

CORRIGENDUM No.5

Corrigendum no. 5 dated 20.12.2022

Tender no. RailTel/e-Tender/SLT/SR/SC/2022-23/161

Name of the Work: **“Design, Supply, Installation, Commissioning and Maintenance for 5 years of Network Infrastructure for NMDC from RailTel’s Empaneled Business Associates”**

This Corrigendum is issued for following Changes -

I. Revised Bid Submission Dates-

a)	Closing date for Submission of E-Bids	Up to 15:00 hrs. of 27.12.2022 (online)
b)	Date of opening of E-Bids	Up to 15:30 hrs. of 27.12.2022 (online)
c)	Earnest Money Deposit (EMD) #	Same as mentioned in Original Tender Document. No Change in EMD Amount

II. Revised Eligibility Criteria for Bidders (Clause 4.A.21 and BDS) due to addition of SOR Item-

D)	Technical Conditions	
iii)	Experience in Large scale ICT project execution	<p>1.The bidder shall have experience in Executing large-scale ICT Projects in past 5 years from the date of submission of bid as below</p> <p>(i) One project worth of minimum Rs.60.59 crs OR</p> <p>(ii) Two projects worth of minimum Rs.40.39 crs each OR</p> <p>(iii) Three Projects worth of minimum Rs.30.30 crs each</p> <p>The above works should have been in India for any Central / State Governments/ PSUs / Reputed Indian Companies [where the Annual Turnover of the Company in last three financial years (2019- 20, 2020-21 and 2021-22) must be greater than INR 500 Crore) as on Bid Submission date]/ Cooperative</p>

		<p>or any Governmental department in India. (ICT stands for Information and Communications Technology project and include IT systems integration project)</p> <p>2. To this extent the Client Purchase Order / agreement copy along with successful completion certificate/work satisfactory certificate/work experience certificate received from client should be enclosed</p> <p>The references should indicate client name, scope of work, Project start date etc. as per form 9 Chapter -6</p>
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III. New Addition to Schedule of Requirement (SOR) for Campus Backbone Cabling is:

1. Supply of 12-Core SM double jacketed Outdoor armoured cable for 2,70,000 Meters

Location wise Quantities for OFCs is tabulated below –

S. No	Network Component	UOM	Total Qty	Kirandul	Bacheli	Donimalai	Panna	Paloncha
1	12F OFC	Mtrs	270000	90000	81000	83000	9500	6500

* Please note that figures above are indicative only.

Unpriced BOQ Format, Technical Specifications of the added Item and Revised SOR is furnished below -

A. Revised Schedule of Requirement (SOR)

1 Server Infrastructure (Supply & Installation)

1.1 Local Server Infrastructure (Supply & Installation)

SN	Local Server Hardware	UOM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	xMII Rack Servers	Nos	6				

SN	Local Server Hardware	UOM	Qty	Unit Price	Total Price	GST %	Total Price including GST
2	ADS, Antivirus & Patch Mgmt Servers (Rack servers)	Nos	6				
3	NAC Rack Servers	Nos	6				
4	Installation Charges – Lumpsum	LS	LS				

1.2 Software with 5 Years Support

SN	Local Server Software	UOM	Qty	Unit Price	Total Price	GST	Total Price including GST
1	Operating System for xMII Servers (SUSE Linux for SAP 2Skt Unlimited Guest OS)	Nos	6				
2	Operating System for ADS, Antivirus & Patch Mgmt Servers (Windows server 2019 standard operating system)	Nos	12				
3	Enterprise Management System	LS	1				
4	Installation Charges – Lumpsum	LS	1				

1.3 Managed Services (One Time Cost)

SN	Description	UoM	Qty	Unit Price	Total Price	GST %	Total Price inclGST
1	Managed Services	LS	LS				
	Total OTC for Managed Services						

1.4 Managed Services (Recurring Cost)

		UoM	Qty	ARC Year 1	ARC Year 2	ARC Year 3	ARC Year 4	ARC Year 5	Total Price	GST %	Total Price
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SN	Description			Unit Price							incl GST
1	Managed Services	LS	LS								

2 LAN Infrastructure

2.1 Firewall

SN	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
WAN Network Interface Firewalls with 5 YearSupport							
1	Firewall – Type 1 HA (High Availability). 2 Firewall in Each HA (i.e. 2X2)	Nos.	4				
2	Firewall – Type 2	Nos.	09				
3	Firewall – Type 3	Nos.	10				
4	Firewall – Type 4	Nos.	20				
5	Firewall – Web Application Firewall	Nos.	2				
6	Centralized Management, log and analysis license with 5 -year support. up to 100x firewall devices/administrative, supplied along with 5 years 24 x 7 support along with hardware appliance	Nos.	1				
7	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Firewalls	LS	1				

2.2 Campus Switches & Indoor Wifi

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
Ethernet Switches and Access Points at NMDCLocations with 5 Year Support							
1	Core Switch - Type 1 HA (High Availability) 2 Switch in each HA (i.e. 6HA 6X2)	Nos.	12				
2	Core Switch - Type 2	Nos.	2				
3	10G-ER SM SFPs for distributionSwitches to core Switches links	Nos.	8				
4	10G-LR SM SFPs for distribution Switches to Access and DistributionSwitches	Nos.	64				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
5	Distribution Switch – Type 1	Nos.	6				
6	Distribution Switch – Type 2	Nos.	11				
7	1G-LX SM SFPs for distribution Switchesto Access Switches links	Nos.	478				
8	10G-LR SM SFPs for distribution Switches to access Switches links	Nos.	200				
9	1000BASE-T RJ45 SFP Transceiver	Nos.	20				
10	Access Switch – Type 1	Nos.	305				
11	Access Switch (Industrial Grade) – Type 2	Nos.	153				
12	Access Point (Indoor). Payment will bemade as per actual quantities used.	Nos.	300				
13	Wireless LAN Controller for Access Points in HA, 5 year warranty & NBD Support	Nos.	02				
14	NAC licenses for switches and accesspoints, 5 year warranty & NBD support	Nos.	6				
15	OEM EMS for Integrated Monitoring of(Industrial, Access, Distribution and Core) Switches and Wireless Access Points, 5 year NBD support	Nos.	6				
16	Training to 20-people team of Network Engineers from NMDC to be provided ata centralized place covering all aspects of operations and maintenance of theSwitches, APs, NAC, WLC, EMS	LS	LS				

2.3 Outdoor Wifi

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
Outdoor Wi-Fi Zone. Bidders may include costs of developing a Good-For-Construction (GFC) analysis of site prior to installation							
1	Outdoor (IP67 rated or better) 802.11axWLAN AP with Tilt bracket & PoE Injector, 5-year extended warranty to be	Nos.	142				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
	included. AP with integrated/ external antenna should be proposed.						
2	Supply & Installation of Tower / Pole, 5m, Galvanized steel, with grouting base and accessories with Lightning Arrestors	Nos.	82				
	P2P Radio Links						
3	5 GHz PTP Radio, Integrated High Gain Antenna (ROW) with power lead, 5-year extended warranty. Integrated/ External Antenna. Link may be required upto 15km. Data, Video and Voice all three should be feasible. Radio transmit power should be ≥ 27 db and antenna gain ≥ 23 db with a net gain as per WPC regulatory compliance PTP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM delivering 450Mbps or more throughput with 45Mhz channel width. Should be IP66 or better with -20 to +60degree temperature support and ruggedized, should have Gigabit Eth port and 1SFP Port. Should support nLos and nLos conditions, 1024 sub-carriers. Channel size 5, 10, 15, 20, 30, 40, 45 MHz, FIPS-197 128/256-bit AES IPv4/ IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3 90K + PPS. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950	Nos.	52				
4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable	Nos.	104				
5	LPU and Grounding Kit (1 kit per ODU)	Nos.	52				
6	Power Supply, as per the requirement & supplied by OEM. NMDC will provide AC and UPS power. Bidder will have to factor power adapter as per the equipment offered.	Nos.	52				
7	Tilt Bracket Assembly	Nos.	52				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
8	Supply & Installation of Tower / Pole, 15m, Galvanized steel, with grouting base and accessories with Lightning Arrestors. As per industry standard, Min. 10 cm diameter pole shall be used or as required section wise.	Nos.	25				
9	1PPS GPS Sync generator	Nos.	46				
10	PoE Gigabit DC Injector as supplied by OEM	Nos.	46				
11	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Outdoor WAPs	LS	LS				
12	<p>PMP Radio, IP66 or better rated, 240-degrees coverage (may need 2 base stations with each unit providing 120-degree coverage) dual polarized, with all accessories and 5-year extended warranty.</p> <p>Link may be required up to 10km. Data, Video and Voice all three should be feasible. Integrated/ External antenna. The antenna and Radio should be from same OEM and EIRP should be equal to WPC guidelines for maximum gain.</p> <p>Radio transmit power should be $\geq 27\text{db}$ and antenna gain $\geq 23\text{db}$ with a net gain as per WPC regulatory compliance</p> <p>PTP/ PMP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM. By varying the uplink and downlink speeds more remote radios can be connected and up to maximum throughput of 300 Mbps (aggregate). CPE shall be configurable for variable speed of uplink & downlink. Should be IP66 or better with -20 to</p>	Nos.	5				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
	+60degree temperature support and ruggedized, should have Gigabit Eth port, channel size 5, 10,15,20, 30, 40 MHz, MTU 1700Byte, FIPS-197 128/256-bit AES IPv4/IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950						
13	Remote radios for the PMP, 4 radios per zone, 240-degree coverage with all accessories and 5-year extended warranty	Nos.	20				

2.2 Cabling

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
Campus Backbone Cabling							
1	12-Core SM double jacketed Outdoor armoured cable	Meters	2,70,000				
2	48-fiber rack mounted fiber optic patch panels, for terminating OSP cables, with fusion splice trays, fully loaded with Duplex-LC SM adapters and 48 numbers of LC SM pigtails (48 numbers per panel)	Nos.	50				
3	24-fiber 1U rack mounted fiber optic patch panels, for terminatingOSP cables, with fusion splice trays, fully loaded with Duplex-LCSM adapters and 24 numbers of LC SM pigtails (24 numbers per panel)	Nos.	234				
4	LC-LC Duplex SM Patch Cords, 3 meter	Nos.	626				
Closed Steel Racks -							

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	42U Racks as per specifications with vertical 2 smart/ intelligent PDUs, SNMP enabled (for Core Switches)	Nos.	11				
2	42U Racks as per specifications with vertical 2 PDUs, surge protected (for Distribution Switches)	Nos.	21				
3	24U Racks as per Specifications, with horizontal PDUs (IP55 or above)	Nos.	153				
4	24U Racks as per Specifications, with horizontal PDUs only (Non-IP Rated)	Nos.	227				
Horizontal Cabling							
1	1U, 24-port Cat6A UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	9				
2	Cat6A UTP Patch Cord (7-feet)	Nos.	462				
3	Cat6A UTP Information Outlet at DC Rack End	Nos.	362				
4	1-port Face Plate	Nos.	161				
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	130				
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	50				
7	Cat6A UTP Cable	(305 Mtr.)Roll	20				
8	Plugs for Modular Plug Terminated Links, for Wi-Fi APs and CCTV (Please quote MPTL plugs of same make as cables. Modular RJ45 plugs will not be acceptable)	Nos.	275				
9	Cat6A UTP Information Outlet at End-User Rack End	Nos.	100				
Horizontal Cabling							
1	1U, 24-port Cat6 UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	234				
2	Cat6 UTP Patch Cord (7-feet)	Nos.	5,600				
3	Cat6 UTP Information Outlet at DC Rack-End	Nos.	2,800				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
4	1-port Face Plate	Nos.	1,401				
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	982				
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	510				
7	1 Port Surface Mount Box	Nos.	1,294				
8	Cat6 UTP Cable	(305 Mtr) Roll	472				
9	Cat6 UTP Information Outlet at End-User Rack-End	Nos.	2,800				

2.3 UPS

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	Supply of 1 KVA UPS system (prefer 19' rack mountable unit) for Distribution and access Switches at Bacheli, Kirandul, Donimalai, Panna and Paloncha. 1KVA rating, SNMP manageable. Supply should include 30-minute battery back-up batteries of 65AH, 12V, SMF related electrical protection accessories and rack, 5-year on-site warranty and maintenance	Nos.	259				
2	Supply of (N) 30KVA UPS System for Central Distributor to support core switches, Servers, WAN Optimizers, ILL load balancers, and other networking equipment along with 30- minutes battery back-up (about 40 batteries of 65AH, 12V, LeadAcid, SMF) along with Battery rack, MCB protection gear and all other accessories - Bacheli, Kirandul, Donimalai, Panna and Paloncha . UPS to be SNMP manageable. 30kVA rating. Supply should include 5-year on-site warranty and maintenance	Nos.	5				
3	Supply of Grounding Pit and services- for servers and communication	Nos.	14				
4	Supply of Lightning arrestors and grounding pit	Nos.	14				

2.4 LAN Installation and Commissioning

SN	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price Including GST
1	Copper Cable Laying						
	Laying of UTP Cables	Meters	150060				
	Supply & Laying & Fixing of PVC Pipes	Meters	150060				
	Termination of IO's at Both end	Nos	3,162				
	Fixing of Jack Panels	Nos	243				
	Rack Fixing, Earthing etc.	Nos	412				
	Testing and Certification	Nos	3,162				
2	Firewall						
	Installation & Commissioning	Nos	45				
3	Switching						
	Installation & Commissioning	Nos	483				
4	NAC						
	Installation & Commissioning	Nos	6				
5	OEM EMS						
	Installation & Commissioning	Nos	6				
6	Wireless						
	Indoor Wireless Installation and Commissioning	Nos	300				
	Wireless Installation and Commissioning	Nos	142				
	Radios Installation and Commissioning	Nos	77				
7	UPS						
	Installation, Testing and Commissioning 1 KVA UPS	Nos	259				
	Installation, Testing and Commissioning 30 KVA UPS	Nos	5				
8	Earthing Pit & Lightning Arrestors						
	Installation of Grounding Pit and services- for servers and communication	Nos	14				
	Installation of Lightning arrestors and grounding pit	Nos	14				

3 Network Operating Center (NOC)

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	Desktop for NOC	Nos.	4				
2	Console/Screen (LED) for NOC room	Nos.	2				
3	Videowall Display						
3.1	55" Full HD Bezel to Bezel 1.8 mm Display with 500 Nits or Higher	Nos.	9				
3.2	Kramer/Extron/ Crestron or equivalent HDMI 15 mtr cables	Nos.	18				
3.3	Customized Push Pull Video Wall Brackets 2X3 Matrix (NT/Logic or Equivalent)	Nos.	9				
3.4	MTC/ Data path or equivalent Videowall Controller 4 inputs and 84 outputs	Nos.	1				
3.5	Rack for Video Wall Controller (Netrack or Equivalent) - 6U	Nos.	1				
3.6	Power sockets with required cables for installation	Lot	1				

4 Annual Maintenance (Recurring Cost)

Sl. No.	Description	UoM	Qty	ARC Year 1 Unit Price	ARC Year 2 Unit Price	ARC Year 3 Unit Price	ARC Year 4 Unit Price	ARC Year 5 Unit Price	Total Price	GST %	Total Price including GST
1	System Engineer	Nos.	18								
2	Network Engineer	Nos.	5								
3	Network Engineer at NOC OFC/ LAN	Nos.	3								
4	Maint. Engineer	Nos.	5								
5	Help Desk (Hyderabad)	Nos.	5								

B. Unpriced BoQ for OFC and Make and Model

Sl. No.	Network Components	UoM	Qty	Make	Model
Campus Backbone Cabling					
1	12-Core SM double jacketed Outdoor armoured cable	Meters	2,70,000		

C. Technical, Functional Requirements & Specifications

OFC, Copper Cable, I/O, LIU, Connectors, Pigtailes and Patch Cord should be from the same OEM.

Optical Fiber Cable (OFC)

OFC, Copper Cable, I/O, LIU, Connectors, Pigtailes and Patch Cord should be from the same OEM

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	Construction:
	Outdoor armoured Double Jacketed cable – suitable for direct burial as well as ducted applications in harsh environments like mines; Loose Tube, corrugated Steel Armoured Cable; UV resistant jacket; Multi-loose tube, moisture blocking gel-filled, Dielectric central element reinforcing, surrounding by water blocking tape and aramid yarns; cable weight 180Kg/KM or more less; cable diameter less than or equal to 15mm; 12-core.
3	Fiber Type: ITU-T G.652.D/G.657.A1, 250 micron buffered
4	Maximum core / clad offset: 0.5 microns
5	Tensile load 2500 N , Crush resistance 2000N, vertical rise 500m maximum
6	Operating temperature: -20 Degrees C to +70 Degrees C
7	RoHS compliant
8	Attenuation: 0.36dB/KM or better @ 1310nm and .24 dB or better for 1550nm.

IV. Revised Technical Specifications for Cabling Components are furnished below:

1.1. Fiber Termination Box

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	19-inch rack mounted,

3	1U or more height for 48-Fiber panels; 1U height for 24 fiber panels
4	Couplers: Panel fully loaded with Duplex LC SM Couplers and pigtails zirconia-ceramic sleeves, rated for minimum of 220 cycles mate & un-mate; integrated dust / protective caps preferred
5	Built-in Fusion Splice tray – 48 Fibers and built-in pigtail management trays
6	Minimum 4 numbers of rubber cable glands in rear for entry of 15mm cables
7	Integrated fiber management in front of panel to save rack U space
8	Minimum 1.2mm/ 16 gauge steel, powder coated, drawer style to facilitate on-site splicing
9	Adequate provision for label holders and labelling

1.2. Optical Fiber Pigtails

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	LC Simplex pigtails, 1m length
3	SM, 2 mm buffered jacketed Fiber, RoHS compliant
4	Insertion Loss: less than 0.25dB
5	Return Loss: greater than 50dB
6	End-face: OEM should certify compliance to IEC 61300-3

1.3. Optical Fiber Cable (OFC) Patch Cord

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	LC-LC Duplex patch cords,
3	Assorted lengths: 3m, 5m,
4	SM, 2mm zip-cord, RoHS compliant
5	Insertion Loss: less than 0.25dB
6	Return Loss: greater than 50dB
7	End-face: OEM should certify compliance to IEC 61300-3

Note: All the offered OFC products should be from the same OEM and carry a 25 years Performance warranty.

Bidder must submit their Bid for the revised SOR and furnish the Supporting Documents complying to the Technical Specification mentioned above.

Sd/-
(P.Vikrant Kumar)
RailTel Corporation of India Limited