 38x12 mm and C carrier suspension clip and main carrier bracket at 1000 mm c/c. Inverted triangle shaped Spring Tee having height of 24 mm and width of 34 mm made of Gl steel 0.45 mm thick is then fixed to the main C carrier and in direction perpendicular to it at 600 mm centers with help of suspension brackets. Wherever the main C carrier and spring T have to join, C carrier and spring T connectors have to be used. All sections to be galvanized @ 120 gms/sqm (both side inclusive), fixing with clip in tiles into spring T with : GI Metal Ceiling Clip in plain Beveled edge

global white color tiles of size 600x600 and 0.5 mm thick with 25 mm height, made of G I sheet having galvanizing of 100 gms/ sqm (both sides inclusive) and electro statically polyester powder coated of thickness 60 microns (minimum), including factory painted after bending.

Fire Rated Doors

Providing & fixing 2 hours fire rated Metal doors as per below specification & design :

Door frames and leaves made of Galvanized steel 304 grade. Door leaves constructed from 1.25mm thick. Galvanized steel sheet press formed to provide a 46mm thick. Fully flush, double skin door shell with lock seam joints at stile edges. Internal reinforcements are provided at top, bottom & stile edges for fire rating. The internal construction of the door is a specially designed Honeycomb structure with reinforcements at top, bottom & stile surrounds. The internal construction of the door varies with the degree of fire rating as tested. For doors having overall height in the excess of 2300mm the shutters shall essentially have double latching. Door frames produced from 1.6mm thick galvanized steel sheet press formed to double rebate profile of size 143 x 57 mm (+/- 0.3mm) with a maximum bending radius of 1.4mm. The door frames may be built into the brick or block walls using corrugated "TEE" anchors not welded to the frame (first fix). Cost to include all necessary extra support item

Frames may be fixed on plastered openings with the help not welded to the frame (first fix). Frames may be fixed on plastered openings with the help of metallic expansion shield with counter sunk screw (second fix).Door frames are supplied to knock down form with butt joints for bolt assembly at site. Fire Rated vision glass with 6mm thick. Clear glass can be provided for a maximum of 2 hrs. fire rating. The vision glass can be provided in 380mm dia or square/rectangular in various dimensions such as 200mm x 300mm, 300mm x 300mm etc. The door frames and door shutters are primed with Zinc- phosphate stoving primer. Various finishes in synthetic stoving enamel, acrylic stoving paint or polyurethane can be provided on request.

The Fire Doors are to be fully insulated and have been tested as per IS: 3809-1979, ISO: 834-1975, IS: 3614 (PART-II)- 1992 and BS 476 (PART- 20 & 22)-1987 under live fire conditions from Central Building Research Institute (CBRI), Roorkee, National Test House Calcutta for Stability, Integrity and Insulation for 2 Hrs. The wired glass is to comply with both BS 476: PART 22 and BS 6206 relating to fire resistant and impact performance.

Finalized vendor to submit the Test certificates for the above.

Cost to include all necessary ironmongery which is as follows:

Hinges provided are to be Stainless steel double ball bearing butt hinges of size 100mm x 76mm x 3mm thick conforming to BS 7352 standard for ‘Strength and durability performance of metal hinges for side hanging applications and dimensional requirements for template drilled hinges’ and are classified in class 8 i.e., with 20000 annual operations.

The screws for hinges are SS 304 grade Philips’s head CSK screws of size M6x 15mm.

Latching shall be Mortise lock with independent escutcheon. D pull handles of SS shall be provided. Door closures heavy duty rated shall be provided as required. Vendor to provide the manufacturer's test certificate for the installation.

Painting with Fire Retardant Paint:

The surface shall be thoroughly cleaned and dusted off. All rust, dirt, scales, smoke splashes, mortar droppings and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer-in-charge after inspection, before painting is commenced.

The number of coats shall be as stipulated in the item. The paint will be applied in the usual manner with brush, spray or roller. The paint dries by evaporation of the water content and as soon as the water has evaporated, the film gets hard, and the next coat can be applied. The time of drying varies from one hour on absorbent surfaces to 2 to 3 hours on non-absorbent surfaces.

The thinning of paint is to be done with water and not with turpentine. Thinning with water will be particularly required for the under coat which is applied on the absorbent surface. The quantity of water to be added shall be as per manufacturer's instructions.

The surface on finishing shall present a flat velvety smooth finish. If necessary, more coats will be applied till the surface presents a uniform appearance.

Fire Stop Material

Fire Expanding foam

Providing and applying fire Expanding Foam having minimum of 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, Beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The service lines could be of various types like electrical cables, cable trays or metal pipes etc. The foam shall have Acoustic property as per DIN 4109 and Smoke and Air Seal. The Foam should have the feature of Repenetrability for future maintance or repair activities. item includes scaffolding, finishing, cleaning etc. complete at. all heights, levels & floors. (Make: Hilti CP 620/3M or approved equivalent).

Fire Barrier Mortar

Providing & applying fire Barrier Mortar having minimum of 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The mortar shall have minimum hardened density of 0.8 g/cm3 and compressive strength of 2.9N/Sq mm . The service lines could be of various types like electrical cable trays , metal pipes, GI Ducts for AC etc. It should be Smoke & Air Seal. Item include scaffolding, finishing, cleaning etc. complete at. all heights, levels & floors. (Make: Hilti CP 636/3M or approved equivalent)

Furniture

Supply , Installation & fixing of furniture as per layout & as per approved GA Drawings.

Providing and placing workstation table in completely knock down conditions with an overall size (As per layout & BOQ) that is to be assembled at site. The work top shall be made up of 25mm thick Pre-laminated particle board of grade II of IS 12823 with approved laminate and finish as per approved shade. The profile of the top shall be in rectangle shape and the edges shall be sealed with 2mm thick, thin strip of impermeable PVC that is cut to fit the size of board panel and duly pasted with the assistance of edge banding machine at 200 degree Celsius.

A pullout keyboard trey shall be provided of 18mm thick pre-laminated particle board having size 525mm X 350mm. The trey shall be operated on keyboard channel. The workstation shall have panel based partition of 60 mm thick with overall height 1200mm. The partition shall be linear in profile and provided in the front side of user as well as on the both sides of the user. The top trim, top bar, mid bar, vertical bar, raceway, skirting shall be made up of aluminum extrusions (pre-treated) and duly powder coated with 40µ-60µ thick. The trims shall have the size 60mm X 19mm with 1.5mm thick covered with Die cast end caps on joints 2 ways, 3 ways & 4 ways (L-cover for corner, T-cover for middle section wherever required). The aluminium raceway shall be situated below the worktop with an overall size 116mm(H) X 60mm(D) with 1.4 mm cover thickness and 2mm back thickness as per requirement of inlaying the electrical management and carrying the wire horizontally. The exposed vertical and horizontal faces of the frames shall be snap fitted with trims.

There shall be soft-board (with fabric) and marker board provided at front of the user. Laminated top tile and bottom tile shall be situated at both sides of the user and below the work top respectively. The Partition shall have concealed wire management capabilities and should be engaged for responsive and safe operations of power, telecommunications and data (LAN) and has separate components for electrical, data and telephone cables having adequate capability of both the vertical and horizontal wire movements. Slots/cut-outs should be given on raceways to fix all electrical and data points. Zinc coated small top support brackets shall be fixed on the partition for tabletop support. To protect the wall from kicks, abrasion and serve as a decorative moulding, skirting shall be situated at bottom. Adjustable leveller shoe shall be provided at bottom of the partition to avoid scratches on the floor.

Fixed type pedestal shall be provided with an overall size 400mm X 450mm X 725mm. The pedestal shall be made up of pre-laminated particle board of grade II of IS 12823. Pedestal side, back, top, facia shall be 18mm thick and drawer base shall be 9mm thick. The pedestal shall have 3 nos. of drawer i.e. 2 box drawer and 1 filing drawer. The drawer shall be operated with SS handle and easily close & open with the assistance of roller channel and ball bearing channel to enable smooth operation. The drawer shall have central locking mechanism in which all the drawers shall be synchronized lock with one single key. To protect the wall from kicks, abrasion and serve as a decorative moulding, skirting shall be provided at bottom. A nylon castor-based CPU unit shall be provided with an overall size 468mm X 284mm with 18mm thick Pre-laminated particle board.

The board used should meet International Standard of quality, Indian standard IS 12823 grade II should meet long time load bending, screw-withdrawal strength, modulus of rupture and modulus of elasticity bending tested as per IS 2380.

Revolving Chair (High Back) :

Supplying and placing ergonomically designed, comfortable & aesthetically appealing High back chair. The seat shall be made of 15mm thick hot-pressed plywood upholstered with high resilience polyurethane foam 50mm thick having density 40kg/m³ with green light fabric tapestry 0.6mm thick and 235 GSM and the back shall be supported by MS CRCA metal pipe upholstered with breathable black mesh tapestry. The seat and back shall be individual with plywood & metal frame joint with HR steel sheet and the armrest shall be used PP arm completely joint with seat. The chair shall have synchro tilt 360-degree revolving mechanism with upright position locking and tilt tension adjustment. The pneumatic seat height adjustment for healthy seating, user can adjust seat height up to 100mm gas lift to suit them using the lever under the seat. The Pedestal shall be made up of injection moulded black nylon having pitch circle Día 700 mm fitted with 5 nos. 50mm twin wheel castors which shall be made of injection moulded black nylon 30% glass filled having self lubricating property for friction free movement. The Seat size shall be 470±10 mm(W)X480±10 mm(D) and back size shall be 510±10 mm(H) from seat & overall height = 940±10 mm.

7.4.3 Other Miscellaneous works

a. Providing & fixing room Signages on SS brush finished with text in etched on 450 X 100mm.

b. Providing and fixing steps in the data center .with landing area of 1.5 X 1.2 m, 1500 mm wide , height of 450 mm, consisting of 300 mm tread and 150 mm ht riser, constructed Using 50 X 50 X 6mm MS Angle & cladding with 10mm thick chequer plate on top with primer with required hardware & accessories complete as required. Top to be finished with Antistatic vinyl flooring .

c. Thermal Insulation : Supply & fixing of Under deck & able false ceiling class "O" closed cell, Elastomeric, Nitrile Rubber thermal insulation on the floor with 9 mm thick of arm flex/Kflex (along with accessories and bonding material for installation).

d. 100 mm high bund wall with plaster to do constructed underfloor along the Precision Air conditioning Units.

e. Removing of existing NOC furniture & re-installation of the same at shifted NOC room.

f. Dismantling works: dismantling works required to be done at ground floor & first floor. The existing NOC room & office area cabins Partitions, ceiling, windows, doors need to be dismantled along with furniture Etc for creating DC & New NOC Room.

AT ground floor , existing DC area walls, partitions, ceiling, raised flooring, doors etc need to be dismantled. The debris need to shifted to the space allocated by RailTel.

g. Regular housekkeping: The site need to be kept clean on daily basis. The Data centre to be deep cleaned using heavy duty vacuum cleaners or by specialized agency 2 times.

Note: In Case of any Mismatch between Tender document & the BOQ, Vendor should discuss & clarify it with the consultant. The decision by the consultant will be considered final.

7.5 Technical Specifications for Electrical Works

Scope

This, specification covers the requirement of design, manufacture, supply, installation, testing and commissioning, handing over in approved working order of Data Centre at Railtel Mumbai. For LT Electrical Installation Work as per Single Line Diagrams, Specifications, covering the following:

Removing & rei installation of Exiting LT panels

Removing & re-installation of Lighting & Power Distribution

Data Centre Power Distribution

Earthing & Grounding system

Metering system with necessary hardware & software items

All equipment supplied shall meet all applicable IS, and other approved applicable standards.

General Notes

The Electrical work to be carried out shall be in accordance with the specifications covering the supply, installation, testing and commissioning various equipment / system, project layout drawings, typical installation drawings, notes and details enclosed in the tender documents.

The Electrical work to be carried shall meet the requirement of local codes, standards, local inspection / approval authority's requirements / regulations, safety codes, National / International standard practice, etc. Nothing in this specification shall be construed to relieve the responsibility of the CONTRACTOR.

The CONTRACTOR shall furnish all tools, ladders, scaffolding, welding equipment, rigging materials, testing equipment, test kits etc., required for complete installation, testing and commissioning of the items included in the contract work.

The CONTRACTOR shall co-operate through the MAIN CONTRACTOR with OTHER CONTRACTORS at site, in all matters of common interest, so as not to obstruct operation of others and to ensure the safety of all personnel and works at the site. In case of any conflict EMPLOYER / PMC/ ARCHITECTS, / SERVICE CONSULTANTS decision will be final and binding.

It will be the CONTRACTOR's responsibility to obtain approval from local statutory authorities including Electrical Inspector, wherever applicable, for carrying out any work or for installation carried out which comes under the purview of such authorities.

The Quantities in BoQ are tentative. Contractor to order the Quantity as per site Requiremet. Cost for any additional item / work required to complete the work to be included in the Cost.

Installation And Inspection At Site

All work at site is to be carried out in such a manner as not to obstruct the operations of other CONTRACTORS and shall be co-ordinate with MAIN CONTRACTOR.

The execution of all works included in this Contract is to be supervised by a sufficient number of qualified representatives of the CONTRACTOR and full facilities and assistance are to be accorded by the CONTRACTOR for the ENGINEER to inspect the works.

The CONTRACTOR is to obtain from the ENGINEER details of the parts which he wishes to inspect, but such inspection shall in no way exonerate the CONTRACTOR from any of his obligations. The CONTRACTOR, if so, requested by the ENGINEER, is to open for inspection before erection of any equipment which has been delivered to site partly assembled.

On completion of the works, the site is to be left neat and tidy to the satisfaction of the ENGINEER. Any damage done to the building, structure, plant or property belonging to the EMPLOYER is to be made good at the CONTRACTOR'S expense.

Tender Drawings

The Drawings issued with this Specification are for guidance of the TENDERER and show the approximate positions of all items of equipment, etc. The actual and final position of all items of equipment shall be determined at site and approved by the ENGINEER. TENDERER is to ensure that their proposal will meet with all the current rules and regulations of the relevant authorities in India.

Shop Drawings

All shop drawings shall be on standard and approved sizes.

Before any work is implemented, the CONTRACTOR shall submit 3 sets of dimensioned drawings, duly reviewed by himself, showing all details of the equipment, wiring, ductwork and

materials etc., to be used to the ENGINEER for review. The CONTRACTOR shall not commence final connection works until the shop drawings are reviewed and approved by the Engineer.

Review and approval of drawings by the ENGINEER does not exonerate the CONTRACTOR from any responsibility under the Contract terms and conditions.

The CONTRACTOR shall co-ordinate / assist with CIVIL CONTRACTOR for the preparation of co-coordinated composite drawing covering all Civil, Mechanical and Electrical CONTRACTORS' details such as wall, doors, opening, civil, plumbing work, A/c &ventilation system duct layout, firefighting system piping / sprinklers layout, electrical equipment layout, cable trays & conduit layout, lighting layout, earthing layout etc., to avoid interference with each other system layout. CONTRACTOR shall submit the coordinated drawing for ENGINEER for his approval.

Working Drawings

The CONTRACTOR shall always maintain on site, in good order and condition, a complete set of all drawings and documents necessary for the proper execution and checking of the works. The drawings and documents shall be made available on request to the ENGINEER or other authorized persons on site. Any amendment shall be indicated on the drawing, dated and signed by the Authorized person in charge, with reasons stated thereon.

As-Installed Drawings

The CONTRACTOR shall prepare two (2) sets of paper prints of the As-Installed drawings, diagrams and schedules as in the opinion of the ENGINEER, shown as an accurate record of the work as installed by the CONTRACTOR and submit to the ENGINEER for approval. When approved, the CONTRACTOR shall submit two (2) sets of paper prints, two (2) set of reproducible and two (2) set of soft copies in compact disk of the approved "As-Installed" drawings for reference and record by the ENGINEER / EMPLOYER.

Such records shall include the preparation of properly dimensioned drawings showing the following:

General arrangement of all services;

Cable routes, types of fixings, layout, support and other particulars;

The detailed layout of all equipment's

Conduit runs, pipe runs, duct work, etc.;

A system diagram giving means of identification, circuit labeling and mounting level of equipment, etc.,

Schedule of all equipment's installed.

All drawings submitted by the CONTRACTOR shall have in the bottom right hand corner in addition to the CONTRACTOR's name, title, scale, date and drawing number, the title of the project and subject of the drawings.

The retention sum of final payment will not be made until all such drawings and records have been received and approved by the Engineer.

One copy of the schematic drawing, isometric or layout drawing showing all equipment, controls connections, etc., shall be framed and hung in the relevant plant room at location as directed by the ENGINEER.

Identification And Labelling

All parts of the works shall be properly labeled and identified. The CONTRACTOR shall carry out the following work:

a. Machine engraved trifoliate nameplates shall be provided to identify each major item of equipment. Similar labels will indicate the function of ancillary equipment such as switches, indicating lights, push-buttons, relays and other indicating devices.

b. Lettering shall be black on white background. Nameplates for major items of equipment shall be engraved in lettering of at least 6 mm. Labels identifying ancillary equipment shall be engraved in lettering of at least 3 mm.

c. Identification lettering shall be applied to all conduit at the following spacing:

(I) For all concealed runs in walls or ceiling spaces, every 5 meters but at least once.

(ii) For exposed runs, every 10 meters but at least once for each exposed section.

The identification shall consist of stenciled painted black lettering 25 mm high naming the services.

7.6 TESTING AND COMMISSIONING

7.6.1 General

(a) It shall be the responsibility of the CONTRACTOR to arrange all necessary testing equipment, instruments newly calibrated, etc. Provision of all testing equipment and the appropriately skilled labour shall have been included in the Tender Price.

(b) Should anyone of the tests reveal a fault, the ENGINEER will order that the fault be corrected and re-tested prior to acceptance. All fees connected with testing of equipment payable by the CONTRACTOR to any of the relevant Government Authority shall be borne by the CONTRACTOR.

7.6.2 Commissioning Test

The complete installation or any part thereof shall be tested, both before and after being commissioned to check the performance in operation. All fees connected with testing of equipment payable by the CONTRACTOR to any of the relevant Government Authority or expert from the supplier shall have been included in the Tender Sum.

(ii) The CONTRACTOR shall be represented by a competent person approved by the ENGINEER during the whole of the period required for the tests.

(iii) All materials and equipment supplied or erected under this Contract which failed in the tests shall be replaced or rectified at once by the CONTRACTOR without cost to the EMPLOYER.

(iv) The spares required during start-up and commissioning and during defect liability period of the system shall form a part of the scope of CONTRACTOR.

(v) The CONTRACTOR shall supply all necessary instruments, apparatus, connections, skilled and unskilled labour required for the tests to be conducted in the presence of the ENGINEER, make accurate records of all tests carried out and furnish the ENGINEER with six (6) copies of the Test certificates and Schedule of Tests Results in approved form.

(vi) The CONTRACTOR shall prepare a detailed and comprehensive check list for use during commissioning and testing,at least one (1) months prior to the start of commissioning, the SUB-CONTRACTOR shall commence gathering information required for this check list. Two (2) months prior to the start of commissioning, the CONTRACTOR shall submit to the ENGINEER his proposed check list for approval as follows: -

Ensure that all items that should be checked.

(1) Produce a permanent record of the commissioning checks carried out.

(2) The rack mounted load banks of total capacity shall be arranged to carry out the testing & commissioning.

(vii) Accordingly, the check list must be built from information contained in the Specification, from MANUFACTURER'S and CONTRACTORS installation and commissioning of similar equipments and systems.

(viii) The detail of the check list must be such that it can be completed with a reading or a tick which means that every device has been checked.

7.6.3 Reliability Tests after Commissioning

(i) The installation shall be required to operate within the specified limits of its rating either continuously or intermittently as may be convenient without failure of any kind for a period of one (1) calendar month before the taking over certificate is issued.

(ii) Should any failure occur due to or arising from faulty design, materials or workmanship, but not otherwise sufficient to prevent the commercial use of the installation, the reliability test period of one (1) calendar month shall be recommended after the CONTRACTOR has remedied the cause of failure to the satisfaction of the ENGINEER. The onus of proving that any failure is due to any other cause shall rest with the CONTRACTOR.

7.7 OPERATING MANUALS

The CONTRACTOR shall prepare Four (4) copies of an operating manual, in a stiff – covered ring binder two (2) for the EMPLOYER and two (2) for the ENGINEER, describing the operation and maintenance of the whole system and including:

Operating Instructions for all the equipments.

Manufacturer's pamphlets for all equipments.

List of spares recommended.

Schedule of recommended maintenance.

Practical Completion will be certified only after the receipt of the above operating manual by the ENGINEER.

7.8 PHOTOGRAPHS

Photographs of the site or of the works or any part thereof shall not be taken except with the written permission from the EMPLOYER.

7.9 TAKING OVER CERTIFICATE

As soon as the works have been completed in accordance with the Contract and have passed the tests on completion, the ENGINEER will issue a certificate (hereinafter called the Taking Over Certificate) in which he shall certify the date on which the works have been successfully commissioned.

7.10 WARRANTY

Warranty will be 12 months from the date of complete Handover. The warranty coverage shall start after successful installation and integration of all the systems of both the Data Centre and Workspace and the bidder shall submit the OEM warranty coverage documents.

7.11 Specifications for Electrical Cabling

Fire retardant cables of rated capacity exceeding the power requirement of fully blown configuration of the existing and proposed component must be used for expansion needs suitable redundant power points to be provided at suitable locations. All materials used shall conform to IS standards as per industry practice.

• Bunching of Wires – Wires carrying current shall be so bunched in the conduit that the outgoing and return wires are drawn into the same conduit. Wires originating from two different phases shall not be run in the same conduit.

• Drawing of Conductors – The drawing Aluminium / Copper conductor wires shall be executed with due regards to the following precautions while drawing insulated wires in to conduits. Care shall be taken to avoid scratches and kinks, which cause breakages.

• Joints – All joints shall be made at main switches, distribution boards, socket outlets, lighting outlets and switch boxes only. No joints shall be made inside conduits and junction's boxes. Conductors shall be continuous from outlet to outlet.

• Mains & Sub-Mains – Mains & sub-mains wires where called for shall be of the rated capacity and approved make. Every main and sub-main shall be drawn into an independent adequate size conduit. Adequate size draw boxes shall be provided at Convenient locations to facilitate easy drawing of the mains and sub-mains. An independent earth wire of proper rating shall be provided. The earth wires shall run along the entire length of the mains and sub-mains.

• Load Balancing – Balancing of circuits in three-phase installation shall be planned before the commencement of wiring.

• Colour Code of the Conductors – Colour code shall be maintained for the entire wiring installation, Red, Yellow, Blue for three phases and "OFF" circuit black for neutral and green for earth (or bare earth).

• Fixing of the Conduits – Conduits junction boxes shall be kept in position and proper Hold fasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of the wires through them. Adequate junction boxes of approved shape & size shall be provided. All conduits shall be installed to avoid stream and hot water pipes. After conduits, junction boxes, outlet boxes & switch boxes are installed in position their outlets shall be properly plugged so that water, mortar, insects or any other foreign matter does not enter into conduit system. Conduits shall be laid in a neat and organize manner as directed and approved by the Information Technology Department Personnel or person on their behalf. Conductors shall be planned so as not to conflict with any other service pipe lines / ducts.

• Protection – To minimize condensation or sweating inside the conductors all outlets of conduit system shall be adequately ventilated and approved by the proper competent authority. All screwed and socketed connections shall be adequately made fully water tight by use of proper jointing materials.

• Switch-Outlet Boxes and Junction Boxes – All Switch sockets should be modular type with necessary face plates, back box & required accessories. Boxes shall conform to all prevailing Indian Standards. Proper support shall be provided to the outer boxes to fix the cover plates of switches as required. Sockets used for raw power & UPS power shall have different colour coding.

• Inspection Boxes – Rust proof inspection boxes of required size having smooth external and internal
Finish shall be provided to permit periodical inspection and to facilitate removal and replacement of wires when required.

Industrial Type Sockets: All sockets shall meet IEC-309 requirements. Industrial type sockets shall be provided wherever specifically called for on the drawings. Industrial sockets shall be rated as specified.
Plugs and sockets shall have 3 pins for single phase applications and 5 pins for 3 phase applications. The sockets shall be provided with suitable plug top and cable entry device and shall be controlled by a suitably rated rotary switch. Where ever called, the sockets shall be housed in suitable metal or PVC enclosure as specified. Protection class shall be as per SLD.

Steel Conduit: 2mm Thick rigid 20/25mm GI conduit should be used.

7.12 Specification for Wiring

S.NO	Equipment Specification
1	FRLS PVC insulated copper conductor cable shall be used for sub circuit runs from the distribution boards to the points and shall be pulled into conduits. They shall be stranded copper conductors with thermoplastic insulation of 650 / 1100 volts grade. Colour code for wiring shall be followed.
2	Looping system of wiring shall be used, wires shall not be jointed. No reduction of strands is permitted at terminations. No wire smaller than 3.029 sq. mm. shall be used.
3	Wherever wiring is run through trunking or raceways, the wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indication the circuit and D.B. number shall be used for sub main, sub circuit wiring the ferrules shall be provided at both end of each sub main and sub-circuit.
4	Where, single phase circuits are supplied from a three phase and a neutral distribution board, no conduit shall contain wiring fed from more than one phase in any one room in the premises, where all or part of the electrical load consists of lights, fans and/or other single phase current consuming devices, all shall be connected to the same phase of the supply.

5	Circuits fed from distinct sources of supply or from different distribution boards or M.C.B.s shall not be bunched in one conduit. In large areas and other situations where the load is divided between two or three phases, no two single-phase switches connected to difference phase shall be mounted within two meters of each other.
6	All splicing shall be done by means of terminal blocks or connectors and no twisting connection between conductors shall be allowed.
7	All power sockets shall be piano type with associate's switch of same capacity. Switch and socket shall be enclosed in a M. S. sheet steel enclosure with the operating knob projecting. Entire assembly shall be suitable for wall mounting with Bakelite be connected on the live wire and neutrals of each circuit shall be continuous everywhere having no fuse or switch installed in the line excepting at the main panels and boards. Each power plug shall be connected to each separate and individual circuit unless specified otherwise. The power wiring shall be kept separate and distinct from lighting and fan wiring. Switch and socket for light and power shall be separate units and not combined one.
8	Balancing of circuits in three phases installed shall be arranged before installation is taken up. Unless otherwise specified not more than ten light points shall be grouped on one circuit and the load per circuit shall not exceed 1000 watts the earth continuity insulated copper wire in Green colour shall be run inside the conduit to earth the third pin or socket outlets, earth terminal of light fixtures, fan etc. as required. Lights points shall be either of single control, twin control or multiple points controlled by a single switch / MCB as per scheduled of work. Bare copper wire shall be provided with each circuit from DB as specified in the item of work and terminated in earth bar of DBs and switch boxes with proper lugs as required maximum number of PVC insulated 650 / 1100 grade copper conductor cable which can be drawn in a conduit.

Labelling: The labelling should be provided for all light control switches, industrial-type sockets, socket outlets, permanently connected devices, etc, identifying the distribution board and circuit breaker number,in an approved manner, acceptable to Railtel, to provide ready identification.

Hand painted labels are not acceptable.

7.12.1 CABLE TRAYS, RACEWAYS & ACCESSORIES

CABLE TRAYS AND ACCESSORIES

The cable trays shall be complete with all necessary coupler plates, elbows, tee s, bends, reducers, stiffeners and other accessories and hardware. All hardware (i.e. bolts, nuts, screws. washers, etc.) shall be hot dip galvanized.

CABLE TRAYS - CONSTRUCTION NOTES

PERFORATED TYPE

A) The perforated type cable trays shall be fabricated out of GI sh eet the associated accessories such as coupler plates, tees, elbows e tc., shall be fabricated from 2mm thick for trays above 300mm, up to 30 0mm shall be with 1.6mm mild steel/GI sheets. Cable tray covers with 1. 6mm thick GI perforated sheet shall be provided if if specified in the BOQ .

B) The cable trays shall be supplied in standard lengths of 2500 mm a nd clear inside widthsxheight of trays shall be as follows:

Ladder type trays: 300x50mm, 450x50mm, 600x75mm, 750x75mm and 1000x75mm mm.

C) Cable trays, accessories and covers shall be galvanized.

D) All finished cable trays and accessories shall be free from sharp edges, corners, burrs and unevenness.

E) The thickness of galvanizing shall be 60 Microns in line with IS: 4759.

CABLE TRAYS - INSTALLATION NOTES

Cable trays shall be installed generally at the elevations shown in resp ective cable tray layout drawings. If any major modifications in the dra wings are envisaged in the field, these should be carried out after gettin g approval from design office.Before laying the trays, contractor shall su bmit the shop drawing & take the approval from client/consultant.

A) It shall be the responsibility of the electrical contractor to mark up all the field modifications on the latest issues of the drawings and return tw o copies of all such " as constructed " drawings to client/consultant's de sign office.

B) The type and size of tray to be used shall be as mentioned in the individu al layout drawings.

C) The maximum size of cable tray when used in trenchess shall be of 750 m m width.

D) Cable trays shall be welded to the mounting/carrier structures. Trays shall be supported with suitable angle/hitech rod supports.

E) Each continuous laidut length of cable tray shallbe earthed at minimu m two places by M.S. flats of minimum size 25x6 mm (unless otherwise n oted) to the purchaser's earthing system. The distance between earthin g points shall not exceed 10 meters.

F) The following shall be checked before laying the cables on trays.

a) Check for proper painting and identification nos. of the trays.

b) Check for continuity of cable trays over the entire route.

c) Check that all sharp corners, burrs and waste materials have be
en removed from the tray.

d) Obtain clearances from piping contractor / engineer that no pipi
ng
will be taken in the way of cable trays.

e) Check for earth continuity & earth connection of cable trays.

G) Cable tray installation work shall comply with all currently applicable statutes, regulations and safety codes in the locality/country where the in stallation is to be carried out.

7.12.2 RACEWAYS & JUNCTION BOXES (APPLICABLE IF MENTIONED)

GI RACEWAYS & JUNCTION BOXES

The raceways shall be made out of 1.6mm GI sheet with 2mm thick cove r on top.

The cable raceways shall be complete with all necessary coupler p lates, elbows, tees, bends, reducers, stiffeners and other accessories an d hardware. All hardware (i.e. bolts, nuts, screws. washers, etc.)

It shall be used to lay in floor screeding. If the screeding is done before l aying raceways, necessary chipping work with floor cutting machines, sh all be done by the electrical contractor. After laying floor shall be finishe d with necessary cement works.

RACEWAYS - INSTALLATION NOTES

The raceways shall be installed generally as per the raceway layout drawin gs. If any major modifications in the drawings are envisaged in the field, t hese should be carried out after getting approval.

Before laying the raceways, contractor shall submit the shop drawing & take the approval from consultant.

The raceways which has to be laid in the floor, shall be laid before doing the floor screeding & if it has to be done after screeding, it shall be done with floor cutting machine with necessary accessories & tools. After laying the raceways, the contractor shall be responsible for plastering/finishing the floor with cement concrete.

Cable trays/ Raceways shall be supported with suitable angle/ hitech supports. The body of the Trays
should be earthed.

Installation of Cable trays should be as per Approved Shop Drawings.

S.NO	Equipment Specification
1	Cable trays should be of such dimension that the cables laid in it do not touch one another. If found necessary, the cable shall be fixed with clamps on the cable trays. Cables shall be laid on the walls/on the trays as required using suitable clamping/ fixing arrangement as required. Cables shall be neatly arranged on the trays in such manner that a crisis crossing is avoided, and final take off to switch gear is easily facilitated.
2	All cables will be identified close to their termination point by cable number as per circuit schedule. Cable numbers will be punched on 2mm thick aluminium strips and securely fastened to the. In case of control cables all covers shall be identified by their wire numbers by means of PVC ferrules. For trip circuit identification additional red ferrules are to be used only in the switch gear / control panels, cables shall be supported to prevent appreciable sagging. In general distance between supports shall not be greater than 600mm for horizontal run and 750mm for vertical run.
3	Whenever the rising Cable trays/ Raceways pass through the floor they shall be provided with a built- in fire proof barrier so that this barrier restricts the spread of fire through the rising mains from one section to the other adjacent section.
4	Neoprene rubber gaskets shall be provided between the covers and channel to satisfy the operating conditions imposed by temperature weathering, durability etc.
5	Necessary earthing arrangement shall be made alongside the cable trays.
6	The space between data and power cabling should be as per standards and there should not be any crisscross wiring of the two, in order to avoid any interference, or corruption of data.

LT Cables

All the Aluminium/ Copper cables/ wires should be FRLS type.

S.No.	Equipment Specification
1	Cables: The Bidder shall install, terminate and connect all cable as per drawings.

1.01	All Cables shall be FRLS (Fire Retardant Low Smoke) type.
1.02	The drawings shall be strictly followed except where obvious interference occurs. In such cases, the routing shall be changed as directed and / or approved by Consultant.
1.03	Approximate lengths of cable runs are given in the cable schedule for guidance & evaluation purposes only. Before commencement of work, the Bidder shall take actual measurements and prepare his own cable schedule to reduce wastage to a minimum.
2	Cable Laying: Cable shall generally be installed in pre-fabricated trays except for some short run in rigid / flexible conduit for protection or crossing.
2.01	Cables on trays and risers shall be neatly dressed and clamped at an interval of 1000 mm and 600 mm for horizontal and vertical cable runs.
2.02	All power cables shall be clamped individually, and control cables shall be clamped in groups of three or four cables.
2.03	Also, the cable runs both before and after the fire seals shall be suitably sprayed with anti-fire propagation liquid at least for 1M length.
3	Cable Tag & Marker: Each cable shall be tagged with numbers that appear in the cable schedule.
3.01	Cables shall be tagged at entrance and exit from any equipment and junction box.
3.02	The location of cable joints, if any, shall be clearly indicated with cable marker with an inscription 'cable-joint'.
4	Cable Termination: The termination and connection of cables shall be done using double compression glands, strictly in accordance with manufacturer's instruction, drawings and /or as directed by the consultant
4.01	The work shall include all clamping, fitting, fixing, cable jointing, crimping, shorting etc. as required for heat / cold shrinking technology for the complete job.
4.02	All equipment required for all such operations and furnishing of all consumable materials, such as soldering material, electrical tape, sealing material as well as cable jointing kits shall be included in the offer.

7.13 Light Fixtures

Existing Light fixtures will be removed & Re installed.

7.14 EARTHING SYSTEM

The Existing Earthing will be used. Only 2 no of Chemical Earthing 50MM COPPER PIPE, 3 meter deep are considered for RF earth for the Data Centre.

Earth enhancing material shall be supplied in bags consists of earth enhancing chemical for good connectivity.

All electrical components are to be earthen is to by connecting two earth tapes, cables or as specified, from the frame of the component ring will be connected via several earth electrodes. The cable arm will be earthen through the cable glands. Earthling shall be in conformity with provision of rules 32, 61, 62, 67 & 68 of Indian Electricity rules 1956 and as per IS- 3043, TIA - 942, TIA/EIA J-STD-607-A and IEEE 1100. The entire applicable IT infrastructure in the Data Center shall be earthed.

S.NO	Earthing Specifications
1	Earthing & Grounding should be done inside the Data Centre for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, AC units etc. to avoid a ground differential. Railtel shall provide the necessary space required to prepare the earthing pits.
2	All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.
3	The connection to the earth or the electrode system should have sufficient low resistance in the range of 0 to 25 ohm to ensure prompt operation of respective protective devices in event of a ground fault, to provide the required safety from an electric shock to personnel & protect the equipment from voltage gradients, which are likely to damage the equipment.
4	Recommended levels for equipment grounding conductors should have very low impedance level less than 0.25 ohm.
5	There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
6	The earth connections shall be properly made. A small copper loop to bridge the top cover of the transformer and the tank shall be provided to avoid earth fault current passing through fastened bolts, when there is a lighting surge, high voltage surge or failure of bushings.
7	Common Bonding Network: A CBN must be created inside the Data Centre for creating a proper Grounding & Bonding. Components include: AC Plumbing, Racks, All Structural members, Cable Trays and raceways, Panels, etc. The CBN must have a mesh topology and connected to the earthing network. PLEASE SEE THE SLD
8	The Contractor would be responsible for providing separate or Equipotential Earthing System for Servers & UPS as per the standards and as per SLD and as per approved drawings.

7.15 TECHNICAL SPECIFICATIONS – UPS

GENERAL SUMMARY

This specification defines the electrical and mechanical characteristics and requirements for a continuous duty, highly reliable, solid state, true on-line double conversion PWM 3Lv IGBT based Converter & Inverter tyoe Un-interruptible Power Supply systems. The UPS shall provide high quality AC power for sensitive equipment/lighting loads. It should also supply clean power automatically without any break in the supply in the absence of raw power. Under no conditions will the protected system get direct supply from the raw mains unless there is fault in the protected system.

7.15.1 SYSTEM DESCRIPTION

Design Requirement UPS Module : voltage

Input/ Output specifications of the UPS shall be:

Rectifier Input (380/ 400/ 415 Volts - Three Phase)

Bypass Input (380/ 400/ 415 Volts - Three Phase)

Output - 415, 3Ph, 50 Hz

UPS Modes of Operation: Each UPS shall operate as an on-line, fully automatic system in the following modes:

Normal - The critical AC load is continuously supplied by the UPS Inverter. The rectifier/ charger derives power from AC Input source and supplies DC power to the Inverter while simultaneously load charging power reserve battery.

Emergency: Upon failure of AC Input power, the critical AC load is supplied by the Inverter which without any switching obtains power from the battery. There shall be no interruption in power to the critical load upon failure or restoration of the AC input source.

Recharge: Upon restoration of AC input power during the emergency mode of operation, the rectifier/ charger shall automatically restart, walk-in and gradually assume the inverter and battery recharge loads.

Bypass: If the UPS must be taken out of service for maintenance or repair or should the inverter overload capacity be exceeded, static transfer switch shall perform reverse transfer of the load from the inverter to bypass source with no interruption in the power to the critical AC load. The static bypass switch should be double ended. The static switch should also have the an overload rating as per inverter.A manually operated Maintenance Bypass Switch should be incorporated into UPS cabinet that will connect the load to AC power source bypassing the rectifier/charger, Inverter and Static transfer switch.

Battery requirement:

Battery should be designed to provide 30 minutes back-up at various loads specified in schedule of quantities for individual UPS. Battery should be sealed maintenance free type. The UPS module should have the Battery Circuit breaker mounted near to the batteries. When this

breaker is opened no battery voltage should be present in the UPS enclosure. The UPS module should be automatically disconnected when the battery reaches to the minimum discharge voltage level or when signaled by other control functions. Remote tripping of Battery Ckt breaker facility shall be also incorporated.

Fabrication

Materials

All materials of the UPS shall be new, of current manufacture, high grade and free from all defects and shall not have been in prior service except as required during factory testing.

Construction & Mounting

The UPS unit comprised of Input Isolator, Rectifier/ Charger, Inverter, Static Transfer switch, Maintenance Bypass switch and static bypass Input switch shall be housed in a free standing steel enclosure with key lockable doors. Front access only shall be required for expedient servicing, adjustments and installation. The enclosure will be built to comply with IP20. The UPS shall be constructed of replaceable sub-assemblies. Printed circuit assemblies shall be plug-in type.

Cooling

Cooling of the UPS shall be by forced air. Low velocity fan shall be used to minimize audible noise output. Fan power shall be provided by the UPS output. Temperature shall be monitored by thermal censors.

Cable entry

Standard cable entry for the UPS module shall be through top of the enclosure or from the bottom.

Isolation Transformer

Required with flexibilty at Input/output. OEM make.

Service Area requirement

All serviceable subassemblies shall be modular and capable of being replaced from front of the UPS (Front access only). The UPS module shall require not more than 1.5 meter of front service access room and shall not require rear or side access for service.

Components

Rectifier / Charger

General: The term rectifier/ charger shall denote the solid state equipment and controls necessary to convert incoming AC power to regulator DC power for input to the inverter and for Battery charging. The rectifier/ charger shall be three phase IGBT based.

Input currenty walk in: The rectifier/ charger shall contain time walk-in circuit that causes the unit to gradually assume the load over a 1-30 sec. selectable time interval after input voltage is applied.

Fuse Failure Protection: Power semi-conductors in rectifier/ charger shall be fused with fast acting fuses so that loss of any power semi-conductor shall not cause cascading failures.

DC Filter: The rectifier/ charger shall have an output filter to minimize ripple voltage into the battery. Under no conditions shall ripple voltage into the battery exceed 1% RMS. The filter shall be adequate to ensure that the DC output at the rectifier charger will meet the Input requirements of the Inverter. The inverter shall be able to operate from the rectifier charger with the Battery disconnected.

Battery Recharge: In addition to supply power for the inverter load, the rectifier/ charger shall be capable of producing battery charging current to recharge the batteries. After the battery is recharged, the rectifier/ charger shall maintain the battery at full charge until the next emergency operation. Charging shall be an automatic cycle per DIN 41772 characteristics I-U. Both float and recharge voltages shall be adjustable. Charge voltage can also be manually controlled.

Inverter:

The term inverter shall denote the solid state equipment and controls to convert DC power from the rectifier/ charger or battery regulated AC power for supporting the critical load. The inverter shall be IGBT based pulse width modulated (PWM) 3 level design capable of providing the specified AC output.

Overload capacity: Inverter shall be capable of supplying current and voltage for overloads exceeding 100% and upto 150% of full load current for min. of 30 second. A status indicator and audible alarm shall indicate overload operation. The UPS shall transfer the load to bypass when overload capacity is exceeded.

Fault clearing and current Limit: Without bypass supply available, the inverter shall be capable of supplying an overload current of 150% of its full load rating in excess of 60 secs. For greater currents, or longer time duration, the inverter shall have electronic current limiting protection to prevent damage to components. The inverter shall be self protecting against any magnitude of connected output overload.

Output Frequency: The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall hold the inverter output frequency to +/- 0.1 % for steady state and transient conditions.

The output harmonic shall not be greater than 2% with linear load and shall be max. 5% at 100 % non linear load. The UPS shall be capable of handling load of crest factor more than 3:1.

Display & Controls:

Monitoring and Control: The UPS shall be provided with a micro-processor based unit status display and controls section designed for convenient and reliable user operation. A system power flow diagram, a percentage load and battery time remaining display shall be provided as

part of the monitoring and controls sections which depicts a single-line diagram of the UPS. Illuminated visual indicators shall be of the long-life light-emitting diode (LED) type. All of the operator controls and monitors shall be located on the front of the UPS cabinet. The monitoring functions such as metering, and alarms shall be displayed on an alphanumeric LCD panel. LCD panel shall be provided with following monitoring functions and indicators (each alarm and notice conditions shall be accompanied with an audible alarm).

NORMAL: This symbol shall be lit when the UPS is operating in Normal Mode.

BATTERY- This symbol shall be lit when the UPS is operating in battery mode.

BYPASS - This symbol shall lit when the UPS is operating in bypass mode.

WARNING - This symbol shall lit when the system needs attention. Some notices shall be displayed and shall include –

a. UPS on Maintenance Bypass

b. Inverter Unsynchronized

c. Battery on load

d. Load on Bypass

e. Mains Failure

ALARM: This symbol shall lit when a situation requires immediate attention All alarms shall be accompanied by the Audio alarms. Alarm shall include –

Emergency Stop

Inverter Off Or Failed

Over- temperature.

Overload.

Battery C.B Open

Rectifier Off or Failed

Input C.B Open

Output C.B Open

Power Status Diagram:

A mimic panel shall be provided to depict a single line diagram of the UPS. Indicating lights shall be integrated within the single line diagram to illustrate the status of the UPS. The six LEDs shall indicate the following status.

Input Voltage OK

Bypass Voltage OK

Load on Bypass

Load on Inverter

Battery Voltage OK

Inverter Output OK

Battery Management Systems (BMS) - The UPS shall contain a battery management system with the following feature

The BMS shall provide battery time available, or percentage remaining with operating inbattery mode.

The battery management system shall provide the imminent shutdown to signal low battery condition.

Static Transfer Switch

General: A static transfer switch and bypass transfer switch shall be provided as an integral part of the UPS. The Static switch shall be a Bi-directional naturally commutated high speed static (SCR type) device rated to carry full load current continuously. The static transfer switch control logic shall contain an automatic transfer logic circuit that senses the status of the inverter logic signals, and operating and alarm signals. This control circuit shall provide an uninterrupted transfer of the load to an alternate bypass source, without exceeding the transient limits, when an overload or malfunction occurs within the UPS, or bypassing the UPS for maintenance.

Uninterrupted Transfer: The transfer control logic shall automatically turn on the static transfer switch, transferring the critical AC load to the bypass source, after the transfer logic senses any of the following conditions:

Inverter Overload capacity exceeded

Critical AC load overvoltage OR under voltage

UPS fault conditions

The transfer control logic shall inhibit an automatic transfer of the critical load to the bypass source if any of the following conditions are present.

Inverter/ Bypass Voltage difference exceeding presets limits

Bypass frequency out of limits

Bypass out of synchronization range with inverter output.

Uninterrupted Retransfer: Retransfer of the critical AC load from the bypass source to Inverter output shall be automatically initiated unless inhibited by manual control. The transfer control

logic shall inhibit an automatic retransfer of the critical load to the inverter if one of the following conditions exists.

Bypass out of synchronization range with Inverter output.

Inverter / Bypass voltage difference exceeds the preset limits

UPS faulty conditions presents.

Overload conditions exists in the excess of inverter full load ratings.

Maintenance Bypass Isolator

A manually operated maintenance bypass isolator shall be incorporated into the UPS cabinet to directly connect the critical load to the input AC power source, bypassing the rectifier, inverter and static transfer switch.

With the critical load powered from the maintenance bypass circuit, it shall be possible to check out the operation of the rectifier /charger, inverter, battery and static switch.

Remote Emergency Power off (REPO)

Provision shall be available for adding a REPO switch to meet specific site needs. The REPO switch shall be electronically shut down the UPS by turning off the rectifier, inverter static switch and battery circuit breaker.

Execution

The following inspections and test procedures shall be performed by factory trained field service personnel during UPS startup.

Visual Inspection

- Inspect equipment for sign of damage
- Verify installation as per drawing
- Inspect cabinet for foreign object
- Verify neutral and ground conductors are properly sized and configured.
- Inspect battery cases.
- Inspect battery for proper polarity
- Verify all printed boards are configured properly.

Mechanical Inspection

- Check all control wiring connections for tightness.

- Check all power wiring connections for tightness.
- Check all terminals screws,nuts, and / or spade lugs for tightness.

Electrical Inspection

- Check all fuses for continuity
- Confirm input voltage and phase rotation is correct
- Verify control transformer connections are correct for the voltage being used
- Assure connections and voltage of the battery strings

Documentation

The manufacturer shall supply minimum 2 sets of an installation manual with installation startup trouble shooting guide and operation instruction of the specified system.

Installation

The UPS shall be installed by a service engineer fully trained on the UPS by the manufacturer. The manufacturer will have to conduct load/site study prior to the commissioning of the UPS. A copy of the load/site study report will have to be submitted with required comments.

Service Capability

The Manufacturer should have the independent service setup with engineers who are fully trained in the UPS. All the service personnel’s should have the latest power measurement equipments which will be required during the process of site study, installation and maintenance. The manufacturer should have ISO 9001 or equivalent certification to ensure the quality of the service.

All the manufacturers’ service engineers should have any alternative means of mobile communication, for instantaneous communications as and when the need arises.

The manufacturer should have the capability to provide consultancy on the aspect of power quality as and when required for which they should have their own power solutions.(Product and technology)

The response time to attend the complaint shall be less than two hours in normal working hours. The manufacturer should have the facility to provide night services as and when required.

7.15.2 Technical Requirement

UPS TOPOLOGY --- Parallel redundant type true on-line double conversion PWM IGBT based.

Input

- Input voltage - 415V, 3 phase, 4 wires
- Input voltage tolerance - +10%, -15%
- Input frequency - 50 Hz
- Input Power factor at nominal voltage and full load - >0.99
- Input current limit - 115% (Adjustable between 100 - 125%)
- Input circuit - IGBT rectifiers
- Input I THD - <= 5% at rated linear load , thdv 0.5%

Output

- Module full load rating KVA/ KW - As per BOQ
- Rated voltage - 415 V , 3 phase, 4 wires
- Rated current - STANDARD AS PER IS
- Output voltage adjustment range - +/- 5%
- Output voltage regulations - +/- 1%
- Output power factor range - 0.9 to unity
- Internal oscillator stability - +/- 0.001Hz
- Mains synchronization tracking - +/- 1 Hz (settable to +/-2)
- Max. rate of change of frequency - 1 Hz. Per second
- Output voltage harmonics
- a] Linear load - < 2%

- b] Non-linear load (Crest factor of 3:1) - < 5 %

- Crest Factor - 3 : 1
- Overload rating -
- 110% for 60 minutes
- 125% for 10 minutes
- Overload trip - 10 min at 125% reducing to 60 seconds at 150%
- Overall Efficiency at double conversion - >/= 95% at 100% load without Isolation Transformer.
- current limit short - Set at 150% of the output power
- Transient Response
- a) 100% load change - < +/- 5%
- Manual transfer of load - 20 m secs when in sync from UPS to bypass and vice-versa
- c) Automatic transfer of -0 m secs in sync load form UPS to bypass
- Transient recovery time - Recovery to +/- 1 % in < 50 msec.

DC CHARACTERISTICS

- Battery isolation - Manually closed circuit breaker. OEM make
- DC Bus voltage ripple - < 1 RMS
- Battery recharge current limit - As per manufacturer standard but minimum 10% of rated AH

Controls

- Charger input Isolator
- Battery circuit breaker (mounted separately in its own enclosure)
- Inverter output Isolator
- Bypass line Isolator
- Maintenance Bypass Isolator
- Alarm acknowledge / Reset button

- Inverter On-Off Pushbutton for Manually switching of the Inverter
- Emergency off push button

Measuring Instruments

- LCD panel for Measuring Output voltages, Output currents and Frequency, Battery Voltage and Charging / Discharging current.
- LCD panel should display status of the Battery capacity and backup Time in minutes.

Protections

- RC surge suppressor.
- Sustained under voltage on input side
- Phase loss on input side.
- Negative sequence protection on input side
- Semiconductor fuses where required as a protection
- Charger input current limit
- HRC fuses or Semiconductor fuses for filter capacitors
- Battery current limit
- DC over voltage
- Low battery
- Semiconductor fuses at inverter output
- Overload
- Over temperature for the inverter
- HRC fuses in the control circuit

Indications (Alarms)

- Inverter Failure
- Overload (if load exceeds 100%)

- Overload shutdown
- Emergency shutdown
- Equipment over temperature
- Maintenance Bypass ON
- DC overvoltage
- Low battery
- Battery circuit breaker open
- Battery on load
- Mains failure
- Rectifier Failed or Off
- Inverter Unsynchronized
- Load on bypass
- Output voltage error

DC link characteristic for XX min battery run time on full load

- NO. of 12V SMF lead acid batteries -
- AH rating -
- Model / Make -
- Boost voltage - Not applicable for SMF
- Voltage tolerance - ± 1 %
- DC ripple - < 1 %
- Charging current limit -
- AH/ Nos. -
- Battery Isolation -With U/V release type Battery Circuit breaker

Mechanical Dimensions:

- Weight of UPS – Kg - Vendor to specify
- Dimension of UPS (L x D x H) in mm - Vendor to specify
- Ventilation - internal fans
- Protection Level : - IP 20

Environmental:

- Operating temperature - 0 - 40 deg.C.
- Max. Temp. For 8 hr. day - 40 deg. C.
- Relative humidity - < 90 % (20 deg. C.)
- Altitude - 1000M
- Storage temp - from -25 to + 70 deg. C.

OEM Criteria :

- The OEM’s turnover should be more than 500 crores.
- The number of Service Engineers in Maharashtra should be more than 100 on Direct Company payroll with PF no.
- Any third-party service will not be accepted.
- All card replacements, battery replacements, breakdown call should be attended on sight.
- Response time in Mumbai should be <24hours
- Resolution time should be ≤ 48 hours.
- Service local Centre should be available
- Third Party Test Certificate from Any NABL approved Lab should be provided.

7.15.3 Compliance sheet

Datasheet		Compliance (Yes/No)
OEM	Specify	
Model	Specify	
Nominal Power (kVA)	60	
Active Power (kW)	60	
General characteristics		
Technology	On-line double conversion VFI-SS-111	
Waveform	Sinusoidal	
Architecture	2x60kVA UPS in parallel redundant configuration with separate battery bank.	
Isolation Transformer	External Identical with each UPS	
Input Characteristics		
Input Voltage	400V (3Ph+N+PE)	
Input Frequency	320V to 480V	
Input Voltage Range (Ph-Ph)	+/-15%	
THD of input current	<5% at full load	
Compatibility with Diesel Generators	Yes	
Input power factor	>0.99	
Output characteristics		
Output Voltage	380, 400, 415V (3Ph+N+PE) (Adjustable from front panel)	
Efficidncy	up to 96%	
Efficidncy in ECO modd	up to 98.5%	
Output frequency (nominal)	50 /60 Hz (Adjustable from front panel)	
Output frequency tolerance	±0,1%Synch with Mains; ±0,01%	

	Free Run	
Crest Factor	up to 3:1	
THD of output voltage	< 2% at full linear load	
Output power factor	1	
Output voltage tolerance	± 1%	
Overload Capability	10 min at 125%; 60 sec at 150%	
Inverter technology	3rd level inverter technology	
By-pass	Builtin Automatic and Mainteinance Bypass	
Batteries		
Battery type	12V SMF Battery	
Battery test	Yes Automatic or Manual	
battery Ah/Battery Qty	60nos. Of 150Ah battery	
Battdry Rdchargd Profild	IU (DIN41773)	
Communication and management		
LCD Display	Touch screen, led bar status, live synoptic view for real time	
Communication Ports	RS232, GenSet, Programmable 4 Relay Contacts, ModBus	
Back Feed Protection	Internal Back Feed Protection Device is Standard	
Audible Alarm	Acoustic alarms and warnings	
Net Interface Slot	yes. SNMP card required	
Emergency Power Off (EPO)	Yes	
Remote Management	Available	
Physical characteristics		
Dimensions H x W x D (mm)	Vendor to specify	
Ambient conditions		

Operating temperature (°C)	0-40	
Relative humidity (%)	20-95% not condensing	
Protection index	IP20	
Noise at 1 m (dBA)	< 60	
Compliance		
Reference product standards	EN 62040-1, EN 62040-2, EN 62040-3	
PEP certification	Required	
Additional Requirement		
SNMP	Required	
Potential free contact	Minimum 4 nos.	
local PC with i5 processor, 15" screen	Required	
Buy back	2x60kVA Numeric Make Keor T EVO UPS and 60nos. Of 150Ah Quanta make battery. Dismantaling of old UPS, shifting and new UPS installation in OEM scope.	
Warranty		
UPS warranty	2 years warranty	
Battery Warranty	2 years warranty	
CAMC charges	4 years CAMC charges after warranty.	

7.16 TECHNICAL SPECIFICATIONS FOR HVAC WORKS

Precision Air Conditioning

Scope of this section comprises the Removing, shifting, installation, testing and commissioning of Precision air conditioning Units.

It Includes supply of MS Stand and Civil Work as per site requirement for PAC Outdoor Units installation and commissioning with all safety norms and as per EIC instructions.

At Present 6 no of 10 Tr Dx based, Bottom discharge (Flakt Group) are commissioned in the Serve Hall Ground floor.

These PAC Units need to be removed from Ground floor. 4 Units need to be Re- installed & commissioned at First floor & 2 Units need to be commissioned at UPS Room Ground floor with Required Refrigerant piping.

The Server Room Ground floor also have Vertiv Smart Rack system with Required Units. The smart Rack System need to be dismantled & Store at Location Provided by Railtel with Required Packing.

7.17 TECHNICAL SPECIFICATIONS FOR LOW VOLTAGE SYSTEM

FIRE ALARM SYSTEM

The Buidling has Honeywell Make Fire Alarm Panel installed at Ground Floor. The Existing Devices need to removed & Re-install the devices at First Floor DC.

Gas Suppression System

The DC Area has FM200 Based gas suppression System. Total 6 no of Cylinders are instllaed at the Facility. The existing Cylinders need to be taken back to the Factory for Refilling the Cylinder with Required gas as per the design Calculations for Data Centre at First Floor.

New Piping required to be done for Data Centre at First Floor. If Required ., Gas based suppression system will be installed AT ups Room Ground Floor.

The Existing Gas release Panel. Nozzles etc will be used for DC area. New panel, Nozzle etc will be required for UPS Room.

INSTALLER

1. The installing contractor shall be trained by the supplier to design, install, test, and maintain fire suppression systems.

2. The installing contractor shall be an experienced firm regularly engaged in the installation of automatic clean agent, or similar, fire suppression systems, in strict accordance with all applicable codes and standards.

3. The installing contractor must have a minimum of five (5) years experience in the design, installation, and testing, of clean agent, or similar fire suppression systems. A list of systems of a similar nature and scope shall be provided on request.

4. The installing contractor shall maintain, or have access to, a clean agent recharging station. The installing contractor shall provide proof of his ability to recharge the largest clean agent system within 24 hours after a discharge. Include the amount of bulk agent storage available.

5. The installing contractor shall be an authorized stocking distributor of the clean agent system equipment so that immediate replacement parts are available from inventory.

6. The installing contractor shall show proof of emergency service available on a twenty-four-hour-seven-day-a-week basis.

SUBMITTALS

1. The installing contractor shall submit the following design information and drawings for approval prior to starting work on this project:

a) Field installation layout drawings having a scale of not less than 1/8 in. = 1 ft.- 0 in. or 1:100 detailing the location of all agent storage tanks, nozzles, pipe runs, including pipe sizes and lengths, control panel(s), detectors, manual pull stations, abort stations, audible and visual alarms, etc.

b) Auxiliary details and information such as maintenance panels, door holders, special sealing requirements, and equipment shutdown.

c) Separate layouts, or drawings, shall be provided for each level, (i.e.; room, sub floor, and above ceiling) and for mechanical and electrical work.

d) Electrical layout drawings shall show the location of all devices and include point-to-point conduit runs and a description of the method(s) used for detector mounting.

e) Provide an internal control panel wiring diagram which shall include power supply requirements and field wiring termination points.

f) Separate drawing providing symbol legend and identifying all symbols used.

g) Annunciator wiring schematics and dimensioned display panel illustration shall be provided. (Optional device.)

h) Complete hydraulic flow calculations, from a UL listed computer program, shall be provided for all engineered clean agent systems. Calculation sheet(s) must include the manufacturer’s name and UL listing number for verification. The individual sections of pipe and each fitting to be used, as shown on the isometrics, must be identified and included in the calculation. Total agent discharge time must be shown and detailed by zone.

i) Provide calculations for the battery stand-by power supply, taking into consideration the power requirements of all alarms, initiating devices, and auxiliary components under full load conditions.

j) A complete sequence of operation shall be submitted detailing all alarm devices, shutdown functions, remote signaling, damper operation, time delay, and agent discharge for each zone or system.

2. Submit drawings, calculations and system component sheets for approval to the local fire prevention agency, owner's insurance underwriter, and all other authorities having jurisdiction before starting installation. Submit approved plans to the architect/engineer for record.

CONTROL PANEL

1. The control panel shall be an AUTOPULSE releasing panel supplied by APPROVED INCORPORATED.
2. The detection control system and its components shall be UL listed and FM approved for use as a local fire alarm system with releasing device service.
3. The control system shall perform all functions necessary to operate the system detection, actuation, and auxiliary functions.
4. The control system shall include battery standby power to support 24 hours in standby and 5 minutes in alarm.
5. The control system shall be microprocessor based, utilizing a distributed processing concept. A single microprocessor failure shall not impact operation of additional modules in the system.
6. The control system shall be capable of supporting Cross Zoned Detection.
7. The control system shall supply integrated 2.0-amp (minimum) power supply circuitry.
8. Each control system shall contain four (4) initiating circuits:

    a) Each circuit shall be capable of Class A (Style D) or Class B (Style A) operation.

    b) Each circuit shall be capable of operating up to fifteen (15) approved detectors or thirty (30) detectors per system.

    c) Each circuit shall be capable of monitoring contact devices configured for manual release, manual alarm, system abort, trouble input or auxiliary (non-fire) input.
9. Each control system shall contain release circuits for activation of a fire suppression system(s):
    a) Each circuit shall be capable of Class B (Style Y) operation.
    b) Each circuit shall be rated for a minimum of 1.5 amp @ 24 VDC.
10. Each control system shall contain two (2) indicating appliance circuits for annunciation:

    a) Each circuit shall be capable of Class A (Style B) or Class B (Style Y) operation.

    b) Each circuit shall be rated for a minimum of 1.5 amp @ 24 VDC.
11. Each control system shall provide an auxiliary power supply rated for 2 amps @ 24 VDC.

12. Each control system shall provide two (2) SPST relays: one for common alarm and one for common trouble. Four (4) additional programmable relays can be added to each control system by adding a relay module.

MANUAL RELEASE (Electric)

1. The electric manual release shall be a dual action device which provides a means of manually discharging the suppression system when used in conjunction with the detection system.
2. The manual release shall be an Approved model.
3. The manual release or manual pull station shall be a dual action device requiring two distinct operations to initiate a system actuation.
4. Manual actuation shall bypass the time delay and abort functions and shall cause all release and shutdown devices to operate in the same manner as if the system had operated automatically.
5. Manual release shall be located at each exit from the protected hazard.

ABORT STATION (Optional)

1. The optional abort station shall be the "Dead Man" type and shall be located next to each manual release.
2. The abort station shall be an Approved model.
3. The abort station shall be supervised and shall indicate a trouble condition at the control panel, if depressed, and no alarm condition exists.
4. "Locking" or "Keyed" abort stations shall not be permitted.

AUDIBLE and VISUAL ALARMS

1. Alarm audible and visual signal devices shall operate from the control panel.
2. The alarm bell, alarm horn, and horn strobe devices shall be an Approved model.
3. The visual alarm unit shall be an Approved strobe device.
4. A strobe device shall be placed outside, and above, each exit door from the protected space. Provide an advisory sign at each light location.

CAUTION and ADVISORY SIGNS

Signs shall be provided to comply with NFPA 2001 and the recommendations of the equipment provider.

1. Entrance sign: (1) required at each entrance to a protected space.
2. Manual discharge sign: (1) required at each manual release station.
3. Flashing light sign: (1) required at each flashing light over each exit from a protected space.

7.17.1 TESTING AND DOCUMENTATION

SYSTEM INSPECTION and CHECKOUT

After the system installation has been completed, the entire system shall be checked out, inspected, and functionally tested by qualified, trained personnel, in accordance with the manufacturer's recommended procedures and NFPA standards.

A. All containers and distribution piping shall be checked for proper mounting and installation.

B. All electrical wiring shall be tested for proper connection, continuity and resistance to earth.

C. The complete system shall be functionally tested, in the presence of the owner or his representative, and all functions, including system and equipment interlocks, must be operational at least five (5) days prior to the final acceptance tests.

D. Each detector shall be tested in accordance with the manufacturer's recommended procedures and test values recorded.

E. All system and equipment interlocks, such as door release devices, audible and visual devices, equipment shutdowns, local and remote alarms, etc. shall function as required and designed.

F.Each control panel circuit shall be tested for trouble by inducing a trouble condition into the system.

7.17.2 TRAINING REQUIREMENTS

Prior to final acceptance, the installing contractor shall provide operational training to each shift of the owner’s personnel. Each training session shall include control panel operation, manual and (optional) abort functions, trouble procedures, supervisory procedures, auxiliary functions and emergency procedures.

7.17.3 OPERATION and MAINTENANCE

Prior to final acceptance, the installing contractor shall provide four (4) complete operation and maintenance instruction manuals to the owner. All aspects of system operation and maintenance shall be detailed, including piping isometrics, wiring diagrams of all circuits, a written description of the system design, sequence of operation and drawing(s) illustrating control logic and equipment used in the system. Checklists and procedures for emergency

situations, troubleshooting techniques, maintenance operations and procedures shall be included in the manual.

AS-BUILT DRAWINGS

Upon completion of each system, the installing contractor shall provide two (2) copies of system "AS-Built" drawings to the owner. The drawings shall show actual installation details including all equipment locations (i.e., control panel(s), agent container(s), detectors, alarms, manual pull station(s) and abort switch(s), etc.), as well as piping and conduit routing details. Show all room or facilities modifications, including door and/or damper installations completed. One (1) copy of reproducible engineering drawings shall be provided reflecting all actual installation details.

ACCEPTANCE TEST

A. At the time "AS-Built" drawings and maintenance/operations manuals are submitted; the installing contractor shall submit a "Test Plan" describing procedures to be used to test the control system(s). The Test Plan shall include a step-by-step description of all tests to be performed and shall indicate the type and location of test apparatus to be employed. The tests shall demonstrate that the operational and installation requirements of this specification have been met. All tests shall be conducted in the presence of the owner and shall not be conducted until the Test Plan has been approved.

B. The tests shall demonstrate that the entire control system functions as designed and intended. All circuits shall be tested: automatic actuation and manual actuation, HVAC and power shutdowns, audible and visual alarm devices, and manual override of abort functions. Supervision of all panel circuits, including AC power and battery power supplies, shall be tested and qualified.

SYSTEM INSPECTIONS

A. During the one-year warranty period, the installing contractor shall provide two (2) inspections of each system installed under this contract. The first inspection shall be at the six-month interval, and the second inspection at the 12-month interval. Inspections shall be conducted in accordance with the manufacturer's guidelines and the recommendations of NFPA 2001.

B. Documents certifying satisfactory system(s) inspection shall be submitted to the owner upon completion of each inspection.

WARRANTY

All Approved system components furnished and installed under this contract shall be warranted against defects in design, materials and workmanship for the full warranty period which is standard with the manufacturer, but in no case less than one (1) year from the date of system acceptance.

ACCESS CONTROL SYSTEM (ACS)

The Building Existing Access control system will be used for Data Centre & NOC Room. The existing Biometric device & Readers will be removed & reinstalled at First Floor.

Vendor need to do the Cabling works along with electromagnetic Locks.

7.18 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, PTZ cameras power supply units, monitoring stations, Network video recorders, Hard disk storage devices, 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.

7.18.1 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 Fixed domes, builet camera and verifocal cameras 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 of DC facilty,all access entry doors ,HVAC outdoor unit monitoring, corridors, main exits, , NOC, server rooms & Network Racks Rows 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 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 Portable HDD. 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 NVRs 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. 30 days recoring is minimum requirement.

Specifications of cameras

2MP resolution indoor DOME CAMERA:

2.01 GENERAL

A. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.

B. All systems and components shall have been thoroughly tested and proven in actual use.

Camera Feature:-

Image Sensor	1/2.8" Progressive CMOS
Maximum Resolution	1920 x 1080 (2MP)
Lens Type	Fixed-focal
Focal Length	f = 2.8 /4/6mm
Aperture	F1.8
Field of View	113° (Horizontal)
	63° (Vertical)
	136° (Diagonal)
Shutter Time	1/5 sec. to 1/32,000 sec.
WDR Technology	WDR Enhanced
Day/Night	Yes
Minimum Illumination	0.05 Lux @ F1.8 (Color)
	< 0.001 Lux @ F1.8 (B/W),
On-board Storage	Slot type: MicroSD/SDHC/SDXC card slot
	Seamless Recording
Video	
Compression	H.264 & MJPEG
Maximum Frame Rate	30 fps @ 1920x1080
	In both compression modes

Maximum Streams	2 simultaneous streams
S/N Ratio	47 dB
Dynamic Range	70 dB
Protocols	IPv4, IPv6, TCP/IP, HTTP, HTTPS, UPnP, RTSP/RTP/RTCP, IGMP, SMTP, FTP, DHCP, NTP, DNS, DDNS, PPPoE, CoS, QoS, SNMP, 802.1X, UDP, ICMP, ARP, SSL, TLS
Interface	10 Base-T/100 Base-TX Ethernet (RJ-45) *It is highly recommended to use standard CAT5e & CAT6 cables which are compliant with the 3P/ETL standard.
ONVIF	Supported, specification available at www.onvif.org
Intelligent Video	

2 MP 25x PTZ IR IP Camera

- 4.8–120 mm, F1.6-F4.4, 25x optical zoom lens
- 1/2.8" progressive scan image sensor
- Up to 50/60 fps primary stream. Up to 25/30 fps secondary streams
- Up to triple stream support
- Ultra-low light performance
- 328 ft. (100 m) IR distance, depending on scene reflectance
- True WDR: 120 dB
- Excellent low light performance with down to 0 lux BW (with IRs on)
- Multiple, selectable compression formats (H.265/H.264/ MJPEG)
- Built-in Analytics, including Face detection.
- Automatically restores to previous PTZ and lens position after power failure
- Choice of 12 VDC or PoE+ power inputs
- On board camera storage: up to 128 GB microSD card (not included)

- ONVIF profile S and G compliant
- Water resistant IP66 ingress protection rating

7.18.2 NETWORK PROTOCOL

A. Ethernet	RJ-45 (10/100Base-T)
B. Video Compression Format	H.264(MPEG-4 part 10/AVC), MJPEG
C. Resolution	1280x1024 /1280x720 / 1024x768 / 800x600 / 640x480 320x240
D. Max. Framerate	
1. H264	Max 60fps at all resolutions
2. Motion JPEG	1280x1024 / 1280x720 / 1024x768 : Max. 15 fps
	800x600 / 640x480 / 320x240 : Max. 30fps
E. Video Quality Adjustment	
1. H.264	Compression level, Target bit rate level control
2. MJPEG	Quality level control
F. Bitrate Control Method	
1, H.264	CBR or VBR
2. MJPEG	VBR
G. Streaming Capability	Multiple Streaming (Up to 10 Profiles)
K. IP	IPv4, IPv6
L. Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour
M. Security	HTTPS(SSL) Login Authentication
	Digest Login Authentication

IP Address Filtering

User access Log 802.1x Authentication

N. Streaming Method Unicast, Multicast

O. Max. User Access 15 users at Unicast mode

P. Memory Slot SD/SDHC/SDXC

- motion Images recorded in the SDX/SDHC/SD memory card can be downloaded.

Q. ONVIF Conformance : Yes, Profile S

R. Webpage Language : English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Denish,Portuguese, Turkish, Polish, Czech, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Norwegian

S. Web Viewer

1. Supported OS Windows XP / VISTA / 7 / 8, MAC OS X 10.7

2. Supported Browser Microsoft Internet Explorer (Ver. 7~10),

Mozilla Firefox (Ver. 9~19),

Google Chrome (Ver. 15~25),

Apple Safari (Ver. 6.0.2(Mac OS X 10.8, 10.7 Only),* Mac OS X Only.

3. Central Management Software Smart Viewer 4.0

2.08 ELECTRICAL

A. Voltage DC12V, PoE(IEEE802.3af,Class3)

B. Consumption Max. 9.0W (DC 12V)

Max. 11.0W(PoE, Class3)

2.09 ENVIRONMENTAL SPECIFICATIONS

A. Operating Temperature - 10°C ~ +55°C (14°F ~ 131°F)

B. Operating Humidity Less than 90% RH

2.10 PHYSCIAL SPECIFICATIONS

A. Dimension D132.1 ,H107.6

B. Weight 525g

C. Color IVORY(Polycarbonate)

2.11 CERTIFICATIONS

A. CE mark

B. FCC mark

7.18.3 NETWORK VIDEO RECORDER

NVR is a full-featured high-performance H.264/H.265 NVR. Equipped with a 2U 12-CH 4 Bay Rackmount network appliance,

standard RAID capability and H.264/H.265 video codec, the total storage capacity of the NVR also endows with scalability and

flexibility.

NVR equipped with 4 hard-drive bay design provides for a storage capacity of up to 12TBs, offering greater than 30% ~ 50% more recording capacity than systems employing H.264 compression.

This advance affords users larger storage space for longer durations of video recording. The RAID 0/1/5/6/10 configuration provides

further data security in the rare event of a hard drive failure. Further, equipping with a DOM system has resulted in reliability and stability. This ingenious NVR is also equipped to carry out remote management with a full range of the server/client structures and thus constitutes a robust system for diverse applications. Moreover, NVR features well-built ONVIF compliance and scalable configuration, with Central Monitoring Software empowering users to set up and manage advanced IP surveillance systems with ease. NVR also supports both remote and mobile access via iViewer app, for both iOS and Android handheld devices.

Key Features

H.265/H.264 Compression Technology

32-CH Recording, 16 Display

Support HDMI, Display Port, VGA and DVI Simultaneous Output

4 Hot-Swappable HDD Bays

Support RAID 0/1/5/6/10 Storage

Max Support up to 12TB HDD

USB Interface

Inside (LiveClient/Playback)

Dual Lan Giga Network Ports

Decoding Capacity H.265/H.264: 1920x1080 @ 270 fps (4Mbps)

ONVIF Open Platform

IP Camera Configuration and CMS Integrated

Multiple Video Search Modes

Safety Certifications CE/FCC/ UL

CABLES:

Power cable:

The Power Cable shall be Multicore 2 core 1.5 sq mm PVC insulated and Shielded cables.

Unshielded Twisted pair cable:

The unshielded twisted pair cable shall be CAT5E/CAT6 for connection for Camera to Switch/NVR, Server and LAN

Technical Specification of Twisted pair cable:

Unshielded Twisted Pair, Category 5E/6 Type cable.

24-26 AWG stranded copper conductor.

1 meter and 2 meter Length

Matching colored snag-less, boot to maintain bend radius

Plug - Clear polycarbonate Housing, Phosphor Bronze with gold plating, 50 micron'' gold over nickel Terminals.

PBT polyester Load bar.

PVC Jacket.

Flame Retardant Polyethylene Insulation.

Factory standard connector End point connector

7.19 WATER LEAK DETECTION SYSTEM

Overview

This section of the specification covers the design, supply, installation, testing, commissioning and thereafter maintaining of the Liquid Leak Detection System (LLDS) during the twelve (12) months defect liability period.

Installation of a liquid leak detection system (LLDS) is recommended for continuous protection from the risk of water leaking within critical areas of the building.

This complete LLDS shall include electronic leakage detection panel, zonal modules, conductive sensing cable, monitoring leakage at any zone along the run and all required auxiliary accessories(such as jumper cables, connectors, hold down clips and tag/labels).

The LLDS shall be installed at the various rooms as per specified in the tender drawing This specification shall be the guideline for Supply, installation, testing and commissioning of Water Leak Detection System installed in the designated Sub-floor / Floor Areas as per the following:

1. Data Center

The layout of the liquid leak detection equipment and circuits as shown on the Drawings is given for guidance to the Contractor for preparing his estimation during tendering and indication of the design intent only. The Contractor shall be responsible to determine the most effective arrangement of the detection system and circuits basing on the manufacturer’s recommendations, quantity of liquid leak detection panels required, the additional of the accessories, individual features and operating coverage characteristics of the selected products.

7.20 CODES AND STANDARDS: Original Equipment Manufacturer Standard

System performance

General

The liquid leak detection system (LLDS) shall identify any abnormal presence of liquid on any point of The water leak detector shall be installed to detect any seepage of water into the critical area and alert the Security Control Room for such leakage. It shall consist of water leak detection cable and an alarm module.

Water Leak Detection system should be for the Server and Network room Areas to detect and water flooding below the floor of the DC.

Water Leak Detection System should be wire based solution with alarm; the wire needs to lay in DC surrounding the PAC units, which is the probable source of water leakage.

The water leak detector shall be installed to detect any seepage ingress or leakage of water into the critical area and alert the Security Control Room for such leakage. It shall consist of water leak detection cable and an alarm module. The cable shall be installed in the ceiling & floor areas around the periphery.

Water Leak Detection system should be for the Server and Network room Areas to detect and water flooding below the floor of the DC.

Water Leak Detection System should be wire based solution with alarm; the wire needs to lay in DC surrounding the PAC units/ Chilled water pipe of AHU/Boundry of Server,NOC room which is the probable source of water leakage

SITC of Water Leak Cable with end Connections.

Flame retardant polymer with greenish color for high visibility, Non flame propagating and self extinguishing,

2 wired sensing cable

Sensing Cable should be able to detect Water & slightly corrosive liquids.

SITC of 4 Zone Water Leak Detection Panel

LED/LCD Panel for Zonal indication.

Module to be powered with 230 V AC

Upon removal of Water or slightly corrosive liquid the Module should reset automatically without any human intervention

Each Zonal should be able to detect Leak in 50 meters of Sensing Cable

80 db Buzzer inbuilt in the module with Silencing button

Leak Sensitivity to be adjustable

Installation

The system shall be installed by well trained staffs, with the procedure recommended by the manufacturer.

TESTING :

Testing the cable by placing a wet cloth or wire gauge over the cable to simulate an water leak , displayed and the alarm relay operates. Extension of alarm to the BMS system to be verified.

COMMISSIONING :

S No.	Description	Visual	Test Reading	Documentation
1	All cables are tested for continuity & insulation			√
2	System installation proper as per drawing	√		
3	Carry out visual checks on sensor cables, interface modules etc. to ensure they are clean and free from any mechanical damage	√		
4	Check for proper termination & ferruling	√		
5	Check input A/C supply voltage		√	
6	Check for proper Sensor cable installation for the floor with non-conductive supports & Tagging	√		
7	Check for fault indications		√	
8	Apply wet cloth or metallic wire gauge to sensing cable and check for Leak indication on the panel with zonal indication.		√	
9	Check for extension of alarms in the BMS		√	

DOCUMENTATION :

The Contractor, upon completion of the commissioning activity, shall hand over the system to the customer.

At the time of hand over, the contractor shall provide the customer with the following documentation:

1. Copy of detailed report

2. Component and equipment list

3. Product description sheets

4. System design drawing(s)

5. System schematic diagram(s)

6. System operating manuals

HANDOVER :

Prior to final acceptance, the installing contractor shall provide complete operation and maintenance instruction manuals to the owner. All aspects of system operation and maintenance shall be detailed, including wiring diagrams of all circuits, a written description of the system design, sequence of operation and drawing(s), illustrating control logic and equipment used in the system. Checklists and procedures for emergency situations, maintenance operations and procedures shall be included in the manual.

TRAINING :

General The contractor shall provide the customer with details of the training required by personnel to operate and maintain the Water leak detection system.

The Contractor and the customer shall jointly agree the number of staff to attend the training courses.

MAINTANANCE :

Routine maintenance should be carried out in accordance with relevant IS and TAC requirements.

All performance checks undertaken should be recorded in the system log book.

As a minimum, the following performance checks must be undertaken on each maintenance visit. The standard handling procedures must be adhered to and extreme caution must be exercised when working under the floor or with Sensor Interface Modules due to the presence of main voltage 240 V AC.

Carry out verification checks as detailed in the commissioning instructions.

Remove dust and dirt from the panel exterior using a soft brush or a lint cloth. A solvent which is harmless to the finishes of metal and plastic may be applied to more stubborn stains.

Examine the exterior of the enclosure for any signs of damage or loose cable glands and rectify any faults found.

Remove any dust or dirt form the interior of the control panel using a soft brush or a vacuum cleaner.

Examine the printed circuit boards for signs of over-heating, dry joints and/or damaged tracks. Sensing cable to be cleaned with a damp cloth preferably every six-months.

RODENT REPELLENT

General

Rodent Repellent System shall be designed by using Electronic transmitters of high frequency sound waves, which will emit sound at very high decibel levels painful to pests, as described in the specification given hereunder.

System

The system shall consist of a Master Console, satellites and its cable circuits.

MASTER CONSOLE

These will be Electronic transmitters of high frequency sound waves (well above the 20 KHZ frequency which is the upper limit of the hearing range of the human ear.) emitting sound at high decibel levels (sound pressure) that is audible and painful to pests, but inaudible and harmless to humans. The system will consist of one Master Console and twelve Satellites / Transducers. The Console will be installed in the control room, or as directed and the satellites in the problem areas as required. The powerful sound waves generated by the satellites shall be within the hearing range of many pests, and cause them pain and discomfort. Satellites should be quiet and inaudible to humans.

SATELLITE

Each satellite will cover an open floor area of approximately 300 sq. ft for an average height of the ceiling is 10 ft. As regards area of false ceilings or false floorings, it should cover an approximate area of 150 sq. ft. The satellites should

1. Be able to mount in any angle to match the décor.

2. Possible to install in sensitive areas.

3. Should withstand high temperatures in false ceilings, and low temperatures in cold storages and
   air locks.
4. Should not require a power connection.
5. Should be able to test on an audible range with the help of a self-testing facility or any other
   suitable means.

Technical information

Satellites

1.1 Crystal

DM 44T 24V MAS Germany

1.2 Frequency

Peak frequency responses of the satellites are

i) 21.6 KHz + / -3 KHz

ii) 31.6 KHz + / -3 KHz

iii) 50.4 KHz + / -3 KHz

iv) 60 KHz + / - 3 KHz

1.3 Nature of sound waves

The sound waves propagated should be linear sine waves with constantly varying frequencies.

1.4 Operating environment

Range of –4 deg C to 60 deg C, 100 % humid environment and also under water.

2 Circuit

2.1 Signal generator should have full wave rectification, regulated 12V DC power supply to withstand power fluctuations ranging from 170V AC to 270V AC.

2.2 Amplifier should have a preamplifier stage coupled with signal generator for dual transistor amplification having a push-pull configuration.

Pressure

2.3 Uniform pressure output of 80 dB to 110 dB with 360□□transmission angle.

2.4 Linear propagation of mixed / variable frequencies detectable at, or about 40 ft distance from the source (Transducer/ Satellite).

2.5 Spatial average intensity – 83mW per cm^2

3 Specifications

Operating frequency : Above 20 KHz (Variable)

Sound Output : 80 dB to 110 dB at 1.00 Mts.

Power Output : 800 MW per Satellite or less

Power Consumption : 15 Watt Approx.

Power Supply : 230 V AC, 50 Hz

Mounting : Wall / Table

Dimension: 16” x 8 “ x 4”

Weight : 5.5 Kgs approximately

Passive Cabling

Hybrid network cabling with fiber and copper shall be implemented for the datacenter.

Every row of racks in the server room shall have a network rack placed at the end of the row.

The network rack shall aggregate cables from each server rack to the end of row patch panels.

Cables from server racks will be terminated in network racks in the same row as well as the next row for redundancy.

24 runs for CAT6A cable shall be provided from each server rack to network rack of the same row and additional 24 runs shall be provided to the network of the neighboring row.

4 Runs of 12-core OM4 fiber and 2 Runs of 12 core SM fiber cabling shall be provided from each Network rack to the BMS room rack encloser and additional 4 Runs 12 core OM4 fiber and 2 Runs of 12 core SM fiber shall be provided from BMS room to stilt floor network rack encloser.

4 Runs of Cat 6A cable to be provisioned for the connectivity between Network racks to BMS room rack encloser.

Each server rack shall have a 48-port Angled loaded CAT6A Jack panel and 24-port duplex fiber LIU with required adapters.

Each network rack shall have required 48-port Angled loaded CAT6A Jack panel and 24-port duplex fiber LIU with required adapters.

Each network rack shall have two separate 24 Runs of CAT6A.

Each Network rack shall have 4 separate runs of 12 core OM4 fiber and 2 Runs of 12 core SM fiber.

Rack encloser to be provisioned for BMS room for connectivity from stilt floor.

All cables shall be LSZH type.

All cables shall be laid on overhead cable trays with redundant routes as per the enclosed drawing.

All required accessories including cables for BMS room workstation and LV system connectivity.

7.21 TECHNICAL SPECIFICATION FOR PASSIVE CABLING

CAT6A U/UTP LSZH CABLE

S/N	Details	Specification
1	Type	23 AWG solid bard copper, Unshielded Twisted 4 Pair, Category 6A, confirming to TIA 568.C.2, Class EA - ISO/IEC 11801:2002 Amendment 2.
2	Conductors	Solid bare copper 23 AWG
3	Insulation	Polyethylene 1.18 mm OD
4	Jacket	LSZH jacket complying to: EU Directive 2011/65/EU (ROHS II) IEC 60754-1 IEC 60754-2 IEC Flame Test: 60332-1 ETL Test Report to be submitted for 3 & 4 Connector Channel
5	Pair Separator	+ Shape Spline
6	Suitable Applications:	Premise Horizontal Cable, 10 Gigabit Ethernet, 100BaseTX, 100BaseVG ANYLAN, 155ATM, 622ATM, NTSC/PAL Component or Composite Video, AES/EBU Digital Audio, AES51, RS-422, Noisy Environments, PoE
7	Guaranteed Bandwidth	500 MHz for 100 MT Channel
8	Packing	Box of 305 meters
9	Cable Outer Diameter	7.2 mm
10	Delay Skew	45 ns @ 100M
11	Bend Radius (Operation/Installation)	29 / 58 mm
12	Maximum Conductor DC Resistance:	DCR @ 20°C (Ohm/100 m) = 9.5

13	Maximum Delay:	Delay (ns/100 m) = 537 @ 100MHz
14	Nom. Mutual Capacitance	Capacitance (nF/km) < 56
15	Nom. Velocity of Propagation	67 %
16	Temperature Range Operation	-30 Deg C to +60 Deg C
17	Performance characteristics @ 500 MHz	Max. Attenuation: 45.4 dB/100m Min. NEXT : 34.8 dB Min. PS NEXT : 31.8 dB Min. Return Loss: 17.3 dB Min. ACR : -10.4 dB Min. PSACR : -13.4 dB Min. PS ANEXT: 52.0 dB Min. PS AACRF: 24.2 dB
18	PoE Compatibility	PoE Type 1 (15 W), Type 2 (30 W), Type 3 (60 W)
19	ELV	EU Directive 2000/53/EC

Cat6A Unshielded Modular Jack

Cat6A Unshielded Patch Cords		
Parameters	Specifications	Compliance (YES/NO)
Type	Modular Cord shall meet and exceed channel specification of ANSI/TIA/EIA-568-B.2 Category 6a and ISO/IEC 11801 2nd edition (2002) & Amendment 2 (2010) up to 500 MHz when used as a component in a properly installed UTP channel. It should also comply to EN 50173-1 (2002) & EN 50173-1 Amendment 1 (2009).	
Conductor	Stranded copper ETP, 7/26AWG	
Insulation	Foam Polyethylene/PE (1.05 mm +/- 0.05 mm)	
Plug Boot	Clear boot with PVC material	

Operating/Storage Temperature Range	-20 to +60 Deg C	
Channel compliance certificate	Certificate by Intertek (ETL)/UL/3P for the 4-Connectors channel testing to the Cat 6A Cabling system as per the ANSI/TIA 568 C.2 standards, ISO/IEC 11801 and EN 50173-1. Document to be submitted.	
Guaranteed Bandwidth	500 Mhz or Better Guaranteed Bandwidth	
Sheath Material	LSZH	
Flame Rating	IEC 60332-3-22	

48 Port CAT 6A Patch Panel

Parameters	Specifications	Compliance (YES/NO)
CAT 6A patch Panel	Key Connect Angled Patch Panel, 48-port	
Applications	Compatible with a variety of modules that are suitable for use with 10GX	
Height of patch panel	1U	
Port Count:	48 Port	
Connector Material	Panel: Steel	
Operating Temperature Range	-10°C To +60°C	
Applicable Environmental and Other Programs	EU Directive 2011/65/EU (RoHS 2)	
Safety Listing for Jacks	ACA, Bi-national Standard Listed	

12 core Multimode OM4 indoor LSZH fiber cable			
Sr	Description	Specifications	Compliance

No.			
1	Cable Description	Indoor tight buffered optical fiber distribution cable with Low Smoke Zero Halogen outer jacket. 12 fibers MM OM4. CPR Euroclass Dca	
2	Suitable Applications	For indoor use in structured (premises) wiring systems: building backbone (riser) and/or horizontal cabling (Fiber To The Desk). Support all computer network applications such as FDDI, Gigabit Ethernet and ATM. Easy to install in ducts and tunnels. Not suitable for blown installation.	
3	Fiber Color Coding	TIA coding: Blue, Orange, Green, Brown, Gray, White, Red, Black, Yellow, Violet, Pink, Aqua	
4	Central Strength Member	GRP	
5	Cable Core Water blocking	Water blocking Aramid Yarns	
6	Type of Armor	Non-Armored	
7	Jacket	Single	
8	Outer Jacket Material	LSZH - Low Smoke Zero Halogen (Flame Retardant)	
9	Mechanical Characteristics	Cable Min. Bend Radius Installation (Short Term) as per IEC 60794-1-21-E6, Requirement - 20XOD complies to IEC 60794-2-20	
		Cable Min. Bend Radius Operation (Long Term) as per IEC 60794-1-21-E11, Requirement - 10XOD complies to IEC 60794-2-20	
		Cable Max. Tensile Strength Installation (Short Term) as per IEC 60794-1-21-E1, Requirement - 400N complies to IEC 60794-2-20	
		Cable Max. Crush Resistance Installation	

		(Short Term) as per IEC 60794-1-21-E3 , Requirement - 5 kN/m complies to IEC 60794-2-20	
		Cable Max. Crush Resistance Operation (Long Term) as per IEC 60794-1-21-E3 , Requirement - 3 kN/m complies to IEC 60794-2-20	
10	Operating Temperature Range:	-5 °C to +40 °C	
11	IEC Flammability:	IEC 60332-1-2	
12	Reaction to Fire - Bundle Flame Test:	IEC 60332-3-24	
13	Standards	IEC 60754-1 - Halogen Amount:Zero	
		IEC 60754-2 - Halogen Acid Gas Amount - Max. Conductivity:10 µS/mm	
		IEC 60754-2 - Halogen Acid Gas Amount - Min. pH:4.3	
		IEC 61034-2 - Smoke Density Min. Transmittance:80%	
		ISO/IEC Compliance: IEC 60794	
		Shall comply to UV/ Sunlight Protection	
		As per EU Directive 2011/65/EU (RoHS 2)	

1U 24 Duplex LC-PC (48 Fiber) OM4 Loaded Patch Panel with Splicing Tray			
Sr. No	Description	Specification	Compliance
1	Suitable Applications	Fiber Express solution for Backbone, Telecommunication Room, Main Distribution room and Data centers	
2	Physical Characteristics	Port Count:48 Port	
3	Materials	Panel: Textured powder coated Steel	

		Fiber Adapter : Plastic	
		Accessories inside panel: ABS injection-molded splice tray pre-loaded in the panel, Velcro Straps, Cable Ties, PG13.5 water joint, Splice tubing, Adapters & 48 nos 2M Pigtails	
4	Max Capacity:	24 LC Duplex Adapters (48 Ports)	
5	Operating Temp Range:	-10ºC to +60ºC	
7	Mechanical Characteristics	Footprint/Type: LC-PC	
8	Applicable Environmental Standards	EU Directive 2011/65/EU (ROHS II)	

Patch Cords, LC to LC Multimode OM4			
Sr. No	Description	Specification	compliance
1	Suitable Applications	Data Centers, Main Equipment Rooms, Telecommunications Rooms and Work Area	
2	Mechanical Specification	Max. Crush Resistance (N/100 mm) Short Term – 500 Long Term - 100	
3	Connector Performance	Insertion Loss: Multimode OM4 - 0. 15 dB	
4	Return Loss	Multimode OM4 - ≥25dB	
5	Applicable Standard & Environmental Programs:	Telecommunication Standards: TIA 568.3 D, IEC 60793-2-10, IEC 60793-2-50 Connector Standards: IEC 61754, TIA 604 Cable Standards: IEC 60794-2-50, IEC 60332 IEC 60754, IEC 61034, ANSI/UL 1666, NFPA 262 E U RoHS Specification: 2011/65/EU	

		12 core OS2 Single mode indoor LSZH fibre cable	
Sr No.	Description	Specifications	Compliance
1	Cable Description	Indoor tight buffered distribution cable LSZH jacket 12f SM OS2 G.652.D & G.657.A1. CPR Dca.	
2	Suitable Application	For indoor use in structured (premises) wiring systems: building backbone (riser) and/or horizontal cabling (Fibre To The Desk). Support all computer network applications such as FDDI, Gigabit Ethernet and ATM. Easy to install in ducts and tunnels. Not suitable for blown installation	
3	Construction Type:	Distribution	
4	Buffer Material	LSZH - Low Smoke Zero Halogen (Flame Retardant)	
5	Fiber Colour coding	TIA coding: Blue, Orange, Green, Brown, Gray, White, Red, Black, Yellow, Violet, Pink, Aqua	
6	Cable Core Water blocking	Water blocking Aramid Yarns	
7	Number of Jackets	Single Jacket	
8	Type of Armor	Non-Armoured	
9	Outer Jacket Material	LSZH - Low Smoke Zero Halogen (Flame Retardant)	
10	Mechanical Characteristics	Cable Min. Bend Radius Installation (Short Term) as per IEC 60794-1-21-E6, Requirement - 20 X OD mm complies to IEC	

		60794-2-20	
		Cable Min. Bend Radius Operation (Long Term) as per IEC 60794-1-21-E11, Requirement - 10 X OD complies to IEC 60794-2-20	
		Cable Max. Tensile Strength Installation (Short Term) as per IEC 60794-1-21-E1, Requirement - 400N complies to IEC 60794-2-20	
		Cable Max. Crush Resistance Installation (Short Term) as per IEC 60794-1-21-E3 , Requirement - 5 kN/m complies to IEC 60794-2-20	
		Cable Max. Crush Resistance Operation (Long Term) as per IEC 60794-1-21-E3 , Requirement - 3 kN/m complies to IEC 60794-2-20	
11	Operating Temperature Range	-5 °C to +40 °C	
12	Reaction to Fire - Bundle Flame Test:	As per IEC 60332-3-24	
13	Standards	IEC 60754-1 - Halogen Amount: Zero	
		IEC 60754-2 - Halogen Acid Gas Amount - Max. Conductivity:10 µS/mm	
		IEC 60754-2 - Halogen Acid Gas Amount - Min. pH:4.3	
		IEC 61034-2 - Smoke Density Min. Transmittance:80%	
		ISO/IEC Compliance: IEC 60794	

		Shall comply to UV/ Sunlight Protection	
		As per EU Directive 2011/65/EU (RoHS 2)	
		24 Fiber 1U Rack Mount Fiber Enclosure (LIU), Splice Trays and Adapter	
Sr #	Details	Specification	Compliance
1	Fiber Interface Unit	1U 24 Duplex LC-PC (48 Fiber) OS2 Loaded Patch Panel with Splicing Tray	
2	Applications	Fiber Express solution for Backbone, Telecommunication Room, Main Distribution room and Data centres	
3	Physical Characteristics	Port Count: 48 Port	
		24 Port should be available in 1U Rack Mount LIU.	
4	Material	Panel: Textured powder coated Steel	
		Fiber Adapter : Plastic	
		Accessories inside panel: ABS injection-molded splice tray pre-loaded in the panel, Velcro Straps, Cable Ties, PG13.5 water joint, Splice tubing, Adapters & 48 nos 2M Pigtails	

5	Max Capacity:	24 LC Duplex Adapters (48 Ports)	
6	Operating Temp Range:	-10ºC to +60ºC	
7	Applicable Environmental Standards	EU Directive 2011/65/EU (ROHS II)	
Sr #	Details	Specification	Compliance
1	Fiber Patch Cords	Fiber Patch Cords, LC-LC Duplex, Single mode OS2, 3MT	
1a	Type	2mm Duplex Zip cord.	
		Single mode OS2, Yellow Color	
2	Jacket Material	LSZH (IEC 60332-3, IEC 60754-2, IEC 61034-2)	
3	Length	3 MT	
4	Minimum Cable	2.0/3.0mm: 200 N Tensile Strength	
5	Retention Strength	2.0/3.0mm: 1000 N Crush Resistance	
6	RoHS Certified	Yes	
7	Cable Standards	IEC 60794, IEC 60332, UL 1666, NFPA 262	
8	Connector Standards:	IEC 61754, TIA 604	

7.22 TECHNICAL SPECIFICATION FOR CABLE DUCTS

S.NO	Specification	Compliance (YES/NO)
	General Requirements:-	
	Cable ducts are intended for the support and accommodation of cables and possibly other devices in Electrical/Control/ Instrumentation/Communication systems.	
	Design and Fabrication of Cable Trays / Ladders: -	
	The Cable duct shall be fabricated according to the design specified by IEC 61537 and certified for 90 minutes of Fire Protection (E90) as per DIN 4102-12. It should be tested for Safe Working Load (SWL). The relevant details of SWL and the load chart with respect to SWL, supporting distance and the deflection is explained below.	
	The minimum support distance should be 2 meters, and no supports permitted for installation in less than 2meters.	
	The Cable duct shall be made of Steel, Pregalvanized sheet (275 gsm) and then Epoxy powder coated with 60-80 microns with bright colors, preferable RAL1023. No Thermoplastic/ Polyester material permitted for straight lengths/ covers in the entire installation.	
	The Cable duct should have all the accessories which can be mounted readily, preferably modular features which is plug and play with no special tools / fasteners for drop-offs, mounting of connectors readily installable on the straight lengths, and easy to manage the changing needs in future.	
	The Cable duct must be strong enough to withstand the installed loads by itself without the need of covers. Covers should be an optional accessory to be used wherever it is required only.	

	The straight lengths of ducts and covers should be available in multiples of 2m or 3m only, and for widths in multiples of 100 mm, Eg. 200mm and 300 mm (4", 8" and 12"). The sides/ height of the Ducts should be 50mm±10mm (2") or 100±10mm (4")	
	A provision to readily remove and add the cables for expansion / maintenance should be provided without disturbing the support system. The same straight lengths should be supported from one – side (cantilever type) or simply supported from both sides, depending on the installation needs.	
	The Safe working load (SWL) for upto 200 mm wide cable ducts should be 60 kg/m when supported at 2m span, and above 200mm wide cable ducts is 35 kg/m when supported at 2m span.	
	The CE-marking of products is placed on the product or on the packaging according to Low Voltage Directive 2014/35/EU.	
	EMC directive 2004/108/EC	
	The Cable Support System is neutral according to the EMC directive 2004/108/EC	
	Installation Specifications	
	UTP Cabling Installation Specifications	
3.1	Telecommunications Outlet & Horizontal cross connect Installation	
a	In addition, each cable type shall be terminated as indicated below:	
i)	Cables shall be dressed and terminated in accordance with the recommendations made in the TIA/EIA-568-B document, manufacturer's recommendations and/or best industry practices.	
ii)	Pair untwist at the termination shall not exceed one-half an inch for Enhanced Category 5 connecting hardware.	
iii)	Bend radius of the cable in the termination area shall not be less than 4 times the outside diameter of the cable.	

iv)	The cable jacket shall be maintained as close as possible to the termination point.	
v)	Cables shall be neatly bundled and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.	
vi)	Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.	
3.2	Horizontal Distribution Cable & Installation	
a)	Cable shall be installed in accordance with manufacturer's recommendations and best industry practices.	
b)	Cable raceways shall not be filled greater than the manufacturer recommended guidelines.	
c)	Cables shall be installed in continuous lengths from origin to destination (no splices).	
d)	The cable's minimum bend radius and maximum pulling tension shall not be exceeded.	
e)	Horizontal distribution cables shall be bundled into groups of not greater than 40 cables. Cable bundle quantities in excess of 40 cables may cause deformation of the bottom cables within the bundle.	
f)	Cables shall not be attached to ceiling grid or lighting support wires.	
g)	Any cable damaged or exceeding recommended installation parameters during installation shall be replaced by the contractor prior to final acceptance at no cost to the <THE CUSTOMER>.	
h)	A self-adhesive label or PVC marker ferules shall identify the Cables. A cable label shall be applied to the cable behind the faceplate on a section of cable that can be accessed by removing the cover plate. Similar label or marker ferrules shall also be placed on a section of the cable near to the patch panel termination.	

i)	Unshielded twisted pair cable shall be installed so that there are no bends less than four times the cables outside diameter (4 X cable Outside diameter) at any point in the run.	
j)	Pulling tension on 4-pair UTP cables shall not exceed 25-pounds for a single cable or cable bundle. The pathway shall be adequately sized so as not to exceed the 80% cross-section fill of cables. The pathway shall be securely installed in the facility.	
3.3	Fiber optic Cabling Installation Practices	
1	Backbone cables shall be installed separately from horizontal distribution cables.	
2	Where cables are housed in conduits, the backbone and horizontal cables shall be installed in separate conduits or in separate innerducts within conduits.	
3	Where backbone cables and distribution cables are installed in a cable tray or wireway, backbone cables shall be installed first and bundled separately from the horizontal distribution cables.	
4	Fiber slack shall be neatly coiled within the fiber termination panel. No slack loops shall be allowed external to the fiber panel(s).	
5	Each cable shall be individually attached to the respective termination panel by mechanical means.	
6	The cables strength member(s) shall be securely attached the cable strain relief bracket in the panel.	
7	Each fiber cable shall be stripped upon entering the termination panel and the individual fibers routed in the termination panel.	
8	Each cable shall be clearly labeled at the entrance to the termination panel. Cables labeled within the bundle shall not be acceptable.	
9	Dust caps shall be installed on the connectors and couplings at all times unless physically connected.	

7.23 RACK

Existing Racks of the Data Centre at Ground floor Need to be shifted to Data Centre at First Floor. The Racks doors are glass doors which need to be replaced with Perforated doors.

Cold Aisle Containment

S.no	The Minimum Specification that are to be provided are given below: -	Compliance	Remarks
	Supply, Assembly and installation of Cold Aisle Containment		
A	General		
	The Containment uses a series of panels, door frames and doors, and air blocks to enclose a cold aisle zone which contains cooling unit supply air		
	Cold Aisle Containment: The cold aisle zone is the space between two rows of IT equipment racks with cold air being supplied between the two rows of racks (or one row of racks and an architectural wall) and the IT equipment exhausts hot air away from the aisle. In this enclosed space cooling unit supply air is collected inside of the Containment. The cool air is supplied to the IT equipment while the IT equipment exhaust air is pushed outside the Containment and returned to the cooling unit. By preventing mixing of cool supply air and hot exhaust air, this self-contained configuration is capable of supporting a complete range of low, medium and high power/heat density loads, and can be deployed in multiple environments without affecting the surrounding area.		
	All system components shall be certified as suitable for this data center environment by documentation supporting UL Listings: UL484, CSA C22.2 No.236 and UL723S. The cold aisle containment should be of the same manufacturer as that of Racks.		
B	a. Ceiling panels shall be minimum 6.0 mm or more thick Lexan clear-ribbed panels or 2.36 mm thick V0 clear panels with aluminum framing.		
	b. Flame spread rates: Smoke development index "0-65" and flame spread index “0” in accordance with UL723 or ASTM84. Nominal thickness: 2.36 mm (V0 clear) –or-- Smoke development index "20" and flame spread index "0" in accordance with UL723 or ASTM84. Nominal thickness: 6.0 mm (Lexan)		
	c. Minimum Light Transmission per ASTM D1003 equal to 82% or greater.		
	d. Ceiling panels shall be designed to be supported by the frames of the IT Equipment racks. Ceiling Panel frames sizes shall be suitable to match up with various rack widths, row width, and aisle widths.		

	e. The ceiling system shall be designed to permit removal of the ceiling panel from within the contained zone without the use of tools for service access to the space above the Aisle.		
B			
	a. Metal door frames and doors shall be provided to establish air containment at the end of two rows of racks. The door frame system shall match the height of the rack-based equipment and match the design width of the contained aisle.		
	b. Doors shall be Sliding, to permit access into the contained aisle for maintenance or servicing.		
	c. Doors shall be provided with a window, handles and latches.		
	1. Door locks and three matching keys per door		
	2. Automatic door closure system for sliding door		
	3. Sliding Doors shall be provided		
C	Frames and Component Seal		
	a. Foam Rubber gaskets or metal/composite, brush, or plastic air blocks shall be installed at Aisle joints to minimize open gaps between containment system components, such as door frames, ceiling and duct panels, and IT Equipment racks and rack-based equipment. Gasketing and/or air blocks may include, but not be limited to, the following: - Joints between adjacent ceiling/duct panels - Joints between ceiling/duct panels and top of racks, if not metal to metal. - Joints between door frames and ceiling/duct panels, if not metal to metal. - Joints between door frames and racks at the end of the row(s). - Joints between rack bottom rear frame and floor. - Joints between duct panel and ceiling/roof of room.		
D	Blanking Panels, Height Adapters, and Depth Extenders		

	Can be used to provide an aesthetic alternative for varying dimension enclosures. Blanking Panels shall be placed where gaps between racks exist to seal contained aisle. The panel shall match the height of the enclosures and match the width of the gap. It shall not be mounted to any adjacent blanking panels nor shall it support any adjustable height supports. Depth Extenders shall mount to front or back of enclosures to align aisle. The extender shall match the depth of the adjacent racks and match the width and height of the enclosure (including any height adapters) of which it is being mounted. Height Adapters shall mount to the top of enclosures to align the enclosure height. The height adapter matches the height of the adjacent racks and shall match the width and depth of the rack (including any depth adapters) of which it is being mounted.		

Additional Instructions to the bidders

Site Visit: It is recommended that Bidder should do the site visit to understand the nature & scope of work before Quoting.

Factory Acceptance Tests (FAT): FAT for UPS to be arranged by executing agency, it would be witnessed by Railtel/ consultants before dispatch.

The quantities mentioned in the BOQ are tentative. Quantities may vary as per shop drawings. Quantities to be measured and billed as per actual consumption. Cost for any additiobnal item/ software/ hardware required to meet the functional requirement or complete the installation shall be considered by the bidders at no additional cost.

SI Needs to submit 2 Sets of Handing over documents in Hard & soft copy (In CD) at the Time Handover. Handover document to include Warranty Certificate, Installation & Commissioing Reports, catalogues, Manuals, Escalation chart & As built drawings.

SI need to give Training to Railtel Team for each system prior Handover during Acceptance testing. This also is prequesite for the final acceptance of site.

The warranty of the components and entire DC will only start from the date of Final Handover after successful completion of SIAT. Warranty will be 12 months from the date of sign -off of acceptance by customer.

7.24 Approved List of Makes

APPROVED MAKE LIST		
S.NO	ITEM	APPROVED MAKE
	ELECTRICAL	
1	MPCB / MCCB	SCHNEIDER (COMPACT NSX) / SIEMENS (3VL)/ ABB(T-MAX) / LEGRAND (DPX3)/ L&T / EATON MAKE ONLY
2	MCB SP, MCB DP, MCB TPN / RCCB / ELCB	SIEMENS (BETAGARD) / ABB (S200M) / L&T/ SCHNIEDER (ACTI 9) / LEGRAND (DX3) / EATON MAKE ONLY
3	MCB SPN DB / TPN DB/ VTPN DB (DISTRIBUTION BOARD)	LEGRAND (EKINOX) / SCHNIEDER (ACTI 9) / L&T/SIEMENS (BETAGARD) / ABB (ELEGANCE) / EATON MAKE ONLY
4	MODULAR TYPE SOCKETS & SWITCHES	SCHNEIDER (ZENCELO) / LEGRAND (ARTEOR) / MK (ELEMENTS) / CRABTREE (MURANO) MAKES ONLY.
5	INDUSTRIAL PLUG & SOCKET	SCHNIEDER / LEGRAND /MENNEKES
6	PVC - INSULATED COPPER WIRES (ZHFR)	POLYCAB / FINOLEX / HAVELLS / LAPP
7	LT SINGLE CORE / MULTI CORE COPPER CABLES	POLYCAB/FINOLEX / HAVELLS / LAPP
8	LT CABLES	POLYCAB / HAVELLS / SKYTONE / KEI
9	END TERMINATION MATERIAL	COMET / DOWELL (DOUBLE COMPRESSION)
10	PVC CONDUIT	AKG / BEC / PRECISION / EQUAL APPROVED
11	PERFORATED CABLE TRAY	STEELWAYS / INDIANA / LEGRAND/OBO
12	GI RACEWAYS	STEELWAYS / INDIANA / LEGRAND/OBO
13	HOT DIP GALAVANISED WIRE MESH CABLE TRAY	LEGRAND/OBO
14	LIGHT FIXTURES	PHILIPS / WIPRO / THORN/ TRILUX
15	TVSS	SCHNIEDER / ASCO / LEGRAND
16	ATS - (UPTO 1000 AMPS)	SOCOMEC/ ASCO / EQUIVALENT
17	MAINTENANCE FREE EARTHING SYSTEMS	ERICO / LIGHTNING PROTECTION INTERNATIONAL/ASHLOK

18	UPS	NUMERIC
19	SMF BATTERIES	AMARAJA
20	BATTREY BREAKER	ABB/SCHNEIDER/HAGER/LEGRAND
	LOW VOLTAGE SYSTEM	
1	FIRE ALARM PANEL	HONEYWELL/SCHNIEDER/SIEMENS
2	ADDRESSABLE DETECTORS	HONEYWELL/SCHNIEDER/SIEMENS
3	MODULES/ MCP	HONEYWELL/SCHNIEDER/SIEMENS
4	TRANSPONDER/MODULES	HONEYWELL/SCHNIEDER/SIEMENS
5	RESPONSE INDICATOR	AGNI / DS
6	CABLE	FINOLEX/POLYCAB/HAVELLS/FUSION POLYMER
7	CONDUIT	AKG/BEC/EQUIVALENT APPROVED
8	GAS SUPRESSION SYSTEM	Existing OEM
9	ACCESS CONTROL SYSTEM	Existing Make
10	CARDS & TAGS	Existing Make
11	DOOR CONTROLLER	Existing Make
12	MAIN ACCESS CONTROLLER	Existing Make
13	CARD READER	Existing Make
14	RODENT PANEL	MASER/R SCAT
15	SENSORS / SATELLITES	MASER/R SCAT
16	CCTV Camera	AXIS/SCHNIEDER/BOSCH/MOBOTIX/EQUIVALENT
17	NVR	AXIS/SCHNIEDER/BOSCH/MOBOTIX/EQUIVALENT
18	VMS	AXIS/SCHNIEDER/BOSCH/MOBOTIX/EQUIVALENT
19	JOYSTICK	AXIS/SCHNIEDER/BOSCH/MOBOTIX/EQUIVALENT
20	WORKSTATION & SERVER MACHINES	DELL / IBM / HP
21	WATER LEAK DETECTION PANEL	SONTAY/ C SYTSEM/ EQUIVALENT

22	SENSORS & MODULES	SONTAY/ C SYTSEM/ EQUIVALENT
23	PUBIC ADDRESSABLE SYSTEM	HONEYWELL / BOSCH/SCHNIEDER
24	COPPER CONDUCTOR CONTROL CABLE	FINOLEX / SKYTONE / DELTON / FUSION POLYMERS / POLYCAB / EXCEL
25	COMMUNICATION CABLES / SIGNAL CABLE	FINOLEX / SKYTONE / DELTON / FUSION POLYMERS / POLYCAB / EXCEL
26	PVC FRLS CONDUITS	BEC / AKG
27	Lugs	Dowells/ Comet/ Equivalent
	NETWORK	
1	COLD AISLE CONTAINEMENT	APC/VERTIV/NETRACK/RITTAL/EQUIVALENT
2	CAT 6A	SCHNIEDER/AMP TYCO / BELDEN /LEVITON
3	STS	SOCOMEC/SCHNIEDER/VERTIV
4	L3 Switch	CISCO/JUNIPER/HP
5	FIBER DUCT	SCHNIEDER/LEGRAND/TYCO / BELDEN/EQUIVALENT

7.25 LIST OF MAKES – CIVIL WORKS

S. No.	MATERIALS	APPROVED MAKE
1	GREY CEMENT OPC-43 GRADE	ACC/ BIRLA/ ULTRA TECH/ SHREE CEMENT/ JK CEMENT
2	WHITE CEMENT	JK BIRLA WHITE
3	REINFORCEMENT/STRUCTURAL STEEL	TATA/ SAIL/ TISCO/ RASHTRIYA ISPAT NIGAM LTD./JINDAL
4	ANTI-TERMITE TREATMENT	PEST CONTROL INDIA LTD/PEST INDIA CORPORATION,/PEST CONTROL SERVICES OF INDIA
5	FIRELINE GYPSUM BOARD	ARMSTRONG/INDIA GYPSUM/LAFARGE /USG BORAL
6	GYPSUM BOARD	ARMSTRONG/INDIA GYPSUM/LAFARGE /USG BORAL
7	NITRILE THERMAL INSULATION	ARMAFLEX/K – FLEX/U - FLEX
8	VITRIFIED FLOORING	KAJARIA/SOMANY/ NITCO/ JOHNSON
9	VINYE FLOORING	ARMSTONG/ POLYFLOR/ LG/ EQUIVALENT
10	FIRE RETARDENT PAINT	ASIAN/ ACRO PAINTS/NEROLAC/EQUIVALENT
11	EPOXY FLOORING	FOSROC/DR. BECK-BOND/CIKO/SIKA
12	METAL FALSE CEILING	ARMSTRONG/ AMF/ USG BORAL/EQUIVALENT
13	RAISED FLOOR	UNITILE/SCHNIEDER/UNIFLAIR /KINGSPAN/TETE /EQUIVALENT
14	FIRE DOORS	SHAKTI HORMANN/BHAWANI FIRE/MPP/ PACIFIC FIRE CONTROL/EQUIVALENT
15	FURNITURE	GEEKEN/ HARMONY SYSTEM/ FEATHERLITE/

		GODREJ/NILKAMAL/EQUIVALENT
16	CONTROL DESK FOR NOC	PYROTECH WORKSPACE/ COSMOS/ HARMONY SYSTEM/EQUIVALENT
17	TOUGHENED GLASS	SAINT GOBAIN /PILKINGTON GLASS/ ASAHI
18	FIRE RATED GLASS	SAINT GOBAIN /PILKINGTON GLASS
19	DOOR HANDLE	DORMA / HAFELE / HEITTICH
20	DOOR CLOSER	HEITTICH / DORMA / HAFELLE
21	FIRE STOP MATERIAL FOR CABLE & PIPES SEALING	HILTI/ 3M / EQUIVALENT
22	FIBER GLASS	UP-TWIGA / LLOYD/ OWENS CORNING

7.26: TECHNICAL SPECIFICATIONS for NOC-Furniture: For SoR serial no 208 to 215 fall under NOC-furniture and supplied furniture follow the following compliance**.**

Technical Specification:

1. SoR-201) Linear Workstation Type 1:

Providing, assembling, transporting & placing/fixing of Modular Workstation with the Size of 3600Wx600Dx750/1030 Ht. in mm) of Cluster of 3 with Below specifications- Table Top- Made of 25mm thick pre-laminated particle board of E2 grade (PLB22) with density of board 750 kg/Cu.M with approved shade confirming to IS- 12823:1990, edge banded with matching 2 mm thick PVC lipping. Understructure- Under structure shall be made of main legs and End Leg. Understructure consisting of Epoxy Powder Coated (60 to 70 micron thickness). Main Leg and End Leg shall made up of CRCA Tube confirming IS 1239:2004 welded structure. Legs shall consisting of Horizontal and Vertical tube andHorizontal tube shall made up of CRCA tube of size 60x40x1.2 mm and Vertical tube shall made up of CRCA tube of size 50x50x1.2 mm with approved shade of Epoxy Powder Coated (60 to 70 micron thickness). Vertical Leg shall have glide mechanism and glide maximum expansion is 15mm ,which provides options to deal with floor undulation. Legs shall connected through the connecting beam and connecting beam shall made up of Seamless rolled CRCA tube with size of40x40x1.2 mm to confirming IS 1239:2004.

Wire Management- Table shall have wire management facility. In Wire Management, Wire Manager shall be made up of CRCA Sheet with 1.2 mm thick Grade-IS 513:2008 with

approved shade of Epoxy Polyester Powder coated to the thickness of 60 to 70 microns. Wire Manager shall have Cable tray and Main Cable tray shall made up of 1mm thick CRCA sheet confirmingIS 513:2008 and add on Cable bracket shall made up of 0.6 mm thick CRCA sheet confirming IS 513:2008 with approved shade of Powder coating (60-70 microns). These to be mounted with bracket made from 1.5 mm thick CRCA Sheet metal (IS 513:2008).Cross membershall made of 1.2 mm thick CRCA sheet confirming IS 513:2008 to provide more stability to the structure andsupport to cable tray. Wire shall move from ground to table top through the Junction Box. Each Table shall have Wire Manager Facility (Access Flap/ Grommet) Wire management shall provided for easy operation.

Screen- Table shall have Modular Screen on Front sideof the Table. Screen shall be made of Combination ofMDF Board ad EP Sheet with Upholstery of Fabric. TheHeight of Screen Shall be 200 mm from the Table top.Screen shall be Fitted on the table top with the Help of Alumimum die Casted Holder. The Minimum Thicknessof Screen Shall be 18 mm. Screen Shall be Option ofFabric/Marker/Glass as per approved by Customer.Product Must Have Green Pro Certificated. The Manufacturer shall have ISO 9001, ISO 14001, ISO50001, ISO 45001 accredited by the NABCB only, CII

Certified Green Co, Green Guard, BIFMA Level3Certificate.

SoR-202: Linear Workstation Type 2;

Providing, assembling, transporting & placing/fixing of Partition Based Modular Workstation withspecifications with of Cluster of 1-

Partition and Frame- Partition shall made up of anodised aluminium grade – TS 6063 with thickness of 60 mm with approved shade of Epoxy Powder Coated shade of thickness 60 to 70 microns. The overall height of partition shall 1200 mm HT and height of partition includes 100mm skirting, 2 modules of 550mm and Partition shall divide into two tiles come with Marker Board and Pinup Fabric Option as per design as directed by the Site Engineer. Marker Board shall made up of 8 mm thick MDF Board with High Glossy Marker sheet pasted over the MDF Board and Fabric shall comewith 340 GSM confirming BS EN 1021-1:1994 and BS 7176 :1995 (Low Hazard). Wire Management- two number of raceways shall be provided along the workstation. Both raceways shall have 100mm Ht. to beprovided for cable management above the table top forelectrical module and another at the skirting level for LAN/telephone. Raceway shall be made up of anodised aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 micron. To provide necessary cut out for the electrical module/Data by the supplier as directed and as per drawing by the Site Engineer.

Table Top and Gable End- Made of 25mm thick pre- laminated particle board of Interior grade (PLB22) with one side laminate approved shade confirming to IS-12823:1990, edge

banded with matching 2 mm thick PVC lipping. The table top should be fixed with suitable brackets made out of 1.2mm thick anodised aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 microns. The Manufacturer shall have ISO 9001, ISO 14001, ISO 50001, ISO 45001 accredited by the NABCB only, CII Certified Green Co, Green Guard, BIFMA Level3 Certificate. Dimension- 1200Wx600x750/1200ht.

SOR-203-Linear Workstation Type 3:

Providing, assembling, transporting & placing/fixing of Modular Workstation with the Size of 4500Wx1200Dx750/1030 Ht. in mm) of Cluster of 10 with Below specifications-

Table Top-Made of 25mm thick pre-laminated particle board of E2 grade (PLB22) with density of board 750 kg/Cu.M with approved shade confirming to IS- 12823:1990, edge banded with matching 2 mm thick PVC lipping. Understructure- Under structure shall be made of main legs and End Leg. Understructureconsisting of Epoxy Powder Coated (60 to 70 micron thickness). Main Leg and End Leg shall made up of CRCA Tube confirming IS 1239:2004 welded structure. Legs shall consisting of Horizontal and Vertical tube and Horizontal tube shall made up of CRCA tube of size 60x40x1.2 mm and Vertical tube shall made up of CRCAtube of size 50x50x1.2 mm with approved shade of Epoxy Powder Coated (60 to 70 micron thickness). Vertical Leg shall have glide mechanism and glide maximum expansion is 15mm ,which provides options to deal with floor undulation. Legs shall connected through the connecting beam and connecting beam shall made up of Seamless rolled CRCA tube with size of40x40x1.2 mm to confirming IS 1239:2004.

Wire Management- Table shall have wire management facility. In Wire Management, Wire Manager shall be made up of CRCA Sheet with 1.2 mm thick Grade-IS 513:2008 with approved shade of Epoxy Polyester Powder coated to the thickness of 60 to 70 microns. Wire Manager shall have Cable tray and Main Cable tray shall made up of 1mm thick CRCA sheet confirmingIS 513:2008 and add on Cable bracket shall made up of

0.6 mm thick CRCA sheet confirming IS 513:2008 withapproved shade of Powder coating (60-70 microns).These to be mounted with bracket made from 1.5 mmthick CRCA Sheet metal (IS 513:2008).Cross membershall made of 1.2 mm thick CRCA sheet confirming IS 513:2008 to provide more stability to the structure andsupport to cable tray. Wire shall move from ground totable top through the Junction Box. Each Table shallhave Wire Manager Facility (Access Flap/ Grommet)Wire management shall provided for easy operation. Screen- Table shall have Modular Screen on Front sideof the Table. Screen shall be made of Combination ofMDF Board ad EP Sheet with Upholstery of Fabric. TheHeight of Screen Shall be 200 mm from the Table top.Screen shall be Fitted on the table top with the Help ofAlumimum die Casted Holder. The Minimum Thicknessof Screen Shall be 18 mm. Screen Shall be Option ofFabric/Marker/Glass as per approved by Customer.Product Must Have Green Pro Certificated. The Manufacturer shall have ISO 9001, ISO 14001, ISO

50001, ISO 45001 accredited by the NABCB only, CIICertified Green Co, Green Guard, BIFMA Level3 Certificate.

SoR-204: Modular Curvilinear Workstation Type 4 :

Providing, assembling, transporting & placing/fixing of Partition Based Modular Workstation withspecifications.

Partition and Frame- Partition shall made up of anodised aluminum grade – TS 6063 with thickness of 60 mm with approved shade of Epoxy Powder Coated shade of thickness 60 to 70 microns. The overall height of partition shall 1200 mm HT and height of partition includes 100mm skirting, 2 modules of 550mm and Partition shall divide into two tiles come with Marker Board and Pinup Fabric Option as per design as directed by the Site Engineer. Marker Board shall made up of 8 mm thick MDF Board with High Glossy Marker sheet pasted over the MDF Board and Fabric shall comewith 340 GSM confirming BS EN 1021-1:1994 and BS 7176 :1995 (Low Hazard). Wire Management- two number of raceways shall be provided along the workstation. Both raceways shall have 100mm Ht. to beprovided for cable management above the table top forelectrical module and another at the skirting level for LAN/telephone. Raceway shall be made up of anodised aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 micron To provide necessary cut out for the electrical module/Data by the supplier as directed and as per drawing by the Site Engineer.

Table Top and Gable End- Made of 25mm thick pre laminated particle board of Interior grade (PLB22) with one side laminate approved shade confirming to IS-12823:1990, edge banded with matching 2 mm thick PVC lipping. The table top should be fixed with suitable brackets made out of 1.2mm thick anodised aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 microns.**Pedestal-** Pedestal shall come with Central Locking withsize of 400 (w) X 450(d) X 650(ht)mm. The pedestal units shall be made out of 0.8 thk CRCA for Body Shell with Epoxy Polyester Powder coated to the thickness of50 microns (+/-10). tray, Front Side Stiffener, Rear Side Stiffener & Bottom, 1.2 thk CRCA Top Stiffener & Bottom stiffener. For Drawer pulling, side wise tapered recess provided in shell behind Drawer Fronts. The Pedestal construction is BOX-BOX-FILE type. The pedestal Unit should be provided with Two Nos of drawer 140mm to 150 mm height and remaining space should be made third drawer, all the drawer should be slide with s drawer double telescopic channel. Drawers have a soft closing & anti slam mechanism. Handles are provided for ease of opening. Pedestal with lockable Castors mounted below the body shell for Free Standing Pedestal. Shall be 18 mm. Screen Shall be Option of Fabric/Marker/Glass as per approved by Customer. The Manufacturer shall have ISO 9001, ISO

14001, ISO 50001, ISO 45001 accredited by the NABCB only, CII Certified Green Co, Green Guard, BIFMA Level3 Certificate. Dimension-1500W1x1200W2x600x750/1200ht. +Pedestal.

SoR-205-Modular Curvilinear Workstation Type 5:

Providing, assembling, transporting & placing/fixing of Partition Based Modular Workstation withspecifications.

Partition and Frame- Partition shall made up of anodised aluminium grade – TS 6063 with thickness of 60 mm with approved shade of Epoxy Powder Coated shade of thickness 60 to 70 microns. The overall height of partition shall 1200 mm HT and height of partition includes 100mm skirting, 2 modules of 550mm and Partition shall divide into two tiles come with Marker Board and Pinup Fabric Option as per design as directed by the Site Engineer. Marker Board shall made up of 8 mm thick MDF Board with High Glossy Marker sheet pasted over the MDF Board and Fabric shall comewith 340 GSM confirming BS EN 1021-1:1994 and BS 7176 :1995 (Low Hazard). Wire Management- two number of raceways shall be provided along the workstation. Both raceways shall have 100mm Ht. to beprovided for cable management above the table top forelectrical module and another at the skirting level for LAN/telephone. Raceway shall be made up of anodised

aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 micron To provide necessary cut out for the electrical module/Data by the supplier as directed and as perdrawing by the Site Engineer.

Table Top and Gable End- Made of 25mm thick pre- laminated particle board of Interior grade (PLB22) with one side laminate approved shade confirming to IS-12823:1990, edge banded with matching 2 mm thick PVC lipping. The table top should be fixed with suitable brackets made out of 1.2mm thick anodised aluminium grade – TS 6063 with approved shade of Epoxy Powder Coated to thickness of 60 to 70 microns.Pedestal- Pedestal shall come with Central Locking withsize of 400 (w) X 450(d) X 650(ht)mm. The pedestal units shall be made out of 0.8 thk CRCA for Body Shell with Epoxy Polyester Powder coated to the thickness of50 microns (+/-10). tray, Front Side Stiffener, Rear Side Stiffener & Bottom, 1.2 thk CRCA Top Stiffener & Bottom stiffener. For Drawer pulling, side wise tapered recess provided in shell behind Drawer Fronts. The Pedestal construction is BOX-BOX-FILE type. The pedestal Unit should be provided with Two Nos of drawer 140mm to 150 mm height and remaining space should be made third drawer, all the drawer should be slide with s drawer double telescopic channel. Drawers have a soft closing & anti slam mechanism. Handles are provided for ease of opening. Pedestal with lockable

Castors mounted below the body shell for Free Standing Pedestal. Shall be 18 mm.

Screen Shall be Option of Fabric/Marker/Glass as per approved by Customer. Product Must Have Green Pro Certificated. The Manufacturer shall have ISO 9001, ISO 14001, ISO 50001, ISO 45001 accredited by the NABCB only, CII Certified Green Co, Green Guard, BIFMA Level3 Certificate.

Dimension-1500W1x1500W2x600x750/1200ht. +Pedestal

Sor-206 -Back Chair:

Overall Dimension- 700 W x 730 D x 1190/1310H

Providing, assembling, transporting & placing in position High Back Executive revolving office chair with the specifications-

The chair shall have mesh in the back and a High-quality PU foam cushion in the Seat upholstered with high-quality Leatherette. The chair shall have an adjustable armrest with adjustment up to 60 mm. The arm shall made of Polypropylene and the Chair shall have a PU Pad armrest with 3-dimensional Movement (Up-Down, Left, and Right). The chair shall have adjustable lumber support to adjust the back for extra comfort. The lumbar support consists of a polypropylene pad with molded polyurethane foam & covered with Leatherette. The Lumbar pad has an adjustment of 30 mm in height with an adjustable tilting mechanism and is designed with the following features.360-degree revolving type.

The chair shall have an advanced Bio synchro mechanism with 3 position-locking facilities at different levels. The seat shall made of 12mm thick hot-pressed ply covered with high-density mounded foam with a density of 45-50Kg/Cu M with a thickness of 50 mm and the seat shall be upholstered with high-quality Leatherette and the back shall come with high-quality of Mesh. The chair shall have a headrest covered with Leatherette with pivot adjustment. The size of the seat and back are back size- 480Wmmx660Hmm and the Seat size-470Wmmx490Dmm.The chair shall have a BIFMA Level 3 gas lift and height adjustment up to 120 mm. The chair shall have a twin wheel castor star base of PCD Ø 700. Casters Ø50mm made of Nylon and should be 5nos castor.

SoR-207 Conference Table (08-Seater):

Worktop: Made of 25mm Thick Pre-laminated twin board of E1-P2 grade and approved shade conforming to IS-12823:1990, Edge banded with matching 2 mm thick PVC lipping. Soft closing dual access flap provided for access to the power supply and data cables. Understructure: The Understructure consists of a mixture of 25mm and 18mm pre-laminated twin board of E1-P2 grade and approved shade conforming to IS-12823:1990, Edge banded with matching 2 mm thick PVC lipping. An anodized aluminum alloy 63400 - WP profile is added at the bottom edges

to improve the aesthetics. The product has a knock-down construction. Wire management: A wire raiser made of 0.8mm CRCA MS IS:513. It is epoxying polyester powder coated (DFT 40-60 microns) for the flow of wires and cables. A Power box with 2 cut-outs on either side for standard 8-module Anchor Roma is provided. Beside each cut-out, an additional cutout with a plate is provided for mounting Audio-Visual Cables (e.g. HDMI, VGA-A, etc).

DCDB Specification (Sor Line Item No 118)

INCOMER: - 800A MCB (2 Pole) - 01 Nos

Outgoing: - 125A MCB (2 Pole)- 08 Nos

It Includes Panel Indicator and Digital meter for Voltage, Current and Consumption reading.

ACDB Specification (Sor Line Item No 123)

INCOMER: - 250A 4 Pole MCCB- 01 Nos

Outgoing: - 63A MCB 4 pole - 03 Nos, 40A MCB 4 pole - 3 Nos, 63A 2 Pole MCB: - 9 Nos, 10A Single Pole MCB -9 Nos, 16A Single Pole MCB: - 9 Nos.

It Includes Panel Indicator and Digital meter for Voltage, Current and Consumption reading.

(A) FDMS Spec for 12/24/48F SCPC (Sor Line Item-25)	
Sl.No.	**Technical specification**
1	The FDMS should be confirming to thickness of not less than 1.6mm. However the FDMS should have the following:
2	It should be mountable in standard 19” rack and of slider type (provision for 21" Clamps).
3	FDMS should have door made of acrylic for 96F and above.
4	FDMS should be supplied with required number of splice trays based on the fiber count
5	Splice tray should be made of ABS & should be able to take 1.5M pigtails of 12Nos

	with proper bend radius.
6	FDMS should be able to or have slack to store incoming cable of length 2M under the splice trays
7	There should be arrangement of termination of 48/24/12/6 Nos. of fibers (as per Requirement).
8	It should be supplied with 48/24/12/6 Nos. of pigtails of respective type of connector (as per SOR) of minimum 1.5 meter length.
9	**Colour coded pigtails (900 µn tight jacket) shall be provided for easy identification**.
10	FDMS should be supplied with adapter plates in such a way that it can be easily removable without disturbing other plates.
11	The FDMS should be supplied with arrangement of required Nos. of adapters (as per requirement).
12	The adaptors shall be fixed in such a way that these shall be easily accessible protecting the eye from direct exposure to laser.
13	There should be minimum two nos. of trays for the provision of termination of the fibers & sufficient space for routing of the fibers in the trays.
14	Trays shall be numbered bottom to top (tray no. 1 is lower most).
15	Pigtails shall follow tray numbering.
16	Pigtails shall be labled through colour coding/ferruling.
17	Adaptors shall be numbered Bottom to Top or Left to Right in ascending order.
18	All adaptors shall be provided with dust protection caps.
19	Important Do's and Don'ts about the operation of the FDMS shall be clearly indicated at convenient place on the FDMS.
20	Insertion Loss: ≤ 0.2 dB
21	Return Loss: ≥ 55 dB for PC.
22	xvi) The FDMS shall be manufactured as per latest state of art technology.
23	The FDMS shall be protected against the entry of dust and insects, rodents etc.

24	Body should be of MS steel; powder coating painting (min. 70 micrometer thickness) shall be provided with rust resistance paint.
25	Marking: The marking on the system shall be indelible and following minimum information shall be provided by way of engraving or Laser printing method: a) "XXXXXX" should be written on each FDMS to be visible from front. b) Manufacturer's name & date/ year of production. c) Model No./Batch No./ Serial No. d) Capacity i.e. No. of cables and the fibers. e) Identification details/ cables/ Fiber/ labeling facility.
26	Preferred type of connector is SC/PC for all connectors.
27	(B) Specifications of Patch Cords/Pigtail should be as per CACT. The Patch cords should be confirming to TEC NO.: TEC/GR/TX OFJ-01/05/NOV-09 with latest amendment No. TEC/T/OFC-OFJ/155/2013. However, the Patch cords should have the following:
28	Operating Temperature: -40ºC to +85ºC.
29	Insertion Loss: a) Insertion Loss of complete patch cord including adapter when tested from each direction in all conditions of operations: ≤ 0.3 dB b) Insertion Loss of Adaptors: ≤ 0.1 dB
30	Return Loss for each connector of patch cord: a) Type-II SC-PC : ≥ 55 dB
31	The length and type of connector of each Patch Cord: As per requirement.
32	**The connectors must be make of reputed OEMs R&M, H&S, Commscope etc.**
33	Connector Body: a) SC-PC : Engineering thermoplastic (Glass filled PBT: Polybutylene Tereph- thalate)
34	Colour of connector body: a) SC-PC connector: Blue
35	Radius of curvature: a) SC-PC : 10 to 25 mm
36	Minimum bending radius of the cable: a) Loaded : 50 mm b) Unloaded : 30 mm

37	Preferred type of connector is SC/PC for all connectors.
38	Mounting & splicing accessories to be supplied along with FDMS

(A) FDMS Spec for 48F E2K/APC (Sor Line Item-24)	
Sl.No.	**Technical specification**
1	The FDMS should be confirming to thickness of not less than 1.6mm. However the FDMS should have the following:
2	It should be mountable in standard 19” rack and of slider type (provision for 21" Clamps).
3	FDMS should have door made of acrylic for 96F and above.
4	FDMS should be supplied with required number of splice trays based on the fiber count
5	Splice tray should be made of ABS & should be able to take 1.5M pigtails of 12Nos with proper bend radius.
6	FDMS should be able to or have slack to store incoming cable of length 2M under the splice trays
7	There should be arrangement of termination of 48Nos. of fibers (as per Requirement).
8	It should be supplied with 48/24/12/6 Nos. of pigtails of respective type of connector (as per SOR) of minimum 1.5 meter length.
9	**Colour coded pigtails (900 µn tight jacket) shall be provided for easy identification**.
10	FMS should be supplied with adapter plates in such a way that it can be easily removable without disturbing other plates.
11	The FDMS should be supplied with arrangement of required Nos. of adapters (as per requirement).
12	The adaptors shall be fixed in such a way that these shall be easily accessible protecting the eye from direct exposure to laser.

13	There should be minimum two nos. of trays for the provision of termination of the fibers & sufficient space for routing of the fibers in the trays.
14	Trays shall be numbered bottom to top (tray no. 1 is lower most).
15	Pigtails shall follow tray numbering.
16	Pigtails shall be labled through colour coding/ferruling.
17	Adaptors shall be numbered Bottom to Top or Left to Right in ascending order.
18	All adaptors shall be provided with dust protection caps.
19	Important Do's and Don'ts about the operation of the FDMS shall be clearly indicated at convenient place on the FDMS.
20	Insertion Loss: ≤ 0.1 dB
21	Return Loss: ≥ 80 db
22	xvi) The FDMS shall be manufactured as per latest state of art technology.
23	The FDMS shall be protected against the entry of dust and insects, rodents etc.
24	Body should be of MS steel; powder coating painting (min. 70 micrometer thickness) shall be provided with rust resistance paint.
25	Marking: The marking on the system shall be indelible and following minimum information shall be provided by way of engraving or Laser printing method: a) "XXXXXX" should be written on each FDMS to be visible from front. b) Manufacturer's name & date/ year of production. c) Model No./Batch No./ Serial No. d) Capacity i.e. No. of cables and the fibers. e) Identification details/ cables/ Fiber/ labeling facility.
26	Preferred type of connector is E2K/APC for all connectors.
27	(B) Specifications of Patch Cords/Pigtails should be CACT approved with valid Certificate The Patch cords should be confirming to TEC NO.: TEC/GR/TX OFJ-01/05/NOV-09 with latest amendment No. TEC/T/OFC-OFJ/155/2013. However the Patch cords should have the following:
28	Operating Temperature: -40ºC to +85ºC.

29	Insertion Loss: a) Insertion Loss of complete patch cord including adapter when tested from each direction in all conditions of operations: ≤ 0.3 dB b) Insertion Loss of Adaptors: ≤ 0.1 dB
30	Return Loss for each connector of patch cord: a) E2K/APC: ≥ 80 dB, Insertion Loss – 0.1 db
31	The length and type of connector of each Patch Cord: As per requirement.
32	**The connectors must be make of reputed OEMs R&M, H&S, Commscope etc.**
33	Connector Body: a) E2K-APC : Engineering thermoplastic (Glass filled PBT-GF20<Crastin T843 FR)
34	Color of connector body: a) E2K-APC connector: Green
35	Radius of curvature: a) E2K-APC : 5 to 12 mm
36	Minimum bending radius of the cable: a) Loaded : 50 mm b) Unloaded : 30 mm
37	Preferred type of connector is E2K/APC for all connectors.
38	Mounting & splicing accessories to be supplied along with FDMS

Sliding Door (Sor Line Item 210)

Sliding Door should be of Aluminum with lock and key, size should be 96”H X 29” B and color of door should match as per site requirement.

SOR- 39: Attenuator LC-LC TYPE 5DB		
Sr.No.	**Parameter**	**Specification**
1	Connector type, Connector End A	LC
2	Connector type, Connector End B	LC
3	Jacket material (Sheath material)	PVC

4	Cable colour	Blue
5	Cable Type	Simplex
6	Operating temperature	Temp: -20 deg.C to +60 deg C
7	Connector Insertion loss, Max. (in dB)	0.2
8	Connector Return loss, Min. (in dB)	50
9	Material of Ferrule	Zirconia Ceramic, PreRadiused and pre polished
10	Durability	500 Mating cycle

SOR-40: Attenuator LC-LC TYPE 10 DB

Sr.No.	**Parameter**	**Specification**
1	Connector type, Connector End A	LC
2	Connector type, Connector End B	LC
3	Jacket material (Sheath material)	PVC
4	Cable colour	Blue
5	Cable Type	Simplex
6	Operating temperature	-20 deg.C to +60 deg C
7	Connector Insertion loss, Max. (in dB)	0.2
8	Connector Return loss, Min. (in dB)	50
9	Material of Ferrule	Zirconia Ceramic, PreRadiused and pre polish
10	Durability	500 Mating cycle

SOR item 26 to 38: Patch Cords Technical specification

A) Patch Cords:

1. The patch cords shall be suitable for use on SDH and DWDM systems with the type of connectors specified in the BOQ.

2. All the patch cords shall be Single Mode (G657A), Simplex type, and of lengths as specified in the BOQ unless stated otherwise. The manufacturer shall provide a test certificate from Govt. approved or NABL-approved lab for conformity of G657A fiber used in the manufacturing of patch cords.

3. The connectors shall be securely connected to both ends of the patch cords without any play/looseness.

4. The fiber used for making the patch cord shall be Corning or equivalent.

5. **Ferrule with metallic flange:** Zirconia ceramic/Conical Zirconia ceramic (spring loaded anti- rotation keyed) Note: The type of ferrule used for each type of connector is to be specified by the manufacturer.

6. **Fibre Reinforcement:** Secondary coated fibre shall be covered with Aramid yarn and shall be distributed equally over the entire periphery. The manufacturer shall indicate the Detex value and quantity of the Aramid yarn used in the patch cord and pigtails. The specification for Aramidyarn shall be as per GR No. TEC-GR-TX-ORM-001-05-DEC-17 (Section–XVII).

7. **Outer Jacket Sheath:** A circular sheath of suitable low smoke zero halogens (LSZH) grade of material and of yellow in color free from pinholes and scratches and other defects etc. shall be provided. The specification for Low smokes zero halogens (LSZH) shall be as per GR No. TEC- GR-TX-ORM-001-05-DEC-17 (Section–XX).

a) Outer sheath diameter: 2.00mm + 0.2 mm (LC-LC) & 2.90 mm + 0.15 mm (all other type ofpatch cords)
b) Thickness of sheath: 0.30mm to 0.35 mm (LC-LC) & 0.45 mm to 0.55 mm (all other type ofpatch cords)

8. The patch cords shall be suitable for use in the temperature range of –60^{o} to +85^{o}C.

9. Maximum insertion loss for a patch cord should be <0.2 dB@1310nm and 1550nm wavelength.

10. All the patch cords with E2000 connectors shall be supplied with **Angle Polish** type

11. Return loss: ≥ 55db for PC/UPCFC/SC/LC and ≥ 65db for APC @@1310nm and 1550nmwavelength.

12. Durability: 500 times, Typical change: <0.05db (Max.)

13. Party should have a manufacturer certificate from the authorized laboratories/organizations

14. The internal/lab test reports in support of the above-mentioned technical parameters shall beprovided by the supplier unless stated otherwise.

15. All the patch cords should be as per **TEC-GR-TX-OFJ-001-05-NOV-09** with the latest amendment if any

B) Connectors:

1. Material for FC connector body shall be Nickel Plated Brass/ Zinc Alloy.
2. Materials for the LC connector body shall be PEI or PPS.
3. Material for SC connector body shall be Glass filled PBT.
4. Materials for all connector boots shall be polyester (Modified Thermo Polyester Ethelene).
5. Maximum insertion loss shall be < 0.3dB when connecting the patch cords through the adaptor.
6. FC-PC 0dB adaptors shall be square in shape such that they can be mounted on

standard FODP.

C) Guarantee:

The material shall be guaranteed for a period of 12 months from the date of taking over, or 18 months from the date of delivery, which is earlier. If during the Guarantee period any defect shall

be found in the design, engineering, materials, and workmanship of the material, the contractor shall promptly, in consultation and agreement with the employer replace at its own cost the faulty material.

The successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty one) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty one) days and upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21(Twenty one) days, i.e. from 22nd day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the RailTel, submission of PG can be accepted on the next working day.

The Performance Bank Guarantee (PBG) shall be released after the physical completion of the work based on the Provisional Acceptance Certificate issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily. The Security Deposit shall, however, be released only after expiry of the maintenance period and issue of the certificate of final acceptance of entire system specified in the contract and after passing the final bill based on 'No Claim Certificate' from the contractor.

D) Quality Requirements:

1. The Optical Fiber Jumpers and Hybrid jumpers Adapters and Hybrid Adapters should be manufactured in accordance with International Quality Standards ISO 9001-2000 for whichthe manufacturer should be duly accredited. A quality manual shall be submitted by the manufacturer.

2. The Optical Fiber Jumper and, Hybrid jumpers, Adapters, and Hybrid Adapters shall conform to the requirements for the Environment test specified in IEC Document No. 60874-1 (1993- 02), IEC 60874-1 (1994-03) and IEC 60794-1. The requirements of the particular test have been specified in the relevant test.

E) Marking and Packing:

Identification and Marking:

1. Marking on the optical fiber jumpers shall be of durable quality and it shall withstand the rubbing (20 times) with dry tissue paper in both directions.

2. Marking on Jumpers shall include the following: a) Name of manufacturer c) Type of fiber d) LSZH material e) Manufacturer's identification mark f) Manufacturer's part number. g) Manufacturing date code (year/month etc.) h) Variant identification number(s)/ (Sr. No. of product) i) Any other additional marking required.

3. Marking on the adapters shall include the following: a. Manufacturer‘s name/ model no. b.Manufacturer's identification mark. c. Manufacturing date code (year/month etc.) Note: Additional information if required by the buyer may be provided on the packing or as a separate test report.

Packing:

1. Each Optical Fibre Jumper (Patch cord/Pigtail) shall be packed separately in transportable packing with the test report on the manufacturer’s letterhead which shall include the following: (a) Insertion loss at 1310 nm and 1550 nm (b) Return loss at 1310 nm & 1550 nm. (c) Length of the patch cord/pigtail. (d) Precautions for handling and cleaning.

2. Each connector adapter shall be packed separately and supplied with the following details:
a) Insertion loss at 1310 nm and 1550 nm b) Each connector and Adapter shall be

coveredwith dust cover. FC and SC connectors will be supplied with Dual dust covers (Ferrule cap and hanging type dust cover), while LC connectors shall be supplied with Ferrule dust cover. FC adapters shall have threaded-type dust covers and SC & LC adapters shall have compatible dust covers.

Note 1: The manufacturer supplying the parts of the optical connector and optical connector adapter shall also are required to have ISO 9001-2000 accreditation/ISO certified manufacturing facility. The complete quality plan of such vendors from whom the parts are being procured by the manufacturer seeking approval shall also be required to besubmitted along with the drawings & dimensions of each part clearly marked with tolerances of individual parts. Manufacturer/ Vendor marking shall also be provided.

Note 2: The test certificate of the Ceramic Zerconia Sleeve used along with its drawing & dimensions and the test report shall also be required to be submitted which shall be mandatory. Ceramic Zerconia Sleeve shall be tested for the following parameters:

1. Material of Zirconia Sleeve: Min. 94% Zirconia ceramic.

2. Withdrawal Force: 0.2Kg to 0.6Kg for FC and SC sleeves; 0.1Kg to 0.250 Kg for LCsleeves.

3. Durability: Change in attenuation after 500 mating shall be less than 0.05 dB.

Technical Specification for SoR-209: Display:

Resolution -3,840 x 2.160 Brightness (Type) -350 nit Viewing Angle (H/V) -178/178 Response Time -8ms Operation Time Support -16/7 3 years warranty

Technical Specification for SoR-211:Ip-Phone: 128 x 64px backlit LCD display - 2 SIP accounts - 2 DSS/BLF keys - HD Voice - Opus Codec - 2 x 10/100 Mbps Ethernet port - PoE - Stand with 3 adjustable angles - 2.4GHz Wi-Fi - Wall mountable - Phone book (2000 records) - XML/LDAP remote phonebook - Call history: In/Out/missed (60 records) - BLF & Message waiting indicator (MWI) - Voice mail, call park, call pickup - 2 Line keys & 4 Soft Keys - 7 features keys: message, headset, hold, mute, transfer, redial, hands-free speakerphone - 5 Navigate Keys - Volume+/- - 1 x RJ9 Handset port - 1 x RJ9 Headset port - 1 x Power adapter

Technical Specification for SoR-212: Printer

Printer: Multi-Function -Print, Scan, Copy Print Method: Precision Core Heat-Free Technology Maximum Print Resolution: 4800 x 1200 dpi, Print Speeds: ISO 24734, A4 Simplex (Black / Colour): Up to ISO 24734, A4 Simplex (Black / Colour): Up to 17.0 ipm / 9.5 ipm*l , ISO 24734, A4 Duplex (Black / Colour): Up to 7.5 ipm / 5.0 ipm*l, 23.0 ppm*l, Copy Resolution: 600 x 600 dpi : Max Copies: 999 copies, Scanner Type: Flatbed colour image scanner : Optical Resolution: 1200 x 2400 dpi and 3-Year warranty.

Technical Specification for SoR-213: Interactive Display

Interactive flat Display Panel: Resolution -3,840 x 2,160(Landscape) Contrast,

Contrast Ratio (Typical) -1,200:1 , Viewing Angle(H/V) -178 : 178, Response -8ms

Technical Specification for SoR-214: All iN One

All iN One (AIO): All in one Desktop 15-12450H/16GB

DDR4 RAM 1512GB SSD/INTEGRATED GRAPHICS/27FHD AG 250NIWLANI 2X2AC+BTI WHITE/5M

IR CAMERA WH/KBD Wireless/"Win11 Professional (Office H&S 2021)/1 Year Onsite Warranty

Technical Specification for SoR-215: VISIO : Microsoft Visio 2021Software.

CHAPTER-8

List of Addresses for Specification

8.0 **Address from where specification copy can be purchased**: The copy of IRS, RDSO, TEC and BIS specification used in the tender documents can be purchased from following sources.

8.1 **IRS Specification:**

i) Manager Publications, Government of India

Civil Lines, New Delhi- 110054

ii) Government of India Book Depot,

8 - S.K. Roy Road, Calcutta – 700001

8.2 **RDSO Specification:**

i) RDSO, Manak Nagar, Lucknow

8.3 **DOT/TEC/ITD Specification:**

i) Khurshid LalBhavan, Janpath, New Delhi- 110001

8.4 **B.I.S. Specification:**

i) Directorate General, Indian Standards Institution,

9- Bahadur Shah Zafar Marg, New Delhi -110002

ii) F- block, Unity Building, Narsimhraja Square, Bangalore- 560002

iii) 534- SardarVallabhBhai Patel Road, Mumbai.

iv) 5- Choweringhee Approach, PO Princep street, Calcutta- 700072

v) Ahinsa Building (1st floor), SCO 82-83, Sector 27-C, Chandigarh- 160017

vi) 5-8-56/57, L.N. Gupta Marg, Hyderabad- 208005.

vii) 117/418-B, Sarvoday Nagar, Kanpur – 208005

viii) C.I.T. Campus, Adyar, Madras – 600020.

CHAPTER- 2

Schedule Of Requirement

Name of Work: Shifting of SDH-NOC and Ground floor Equipment Room Assets.

Schedule of Requirement

Sr.No	Name of Component	UoM	Quantity	Unit Rate with GST	Total Amount with GST
1	2				
1	Supply , Installation, Testing & Commissioning of Make 3 Phase , 415 Volt, 60 KVA UPS isolation Transformer with SNMP card for Integration with DCIM and BMS integration capability. Warranty - 2 Years (With Buyback of Existing 60 KVA UPS and Buyback of Existing NED SMF 12V 150AH Batteries)	No	2	₹ 10,52,442.00	₹ 21,04,884.00
2	Supply , Installation, Testing & Commissioning of UPS with 120 min battery back up using SMF Batteries (60 Nos) of with connecting Cables , Battery stand & Battery Breaker complete as required. (150 AH 12V SMF Type Battery)(warranty - 2 Years)	Set	2	₹ 12,91,300.00	₹ 25,82,600.00
3	Installation, Testing & Commissioning of Precision air conditioning Units with **Bottom Discharge-**,**10 TR**	No	6	₹ 64,900.00	₹ 3,89,400.00
4	Copper piping with 19mm thick insulation Indoor to outdoor unit(assumption of 25 RMT/ckt.)	Rm	150	₹ 3,882.20	₹ 5,82,330.00
5	Power Cable from Indoor unit to Out door unit for Power cable fan, heater & humidifier (assumption of 28 RMT/ckt.)	Rm	170	₹ 755.20	₹ 1,28,384.00
6	Control Cable from Indoor unit to Out door unit for Communication Cable (assumption	Rm	170	₹ 336.30	₹ 57,171.00

	of 28 RMT/ckt.)				
7	Removing, Shifting & Installation of Floor Grills	No	16	₹ 1,121.00	₹ 17,936.00
8	Supply & fixing of Condensate drain piping of 40mm , GI- B class pipes with required accessories complete as required (@20RMT/Unit	Rm	45	₹ 1,652.00	₹ 74,340.00
9	Supply & fixing of Humidifier water piping with 25mm ,GI-B class pipes with required accessories complete as required. (@20m RMT/Unit)	Rm	70	₹ 1,416.00	₹ 99,120.00
10	Dismantling & Shifting of Precision AC including Outdoor units, refrigerant piping, tray etc complete as required	No	6	₹ 21,830.00	₹ 1,30,980.00
11	Supply & installation of Ball valve for Humidifier pipe	No	2	₹ 5,546.00	₹ 11,092.00
12	Supplying and installing following size of perforated Hot Dipped Galvanized Iron cable tray (Galvanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from bthe ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.150 mm width X 50 mm depth X 1.6 mm thickness	Rm	25	₹ 1,298.00	₹ 32,450.00
13	Supplying and installing following size of perforated Hot Dipped Galvanized Iron cable tray (Galvanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from bthe ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.300 mm width X 50 mm depth X 1.6 mm thickness	Rm	15	₹ 1,970.60	₹ 29,559.00
14	Dismantling of Integrated smart rack solution with required piping, electrical distribution , drain piping & humidifier piping complete as required & Shifting it to	Lot	1	₹ 1,00,000.00	₹ 1,00,000.00

	place provided by Client with in the premises with required packing.				
15	Shifting , Installation , Testing & commissioning of 42U 800x1000 Network Rack with including supply of PDU's complete as required	No	12	₹ 14,160.00	₹ 1,69,920.00
16	Providing & replacing glass doors with perforated doors of the existinbg Racks.(Rack Size : 800 X 1000mm)	No	12	₹ 33,630.00	₹ 4,03,560.00
17	Supply & Installation of Cold Aisle Containment with 2 sets of double leaf sliding doors on both sides of cold aisle containment , complete with required accessories & hardware complete as per specification & as required. 5m X 1.2m	Set	1	₹ 3,48,100.00	₹ 3,48,100.00
18	Cat 6A Cable (SF/UTP)	Box	7	₹ 22,962.80	₹ 1,60,739.60
19	Jack panel 24 Port Cat 6 Loaded with Dust Cover I/O	No	22	₹ 6,667.00	₹ 1,46,674.00
20	3 Mtr Cat 6 Patch chord	No	25	₹ 560.50	₹ 14,012.50
21	1 Mtr Cat 6 Patch chord	No	626	₹ 200.60	₹ 1,25,575.60
22	25 mm dia heavy duty FRLS PVC conduit	Rm	200	₹ 106.20	₹ 21,240.00
23	48Core -OFC Armur Cable	Mtr.	3000	₹ 100.39	₹ 3,01,170.00
24	E2K-Type-FDMS(48-F) Fully Loaded	No	30	₹ 51,762.00	₹ 15,52,860.00
25	SC-TYPE- FDMS(48-F)	No	12	₹ 18,840.00	₹ 2,26,080.00
26	E2K to LC patch Chord(2Mtr)	No	400	₹ 255.00	₹ 1,01,999.20
27	E2K to LC patch Chord(05Mtr)	No	300	₹ 301.99	₹

					90,597.00
28	E2K to LC patch Chord(10Mtr)	No	200	₹ 364.99	₹ 72,998.00
29	E2K to LC patch Chord(20Mtr)	No	300	₹ 767.92	₹ 2,30,376.00
30	E2K to SC patch Chord(10Mtr)	No	400	₹ 309.99	₹ 1,23,996.00
31	LC to LC patch Chord(05Mtr)	No	500	₹ 130.00	₹ 65,000.00
32	LC to LC patch Chord(10Mtr)	No	700	₹ 160.00	₹ 1,12,000.00
33	LC to LC patch Chord(20Mtr)	No	200	₹ 222.00	₹ 44,400.00
34	LC to SC patch Chord(05Mtr)	No	400	₹ 230.00	₹ 92,000.00
35	LC to SC patch Chord(15Mtr)	No	400	₹ 362.00	₹ 1,44,800.00
36	LC-LC 0db- Connector	No	200	₹ 92.04	₹ 18,408.00
37	SC-LC Patch-Chord(02-Mtr)	No	300	₹ 86.00	₹ 25,800.00
38	SC-LC Patch-Chord(05-Mtr)	No	300	₹ 230.00	₹ 69,000.00
39	05-db Attenuator (LC-Type)	No	200	₹ 270.00	₹ 54,000.00
40	10-db-Attenuator (LC Type)	No	200	₹ 270.00	₹ 54,000.00
41	Removing of NOVEC 1230 filled Cylinders & Sending it to Factory for Filling of NOVEC 1230 as per design Requirement 'Removing of NOVEC 1230 filled Cylinders & Sending it to Factory for Filling of NOVEC 1230 as per design Requirement 'Removing of NOVEC 1230 filled Cylinders	Job	1	₹ 84,960.00	₹ 84,960.00

	& Sending it to Factory for Filling of NOVEC 1230 as per design Requirement				
42	Installation, Testing & commissioning of Existing Primary Completer Kit complete with Discharge Hose, Solenoid Actuator, Manual Actuator, Warning Sign. Reset tool complete as required	No.	1	₹ 17,700.00	₹ 17,700.00
43	Installation, testing & commissioning of Slave completer kit complete with Discharge hose, Pneumatic actuator, Actuation hose. Complete as required	No.	1	₹ 14,750.00	₹ 14,750.00
44	Supply & installation of Manifold Check Valve complete as required	No.	1	₹ 46,020.00	₹ 46,020.00
45	Installation of Existing Discharge Nozzles complete as required	No.	7	₹ 1,475.00	₹ 10,325.00
46	Installation of Existing Cylinder Straps complete as required	No.	4	₹ 649.00	₹ 2,596.00
47	Installation , testing & commissioning of Existing Manual Gas release Switch complete as required	No.	1	₹ 678.50	₹ 678.50
48	Installation , testing & commissioning of existing Manual Gas Abort Switch complete as required	No.	1	₹ 678.50	₹ 678.50
49	Installation , testing & commissioning of Existing Gas Release Panel with Modbus interface which must be Capable of integration with DCIM tool for remote monitoring complete as required	No.	1	₹ 4,655.10	₹ 4,655.10
50	Supply, installation , testing & commissioning of SCh 40 Seamless ASTM 106 gr B, piping with fittings ,rigid supports with angles,2 coats of Zinc primer & 3 coats of red Paint. Tanks to be placed inside the Risk Area) Area up to 60 Sqm	Lot	1	₹ 1,82,900.00	₹ 1,82,900.00

51	Installation , testing & commissioning of existing Hooter complete as required	No	1	₹ 767.00	₹ 767.00
52	Supply & Installation Clean agent based fire extinguisher 4 KG complete as required	No	1	₹ 29,795.00	₹ 29,795.00
53	Dismantling of Existing GBSS System Including Cylinders (5 NO) ,Piping, manifold, Nozzles etc complete as required.(127 Sqm)	LOT	1	₹ 60,180.00	₹ 60,180.00
54	Removing of NOVEC 1230 filled Cylinders & Sending it to Factory for Filling of NOVEC 1230 as per design Requirement UPS Room Gnd Floor - 1 Cylinders & 90 Kg Gas Installation, Testing & Commissioning of required capacity of Cylinder with Valve, Contact gauge, safety burst disc,with Provision for Supervisory pressure switch complete as required Note:	Job	1	₹ 88,500.00	₹ 88,500.00
55	Supply, Installation, Testing & commissioning of Primary Completer Kit complete with Discharge Hose, Solenoid Actuator, Manual Actuator, Warning Sign. Reset tool complete as required	No.	1	₹ 2,12,400.00	₹ 2,12,400.00
56	Installation of Existing Discharge Nozzles complete as required	No.	1	₹ 1,121.00	₹ 1,121.00
57	Installation of Existing Cylinder Straps complete as required	No.	2	₹ 678.50	₹ 1,357.00
58	Supply, Installation , testing & commissioning of Manual Gas release Switch complete as required	No.	1	₹ 6,372.00	₹ 6,372.00
59	Supply, Installation , testing & commissioning of Manual Gas Abort Switch complete as required	No.	1	₹ 6,844.00	₹ 6,844.00
60	Supply, installation , testing & commissioning of Gas Release Panel with Modbus interface which must be Capable of integration with DCIM tool for remote	No.	1	₹ 27,140.00	₹ 27,140.00

	monitoring complete as required				
61	Supply, installation , testing & commissioning of SCh 40 Seamless ASTM 106 gr B, piping with fittings ,rigid supports with angles,2 coats of Zinc primer & 3 coats of red Paint. Tanks to be placed inside the Risk Area) Area up to 60 Sqm	Lot	1	₹ 1,77,000.00	₹ 1,77,000.00
62	Supply, installation , testing & commissioning of Electronic Hooter complete as required	No	1	₹ 4,484.00	₹ 4,484.00
63	SITC of 4 Zone Water Leak detection Panel with LED/LCD display, Module builin and all required accessories for complete the system with BMS Interface	No	1	₹ 29,500.00	₹ 29,500.00
64	Supply & Laying of Water leak detection cable sensor	Rm	14	₹ 1,150.50	₹ 16,107.00
65	Supply & Installation of Electronic Hooter	nos	1	₹ 4,484.00	₹ 4,484.00
66	2 core x 1.5 sq.mm Armoured cable	Rm	25	₹ 212.40	₹ 5,310.00
67	Supply,Installation,Testing & Commissioning of :Master Console capable of connecting to 24 Satellites in loop Connection & 20 In dedicated connection complete with all accessories & software as per specifications complete as required	No	1	₹ 23,600.00	₹ 23,600.00
68	Supply,Installation,Testing & Commissioning of :Satellite Units complete as per the specification	No	18	₹ 1,652.00	₹ 29,736.00
69	Supply,Installation,Testing & Commissioning of Connecting Cables complete as required	Rm	300	₹ 53.10	₹ 15,930.00
70	Supply,Installation,Testing & Commissioning of Bracket Stand for Master controller complete as required	No	1	₹ 2,065.00	₹ 2,065.00

71	Supplying and fixing 25mm sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required	Rm	250	₹ 118.00	₹ 29,500.00
72	Supply , Installation , Testing & Commissioning of 2 MP IP based Dome camera	No	7	₹ 4,012.00	₹ 28,084.00
73	Supply , Installation , Testing & Commissioning of 2 MP PTZ Camera with required mounting clamps & support	No	1	₹ 44,073.00	₹ 44,073.00
74	Supply, Installation & commissioning of 12 Channnel NVR	Lot	1	₹ 11,800.00	₹ 11,800.00
75	Supply, Testing & Commissioning of Workstation with client licence : The Client workstation which shall have the the following specifications :- Processor Intel ® i5 750 2.66 GHz with internal memory of 4 GB RAM. Operating system. Windows® 7 Professional 64-bit (WOW64mode) OR Windows® 7 Professional 32-bit. Dual or compatible pair of NICs, 1 Gbps. NVIDIA 1GB Independent Graphic Card. Resolution support for cameras 2560 x 1600 display resolution capable and directX true color 32 bit.	No	1	₹ 2,03,550.00	₹ 2,03,550.00
76	Supply, Installation , testing & commissioning of Pan Tilt Zoom & Camera Selection controller complete with Rack, Power Supply and all Ancillary Equipment & all accessories complete as required as per technical specifications. Complete as required	No	1	₹ 69,030.00	₹ 69,030.00
77	Supply, installation & testing of Layer II POE Ethernet switch: 10 port RJ45 10 base 1000T with Fiber Uplinks & with minimum 2 SFP ports where fiber can be terminated directly complete as required	No	1	₹ 37,760.00	₹ 37,760.00

78	Supply & Installation of floor mounted 19U Rack with required Accessories complete as required.	No	1	₹ 25,193.00	₹ 25,193.00
79	Supply of Cat 6A Patch Cords-1m Long	No	8	₹ 224.20	₹ 1,793.60
80	Supply, Installation , Testing & Commissioning of I/O Module with Junction Box & Face Plate complete as required	No	8	₹ 826.00	₹ 6,608.00
81	Supply & laying of 3 X 1.5 Sqmm copper armoured cable for power supply at surface for PTZ Cameras with required accessories complete as required.	Rm	75	₹ 177.00	₹ 13,275.00
82	Dismantling & removing of Existing Cameras including NVR/DVR , conduit Complete as required.	LOT	1	₹ 5,900.00	₹ 5,900.00
83	Supplying and fixing of following 25mm of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required	Rm	380	₹ 106.20	₹ 40,356.00
84	Supplying and drawing of CAT 6A LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required.	Rm	400	₹ 77.47	₹ 30,988.00
85	Removing & Refixing of Existing Biometric / Readers .	No	4	₹ 2,330.50	₹ 9,322.00
86	Supply, Installation , Testing & Commissioning of Single Leaf electromagnetic Lock, holding force 600 lbs with LED and Power Supply with Battery backup	No	2	₹ 5,074.00	₹ 10,148.00
87	Supply, Installing, Testing & Commissioning of Green ABS plastic Emergency Break Glass Units.	No	2	₹ 1,888.00	₹ 3,776.00
88	Supply, Laying, Termination of 4 core, 0.75 sq.mm, PVC insulated, Armored copper	Rm	100	₹ 193.52	₹ 19,352.00

	Cable with necessary accessories.				
89	Supply, Laying, Termination & Testing of Power Cable – 3 Core 1.5 Sq.mm, Armored, Copper Cable with overall PVC Insulation	Rm	100	₹ 171.10	₹ 17,110.00
90	Dismantling & Removing of Existing Access Control system incuding Readers, Locks , Conduiting & cobling etc complete as required	Lot	1	₹ 20,325.50	₹ 20,325.50
91	Supplying and fixing 25mm medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required	Rm	75	₹ 106.20	₹ 7,965.00
92	FIRE ALARM SYSTEM 'Remarks : Zone to be added in Existing Fire alarm panel Installation,testing & commissioning of Existing detectors complete with mounting base complete as required	No	7	₹ 767.00	₹ 5,369.00
93	Installation, testing & commissioning of Existing response indicator on surface/recessed MS Box having two LED, metallic cover complete with all connections etc as required.	No	7	₹ 147.50	₹ 1,032.50
94	Installation, testing & commissioning of addressable horn cum strobe complete as required.	No	1	₹ 1,121.00	₹ 1,121.00
95	Supplying, installation, testing & commissioning of addressable manual call point complete as required.	No	2	₹ 6,726.00	₹ 13,452.00
96	Supplying, installation, testing & commissioning of addressable fire control module complete as required	No	8	₹ 9,440.00	₹ 75,520.00
97	Supply, Installation, Testing & Commissioning of Addressable monitor module with isolator for monitoring flow switches/Fire exit doors etc complete as	No	8	₹ 6,726.00	₹ 53,808.00

	required.				
98	Supplying & laying of 2xl.5 sqmm fire survival armoured cable, 600/1000V rated with annealed copper conductor having glass mica fire barrier tape covered by an extruded layer of Cross Linkable Ethylene Propylene Rubber (EPR} insulation and LSZH inner bedding, steel wire armouring & LSZH outer sheath complete as required.	Rm	240	₹ 171.10	₹ 41,064.00
99	Dismantling & removig of Existing Fire Alarm Panels , Devices etc complete as required	LOT	1	₹ 29,505.90	₹ 29,505.90
100	Fibre Duct Supply & Installation of Fiber Guide System with required accessories complete as required with following items (i) 4 x 12, Horizontal Straight Section, Yellow-Length of 1.8M	Each	12	₹ 50,683.95	₹ 6,08,207.40
101	4 x 12, Horizontal Straight Section, cover	Each	12	₹ 12,552.25	₹ 1,50,627.00
102	4 x 12 Horizontal T, Yellow	Each	2	₹ 13,875.33	₹ 27,750.65
103	4 x 12 Horizontal T,Cover	Each	2	₹ 12,552.25	₹ 25,104.50
104	4 x 12 Horizontal Elbow 90deg., Yellow	Each	4	₹ 12,552.25	₹ 50,209.00
105	4 x 12 Horizontal Elbow 90deg Cover	Each	4	₹ 12,552.25	₹ 50,209.00
106	4 x 12 Junction	Each	4	₹ 16,555.40	₹ 66,221.60
107	FiberGuide® Trapeze Bracket kit, 12mm for 4x12in System	Each	36	₹ 11,534.50	₹ 4,15,242.00
108	FiberGuide® Threaded Rod, 12mm Diameter, 180cm Length	Each	72	₹ 1,560.55	₹ 1,12,359.60
109	FiberGuide® 2-Inch Express Exit™, 4x4, 4x6,	Each	12	₹ 6,561.10	₹

	4x12in, Yellow				78,733.14
110	FiberGuide® Single 2in Flex Tube Attachment, 2x2in, 5ft Length, Yellow	Each	12	₹ 7,409.22	₹ 88,910.64
111	Light Point wiring Wiring for the following light points with 2 x 2.5 sq. mm + 1 x 1.5sqmm (green) PVC insulated copper conductor FRLS wires of 650/1100 Volts grade in concealed / exposed steel conduits as called for including providing 6 amp flush type switches (as, approved),including providing and fixing of White Polycarbonate modular cover plate for switch boxes.One point controlled by one 6 amp switch.	Nos	4	₹ 2,478.00	₹ 9,912.00
112	Wiring to looped light points with 2x1.5 sq. mm. FRLS/PVC insulated copper conductor 1100 V grade wires in concealed or surface mounted 20/25 mm dia PVC conduit / existing as required. Including earthing of fixtures and outlet box with 1.5 sq. mm. FRLS PVC insulated copper conductor 1100 V grade green earth wire. (Including providing GI flexible conduit from 'Tee' to fixture).	Nos	8	₹ 2,829.35	₹ 22,634.80
113	Supply, installation of switched socket outlets, modular socket outlets and switches mounted seperately for group control on wall and modular type partition with front plate, MS Box & accessories including civil works like chipping etc. All sockets shall be provided with suitable stickers to indicate the UPS / RP source, ckt. Nos. etc. 1 x 6/16A twin socket controlled by 16A switch,. (For house keeping-raw power).	Nos	4	₹ 1,888.00	₹ 7,552.00
114	Supply, installation of switched socket outlets, modular socket outlets and switches mounted seperately for group control on wall and modular type partition with front plate, MS Box & accessories	Nos	24	₹ 6,726.00	₹ 1,61,424.00

	including civil works like chipping etc. All sockets shall be provided with suitable stickers to indicate the UPS / RP source, ckt. Nos. etc.32A, single phase, industrial socket with plug top & with enclosure, (For Racks)				
115	Wiring of Submains/circuit mains in concealed or surface conduit system with 2mm thick Steel conduits & 1100 V grade, multi strand copper conductor,FRLS PVC insulated wires asper IS694, for phase, neutral & earth, shall include end termination. The conduits shall be complete with bends, JBs etc.. The laying cost shall also include supports/anchor rods for conduits & chipping works if necessary. 3Rx2.5 sq.mm cable, multi strand copper wire in 19mm dia Steel counduit.	Rm	500	₹ 135.70	₹ 67,850.00
116	Wiring of Submains/circuit mains in concealed or surface conduit system with 2mm thick Steel conduits & 1100 V grade, multi strand copper conductor,FRLS PVC insulated wires asper IS694, for phase, neutral & earth, shall include end termination. The conduits shall be complete with bends, JBs etc.. The laying cost shall also include supports/anchor rods for conduits & chipping works if necessary. 3Rx4 sq.mm cable, multi strand copper wire in 25mm dia Steel counduit.	Rm	300	₹ 247.80	₹ 74,340.00
117	Installation, Testing & Commissioning of Existing LT panels & distribution Boards	No	2	₹ 11,210.00	₹ 22,420.00
118	Supply and Installation of DCDB- panel 1	No	1	₹ 2,18,338.00	₹ 2,18,338.00
119	Installation of DCDB	No	4	₹ 3,392.50	₹ 13,570.00
120	Installation of 400 A COS enclosure	No	1	₹ 4,130.00	₹

					4,130.00
121	Installation of Raw power Supply Panel - Panel No -13	No	1	₹ 10,030.00	₹ 10,030.00
122	Installation of Ups Power Supply Panel - Panel No-14	No	1	₹ 10,030.00	₹ 10,030.00
123	supply and Installation of AC Power Supply Panel - Panel No-12	No	1	₹ 2,40,758.00	₹ 2,40,758.00
124	Installation of Wall Mounted AC Panel	No	1	₹ 4,071.00	₹ 4,071.00
125	Installation of ACDB- PANEL	No	2	₹ 4,071.00	₹ 8,142.00
126	LT Cables & Terminations Supply of the 1100 volt grade copper / Aluminium armoured/Un-armoured XLPE insulated conductor (FRLS) cable on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .4C X 240 SQMM AL ARM Cable	Rm	140	₹ 2,747.93	₹ 3,84,709.50
127	LT Cables & Terminations Supply of the 1100 volt grade copper / Aluminium armoured/Un-armoured XLPE insulated conductor (FRLS) cable on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .4C X 50 SQMM AL ARM Cable	Rm	10	₹ 759.92	₹ 7,599.20
128	LT Cables & Terminations Supply of the 1100 volt grade copper / Aluminium armoured/Un-armoured XLPE insulated conductor(FRLS) cable on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .4C X 35 SQMM CU ARM Cable	Rm	200	₹ 1,622.50	₹ 3,24,500.00

129	LT Cables & Terminations Supply of the 1100 volt grade copper / Aluminium armoured/Un-armoured XLPE insulated conductor(FRLS) cable on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .4C X 10 SQMM cu ARM Cable	Rm	230	₹ 1,044.89	₹ 2,40,324.70
130	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 300 SQ MM Cu Flex Cable	Rm	120	₹ 2,832.00	₹ 3,39,840.00
131	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 35 SQ MM Cu Flex Cable	Rm	250	₹ 814.20	₹ 2,03,550.00
132	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 16 SQ MM Cu Flex Cable(Red)	Rm	300	₹ 427.46	₹ 1,28,236.50
133	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 16 SQ MM Cu Flex Cable(Back)	Rm	300	₹ 427.46	₹ 1,28,236.50
134	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 16 SQ MM Cu Flex	Rm	300	₹ 427.46	₹ 1,28,236.50

	Cable(Green)				
135	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .3C x 10 SQ MM Cu Flexible Cable	Rm	300	₹ 814.20	₹ 2,44,260.00
136	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .3C x 4 SQ MM Cu Flexible Cable	Rm	750	₹ 332.47	₹ 2,49,348.75
137	LT Cables & Terminations. Supply of the 1100 volt grade PVC Insulated & FRLS copper Flexible cables on the cable trays, including supports, clamps, saddles, hooks, bolts etc complete as required.as per specification .1C x 10 SQ MM Cu Flex Cable	Rm	100	₹ 298.54	₹ 29,854.00
138	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.4C X 240 SQMM AL ARM Cable	Each	10	₹ 3,304.00	₹ 33,040.00
139	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.4C X 50 SQMM AL	Each	2	₹ 2,171.20	₹ 4,342.40

	ARM Cable				
140	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.4C X 35 SQMM CU ARM Cable	Each	8	₹ 1,628.40	₹ 13,027.20
141	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.4C X 10 SQMM cu ARM Cable	Each	18	₹ 1,628.40	₹ 29,311.20
142	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.1C x 300 SQ MM Cu Flex Cable	Each	8	₹ 2,832.00	₹ 22,656.00
143	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.1C x 35 SQ MM Cu Flex Cable	Each	40	₹ 2,124.00	₹ 84,960.00

144	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.1C x 16 SQ MM Cu Flex Cable	Each	64	₹ 1,888.00	₹ 1,20,832.00
145	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.3C x 10 SQ MM Cu Flexible Cable	Each	16	₹ 1,652.00	₹ 26,432.00
146	LT CABLE TERMINATIONS Supplying and making end termination with brass Double compression gland and Aluminium / Copper lugs for following size of PVC insulated and PVC sheathed / XLPE Aluminium / Copper conductor cable of 1.1 KV grade as required. As per specification complete as required.3C x 4 SQ MM Cu Flexible Cable	Each	20	₹ 1,416.00	₹ 28,320.00
147	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts & nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.100 mm width X 50 mm depth X 1.6	Rm	10	₹ 1,416.00	₹ 14,160.00

	mm thickness				
148	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts & nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.150 mm width X 50 mm depth X 1.6 mm thickness	Rm	10	₹ 1,534.00	₹ 15,340.00
149	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts & nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.200 mm width X 50 mm depth X 1.6 mm thickness	Rm	20	₹ 1,888.00	₹ 37,760.00
150	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts &	Rm	145	₹ 2,124.00	₹ 3,07,980.00

	nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.300 mm width X 62.5 mm depth X 2.0 mm thickness				
151	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts & nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.450 mm width X 62.5 mm depth X 2.0 mm thickness	Rm	45	₹ 2,596.00	₹ 1,16,820.00
152	Cable Trays / Raceways Supplying and installing following size of perforated hot dip galvanized iron cable tray (Glavanization thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I bolts & nuts, etc as required.Quoted rate for installation shall include necessary anchor fastners, suspension rods, supporting thread rods, MS C Channel, MS L Angle etc.600 mm width X 75 mm depth X 2.0 mm thickness	Rm	50	₹ 3,068.00	₹ 1,53,400.00
153	GI Raceways with cover /Junction box GI Raceways shall be made out of 1.6mm thick CRCA sheet, the cover shall be made out of 1.6mm thick CRCA sheet & shall be preforated. The joints shall be flush & fastended from inside without sharp edges. JBs shall be made out of 1.6mm GI	Rm	30	₹ 1,734.60	₹ 52,038.00

	sheet with top cover, JB shall have no sharp edges, shall have threaded bush on all 4 sides for easy pulling of cables.100 X 40 mm Raceway				
154	GI Raceways with cover /Junction box GI Raceways shall be made out of 1.6mm thick CRCA sheet, the cover shall be made out of 1.6mm thick CRCA sheet & shall be preforated. The joints shall be flush & fastended from inside without sharp edges. JBs shall be made out of 1.6mm GI sheet with top cover, JB shall have no sharp edges, shall have threaded bush on all 4 sides for easy pulling of cables.150 X 150 X 50mm Junction Box	No	4	₹ 7,965.00	₹ 31,860.00
155	Supply, fabrication, erection & commissioning of the Wire Mesh type GI Cable tray, of the following sizes complete with all accessories like bend, elbow, tee-joints, supporting on GI flat with GI thread rod and GI check nuts for ceiling hangs as per specification.500 x 105mm	Rm	25	₹ 3,731.75	₹ 93,293.75
156	Earthing Electrode & Earth strips. Supply, Installation, testing & commissioning of Cu Earth gel type chemical earthing with (50mm Cu Pipe), 3 mtr deep and providing masonry enclosure with medium duty cover plate complete as required	No	4	₹ 28,320.00	₹ 1,13,280.00
157	Earthing Electrode & Earth strips. Providing and fixing the following sizes of the earth strip/cable on surface or in recess for connections etc. as required.25 X 3 Braided Cu Strip	Rm	40	₹ 1,180.00	₹ 47,200.00
158	Earthing Electrode & Earth strips. Providing and fixing the following sizes of the earth strip/cable on surface or in recess for connections etc. as required.Providing and fixing 25 mm X 5 mm copper strip	Rm	100	₹ 2,124.00	₹ 2,12,400.00

159	Earthing Electrode & Earth strips. Providing and fixing the following sizes of the earth strip/cable on surface or in recess for connections etc. as required.Providing and fixing 25 mm X 5 mm G.I. strip	Rm	140	₹ 708.00	₹ 99,120.00
160	Supplying,installation,testing and commissioning of Passive Infrared(PIR) technology based occupancy sensor having high performance, non regulating programmable type, suitable for connected load upto 10Amp , for mounting height up to 2.8 mtr and for 5 m diameter coverage area along with necessary fixing arrangements i/c programming at site etc. complete as required	Each	3	₹ 5,292.30	₹ 15,876.90
161	Installation of Existing Light Fixtures	No	24	₹ 531.00	₹ 12,744.00
162	Providing Construction Power (Power will be supplied at a Single Point by the Owner), with sufficient Nos of Lamps and Patti Fittings and Multi Socket Points, necessary DB, etc as required.	NO	1	₹ 74,635.00	₹ 74,635.00
163	Dismantling Works : Dismantling of below mentioned items & keeping the same at a secured place provided by Client & as directed by project Engineer Dismantling of Light fixtures, Fans etc	NO	30	₹ 407.10	₹ 12,213.00
164	Dismantling Works : Dismantling of below mentioned items & keeping the same at a secured place provided by Client & as directed by project Engineer. Removing of wires & conduits	Lot	1	₹ 35,400.00	₹ 35,400.00
165	Dismantling Works : Dismantling of below mentioned items & keeping the same at a secured place provided by Client & as directed by project Engineer. Dismantling of Switch Sockets	Lot	1	₹ 17,700.00	₹ 17,700.00

166	Dismantling of Panels, DB's Etc complete as Required DC PANEL01 & 02	No	2	₹ 11,210.00	₹ 22,420.00
167	DCDB units	No	8	₹ 3,540.00	₹ 28,320.00
168	400 A COS enclosure	No	1	₹ 4,749.50	₹ 4,749.50
169	Raw power Supply Panel - Panel No -13	No	1	₹ 10,030.00	₹ 10,030.00
170	Ups Power Supply Panel - Panel No-14	No	1	₹ 10,030.00	₹ 10,030.00
171	AC Power suply panel -12	No	1	₹ 10,030.00	₹ 10,030.00
172	Wall Mounted AC Panel	No	1	₹ 6,106.50	₹ 6,106.50
173	AC DB	No	2	₹ 2,035.50	₹ 4,071.00
174	Removing of Cables upto 35 Sqmm	Rm	900	₹ 122.13	₹ 1,09,917.00
175	Removing of Cables from 35 Sqmm upto 95 Sqmm	Rm	300	₹ 165.20	₹ 49,560.00
176	Removing of Cables from 95 Sqmm upto 185 Sqmm	Rm	20	₹ 165.20	₹ 3,304.00
177	Removing of Cables from 185 Sqmm upto 400 Sqmm	Rm	200	₹ 165.20	₹ 33,040.00
178	Dismantling of Cable trays	Rm	100	₹ 141.60	₹ 14,160.00
179	Dismantling & house Keeping : DEMOLITUIN AND DISMANTLING:-all existing brick wall ,partitions furniture, , false ceiling, Raised flooring , doors and AC ducts, electrical and other cables, switches, sockets, plaster and etc other related material will have to be dismantled and disposed o in a safe and systematic way minimising disturbance to the adjoining area. (Ground Floor - 170 Sqm & First floor -125 Sqmm)	JOB	1	₹ 2,81,430.00	₹ 2,81,430.00

180	HOUSE KEEPING: The vendor is responsible for keeping the site clean /deep cleaning by removing all the debris etc. every day, using adequate covering/tarpuline sheets etc to cover the any areas required (client property etc.). All cleaning equipments like heavy duty vacuum cleaners etc to be according to the approval of the project manager. Two Times Deep cleaning. (3 Months)	JOB	1	₹ 2,12,405.90	₹ 2,12,405.90
181	Brick Wall (115 mm): In 1:4 cement Sand mortar, brick wall including providing hoop iron on every 4th course and keeping moist for 7 days or covered with plaster which ever is earlier. The rates is for all heights /descents and includes scaffolding. (For closing of windows)	Sqm	47	₹ 2,596.00	₹ 1,22,012.00
182	Cement Sand Plaster: 12mm Cement plaster will be 1:4 cement sand mortar in all thickness & rates shall include raking out old joints, finishing surfaces to receive tiles/ POP / Paint and keeping moist for 7 days. The rates is for all heights /descents and includes scaffolding.	Sqm	155	₹ 1,038.40	₹ 1,60,952.00
183	RCC LIntels with M 25 grade concrete with minimum cement content of 325 kg/cum of 43 grade Construction of RCC Lintels of 4" thk. with nominal reinforcement, plastering, curing complete. Rate to be inclusive of shuttering, cost of steel, fabrication of steel etc.	RM	3	₹ 5,369.00	₹ 16,107.00
184	BUNDING UNDER FALSE FLOORING: 100MM HT, 75mmtk brick wall to be constructed around the periferry on the true slab (floor) 75mm away from the externall wall of the data center with plastering and finishing the surfact to a smooth finish	RM	12	₹ 915.98	₹ 10,991.76
					₹ -

185	FLOORING : Providing and fixing removable raised/false access flooring with system and its components of approved make for different plenum height with possible height adjustment upto 50 mm, comprising of modular load bearing floor panels supported on G.I. rectangular stinger frame work and G.I. Pedestal etc. all complete, as per the architectural drawings, as specified and as directed by Engineer-in-charge consisting of: (a) Providing at required spacing to form modular framework, pedestals made out of GI tube of thickness minimum 2 mm and 25 mm outer diameter, fully welded on to the G.I. Base plate of size 100mm x 100mm x 3mm at the bottom of the pedestal tube, G.I. pedestal head of size 75mmx75mmx3.5 mm welded with GI fully threaded stud 16mm outer diameter with two GI Check nuts screwed on the stud for level adjustment upto 50mm, locking and stabilizing the pedestal head in position at the required level. The pedestals shall be fixed to the subfloor (base) through base plate using epoxy based adhesive of approved make or the machine screw with rawl plug (b) Stringers system in all steel construction hot dipped galvanized of rectangular size 570x20x30x0.80mm thick having holes at both ends for securing the stringers on to the pedestal head using fully threaded screws ensuring maximum lateral stability in all directions, the grid formed by the pedestal and stringer assembly shall receive the floor panel, this system shall provide adequate solid, rigid support for access floor panel, the system shall provide a minimum clear uninterrupted clearance between the bottom of the floor for electrical conduits and wiring etc. all complete as per the	Sqm	127	₹	6,844.00	₹ 8,69,188.00

	architectural drawings, as specified and as directed by the Engineer-in-charge. (c) Providing and fixing Access Floor panel of 600x600x35 mm medium grade Filled Steel anti static high pressure Lamination of 1250H grade (FS1250H). Access Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of 64 hemispherical cones. The top and bottom plates of Steel Gauges: top 0.6 mm and bottom 0.7 mm fused spot welded together (minimum 64 welds in each dome and 20 welds along each flange). The panel should be Corroresist epoxy coated for lifetime rust protection and cavity formed by the top and bottom plate is fille d with Pyrogrip noncombustible Portland cementitious core mixed with lightweight foaming compound. The access floor shall be factory finished with Anti-static High Pressure laminate with Non Warp technology upto 1mm thickness for superior adhesion and Surface flatness within 0.75mm.The panel is to withstand a Concentrated Load of 567 kgs applied on area 25mm x 25mm without collapse in the centre of the panel which is placed on four steel blocks. The panel will withstand and Uniformly Distributed Load (UDL) minimum 2450 kg/sqm and an impact load of 50kg all complete as per the approved manufacturers specification and as per the direction of Engineer-in-charge. All specification must be printed on the side of the panel to ensure the quality of the product. 450 mm Finished Floor Height (FFH)- For Server room First Floor				
186	Supply of Double Cup Pullers	NO	2	₹ 4,130.00	₹ 8,260.00

187	VITRIFIED TILE FLOORING: Providing and laying of pre-polished first class vitrified tile flooring of 600mm X 600mm size, laid to pattern & design, with paper thin joint, set in 20 mm thick cement mortar 1:4, suitably roughened cement slurry and pointing of joints with laticrete to match the colour of tiles, curing, oxalic acid washing etc., complete. (works at all levels). The contractor shall provide and lay the tiles as per the designs approved by Employer/Consultant/Architect . (For Repair of Damaged Vitrified tiles)	Sqm	20	₹ 2,596.00	₹ 51,920.00
188	Providing and fixing false ceiling at all height including providing and fixing of frame work made of special sections, power pressed from M.S. sheets and galvanized with zinc coating of 120 gms/sqm (both side inclusive) as per IS : 277 and consisting of angle cleats of size 25 mm wide x 1.6 mm thick with flanges of 27 mm and 37mm, at 1200 mm centre to centre, one flange fixed to the ceiling with dash fastener 12.5 mm dia x 50mm long with 6mm dia bolts, other flange of cleat fixed to the angle hangers of 25x10x0.50 mm of required length with nuts & bolts of required size and other end of angle hanger fixed with intermediate G.I. channels 45x15x0.9 mm running at the spacing of 1200 mm centre to centre, to which the ceiling section 0.5 mm thick bottom wedge of 80 mm with tapered flanges of 26 mm each having lips of 10.5 mm, at 450 mm centre to centre,shall be fixed in a direction perpendicular to G.I. intermediate channel with connecting clips made out of 2.64 mm dia x 230 mm long G.I. wire at every junction, including fixing perimeter channels 0.5 mm thick 27 mm high having flanges of 20 mm and 30 mm long, the perimeter of ceiling fixed to wall/partition with the help of rawl plugs at 450 mm centre, with 25mm long dry wall screws @ 230 mm interval, including	Sqm	67	₹ 2,124.00	₹ 1,42,308.00

	fixing of gypsum board to ceiling section and perimeter channel with the help of dry wall screws of size 3.5 x 25 mm at 230 mm c/c, including jointing and finishing to a flush finish of tapered and square edges of the board with recommended jointing compound , jointing tapes , finishing with jointing compound in 3 layers covering upto 150 mm on both sides of joint and two coats of primer suitable for board, all as per manufacturer's specification and also including the cost of making openings for light fittings, grills,diffusers, cutouts made with frame of perimeter channels suitably fixed, all complete as per drawings, specification and direction of the Engineer in Charge but excluding the cost of painting with :12.5 mm thick tapered edge gypsum fire resistant board conforming to IS: 2095- Part I.				
189	Miscellaneous works: POP Puning: Applying plaster of Paris on walls etc 12-18mm thick, in plumb line and level including scraping and removing existing neeru finish and raking if required. For more than 18 mm thickness chicken wire mesh shall be used up-to 25 mm only. POP more than 25 mm will not be permitted &if required pre-plastering is mandatory.	Sqm	153	₹ 441.03	₹ 67,477.59
190	Fire retardant painting: Providing & Applying two caots of fire retardent paint on walls and Gypsum partitions with necessary base preparation with putty complete as required	Sqm	262	₹ 949.90	₹ 2,48,873.80
191	STEP: Providing and fixing steps in the data center .with landing area of 1.5 X 1.2 m, 1500 mm wide , height of 450 mm, consisting of 300 mm tread and 150 mm ht riser, constructed Using 50 X 50 X 6mm MS Angle & cladding with 10mm thick chequer plate on top with primer with required hardware & accessories complete as required. Top to be finished with Antistatic vinyl flooring .	NO	1	₹ 19,470.00	₹ 19,470.00
192	Thermal Insulation: Supply & fixing of class "O" closed cell, Elastomeric, Nitrile Rubber thermal	Sqm	87	₹ 1,241.66	₹

	insulation on the floor & Slab with 9 mm thick of armflex/Kflex after applying suitable adhesive. complete as required as per specification.				1,08,024.42
193	Signage: Providing & fixing of SS SIGNAGE internal as per approved artwork supplied by client, including the all cabins and rooms signage. (300mm X 100 Mm)	NO	2	₹ 2,239.03	₹ 4,478.06
194	FIRE EXPANDING FOAM:Providing and applying fire Expanding Foam having minimum of 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, Beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The service lines could be of various types like electrical cables, cable trays or metal pipes etc. The foam shall have Acoustic property as per DIN 4109 and Smoke and Air Seal. The Foam should have the feature of Repenetrability for future maintance or repair activities. item includes scaffolding, finishing, cleaning etc. complete at. all heights, levels & floors. (Make: Hilti CP 620/3M or approved equivalent)	Pkt	1	₹ 12,390.00	₹ 12,390.00
195	FIRE BARRIER MORTAR :Providing & applying fire Barrier Mortar having minimum of 2 hours fire rating when tested in accordance with BS 476 part 20 and UL 1479 for horizontal and vertical openings in RCC slabs, beams, walls, Brick masonry or Gypsum partitions for passing service shafts. The mortar shall have minimum hardened density of 0.8 g/cm3 and compressive strength of 2.9N/Sq mm . The service lines could be of various types like electrical cable trays , metal pipes, GI Ducts for AC etc. It should be Smoke & Air Seal. Item include scaffolding, finishing, cleaning etc. complete at. all heights, levels & floors. (Make: Hilti CP 636/3M or approved equivalent)	Pkt	1	₹ 15,930.00	₹ 15,930.00

196	Removing , Shifting & Re-installation of Existing Furniture along with chairs complete as required	no	19	₹ 4,130.00	₹ 78,470.00
197	GENERAL SPECIFICATION: Provision is to be made in the shutter/frame for access control cable/electric mortise lock. Door frames and leaves made of Galvanised steel 304 grade. Door leaves constructed from 1.25mm thk. Galvanised steel sheet press formed to provide a 46mm thk. Fully flush, double skin door shell with lock seam joints at stile edges. Internal reinforcements are provided at top, bottom & stile edges for fire rating. The internal construction of the door is a specially designed Honey comb structure with reinforcements at top, bottom & stile surrounds. The internal construction of the door varies with the degree of fire rating as tested. For doors having overall height in the excess of 2300mm the shutters shall essentially have double latching. Door frames produced from 1.6mm thick galvanised steel sheet press formed to double rebate profile of size 143 x 57 mm (+/- 0.3mm) with a maximum bending radius of 1.4mm. The door frames may be built into the brick or block walls using corrugated "TEE" anchors not welded to the frame (first fix). Cost to include all MS frame and necessary extra support item for fixing Fire rated Door on Gypsum partition. (a)Frames may be fixed on plastered openings with the help not welded to the frame (first fix). Frames may be fixed on plastered openings with the help of metallic expansion shield with counter sunk screw (second fix).Door frames are supplied to knock down form with butt joints for bolt assembly at site. Fire Rated vision glass with 6mm thk. Clear glass can be provided for a maximum of 2	no	1	₹ 71,390.00	₹ 71,390.00

	hrs fire rating. The vision glass can be provided in 380mm dia or square/rectangular in various dimensions such as 200mm x 300mm, 300mm x 300mm etc. The door frames and door shutters are primed with Zinc-phosphate staving primer. Various finishes in synthetic staving enamel, acrylic staving paint or polyurethane can be provided on request. (b)The Fire Doors are to be fully insulated and have been tested as per IS: 3809-1979, ISO: 834- 1975, IS: 3614 (PART-II)- 1992 and BS 476 (PART- 20 & 22)- 1987 under live fire conditions from Central Building Research Institute (CBRI), Roorkee, National Test House Calcutta for Stability, Integrity and Insulation for 2 Hrs. The wired glass is to comply with both BS 476: PART 22 and BS 6206 relating to fire resistant and impact performance.(c)Finalised vendor to submit the Test certificates for the above.(c-1)Cost to include all necessary ironmongery which is as follows:(c-2)Hinges provided are to be Stainless steel double ball bearing butt hinges of size 100mm x 76mm x 3mm thick conforming to BS 7352 standard for 'Strength and durability performance of metal hinges for side hanging applications and dimensional requirements for template drilled hinges' and are classified in class 8 ie, with 20000 annual operations.(c-3)The screws for hinges are SS 304 grade Philips head CSK screws of size M6x 15mm. Latching shall be Mortise lock with independent escutcheon. D pull handles of SS shall be provided. Door closures heavy duty rated shall be provided as required. Vendor to provide the manufacturer's test certificate for the installation . Single Leaf with Vision Panel(1200x2400)				

198	Supply and Installtion of Roller Blind P/F	SM	36	₹ 182.90	₹ 6,584.40
199	Supply and Installtion of P/F Over Head storage (wooden)as per site requirement	SFT	32	₹ 1,003.00	₹ 32,096.00
200	Supply and Installation P/F Lower Head Storage (wooden) as per site requirement	SFT	19	₹ 1,003.00	₹ 19,057.00
201	Liner work station(3600(W)*600(D)* 750/1030(H)(3*3Seater) Type-1	No	8	₹ 71,390.00	₹ 5,71,120.00
202	Liner work station(1200(W)*600(D)* 750/1200(H)(01-Seater)Type-2	No	1	₹ 38,350.00	₹ 38,350.00
203	Liner work station(4500(W)*1200(D)* 750/1030(H)(10-Seater) Type-3	No	1	₹ 1,13,204.48	₹ 1,13,204.48
204	Curvilinerr work station(1500(W1)*1200(w2)*600(D)*750/1200(H)(01-Seater) Type-4	No	2	₹ 57,820.00	₹ 1,15,640.00
205	Curvilinerr work station(1500(W1)*1500(w2)*600(D)*750/1200(H)(01-Seater) Type-5	No	4	₹ 60,770.00	₹ 2,43,080.00
206	Supply & Installation of -high Back Chaire for work station	No	58	₹ 12,478.50	₹ 7,23,753.00
207	Conference Table(08 Seater)	No	1	₹ 39,086.00	₹ 39,086.00
208	supply and Installtion of KD Sliding Door Unit VSDU-5(900MM(W)*450mm(D)*1192.5mm(H)	No	6	₹ 24,336.00	₹ 1,46,016.00
209	72 inch display	No	4	₹ 1,47,500.00	₹ 5,90,000.00
210	Sliding door (3 feet)	No	1	₹ 20,000.00	₹ 20,000.00
211	IP Phone	no	20	₹ 11,564.00	₹ 2,31,280.00
212	Printer	no	2	₹ 38,000.00	₹ 76,000.00

213	Interactive display	no	4	₹ 1,43,360.00	₹ 5,73,440.00
214	All in one desktop including MS- OFFICE 2021 PRO	No	8	₹ 85,000.00	₹ 6,80,000.00
215	Drawing software Microsoft visio 2021	No	4	₹ 31,270.00	₹ 1,25,080.00
	Total Amount				₹ 2,70,09,505.34

Bidder has to quote percentage (above/below/at par) for SOR online on ENIVIDA portal.

NOTE: - All items should be read along with detailed specification / drawing/ explanatory note / site conditions etc.

1. It is certified that I/we have inspected the site of work and acquainted myself / ourselves with local conditions.

2. I/we have carefully gone through the specifications, given in tender document and understood.

Signature of Tenderer

END OF DOCUMENT