



इरकॉन इंटरनेशनल लिमिटेड
नवरत्न कम्पनी
(भारत सरकार का उपक्रम)
IRCON INTERNATIONAL LIMITED
NAVRATNA COMPANY
(A Govt. of India Undertaking)
An integrated Engineering and Construction Company



सोन भवन (प्रथम तल), दारोगा प्रसाद राय पथ, पटना - 800 001, फोन : 0612-2506446, 2506543
Sone Bhawan (First Floor), Daroga Prasad Rai Path, Patna - 800 001, Phone : 0612-2506446, 2506543
LOA No. IRCON/2071/CRCP/ELECT/OHE&PSI/PKG-IXB/LOA/685 Date 06.06.2024
(DUPLICATE)

Letter of Acceptance

Jai Mangla Construction,
AT & PO-Bihat, Tola-Ibrahimpur,
PS-Barauni, Begusarai-851135 (Bihar)
E-mail ID: jaimangla97@gmail.com

Kind Attn.: Shri Ramanuj Kumar Singh

Name of work: Design, Drawing, Supply, Erection, Testing and Commissioning of 25 kV, AC, 50 Hz, Single Phase, OHE & PSI, new and modification works from Ichak Khurd (Excl.) (CH: KM 27.650) to Shivpur (Excl.) (CH: KM 49.085) and 01 no. TSS in connection with Shivpur-Kathautia new single BG track with electrification in Dhanbad Division of East Central Railways in the state of Jharkhand, India (Package-IXB)

Ref: i. Tender No. IRCON/2071/JCRL/ELECT/OHE & PSI/PKG-IXB/OT/2024/2 dated 08.03.2024
ii. Your online offer regarding above tender (Bid ID 692143 dated 31.03.2024)
iii. Technical Bid opened on 02.04.2024
iv. Financial Bid opened on 27.05.2024

In reference to the subject work, we are pleased to inform you that Ircon International Limited have accepted your quoted offer at **5.97% above** the Bill of Quantity for the subject work at a total value of ₹ 37,26,80,968.76 (Rupees Thirty-Seven Crore Twenty-Six Lakh Eighty Thousand Nine Hundred Sixty-Eight and Paise Seventy-Six Only) including GST @ 18% and all other tax and duties. Hence, you are requested to execute the work as per the BOQ attached at **Annexure "A"** with following terms and conditions:

1. Contractor shall be expected to mobilize on subject work and commence the same within **7 days** from the date of issue of Letter of Acceptance (LOA).

2. SCOPE OF WORK:

The scope of work in the subject tender covers "Design, Drawing, Supply, Erection, Testing and Commissioning of 25 kV, AC, 50 Hz, Single Phase, OHE & PSI, new and modification works from Ichak Khurd (Excl.) (CH: KM 27.650) to Shivpur (Excl.) (CH: KM 49.085) and 01 no. TSS in connection with Shivpur-Kathautia new single BG track with electrification in Dhanbad Division of East Central Railways in the state of Jharkhand, India (Package-IXB)" (Refer SCC Clause No. 3.0)

पंजीकृत कार्यालय : सी-4, डिस्ट्रिक्ट सेंटर, साकेत, नई दिल्ली . 110017, भारत

Registered Office : C-4 District Centre, Saket, New Delhi - 110017 (INDIA)

Tel.: +91-11-29565666 Fax : +91-11-26854000 : E-mail : info@ircon.org : Web. : www.ircon.org

CIN : L45203DL1976GOI008171



3. COMPLETION PERIOD:

The work is required to be completed within fifteen (15) months from the date of issue of the Letter of Acceptance (LOA) including monsoon period. The work has to be executed in co-ordination with other agencies working on or near the project. (Refer SCC Clause No. 19.0)

4. WORK PROGRAM:

The contractor shall submit detailed work programme within 28 days of award of work as per Clause No. 3.30.2 of Special Conditions of Contract.

5. MILESTONES

In terms of SCC Clause No. 19.2, certain milestones during execution of work are required to be achieved.

6. ACCEPTED RATES & PRICE VARIATION

The quoted rates shall be deemed to include all the cost towards the complete scope of work of contractor as detailed in the tender documents including cost of materials, labour, plant & machineries, supervision, overhead, profit, insurances including transit insurances, replacement/ correction of defective works, incidentals etc. and all taxes and duties etc. complete. Nothing extra over the accepted rates shall be payable unless noted expressly otherwise in the tender documents. However, the contract price adjustment/ price variation shall be dealt as per SCC Clause No. 18.0.

7. DEFECT LIABILITY PERIOD:

Defect Liability Period (DLP) will be twelve (12) months from the date of issue of completion certificate by the Engineer. The contractor shall maintain, rectify and make good at his own cost any defect/deficiencies, which may develop in the work or as notified by the Engineer during the defect liability period. (Refer SCC Clause No. 20.2).

8. INSURANCE:

You are requested to obtain necessary insurance cover and submit the insurance policies before commencement of work as per Clause No. 21.0 of SCC.

9. SHRAMIK KALYAN PORTAL:

The contractor shall apply for one time registration of his firm/company etc. on shramik kalyan portal with requisite details subsequent to issue of Letter of Acceptance. Firm shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on Shramik Kalyan Portal. (Refer SCC Clause No. 22.0)

10. CONTRACT AGREEMENT:

As per para 12.5 of GCC, the Contract Agreement shall be signed between the Contractor and Ircon International Limited within 28 days from the date of issue of LOA. You shall submit a non-judicial Stamp Paper of ₹ 1,000.00 at your own cost and attend the office of Chief General Manager (Electrical), Ircon International Limited, 6th Floor, Sone Bhawan, Daroga Prasad Rai Path, Patna for signing of Contract Agreement.

11. PERFORMANCE SECURITY:

The contractor shall submit a Performance Guarantee in the form of irrevocable Bank Guarantee (BG) on the proforma annexed as Annexure -IX of SCC from any scheduled bank for an amount of ₹ 1,86,34,049.00 (5% (Five percent) of the contract value i.e., ₹ 37,26,80,968.76 as per clause 10.0 of SCC) within 21 days from the issue of LOA.



12. PAYMENT TERMS:

The payment shall be made by IRCON as specified in Clause No. 27.0 of Special Conditions of Contract.

13. RETENTION MONEY/SECURITY DEPOSIT:

Security Deposit shall be deducted @ 10% from the bill maximum upto 5% of contract value and will be released after satisfactory completion of defect liability period of twelve (12) months. (Refer SCC Clause No. 10.0)

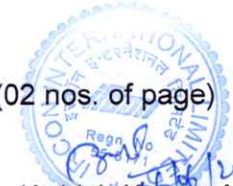
14. The conditions mentioned above in this LOA are a brief reference of the terms of the tender documents. All other terms and conditions shall be as per the NIT, Tender Documents accepted by you, which shall form an integral part of this contract and shall be binding on you.

15. This letter will constitute a legal and binding contract **between Ircon International Limited and Jai Mangla Construction, AT & PO-Bihat, Tola-Ibrahimpur, PS-Barauni, Begusarai-851135 (Bihar)** till completion of defect liability period.

16. You are advised to mobilise the resources to commence the work immediately. Please contact the undersigned for further instructions in order to carry out this work.

The letter of Acceptance (LOA) is being issued in marked "ORIGINAL" & "DUPLICATE" with an advice to return the "DUPLICATE" duly signed and stamped on each page as a token of your acceptance.

- Enclosure:**
1. Annexure-A: Abstract of Cost (01 no. of page)
 2. Annexure-B: Bill of Quantities (28 nos. of page)
 3. Annexure-C: Form of Agreement (02 nos. of page)
 4. Annexure-D: Performance Bank Guarantee Format (02 nos. of page)



(Ashish Kumar Arya)
Chief General Manager/Electrical

For and on behalf of,
Ircon International Limited

- Copy To:**
1. AGM/Finance/CRCP – For kind information and record please
 2. Manager/Electrical /CRCP – For kind information please

ABSTRACT OF COST					
Tender No.		IRCON/2066/RTR/ELECT/OHE/2/2023/01 dated 03.11.2023			
Name of Work		Design, Drawing, Supply, Erection, Testing and Commissioning of 25 kV, AC, 50 Hz, Single Phase, OHE & PSI, new and modification works from Ichak Khurd (Excl.) (CH: KM 27.650) to Shivpur (Excl.) (CH: KM 49.085) and 01 no. TSS in connection with Shivpur-Kathautia new single BG track with electrification in Dhanbad Division of East Central Railways in the state of Jharkhand, India (Package-IXB)			
Name of Firm		Jai Mangla Construction, AT & PO-Bihat, Tola-Ibrahimpur, PS-Barauni, Begusarai-851135 (Bihar)			
S.N.	Description	Estimated Cost (Inclusive of 18% GST)	Quoted Rates		
			"Excess" or "Below" or "At Par"	% in Figures	Total Quoted Cost (Inclusive of 18% GST)
1.	Design, Drawing, Supply, Erection, Testing and Commissioning of 25 kV, AC, 50 Hz, Single Phase, OHE & PSI, new and modification works from Ichak Khurd (Excl.) (CH: KM 27.650) to Shivpur (Excl.) (CH: KM 49.085) and 01 no. TSS in connection with Shivpur-Kathautia new single BG track with electrification in Dhanbad Division of East Central Railways in the state of Jharkhand, India (Package-IXB)	₹ 35,16,85,353.18	Above	5.97%	₹ 37,26,80,968.76
2.	Grand Total	-	-	-	₹ 37,26,80,968.76
Grand Total (in words): Rupees Thirty-Seven Crore Twenty-Six Lakh Eighty Thousand Nine Hundred Sixty-Eight and Paise Seventy-Six Only					



RAILWAY ELECTRIFICATION WORK OF CRCP Pkg-IXB: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS				
BILL OF QUANTITIES				
SUMMARY				
S.N.	Sch. No.	SOR/Non-SOR	Description of Schedule	Amount (inclusive of GST)
1	16000	Non-SOR	RE - General	₹55,32,263.87
2	19000	Non-SOR	OHE - Ferrous other than steel structures and SPS	₹6,28,57,672.20
3	20000	Non-SOR	OHE - Non Ferrous "A"	₹6,58,80,544.16
4	21000	Non-SOR	OHE - Non Ferrous "B"	₹1,15,30,658.26
5	24000	Non-SOR	Traction Sub-Station	₹9,08,89,347.61
6	27000	Non-SOR	TSS Spares	₹54,42,097.18
7	28000	Non-SOR	Tools & Plants (OHE & PSI)	₹99,17,415.01
8	29000	Non-SOR	SCADA	₹54,89,913.97
9	30000A	Non-SOR	Galvanised Steel Structures	₹4,68,37,591.13
10	30000B	Non-SOR	Concrete for Foundation	₹3,05,58,282.79
11	30000C	Non-SOR	Miscellaneous Common Items of OHE/TSS	₹1,67,49,567.00
Total Estimated Cost (inclusive of GST @ 18%) =				₹35,16,85,353.18
Rate Quoted =				5.97% Above
Total Quoted Amount (inclusive of GST @ 18%) =				₹ 37,26,80,968.76



RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 16000: RE- General									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
16001	OHE-1	Preparation and submission of designs and drawings for Overhead Equipment, Switching Station, Sectioning diagram, Power supply diagram, Schematic diagram of Switching Stations, Traction Working Rule Diagram and Instructions etc. required for commissioning of OHE	TKM	₹1,982.57	₹28,740.90	34	₹67,407.41	₹9,77,190.45	₹10,44,597.86
16002	OHE-2	Supply and Erection of large Span wire (130 sq.mm) including its fittings with insulators:							
	(a)	With Porcelain Insulators 1050mm CD	Mtr	₹1,144.37	₹71.05	600	₹6,86,619.00	₹42,628.80	₹7,29,247.80
16003	OHE-3	Supply and Erection of materials for termination of single conductor of overhead equipment or a terminating wire:							
	(a)	With Porcelain Insulators 1050mm CD	Each	₹14,459.77	₹1,326.26	75	₹10,84,482.56	₹99,469.65	₹11,83,952.21
16005	OHE-5	Supply and Erection of material for Termination of copper cross feeders with gantries including cross feeder wire:							
	(a)	With Porcelain Insulators 1050mm CD	Set	₹61,264.02	₹1,555.05	8	₹4,90,112.16	₹12,440.36	₹5,02,552.52
	OHE-10	Modification to existing Overhead Equipment	Mtr	₹0.00	₹43.42	500	₹0.00	₹21,710.30	₹21,710.30

CRCP, Jharkhand



PKG-IXB

Schedule 16000: RE- General									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
16011	OHE-10(a)	Extra for modification to existing Overhead Equipment under power block	Mtr	₹0.00	₹43.42	500	₹0.00	₹21,710.30	₹21,710.30
16012	OHE-11(a)	Manning of switching station i.e. SP/SSP and TSS	Man-month	₹0.00	₹28,473.29	24	₹0.00	₹6,83,359.07	₹6,83,359.07
16012	OHE-11(b)	Manning of anti-theft transformer	Man-month	₹0.00	₹26,926.18	8	₹0.00	₹2,15,409.42	₹2,15,409.42
16015	OHE-13	Loading/Unloading, transportation and handing over of all type of materials etc. (other than contractor material)	Metric Tonne/K M	₹0.00	₹75.00	1	₹0.00	₹75.00	₹75.00
	OHE-Cu. Feeder	Supply and Erection of materials for termination of 25kV 150 sqmm. Copper feeder with required fittings and fasteners	Mtr						
	(a)	With Porcelain Insulators 1050mm CD		₹1,506.20	₹376.55	600	₹9,03,719.52	₹2,25,929.88	₹11,29,649.40
		Total Amount (inclusive of GST) =					₹32,32,340.64	₹22,99,923.23	₹55,32,263.87



RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 19000: OHE - Ferrous other than steel structures and SPS									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
19001	OHE-16	Supply and Erection of a guy rod assembly	Each	₹12,365.25	₹1,330.27	93	₹11,49,968.41	₹1,23,714.81	₹12,73,683.22
	(a)	Extra on erection under Power Block	Each	₹0.00	₹1,330.27	1	₹0.00	₹1,330.27	₹1,330.27
19002	OHE-17	Supply and Erection of protective screen on FOBs/ROBs	Sq.m	₹5,324.30	₹575.36	200	₹10,64,860.45	₹1,15,071.07	₹11,79,931.52
19003	OHE-18	Supply and Erection of bracket assembly with insulators							
	(a)	With Porcelain stay & bracket Insulators 1050mm CD	Each	₹29,522.28	₹1,145.72	1620	₹4,78,26,100.73	₹18,56,072.72	₹4,96,82,173.45
	(b)	Extra on erection under Power Block	Each	₹0.00	₹1,145.72	4	₹0.00	₹4,582.90	₹4,582.90
19004	OHE-19	Supply and Erection of regulating equipment (3-pulley type) with counter weight assembly for conventional OHE	Each	₹97,427.23	₹4,956.92	70	₹68,19,906.40	₹3,46,984.74	₹71,66,891.14
	OHE-19(a)	Extra on erection under Power Block	Each	₹0.00	₹4,956.92	1	₹0.00	₹4,956.92	₹4,956.92
19005	OHE-20	Supply and Erection of material for termination of double Overhead Equipment conductor							
	(a)	With Porcelain Insulators 1050mm CD	Each	₹20,696.07	₹1,251.32	90	₹18,62,646.16	₹1,12,619.00	₹19,75,265.15
	(b)	Extra on erection under Power Block	Each	₹0.00	₹1,251.32	2	₹0.00	₹2,502.64	₹2,502.64
19007	OHE-22	Supply and Erection of a structure bond/longitudinal bond/ transverse and special bond	TKM	₹34,667.11	₹7,666.81	37	₹12,82,683.14	₹2,83,671.85	₹15,66,354.99
Total Amount (inclusive of GST) =							₹6,00,06,165.28	₹28,51,506.92	₹6,28,57,672.20

CRCP, Jharkhand



PKG-IXB

RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 20000: OHE - Non Ferrous Part 'A'									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
20001	OHE-23(a)	Supply and Erection of Over Head Equipment i.e. contact & catenary wire (excluding cost of supply of contact & catenary wires), jumper wire, dropper wire, contact/catenary clips, fasteners and all other material required at turn out/ overlaps/ diamond crossings etc. Final checking of OHE and adjustment, inspection to be done by tower wagon for commissioning of conventional OHE	TKM	₹0.00	₹59,053.82	37	₹0.00	₹21,84,991.50	₹21,84,991.50
	OHE-23(a)(i)	Extra on erection under Power Block	TKM	₹0.00	₹29,526.41	1	₹0.00	₹29,526.41	₹29,526.41
	OHE-23(a)(ii)	Extra on manual erection for catenary/contact wire.	TKM	₹0.00	₹14,763.21	37	₹0.00	₹5,46,238.67	₹5,46,238.67
20002	OHE-23(b)	Supply of contact wire (HDGCC 107/150 Sq.mm) only	MT	₹10,88,272.20	₹0.00	35	₹3,80,89,526.98	₹0.00	₹3,80,89,526.98
20003	OHE-23(c)	Supply of cadmium copper catenary wire (65 Sq. mm) only	MT	₹10,88,272.20	₹0.00	23	₹2,50,30,260.59	₹0.00	₹2,50,30,260.59
Total Amount (inclusive of GST) =							₹6,31,19,787.57	₹27,60,756.58	₹6,58,80,544.16

CRCP, Jharkhand



PKG-IXB

RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 21000: OHE - Non Ferrous Part 'B'									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
21001	OHE-24	Supply and Erection of anti-creep with cadmium copper catenary wire:							
	(a)	With Porcelain Insulators 1050mm CD	Each	₹93,346.88	₹6,673.22	26	₹24,27,018.78	₹1,73,503.62	₹26,00,522.40
	(b)	Extra on erection under Power Block	Each	₹0.00	₹6,673.22	1	₹0.00	₹6,673.22	₹6,673.22
	(c)	Extra on provision of extra span in item (a)	Each	₹18,669.38	₹1,334.64	8	₹1,49,355.00	₹10,677.15	₹1,60,032.15
21002	OHE-25	Supply and erection of section insulator assembly and associated fittings & fasteners for OHE with Bar Insulator:							
	(a)	With Porcelain Insulators 1050mm CD and Bar Insulator	Each	₹1,20,262.68	₹6,033.57	21	₹25,25,516.32	₹1,26,704.96	₹26,52,221.28
	(b)	Extra on erection under Power Block	Each	₹0.00	₹6,033.57	1	₹0.00	₹6,033.57	₹6,033.57
21003	OHE-26	Supply and Erection of PTFE type short neutral section assembly as per latest RDSO specification.	Each	₹14,19,251.22	₹7,813.85	1	₹14,19,251.22	₹7,813.85	₹14,27,065.07
21006	OHE-29	Supply and Erection of all types of copper jumpers	Each	₹10,794.49	₹454.93	287	₹30,98,019.12	₹1,30,565.46	₹32,28,584.57
	OHE-29(a)	Extra on erection under Power Block	Each	₹0.00	₹454.93	3	₹0.00	₹1,364.80	₹1,364.80



Schedule 21000: OHE - Non Ferrous Part 'B'									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
21008	OHE-31	Supply of materials and erection of a large copper jumper (160sqmm) between aluminium/Copper busbar and OHE , cross feeder to OHE etc. with all associated fittings	Each	₹12,528.70	₹537.98	51	₹6,38,963.84	₹27,436.98	₹6,66,400.81
21009	OHE-32 (a)	Supply and Erection of solid copper busbar 18 mm dia including all connectors, bus splice etc.	Mtr	₹5,375.26	₹223.02	91	₹4,89,148.91	₹20,294.83	₹5,09,443.73
21010	OHE-32(b)	Supply and erection of Aluminium Bus Bar 36mmx28mm size including all connectors, bus splice etc	Mtr	₹1,184.69	₹72.49	90	₹1,06,621.96	₹6,523.71	₹1,13,145.67
21011	OHE-34	Dismantling of traction structure, portals,TTC and associated SPS by cutting	MT	₹0.00	₹1,703.29	1	₹0.00	₹1,703.29	₹1,703.29
	OHE-34 (a)	Extra for Dismantling of traction structure, portals,TTC and associated SPS by cutting under Power Block	MT	₹0.00	₹1,703.29	1	₹0.00	₹1,703.29	₹1,703.29
21012	OHE-35	Supply and Erection of safety items i.e. Fire extinguishers, set of fire bucket with stand and first aid box, key box with suitable key chain, locks and other misc items required for commissioning of switching station	Set	₹18,232.42	₹3,019.48	1	₹18,232.42	₹3,019.48	₹21,251.91
21013	OHE-36	Supply and Erection of Retro-reflective type boards - 25kV AC OHE danger board/ danger board for height gauge, public, staff caution board and special boards required for commissioning of OHE/SWS/TSS	Each	₹566.36	₹152.96	187	₹1,05,909.64	₹28,602.87	₹1,34,512.50
Total Amount (inclusive of GST) =							₹1,09,78,037.21	₹5,52,621.05	₹1,15,30,658.26



RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 24000: Traction Sub-Station									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
24001	TSS-1	Design and drawings for 220/27 or 132/27 kV or 110/27 kV traction sub-station including feeding post and capacitor bank	Each	₹0.00	₹1,57,325.71	1	₹0.00	₹1,57,325.71	₹1,57,325.71
24003	TSS-3	Construction of baffle wall complete with reinforcement, brick work, plastering etc.	Cum	₹4,744.42	₹1,491.62	50	₹2,37,220.83	₹74,581.00	₹3,11,801.83
24004	TSS-4(a)	Supply, erection, testing & commissioning of 132 kV double pole SF-6 gas circuit breakers with interlock	Each	₹11,40,536.66	₹10,034.74	2	₹22,81,073.33	₹20,069.48	₹23,01,142.81
24006	TSS- 5(a)	Supply and erection of 132 kV double pole isolators (manually operated)	Each	₹4,60,778.09	₹4,352.54	5	₹23,03,890.47	₹21,762.70	₹23,25,653.18
24008	TSS-6(a)	Supply,erection, testing and commissioning of 132 kV current transformer assembly (400-200/5A)	Each	₹3,86,669.38	₹2,244.79	4	₹15,46,677.52	₹8,979.17	₹15,55,656.69
24009B	TSS-6(d)	Supply,erection, testing and commissioning of 132 kV current transformer assembly (1200-800-400/5-5-5A)	Each	₹4,83,517.09	₹2,244.79	4	₹19,34,068.36	₹8,979.17	₹19,43,047.53
24010	TSS-7 (a)	Supply,erection, testing and commissioning of 120 kV lightning arrestors	Each	₹2,26,257.36	₹1,590.16	8	₹18,10,058.89	₹12,721.24	₹18,22,780.14
24012	TSS -8(a)	Supply, erection, testing & commissioning of 25 kV single pole Vacuum circuit breaker with interlocking of rating 1600 Amp	Each	₹5,95,606.05	₹7,046.97	5	₹29,78,030.27	₹35,234.85	₹30,13,265.12
	TSS -8(b)	Supply, erection, testing & commissioning of 25 kV single pole Vacuum circuit breaker with interlocking of rating 2000 Amp	Each	₹7,05,007.38	₹7,046.97	2	₹14,10,014.77	₹14,093.94	₹14,24,108.71

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Schedule 24000: Traction Sub-Station									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
24013	TSS -9(a)	Supply, erection, testing and commissioning of 25 kV current transformers (1500-750/5A)	Each	₹1,08,155.48	₹926.46	6	₹6,48,932.89	₹5,558.75	₹6,54,491.64
24013	TSS -9(c)	Supply, erection, testing and commissioning of 25 kV current transformers (200-100/5A)	Each	₹81,651.76	₹5,470.41	1	₹81,651.76	₹5,470.41	₹87,122.17
24014	TSS-10(a)	Supply, erection, testing, and commissioning of control and numeric relay panel suitable for double transformer traction sub station (two bay) of 220/27 or 132/27 kV or 110/27 kV as per latest RDSO specifications	Each	₹53,42,028.39	₹18,191.65	2	₹1,06,84,056.77	₹36,383.30	₹1,07,20,440.07
24014 (e)	TSS-10 (e)	Supply, erection, testing and commissioning of numerical control & relay panel suitable for Shunt Capacitor Bank as per latest RDSO specifications	Each	₹12,14,857.17	₹18,191.65	1	₹12,14,857.17	₹18,191.65	₹12,33,048.82
24015	TSS-11	Supply & erection of tubular aluminium bus bars 50mm x 39mm dia including all connectors, bus splice etc.	Mtr	₹1,859.71	₹74.75	260	₹4,83,525.02	₹19,435.23	₹5,02,960.25
24016	TSS-12	Supply & erection of 'Zebra' ACSR conductor including all connectors etc.	Mtr	₹1,287.75	₹23.78	430	₹5,53,734.23	₹10,227.28	₹5,63,961.51
24018	TSS-14	Supply & erection of copper jumper with fittings and fasteners required for TSS	Each	₹4,696.85	₹608.20	16	₹75,149.56	₹9,731.21	₹84,880.77
24019	TSS-15(a)	Supply & erection of 110/132 kV support insulators with fittings and fasteners	Each	₹47,196.13	₹752.04	12	₹5,66,353.54	₹9,024.47	₹5,75,378.01
24022	TSS-17(a)	Supply & erection of 110/132 kV termination with/without adjuster complete with disc insulators	Each	₹17,110.03	₹390.74	16	₹2,73,760.42	₹6,251.89	₹2,80,012.31

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Schedule 24000: Traction Sub-Station									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
24024 (a)	TSS-18(a)	Supply, erection, Testing and commissioning of low maintenance lead acid battery set 200AH, 110V DC as per latest RDSO specifications including filling up of electrolyte and initial charging /discharging as required	Set	₹3,89,164.47	₹19,457.88	1	₹3,89,164.47	₹19,457.88	₹4,08,622.36
24024 (b)	TSS-18(b)	Supply, erection, Testing and commissioning of Battery Charger (automatic) suitable for 110 V, 200 AH low maintenance Lead Acid Battery set as per latest RDSO specifications including all accessories	Each	₹2,29,015.22	₹11,450.48	2	₹4,58,030.43	₹22,900.96	₹4,80,931.39
24025	TSS-19	Supply, erection testing & commissioning of 240 Volt AC and 110 V DC Distribution boards in the control room	Each	₹44,207.23	₹937.78	1	₹44,207.23	₹937.78	₹45,145.01
24026	TSS-20	Supply and erection of earth electrode with salt & charcoal, earthenpit & cover	Each	₹3,695.64	₹1,440.65	49	₹1,81,086.30	₹70,592.03	₹2,51,678.33
24027	TSS-21	Supply and erection of earth leads 75 x 8 mm mild steel flat laid in the ground or exposed as per site requirement	Mtr	₹262.76	₹75.88	1100	₹2,89,036.79	₹83,471.83	₹3,72,508.62
24028	TSS-22	Supply and erection of earth leads 50 x6 mm mild steel flat laid in the ground or exposed as per site requirement	Mtr	₹126.85	₹60.03	1400	₹1,77,590.00	₹84,038.13	₹2,61,628.13
24029	TSS-23	Supply and erection of 8 SWG GI Wire for earthing	Mtr	₹23.78	₹24.92	260	₹6,183.94	₹6,478.41	₹12,662.35
24030	TSS-24	Supply and erection of 32mm to 40 mm dia MS rod for earth mat	Mtr	₹300.14	₹24.92	2100	₹6,30,285.94	₹52,325.63	₹6,82,611.56
24031	TSS-25	Supply & erection of earth screen wire including termination	Mtr	₹330.72	₹15.86	280	₹92,600.50	₹4,439.75	₹97,040.25

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Schedule 24000: Traction Sub-Station									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
24032	TSS-26(a)	Supply, erection, testing & commissioning of 132/27 kV, 21.6/30.24 MVA, ONAN/ONAF, single phase traction power transformers	Each	₹2,54,43,833.50	₹3,60,850.87	2	₹5,08,87,666.99	₹7,21,701.75	₹5,16,09,368.74
24036	TSS-29	Supply, erection, testing & commissioning of 25kV shunt capacitor bank of 2400kVAR rating at 25kV including low loss series reactor, 25kV neutral current transformer and all other accessories etc except control and numeric relay Panel	Each	₹25,23,880.09	₹72,561.60	1	₹25,23,880.09	₹72,561.60	₹25,96,441.68
24038 B	TSS-31 (b)	Supply, erection, testing and commissioning of 132 kV Potential Transformer assembly	Each	₹2,66,302.32	₹14,778.03	4	₹10,65,209.28	₹59,112.10	₹11,24,321.38
24040	TSS-33	Supply, erection, testing and commissioning of Special Energy Meter of 0.2s Class accuracy with ABT, complete feature including software, hardware, meter cubical etc. as per latest specification/grid/code/ metering regulations/amendments to regulations of concerned Transmission/ regulatory Authority	Set	₹ 22,35,747.11	₹ 2,93,458.41	1	₹22,35,747.11	₹2,93,458.41	₹25,29,205.52
	TSS-Cross Track	Erection of cross track in Traction-Substation (Rail will be provided by IRCON)	KM	₹ 0.00	₹ 86,01,050.34	0.1	₹0.00	₹8,60,105.03	₹8,60,105.03
		Total Amount (inclusive of GST) =					₹8,80,63,744.86	₹28,25,602.75	₹9,08,89,347.61

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RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)					
BILL OF QUANTITIES					
Schedule 27000: TSS Spares					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
27001	SF-6 Gas Cylinder with filling arrangement (regulator) -11 kg capacity duly filled with SF-6 Gas of required purity suitable for CBs/interruptors in TrD. (Set = 02 nos. of filled cylinders)	Set	₹74,943.43	7	₹5,24,604.03
27002	25 kV CB Bushing conforming to RDSO specifications and of make as approved by Engineer	Each	₹79,849.81	2	₹1,59,699.62
27003	25 kV Interruptor Bushing conforming to RDSO specifications and of make as approved by Engineer	Each	₹28,616.00	2	₹57,232.00
27004	Numerical Earth fault Relay suitable for 25KV TSS and conforming to RDSO specifications and of make as approved by Engineer	Each	₹18,257.34	2	₹36,514.68
27006	SINGLE PHASE RELAY TEST SYSTEM FOR TESTING VARIOUS TYPES OF RELAYS IN TSS [Single phase relay test system for testing of electro-mechanical relays, solid state static relays, micro-processor based relays and numerical relays used in TSS as per RDSO spec No TI/PSI/SPC/Test-kit/1080 (12/2008) or latest along with suitable Laptop/Notebook (with minimum configuration of 8GB/1TB/2GB GRAPHICS /Window10/ WIFI/BT/15.6" screen/ Antivirus for atleast 01 years) of reputed make like Dell/ HP etc with latest software and antivirus . Model of relay testing kit: - Megger make SMRT1 or Omron CMC 356 or Doble F6150 or superior, as approved by Engineer.]	Set	₹12,61,646.70	1	₹12,61,646.70
27008	Transformer Oil (Inhibited Mineral Insulating Oil) as per IS 12463(1988) or latest and RDSO latest Instructions.	Litre	₹72.49	5,000	₹3,62,428.57
27009	Capacitor Bank 2400KVAR @25 kV (5500KVAR@40kv) consisting of set of capacitor units in series/parallel combination as per RDSO spec TI/SPC/PSI/FC&SR/0100 with A&C No-1 (Oct/2016) or latest	Set	₹13,93,680.56	1	₹13,93,680.56
27010	Supply, Testing and commissioning of Transformer oil filtration plant 3000 LPH, Mobile trolley type suitable to work on 230 V single phase AC supply, as per COFMOW specification No: COFMOW/IR/HVTOP/2014 (Rev-1) or latest (Model CEEDEE/Pune or equivalent/superior as approved by engineer	Each	₹16,46,291.01	1	₹16,46,291.01
Total Amount (inclusive of GST) =					₹54,42,097.18




RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS					
BILL OF QUANTITIES					
Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
Tools & Plants (OHE & PSI)					
28001	Tirfor 2.5T/1.5T, ISI marked as per IS :5604/1984 or latest (Make TRACTEL /TIRFOR or equivalent as approved by Engineer)	Nos.	₹19,290.26	4	₹77,161.04
28002	Tirfor 5T /3 T ISI marked as per IS :5604/1984 or latest (Make TRACTEL /TIRFOR or equivalent as approved by Engineer)	Nos.	₹26,361.02	2	₹52,722.03
28004	Pull lift 0.75 T/0.8 T ISI mark (Make TRACTEL or equivalent as approved by engineer)	Nos.	₹10,608.96	4	₹42,435.86
28005	Fibre/light weight winch type Ladder Trolley suitable to move on railway track for maintenance of 25KV AC OHE. (SUMER make or equivalent as approved by engineer)	Nos.	₹94,651.62	1	₹94,651.62
28006	Rail jumpers made of multistrand copper PVC Cable 248/0.457 mm size with suitable clamps at both ends as per RDSO specification no ETI/OHE/3/(2/94) with A& C slip no 1 (04/95) or latest and as approved by Engineer				
(a)	3 meter length	Each	₹1,728.33	9	₹15,554.98
(b)	5 meter length	Each	₹2,358.05	13	₹30,654.66
(c)	13 meter length	Each	₹3,643.54	16	₹58,296.64
28007	Earthing discharge rod complete suitable for working voltage of 25KV AC traction, fibre glass body screw type in a suitable carry bag as per RDSO specification no ETI/OHE/51(9/87) or latest and as approved by engineer	Each	₹19,444.29	8	₹1,55,554.34
28008	Aluminium Straight ladder extendable type (11mtr), Closed height 6mtr Extended height 11 mtr .(SUMER make Ref-AL100/8809 or equivalent as approved by engineer)	Nos.	₹22,836.40	8	₹1,82,691.18

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Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28009 (a)	Portable electric drill suitable for drilling holes of 12-23mm dia, working on single phase, 230V AC supply alongwith 2 nos suitable spare drill bits. (Make: Railli wolf model WDH-12 or equivalent model of Hitachi/Black & Decker as approved by Engineer)	Nos.	₹20,006.06	2	₹40,012.11
28009 (b)	Portable rail drilling machine, capable of drilling holes in rail flange upto hole dia 0-36 mm , suitable for both 52kg & 60kg rail, having petrol start Kerosene run HONDA engine 100 cc, alongwith all accessories. Make Jin Shaa or superior as approved by Engineer	Nos.	₹1,20,192.64	2	₹2,40,385.28
28010	First aid box made of GI/AL sheet, ISI marked, filled with medicines as per concerned zonal Railway standard with suitable locking arrangement and as approved by Engineer	Nos.	₹3,215.42	4	₹12,861.68
28011	Stretcher two fold type, made of high quality aluminium alloy tubes. Aprox. Dimensions: unfolded 2100x560x150mm and folded 1100x200x110mm, max weight 8kg., suitable for load weight upto 150kg, to be supplied with sturdy carry case as approved by Engineer	Nos.	₹4,165.66	2	₹8,331.33
28013	Portable fire extinguisher dry chemical powder as per IS:2171, ISI marked (10 kg OR 2 Nos X 5 kg as required at site and as approved by engineer)	Each	₹3,394.37	8	₹27,154.96
28014	Portable fire extinguisher dry chemical powder type, suitably mounted on trolley as per IS:10658 , ISI marked (25 kg capacity) with minimum discharge range 6 mtrs.	Each	₹11,777.80	4	₹47,111.18
28015	D Shackles set of alloy steel consisting one no. of each size (1", 3/4", 5/8", 1/2") upto 5T load capacity as per IS:6132 suitable for use in TrD works	Set	₹3,215.42	12	₹38,585.05
28016	Set of Steel slings with eye on each end of 8mmX2M & 12mmX3M length	Set	₹4,018.43	12	₹48,221.12

Schedule 28000: Tools & Plants (OHE &PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28017	Stainless steel Digital micro meter suitable for measuring 0-25 mm dia, resolution 0.001mm and accuracy of (+/-)1µm. Mitutoyo make or equivalent as approved by engineer	Nos.	₹13,356.63	1	₹13,356.63
28018	Bench Vice 6" suitably mounted on steel table as approved by engineer	Nos.	₹22,681.23	2	₹45,362.47
28019	Canvass Tarpaulin 12mx12m with ropes and spikes of adequate size as approved by Engineer	Nos.	₹6,428.58	2	₹12,857.15
TESTING AND MEASURING EQUIPMENTS					
28020	Portable 5KVA Silent diesel Gen Set with battery push button start. Make: KOEL/Honda/Mahindra or as approved by Engineer	Set	₹2,46,825.18	2	₹4,93,650.37
28021	Binoculars Nikon-8252 ACULON A211 10-22x50 zoom Binocular or equivalent as approved by Engineer	Nos.	₹17,355.80	2	₹34,711.60
28022	Vernier Calipers Digital, range 0-200 mm Mitutoyo make Model 500-197-30 or equivalent as approved by Engineer	Nos.	₹17,267.46	2	₹34,534.91
28023	Trans-receiver, VHF, hand held walkie-Talkie set 5W (tuned for rated power of 5 watts), 16 channels, synthesized with 2200 mAh Ni-Mh Battery pack, along with one spare battery pack of capacity 2200mAh and rapid charger suitable to work on 230V AC as per details enclosed. The VHF Walkie-Talkie shall be MIL standard compliant for 810. Make Motorola GP 328/Kenwood TK-2000 as approved by Engineer	Nos.	₹19,494.13	6	₹1,16,964.76
28024 (a)	Digital multi-meter 1000v, 10A. Motwane make model DM352 or superior as approved by Engineer	Nos.	₹17,766.93	2	₹35,533.86
28024 (b)	High sensitivity Digital multi-meter for measuring AC/DC voltage, AC/DC currents, resistance, frequency, capacitance. Megger make model AVO410 or superior as approved by Engineer	Nos.	₹43,337.40	1	₹43,337.40

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Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28025	Aluminium self supporting Stool type Magjic pole ladder-8' long Make: Sumer or equivalent as approved by Engineer	Nos.	₹8,173.90	3	₹24,521.69
28026	Drop out fuse pull rod made of fibre body, extension type, suitable for use on 25 kV OHE as per RDSO spec No: ETI/PSI/14 (1/86) and CORE/ALD dwg No POWER/RLY/1849 as approved by engineer	Nos.	₹7,661.97	4	₹30,647.87
28027	1/2" square drive socket set containing 22 sockets with 5 attachments packed in power coated carrying case. Make Taparia Model S11MXL or equivalent as approved by Engineer	Set	₹5,650.49	1	₹5,650.49
28028	Transformer oil Acidity testing Kit with all accessories	Set	₹16,075.97	1	₹16,075.97
28029	Portable arc welding machine 250 A capacity, rated out put current 10-250Amps, rated out put voltage 28V, Rated input power-5KVA, electrode size & welding thickness 0.5mm to 3.15mm suitable to work on 230 V $\pm$ 15%, 50Hz single phase AC supply, IP23 protection complete set with copper holder, earth clamp and PVC copper cable of suitable size of 10m length	Each	₹18,780.60	2	₹37,561.19
28030	Clip on digital Tong tester suitable for measuring AC current 600Amp, Fluke model 303 or Motwane make DCM-45A model or equivalent as approved by Engineer	Nos.	₹12,549.09	2	₹25,098.18
28031	Portable hand grinding machine to work on 230 V 50Hz , AC supply make MASTER or superior as approved by Engineer.	Nos.	₹5,399.05	1	₹5,399.05
28033	Digital breaker time interval meter suitable for measuring open/close time of CBs/interrupters used in TSS as per specification given below:- (Make: NTPL Model: NTT4DSA-5R or Anuvidyut Pvt Ltd Model : TYPE 1425 or equivalent as approved by engineer)	Nos.	₹21,785.35	1	₹21,785.35

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Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
	(a) Display:- 4 digital LED display with 7 segment (b) Poles:- Three (c) Range: 0.1m Sec to 9999 Sec (d) Accuracy :-±0.1%-± 1 count (e) Power:- 220-250V, AC single phase				
28036	Insulation Megger with voltage selectable range of 250V, 500 V, 1000 V digital numeric display and IR measurements upto 999 M Ohms in hard carrying case with all standard accessories similar to Megger make model MIT310 or superior as approved by Engineer	Nos.	₹1,06,901.70	1	₹1,06,901.70
28037	Supply of Automatic Transformer oil BDV testing kit suitable for working on 230V AC, single phase supply with automatic/manual mode. Test voltage range atleast upto 100 KV rms similar to Megger make model OTS100AF, Motwane make model MOT OTS-100A or superior and as approved by Engineer	Nos.	₹4,31,192.60	1	₹4,31,192.60
28038	Transformer oil filtration plant 125 Litre per hour capacity, portable type, suitable to work on 230V single phase AC supply, as approved by engineer	Nos.	₹3,21,492.26	1	₹3,21,492.26
28039	Auto transformer(Close type dimmer) , Input voltage 0-270V AC, out put current 0-10A. AEC make or superior as approved by engineer	Nos.	₹12,663.48	1	₹12,663.48
28040	Load cell tester suitable for 40 AH and 200 AH battery as approved by engineer	Nos.	₹3,215.42	1	₹3,215.42
28041	Supply, installation and commissioning of hydraulic insulator testing machine for testing tensile load strength of 25KV, Porcelain and composite insulators as per RDSO specn.No TI/SPC/OHE/INSTEST/0090(02/2009) with A&C No-1 or latest	Set	₹4,18,394.34	2	₹8,36,788.68

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Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28042	Spanners set consisting of 4 sets of double ended Ring spanner & 4 sets of double ended Flat type spanner , 12 pieces in each set (6mm to 42mm size), Gedore or Taparia make with ISI Mark or as approved by engineer	Set	₹15,457.58	4	₹61,830.31
28043	52 pieces socket set (box spanners) with storage case. Cogex make or similar as approved by Engineer	Set	₹11,593.18	1	₹11,593.18
28044	Supply, testing and commissioning of primary current injection test system 3000A, 20 KVA burden suitable for testing protection system of TSS including CT, CB, interruptors, relays etc and suitable to work on 230 V single phase AC supply including pair of cotton braided copper cables of 720 sq mm X 2X 10 mtr, digital timer for measuring tripping time, zero start interlock, auto cut off upon tripping relay and suitably mounted on wheels. Model:- Megger make model ODEN AT/1S or Motwane MOT-PIK3000/20 or superior as approved by Engineer	Each	₹20,31,260.38	1	₹20,31,260.38
28045	Insulation Megger with voltage selectable range of 250V, 500 V, 1000 V, 2500 V and 5000 V digital numeric display with Insulation (InS), Polarisation Index (PI) and variable time test modes and IR measurements upto 1000 G Ohms in hard carrying case with all standard accessories similar to Megger make model BM5200 or Motwane 5K PI or superior as approved by Engineer	Each	₹2,31,138.82	1	₹2,31,138.82
28046(a)	Supply of Digital Ground/Earth tester suitable for 2, 3 & 4 point ground rod and soil resistivity testing having range 0.01Ω to 20KΩ with all standard accessories and carrying case similar to Megger Make Model DET4TR2 or superior and as approved by Engineer	Each	₹2,47,465.10	1	₹2,47,465.10




Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28046(b)	Supply of Digital Ground/Earth tester clamp type suitable for ground earth electrode earth resistance measurements without opening earth connections. Range 0.01Ω to 1200Ω, current 0-20A, 4 digit LCD display, computer interface port, with all standard accessories and carrying case similar to Motwane Make Model DECT-3 or superior and as approved by Engineer	Each	₹75,523.32	1	₹75,523.32
28047	Thermal Imaging Camera (nclusive of software) as per RDSO specification No. RDSO Spec no TI/SPC/OHE/TIPS/1031(Dec'2013) or latest , temperature range from (-20) to (500) degree centigr (CEM model DT-9885 or superior as approved by Engineer	Each	₹5,76,128.92	1	₹5,76,128.92
28048	Supply of fully automatic Capacitance and TAN DELTA test set suitable for input power of 240V single phase AC and output voltage 0 to 12kV continuously adjustable, designed for condition assessment of electrical insulation in high voltage apparatus such as transformer bushings, circuit breaker, cables, lightning arrestor at TSS with built-in temperature correction system, automatic interference suppression for outdoor switchyards, calibrator box, data storage and display system on laptop with associated software (or on board computer system) similar to Megger make model DELTA4310A or Shiva Instruments make model (MLS-11DA & HLS-12A) or equivalent/superior as approved by Engineer	Each	₹17,18,601.18	1	₹17,18,601.18



Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
28049(a)	Supply, installation, testing & commissioning of GPS based OHE monitoring & current collection system Oliver-G as per RDSO spec No TI/SPC/OHE/OLIVER/0051(01/15) or latest along with all accessories/authentic software as per mentioned specification necessary for mapping	Each	₹3,74,154.27	1	₹3,74,154.27
28049(b)	Route Mapping of OHE Assets i.e OHE/Pole mast with Oliver-G with GPS system for current collection Test of all the lines of given section of OHE and supply/loading of GPS mapping data	TKM	₹2,221.01	34	₹75,514.26
28050	Supply and commissioning of fully automatic transformer turn ratio analyser, capable of measuring turn ratio upto 1:10000, micro-controller operated, with builtin printer, LCD screen for display, IP-54 compatible, single unit design and supplied with standard accessories, hard carry case, software etc. Megger Make model TTR100-1-NA0-ENG or Motwane XTRM-3 as approved by Engineer	Each	₹3,49,989.34	1	₹3,49,989.34
28051	Supply of Digital micro-ohm meter capable of measuring resistance range from 1 micro ohm to 2000 ohms, with 1 micro-ohm resolution for inductive and resistive loads. Megger Make model MTO210 or Motwane make model LR 2045-S or superior model as approved by Engineer	Each	₹77,418.14	1	₹77,418.14
28052	Furniture for OHI/PSI Depot:				
(a)	Chairs with cushioned back & Hand rests.	Each	₹1,523.33	6	₹9,140.00
(b)	Chairs with cushioned back.	Each	₹1,268.50	4	₹5,074.00
(c)	Supervisor's Table (1500mm x 900mm) with sunmica top & bottom side drawer with lock.	Each	₹8,887.43	2	₹17,774.86
(d)	Ministerial Staff Table (1200mm x 900mm) with sunmica top & single side drawer with lock.	Each	₹7,616.66	2	₹15,233.33
(e)	Steel Almirah (78x36x22 inch).	Each	₹11,426.69	2	₹22,853.39
(f)	File Racks Steel.	Each	₹3,808.90	1	₹3,808.90
(g)	18 Pigeon Holes Locker Steel.	Each	₹12,695.19	1	₹12,695.19



Schedule 28000: Tools & Plants (OHE & PSI)					
Item No.	Description	Unit	Rate (inclusive of GST)	Quantity	Amount (inclusive of GST)
1	2	3	4	5	6=4*5
(h)	Desktop Computer (Intel Core i3 9100 8GB/1000 GB HDD/Window10 or superior).	Each	₹59,265.00	2	₹1,18,530.00
	Total Amount (inclusive of GST) =				₹99,17,415.01



RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Schedule 29000: SCADA									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
29001	SCADA-1	Preparation and supply of Design & Drawing for SCADA at RCC,TSS,SP & SSP.	Job	₹0.00	₹2,48,888.76	1	₹0.00	₹2,48,888.76	₹2,48,888.76
29003	SCADA-3	Supply, Erection, Testing & comissioning of RTU's (as per latest RDSO specifications) at							
29003A	SCADA-3(a)	FP/TSS	Each	₹15,68,589.72	₹1,13,332.55	1	₹15,68,589.72	₹1,13,332.55	₹16,81,922.27
29006	SCADA-6	Modification/up gradation, testing & commissioning in existing standard SCADA software at RCC Equipments for configuration,integration/ hooking up of additional RTUs of adjacent section with master station i.e-RCC,TSS,SP and SSP	Job	₹0.00	₹9,39,514.53	1	₹0.00	₹9,39,514.53	₹9,39,514.53
29009	SCADA-9	Supply of 10% spare cards for operation & maintenance as per latest RDSO Specification	Job	₹16,42,013.22	₹0.00	1	₹16,42,013.22	₹0.00	₹16,42,013.22
29010	SCADA-10	Supply of Spl. T & P for maintenance. as per latest RDSO Specification	Set	₹4,27,225.14	₹0.00	1	₹4,27,225.14	₹0.00	₹4,27,225.14
29011 A	SCADA-11(a)	Erection, integration, testing & commissioning for existing and new equipments for TSS	Job	₹0.00	₹2,63,684.91	1	₹0.00	₹2,63,684.91	₹2,63,684.91
29012	SCADA-12	Integration of the Energy Data of a TSS from							
29012 A	SCADA-12(a)	RCC to SEMC	Job	₹0.00	₹1,43,332.57	1	₹0.00	₹1,43,332.57	₹1,43,332.57
29012 B	SCADA-12(b)	SEMC to SLDC	Job	₹0.00	₹1,43,332.57	1	₹0.00	₹1,43,332.57	₹1,43,332.57
Total Amount (inclusive of GST) =							₹36,37,828.08	₹18,52,085.88	₹ 54,89,913.97

CRCP, Jharkhand



PKG-IXB

RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Common Schedule of OHE/TSS									
Schedule 30000A: Galvanized Steel Structures									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30009	CS-9	Supply and Erection of all types of galvanised Steel Structures, Small Parts Steel etc.	MT	₹ 1,33,342.00	₹ 4,205.30	340	₹ 4,53,36,280.61	₹ 14,29,803.37	₹ 4,67,66,083.97
	CS-9(a)	Extra on Erection under Power Block.	MT	₹ 0.00	₹ 4,205.30	2	₹ 0.00	₹ 8,410.61	₹ 8,410.61
	CS-9(b)	Extra rate on Manual Erection.	MT	₹ 0.00	₹ 2,103.22	30	₹ 0.00	₹ 63,096.55	₹ 63,096.55
		Total Amount (inclusive of GST) =					₹ 4,53,36,280.61	₹ 15,01,310.52	₹ 4,68,37,591.13



RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Common Schedule of OHE/TSS									
Schedule 30000B: Concrete for Foundation									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30006B	CS-6 (b)	Providing and laying of concrete for foundation and plinth in all types of Soils using M-15 grade concrete for main foundation and M-20 grade concrete for grouting and mugging including nominal reinforcement wherever required as per RDSO drawings	CUM	₹ 7,753.71	₹ 2,123.60	3000	₹ 2,32,61,118.75	₹ 63,70,814.73	₹ 2,96,31,933.48
30007A	CS-7 (a)	100% Extra Payment over CS-6(b) for foundation and plinth in hard Rock/heavy concrete requiring chiseling/Blasting/ machine breaking	CUM	₹ 0.00	₹ 2,123.60	64	₹ 0.00	₹ 1,35,910.71	₹ 1,35,910.71
30007B	CS-7 (b)	50% Extra Payment over CS-6(b) for foundation and plinth in Soft Rock/Hard soil requiring chiseling/Blasting/machine breaking and in Black Cotton Soil	CUM	₹ 0.00	₹ 1,062.37	8	₹ 0.00	₹ 8,498.95	₹ 8,498.95
30008	CS-8	Providing and laying of Reinforced Concrete for Pier/Column/Pile, Cable Trench and Trench Cover and special designed foundations requiring reinforcement	CUM	₹ 0.00	₹ 9,774.25	80	₹ 0.00	₹ 7,81,939.64	₹ 7,81,939.64
Total Amount (inclusive of GST) =							₹ 2,32,61,118.75	₹ 72,97,164.04	₹ 3,05,58,282.79

CRCP, Jharkhand



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RAILWAY ELECTRIFICATION WORK OF CRCP: ICHAK KHURD (EXCL.) - SHIVPUR (EXCL.) & 1 NO. TSS (Package-IXB)									
BILL OF QUANTITIES									
Common Schedule of OHE/TSS									
Schedule 30000C: Miscellaneous Common Items of OHE/TSS									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30001	CS-1	Supply, Erection, Testing and Commissioning of 25kV, 1600Amp Vacuum Interruptor	Each	₹ 4,86,778.95	₹ 5,564.41	5	₹ 24,33,894.73	₹ 27,822.06	₹ 24,61,716.79
30002	CS-2	Supply, Erection, Testing and Commissioning of 25kV Potential Transformer Type-I or Type-II.	Each	₹ 99,192.17	₹ 1,047.65	6	₹ 5,95,153.02	₹ 6,285.87	₹ 6,01,438.89
30003	CS-3	Supply, Erection, Testing and commissioning of 42kV Lightning Arrestor with surge monitor, counter and cable	Each	₹ 35,770.57	₹ 733.92	10	₹ 3,57,705.67	₹ 7,339.18	₹ 3,65,044.85
30004	CS-4	Supply and Installation of cables for SWS/TSS	Mtr	₹ 276.35	₹ 21.52	6000	₹ 16,58,110.71	₹ 1,29,115.18	₹ 17,87,225.89
30005A	CS-5(a)	Supply, Erection, Oil Filtration, Testing and Commissioning of 25kV/240V, 10 KVA Auxilliary (LT) supply transformer with 25 kV D.O. fuse switch assembly, anti climbing device, Arcing horns, post insulators, copper jumper and earth electrode etc.							
	(i)	With Porcelain Insulators 1050mm CD.	Set	₹ 1,36,553.99	₹ 13,911.56	6	₹ 8,19,323.93	₹ 83,469.37	₹ 9,02,793.30
30010	CS-10	Supply and erection of Fencing Panels, Uprights, Gate and Anti-Climbing device	Mtr.	₹ 3,950.47	₹ 132.51	300	₹ 11,85,141.43	₹ 39,753.88	₹ 12,24,895.31
30011	CS-11	Supply and erection of Aluminium Jumper with Fastners	Each	₹ 3,110.09	₹ 329.58	34	₹ 1,05,743.07	₹ 11,205.84	₹ 1,16,948.90
30012	CS-12	Supply and erection of Copper Strips for equipment earthing	Mtr	₹ 1,876.70	₹ 198.20	84	₹ 1,57,642.84	₹ 16,649.06	₹ 1,74,291.90
30014	CS-14	Supply and spreading of gravel/ ballast in the switching yard (TSS/SP/SSP)	CUM	₹ 1,410.07	₹ 10.19	450	₹ 6,34,533.15	₹ 4,586.99	₹ 6,39,120.13

CRCP, Jharkhand



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Schedule 30000C: Miscellaneous Common Items of OHE/TSS									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30015A	CS-15(a)	Dismantling of Redundant foundations with compressor powered machines/manually with contractor's own men and material including consumables like Diesel Oil etc.	Nos.	₹ 0.00	₹ 5,044.76	10	₹ 0.00	₹ 50,447.61	₹ 50,447.61
30016	CS-16	Monthly charges for one crane operator for full time operation for one crane including Monthly charges for one Watch & Ward for one crane.	Man Month	₹ 0.00	₹ 25,430.03	8	₹ 0.00	₹ 2,03,440.21	₹ 2,03,440.21
30017	CS-17	Supply, Erection, Testing and Commissioning of anti theft transformer 240Volt/2.2kV, 5 kVA with DO Fuse switch excavation of cable trench, laying of cables, earthing, jumpering, DG set including dismantling of above equipments as per directions of Engineer	Each location	₹ 1,00,334.95	₹ 69,772.03	2	₹ 2,00,669.90	₹ 1,39,544.06	₹ 3,40,213.97
30019	CS-19	Hiring charges for semi skilled Labour with proper tools for working during Non interlocking period.	Man- Days	₹ 0.00	₹ 396.71	60	₹ 0.00	₹ 23,802.79	₹ 23,802.79
30020	CS-20	Supply and Laying of dry stone boulder pitching of aprox. 300mm thickness in exposed slopes at SWS,TSS and OHE Foundations etc	CUM	₹ 1,105.41	₹ 275.22	180	₹ 1,98,973.29	₹ 49,539.46	₹ 2,48,512.74
30021	CS-21	Extra Earthwork in filling at SWS, TSS and OHE Foundations	CUM	₹ 258.23	₹ 63.43	7500	₹ 19,36,727.68	₹ 4,75,687.50	₹ 24,12,415.18

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Schedule 30000C: Miscellaneous Common Items of OHE/TSS									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30022	CS-22	Drilling of 50mm dia holes in the existing RCC trestle beam/pier/mass concrete beam/Flat hard rock/heavy concrete bed, foundation, structure/ lined or unlined tunnels to the depth between 450mm to 1250mm with pneumatic rillers, compressor etc. and making the hole surface fit for insertion of bolts with all lead and lift. Supply and grouting of suitable galvanized MS bolts of size upto 32mm dia of varying length including nuts, check nuts, washers etc. Pressure Grouting the drilled holes (50mm dia) by epoxy grouting of approved quality of epoxy resin hardener and thinner. Payment includes supply, erection, grouting with suitable size bolts at regular intervals of earthing strip and its connection to brackets etc wherever required in tunnels. (All labour and materials shall be by the contractor)	Each Location	₹ 29,841.46	₹ 7,460.37	8	₹ 2,38,731.70	₹ 59,682.93	₹ 2,98,414.63
30023C	CS-23(c)	Supply and Erection of 25 kV single pole isolator 1600 Amp with insulators, with/without earth contact assembly and with/without interlock	Each	₹ 1,18,319.10	₹ 4,652.09	20	₹ 23,66,382.04	₹ 93,041.85	₹ 24,59,423.89
30023D	CS-23(d)	Supply and Erection of 25kV Double Pole Isolator 1600Amp with insulators, with/without earth contact assembly and with/without interlock	Each	₹ 1,10,615.47	₹ 3,696.77	5	₹ 5,53,077.33	₹ 18,483.86	₹ 5,71,561.18

CRCP, Jharkhand




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Schedule 30000C: Miscellaneous Common Items of OHE/TSS									
Sch. No.	Item No.	Description	Unit	Rate (inclusive of GST)		Quantity	Amount (inclusive of GST)		Total Amount (inclusive of GST)
				Supply	Erection		Supply	Erection	
1	2	3	4	5	6	7	8=5*7	9=6*7	10=8+9
30024A	CS-24(a)	Excavation of Earth to required depth below rail level, burying 13 mtrs of long rail and connecting it as per latest RDSO drawings at TSS/Switching Stations/mid section including covering back and proper dressing up of earth (Rail will be supplied by IRCON excluding earth electrodes)	Job	₹ 0.00	₹ 19,871.28	4	₹ 0.00	₹ 79,485.12	₹ 79,485.12
30025	CS-25	Watching and guarding of OHE along the track for 12 hrs each day on administrative reasons							
	(a)	Person with arms	Per Person/ day	₹ 797.37	₹ 0.00	720	₹ 5,74,109.78	₹ 0.00	₹ 5,74,109.78
	(b)	Person without arms	Per Person/ day	₹ 725.33	₹ 0.00	720	₹ 5,22,238.75	₹ 0.00	₹ 5,22,238.75
30026	CS-26	Supply & Erection of 25kV Support/ Post insulators with fittings and fasteners.	Each	₹ 4,514.82	₹ 169.73	40	₹ 1,80,592.89	₹ 6,789.36	₹ 1,87,382.25
	CS-Earth Electrode	Earthing with 4.5 meter long, 40mm dia, G.I. pipe class 'B' earth electrode, adding the charcoal or coke and salt, providing concrete enclosure and MS cover plate with lifting arrangement etc.	Job	₹ 4,103.57	₹ 2,406.14	24	₹ 98,485.63	₹ 57,747.31	₹ 1,56,232.94
	CS-9T	Supply and Erection of 25 kV 9-Ton insulators including fittings	Each	₹ 7,547.20	₹ 1,163.05	40	₹ 3,01,888.09	₹ 46,521.89	₹ 3,48,409.98
		Total Amount (inclusive of GST) =					₹ 1,51,19,125.63	₹ 16,30,441.37	₹ 1,67,49,567.00

CRCP, Jharkhand



PKG-IXB

FORM OF AGREEMENT

(To be executed on requisite value of stamp Papers)

AGREEMENT

CA No. IRCON/2071/CRCP/ELECT/OHE&PSI/PKG-IXB/CA/

Date 04.06.2024

THIS AGREEMENT made on _____ day of _____ (Month/year) between IRCON International Limited, Sone Bhawan (First Floor), Daroga Prasad Rai Path, Patna - 800001 acting through (Chief Project Manager/Railway Projects, Sone Bhawan (First Floor), Daroga Prasad Rai Path, Patna - 800001) (hereinafter called "the Employer/Engineer") of the one part and _____ (name and address of the Contractor) (hereinafter called "the Contractor") of the other part.

WHEREAS the Employer is desirous that certain works should be executed by the Contractor viz. **LOA No. IRCON/2071/CRCP/ELECT/OHE&PSI/PKG-IXB/LOA/** dated 04.06.2024 (hereinafter called "the Works", and has accepted a Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meaning as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement:
 - a. Agreement
 - b. Letter of Acceptance of Tender
 - c. Addendum(s)/Corrigendum(s), if any.
 - d. E-Procurement Notice
 - e. Instructions to the Tenderers
 - f. Appendix to Tender
 - g. Form of Bid
 - h. Special Conditions of the Contract
 - i. General Conditions of Contract
 - j. Drawings
 - k. Technical Specifications & Standards
 - l. Certificate of Familiarization
 - m. Safety, Health & Environment
 - n. Explanatory Notes



o. Bill of Quantity

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement executed the day and year first before written.

(Name, Designation and address of the
authorized signatory)

(Name, Designation and address of the
authorized signatory)

Signed for and on behalf of the Contractor in
the presence of:

Signed for and on behalf of the Employer in
the presence of:

Witness:

Witness:

1. Signature.....
Name.....
Address.....
.....

1. Signature.....
Name.....
Address.....
.....

2. Signature.....
Name.....
Address.....
.....

2. Signature.....
Name.....
Address.....
.....



PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To

IRCON International Limited,

[Acting through _____ (Project Incharge) & Address of the Project]

WHEREAS _____ [name and address of contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute the work of "_____ [name of Contract and brief description of Works] (hereinafter called "the Contract.");

AND WHEREAS it has been stipulated by you in the said Contract that the contractor shall furnish you with a Bank Guarantee by a Scheduled Bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of _____ [amount of Guarantee], _____ [amount in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we unconditionally agree and undertake to pay you, without any demur or protest, at once, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of Guarantee] as mentioned in demand letter, without requiring you to prove or to show grounds or reasons for your such demand for the sum specified therein, in the first letter of invocation.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid up to _____ (a date **60 days** from the date of completion of the work).

We, the _____ Bank further agree that this guarantee shall be invokable at our place of business at New Delhi/NCR/Project HQ (Indicate detail address of branch with Code No.). The branch at New Delhi/NCR/Project HQ is being advised accordingly.



This Bank Guarantee shall be operative only if it is accompanied by a separate advice sent by _____ (Name of Issuing Bank, with address) on _____ (Name of Employer's Bank, with address) IFS Code _____ through Structured Financial Messaging System (SFMS) and authenticated by the Employer's Bank.

SIGNATURE AND SEAL OF THE GUARANTOR

Name of Bank:

Address:

Date:

* The Bank should indicate detailed address of New Delhi/NCR/Project HQ branch along with its Code No



Signature Not Verified

Digitally signed by Shasheekant
Date: 2024.06.10 16:26:47 IST
Location: eProcurement System for
Central PSUs