



इरकॉन इन्टरनेशनल लिमिटेड  
नवरत्न कम्पनी  
(भारत सरकार का उपक्रम)  
**IRCON INTERNATIONAL LIMITED**  
NAVRATNA COMPANY  
(A Govt. of India Undertaking)



**No.** IRCON/ELECT/5017/NELS.DD/S & T/OT/39 /LOA/08/18 **Date:** 29.08.2024

To,

**M/s Datacom Products India Pvt. Ltd.**

214, Champaklal Udyog Bhavan

105, Sion Koliwada Road

Sion East, Mumbai (Maharashtra) - 400 022

Tele/Fax no. : 022 - 2401 9500, 2406 1100

Mob - 98212 22991

E-mail - dharmender.keswani@datacom.co.in

Dear Sir,

**Sub:-**Design, Supply, Installation, Testing & Commissioning of Signaling and Telecom (S&T) equipment, etc. in Connection with setting up of New Electric Loco shed at Daund, Sholapur Division, Central Railway- **Letter of Acceptance (LOA)**

Ref.:1) e-Procurement No.: IRCON/ELECT/5017/NELS.DD/S&T/OT/39 Date: 05.07.2024

2) Your e-Tender opened on 06.08.2024 and financial e-bid opened on 21.08.2024

1. The competent authority for and on behalf of Ircon International Limited has accepted your offer for a sum of Rs.1,97,18,731.66 (Rupees One Crore Ninety-Seven Lakhs Eighteen Thousand Seven Hundred Thirty One and Sixty Six Paise Only) inclusive of Goods and Services Tax (GST), other taxes, duties, levies etc. (Detailed Bill of Quantities is enclosed as Annexure-A) as per Clause no.7.0 of Special Conditions of Contract (SCC).
2. You are requested to submit the following within 21 days of issue of this letter but before signing of the Agreement, whichever is earlier:
  - a. Performance guarantee for an amount of Rs.11,75,755/- (Rupees Eleven Lacs, Seventy Five Thousand Seven Hundred & Fifty Five only ( i.e. 5% of the contract value Rs.1,97,18,731.66 and further additional Performance



Guarantee (PG) i.e. the bidder who has offered total cost as compared to tender value by more than 10%, shall be required to submit additional PG of value equal to half the percentage of tender value by which offer is lower than 10%, Rs.9,85,937+Rs.1,89,818) valid initially up to 28.04.2025 (i.e. stipulated date of completion plus 60 days beyond that) in the form detailed in Clause no.: 11.1 of Special Conditions of Contract (SCC).

- b. Detail Programme for execution of Works as per Clause no.:9.0 of Special Conditions of Contract.
  - c. Signing of Contract Agreement with requisite value of stamp paper as per Clause no.: 13.0 of Special Conditions of Contract.
3. You are requested to attend office on or before 27.09.2024 for signing of the Contract Agreement (i.e. a date within 28 days of issue of this letter as per Clause no.13.0 of Special Conditions of Contract).
  4. Taxes, Duties & Levies etc. shall be applicable as per Clause 7.0 of SCC (Special Conditions of Contract).
  5. The deduction of retention money shall be recovered from your on account bills @ 10% of the gross value of each on account bill till the sum total of retention money reaches 5% of the contract value of the work (Clause No.11.1 of Special Condition of Contract).
  6. The mode of payment, payment terms & Tax Deduction at Source (TDS) shall be made in accordance as per Clause 23.0 & 24.0 of SCC. The Contractor should issue Tax Invoice showing IGST/CGST/SGST/UTGST as applicable.
  7. You are requested to commence the work immediately as per enclosed Bill of Quantities (BoQ) and Technical Specification / Make. The entire work shall be completed within a period of 6 (Six) months from the date of issue of this LOA.
  8. This letter of acceptance is being sent in duplicate. One copy may please be signed, stamped and returned to this office in token of unconditional acceptance.



9. All other terms and conditions contained in the e-Tender documents dated 05.07.2024 shall form part and parcel of the contract.

10. You are requested to contact "**Chief General Manager (Electrical) Ircon International Limited, 4rth Floor, C-4, District Centre, Saket, New Delhi - 110 017**" for further instructions and future correspondence.

Please acknowledge the receipt,

Thanking You,

Yours Faithfully,  
For & on behalf of  
Ircon International Limited

  
(**Surendra Yadav**)  
Chief General Manager/Electrical

Encl: - Bill of Quantities/Schedule of Items & Technical Specification - 16 Pages

Copy to -

1) **Dy. General Manager/Fin:** B-40A, Sector-1, Noida (UP) - 201 301.



LOA No.: IRCON/ELECT/5017/NELS.DD/S & T/OT/39 /LOA/08/18 Date: 29.08.2024

### SCHEDULE OF QUANTITIES / BILL OF QUANTITIES (BOQ)

Name of work : Design, Supply, Installation, Testing & Commissioning of Signaling and Telecom (S&T) equipment, etc. in Connection with setting up of New Electric Loco shed at Daund, Sholapur Division, Central Railway

### Summary Sheet of Bill of Quantities

| Sr. No. | Schedule       | Description of Schedule                                                                                                                                                                                   | Estimated Cost<br>( in INR ) | Rate quoted by Contractor as<br>percentage above/ below/ at-<br>par-over the estimated rates |                         |                | Price ( in INR ) |
|---------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------------------------------------------------------------------------|-------------------------|----------------|------------------|
|         |                |                                                                                                                                                                                                           |                              | Percentage in<br>Figures                                                                     | Percentage in<br>Words  | In Figures     |                  |
| 1       | 2              | 3                                                                                                                                                                                                         | 4                            | 5                                                                                            | 6                       | 7              |                  |
| 1       | A, B, C, D & E | Design, Supply, Installation, Testing & Commissioning of Signaling and Telecom (S&T) equipment, etc. in Connection with setting up of New Electric Loco shed at Daund, Sholapur Division, Central Railway | 2,23,31,519.43               | 11.70                                                                                        | Eleven point Seven Zero | 1,97,18,731.66 |                  |
|         |                |                                                                                                                                                                                                           |                              | Total Price =                                                                                |                         |                | 1,97,18,731.66   |



**Name of Work :** Design, Supply, Installation, Testing & Commissioning of Signaling and Telecom (S&T) equipment, etc. in Connection with setting up of New Electric Loco shed at Daund, Sholapur Division, Central Railway

**Summary of Bill of Quantity (BOQ)**

| Sr. No.                          | Sch.   | Brief Description of Schedule                                             | Estimated cost of work / schedule (₹)<br>(Inclusive of all taxes) | Quoted and accepted amount / Total Cost (₹) |
|----------------------------------|--------|---------------------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------|
| (1)                              | (2)    | (3)                                                                       | (4)                                                               | (5)                                         |
| 1                                | Sch. A | Supply-Telecommunication                                                  | 1,52,44,493.15                                                    | 1,34,60,887.46                              |
| 2                                | Sch. B | Installation-Telecommunication                                            | 14,17,936.80                                                      | 12,52,038.20                                |
| 3                                | Sch. C | Electronics Surveillance System                                           | 10,99,652.87                                                      | 9,70,993.49                                 |
| 4                                | Sch. D | Technical Staff                                                           | 3,47,814.00                                                       | 3,07,119.77                                 |
| 5                                | Sch. E | Supply, installation & commissioning of systems, printers & plotter, etc. | 42,21,622.60                                                      | 37,27,692.76                                |
| <b>TOTAL COST OF SCHEDULES:-</b> |        |                                                                           | <b>2,23,31,519.43</b>                                             | <b>1,97,18,731.68</b>                       |



**NAME OF WORK:** Supply, Installation, Testing & Commissioning of Signalling and Telecom equipment's in connection with setting up Electric loco shed at Daund Junction in Solapur division of Central Railway.

**General Note:-**

|     |                                                                                                                                                                                                                                                                                                                                                                              |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i   | The Materials which is to be inspected by RDSO should be supplied from RDSO Listed Firms/Suppliers (RDSO approved vendors and RDSO vendors for Developmental Order). If RDSO's Listed Firms/Suppliers are not available then from any other reputed manufacturer/firm as approved by IRCON/Railways/Client.                                                                  |
| ii  | All critical items as per RDSO guidelines will continue to be inspected by RDSO as per instruction contained in Board's letter No. 74/RS(G)/379/2Pt.dated;4/3/91 and 18/6/91:-0                                                                                                                                                                                              |
| iii | The materials, which are procured from RDSO Listed Firms/Suppliers (RDSO approved vendors and RDSO vendors for Developmental Order) with RDSO specification and if the cost of the material is over Rs. 5 Lakh, the inspection shall be carried out by RDSO. The inspection charges shall be paid by Contractor to Inspecting agencies & are to be included in quoted rates. |
| iv  | Inspection in respect of order above Rs.5 lakh, not done by RDSO, will be got done by RITES, subject to supplies being from sources listed by RDSO.                                                                                                                                                                                                                          |
| v   | Materials which are to be supplied as per RDSO spec. are to be procured from RDSO Listed Firms/ Suppliers(RDSO approved vendors and RDSO vendors for Developmental Order). Materials which are to be supplies as per TEC/BSNL spec. are to be procured from TEC/BSNL approved suppliers. Items which are not inspected by RDSO/RITES shall be inspected by Consignee.        |
| vi  | Current RDSO/TEC specifications are mentioned here. However, while procuring only the LATEST RDSO/TEC SPECIFICATION will prevail and material to be supplied & inspected as per latest specifications.                                                                                                                                                                       |
| vii | Design, Supply, Installation, Testing and Commissioning of the Signalling & Telecom system shall be planned and to be executed as per to Suit 25 KV RE.                                                                                                                                                                                                                      |

**BILL OF QUANTITY**

| S. No.                                       | Description                                                                                                                                                                                                                                                                                                                    | Unit  | Qty | Rate (In Rs) | Amount (In Rs) |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|--------------|----------------|
| <b>Schedule A (Supply-Telecommunication)</b> |                                                                                                                                                                                                                                                                                                                                |       |     |              |                |
| <b>1</b>                                     | <b>IP ready ISDN Exchange</b>                                                                                                                                                                                                                                                                                                  |       |     |              |                |
| 1                                            | Supply of IP Communication server system with PSU & CPU duplicate in Hot standby mode as per technical specification of Indian Railways Circular No. 2022/Tele/9(3)4 dated 22/09/2022 & latest amendment if any. It shall have conferencing 1x30 party. Each system should be supplied & equipped with minimum.                | Set   | 1   | 54,32,648.10 | 54,32,648.10   |
| a                                            | Analog extension with CLI and message waiting indication support                                                                                                                                                                                                                                                               | Ports | 352 |              |                |
| b                                            | Digital Extension                                                                                                                                                                                                                                                                                                              | Ports | 16  |              |                |
| c                                            | ISDN PRI/ EI Trunks                                                                                                                                                                                                                                                                                                            | Ports | 60  |              |                |
| 2                                            | Supply of Digital/IP phone, Hands free (full duplex) with 2 line graphical display monochrome                                                                                                                                                                                                                                  | Nos   | 16  | 21,439.86    | 3,43,037.70    |
| 3                                            | Supply of Electronics push button CLIP Telephone                                                                                                                                                                                                                                                                               | Nos   | 50  | 1,591.35     | 79,567.51      |
| 4                                            | Supply of Pulse/tone switchable push button Telephone set with Redial, Mute, Pause, Flash Tone/Pulse Facility as per TEC Spec. GR/TEL-02/04 Sept 02 with Amendment 2 including latest amendments.                                                                                                                              | Nos   | 300 | 950.00       | 2,85,000.00    |
| 5                                            | Supply of IP Communication Server-Self Survivable office/Gateway exchange system with redundant / spare power supply as per technical specification of Circular No. 2022/Tele/9(3)4 dated 22/09/2022 & latest amendment if any. It shall have conferencing 1x30 party. Each system should be supplied & equipped with minimum. | Set   | 4   | 1,49,494.20  | 5,97,976.80    |
| 6                                            | Analog extension with CLI and message waiting indication support                                                                                                                                                                                                                                                               | Ports | 32  | 3,646.20     | 1,16,678.40    |

*[Handwritten Signature]*  
29/08/2024  
3

| S. No. | Description                                                                                                                                                                                                                                                                                                                                                                                      | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| 7      | Supply of 8 port 10/100 layer-2 switch on Digilink, D-Link & Digisole or similar standard reputed make.                                                                                                                                                                                                                                                                                          | Nos  | 4   | 2,916.96     | 11,667.84      |
| 8      | Supply of Routers as per attached technical specification attached from RDSO approved source Cisco, Juniper, Nortel (Ayaya), HP Make.                                                                                                                                                                                                                                                            | Set  | 1   | 4,53,293.00  | 4,53,293.00    |
| a      | Router should equipped for 4 Nos. GE (Giga ethernet) ports (10/100/1000 mbps) with sufficient slotsfor additional WAN & service modules.                                                                                                                                                                                                                                                         |      |     |              |                |
| b      | Router should support inbuilt redundant power supply                                                                                                                                                                                                                                                                                                                                             |      |     |              |                |
| c      | Router should equipped for additional 4 fast ethernet (10/100 mbps) port                                                                                                                                                                                                                                                                                                                         |      |     |              |                |
| d      | Router should equipped for 4 Nos G703 EI ethernet                                                                                                                                                                                                                                                                                                                                                |      |     |              |                |
| e      | Router should equipped for 8 Nos of EI ethernet                                                                                                                                                                                                                                                                                                                                                  |      |     |              |                |
| f      | Router should support at least 900 kbps throughout for 64 bytes packets                                                                                                                                                                                                                                                                                                                          |      |     |              |                |
| 9      | a) Supply of IP DSLAM having min 10 slots with Gigabit Backplane & 2 Slots for Management Cards, Remaining 8 slots (hot swappable) for Line cards, with Dual Failover DC Power Supply<br>NOTE: This includes necessary software of NMS/EMS and Hardware (server) (1 No. for each set) as per specification enclosed.<br>(Note:- All the items given in 8.1 should be of Make: Zyxel or similar). | Set  | 1   | 7,46,013.00  | 7,46,013.00    |
| a      | b) Supply of Management Switching Cards or equivalent Redundant (2 Nos for each set)                                                                                                                                                                                                                                                                                                             |      |     |              |                |
| b      | c) Supply of Hot swappable 48 port(min) ADSL2/ADSL2+ Annex A Line Card for the Chassis.                                                                                                                                                                                                                                                                                                          |      |     |              |                |
| c      | d) Supply of Min 16 Slot Splitter Chassis to connect with main chassis for POTS facility (1 No. for each set).                                                                                                                                                                                                                                                                                   |      |     |              |                |
| d      | e) Supply of Min 24-port Splitter Card for Splitter Chassis (2 nos for each set) .                                                                                                                                                                                                                                                                                                               |      |     |              |                |
| e      | Supply of Telco 50-to- Telco 50 cable. Make- Zyxel or similar                                                                                                                                                                                                                                                                                                                                    |      |     |              |                |
| f      | Telco 50-to-open ended cable. Make- Zyxel or similar                                                                                                                                                                                                                                                                                                                                             |      |     |              |                |
| g      | Supply of ADSL2+ Router (CPE) with POTS splitter and 802.11b/g Wi-fi system Make zyxel or similar.                                                                                                                                                                                                                                                                                               |      |     |              |                |
| 10     | ADSL Router Zyxel P-660HNU-F1                                                                                                                                                                                                                                                                                                                                                                    | Nos  | 50  | 2,707.28     | 1,35,363.85    |
| 11     | Supply & Installation of Exora - 08 with one IDU Exora PS, 4x2.4Ghz Dual RF prot sectoral smart antennas with minimum two meters RF cable, One 6 Ghz External Antena, Minimum 25M POE cable & all requirement mounting accessories etc as per site requirement to complete the work by all respect.                                                                                              | Set  | 2   | 5,90,684.40  | 11,81,368.80   |
| 12     | Supply of Exora- 01/10dBi comes with built in 2.4Ghz, 10 dBi patch antenna DC injector, AC adapter, Table stand & wire clamp etc as per site requirement to complete the work by all respect.                                                                                                                                                                                                    | Set  | 16  | 16,529.44    | 2,64,471.04    |



| S. No. | Description                                                                                                                                                                                                                                                                                                                                                                                                   | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| 13     | Supply & installation of Media conversion kit of standard reputed make.<br>The media converter shall work on single fibre with SC type fibre port preferably.<br>Required power supply module (AC to DC adaptor) shall also be supplied.<br>Sample shall be approved from Consignee/ Engineer In charge before supply.                                                                                        | Nos. | 2   | 10,652.00    | 21,304.00      |
| 14     | Supply & installation of Ethernet radio of 5.8 GHz spectrum band with TDM and Ethernet, EI's /T1's as per technical specification                                                                                                                                                                                                                                                                             | Pair | 2   | 2,28,616.74  | 4,57,233.48    |
| 15     | Supply of 24port 10/100 Layer 2 switch of standard make as per specification given in Annexure - B; This item shall have a minimum 2 Nos. 10GBase-T ports and 2 nos. 10G SFP+ port loaded with optical SFP module suitable for SM, single fibre as per RDSO Spec No. RDSO/SPN/TC/83/2020 Rev.2, amendment 1 or later. Make Cisco OR Extreme OR Juniper OR better model.                                       | Nos. | 2   | 24,308.00    | 48,616.00      |
| 16     | Supply of 2MBPS Modem.<br>This item shall be 2 Mbps GSHDSL with four port with Line Protection Module and Dual Mode Power Supply i.e. 230 V AC & 48 V DC confirming to CSTE Central Railway, Specification No. CR/SPN/T/ 80/2015 Rev. 0.0 or make Cygnus or ATIRE 5300 or Dax OR better model.                                                                                                                | Pair | 4   | 79,001.00    | 3,16,004.00    |
| 17     | Supply managable LAN extender, 2 MBPS of standard reputed make                                                                                                                                                                                                                                                                                                                                                | Pair | 4   | 16,772.52    | 67,090.08      |
| 18     | Supply of E-1 to Ethernet convertor as per tech specification.                                                                                                                                                                                                                                                                                                                                                | Nos. | 4   | 12,518.62    | 50,074.48      |
| 19     | Supply and installation of Maintenance free earth as per RDSO specification no. RDSO/SPN/197/2008 consisting of single earth pit which includes supply of 35 mm <sup>2</sup> multistrand single core PVC insulated copper cable as per IS 694 for connecting main earth electrode to MEEB in the equipment room in duplicate as per manufacturer's recommendations and as per RDSO specifications as follows: | Set  | 2   | 47,786.12    | 95,572.23      |
| i      | Copper bonded steel electrode of 3 meters long, 17mm diameter with copper bonding thickness of minimum 250 microns and UL listed and marked : 1 Nos.                                                                                                                                                                                                                                                          |      |     |              |                |
| ii     | Earth enhancement compound of RDSO approved brand supplied in sealed bag of minimum 10 KG : 3 Nos.                                                                                                                                                                                                                                                                                                            |      |     |              |                |
| iii    | Copper strip of 150mm x 25mm x 6mm to terminate earth rod: 1 Nos.                                                                                                                                                                                                                                                                                                                                             |      |     |              |                |
| iv     | Copper strip of 300mm x 25mm x 6mm (MEEB): 1 No.                                                                                                                                                                                                                                                                                                                                                              |      |     |              |                |
| v      | Copper strip of 150mm x 25mm x 6mm (SEEB): 1 No.                                                                                                                                                                                                                                                                                                                                                              |      |     |              |                |
| vi     | Digging/Auguring/Boring of Single earth pit of 100 mm to 125 mm dia to the depth of approximate 2.8 Meter.                                                                                                                                                                                                                                                                                                    |      |     |              |                |
| vii    | Insertion of 3 Meter Electrode & penetrating it at least 0.2 Mtr. by pushing gently with sledge hammer where the neutral soil is assumed.                                                                                                                                                                                                                                                                     |      |     |              |                |
| 20     | <b>POWER SUPPLY</b>                                                                                                                                                                                                                                                                                                                                                                                           |      |     |              |                |


  
 805

| S. No.    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Unit | Qty  | Rate (In Rs) | Amount (In Rs) |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|--------------|----------------|
| 20.1      | Supply of SMPS based FRBC as per RDSO specn RDSO/SPN/TL/23/99 ver 4.0 Amdt-1 with latest amendment for Telecom use 48 V DC/ 50 Amps in N+2 Configuration of SMPS modules (using 4 modules of 25A).                                                                                                                                                                                                                                                                                                                                                                                                                             | Nos  | 2    | 1,10,315.00  | 2,20,630.00    |
| 20.2      | Supply of SMF-VRLA battery set of rating 48V/200AH pre-charged complete with intercell connectors consisting of 24 cells of 2V 200AH each as per RDSO spec. IRS:S-93/96(Amdt 1) with latest amendment. This includes supply of all necessary interconnecting cables & connectors.                                                                                                                                                                                                                                                                                                                                              | Set  | 2    | 1,20,529.00  | 2,41,058.00    |
| <b>21</b> | <b>CABLES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |      |              |                |
| 21.1      | Supply of PVC switch board cable 20 Pair twisted, conductor of size 0.63 mm Dia annealed copper confirming to IRS-TC-24/91 or ITD 1138                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mtr  | 1000 | 176.82       | 1,76,822.78    |
| 21.2      | Supply of PVC switch board cable 10 Pair twisted, conductor of size 0.63 mm Dia annealed copper confirming to IRS-TC-24/91 or ITD 1138                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Mtr  | 500  | 89.27        | 44,634.88      |
| 21.3      | Supply of PVC switch board cable 5 Pair twisted, conductor of size 0.63 mm Dia annealed copper confirming to IRS-TC-24/91 or ITD 1138                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Mtr  | 500  | 66.00        | 33,000.00      |
| 21.4      | Supply of Polythene Insulated Polythene Sheathed Jelly filled telephone cable 50 pair of size 0.63 mm with Poly-Al Moisture Barrier as per RDSO Specn. No. IRS:TC-4197 Amdt. 3 including latest amendments.                                                                                                                                                                                                                                                                                                                                                                                                                    | Km   | 2    | 3,97,788.96  | 7,95,577.92    |
| 22        | Supply of 50 pair Krone Box of Thermoplastic enclosure with polystyrene base and polycarbonate full transparent hinged lid, with single stainless steel screw operation for opening the lid. That SS screw should have facility of sealing. The enclosure should have IP 65 degree of protection accordance to IEC 60529, dust proof, water tight, light weight, corrosion proof, insulated and shock proof, flame retardant, self extinguishing, Halogen & Silica free non-toxic material with a facility of metric knockouts from top and bottom with internally embedded gasket made of Polyetherene. Make- Rittal, Hensel. | Nos  | 6    | 9,263.45     | 55,580.72      |
| 23        | Supply of 20 pair Krone Box of Thermoplastic enclosure with polystyrene base and polycarbonate full transparent hinged lid, with single stainless steel screw operation for opening the lid. That SS screw should have facility of sealing. The enclosure should have IP 65 degree of protection accordance to IEC 60529, dust proof, water tight, light weight, corrosion proof, insulated and shock proof, flame retardant, self extinguishing, Halogen & Silica free non-toxic material with a facility of metric knockouts from top and bottom with internally embedded gasket made of Polyetherene. Make- Rittal, Hensel. | Nos  | 8    | 6,204.25     | 49,633.98      |
| 24        | Supply of 10 pair Krone Box of Thermoplastic enclosure with polystyrene base and polycarbonate full transparent hinged lid, with single stainless steel screw operation for opening the lid. That SS screw should have facility of sealing. The enclosure should have IP 65 degree of protection accordance to IEC 60529, dust proof, water tight, light weight, corrosion proof, insulated and shock proof, flame retardant, self extinguishing, Halogen & Silica free non-toxic material with a facility of metric knockouts from top and bottom with internally embedded gasket made of Polyetherene. Make- Rittal, Hensel. | Nos  | 10   | 4,872.07     | 48,720.68      |

306

*[Signature]*  
29/08/2014

| S. No. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| 25     | Supply of PVC Conduit pipe 25 mm dia (ISI mark) with accessories such as bend, tee, coupling, elbow, saddle clamp, wood screw, PVC/wooden plugs etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Mtr  | 500 | 29.18        | 14,592.17      |
| 26     | Supply & installation of Thermo shrink jointing kit for jointing underground 6 Quad cable (Straigh through joint as per specn no. IRS:TC 77/2012 (Rev 3.0) with latest amendment where VF transformer not required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Nos  | 4   | 4,872.07     | 19,488.27      |
| 27.0   | Supply of Thermoshrink jointing kit for Jely filled PIJF cable conforming to RDSO Spec. IRS:TC-57/2006(Rev 0) with latest amendment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Nos  | 10  | 4,872.07     | 48,720.68      |
| 28     | Supply of PVC Channel of size 50x50 mm along with all required accessories of precesion, Garware make or similar standard make.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Mtr  | 200 | 74.00        | 14,800.00      |
| 29     | Supply of PVC casing & caping of size 50x50 mm along the walls, roofs etc & laying of cables through it as per the route given by Site Engineer of Railway.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Mtr  | 200 | 65.00        | 13,000.00      |
| 30     | <b>OFC TRANSMISSION SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |      |     |              |                |
| 30.1   | Supply of 2MB programmable primary digital drop/insert Multiplexer with conference facility as per technical specifications IRS:TC-68/2012 with latest amendments with other stipulations of tender document, fully wired for 30 channels complete with power supply unit, remote control supervision facility & all other accessories, technical manuals etc.<br><br>The MUX shall be equipped with following Interface Cards:<br>1) E&M Interface card (4 Circuits per card):Qty 04<br>2) Subscriber Interface Card (4 Circuits per card):Qty02<br>3) Exchange Loop Interface Card (4 Circuits per card):Qty01<br>4) G.703 64kbps Data I/f card (4 Circuits per card):Qty01<br>5) V.24 low speed (UDT) data interface card (4 Circuits per card):Qty01 | No.  | 1   | 2,54,545.02  | 2,54,545.02    |
| 30.2   | Supply of maintenance portable terminals including associated software( <b>for STM</b> ) as per technical specifications complete with all accessories. It should be possible to plug in the maintenance portable terminal at any of the stations to be programmed for any network element from any location of network and read the full status of any element in the network from maintenance portable terminal.                                                                                                                                                                                                                                                                                                                                       | No.  | 1   | 1,29,074.00  | 1,29,074.00    |

  
 29/08/2019

| S. No. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| 30.3   | Supply of SDH Add/Drop MUX(STM-1) for main stream at long haul locations as per TEC specification No. GR/SDH-04/04 January 2011 or latest amendment with L-1.1 Optical Interface and as per technical requirements for OFC system , equipped with 21 E1s(including engineering Order-Wire), expandable upto 63 E1s capacity, simply by addition of E1 cards, fully wired, cross connect granularity at VC-12, VC-3 & VC-4 levels, aggregate interface, with one Ethernet interface card supporting minimum four 10/100 Base T Ethernet port, power unit, sub-racks, installation materials with all other accessories and technical manuals etc. The SDH equipment shall be TEC(TSEC)/RDSO approved. | No.  | 1   | 2,71,608.23  | 2,71,608.23    |
| 30.4   | Supply of Surge Suppressor for all the 30 circuits derived from primary MUX's (Z-protection) complete as per latest RDSO spec . Make- OBO/ Phoenix/ Finder/ Dehn.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Set  | 1   | 50,750.00    | 50,750.00      |
| 30.5   | Supply of 19" 32 U Telecom Covered racks President/Rittel or similar make with glass front door complete with all fittings and accessories for housing SDH equipments, primary Muxs, DDF, MDF, using krone module and other equipments like runway ladders etc., completely wired and equipped for all channels as per technical specifications and other stipulations of tender document. It should be possible to lock all the equipments with only order wire telephone remaining outside the rack.                                                                                                                                                                                               | No.  | 1   | 56,591.72    | 56,591.72      |
| 30.6   | Supply of 24 fibre Armoured Optic fibre Cable as per spec. IRS:TC:55/2006 Rev-1 Amd. 2 or with latest amendment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | KM   | 2   | 1,28,523.09  | 2,57,046.18    |
| 30.7   | Supply of loose tube pigtail with FC-PC connector at one end each of minimum 10 mtrs. Length as per TEC Specification No. G/OFJ-01/03 JUN 99(with latest amendment) compatible with STM given above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Nos  | 20  | 1,715.36     | 34,307.14      |
| 30.8   | Supply of Electronic Cable Route Tracer/Locator with High Power 12W Transmitter for effective long distance locating, 4 Active Locating Frequencies (577Hz, 8kHz, 33kHz, 200kHz), depth range up to 3 meter, Passive Power Frequency, Current and resistance measurement in both transmitter and receiver, Super Induction mode, with capability of Electronic Marker locating (both Passive and RFID) and sheath fault locating in a single equipment , allows software to be downloaded from website, weight less than 2.5 kgs for Transmitter as well as Receiver, Signal Current Measurement in cable.(Model – 2273M)<br>( HSN Code – 90319000)                                                  | Nos  | 1   | 5,39,895.39  | 5,39,895.39    |
| 30.90  | Supply and installation of RFID Electronic Ball Marker similar to 3M make model no.1421-XR/ID with orange colour for underground S&T cables (To be installed directly as per instruction of Railway Engineer) programmable memory for saving user data in side the RFID, Electronic marker memory chip. Later readable by Electronic marker locator during locating (10cm diameter with floating coil horizontal placement for better detection). This can be buried up to depth of 5 Ft. for Signaling & Telecom cables - Orange color. (HSN Code – 90319000) and to be inspected by RITES.                                                                                                         | Nos  | 80  | 4,425.00     | 3,54,000.00    |
| 31     | DUCTS AND ACCESSORIES FOR OFC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |     |              |                |



908

| S. No.                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Unit | Qty  | Rate (In Rs) | Amount (In Rs)        |
|-------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|--------------|-----------------------|
| 31.1                                            | Supply of HDPE duct 40/33 mm permanently lubricated in lengths of 1000 Mtrs and accessories including end caps for every drum length as per RDSO spec. No. RDSO/SPN/TC/45/2013 Rev.-2.0 Amdt.-2.0 including latest amendment. This includes the loading, unloading and transportation at the site of work. This also includes supply of HDPE Duct Accessories like 2(two) END PLUG, 2 (two) Cable sealing plug and 2 (two) Plastic coupler-slip fit push type for every KM of HDPE supplied.                                                      | Mtr  | 2000 | 114.86       | 2,29,718.54           |
| 31.2                                            | Supply of OFC Joint Enclosure for straight through joint with modification for 24 fibre OFC as per RDSO specification with latest amendment.                                                                                                                                                                                                                                                                                                                                                                                                      | Nos  | 5    | 5,543.31     | 27,716.54             |
| <b>32</b>                                       | <b>VHF COMMUNICATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |      |              |                       |
| 32.1                                            | Supply of Digital TDMA (2 slots) based Fixed/Mobile Radio, synthesized transceiver with display, operating in 136-174 MHz frequency Band, 25 Watt with Fst Mic, Power Cable, 160 channels comprising of Ruggedised body meeting IP 54 standard with Channel Announcement Features. This shall include 0 dB Ground Plane VHF Antenna with UHF female connector, 30 mtr RG-213 RF cable with connectors, 12 V DC Power Supply Unit 10 Amp with battery revert & BNC Male to UHF female Connector. MAKE of VHF sets shall be: MOTOROLA/KENWOOD/ICOM. | Nos  | 4    | 75,000.00    | 3,00,000.00           |
| 32.2                                            | Supply of VRLA Maintenance free battery of 12V/75 AH.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Nos  | 4    | 65,000.00    | 2,60,000.00           |
| <b>TOTAL SUPPLY (Sch-A-TELECOMMUNICATION) =</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |      |      |              | <b>1,52,44,493.15</b> |

#### Schedule B (Installation-Telecommunication)

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      | <b>General Note:-</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| i    | For trenching, cable laying, provision of RCC/DWC/GI/RCC hume pipe/ HDD method for track/ road/ platform/ culvert/ bridge etc. to be followed as specified in tender documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ii   | All the surfaces shall be repaired and brought back to its original condition, as the case may be.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| iii  | The standard ratio of cement, sand, 25mm stone chip shall be 1:3:6 respectively, wherever concreting is involved and curing of concreting to be done by the contractor atleast for 15 days.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| iv   | All the sundry materials will be provided by the contractor at site like:- cement, sands, bricks, 15-25 mm or 1" stone chips for concreting, nuts, bolts, washers, sal wood shelves planks, S.W. strips, hylam sheet of thickness 6 mm, ferrules, anti corrosive/Red oxide/ Weather proof/Acid proof paint, MS plates/ angles/ flats, anchor(foundation) bolts, MS clamps, screws, eyelets, PVC bunching tape, buttons, condensor, resistance, varnish, fevicol, soldering/ welding material, copper lug, charcoal, salt, salmoniac, 6 SWG GI- wire, speed board, screen with MS frame, MS pin, boss pin, 6mm rivet, split pin, angle cleats to Drg No. 22859/T/SE, 1" dia GI pipe, 6/8- SWG soft bond wire, flexible wire, channel pin, heat shrinkable tape, suitable compound for fixing lead wire, 1.5" GI/HDPE pipe, 3/4" thick sal wood boards, transparent sheet for box, lock for box make Godrej or similar, insulated strip, sulphuric acid, distilled water, cup board, sunmica, cable fixing clamps, nylon rope, HDPE couplers and end caps, rotary duct cutter, power sockets, plugs, connectors etc. so as to complete the individual job as per schedule description. |
| v    | All the materials of Supply Schedule will be got issued by the contractor from stores and transported to the site as per the requirement. Rest all sundry materials will be supplied by contractor at site to complete the execution of work.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| vi   | The contractor has to conduct detailed site survey of the cable route, prepare a plan to get approval of the Railway, putting white lime powder marking before excavation of earth under supervision of railway/employer's authorized representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| vii  | GI-Pipes to be supplied by the contractor must be as per specification IS 1239, Pt-1, 1979 (grade medium).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| viii | Any charges required to be paid to site PWD/ Municipal authority to be borne by the contractor for cutting of public roads etc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ix   | Guarding of cables/ HDPE pipe, relaying of cables/ HDPE pipe and rejoining of cable / HDPE pipe in case of thefts or otherwise to be borne by the contractor at his own cost till commissioning.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

  
 Regn. No. 55-0171  
 009

| S. No.  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| Sl. No. | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
| 1       | <b>Trenching &amp; Laying of Cables</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |              |                |
| 1.1     | Supply and installation of Fibre Distribution Management system (24 F) complete with all accessories as per RDSO spec. no. RDSO/SPN/TC/37/2000 Rev. 3 (with latest amendment) suitable for termination of two numbers of 24 fiber OFC at Repeater station/ cable hut in 19" rack and splicing of fiber with pigtail as per specification. This includes testing of OFC cable. (All items required for execution of work shall be supplied by the contractor)                                                                                                             | Nos  | 2   | 37,372.14    | 74,744.27      |
| 1.2     | Trenching upto depth of 1200mm with 300mm wide base at bottom of trench including clearing of roots bushes etc in all types of soil (Normal, hard, black cotton, morrum, soft rock, hard soil mixed with boulders) and backfilling after laying of HDPE pipe/OFC cable and 6 quad/ PIJF cable etc. at 1200mm & 1000mm depth respectively as per approved Drg. Ramming and consolidation of soil in trenches as well as disposal of extra soil if any.                                                                                                                    | Km   | 1.5 | 1,31,714.03  | 1,97,571.05    |
| 1.3     | Supply & fixing of Perforated GI pipe of 80mm/75mm outer/internal dia as per arrangement shown in Drg. No. CORE/S&T/ALD/SK/589/2007 for protection of OFC and 6 quad cable separately at culverts/ Bridges/ Girder Bridges or as advised by Engineer in charge including cutting, suitably concreting at both ends, GI clamps, flats etc. All materials to be supplied by Contractor. The work shall be done as per instruction of Engineer. (Required HDPE pipe shall be procured through separate item of contract and supplied to contractor for execution of works.) | Mtr  | 60  | 3,016.94     | 1,81,016.64    |
| 1.4     | Transportation & Laying of HDPE duct in the trenches and in the protective works already provided including in HDD portion and supply pulling of Nylon rope through it at different places as per direction of engineer in charge or site engineer.                                                                                                                                                                                                                                                                                                                      | Km   | 2   | 9,504.15     | 19,008.30      |
| 1.5     | All work pertaining to Horizontal Directional Drilling(HDD)/Boring using machine and trenchless cabling. It includes supply, transportation and insertion of self lubricated HDPE Pipe(inner dia 103.5mm and outer dia 120mm) and laying of cables in boring under the track/road by using HDPE pipes. The depth of horizontal boring should be min. 1m from rail flange/road level.                                                                                                                                                                                     | Mtr  | 75  | 1,839.00     | 1,37,925.00    |
| 1.6     | Cutting the masonry wall to the depth of 0.25 M to 0.75 M at the entry of room placing of flexible HDPE Pipe or GI Pipe (including supply) of suitable size as per instructions of site incharge and repairing of masonry wall and cement plastering after the cable is taken inside the flexible HDPE pipe/GI Pipe with clamps as per drawing no. RE/S&T/ALD/SK/161/81.                                                                                                                                                                                                 | Nos  | 2   | 774.14       | 1,548.28       |
| 1.7     | Masonry chase cutting 3/2" x 3/2" at the work site, transport of 5/10/20/50 pair indoor, PVC switch board cable from the stores to the work site and drawal of same in HDPE/ flexible HDPE pipe of suitable dia placed on the chase and covering/replastering the chase with cement after drawal of cable. HDPE/flexible HDPE pipe of suitable dia to be supplied by the contractor.                                                                                                                                                                                     | Mtr  | 50  | 275.32       | 13,766.10      |
| 1.8     | Supply and laying of RCC pipe of 150 mm dia, 2 meter in length, at places under track and road, Level crossing gate, platforms near FP for protection of OFC & Quad or OFC or 6 Quad cable/PIJF cable to be laid.                                                                                                                                                                                                                                                                                                                                                        | Mtr  | 200 | 756.33       | 1,51,265.13    |



| S. No.   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| 1.9      | Supply and transportation and PVC channel of suitable size and laying of 5/10/20/50 pair indoor cable including transportation of cables from the store to the work site. This includes fixing of channel on wall and drawal of one or more cable inside the channel. Only cable will be supplied by employer                                                                                                                                                                                                                                                                                                                                                                                                                  | Mtr  | 300 | 22.00        | 6,600.00       |
| <b>2</b> | <b>OFC SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |     |              |                |
| 2.1      | Blowing/drawing of OFC cable in the HDPE pipe duct and in protective works already provided. This includes transportation, loading/unloading of OFC from the stores to the work site with care, sealing of the duct by sealing/caps plugs. This also includes testing of cable drums in the store premises before transportation and submissions of results thereof. The cable drums with unused cable at site to be returned by the contractor from site to stores depot.                                                                                                                                                                                                                                                     | Km   | 2   | 16,529.04    | 33,058.07      |
| 2.2      | Transportation, installation of optical fibre joint enclosure and splicing of Optical fibre cable (24 fibres) and testing, Optical fibre cable splicing shall be done in the presence of IRCON's representative. Only joint closure shall be issued by IRCON. All other tools/ test equipments required shall be arranged by the contractor. This also includes excavation of earth for construction of masonry pit of bricks (inside complete plastered), the inner size of pit 1.2m x 1.2m (depth 0.75 m) in all types of soils for keeping cable coils at the location of OFC joints, filling the pit with sand after jointing of cables, ramming and covering with RCC slab as per instructions of site incharge of IRCON. | Nos  | 5   | 19,176.19    | 95,880.96      |
| 2.3      | Installation, wiring, testing and commissioning of Primary digital drop insert Multiplexer, SDH add/Drop Multiplexers(main stream) with all accessories and power supply connection, surge and lightning protection arrangement, racks including indoor Krone box, ladder etc. in cable hut including wiring of all the equipments upto Krone/CT Box of outdoor quad/ derivation cables.                                                                                                                                                                                                                                                                                                                                       | Nos  | 1   | 35,358.69    | 35,358.69      |
| <b>3</b> | <b>Power Supply</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |     |              |                |
| 3.1      | Installation and commissioning of battery chargers and battery at each installation. This includes supply and provision of Aluminium ladder, DC power supply distribution system and protection arrangement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Nos  | 2   | 2,028.95     | 4,057.89       |
| <b>4</b> | <b>VHF</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |      |     |              |                |
| 4.1      | Installation, wiring, testing and commissioning of 25W VHF set including supply and fixing of Antenna Tower (6m long 100mm dia B Class GI pipe as per spec. no. IS1239 PT.1/2004 with sockets & fittings along with support and clamps) on top of roof of station building as supplied under supply schedule complete with all required material. Also, supply & installation of lightning arrestors to be mounted on GI Pipe as per advise of IRCON/Railway Engineer at site.                                                                                                                                                                                                                                                 | Nos  | 4   | 11,493.06    | 45,972.23      |
| <b>5</b> | <b>Jointing of Cable</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |     |              |                |
| 5.1      | Transportation and execution of joints on Quad cable/PIJF cable using Themoshrink jointing kit (with installation of VF transformer wherever required and advised by Engineer in Charge). This also includes excavation of cable joint pit of size 1.2mx1.2mx1.0m in all types of soil for jointing of copper cables, backfilling and ramming after jointing.                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 10  | 1,870.09     | 18,700.92      |
| <b>6</b> | <b>Installation of IPDSLAM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |     |              |                |



011

| S. No.                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Unit | Qty  | Rate (In Rs) | Amount (In Rs)      |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|--------------|---------------------|
| 6.1                                                  | Installation, Testing and Commissioning of the total IP DSLAM system including NMS & UPS and all accessories at the Exchange side.                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Nos  | 2    | 41,622.20    | 83,244.41           |
| 6.2                                                  | Installation, Testing and Commissioning of ADSL Modem at the Subscriber end.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Nos  | 100  | 385.45       | 38,545.08           |
| 6.3                                                  | Installation, Testing & Configuration of above core router item No. 3 of Schedule C and other routers to the satisfaction of Railway.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Nos  | 1    | 32,500.00    | 32,500.00           |
| 6.4                                                  | Installation and configuration of the above Wi-Fi equipment at various locations as per instruction of Site Engineer of Railway.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Nos  | 2    | 25,000.00    | 50,000.00           |
| 7                                                    | <b>Exchange</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |              |                     |
| 7.1                                                  | Installation, testing and commissioning of Main Communication Exchange in Schedule C- Item No. 1 (a-c) with all accessories including MDF, cables, Software, etc. by OEM's authorised representative.                                                                                                                                                                                                                                                                                                                                                                                          | Set  | 1    | 40,000.00    | 40,000.00           |
| 7.2                                                  | Installation, wiring, testing and commissioning of self survival Exchange system                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Set  | 4    | 10,000.00    | 40,000.00           |
| 8                                                    | <b>Cable Termination and laying</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |      |              |                     |
| 8.1                                                  | Fixing of 50 pair Krone Box and termination of cable as per site requirement inclusive with supply of fixing material such as nut & bolts, at SM building, LC Gates, Cable Huts, etc as per instruction of Engineer in Charge.                                                                                                                                                                                                                                                                                                                                                                 | Nos  | 6    | 1,543.42     | 9,260.54            |
| 8.2                                                  | Fixing of 20 pair Krone Box and termination of cable as per site requirement inclusive with supply of fixing material such as nut & bolts, at SM building, LC Gates, Cable Huts, etc as per instruction of Engineer in Charge.                                                                                                                                                                                                                                                                                                                                                                 | Nos  | 8    | 1,034.89     | 8,279.09            |
| 8.3                                                  | Fixing of 10 pair Krone Box and termination of cable as per site requirement inclusive with supply of fixing material such as nut & bolts, at SM building, LC Gates, Cable Huts, etc as per instruction of Engineer in Charge.                                                                                                                                                                                                                                                                                                                                                                 | Nos  | 10   | 813.01       | 8,130.10            |
| 8.4                                                  | Fixing of PVC conduit pipe 25 mm dia (ISI mark) with accessories such as bend tee, coupling, elbow, saddle, clamp, wood screw, PVC/Wooden plugs etc. on the wall angle or rail run of platform shelter etc. MS clamp made of 3mm thick MS flat to be manufactured and supplied and fixed to clamp the PVC pipe on angle rail run of platform shelter. The above clamp should be painted with red oxide primer over which two coats of aluminium paint to be given. Where ever necessary, jumper holes to be made in wall and above PVC pipe threaded and wall plastered to original condition. | Mtr  | 500  | 14.58        | 7,287.93            |
| 8.5                                                  | Laying, testing and commissioning of PVC covered twin twisted screened cable/ UTP cable/ switchboard cable, etc. (in PVC conduit pipe/GI Pipe etc.)                                                                                                                                                                                                                                                                                                                                                                                                                                            | Mtr  | 2000 | 42.11        | 84,216.13           |
| <b>TOTAL EXECUTION (Sch-'B'-TELECOMMUNICATION) =</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |      |      |              | <b>14,17,936.80</b> |

#### **Schedule E (Supply, Installation and commissioning of Electronics Surveillance System)**

|     |                                                                                                                                                                                              |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <b>General Note:-</b>                                                                                                                                                                        |
| i   | For trenching, cable laying, provision of RCC/DWC/GI/RCC hume pipe/ HDD method for track/ road/ platform/ culvert/ bridge etc. to be followed as specified in tender documents.              |
| ii  | All the surfaces shall be repaired and brought back to its original condition, as the case may be.                                                                                           |
| iii | The standard ratio of cement, sand, 25mm stone chip shall be 1:3:6 respectively, wherever concreting is involved, and curing of concreting to be done by the contractor atleast for 15 days. |

| S. No.                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Unit | Qty | Rate (In Rs) | Amount (In Rs) |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|----------------|
| iv                                                    | All the sundry materials will be provided by the contractor at site like:- cement, sands, bricks, 15-25 mm or 1" stone chips for concreting, nuts, bolts, washers, sal wood shelves planks, S.W. strips, hylam sheet of thickness 6 mm, ferrules, anti corrosive/Red oxide/ Weather proof/Acid proof paint, MS plates/ angles/ flats, anchor(foundation) bolts, MS clamps, screws, eyelets, PVC bunching tape, buttons, condensor, resistance, varnish, fevicol, soldering/ welding material, copper lug, charcoal, salt, salmomiatic, 6 SWG GI- wire, speed board, screen with MS frame, MS pin, boss pin, 6mm rivet, split pin, angle cleats to Drg No. 22859/T/SE, 1" dia GI pipe, 6/8- SWG soft bond wire, flexible wire, channel pin, heat shrinkable tape, suitable compound for fixing lead wire, 1.5" GI/HDPE pipe, 3/4" thick sal wood boards, transparent sheet for box, lock for box make Godrej or similar, insulated strip, sulphuric acid, distilled water, cup board, sunmica, cable fixing clamps, nylon rope, HDPE couplers and end caps, rotary duct cutter, power sockets, plugs, connectors etc. so as to complete the individual job as per schedule description. |      |     |              |                |
| vi                                                    | The contractor has to conduct detailed site survey of the cable route, prepare a plan to get approval of the Railway, putting white lime powder marking before excavation of earth under supervision of railway/employer's authorized representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |     |              |                |
| <b>Schedule -"C"- Electronics Surveillance System</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |     |              |                |
| 1                                                     | <b>Type - Bullet Camera - Make :Hikvision Bullet CAMERA z mp DS -2 CD2T23G0-15 SPEC:- 1/2.8"</b><br>Progressive Scan CMOS 1920X 1020 30 fns7.8/4/fi/R mm fixed lens, Colour: 0.01 Lux @ (F1.2 ,AGC ON ),0.028 Lux @( F2.0 AGC ON ), 0 Lux with IR ,H with IR,H 265+, H.265,H264, Three streams ,120 db WDR,2 Behaviour analyse, and face detection ,BLC/3D DNR/ROI/HLC.IP67,build in micro SO/SDHC/SDXC card slot , upto 128 GB,3- Axis adjustment -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Nos  | 12  | 9,722.26     | 1,16,667.16    |
| 2                                                     | <b>Type - PTZ Camera - Make : Hikvision Bullet Camera 2 mp DS- 2DE5335IW - AE SPEC:-1/2.8</b><br>Progressive Scan CMOS, Up to 1920x 1080 (30 fps resolution,Miri. Illumination : color : 0.005 Lux @ ( F1.6,AGC,ON ) B/W : 0.001 Lux with IR, 25x optical zoom, 16x digital zoom,WDR,HLC,BLC ,3D DNR, Defog, EIS,Regional Exposure,Regional Focus ,up to 150 m IR distance,24 VAC & Hi PoE Support H.265 video compression ,Audio input/output ,Alarm input/output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Nos  | 6   | 56,234.38    | 3,37,406.26    |
| 3                                                     | <b>Type : NVR : Make :Hikvision NVR DS-7P32NI-K4SPEC:</b><br>up to 32 IP cameras can be connected .Recording at up to 9 MP resoluton, supports live view,storage,and playback of the connected camera at up to 8MP resolution up to 4 SATA interfaces connectable for recording and backup ,storage space effectively saved by 50% to 70% with the use of H.264- decoding format,HDMI and VGA independent outputs provided. HDMI vedio output at upto 4k ( 3840x 2160) resolution ,incoming bandwidth: 256 mbps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Nos  | 1   | 42,009.00    | 42,009.00      |
| 4                                                     | <b>POE SWITCH - Make : Hikvision POE SWITCH DS - 3E0510P-E SPEC :- 8+2ch 10/100/10001elea lan+1nnrt sfn unlink.l 2.unmanaged, switching capacity 20gbps,4K MAC address entries, IEEE802.3U/802.3AB/ x,store-and-forward switching</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 4   | 14,734.50    | 58,938.02      |
| 5                                                     | <b>STORAGE - MAKE:- SEAGATE HARDISK 60TB SURVEILLANCE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Nos  | 3   | 20,879.10    | 62,637.30      |
| 6                                                     | <b>RACK - RACL 62</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Nos  | 3   | 4,953.30     | 14,859.91      |

| S. No.                                                                               | Description                                                                                                                                                                                                                   | Unit | Qty | Rate (In Rs) | Amount (In Rs)        |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|--------------|-----------------------|
| 7                                                                                    | <b>CONNECTOR</b> - RJ45 DUNK                                                                                                                                                                                                  | Nos  | 60  | 12.30        | 737.79                |
| 8                                                                                    | <b>BACKUP</b> - UPS APC 600VA FOR REMOTE SITE                                                                                                                                                                                 | Nos  | 4   | 3,674.22     | 14,696.87             |
| 9                                                                                    | <b>BACKUP</b> - 3KVA APC ONLINE UPS WITH ACCESSORIES                                                                                                                                                                          | Nos  | 1   | 65,973.14    | 65,973.14             |
| 10                                                                                   | <b>BATTERY</b> - 42 AH BATTERY EXIDE/QUANTA                                                                                                                                                                                   | Nos  | 4   | 5,831.10     | 23,324.38             |
| 11                                                                                   | <b>DISPLAY MONITOR : MAKE : LG DISPLAY MONITOR 43LU640H SPEC (Or Similar): 1920*1080 (FHD) dynamic contrast ratio (dynamic MCI (HZ)),1000,000:1</b>                                                                           | Nos  | 1   | 43,755.78    | 43,755.78             |
| 12                                                                                   | LAN CABLE CAT6                                                                                                                                                                                                                | Nos  | 2   | 8,088.30     | 16,176.59             |
| 13                                                                                   | MOUNTING BOX - CAMERA MOUNTING BOX                                                                                                                                                                                            | Nos  | 12  | 2,445.30     | 29,343.56             |
| 14                                                                                   | <b>SWITCH : MAKE: edeecore ECS 4210 SPEC: L2 gigabit ethernet access switch, ethernet L2, access switches with upto 56gbps switching capacity. The switches deliver wire speed switching performance on all gigabit ports</b> | Nos  | 1   | 55,802.99    | 55,802.99             |
| 15                                                                                   | <b>FIBER</b> - OFC cable 6 core armord with all accessories and labour cost ( joint box , pillar, patch cord cable laying )                                                                                                   | Mtr  | 800 | 219.46       | 1,75,565.82           |
| 16                                                                                   | INSTALLATION - CAMERA INSTALLATION WITH ALL ACCESSORIES                                                                                                                                                                       | Nos  | 18  | 2,319.91     | 41,758.29             |
| 17                                                                                   | <b>SOFTWARE - software for remote live viewing (included)</b>                                                                                                                                                                 |      |     | -            | -                     |
| Total amount of Electronics Surveillance System (Including GST, In INR.) =           |                                                                                                                                                                                                                               |      |     |              | <b>10,99,652.87</b>   |
| Estimate for Technical Staffs ( Site Engineer, S & T) to be provided by Contractor = |                                                                                                                                                                                                                               |      |     |              | <b>3,47,814.00</b>    |
| Supply, installation & commissioning of systems, printers & plotter, etc. =          |                                                                                                                                                                                                                               |      |     |              | <b>42,21,622.60</b>   |
| Gross amount (Including GST, In INR.) =                                              |                                                                                                                                                                                                                               |      |     |              | <b>2,23,31,519.43</b> |



## Schedule - "D"

## Estimate for Technical Staffs

| Sl. No.                                     | Description           | Unit       | Number required | Months | Unit Rate (In `) | Total Amount (In `) |
|---------------------------------------------|-----------------------|------------|-----------------|--------|------------------|---------------------|
| 1                                           | Site Engineer (S & T) | Man-Months | 1               | 6      | 57,968.93        | 3,47,814.00         |
| Estimate rate per Month (Site Supervisor) = |                       |            |                 |        |                  | 57,968.93           |
| Total =                                     |                       |            |                 |        |                  | 3,47,814.00         |



| Sl. No.                                                                                                                                                                                                                                                                                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                        | Unit | Qty. | Rate Including GST (In INR.) | Amount (In INR.) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------------------------------|------------------|
| 1                                                                                                                                                                                                                                                                                                                                                                     | Drawing, Design & Estimation section                                                                                                                                                                                                                                                                                                                                                                               |      |      |                              |                  |
| a                                                                                                                                                                                                                                                                                                                                                                     | * <b>High end PC with Auto CAD software-</b> All-in-One PC 13th Gen Intel Core i7 27" (68.6cm) FHD 16GB RAM, 1TB SSD, Intel UMA Graphics, 710 White Wireless Keyboard and Mouse Combo (Windows 11 Home, MSO 21, Shell White, 6.72 Kg) 27-cr0403in (Make- HP or equivalent - As decided Engineer In-charge) (Note - The actual cost of AutoCAD software pricing of license shall be reimbursed from IRCON/Employer) | No.  | 1    | 1,07,988.00                  | 1,07,988.00      |
| b                                                                                                                                                                                                                                                                                                                                                                     | *Auto CAD drawing equipment ( Scanner with plotter A0 size) - 3EK15A HP DESIGNJET T2600DR 36-IN POSTSCRIPT Multifunction Printer (Dual Roller Printer), HP Thermal Inkjet Technology; (Make - HP or equivalent - As decided Engineer In-charge)                                                                                                                                                                    | No.  | 1    | 6,78,205.00                  | 6,78,205.00      |
| 2                                                                                                                                                                                                                                                                                                                                                                     | Desktop computer - 12th Generation Intel® Core™ i5 processor ,Windows 11 Home, Intel® UHD Graphics 730, 8 GB DDR4 RAM, 256 GB SSD Solid State Drive; 1 TB SATA HDD Hard drive, Wireless mouse & keyboard; 1 HDMI-out 1.4b (Make - HP/Dell or Equivalent - As decided Engineer In-charge)                                                                                                                           | No.  | 40   | 65,998.80                    | 26,39,952.00     |
| 3                                                                                                                                                                                                                                                                                                                                                                     | Line interactive UPS with AVR for single phase AC 160 V to 280 V input .Rated KVA :1 ,minimum VAH 168, Note - 2 Yr Warranty on Electronics and 1 Yr Warranty on Battery, (Make - Microtek or Equivalent - As decided Engineer In-charge)                                                                                                                                                                           | No.  | 41   | 6,238.80                     | 2,55,790.80      |
| 4                                                                                                                                                                                                                                                                                                                                                                     | Printers                                                                                                                                                                                                                                                                                                                                                                                                           |      |      |                              |                  |
| a                                                                                                                                                                                                                                                                                                                                                                     | Laser colour printer A3 size - (A3 Laserjet Pro M706n or equivalent of Make - HP or Equivalent As decided by Engineer In-charge)                                                                                                                                                                                                                                                                                   | No.  | 1    | 25,198.80                    | 25,198.80        |
| b                                                                                                                                                                                                                                                                                                                                                                     | Laser printer A4 size - HP Laser 1008w Printer, Wireless, Single Function, Print, Hi-Speed USB 2.0, Up to 21 ppm, 150-sheet Input Tray, 100-sheet Output Tray, 10,000-page Duty Cycle, 1-Year Warranty, Black and White, 714Z9A                                                                                                                                                                                    | No.  | 8    | 15,598.80                    | 1,24,790.40      |
| c                                                                                                                                                                                                                                                                                                                                                                     | Deskjet printer A3 size- Epson EcoTank Monochrome M15180 A3 Wi-Fi Duplex Multi-Function Ink Tank Printer - or equivalent of Make - EPSON or Equivalent As decided by Engineer In-charge)                                                                                                                                                                                                                           | No.  | 2    | 1,12,198.80                  | 2,24,397.60      |
| d                                                                                                                                                                                                                                                                                                                                                                     | Deskjet printer A4 size- Epson EcoTank L3250 A4 Wi-Fi All-in-One Ink Tank Printer Ink or Equivalent As decided by Engineer In-charge                                                                                                                                                                                                                                                                               | No.  | 5    | 16,980.00                    | 84,900.00        |
| 5                                                                                                                                                                                                                                                                                                                                                                     | <b>Online UPS 3KVA mins backup</b> - Online UPS 3KVA/72V (1Ph- 1Ph Out) In-Built Battery Model. Product Voltage:72V Product Capacity:3KVA/72V Product Type:Online UPS – Inbuilt Battery Phase:1 Phase In, 1 Phase Out Product Warranty:24 Months Battery Warranty:12 Months Replacement (Make - Microtek or Equivalent - As decided Engineer In-charge)                                                            | No.  | 2    | 40,200.00                    | 80,400.00        |
| <p><b>Note - i)</b> The above materials / supplied items (sl. no. 1 to 5) Supply, Installation shall be the scope of the agency with all consumables including cables, plug-tops, switches, etc with ready to use. <b>ii)</b> These items (sl. no. 1 to 5) are tentative and may be vary at the time of actual supply that will be decided by Engineer In-charge.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                    |      |      |                              |                  |

Signature Not Verified

Digitally signed by JAYAKRISHNAN CHANDRAS  
 Date: 2024.12.05 16:16:20 IST  
 Location: eProcurement System for Central PSUs