



इरकॉन इन्टरनेशनल लिमिटेड

नवरत्न कम्पनी
(भारत सरकार का उपक्रम)

IRCON INTERNATIONAL LIMITED

NAVRATNA COMPANY
(A Govt. of India Undertaking)



No: IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ 111

Date: 26.11.2024

M/s Siemens Limited,
Birla Aurora,
Level 21, Plot No. 1080,
Dr. Annie Besant Road,
Worli, Mumbai-400030

(Kind Attn : Sh. Anupam Arora, GM)

(LETTER OF ACCEPTANCE)

Sub: Detailed Design, Engineering, Supply, Installation, Testing & Commissioning of 25kV AC 50Hz single phase Overhead Equipment Rigid/Flexible Overhead Catenary System (ROCS/FOCS), Integrated Substation (132/25kV TSS & 132/33kV ESS), Switching Posts (SP & SSP), SCADA, and associated works on Bridges, Tunnels and Open Routes, etc. complete in all respect in connection with Railway Electrification of Sivok-Rangpo New BG Rail Line Project of Northeast Frontier Railway **(OHE Package)**

- Ref: 1. e-NIT No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 10.05.2024
2. Corr-1 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 22.05.2024
3. Corr-2 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 03.06.2024
4. Corr-3 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 29.06.2024
5. Corr-4 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 04.07.2024
6. Corr-5 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 19.07.2024
7. Corr-6 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 01.08.2024
8. Corr-7 No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/ dt. 15.08.2024
9. Technical Bid opened on 31.08.2024
10. Offer No. SMO RI EL/6456/ dt. 28.08.2024, (Bid ID 705049 on e-procurement portal)
11. Shortfall documents query notified / submitted on e-procurement portal on 25.10.2024
12. Status of bidders after technical evaluation & financial bid opening notified on e-procurement portal on 18.11.2024
13. Financial Bid opened on 19.11.2024

Reference above, the competent authority for and on behalf of **Ircon International Limited** is pleased to accept your offer for the work of 'Detailed Design, Engineering, Supply, Installation, Testing & Commissioning of 25kV AC 50Hz single phase Overhead Equipment Rigid/Flexible Overhead Catenary System (ROCS/FOCS), Integrated Substation (132/25kV TSS & 132/33kV ESS), Switching Posts (SP & SSP), SCADA, and associated works on Bridges, Tunnels and Open Routes, etc. complete in all respect in connection with Railway Electrification of Sivok-Rangpo New BG Rail Line Project of Northeast Frontier Railway (OHE Package)' as per terms & conditions detailed below:

- 1) **Total Price:** Detailed Bill of Quantity (BOQ) is attached as **Annexure-A** and as per **Annexure-A** total value of the order comes out to **Rs. 2,08,42,04,208.54/-** (Rupees Two-Hundred-Eight Crore Forty-Two Lakh Four Thousand Two-Hundred-Eight and paisa Fifty-Four only) inclusive of all taxes & duties.

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- 2) **Taxes, Duties & Levies etc.**: The contract prices indicated in **Annexure-A** is inclusive of all types of taxes, duties and levies imposed by Central/State Govt. and local bodies such as IGST/CGST/SGST/UTGST, Compensation Cess, Labour Cess, Custom duty, royalties and other levies and shall be governed in accordance with clause no. 22 of Special Condition of Contract (SCC) of the Tender Document.
- 3) **Date of Commencement of the Contract**: Date of issue of this Letter of Acceptance shall be treated as the date of commencement of the contract. The Contractor shall be expected to mobilize to the site of works and commence execution of the works within 10 (ten) days from the date of issue of Acceptance Letter by IRCON as per clause no. 6 of Special Conditions of Contract.
- 4) **Completion Period**:
The work is required to be completed within 21 (Twenty-one) months from the date of issue of Letter of Acceptance (LOA) as per milestones mentioned in clause no. 8 of Special Conditions of Contract. In case of any delay in the completion period, the extension of the same shall be dealt as per clause no. 17 (A) & 17(B) of Indian Railways Standard General Conditions of the Contract, April-2022.
- 5) **Performance Security**:
In terms of clause no. 29.0(a)(i) of Special conditions of contract M/s Siemens Ltd. shall submit Performance Security amounting to 5% of contract value (Rs. 2,08,42,04,208.54/-) i.e. Rs. 10,42,10,210/-(Rupees Ten Crore Forty-Two Lakh Ten Thousand Two-Hundred-Ten only) in the form of irrevocable Bank Guarantee from a schedule bank in India within 21 days of issue of this LOA to 'Project Director, Ircon International Limited, 2nd Floor, PC Mittal Bus Stand, Siliguri, District Darjeeling, West Bengal-734001'. The performance Guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. For further details on performance security & retention money, clause no. 29.0 of Special conditions of contract may be referred.
- 6) **Contract Agreement**:
In terms of clause no. 40.0 of Special Conditions of Contract (SCC), M/s Siemens Ltd. shall enter into a Contract Agreement with 'Chief General Manager/Electrical, Ircon International Ltd, C-4, District Centre, Saket, New Delhi - 110017' within 28 days of issue of this LOA.





This letter will constitute a legal and binding contract between IRCON and M/s Siemens Ltd. till such time the formal contract agreement is signed.

This LOA is a brief of essential conditions of the tender. For details, original tender document and corrigendum thereto may be referred. All terms & conditions shall be as per the tender document & subsequent corrigendum issued.

This Letter of Acceptance is being issued in duplicate. You are requested to return one copy duly signed and stamped in token of your acceptance at the earliest.

For & on behalf of
Ircon International Limited


26/11/2024



(Vimal Kishor Nagar)
Chief General Manager (Electrical)

Encl: As above

Copy to:

1. Project Director/Electrical, Ircon International Limited, 2nd Floor, PC Mittal Bus Stand, Siliguri, District Darjeeling, West Bengal-734001

ANNEXURE-A
BILL OF QUANTITY

Name of work : Detailed Design, Engineering, Supply, Installation, Testing & Commissioning of 25kV AC 50Hz single phase Overhead Equipment Rigid/Flexible Overhead Catenary System (ROCS/FOCS), Integrated Substation (132/25kV TSS & 132/33kV ESS), Switching Posts (SP & SSP), SCADA, and associated works on Bridges, Tunnels and Open Routes, etc. complete in all respect in connection with Railway Electrification of Sivok-Rangpo New BG Rail Line Project of Northeast Frontier Railway **(OHE Package)**

Ref: LOA No. IRCON/ELECT/2046/NFR-SRRP/06/OHE Package/, Dt. 26.11.2024

Sl.No	Work Description	Estimated Cost (Rs.)	Quoted Amount (Rs.)
(i)	(ii)	(iii)	(iv)
Part-A1	OHE Package (Schedule- A, B, C1, C2, D, E, F)		
	The work includes detailed design, engineering, supply, installation, testing & commissioning of 25kV Overhead Equipment ROCS, FOCS, ISS, SP, SSP and associated works on Bridges, Tunnels and Open Routes from Sivok to Rangpo Rail Project, Northeast Frontier Railway, as detailed in BOQ/tender document, complete job to the satisfaction of Engineer-in-charge. Estimated Cost Including all components and excluding Cess and GST	₹ 1,79,29,01,646.63	₹ 1,79,29,01,646.63
2	Total amount including labour cess@ 1% and excluding GST	₹ 1,79,29,01,646.63	₹ 1,79,29,01,646.63
	Contractor's below/at par/above over the total estimated cost to be quoted		
3a	I/We offer the Rate	AT PAR	Below
3b	(in Percentage in case of "Above" and "Below") on the rates printed against Total amount as mentioned above.		6.60%
4	Total Amount excluding GST in Rs.	₹ 1,79,29,01,646.63	₹ 1,67,45,70,138.00
5	Add GST @ 18% on Total Quoted Amt. in Rs.	₹ 32,27,22,296.39	₹ 30,14,22,624.84
6	Total Amount including 18% GST in Rs. (Total Sch-A + Sch-B + Sch-C1 + Sch-C2 + Sch-D + Sch-E + Sch-F)	₹ 2,11,56,23,943.02	₹ 1,97,59,92,762.84
Part-B1	CAMC - (Schedule-G) - Optional		
	Comprehensive Maintenance Contract for OHE (ROCS, FOCS, ISS, SP, SSP) and SCADA equipment in Sivok to Rangpo section of Northeast Frontier Railway (After completion of 2 years DLP). Estimated Cost Including all components and excluding Cess and GST		
2	Total amount including labour cess@ 1% and excluding GST	₹ 10,82,06,035.48	₹ 10,82,06,035.48
	Contractor's below/at par/above over the total estimated cost to be quoted		
3a	I/We offer the Rate	AT PAR	Below
3b	(in Percentage in case of "Above" and "Below") on the rates printed against Total amount as mentioned above.		15.25%
4	Total Amount excluding GST in Rs.	₹ 10,82,06,035.48	₹ 9,17,04,615.00
5	Add GST @ 18% on Total Quoted Amt. in Rs.	₹ 1,94,77,086.39	₹ 1,65,06,830.70
6	Total Amount including 18% GST in Rs. (Total Sch-F)	₹ 12,76,83,121.86	₹ 10,82,11,445.70
A1+B1	Total Amount including 18% GST in Rs. (Total Sch-A + Sch-B + Sch-C1 + Sch-C2 + Sch-D + Sch-E + Sch-F + Sch-G)	₹ 2,24,33,07,064.88	₹ 2,08,42,04,208.54
Total Quoted Price in Words (in Rs.):	Rupees Two -Hundred -Eight Crore Forty-Two Lakh Four-Thousand Two-Hundred-Eight and Fifty Four Paise Only		



IRCON INTERNATIONAL LIMITED
(A Govt. of India Undertaking)
SUMMARY OF BILL OF QUANTITIES (BOQ)



Name of the Work: Detailed Design, Engineering, Supply, Installation, Testing & Commissioning of 25kV AC 50Hz single phase Overhead Equipment (ROCS/FOCS), Integrated Substation (132/25kV TSS & 132/33kV ESS), Switching Posts (SP & SSP), SCADA, and associated works on Bridges, Tunnels and Open Routes, etc. complete in all respect in connection with Railway Electrification of Sivok-Rangpo New BG Rail Line Project of Northeast Frontier Railway (OHE Package)

e-Procurement Notice No.: IRCON/ELECT/2046/NFR-SRPP/06/OHE Package. Dt: 17/05/2024

Name of the Bidder:	Siemens Limited		
Sl.No	Work Description	Estimated Cost (Rs.)	Quoted Amount (Rs.)
(i)	(ii)	(iii)	(iv)
Part-A1	OHE Package (Schedule- A, B, C1, C2, D, E, F)		
	The work includes detailed design, engineering, supply, installation, testing & commissioning of 25kV Overhead Equipment ROCS, FOCS, ISS, SP, SSP and associated works on Bridges, Tunnels and Open Routes from Sivok to Rangpo Rail Project, Northeast Frontier Railway, as detailed in BOQ/tender document, complete job to the satisfaction of Engineer-in-charge. Estimated Cost Including all components and excluding Cess and GST	₹ 1,79,29,01,646.63	₹ 1,79,29,01,646.63
2	Total amount including labour cess@ 1% and excluding GST	₹ 1,79,29,01,646.63	₹ 1,79,29,01,646.63
	Contractor's below/at par/above over the total estimated cost to be quoted		
3a	I/We offer the Rate		Below
3b	(in Percentage in case of "Above" and "Below") on the rates printed against Total amount as mentioned above.	AT PAR	6.60%
4	Total Amount excluding GST in Rs.	₹ 1,79,29,01,646.63	₹ 1,67,45,70,138.00
5	Add GST @ 18% on Total Quoted Amt. in Rs.	₹ 32,27,22,296.39	₹ 30,14,22,624.84
6	Total Amount including 18% GST in Rs. (Total Sch-A + Sch-B + Sch-C1 + Sch-C2 + Sch-D + Sch-E + Sch-F)	₹ 2,11,56,23,943.02	₹ 1,97,59,92,762.84
Part-B1	CAMC - (Schedule-G) - Optional		
	Comprehensive Maintenance Contract for OHE (ROCS, FOCS, ISS, SP, SSP) and SCADA equipment in Sivok to Rangpo section of Northeast Frontier Railway (After completion of 2 years DLP). Estimated Cost Including all components and excluding Cess and GST		
2	Total amount including labour cess@ 1% and excluding GST	₹ 10,82,06,035.48	₹ 10,82,06,035.48
	Contractor's below/at par/above over the total estimated cost to be quoted		
3a	I/We offer the Rate		Below
3b	(in Percentage in case of "Above" and "Below") on the rates printed against Total amount as mentioned above.	AT PAR	15.25%
4	Total Amount excluding GST in Rs.	₹ 10,82,06,035.48	₹ 9,17,04,615.00
5	Add GST @ 18% on Total Quoted Amt. in Rs.	₹ 1,94,77,086.39	₹ 1,65,06,830.70
6	Total Amount including 18% GST in Rs. (Total Sch-F)	₹ 12,76,83,121.86	₹ 10,82,11,445.70
A1+B1	Total Amount including 18% GST in Rs. (Total Sch-A + Sch-B + Sch-C1 + Sch-C2 + Sch-D + Sch-E + Sch-F + Sch-G)	₹ 2,24,33,07,064.88	₹ 2,08,42,04,208.54
Total Quoted Price in Words (in Rs.):	Rupees Two Hundred Eight Crore Forty Two Lakh Four Thousand Two Hundred Eight and Fifty Four Paise Only		

Note:- 1) Percentage % is applicable only in case of "Above/Below".
2) Percentage is "zero" in case of "At Par".



Legal

(SAJJAD FARQAH)
JAM/ELECTRICAL

Javin Mathareel
Acm/Fin

Sl.No	Work Description	Estimated Cost (Rs.)	Quoted Amount (Rs.)
Note: Bidders are advised to fill up details in designated place.			
1	The SCHEDULE OF RATES AND QUANTITIES / BILL OF QUANTITIES (Also called a BOQ) shall be read in conjunction with the Instructions to Tenderers, General Conditions of Contract, Special Conditions of Contract, etc. References to the relevant sections of the contract documentation shall be made before quoting rates in BOQ.		
2	The tenderers are advised to quote only single percentage below/at par/above against each Part A-1 (Schedule-A, Schedule-B, Schedule-C1, Schedule-C2, Schedule-D, Schedule-E, Schedule-F) and Part B-1 (Schedule-G) of BOQ. The percentage so quoted will be loaded to the rates given in corresponding sections/items of the Part A-1 (Schedule-A, Schedule-B, Schedule-C1, Schedule-C2, Schedule-D, Schedule-E, Schedule-F) and Part B-1 (Schedule-G) of BOQ to arrive at the rates payable to the contractor against these schedules.		
3	Along with percentage the tenderer should also quote either "above" or "below" or "at par" failing which the percentage quoted shall be considered as percentage "below" of total cost as per BOQ		
4	Percentage quoted Above/Below/At par, including further discount if any, will be applicable on actually executed quantities subject to limits as per contract.		
5	The tenderers are advised to quote separately against each Part A-1 (Schedule-A, Schedule-B, Schedule-C1, Schedule-C2, Schedule-D, Schedule-E, Schedule-F) and Part B-1 (Schedule-G) of BOQ. In case, tenderer fails to fill in the mandatory portions or inadvertently leaves out the cell as blank, then the relevant Part of BOQ shall be considered as "AT PAR" for tender evaluation.		
6	If the tenderer quotes in the earlier BOQ / Quoting Sheet (BoQ.xls), it will not be considered for evaluation.		
7	Rates are inclusive of all other taxes and levies as applicable, and 18% GST to be quoted separately.		
8	Where there is a discrepancy between the unit rate and the total amount derived from the multiplication of the unit price & the quantity, the unit rate as quoted will govern.		



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SUMMARY

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)						
Sr. No.	SOR/ Non-SOR	SCHEDULE DESCRIPTION	Unit	Qty	Rate (INR)	Amount (INR)
	PART-A1	OHE Package (Schedule-A, B, C1, C2, D, E, F)				
1		Schedule A (PSI - SP/SSP)				
		Supply, Installation, Testing, Commission and bringing into full operation, 25kV AC 50 Hz single phase switching stations complete in all respects as per latest RDSO standards and construction practice.				
a	Non-SOR	Sectioning and Paralleling Post (SP)	Each	1	67,15,261.46	67,15,261.46
b	Non-SOR	Sub-Sectioning and Paralleling Post (SSP)	Each	3	65,43,754.46	1,96,31,263.37
2		Schedule B (ISS)				
a	Non-SOR	Supply, Installation, Testing, Commission and bringing into full operation, 25kV AC 50 Hz 132kV ISS (132/25kV + 132/33kV Substation) complete in all respects as per latest RDSO standards and construction practice.	Each	1	39,26,87,051.81	39,26,87,051.81
3		Schedule C1 (ROCS System)				
	Non-SOR	Supply, Installation, Testing, Commission and bringing into full operation 25kV AC 50 Hz single phase overhead equipment, the sections of Rigid Overhead Catenary System (ROCS) complete in all respects as per latest RDSO standards and construction practice.	TKM	40	2,77,45,345.23	1,10,98,13,809.30
4		Schedule C2 (FOCS System)				
	Non-SOR	Supply, Installation, Testing, Commission and bringing into full operation 25kV AC 50 Hz single phase overhead equipment, the sections of Flexible Overhead Catenary System (FOCS) complete in all respects as per latest RDSO standards and construction practice.	TKM	15	73,30,114.30	10,99,51,714.55
5	Non-SOR	Supply, Installation, Testing, Commission and bringing into full operation 25kV AC 50 Hz single phase overhead equipment, PTFE type short neutral section assembly / Station Auxiliary Transformer	Each	1	67,12,547.61	67,12,547.61
6	Non-SOR	Schedule D (SCADA)	LS	1	6,42,66,736.56	6,42,66,736.56
7	Non-SOR	Schedule E (Tools & Spares)	LS	1	5,76,36,761.38	5,76,36,761.38
8	Non-SOR	Schedule F (Misc.)	LS	1	2,54,86,500.59	2,54,86,500.59
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)				1,79,29,01,646.63
		Add GST @ 18%				32,27,22,296.39
	PART-A1	Total Amount (Incl. of all taxes & duties)				2,11,56,23,943.02
	PART-B1	Schedule G (Comprehensive Annual Maintenance for 5 years) - Optional				
9	Non-SOR	Comprehensive Annual Maintenance Contract of Rigid / Flexible Overhead Catenary System complete with the equipment at ISS, SP, SSP, etc. including all the switchgears and every associated equipment (After completion of DLP)				9,01,80,723.80
10	Non-SOR	Comprehensive maintenance contract of SCADA system complete with software, RCC equipment and Remote Terminal Units as per RDSO specification No.TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions(After completion of DLP)				1,80,25,311.68
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)				10,82,06,035.48
		Add GST @ 18%				1,94,77,086.39
	PART-B1	Total Amount (Incl. of all taxes & duties)				12,76,83,121.86
	PART-A1 + PART-B1	Total (Schedule A, B, C, D, E, F & G), inclusive of building cess @ 1%, GST @18% and all taxes & duties				2,24,33,07,064.88



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

SECTIONING & PARALLELING POST (SP)
Bill of Quantities (Schedule-A)
Pari-A1

Sr.No.	Schedule No.	Description of Item	Amount (Rs).
1	16000	OHE General	6,58,471.02
2	17000	OHE Concrete	21,09,229.27
3	21000	OHE Non Ferrous-B	6,33,198.07
4	30000	Common Items Required for OHE & SWS	32,47,875.37
		Sub-Total	66,48,773.72
		Add Labor Cess @ 1%	66,487.74
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)	67,15,261.46
		Add GST @ 18%	12,08,747.06
		Total Amount (Incl. of all taxes & duties)	79,24,008.52



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Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

SECTIONING & PARALLELING POST (SP)
Bill of Quantities (Schedule-A)

SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)	(in
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)		
		SCHEDULE-16000 (OHE-GENERAL)								
16005	OHE-5	Supply and Erection of material for Termination of copper cross feeder with gantries including cross feeder wire								
		(a) With Porcelain Insulators 1600mm CD	Set	2	45,062.77	1,095.93	90,165.54	2,191.86	92,357.40	
		(b) With Composite Insulators 1600mm CD	Set	2	40,852.36	1,095.93	81,704.72	2,191.86	83,896.58	
16006	OHE-6	Supply and Erection of Terminal boards in control cubicles,	Each	1	10,846.94	467.22	10,846.94	467.22	11,314.16	
16007	OHE-7	Supply and Erection of iron clad 240V AC and 110V D.C. board with fuse box in control cubicles,	Set	1	7,190.54	213.27	7,190.54	213.27	7,403.82	
16008	OHE-8	Supply and Erection of Lead Acid Batteries 40 AH with Battery Chargers:	Set	1	2,58,042.21	8,785.96	2,58,042.21	8,785.96	2,66,828.17	
16012	OHE-11	Manning of switching station i.e. SP/SSP and TSS:	Man month	3	-	43,861.99	-	1,31,585.96	1,31,585.96	
16013	OHE-12(a)	Electrification of switching station building as per specification	Each	1	-	37,603.21	-	37,603.21	37,603.21	
16014	OHE-12(b)	Supply & Erection of Earthing arrangement at switching station	job	1	18,885.62	8,596.11	18,885.62	8,596.11	27,481.73	
		Sub-Total (Schedule 16000)					4,66,835.58	1,91,635.44	6,58,471.02	
		Total including Labour cess@1%					4,71,503.94	1,93,551.79	6,65,055.73	
		Total including GST@18%					5,56,374.65	2,28,391.11	7,84,765.76	
		Total (Schedule 16000)					5,56,374.65	2,28,391.11	7,84,765.76	



Legal

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-A)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-17000 (OHE-CONCRETING)							
17001	OHE-15	Construction of Switching Station building, RCC work ,plastering, brick masonry, retaining wall, filling, compacting and leveling work etc as per RDSO standard drawing and supply and erection of name board of switching station	Each	1		5,57,135.11		5,57,135.11	5,57,135.11
1700C	DSR-2021, Item no. 4.20.2.4	Concrete of M25 grade (Additional)	cum	100		9,729.37		9,72,937.23	9,72,937.23
1700S	DSR-2021, Item no. 5.22.6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level. (Thermo-Mechanically Treated bars of grade Fe-500D or more.)	kg	6000		96.53		5,79,156.93	5,79,156.93
		Sub-Total (Schedule 17000)						21,09,229.27	21,09,229.27
		Total including Labour cess@1%						21,30,321.56	21,30,321.56
		Total including GST@18%						25,13,779.44	25,13,779.44
		Total (Schedule 17000)						25,13,779.44	25,13,779.44
Bill of Quantities (Schedule-A)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-21000 (OHE-NON-FERROUS "B")							
21005	OHE-28	Supply and Erection of 25 KV double pole isolator and with insulator with/without earth contact assembly.	Each	3	1,58,507.21	7,052.68	4,75,521.64	21,158.05	4,96,679.69
21006	OHE-29	Supply and Erection of all types of copper jumpers	Each	3	8,875.24	489.69	26,625.72	1,409.07	28,034.79
21008	OHE-31	Supply of materials and erection of a large copper jumper (160sqmm) between aluminium bus / OHE and cross feeder with all associated fittings.	Each	2	11,423.52	469.69	22,847.05	939.38	23,786.43
21010	OHE-33	Supply and Erection of all types of connectors for aluminium/copper bus bar.	Each	10	6,256.17	80.13	62,561.74	801.27	63,363.01
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	1	16,623.05	2,636.90	16,623.05	2,636.90	19,259.95
21013	OHE-36	Supply and Erection of 25 KV AC OHE danger board/danger board for height gauge, public/staff caution board and special boards required for commissioning of OHE/SWSs.	Each	6	187.91	157.79	1,127.44	946.75	2,074.19
		Sub-Total (Schedule 21000)					6,05,306.64	27,891.43	6,33,198.07
		Total including Labour cess@1%					6,11,359.71	28,170.34	6,39,530.05
		Total including GST@18%					7,21,404.45	33,241.00	7,54,645.46
		Total (Schedule 21000)					7,21,404.45	33,241.00	7,54,645.46



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-A)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-30000 (COMMON SCHEDULE)							
30001	CS-1	Supply and erection of 25 KV, 1600 Amp vacuum Interruptor	Each	3	4,04,882.85	4,433.05	12,14,647.96	13,299.15	12,27,947.10
30002	CS-2	Supply and erection of 25 KV Potential Transformer Type-I or Type-II	Each	3	82,503.96	834.59	2,47,511.87	2,503.76	2,50,015.62
30003	CS-3	Supply and erection of 42 KV Lightning Arrestor with surge monitor, counter and cable	Each	3	29,751.88	584.34	89,255.64	1,753.02	91,008.65
30004	CS-4	Supply and installation of cables for various types for SWS/TSS	Mtr	100	230.37	17.25	23,037.46	1,725.47	24,762.93
30005	CS-5	Supply, erection, oil filtration, testing & commissioning of 25KV/240V 10 KVA Auxiliary (LT) Supply Transformers oil type with DO fuse switch, anti climbing device, pedestal insulators, copper jumper and earth electrode etc.							
		(a) With Porcelain Insulators 1600mm CD	Set	0	1,07,044.71	13,687.46	-	-	-
		(b) With Composite Insulators 1600mm CD	Set	1	1,05,084.59	13,687.46	1,05,084.59	13,687.46	1,18,772.05
30006	CS-6	Providing and laying of Concrete For Foundation and Plinth In Other Than Hard and Rocky soil	CUM	60	5,211.11	1,614.93	3,12,666.57	96,895.87	4,09,562.44
30007	CS-7	Providing and laying of Concrete For Foundation and Plinth In all types of soils and soft rock.	CUM	2	4,894.60	2,401.44	9,789.21	4,802.87	14,592.08
30008	CS-8	Providing and laying of Reinforced Concrete for Pier/Column/Pile, Cable Trench and Trench Cover	CUM	5		7,433.60	37,168.01	-	37,168.01
30009	CS-9	Supply and erection of all types of galvanised Steel Structures, Small Parts Steel etc.	MT	3	1,05,124.49	3,383.96	3,15,373.48	10,151.88	3,25,525.35
30010	CS-10	Supply and erection of Fencing Panels, Uprights, Gate and Anti-Climbing device	Mtr	100	3,285.75	106.02	3,28,574.77	10,801.52	3,39,376.28
30011	CS-11	Supply and erection of Aluminium Jumper with Fastners	Each	2	2,586.89	262.57	5,173.78	525.15	5,698.93
30012	CS-12	Supply and erection of Copper Strips for equipment earthing	Mtr	20	1,561.14	157.79	31,222.84	3,155.82	34,378.66
30013	CS-13	Supply and erection of Aluminium Bus Bar 36mmx28mm	Mtr	70	384.81	54.24	26,936.99	3,796.75	30,733.74
30014	CS-14	Supply and spreading of gravel/ ballast in the switch yard (TSS/SP/SSP)	Cum	8	1,172.47	7.40	9,379.74	59.21	9,438.95
30015	CS-15	Dismantling of Redundant foundations with compressor powered machines/manually with contractor's own men and material including consumables like Diesel Oil etc	Nos	0	-	3,016.59	-	-	-
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.	Month	0	-	25,019.08	-	-	-
30017	CS-17	Supply and Erection of anti theft transformer 240 volt/2.2 KV 5 KVA, with DO Fuse switch excavation of cable trench, laying of cables, earthing, jumpering, DG set and manning of transformer round the clock including dismantling of above equipments.	each location	1	83,455.06	55,588.10	83,455.06	55,588.10	1,39,043.16
30018	CS-18	Dismantling of switching station (SWS) complete with building foundation, equipment and gantry structure with compressor powered machines/manually with contractor's own men and material and loading, transportation, unloading and handing over of released material to nominated person at specified place as per instructions of the Engineer.	Each SWS	0	-	75,551.60	-	-	-
30019	CS-19	Hire charges for semi skilled labour with proper tools for working during Non interlocking period.	Man - Days	0	-	390.78	-	-	-
30020	CS-20	Supply and laying of dry stone boulder pitching of approx.300mm thickness in exposed slopes at SWS,TSS and OHE Foundations etc.set and manning of transformer round the clock including dismantling of above equipments.	Cum.	0	918.93	219.43	-	-	-
30021	CS-21	Extra earth work in filling at SWS, TSS, and OHE Foundations.	Cum.	600	214.93	50.54	1,28,959.06	30,326.59	1,59,285.65
30022	CS-22	Drilling of 50mm dia holes in the existing RCC trestle beam/pier /mass concrete beam /lined or unlined tunnels to the depth between 450mm to 1000mm with pneumatic drillers, compressor etc, and making the hole surface fit for insertion of bolts with all lead and lift. Supply and grouting of galvanized MS bolts of size 32/25mm dia of varying length including nuts, check nuts, washers etc. Pressure Grouting the drilled holes (50mm dia) by epoxy grouting of approved quality of 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	1	24,821.33	5,944.42	24,821.33	5,944.42	30,765.75
		Sub-Total (Schedule 30000)					29,93,058.35	2,54,817.01	32,47,875.37
		Total including Labour cess@1%					30,22,988.94	2,57,365.19	32,80,354.12
		Total including GST@18%					35,67,126.95	3,03,690.92	38,70,817.86
		Total (Schedule 30000)					35,67,126.95	3,03,690.92	38,70,817.86



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

SUB-SECTIONING & PARALLELING POST (SSP)

Bill of Quantities (Schedule-A)

Part-A1

Sr.No.	Schedule No.	Description of Item				Amounts (Rs).
1	16000	OHE General				6,58,471.02
2	17000	OHE Concrete				21,09,229.27
3	21000	OHE Non Ferrous-B				6,33,198.07
4	30000	Common Items Required for OHE & SWS				30,78,066.46
		Sub-Total				64,78,964.81
		Add Labor Cess @ 1%				64,789.65
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)				65,43,754.46
		Add GST @ 18%				11,77,875.80
		Total Amount (Incl. of all taxes & duties)				77,21,630.26



Legal

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

SUB-SECTIONING & PARALLELING POST (SSP)
Bill of Quantities (Schedule-A)

SCH NO	S&R Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-16000 (OHE-GENERAL)							
16005	☐HE-5	Supply and Erection of material for Termination of copper cross feeder with gantries including cross feeder wire							
		(a) With Porcelain Insulators 1600mm CD	Set	2	45,082.77	1,095.93	90,165.54	2,191.86	92,357.40
		(b) With Composite Insulators 1600mm CD	Set	2	40,852.36	1,095.93	81,704.72	2,191.86	83,896.58
16006	☐HE-6	Supply and Erection of Terminal boards in control cubicles,	Each	1	10,846.94	467.22	10,846.94	467.22	11,314.16
16007	☐HE-7	Supply and Erection of iron clad 240V AC and 110V D.C. board with fuse box in control cubicles,	Set	1	7,190.54	213.27	7,190.54	213.27	7,403.82
16008	☐HE-8	Supply and Erection of Lead Acid Batteries 40 AH with Battery Chargers,	Set	1	2,58,042.21	8,785.96	2,58,042.21	8,785.96	2,66,828.17
16012	☐HE-11	Manning of switching station i.e. SP/SSP and TSS,	Man month	3	-	43,861.99	-	1,31,585.96	1,31,585.96
16013	☐E-12(a)	Electrification of switching station building as per specification	Each	1	-	37,603.21	-	37,603.21	37,603.21
16014	☐E-12(b)	Supply & Erection of Earthing arrangement at switching station	job	1	18,885.62	8,596.11	18,885.62	8,596.11	27,481.73
		Sub-Total (Schedule 16000)					4,66,835.58	1,91,635.44	6,58,471.02
		Total including Labour cess@1%					4,71,503.94	1,93,551.79	6,65,055.73
		Total including GST@18%					5,56,374.65	2,28,391.11	7,84,765.76
		Total (Schedule 16000)					5,56,374.65	2,28,391.11	7,84,765.76



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-A)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-17000 (OHE-CONCRETING)							
17001	OHE-15	Construction of Switching Station building, RCC work ,plastering, brick masonry, retaining wall, filling, compacting and leveling work etc as per RDSO standard drawing and supply and erection of name board of switching station	Each	1		5,57,135.11		5,57,135.11	5,57,135.11
1700C	DSR-2021, Item no. 4.20.2.4	Concrete of M25 grade (Additional)	cum	100		9,729.37		9,72,937.23	9,72,937.23
1700S	DSR-2021, Item no. 5.22.6	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete above plinth level. (Thermo-Mechanically Treated bars of grade Fe-500D or more.)	kg	6000		96.53		5,79,156.93	5,79,156.93
		Sub-Total (Schedule 17000)						21,09,229.27	21,09,229.27
		Total including Labour cess@1%						21,30,321.56	21,30,321.56
		Total including GST@18%						25,13,779.44	25,13,779.44
		Total (Schedule 17000)						25,13,779.44	25,13,779.44
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-21000 (OHE-NON-FERROUS "B")							
21005	OHE-28	Supply and Erection of 25 KV double pole isolator and with insulator with/without earth contact assembly.	Each	3	1,58,507.21	7,052.68	4,75,521.64	21,158.05	4,96,679.69
21006	OHE-29	Supply and Erection of all types of copper jumpers	Each	3	8,875.24	469.69	26,625.72	1,409.07	28,034.79
21008	OHE-31	Supply of materials and erection of a large copper jumper (160sqmm) between aluminium bus / OHE and cross feeder with all associated fittings.	Each	2	11,423.52	469.69	22,847.05	939.38	23,786.43
21010	OHE-33	Supply and Erection of all types of connectors for aluminium/copper bus bar.	Each	10	6,256.17	80.13	62,561.74	801.27	63,363.01
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	1	16,623.05	2,636.90	16,623.05	2,636.90	19,259.95
21013	OHE-36	Supply and Erection of 25 KV AC OHE danger board/danger board for height gauge, public/staff caution board and special boards required for commissioning of OHE/SWSs	Each	6	187.91	157.79	1,127.44	946.75	2,074.19
		Sub-Total (Schedule 21000)					6,05,306.64	27,891.43	6,33,198.07
		Total including Labour cess@1%					6,11,359.71	28,170.34	6,39,530.05
		Total including GST@18%					7,21,404.45	33,241.00	7,54,645.46
		Total (Schedule 21000)					7,21,404.45	33,241.00	7,54,645.46



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-A)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-30000 (COMMON SCHEDULE)							
30001	CS-1	Supply and erection of 25 KV/1600 Amp vacuum Interruptor	Each	3	4,04,882.65	4,433.05	12,14,647.96	13,299.15	12,27,947.10
30002	CS-2	Supply and erection of 25 KV Potential Transformer Type-I or Type-II	Each	3	82,503.96	834.59	2,47,511.87	2,503.76	2,50,015.62
30003	CS-3	Supply and erection of 42 KV Lightning Arrestor with surge monitor, counter and cable	Each	3	29,751.88	584.34	89,255.64	1,753.02	91,008.65
30004	CS-4	Supply and installation of cables for various types for SWS/TSS	Mtr	100	230.37	17.25	23,037.46	1,725.47	24,762.93
30005	CS-5	Supply, erection, oil filtration, testing & commissioning of 25KV/240V 10 KVA Auxiliary (LT) Supply Transformers oil type with DO fuse switch, anti climbing device, pedestal insulators, copper jumper and earth electrode etc.							
		(a) With Porcelain Insulators 1600mm CD	Set	0	1,07,044.71	13,687.46	-	-	-
		(b) With Composite Insulators 1600mm CD	Set	1	1,05,084.59	13,687.46	1,05,084.59	13,687.46	1,18,772.05
30006	CS-6	Providing and laying of Concrete For Foundation and Plinth In Other Than Hard and Rocky soil	CUM	60	5,211.11	1,614.93	3,12,666.57	96,895.87	4,09,562.44
30007	CS-7	Providing and laying of Concrete For Foundation and Plinth In all types of soils and soft rock.	CUM	2	4,894.60	2,401.44	9,789.21	4,802.87	14,592.08
30008	CS-8	Providing and laying of Reinforced Concrete for Pier/Column/Pile, Cable Trench and Trench Cover	CUM	5		7,433.60	37,168.01	-	37,168.01
30009	CS-9	Supply and erection of all types of galvanised Steel Structures, Small Parts Steel etc.	MT	3	1,05,124.49	3,383.96	3,15,373.48	10,151.88	3,25,525.35
30010	CS-10	Supply and erection of Fencing Panels, Uprights, Gate and Anti-Climbing device	Mtr	100	3,285.75	106.02	3,28,574.77	10,601.52	3,39,176.28
30011	CS-11	Supply and erection of Aluminium Jumper with Fastners	Each	2	2,586.89	262.57	5,173.78	525.15	5,698.93
30012	CS-12	Supply and erection of Copper Strips for equipment earthing	Mtr	20	1,561.14	157.79	31,222.84	3,155.82	34,378.66
30013	CS-13	Supply and erection of Aluminium Bus Bar 35mmx28mm	Mtr	70	384.81	54.24	26,936.99	3,796.75	30,733.74
30014	CS-14	Supply and spreading of gravel/ ballast in the switch yard (TSS/SP/SSP)	Cum	8	1,172.47	7.40	9,379.74	59.21	9,438.95
30015	CS-15	Dismantling of Redundant foundations with compressor powered machines/manually with contractor's own men and material including consumables like Diesel Oil etc.	Nos	0	-	3,016.59	-	-	-
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.	Month	0	-	25,019.08	-	-	-
30017	CS-17	Supply and Erection of anti theft transformer 240 volt/2.2 KV 5 KVA, with DO Fuse switch excavation of cable trench, laying of cables, earthing, jumpering, DG set and manning of transformer round the clock including dismantling of above equipments.	each location	0	83,455.06	55,588.10	-	-	-
30018	CS-18	Dismantling of switching station (SWS) complete with building foundation, equipment and gantry structure with compressor powered machines/manually with contractor's own men and material and loading, transportation, unloading and handing over of released material to nominated person at specified place as per instructions of the Engineer.	Each SWS	0	-	75,551.60	-	-	-
30019	CS-19	Hire charges for semi skilled labour with proper tools for working during Non interlocking period.	Man - Days	0	-	390.78	-	-	-
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.set and manning of transformer round the clock including dismantling of above equipments.	Cum.	0	918.93	219.43	-	-	-
30021	CS-21	Extra earth work in filling at SWS, TSS, and OHE Foundations.	Cum.	600	214.93	50.54	1,28,959.06	30,326.59	1,59,285.65
30022	CS-22	Drilling of 50mm dia holes in the existing RCC truss beam/pier/mass concrete beam /lined or unlined tunnels to the depth between 450mm to 1000mm with pneumatic drillers, compressor etc, and making the hole surface fit for insertion of bolts with all lead and lift. Supply and grouting of galvanized MS bolts of size 32/25mm dia of varying length including nuts, check nuts, washers etc. Pressure Grouting the drilled holes (50mm dia) by epoxy grouting of approved quality of 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	0	24,821.33	5,944.42	-	-	-
		Sub-Total (Schedule 30000)							30,78,066.46
		Total including Labour cess@1%					29,13,629.78	1,95,217.34	31,08,847.12
		Total including GST@18%					34,38,083.14	2,30,356.46	36,68,439.60
		Total (Schedule 30000)					34,38,083.14	2,30,356.46	36,68,439.60



INTEGRATED SUBSTATION (ISS)**Bill of Quantities (Schedule-B)**

Part - A1			
Sr. No.	Schedule-B	Description	Amount in INR
1	Section –A	Equipment & Accessories	32,67,35,824.29
2	Section –B	Various Cable	4,08,10,543.41
3	Section –C	FDA, NIFPS	53,67,815.08
4	Section –D	Maintenance Free Earthing.	36,48,152.03
5	Section –E	Steel structure	53,66,228.49
7	Section –F	Office furniture	7,89,744.75
8	Section –G	Illumination, HVAC & Electrification of Building	60,80,753.15
		Sub-Total Amount (Rs)	38,87,99,061.20
		Add Labour Cess @ 1%	38,87,990.61
		Sub-Total Amount (Including all the taxex except GST) (Rs)	39,26,87,051.81
		Add GST @ 18%	7,06,83,669.33
		Grand Total Amount	46,33,70,721.13



Legal

Schedule-B (Section A) - Equipment & Accessories

Part - A1

S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
	132kV SYSTEM							
A	POWER TRANSFORMER							
1	Supply, installation/erection, Testing & commissioning of 132/33 kV, 20 MVA, ONAN/ONAF, three phase power transformers with bushing CT's.	Each	2	1,88,97,838.58	2,76,786.29	3,77,95,677.16	5,53,572.57	3,83,49,249.73
2	Supply, installation/erection, Testing & commissioning of 132/27.5 kV, 21.6/30.24 MVA, ONAN/ONAF, single phase traction power transformers with bushing CT's.	Each	2	3,62,30,783.08	2,76,786.30	7,24,61,566.17	5,53,572.59	7,30,15,138.76
3	Supply, erection, testing & commissioning of 1 Pole Primary Neutral Isolator (PNISO) including Terminal Connectors	Each	2	2,69,345.40	10,322.38	5,38,690.80	20,644.77	5,59,335.56
4	Supply, erection, testing & commissioning of Primary Neutral CT (PNCT-1 & 2) including Terminal Connectors	Each	2	1,06,320.55	10,322.38	2,12,641.10	20,644.77	2,33,285.87
5	Supply, erection, testing & commissioning of Primary Neutral Lightning Arrestor (PNLA) including Terminal Connectors	Each	2	62,516.48	10,322.38	1,25,032.97	20,644.77	1,45,677.74
6	Supply, erection, testing & commissioning of Composite NGR (Neutral Grounding Resistor) Unit mainly comprising of 1 Nos NGR, 1 Nos Secondary Neutral Isolator, 2 Nos SNCT & 1 Nos SNLA having size of (2400x1800x2200) (lwxh). The design has to be finalised based on calculations during technical/construction design.	Each	2	8,98,122.77	27,526.36	17,96,245.54	55,052.71	18,51,298.26
B	132kV GIS BAY							
7	Design, Manufacture, Supply, erection of 132 kV [Rated Voltage 145 kV] 1600A 40 kA / 3s Gas Insulated Switchgear with all accessories as per RDSO Specification No. TI/SPC/PSI/HVGIS/0210 (with latest amendments). The work includes inter-panel wiring, making AC/DC supply through and facilitate in testing & commissioning of 132 kV bays Including Bus VT & Line LA with all men & tools required to complete the job.	Each	7	1,13,12,986.14	12,97,913.68	7,91,90,903.00	90,85,395.73	8,82,76,298.73
	Note:- The cost includes OEM supervision during erection, testing & Commissioning. The rate is inclusive of termination kits to be terminated at GIS. The termination kits have to be supplied/certified by the OEM of GIS. The supervision for installation, testing and commissioning of the GIS shall invariably be done by the OEM of GIS and all costs of such supervision is inclusive in the above costs							



Schedule-B (Section A) - Equipment & Accessories

Part - A1

S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
C	25kV GIS BAY							
8	Design, Manufacture, Supply, erection of 25 kV [Rated Voltage 27.5 kV] 2000A 20 kA / 3s Gas Insulated Switchgear with all accessories as per RDSO Specification No. TI/SPC/PSI/LVGIS/0210 (with latest amendments). The work includes inter-panel wiring, making AC/DC supply through and facilitate in testing & commissioning of 25 kV bays Including Bus VT & Line LA with all men & tools required to complete the job.	Each	7	1,14,54,545.45	4,69,915.89	8,01,81,818.18	32,89,411.24	8,34,71,229.42
	Note:- The cost includes OEM supervision during erection, testing & Commissioning. The rate is inclusive of termination kits to be terminated at GIS. The termination kits have to be supplied/certified by the OEM of GIS. The supervision for installation, testing and commissioning of the GIS shall invariably be done by the OEM of GIS and all costs of such supervision is inclusive in the above costs							
D	LIGHTNING ARRESTOR							
9	Supply, erection, testing & commissioning of 132 kV Lightning Arrester including fixing of terminal connectors as per technical specifications (including all the parts & accessories)	Each	2	1,65,158.14	13,763.18	3,30,316.28	27,526.36	3,57,842.63
10	Supply, installation/erection, Testing & commissioning of 120 kV lightning arrestors as per RDSO specs no. ETI/PSI/71 Rev I (1/87).	Each	0	1,73,547.51	1,219.30	-	-	-
11	Supply, installation/erection, Testing & commissioning of 42 KV lightning arrester, surge monitor, counter and cable with all parts & accessories complete in all respect.	Each	0	29,765.88	610.15	-	-	-
E	BUS POST INSULATOR							
12	Supply, erection, testing & commissioning of Post Insulator at 132 kV Side, including fixing of clamps / ccnnectors etc.	Each	2	20,130.02	11,010.54	40,260.05	22,021.09	62,281.13
13	Supply, erection, testing & commissioning of Post Insulator at 25 kV Side, including fixing of clamps / ccnnectors etc.	Each	2	3,544.02	3,440.79	7,088.04	6,881.59	13,969.63



Schedule-B (Section A) - Equipment & Accessories

Part - A1

S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
F	33kV EQUIPMENT							
14	Metal-clad (2 mm) 33 kV, 3 Phase MV arc-proof board. HT Panel shall have rated breaking fault current of 31.5KA for 3Sec, Numerical Relays, metering arrangement including CTs (200/5/5-5A), 15VA, class 0.5 for metering and 5P10 for protection) - 6 Nos., PTs (for metering and protection, Trivector meter - 6 Nos, etc., shall be SCADA compatible. All VCBs shall be motorized and operable in local / remote mode complete with terminations etc, with the following main electrical characteristics:	Each	0	1,32,35,500.00	23,58,450.55	-	-	-
	nominal voltage 36 kV							
	operating voltage 33 kV							
	nominal frequency 50 Hz							
	nominal current at main busbars 630 A							
	Rated short circuit current 31.5KA or better for 3s							
	The board consists of the following sections:							
	Incoming:							
	630A, 3 Phase VCB - 2nos.							
	Outgoing:							
	630A, 3 Phase VCB (LILO for cables) - 2 nos.							
	630A, 3 Phase VCB (for 33/11KV Transformers) - 2 nos.							
	630A, 3 Phase VCB (for Bus Coupler) - 1 no.							
	630A, 3 Phase VCB (Spare) - 2 nos.							
	There should be integrated earth switch provision (making type) at feeder side for each VCB in each cable compartment							
G	SHUNT CAPACITORS							
15	Supply, installation/erection, Testing & commissioning of 33 kV shunt capacitor bank of 6000 kVAR rating at 33 kV including low loss sereis reactor, 33 kV neutral current transformer, including control panel and other accessories etc.	Set	0	30,67,358.17	24,937.87	-	-	-
16	Supply, installation/erection, Testing & commissioning of 25 kV shunt capacitor bank of 3500 kVAR rating at 25 kV including low loss sereis reactor, 25 kV neutral current transformer, including control panel and other accessories etc.	Set	1	44,27,886.14	92,753.83	44,27,886.14	92,753.83	45,20,639.96



Schedule-B (Section A) - Equipment & Accessories								
Part - A1								
S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
H	BATTERY CHARGER / BANK							
17	Supply, Installation/erection, testing & commissioning of low maintenance lead acid batteries set with float cum boost battery charger with DC distribution board with all parts. Battery Size shall be minimum 400AH.	Set	1	26,24,400.36	28,868.72	26,24,400.36	28,868.72	26,53,269.08
I	Circuit Breaker							
18	Supply, installation/erection, Testing & commissioning of 132 KV 1600A Triple pole SF6 circuit breakers with interlock	Each	0	6,13,160.54	7,693.11	-	-	-
19	Supply, installation/erection, Testing & commissioning of 132 KV 1600A double pole SF6 circuit breakers with interlock	Each	0	8,74,834.57	7,693.11	-	-	-
20	Supply, installation/erection, Testing & commissioning of 25 KV single pole Vacuum circuit breaker with interlocking of rating 2000	Each	0	5,40,766.45	5,405.05	-	-	-
21	Supply, installation/erection, Testing & commissioning of single pole, 25 KV, 2000A, Vacuum interrupter	Each	0	4,05,069.31	4,630.32	-	-	-
22	Supply & erection of 25 KV support insulators with fittings and fasteners.	Each	0	4,426.60	165.58	-	-	-
J	CONTROL & RELAY PANEL							
23	Supply, installation/erection, Testing & commissioning of control & relay numeric panel suitable for double transformer traction sub -stations of 132/33 kV & 132/27 kV bays	Each	7	22,21,699.40	13,954.17	1,55,51,895.79	97,679.18	1,56,49,574.97
24	Supply, installation/erection, Testing & commissioning of control & relay numeric panel suitable for 27 kV bays.	Each	7	22,21,699.40	13,954.17	1,55,51,895.79	97,679.18	1,56,49,574.97



Schedule-B (Section A) - Equipment & Accessories

Part - A1

S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
K	ALUM. PIPE/ACSR CONDUCTOR BUS STRINING/STEEL STRUCTURES							
25	Supply, erection, testing & commissioning of 3"- 80 mm and 90 mm O.D. IPS Al tube with all associated connectors and any other material to make the job complete including cutting, bending etc.	Metre	125	1,128.39	752.26	1,41,048.15	94,032.10	2,35,080.25
26	Supply, erection, testing & commissioning of steel structures including the tubular pole structure, cable brackets etc	Ton	0	80,927.49	53,951.66	-	-	-
L	Potential transformers							
27	Supply & erection of 25 KV potential transformers	Each	0	82,542.85	871.07	-	-	-
28	Supply, installation/erection, Testing & commissioning of 132 KV Potential Transformer assembly.	Each	0	2,89,387.69	1,615.69	-	-	-
M	Isclators							
29	Supply, installation/erection, Testing & commissioning of 132 kV 1600 Amp 25 KA for 1 Sec. Triple pole isolators with double earth blade (electrically operated).	Set	0	5,55,457.21	5,554.57	-	-	-
30	Supply, installation/erection, Testing & commissioning of 132 KV 1600 Amp 25 KA for 1 Sec. Triple pole isolators with Single earth blade (electrically operated)	Set	0	4,93,739.75	4,937.40	-	-	-
31	Supply, installation/erection, Testing & commissioning of 132 KV 1600 Amp 25 KA for 1 Sec. double pole isolators with Single earth blade (electrically operated)	Set	0	3,53,434.36	3,338.76	-	-	-
32	Supply and erection of 27.5 kV double pole isolator 1600 Amp, horizontal with insulator	Each	0	1,00,435.90	3,199.27	-	-	-
33	Supply and erection of 27.5 Kv Single pole isolator 1600 Amp, horizontal with insulator	Each	0	55,533.68	3,199.27	-	-	-
N	Current transformers							
34	Supply, installation/erection, Testing & commissioning of 132 KV current transformer assembly (1000 - 500/5A) 2 core.	Each	0	2,96,590.07	1,722.07	-	-	-
35	Supply, installation/erection, Testing & commissioning of 132 KV current transformer assembly (1000 - 500/5A) 5 core.	Each	0	3,70,876.82	1,722.07	-	-	-
36	Supply, installation/erection, Testing & commissioning of 132 KV current transformer assembly (400 - 200/5A) 1 core.	Each	0	2,96,590.07	1,722.07	-	-	-
37	Supply, installation/erection, Testing & commissioning of 132 KV current transformer assembly (400 - 200/5A) 3 core	Each	0	3,70,876.82	1,722.07	-	-	-
38	Supply & erection of 25 KV current transformers (1500-750/5A) 3 core	Each	0	82,959.32	710.70	-	-	-



Schedule-B (Section A) - Equipment & Accessories								
Part - A1								
S No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
39	Supply & erection of 25 KV current transformers (1500-750/5A) 2 core.	Each	0	82,959.32	710.70	-	-	-
40	Supply & erection of 25 KV current transformers (1500-750/5A) 1 core.	Each	0	82,959.32	710.70	-	-	-
O ACCESSORIES								
41	Supply, installation/erection, Testing & commissioning of 132 KV termination with/without adjuster complete with disc insulators.	Set	0	13,123.24	300.06	-	-	-
42	Supply, installation/erection, Testing & commissioning of 132 KV support insulators with fittings and fasteners.	Each	0	34,693.16	577.03	-	-	-
43	Supply, installation/erection, Testing & commissioning of tubular aluminum bus bars 50mm x 39mm dia.	Mtr	0	626.21	48.17	-	-	-
44	Supply, installation/erection, Testing & commissioning of 'Zebra' ACSR conductor.	Mtr	0	387.36	10.04	-	-	-
45	Supply, installation/erection, Testing & commissioning of all type of connectors, bus splice & TEE connectors etc required for commissioning of ISS equipment.	Each	0	2,398.45	30.11	-	-	-
46	Supply, installation/erection, Testing & commissioning of copper jumper with fittings and fasteners required for ISS. (Please refer technical Specifications)	Each	0	3,602.69	498.76	-	-	-
47	Supply, erection, Testing & commissioning ABT Meter for metering as per latest RDSO/CORE specification	Each	2	29,336.79	19,557.86	58,673.58	39,115.72	97,789.30
48	Design, Manufacture, Supply, installation & commissioning of 5 Tonnes EOT crane, Double Box Girder, span 11 mt. Cross Travel 20 Mt, with VVFD, GIS room height 8.55 mt, including SITC of 3 Ph Bus bar for current collecting, SITC of LT Rail minimum 50x50 mm solid on top of existing I-section & including packing loading, unloading, including any other item for installation & commissioning	Each	1		15,94,288.30		15,94,288.30	15,94,288.30
Sub-Total								32,67,35,824.29
Add Labor Cess @ 1%								32,67,358.24
Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)								33,00,03,182.53
Add GST @ 18%								5,94,00,572.86
Total Amount (Incl. of all taxes & duties)				Schedule-B (Section-A)				38,94,03,755.39



Schedule B (Section-B) - Cables								
Part - A1								
Sr. No.	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
132 KV POWER CABLES								
1	Supply and laying (includes tagging, securing by cable tie) of 132kV, suitable for following sizes, X ₂ PE (E) insulated, armoured, copper conductor HT cable.							
a)	1Core x 400 sq. mm Cu Cable	Meter	1000	9,200.00	2,300.00	92,00,000.00	23,00,000.00	1,15,00,000.00
2	Supply of outdoor type, heat shrinkable, end termination kit, suitable for following cable sizes, XLPE(E) insulated, armoured copper conductor cable and testing and commissioning etc.							
a)	132kV, 1 Core 400 sq. mm	Nos.	8	3,45,000.00	86,250.00	27,60,000.00	6,90,000.00	34,50,000.00
33 KV POWER CABLES								
3	Supply and laying (includes tagging, securing by cable tie) of 33kV,suitable forSupply and Installation of MV copper cable type N-2XHS(F)2Y, 33KV, 3Cx300 sqmm	Meter	400	9,695.79	2,194.50	38,78,314.00	8,77,800.00	47,56,114.00
4	Supply and making cable end termination sheat shrink type testing, commissioning fcr the following of 33KV grade, 3core x 300sq.mm XLPE (E) copper conductor a moured cable including termination kit complete	Nos.	8	51,027.90	15,308.37	4,08,223.20	1,22,466.96	5,30,690.16
5	Supply of indoor type, suitable for heat shrinkable, end termination kit, suitable fcr following cable size, XLPE(E) insulated, armoured copper conductor cable and testing and commissioning etc.							
a)	33kV, 3 Core 300 sq. mm	Nos.	8	34,293.84	3,061.79	2,74,350.70	24,494.31	2,98,845.01
b)	33kV, 3 Core 95 sq. mm	Nos.	0	20,000.47	3,061.79	-	-	



Schedule B (Section-B) - Cables								
Part - A1								
Sr. No.	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
	25 KV TRACTION 1-PHASE CABLES							
6	Supply and laying (includes tagging, securing by cable tie) of 52.5kV, 1C x 300sq. mm XLPE (E) insulated, armoured, copper conductor HT cable.	Meter	400	8,392.57	228.81	33,57,028.85	91,522.49	34,48,551.34
7	Supply of outdoor type, heat shrinkable, end termination kit, suitable for 52.5kV, 1 Core 300sq. mm XLPE(E) insulated, armoured copper conductor cable and making termination, connections with overhead conductor, testing and commissioning etc.	Nos.	8	11,489.48	3,061.79	91,915.88	24,494.31	1,16,410.18
	1.1 kV LT POWER CABLE							
8	Supply, laying 1.1 KV grade LT XLPE insulated armoured, aluminium conductor cable, making good the damages, end terminations with aluminium crimping socket/ plugs, provisions of cable route markers, testing & commissioning etc. as required as per technical specifications.							
i)	2 Core 16 sq.mm	Meter	0	243.86	55.19	-	-	-
ii)	2 Core 25 sq.mm	Meter	0	281.99	66.23	-	-	-
iii)	2 Core 70 sq.mm	Meter	0	481.70	76.27	-	-	-
iv)	4 Core 16 sq.mm	Meter	0	315.11	69.24	-	-	-
v)	4.0 Core 35 sq.mm	Meter	0	444.57	71.25	-	-	-
vi)	4.0 Core 70 sq.mm	Meter	0	709.50	112.40	-	-	-
vii)	4.0 Core 120 sq.mm	Meter	0	1,120.95	111.39	-	-	-
viii)	4.0 Core 185 sq.mm	Meter	0	1,568.53	156.55	-	-	-
ix)	4.0 Core 240 sq.mm	Meter	0	2,034.17	119.42	-	-	-
x)	Extra for provision of cable route marker	Nos.	0	296.04	14.05	-	-	-



Schedule B (Section-B) - Cables								
Part - A1								
Sr. No.	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
	CONTROL CABLE							
9	Supply, laying of 1.1 KV grade control cable PVC armoured, copper conductor cable, making good the damages, end terminations with copper crimping socket/ plugs, provisions of cable route markers, testing & commissioning etc. as required as per technical specifications.							
i)	19C X 2.5mm ² copper control cable	Meter	9300	620.19	14.05	57,67,723.20	1,30,660.40	58,98,383.59
ii)	7C X 2.5mm ² copper control cable	Meter	5135	264.93	14.05	13,60,433.64	72,144.21	14,32,577.84
iii)	3C X 2.5mm ² copper control cable	Meter	14100	134.47	14.05	18,96,081.05	1,98,098.02	20,94,179.07
iv)	3C X 4mm ² copper control cable	Meter	8640	180.64	14.05	15,60,699.29	1,21,387.72	16,82,087.02
v)	4C X 4mm ² copper control cable	Meter	2735	228.81	14.05	6,25,785.02	38,425.40	6,64,210.42
	CABLE TRAYS							
10	Supply & erection of ladder cable tray of the following sizes, manufactured with 2 mm thick GI sheet with coupling plate and nut-bolt holding on GI angle 50x50x6mm for support as required							
a)	600mm wide	Meter	1135	583.05	136.48	6,61,766.81	1,54,905.83	8,16,672.63
b)	500mm wide	Meter	337	535.89	136.48	1,80,594.34	45,994.07	2,26,588.41
c)	300mm wide	Meter	1000	440.55	136.48	4,40,552.33	1,36,480.91	5,77,033.24
11	Supply & erection including excavation for 50mm dia HDPE pipe, 6 kg/cm ² ISI Marked confirming to IS 4984:1995 with latest amendment.	Meter	500	204.72	45.16	1,02,360.68	22,579.56	1,24,940.24



Schedule B (Section-B) - Cables								
Part - A1								
Sr. No.	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
12	Polyolefin cable channel of size width 240/340 mm, height 155/230 internal/external, length 1 meter produced of polyolefin with fire projection class K-1 in accordance with DIN 53483 Part-II for laying signalling/telecom cables, channel attachable to each other with male female swallowtail connector and having suitable detachable cover, as per technical specification.	Meter	400	2,508.84	451.59	10,03,536.07	1,80,636.49	11,84,172.56
13	Horizontal boring of 300mm dia hole across railway embankment up to 3.0 mtr below GL by HDD method as per direction of Engineer in charge	p/mtr	150	-	13,393.92	-	20,09,087.69	20,09,087.69
Sub-Total								4,08,10,543.41
Add Labor Cess @ 1%								4,08,105.43
Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)								4,12,18,648.85
Add GST @ 18%								74,19,356.79
Total Amount (Incl. of all taxes & duties)			Schedule-B (Section-B)					4,86,38,005.64



Legal

Schedule B (Section-C) - FDA, NIFPS								
Part - A1								
Sr. No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
	Fire Detection & Alarm System							
1	Supply, Erection / Fixing, Testing & Commissioning of Nitrogen Injection Fire Protection System (NIFPS) with all associated materials, for Transformer Fire protection system as per IS standard and relevant specification. For 132 KV/27 KV, 21.6 MVA Traction transformer	Set	2	10,49,196.96	70,247.52	20,98,393.92	1,40,495.05	22,38,888.97
2	Supply, Erection / Fixing, Testing & Commissioning of Nitrogen Injection Fire Protection System (NIFPS) with all associated materials, for Transformer Fire protection system as per IS standard and relevant specification. For 132 KV/33 KV, 20 MVA Traction transformer	Set	2	11,72,631.90	70,247.52	23,45,263.79	1,40,495.05	24,85,758.84
3	Supply, erection / Fixing of Fire Detection & alarm Equipment along with Power, loop and addressable cables with glands & lugs complete in all respect having the following: Smoke Detector with Standard base - 6 Nos. Heat Detector with Standard base - 7 nos. Manual Call Point - 5 Nos. Hooter - 1 No. Fault Isolator Base - 11 Nos. Response Indicator - 13 nos. FDA Panel - 1 No.	Set	1	1,75,612.79	17,348.13	1,75,612.79	17,348.13	1,92,960.92
3 (a)	Loop & Addressable, 1(2 x 2.5sqmm) shielded & twisted cable	Mtrs.	1710	245.87	14.05	4,20,431.44	24,024.65	4,44,456.09
3 (b)	Addressable power cable 1(2 x 1.5sqmm)	Mtrs.	30	177.63	14.05	5,328.78	421.49	5,750.26
	Sub-Total							53,67,815.08
	Add Labor Cess @ 1%							53,678.15
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							54,21,493.23
	Add GST @ 18%							9,75,868.78
	Total Amount (Incl. of all taxes & duties)			Schedule-B (Section-C)				63,97,362.01



Schedule B (Section D)- Maintenance free Earthing and Associated items								
Part - A1								
Sr. No.	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
	EARTHING AND LIGHTNING PROTECTION SYSTEM							
1	Supply, Erection and commissioning of the maintenance free earth as per RDSO Specification No. RDSO/PE/SPEC/PS/0109(REV-0) 2008, latest amendment or latest specifications.	Each	59	7,643.98	9,185.02	4,50,994.82	5,41,916.18	9,92,911.00
2	Supply and erection of 32 mm dia GI rod for earthing mat	Mtr	2158	230.81	19.07	4,98,095.09	41,146.99	5,39,242.08
3	Supply and erection of earth leads 75x8 mm GI flat laid in the ground or exposed as per site requirement	Mtr	2000	200.71	58.21	4,01,414.43	1,16,410.18	5,17,824.61
4	Supply and erection of earth leads 50 x6 mm GI flat laid in the ground or exposed as per site requirement	Mtr	2000	98.35	46.16	1,96,693.07	92,325.32	2,89,018.39
5	Supply and erection of earth strip 50 x6 mm copper laid in the ground or exposed as per site requirement.	Mtr	300	2,190.72	36.13	6,57,215.77	10,838.19	6,68,053.96
6	Supply and erection of earth strip 25 x3 mm copper laid in the ground or exposed as per site requirement.	Mtr	500	534.88	36.13	2,67,442.36	18,063.65	2,85,506.01
7	Supply and erection of 8 SWG GI Wire for earthing	Mtr	1000	18.06	19.07	18,063.65	19,067.19	37,130.83
8	Supply & erection of earth screen wire including termination	Mtr	500	253.89	13.05	1,26,947.31	6,522.98	1,33,470.30
9	Supply, Erection, Testing and Commissioning of Early Streamer Emission Lightning Arrester complete with all part and accessories in all respect.	Nos.	1	1,69,928.76	8,496.94	1,69,928.76	8,496.94	1,78,425.70
10	Excavation of earth to the depth of 2 mtr below ground level for burying 13 mtrs. Long rail and connecting it as per RDSO drawing.	Each	2	-	3,284.57	-	6,569.15	6,569.15
	Sub-Total							36,48,152.03
	Add Labor Cess @ 1%							36,481.52
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							36,84,633.55
	Add GST @ 18%							6,63,234.04
	Total Amount (Incl. of all taxes & duties)			Schedule-B (Section-D)				43,47,867.59



Schedule B (Section E) - Steel structure								
Part - A1								
Sr.No	Description	Unit	Quantity	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
1	Hot Dip galvinised Lattice type structure for towers, Tower Extension, Beam and Support for various Switchgears along with nut bolts and all accessories.	MT	33	1,12,168.24	3,499.33	37,01,551.82	1,15,477.90	38,17,029.72
2	Scrap Rail Pole							
	Scrap Rail Sections - 13 Mtrs. Long with sectional weight of 52 Kg./ Mtr. for transformer shifting rails and buried rail for Traction earthing.	Kg	11960	35.12	9.03	4,20,080.20	1,08,020.62	5,28,100.82
3	Mild Steel							
	Steel reinforcement for RCC works including Straightening, cutting, Bending, Placing in position and binding all complete. Mild steel and medium tesile steel bars.	Kg.	18500	55.19	-	10,21,097.95	-	10,21,097.95
	Sub-Total							53,66,228.49
	Add Labor Cess @ 1%							53,662.28
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							54,19,890.77
	Add GST @ 18%							9,75,580.34
	Total Amount (Incl. of all taxes & duties)			Schedule-B (Section-E)				63,95,471.11



Legal

Schedule B (Section F) - Office furniture

Part - A1

S No	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
	Furniture							
1	Executive type revolving chair with arm	Each	10	5,659.94	-	56,599.43	-	56,599.43
2	Long table with sun - mica top	Each	4	11,319.89	-	45,279.55	-	45,279.55
3	Chair with hands	Each	10	848.99	-	8,489.92	-	8,489.92
4	Chair without hands	Each	10	707.49	-	7,074.93	-	7,074.93
5	Supervisor's table	Each	4	4,952.45	-	19,809.80	-	19,809.80
6	Ministerial staff table	Each	4	4,244.96	-	16,979.83	-	16,979.83
7	File racks	Each	4	2,122.48	-	8,489.92	-	8,489.92
8	Stools	Each	10	495.75	-	4,957.47	-	4,957.47
9	18 piegion holes lockers	Each	4	7,074.93	-	28,299.72	-	28,299.72
10	steel trays	Each	4	354.25	-	1,416.99	-	1,416.99
11	Telephone tables	Each	4	990.49	-	3,961.96	-	3,961.96
12	Waste paper Box	Each	4	141.50	-	565.99	-	565.99
13	Drawing cabinet	Each	2	14,149.86	-	28,299.72	-	28,299.72
14	Steel book case	Each	4	5,659.94	-	22,639.77	-	22,639.77
15	Computer Table Godrej make model no-C-1	Each	6	9,415.18	-	56,491.05	-	56,491.05
16	Office Desk wooden top, round tube under structure with drawer unit & locking arrangement, as per Godrej model no T101	Each	2	12,821.18	-	25,642.35	-	25,642.35
17	Filing cabinet 4 drawer Vertical with lockers godrej make.	Each	4	28,510.46	-	1,14,041.84	-	1,14,041.84
18	Book case 4 door Godrej make approx size 1742 x 914 x 320	Each	2	34,570.81	-	69,141.63	-	69,141.63
19	Almirah Godrej Model no VSDU-5 shall be size of 1167mm height, 900mm width and 450mm depth, frame type construction for rigidity, top hanging sliding door	Each	4	22,969.94	-	91,879.75	-	91,879.75



Legal

Schedule B (Section F) - Office furniture

Part - A1

S No	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (Rs)
				Supply	Erection	Supply	Erection	
20	Colour LaserJet Printer complete with power cable, print cartridges, CD software, model HP 1525n or equivalent, print speed up to 8 ppm colour & 12 ppm black, 128 MB RAM, 1156 MHz processor, 250 sheet input tray. Model HP 7500A, complete in all respect	Each	2	38,913.11	-	77,826.23	-	77,826.23
21	LaserJet Printer complete with power cable, print cartridges, CD software, as per model HP P1108 or equivalent, print speed up to 18 ppm (A4), processor 266MHz, memory 2MB, up to 5000pages duty cycle, 150-sheet input tray: 147 x 211 to 216 x 356 mm, complete in all respect	Each	2	9,338.91	-	18,677.81	-	18,677.81
22	Flat Bed document scanner A4 , Legal size, scanning speed of 20ppm, ADF capacity 50 Sheets as per CANON model no DR-2020U, complete in all respect	Each	2	41,589.55	-	83,179.09	-	83,179.09
	Sub-Total							7,89,744.75
	Add Labor Cess @ 1%							7,897.45
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							7,97,642.20
	Add GST @ 18%							1,43,575.60
	Total Amount (Incl. of all taxes & duties)	Schedule-B (Section-F)						9,41,217.79



Legal

Schedule-B (Section G) - Illumination, HVAC, Electrification of Building & Civil Work								
Part - A1								
Sr. No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
1	Supply, Erection, testing and commissioning of light sensitive street light controller Energy pack 25 kW or equivalent as approved by engineers for street light/ High mast complete with infrared sensors, contactors and MCB, terminal board etc. for 25 KW load, Operative Voltage 185-275 V AC.	Nos.	1	35,591.41	1,547.45	35,591.41	1,547.45	37,138.86
2	Supply, erection, testing and commissioning of Recessed type LED luminaries with high translucent diffuser suitable for 600x600 mm similar to make Crompton Greaves, Philips, Bajaj, Havells & equivalent make	Nos.	47	3,612.73	631.22	1,69,798.30	29,667.54	1,99,465.84
3	Supply, erection, testing and commissioning of LED down lighter, housing aluminium die cast, white powder coated and PMMA diffuser having system wattage 15W and lumen efficiency.≥ 50Lumens/watt as per IS/IE rules, make Crompton Greaves, Philips, Bajaj, Havells & equivalent make	Nos.	6	1,872.60	468.65	11,235.59	2,811.91	14,047.50
4	Supply and Erection of 1 * 36W LED Tube light fitting complete with LED Lamp similar to make Crompton Greaves, Philips, Bajaj, Havells & equivalent make	Nos.	23	4,816.97	101.36	1,10,790.38	2,331.21	1,13,121.60
5	Supply, erection, testing and commissioning of LED Street light fitting 120 watt with luminaries, 220- 240V AC 50 Hz, CRI >70, IP-65, power factor > 0.95. Cool white, Integral driver, lumen output 3500 lm, confirming to IEC 60598 and IS 10322 make Crompton Greaves, Philips, Bajaj, Havells & equivalent make	Nos.	4	14,651.63	421.49	58,606.51	1,685.94	60,292.45



Schedule-B (Section G) - Illumination, HVAC, Electrification of Building & Civil Work								
Part - A1								
Sr. No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
	Electrification Work							
6	Wiring for light/ ceiling fan/exhaust fan/call bell/light plug/group etc. points including circuit wiring, sub main wiring with Fire Retardant (FR), PVC / XLPE insulated, multistranded, copper / aluminium conductor, single core / three core cable on surface/in recessed PVC/G.I. conduits, distribution boards, sub distribution boards, earthing etc. as required. Wiring shall be done as per sizes of cables, no. of points permissible in , each circuit and sub mains as indicated.	Point	250	-	1,199.23	-	2,99,806.40	2,99,806.40
7	Wiring for power plug point including circuit wiring, sub main wiring with Fire Retardant (FR), PVC / XLPE insulated, multistranded, copper / aluminium conductor, single core /three core cable on surface/in recessed PVC / GI conduits,distribution boards, sub distribution boards, earthing with G.I. pipe electrode etc. as required. Wiring shall be done as per sizes of cables, no. of points permissible in each circuit and sub mains	Point	100	-	2,201.76	-	2,20,175.81	2,20,175.81
8	Extra for provision of industrial type iron clad plug socket with 32A DP MCB in M.S. Box.	Point	20	-	601.12	-	12,022.36	12,022.36
9	Multiplug points (power strip 3 no. 6A socket controlled by 16 A switch) as approved by engineer.	No.	15	1,431.04	71.25	21,465.64	1,068.77	22,534.40
10	Supply, erection, testing and commissioning of self-contained drinking water cooler 150 litres capacity complete with all connected standard fittings, accessories etc. and 5 kVA, wall mounted, I.C. controlled electronic auto-voltage corrector with time delay relay, connection to earthing system etc. as required.	Each	1	68,647.89	10,781.99	68,647.89	10,781.99	79,429.88



Schedule-B (Section G) - Illumination, HVAC, Electrification of Building & Civil Work								
Part - A1								
Sr. No.	Description	Unit	Qty	Rate(Rs.)		Total (Rs.)		Total (In Rs)
				Supply	Erection	Supply	Erection	
PROV SION OF PUMPS								
11	Supply, Erection, testing and commissioning of submersible pump set suitable to operate on 3 phase, 415V, 50 Hz AC supply along with control panel etc. complete for supplying water at suitable discharge and head as per site requirement.							
(a)	3 HP pump	Job	1	21,636.24	1,081.81	21,636.24	1,081.81	22,718.05
	Misc Work							
12	Miscellaneous Civil Works like cleaning, land development, cable trenches, brick work, foundation for structures, foundation for transformer & equipments, retaining wall, laying of earth mat & covering there off, providing of the security fencing, gates and approach road, & other any allied works, etc. as per the drawings to be approved by the engineer in-charge and the applicable rates of CPWD's Delhi Schedules of Rates Civil / Electrical - 2021 + Cost Index @ 30% considered for SRRP Project site.(Excluding GST)	LS	1	50,00,000.00		50,00,000.00		50,00,000.00
	Sub-Total							60,80,753.15
	Add Labor Cess @ 1%							60,807.53
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							61,41,560.68
	Add GST @ 18%							11,05,480.92
	Total Amount (Incl. of all taxes & duties)	Schedule-B (Section-G)						72,47,041.60



BILL OF QUANTITY								
Part-A1								
SCHEDULE - C1 -Rigid Overhead Catenary System - BOQ								
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)								
S. No.	DESCRIPTION OF WORK	Qty	UNIT	Supply	Installation	Total Supply	Total Installation	Total INR (Supply + Installation)
A	ROCS							
1	Design for Rigid OCS, cabling Works Including return traction cables, longitudinal and transverse bonding cables etc, In stations and tunnels, Earth System and other related works							
i	Preliminary design and specifications	1	TKM	4,54,486.95	-	4,54,487.00	-	4,54,487.00
ii	Final design and specifications			43,517.26	-	43,517.00	-	43,517.00
iii	Schedule of materials			2,017.86	-	2,018.00	-	2,018.00
iv	Preliminary Simulation Study			2,94,209.80	-	2,94,210.00	-	2,94,210.00
v	Final Simulation Study			98,069.93	-	98,070.00	-	98,070.00
vi	Validation (Auditing) of Design & Installation of ROCS			1,05,204.78	-	1,05,205.00	-	1,05,205.00
vii	"As-built: Drawings"			4,218.47	-	4,218.00	-	4,218.00
2	Manufacture and Delivery							
2.1	Delivery of equipment for the Rigid OCS at Contractor's premises. i. Conductor Rail profiles & Interlocking Joints plates. ii. Contact Wire. iii. Complete cantilever assembly including anchor bolts, drop tubes & other cantilever steel parts and insulators. iv. Other ROCS Equipment as per approved BOM including transition arrangement, expansion joints, feeder clamps, water protection covers, number plates and sign boards, etc.	1	TKM	1,49,90,328.15	-	1,49,90,328.00	-	1,49,90,328.00
2.2	Delivery of equipment for Earthing & Bonding including Tunnel Earth Wire (TEW), and Overhead Protection Conductor (OPC), etc. at Contractor's premises. i. Overhead Protection Conductor (OPC) ii. Tunnel Earth Wire (TEW) iii. Other Earthing & Bonding Equipment	1	TKM	33,84,832.79	-	33,84,833.00	-	33,84,833.00
3	Installation & Site Testing							
3.1	Delivery to Site from Contractor's premises, Installation and Site Testing of all equipment for Rigid OCS (includes pre-installation tests and post installation tests). i. Foundation completion (open route) ii. Drilling & anchor bolt installation (underground) iii. Cantilever installation iv. CR installation v. Contact wire insertion	1	TKM	-	29,75,011.95	-	29,75,012.00	29,75,012.00
3.2	Delivery to Site from Contractor's premises, Installation and Testing (includes pre-installation tests and post installation tests) of all equipment for Earthing & Bonding.	1	TKM	-	8,21,838.49	-	8,21,838.00	8,21,838.00
4	System Acceptance Tests (SAT) and Integrated Commissioning							



BILL OF QUANTITY								
Part-A1								
SCHEDULE - C1 -Rigid Overhead Catenary System - BOQ								
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)								
S. No.	DESCRIPTION OF WORK	Qty	UNIT	Supply	Installation	Total Supply	Total Installation	Total INR (Supply + Installation)
4.1	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for the completion of System Acceptance Test (SAT) Plan for the Cost Centres as a whole covering: Rigid OCS. Earthing & Bonding including Tunnel Earth Wire (TEW), Overhead Protection Conductor (OPC), etc.	1	TKM	1,56,624.06	-	1,56,624.00	-	1,56,624.00
4.2	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for the completion of Integrated Testing and Commissioning Plans for: Rigid OCS. Earthing & Bonding including Tunnel Earth Wire (TEW), Overhead Protection Conductor (OPC), etc.	1	TKM	1,04,415.72	-	1,04,416.00	-	1,04,416.00
4.3	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for completion of System Acceptance Test (SAT) for Rigid OCS. Earthing & Bonding including Tunnel Earth Wire (TEW), Overhead Protection Conductor (OPC), etc.	1	TKM	15,52,966.52	-	15,52,967.00	-	15,52,967.00
4.4	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for completion of Integrated Testing and Commissioning Tests for Rigid OCS. Earthing & Bonding including Tunnel Earth Wire (TEW), Overhead Protection Conductor (OPC), etc..	1	TKM	6,46,340.76	-	6,46,341.00	-	6,46,341.00
4.5	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for completion of Service Trials (along with other System wide contractors).	1	TKM	71,794.91	-	71,795.00	-	71,795.00
4.6	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for Detailed Safety Report (from the concerned safety authority)	1	TKM	1,02,776.69	-	1,02,777.00	-	1,02,777.00
4.7	Obtain the "Notice of No Objection" or "Notice of No Objection Subject to ---" from the Engineer for Safety Certificate (from the concerned safety authority)	1	TKM	53,845.47	-	53,845.00	-	53,845.00
B.	MISCELLANEOUS							
6	PRELIMINARIES AND GENERAL REQUIREMENT							
	Obtain the "Notice of No Objection Subject to "From the Engineer For:							
i	Work Programme for Complete Contract	1	TKM	14,722.77	-	14,723.00	-	14,723.00
ii	Project Management Plan			14,722.77	-	14,723.00	-	14,723.00
iii	Interface Management Plan and Detailed Interface Document			14,722.77	-	14,723.00	-	14,723.00



BILL OF QUANTITY								
Part-A1								
SCHEDULE - C1 -Rigid Overhead Catenary System - BOQ								
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)								
S. No.	DESCRIPTION OF WORK	Qty	UNIT	Supply	Installation	Total Supply	Total Installation	Total INR (Supply + Installation)
iv	Design Submission Programme			14,722.77	-	14,723.00	-	14,723.00
v	Quality Assurance Plan			14,722.77	-	14,723.00	-	14,723.00
vi	Safety Assurance Plan & Site Safety Plan			14,722.77	-	14,723.00	-	14,723.00
vii	Environment Plan			14,722.77	-	14,723.00	-	14,723.00
viii	Inspection, Testing, Commissioning and Integrated Testing Plan			14,722.77	-	14,723.00	-	14,723.00
ix	Simulation System Design for Traction Power System			63,004.84	-	63,005.00	-	63,005.00
7	TRAINING							
	Obtain the "Notice of No Objection Subject to "From the Engineer For:							
i	Taring of Employer personnel (6 man -weeks) overseas in contractor / sub-contractor's Works	1	TKM	1,37,877.95	-	1,37,878.00	-	1,37,878.00
ii	Provision of Contractor's Instructors (8 Man Weeks) for training of Employer's Operating Personnel in India			32,247.70	-	32,248.00	-	32,248.00
iii	Provision of Contractor's Instructors (30 Man Weeks) for training of Employer's Maintenance Personnel in India			9,818.99	-	9,819.00	-	9,819.00
iv	Submission of Training Manuals in Original plus five hard copies and in electronic format			1,956.94	-	1,957.00	-	1,957.00
8	SPARES (DELETED)							
	Obtain the Notice of No Objection" or "Notice of No Objection Subject to .. "Form the Engineer for Delivery of the following in accordance with the Employer's Requirement:							
i	Delivery to site the spares for the section	0	TKM	10,95,093.94	-	-	-	-
9	SUPERVISION OF MAINTENANCE							
	Obtain the Notice of No Objection" or "Notice of No Objection Subject to .. "Form the Engineer for Delivery of the following in accordance with the Employer's Requirement:							
i	Supervision of Maintenance (40 Man Months)	1	TKM	1,34,534.20	-	1,34,534.00	-	1,34,534.00
10	MANUALS							
	Obtain the Notice of No Objection" or "Notice of No Objection Subject to .. "Form the Engineer for Delivery of the final manuals for the traction power, ROCS, SP, SSP, Overall Earthing System before commencement of Integrated Testing and commissioning of the work :							
i	Operating Manuals (Original plus five hard copies) and in electronic Format	1	TKM	9,241.23	-	9,241.00	-	9,241.00
ii	Maintenance Manuals (Original plus five hard copies) and in electronic Format			9,241.23	-	9,241.00	-	9,241.00
iii	Subsystem / Systems spare parts catalogue (Original plus five hard copies) and in electronic Format			5,599.56	-	5,600.00	-	5,600.00
11	Supply, installation, Testing & Commissioning of spare Stubs for supporting OHE cantilever assembly on both side of tunnel & opposite to each other and spare stub bolts for drop arm arrangement on tunnel wall/ceiling as per RDSO specification No TI/IN/0041, dated 22-09-2020	100	per Location		10,868.31		10,86,830.84	10,86,830.84



BILL OF QUANTITY								
Part-A1								
SCHEDULE - C1 -Rigid Overhead Catenary System - BOQ								
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)								
S. No.	DESCRIPTION OF WORK	Qty	UNIT	Supply	Installation	Total Supply	Total Installation	Total INR (Supply + Installation)
	Sub-Total							2,74,70,638.84
	Add Labor Cess @ 1%							2,74,706.39
	Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)							2,77,45,345.23
	Add GST @ 18%							49,94,162.14
	Total Amount (Incl. of all taxes & duties)	Schedule-C1						3,27,39,507.37



Legs

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCs/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Schedule C2 - FOCS
Bill of Quantities (Schedule-C2)
Part - A1

Sr.No.	Schedule No.	Description of Item	Amounts (Rs).
1	16000	OHE General	1,15,400.48
2	19000	OHE Ferrous	25,27,291.61
3	20000	OHE Non Ferrous-A	17,35,579.93
4	21000	OHE Non Ferrous-B	4,07,236.91
5	30000	Common Items Required for OHE & SWS	24,72,029.99
		Sub-Total	72,57,538.91
		Add Labor Cess @ 1%	72,575.39
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)	73,30,114.30
		Add GST @ 18%	13,19,420.57
		Total Amount (Incl. of all taxes & duties)	86,49,534.88



Legs

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

FOCS
Bill of Quantities (Schedule-C2)

SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (in Rs)	Erection (in Rs)	Supply (in Rs)	Erection (in Rs)	
		SCHEDULE-16000 (OHE-GENERAL)							
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. (The design shall be prepared keeping in view the upcoming double line in the section)	TKM	1	1,805.68	25,068.39	1,805.68	25,068.39	26,874.07
16002	OHE-2	Supply and Erection of large Span wire (130 sq.mm) including its fittings with insulators:							
		(a) With Porcelain Insulators 1600mm CD	Mtr	0	795.37	61.64	-	-	-
		(b) With Composite Insulators 1600mm CD	Mtr	50	751.62	61.64	37,580.79	3,082.04	40,662.83
16003	OHE-3	Supply and Erection of materials for Termination of single conductor of overhead equipment or a terminating wire							
		(a) With Porcelain Insulators 1600mm CD	Each	0	10,641.02	934.44	-	-	-
		(b) With Composite Insulators 1600mm CD	Each	1	8,526.46	934.44	8,526.46	934.44	9,460.91
16004	OHE-4	Supply and Erection of materials for Termination of all aluminum 25 KV feeder conductor single (spider) including feeder wire							
		(a) With Porcelain Insulators 1600mm CD	Mtr	0	530.25	204.64	-	-	-
		(b) With Composite Insulators 1600mm CD	Mtr	50	498.08	204.64	24,903.85	10,232.03	35,135.88
16009	OHE-9(a)	Supply, Erection, Oil Filtration, Testing and Commissioning of 25 KV/240 Volt, 5 KVA, LT supply transformer with 25 KV D. O. fuse switch assembly, antidrifting device, post insulators, copper jumper and earth electrode etc:							
		(a) With Porcelain Insulators 1600mm CD (9T)	Set	0	1,05,977.79	14,905.43	-	-	-
		(b) With Composite Insulators 1600mm CD (9T)	Set	0	1,03,861.94	14,905.43	-	-	-
16010	OHE-9(b)	Supply, Erection, Oil Filtration, Testing and Commissioning of 25 KV/240 Volt, 25 KVA, LT supply transformer with 25 KV D. O. fuse switch assembly, antidrifting device, post insulators, copper jumper and earth electrode etc:							
		(a) With Porcelain Insulators 1600mm CD (9T)	Set	0	3,00,684.81	28,448.66	-	-	-
		(b) With Composite Insulators 1600mm CD (9T)	Set	0	2,98,568.96	28,448.66	-	-	-
16011	OHE-10	Modification to existing OHE	Mtr	0	-	38.22	-	-	-
16015	OHE-13	Loading / unloading transportation and handing over of all type of materials etc other than contractor material.	MT/km	50	-	65.34	-	3,266.79	3,266.79
		Sub-Total					72,816.79	42,583.69	1,15,400.48
		Total including Labour cess@1%					73,544.95	43,009.53	1,16,554.48
		Total including GST@18%					86,783.04	50,751.25	1,37,534.29
		Total (Incl. of all taxes & duties) - Schedule 16000					86,783.04	50,751.25	1,37,534.29



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-C2)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Schedule 19000		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-19000 (OHE-FERROUS OTHER THAN STEEL STRUCTURES & SPS)							
19001	OHE-16	Supply and Erection of a guy rod assembly.	Each	2	9,202.14	1,368.38	18,404.29	2,736.76	21,141.05
19002	OHE-17	Supply and Erection of protective screen on FOBs/ROBs	Sqm	15.0	4,764.52	493.10	71,467.86	7,396.55	78,864.41
19003	OHE-18	Supply and Erection of bracket assembly with insulators as per OHE plan:							
		(a) With Porcelain stay & bracket Insulators 1600 mm CD	Each	0	21,970.60	1,178.53	-	-	-
		(b) With Composite stay & bracket Insulators 1600 mm CD	Each	28	19,651.69	1,178.53	5,50,527.37	32,998.85	5,83,526.22
19004	OHE-19	Supply and Erection of regulating equipment (3 pulley type) with counter weight assembly for conventional & T/Way type OHE	Each	0	72,506.44	5,097.50	-	-	-
19004 (a)	OHE-19 (a)	Supply and Erection of automatic tensioning device spring type ATD for conventional OHE, along with anchor arrangement (inside tunnel)	Each	2	6,66,994.67	2,06,091.54	13,33,989.33	4,12,183.08	17,46,172.41
19005	OHE-20	Supply and Erection of material for termination of double Overhead Equipment conductor					-	-	-
		(a) With Porcelain Insulators 1600mm CD	Each	0	15,401.69	1,287.01	-	-	-
		(b) With Composite Insulators 1600mm CD	Each	2	13,092.78	1,287.01	26,185.56	2,574.02	28,759.57
19006	OHE-21	Supply and Erection of anti-creep with galvanized steel wire					-	-	-
		(a) With Porcelain Insulators 1600mm CD	Each	0	36,145.76	3,616.95	-	-	-
		(b) With Composite Insulators 1600mm CD	Each	1	31,527.95	3,616.95	31,527.95	3,616.95	35,144.90
19007	OHE-22	Supply and Erection of a structure bond/longitudinal bond/ transverse and special bond..	TKM	1	25,799.46	7,883.58	25,799.46	7,883.58	33,683.04
		Sub-Total					20,57,901.82	4,69,389.79	25,27,291.61
		Total including Labour cess@1%					20,78,480.84	4,74,083.68	25,52,564.52
		Total including GST@18%					24,52,607.39	5,59,418.75	30,12,026.14
		Total (Incl. of all taxes & duties) - Schedule 19000					24,52,607.39	5,59,418.75	30,12,026.14



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-C2)									
SCH NO	SOR Item	Description	Unit	Qty	Schedule 20000				Total Amount (in Rs.)
					Rate		Amount		
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-20000 (OHE-NON FERROUS 'A')							
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	1		57,315.22		57,315.22	57,315.22
20002	OHE-23(b)	Supply of contact wire (HDGCC 107 / 150 Sq.mm) only.	MT	1	8,39,132.36	-	8,39,132.36	-	8,39,132.36
20003	OHE-23(c)	Supply of cadmium copper catenary wire (85 / 125 Sq. mm) only	MT	1	8,39,132.36	-	8,39,132.36	-	8,39,132.36
20004	OHE-23(d)	Supply of Tunnel Earth copper wire (70 / 95 Sq. mm) only	MT	0	8,39,132.36	-	-	-	-
		Sub-Total					16,78,264.71	57,315.22	17,35,579.93
		Total including Labour cess@1%					17,52,935.73		17,52,935.73
		Total including GST@18%					20,68,464.16	-	20,68,464.16
		Total (Incl. of all taxes & duties) - Schedule 20000					20,68,464.16		20,68,464.16



Legal

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-C2)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Schedule 21000 Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-21000 (OHE-NON-FERROUS "B")							
21001	OHE-24	Supply and Erection of anti-creep with cadmium copper catenary wire.							
		(a) With Porcelain Insulators 1600mm CD	Each	0	85,110.16	5,828.54	-	-	-
		(a) With composite Insulators 1600mm CD	Each	0	81,530.98	5,828.54	-	-	-
21002	OHE-25	Supply and erection of section insulator assembly and associated fittings & fasteners for OHE with Bar Insulator							
		(a) With Porcelain Insulators 1600mm CD and Bar Insulator	Each	0	98,885.05	6,226.72	-	-	-
		(b) With Composite Insulators 1600mm CD and Porcelain Bar Insulator	Each	1	97,096.11	6,226.72	97,096.11	6,226.72	1,03,322.83
21004	OHE-27	Supply and Erection of 25 KV, S.P Isolators and with insulator with/without earth contact assembly.	Each	1	1,01,961.02	6,439.99	1,01,961.02	6,439.99	1,08,401.01
21006	OHE-29	Supply and Erection of all types of copper jumpers	Each	10	8,875.24	469.69	88,752.41	4,696.90	93,449.31
21007	OHE-30	Supply and Erection of insulated catenary cable in the span under over-line structure.	Mtr	10	4,037.36	118.34	40,373.63	1,183.43	41,557.07
21009	OHE-32	Supply and Erection of solid copper busbar 18 mm dia.	Mtr	10	2,334.64	202.18	23,346.43	2,021.77	25,368.20
21010	OHE-33	Supply and Erection of all types of connectors for aluminium/copper bus bar.	Each	5	6,256.17	80.13	31,280.87	400.64	31,681.50
21011	OHE-34	Dismantling of traction structure, portals, TTC and associated SPS by cutting.	MT	0	-	1,757.93	-	-	-
21013	OHE-36	Supply and Erection of 25 KV AC OHE danger board/danger board for height gauge, public/staff caution board and special boards required for commissioning of OHE/SWSs	Each	10	187.91	157.79	1,879.07	1,577.91	3,456.98
21014	OHE-37	Supply, Erection and commissioning of light weight section insulator assembly 25 KV as per drawing no.6.2758.00RDSO spec no. TI/Spec/OHE/LWDSI/007	Each	0	4,06,708.93	35,067.41	-	-	-
		Sub-Total					3,84,689.53	22,547.37	4,07,236.91
		Total including Labour cess@1%					3,88,536.43	22,772.85	4,11,309.28
		Total including GST@18%					4,58,472.99	26,871.96	4,85,344.94
		Total (Incl. of all taxes & duties) - Schedule 21000					4,58,472.99	26,871.96	4,85,344.94



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-C2)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Schedule 30000		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
		SCHEDULE-30000 (COMMON SCHEDULE)							
30001	CS-1	Supply and erection of 25 KV,1600 Amp vacuum Interruptor	Each	0	4,04,882.65	4,433.05	-	-	-
30002	CS-2	Supply and erection of 25 KV Potential Transformer Type-I or Type-II	Each	0	82,503.96	834.59	-	-	-
30003	CS-3	Supply and erection of 42 KV Lightning Arrestor with surge monitor, counter and cable	Each	0	29,751.88	584.34	-	-	-
30004	CS-4	Supply and installation of cables for various types for SWS/TSS	Mtr	0	230.37	17.25	-	-	-
30005	CS-5	Supply, erection, oil filtration, testing & commissioning of 25KV/240V 10 KVA Auxiliary (LT) Supply Transformers oil type with DO fuse switch, anti climbing device, pedestal insulators, copper jumper and earth electrode etc.							
		(a) With Porcelain Insulators 1600mm CD	Set	0	1,07,044.71	13,687.46	-	-	-
		(b) With Composite Insulators 1600mm CD	Set	0	1,05,084.59	13,687.46	-	-	-
30006	CS-6	Providing and laying of Concrete For Foundation and Plinth In Other Than Hard and Rocky soil	CUM	50	5,211.11	1,614.93	2,60,555.48	80,746.56	3,41,302.03
30007	CS-7	Providing and laying of Concrete For Foundation and Plinth In all types of soils and soft rock.	CUM	2	4,894.60	2,401.44	9,789.21	4,802.87	14,592.08
30008	CS-8	Providing and laying of Reinforced Concrete for Pier/Column/Pile, Cable Trench and Trench Cover	CUM	5		7,433.60	37,168.01	-	37,168.01
30009	CS-9	Supply and erection of all types of galvanised Steel Structures, Small Parts Steel etc.	MT	10	1,05,124.49	3,383.96	10,51,244.92	33,839.59	10,85,084.50
30010	CS-10	Supply and erection of Fencing Panels, Uprights, Gate and Anti-Climbing device	Mtr	10	3,285.75	106.02	32,857.48	1,060.15	33,917.63
30011	CS-11	Supply and erection of Aluminium Jumper with Fasteners	Each	2	2,586.89	262.57	5,173.78	525.15	5,698.93
30012	CS-12	Supply and erection of Copper Strips for equipment earthing	Mtr	0	1,561.14	157.79	-	-	-
30013	CS-13	Supply and erection of Aluminium Bus Bar 36mmx28mm	Mtr	0	384.81	54.24	-	-	-
30014	CS-14	Supply and spreading of gravel/ ballast in the switch yard (TSS/SP/SSP)	Cum	0	1,172.47	7.40	-	-	-
30015	CS-15	Dismantling of Redundant foundations with compressor powered machines/manually with contractor's own men and material including consumables like Diesel Oil etc	Nos	0	-	3,016.59	-	-	-
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.	Month	0	-	25,019.08	-	-	-
30017	CS-17	Supply and Erection of anti theft transformer 240 volt/2.2 KV 5 KVA, with DO Fuse switch excavation of cable trench, laying of cables, earthing, jumpering, DG set and manning of transformer round the clock including dismantling of above equipments.	each location	0	83,455.06	55,588.10	-	-	-
30018	CS-18	Dismantling of switching station (SWS)complete with building foundation , equipment and gantry structure with compressor powered machines/manually with contractor's own men and material and loading , transportation , unloading and handing over of released material to nominated person at specified place as per instructions of the Engineer.	Each SWS	0	-	75,551.60	-	-	-
30019	CS-19	Hire charges for semi skilled labour with proper tools for working during Non interlocking period.	Man - Days	0	-	390.78	-	-	-
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.set and manning of transformer round the clock including dismantling of above equipments.	Cum.	10	918.93	219.43	9,189.28	2,194.32	11,383.60
30021	CS-21	Extra earth work in filling at SWS ,TSS, and OHE Foundations.	Cum.	75	214.93	50.54	16,119.88	3,790.82	19,910.71
30022	CS-22	Drilling of 50mm dia holes in the existing RCC tressle beam/pier /mass concrete beam /lined or unlined tunnels to the depth between 450mm to 1000mm with pneumatic drillers , compressor etc, and making the hole surface fit for insertion of bolts with all lead and lift. Supply and grouting of SS bolts of size 32/25mm dia of varying length including nuts, check nuts, washeretc. Pressure Grouting the drilled holes (50mm dia) by epoxy grouting of approved quality of 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 n/ bracket	30	24,821.33	5,944.42	7,44,639.99	1,78,332.50	9,22,972.49
		Drilling of 16mm dia holes in the existing RCC tressle beam/pier /mass concrete beam /lined or unlined tunnels to the depth between 75mm to 200mm with pneumatic drillers , compressor etc, and making the hole surface fit for insertion of bolts with all lead and lift. Supply and grouting of SS bolts of size 8/10/12 mm dia of varying length including nuts, check nuts, washeretc. Pressure Grouting the drilled holes (16mm dia) by epoxy grouting of approved quality of 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	0	323.01	32.30	-	-	-
		Sub-Total					21,66,738.03	3,05,291.96	24,72,029.99
		Total including Labour cess@1%					21,88,405.41	3,08,344.88	24,96,750.29
		Total including GST@18%					25,82,318.39	3,63,846.95	29,46,165.34
		Total (Incl. of all taxes & duties) - Schedule 30000					25,82,318.39	3,63,846.95	29,46,165.34



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25KV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Bill of Quantities (Schedule-C2)									
Schedule 21000									
SCH No	SOR Item	Description	OHE - Non Ferrous "B" (PTFE)		Rate (In Rs.)		Amount(In Rs.)		Total Amount (in Rs.)
			Unit	Qty	Supply	Erection	Supply	Erection	
			Each	1	11,66,964.13	6,385.76	11,66,964.13	6,385.76	
21003	OHE-26	Supply and Erection of PTFE type short neutral section assembly							11,73,349.89
		Station Auxiliary Transformer							
30005	CS-5(a)	Supply, erection, oil filtration, testing & commissioning of 25KV/240V 10 KVA Auxiliary (LT) Supply Transformers oil type with DO fuse switch, anti climbing device, pedestal insulators, copper jumper and earth electrode etc.							
	(i)	With Porcelain Insulators 1600mm CD	Set	3	1,07,044.71	13,687.46	3,21,134.14	41,062.37	3,62,196.51
	(ii)	With Composite Insulators 1600mm CD	Set	0	1,05,084.59	13,687.46	-	-	-
30005	CS-5(b)	Supply, erection, oil filtration, testing & commissioning of 25KV/240V 25 KVA Auxiliary (LT) Supply Transformers oil type with DO fuse switch, anti climbing device, pedestal insulators, copper jumper and earth electrode etc.							
		With Porcelain Insulators 1600mm CD	Set	0	4,26,982.58	33,652.53	-	-	-
1	1	Supply, Erection, Testing and Commissioning of control and distribution panel for colour light signalling supply in 25KV AC traction system as per RSDO technical specifications No.TI/SPC/PSI/CLS/ 0020 (12/02) With A&C slips No. 1 to 4 or latest, connections as required For 10 KVA AT	Nos	4	83,026.87	13,040.95	3,32,107.48	52,163.82	3,84,271.30
2	2	Supply, Erection, Testing and Commissioning of control and distribution panel for colour light signalling supply in 25KV AC traction system as per RSDO technical specifications No.TI/SPC/PSI/CLS/ 0020 (12/02) With A&C slips No. 1 to 4 or latest, connections as required For 25 KVA AT	Nos	0	1,76,649.10	27,744.87	-	-	-
3	3	Junction Box 300x300x170 with Al. Busbar including of 63A/125A fuse for 10kVA/25kVA AT, Neutral Link, 2 Nos Gland with required size, Earthing connection with 8mm bolt, Powder coated paint, Dust proof rubber seal, Bolt 04 nos for fixing box etc	Nos	4	2,216.40	246.27	8,865.61	985.07	9,850.68
4	4	Dismantling of control and distribution panel for colour light signalling supply in 25KV AC traction system & erection at other location/ handed over to railway	Nos	0	-	12,180.54	-	-	-
5	5	Supply of cable joint kit, suitable for 2 core LT 70 sqmm to 150 sqmm XLPE(E) insulated aluminium conductor cable and testing and commissioning etc.	Nos	4	4,695.77	521.75	18,783.07	2,087.01	20,870.08
6	6	Supply, excavation of trench and laying of 1.1 KV grade LT XLPE insulated armoured, aluminium conductor cable, making good the damages, end terminations with aluminium crimping socket/ plugs, provisions of cable route markers, testing & commissioning etc. as required as per technical specifications.							
	(a)	2 Core 70 sq.mm	Mtr	2000	634.64	38.89	12,69,280.32	77,788.48	13,47,068.80
	(b)	2 Core 150 sq.mm	Mtr	0	972.36	38.89	-	-	-
7	7	Horizontal boring of 300mm dia hole across railway embankment up to 3.0 mtr below GL by HDD method as per direction of Engineer in charge	p/mtr	250	-	13,393.92	-	33,48,479.49	33,48,479.49
		Sub-Total					31,17,134.75	35,28,951.98	66,46,086.74
		Total including Labour cess@1%					11,78,633.77	6,449.61	67,12,547.61
		Total including GST@18%					13,90,787.85	7,610.54	79,20,806.18
		Total (Incl. of all taxes & duties) - Schedule 21000					13,90,787.85	7,610.54	79,20,806.18



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FCCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - A1
SCADA SYSTEM
Bill of Quantities (Schedule-D)

Sr.No.	Section	Description of Item	Amounts (Rs).
1	Section-I	SCADA System (General)	6,27,79,372.91
2	Section-II	Web Server of standard SCADA software for Railway SLDC	8,51,059.33
		Sub-Total	6,36,30,432.24
		Add Labor Cess @ 1%	6,36,304.32
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)	6,42,66,736.56
		Add GST @ 18%	1,15,68,012.58
		Total Amount (Incl. of all taxes & duties)	7,58,34,749.14
		Schedule-D	



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - A1									
SCADA SYSTEM									
Bill of Quantities (Schedule-D)									
SECTION-1									
SCADA SYSTEM (GENERAL)									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
1	1	Preparation and supply of Design & Drawing for SCADA at RCC, TSS/ISS, SP & SSP, BMs	Job	1		3,92,796.61	-	3,92,796.61	3,92,796.61
2	2	Supply, Erection, Testing and Commissioning of Supervisory Control and Data Acquisition (SCADA) equipments at the Remote Control Centre for required work stations as per RDSO Specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Job	1	4,22,03,813.56	18,24,322.03	4,22,03,813.56	18,24,322.03	4,40,28,135.59
3	3	Supply, installation & testing of standard SCADA software as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Job	1	32,73,305.08	3,70,974.58	38,62,500.00	4,37,750.00	43,00,250.00
4	4	Supply, Erection, Testing & Commissioning of GPS Receiver as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Job	1	3,27,330.51	21,822.03	3,86,250.00	25,750.00	4,12,000.00
5	5	Supply, Erection, Testing and commissioning of Remote Station Equipments at Remote station as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions, for TSS/ISS.	Each	1	14,40,254.24	1,09,110.17	14,40,254.24	1,09,110.17	15,49,364.41
6	6	Supply, Erection, Testing and commissioning of Remote Station Equipments at Remote stations as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions, for Sectioning Post (SP).	Each	1	12,65,677.97	96,016.95	12,65,677.97	96,016.95	13,61,694.92
7	7	Supply, Erection, Testing and commissioning of Remote Station Equipments at Remote stations as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions, for Sub Sectioning Post (SSP).	Each	3	12,65,677.97	96,016.95	37,97,033.91	2,88,050.85	40,85,084.76
8	8	Supply, Erection, Testing and Commissioning of 2x10 KVA dual redundant hot standby UPS system as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Set	1	16,14,830.51	1,52,754.24	16,14,830.51	1,52,754.24	17,67,584.75
9	9	Supply, Erection, Testing and Commissioning of Low maintenance Lead Acid battery sets as per RDSO Specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Set	1	26,62,288.14	2,57,500.00	26,62,288.14	2,57,500.00	29,19,788.14
10	10	Supply & Erection of furniture at RCC as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Set	1	3,78,394.07	61,101.69	3,78,394.07	61,101.69	4,39,495.76
11	11	Supply of 10% spare cards after AMC for Operation & Maintenance as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Job	1	6,50,296.61	-	6,50,296.61	-	6,50,296.61
12	12	Supply of Special Tools & Plants for maintenance as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Set	2	4,36,440.68	-	8,72,881.36	-	8,72,881.36
		Sub Total					5,91,34,220.37	36,45,152.54	6,27,79,372.91
		Labor Cess @ 1%					5,91,342.20	36,451.53	6,27,793.73
		GST @ 18%					1,07,50,601.26	6,62,688.73	1,14,13,290.00
		Total (Section-I)					7,04,76,163.84	43,44,292.80	7,48,20,456.63

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - A1									
SCADA SYSTEM									
Bill of Quantities (Schedule-D)									
SECTION-II									
WEB SERVER OF STANDARD SCADA SOFTWARE FOR RAILWAY SLDC									
SCH NO	SOR Item	Description	Unit	Qty	Rate		Amount		Total Amount (in Rs.)
					Supply (In Rs)	Erection (In Rs)	Supply (In Rs)	Erection (In Rs)	
1		Supply, installation, testing & commissioning of web server of standard SCADA software for Railway SLDC as per RDSO specification No. TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions.	Job	1	6,54,661.02	1,96,398.31	6,54,661.02	1,96,398.31	8,51,059.33
		Sub Total					6,54,661.02	1,96,398.31	8,51,059.33
		Labor Cess @ 1%					6,546.61	1,963.98	8,510.59
		GST @ 18%					1,19,017.37	35,705.21	1,54,722.59
		Total (Section-II)					7,80,225.00	2,34,067.51	10,14,292.51



BILL OF QUANTITY

PART - A1

SCHEDULE - E -T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
Tools & Plant						
1	28001	Tirfor 2.5T/1.5T, ISI marked as per IS :5604/1984 or latest (Make TRACTEL /TIRFOR or equivalent as approved by Engineer)	2	Nos	15,161.56	30,323.00
2	28002	Tirfor 5T /3 T ISI marked as per IS :5604/1984 or latest (Make TRACTEL /TIRFOR or equivalent as approved by Engineer)	2	Nos	20,718.29	41,437.00
3	28003	Pull lift 3 T ISI mark (Make TRACTEL or equivalent as approved by engineer)	3	Nos	19,866.39	59,599.18
4	28004	Pull lift 0.75 T/0.8 T ISI mark (Make TRACTEL or equivalent as approved by engineer)	2	Nos	8,338.90	16,678.00
5	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)	4	Nos	21,476.89	85,908.00
6	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-				
i	(a)	3 meter length	10	Each	2,325.30	23,253.00
ii	(b)	5 meter length	10	Each	3,875.50	38,755.00
iii	(c)	13 meter length	10	Each	10,076.30	1,00,763.00
7	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	4	Each	16,421.77	65,687.00
8	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)	4	Nos	11,118.22	44,473.00
9	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).	2	Nos	21,476.89	42,954.00
10	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.	2	Nos	1,25,315.81	2,50,632.00
11	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	8	Nos	2,527.08	20,217.00



BILL OF QUANTITY

PART - A1

SCHEDULE - E -T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
12	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	8	Nos	11,443.74	91,550.00
13	28012	Set of 4 Fire buckets (10Ltrs) capacity with one stand and cover suitable for switching station/TSS and as approved by engineer	4	set	13,184.63	52,739.00
14	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).	8	Each	8,844.32	70,755.00
15	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	4	Each	12,280.40	49,122.00
16	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.	10	set	2,527.08	25,271.00
17	28016	Set of Steel slings with eye on each end of 8mmX2M & 12mmX3M length	10	set	3,158.14	31,581.00
18	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	4	Nos	12,866.72	51,467.00
19	28018	Bench Vice 6" suitably mounted on steel table as approved by engineer	4	Nos	5,767.08	23,068.00
20	28019	Canvass Tarpaulin 12mx12m with ropes and spikes of adequate size as approved by Engineer	4	Nos	5,053.22	20,213.00
21	28020	Portable 5KVA Silent diesel Gen Set with battery push button start. Make: KOEL/Honda/Mahindra or as approved by Engineer	4	set	2,57,345.77	10,29,383.00
22	28021	Binoculars Nikon-8252 ACULON A211 10-22x50 zoom Binocular or equivalent as approved by Engineer	4	Nos	17,891.38	71,566.00
23	28022	Vernier Calipers Digital, range 0-200 mm Mitutoyo make Model 500-197-30 or equivalent as approved by Engineer	4	Nos	13,573.92	54,296.00
24	28023	Walkie Talkie Sets (2W output)	Nos	5	13,335.41	66,677.04
25	28024 (a)	Digital multi-meter 1000v, 10A. Motwane make model DM352 or superior as approved by Engineer	4	Nos	19,907.34	79,629.00
26	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	4	Nos	45,184.85	1,80,739.00
27	28025	Aluminium self supporting Stool type Magjic pole ladder-8' long Make: Sumer or equivalent as approved by Engineer	4	Nos	15,161.56	60,646.00

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BILL OF QUANTITY						
PART - A1						
SCHEDULE - E - T&P and Spares - BOQ						
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)						
Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
28	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.	4	Nos	2,527.08	10,108.00
29	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	4	set	2,527.08	10,108.00
30	28028	Transformer oil Acidity testing Kit with all accessories	4	set	12,635.42	50,542.00
31	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.	2	Each	19,580.86	39,162.00
32	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	4	Nos	3,791.10	15,164.00
33	28031	Portable hand grinding machine to work on 230 V 50Hz , AC supply make MASTER or superior as approved by Engineer	4	Nos	5,630.02	22,520.00
34	28033	Digital time interval meter 15-1000 Seconds.	Nos	3	2,667.08	8,001.25
35	28034	Insulation tester 2.5 kV	Nos	3	6,666.96	20,000.87
36	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	4	Nos	16,421.77	65,687.00
37	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	2	Nos	48,340.14	96,680.00
38	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	2	Nos	2,52,675.18	5,05,350.00
39	28039	Auto transformer(Close type dimmer) , Input voltage 0-270V AC, out put current 0-10A. AEC make or superior as approved by engineer	1	Nos	4,073.79	4,074.00
40	28040	Load cell tester suitable for 40 AH and 200 AH battery as approved by engineer	4	Nos	2,527.08	10,108.00



BILL OF QUANTITY						
PART - A1						
SCHEDULE - E - T&P and Spares - BOQ						
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)						
Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
41	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/INTEST/0090(02/2009) with A&C No-1 or latest	2	set	4,36,229.12	8,72,458.00
42	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	4	set	12,148.09	48,592.00
43	28043	52 pieces socket set (box spanners) with storage case. Cogex make or similar as approved by Engineer	4	set	9,110.83	36,443.00
44	28044	Primary current injection testing Kit (0-3000 amps.)	Each	1	18,93,795.67	18,93,795.67
45	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.	4	Each	6,60,308.74	26,41,235.00
46	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	4	Each	1,94,493.21	7,77,973.00
47	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.	2	Each	78,742.25	1,57,485.00
48	28047	Thermal Imaging Camera (nclusive of software) as per RDSO specification No. RDSO Spec no TI/SPC/OHE/TIPS/ 031(Dec'2013) or latest , temperature range from (-20) to (500) degree centigr (CEM model DT-9885 or superior as approved by Engineer)	1	Each	6,00,685.71	6,00,686.00

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PART - A1

SCHEDULE - E - T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
49	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	1	Each	18,09,840.18	18,09,840.00
50	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	1	Each	9,06,116.53	9,06,117.00
51	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	4	Each	80,719.19	3,22,877.00
Spares for ROCS						
52	28100	25 kV Rigid OCS Conductor Rail	1	Km	54,14,437.99	54,14,438.00
53	28101	Contact wire	1	Km	14,41,531.11	14,41,531.00
54	28102	Support Insulator for 25 kV Rigid OCS	50	Nos	15,083.51	7,54,175.00
55	28103	Anchor Assembly for 25 kV Rigid OCS	15	Nos	4,21,331.21	63,19,968.00
56	28104	Expansion Joint for 25 kV Rigid OCS	5	Nos	63,035.30	3,15,177.00
57	28105	Air Section for Rigid OCS	5	Nos	63,035.30	3,15,177.00
58	28106	ROCS Protection Cover	100	Nos	17,082.33	17,08,233.00
59	28107	Transition Arrangement from ROCS to FOCS	4	Nos	90,726.63	3,62,907.00
60	28108	OPC	1	Km	7,15,313.53	7,15,314.00
61	28109	TEW	1	Km	14,33,140.81	14,33,141.00
62	28110	Steady Arm	25	Nos	4,295.57	1,07,389.00
63	28111	Support Bracket	25	Nos	4,101.40	1,02,535.00
64	28112	25 kV Cable	0.5	Km	46,38,833.26	23,19,417.00
65	28113	25 kV Cable Termination Kit	10	Nos	7,036.81	70,368.00
66	28114	Earthing flats	0.5	Km	40,62,527.49	20,31,264.00
67	28115	Earthing Electrodes	10	Nos	2,023.57	20,236.00
68	28116	LT AC Distribution Board in SP,SS& SSP	1	Nos	35,220.24	35,220.00
69	28117	DC Distribution Board in SP,SS& SSP	1	Nos	23,809.80	23,810.00
70	28118	Protection Panel for 25 kV OCS Feeder Circuit Breaker	1	Nos	9,67,331.95	9,67,332.00



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PART - A1

SCHEDULE - E -T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
Spares for ISS						
71		Closed coil each type	2	Nos	37,51,442.22	37,51,442.22
72		Trip Coil each type	2	Nos		
73		SF6 Gas Filling Pipe	1	Nos		
74		SF6 Gas	60	Ltr		
75		SF6 Gas storage tank	1	Nos		
76		Set of O rings of all types	1	Nos		
77		Set of rapturing disc for all types	1	Nos		
78		Set of Gas Monitor each of all types	1	Nos		
79		Gas leakage detector	1	Nos		
80		Dew Point Measurement kit	1	Nos		
81		Control Unit (BCU) each type	1	Nos		
82		Set of Gas filling kit with all accessories (1 No for ISS)	1	Nos		
83	27004	Earth fault Relay	2	Each	12,639.51	25,279.02
84	27005	Buchholz Relay	2	Each	28,298.79	56,597.58
85	27006	Relay Testing Kit	1	Set	2,56,568.13	2,56,568.13
86	27007	HRC fuse 2A, 4A, 10A, 15A, 32 Amp	10	Set	1,887.21	18,872.10
87	27008	Transformer Oil	4000	Litre	49.14	1,96,560.00
88	27009	Capacitor Unit for Capacitor Bank	1	Set	9,64,780.83	9,64,780.83
89	27010	Portable Oil Centrifuging system of capacity up to 5000 LPH portable type	1	Each	7,44,046.29	7,44,046.29



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SCHEDULE - E -T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
Spares for FOCS						
90	51003	Ladder Trolley	4	Each	41,246.25	41,246.25
91	51004	wiring rollers	100	Each	378.09	378.09
92	16000	AT transformer 10KVA	1	Nos	1,07,638.64	1,07,638.64
93	21000	Neutral section complete set (Galland)	0	set	11,53,701.63	-
94	21000	Section insulator with complete assembly (Composite)	3	Set	95,992.61	2,87,977.84
95	21004	1600 amp single pole Isolator with full accessories	2	Nos	1,00,802.24	2,01,604.47
96	30001	25KV BM/Intrupter (1600 Amp)	1	Nos	4,01,094.85	4,01,094.85
97	30002	PT type-1	1	Nos	81,732.11	81,732.11
98	30002	PT type-2	1	Nos	81,732.11	81,732.11
99	30003	42kV lightning arrestor with surge counter	2	Nos	29,473.54	58,947.08
100	30009	Supply of all types of galvanized steel structure ,small parts steel etc	10	MT	1,04,141.02	10,41,410.21
101	24012	Suppl of 25 KV single pole Vacuum circuit breaker with interlocking of rating 1600 amps	2	Nos	4,10,302.20	8,20,604.39
102	24013	25KV Current transformer (1500-750/5A)	2	Nos	74,506.31	1,49,012.62
103	1031-2	Contact wire parallel clamp with SS bolt 16x50/38 with Nut, PB spring washer	440	Nos	368.34	1,62,071.49
104	1031-3		440	Nos	444.39	1,95,531.41
105	1051-2		440	Nos	831.78	3,65,983.62
106	1051-3		380	Nos	831.75	3,16,063.17
107	1090	Catenary Splice (125)	281	Nos	620.24	1,74,288.64
108	1081-1	Contact Splice	146	Nos	1,675.37	2,44,604.38
109	1311	Pull off clamp distance piece	30	Nos	87.93	2,637.82
110	1194	Briddle wire dropper clip	70	Nos	47.53	3,326.98
111	1320	U clamp 50/50	50	Nos	351.71	17,585.47
112	2125	Briddle wire sleeve	70	Nos	16.63	1,164.44
113	2551-1&2503	Anti wind clamps with SS bolt 10x70/26 With Nut & PB spring washer	250	Nos	142.58	35,646.22
114	5041-1	Single Clevis (18mm)	20	Nos	380.23	7,604.53
115	5020	9 tonne Adjusters	90	Nos	1,223.85	1,10,146.83
116	5020-2		90	Nos	1,340.30	1,20,626.82
117	5191	Compensating plate	10	Nos	451.52	4,515.19
118	5001-3	Anchor Bolt (0.85) 5001-3	40	Nos	468.15	18,726.15
119	5098	Counter Weight Guide Plate	2	Nos	1,449.61	2,899.23
120		Jumper (160sq mm)	0.25	MT	8,55,525.96	2,13,881.49
121		Jumper (105 sq mm)	0	MT	8,59,817.77	-
122		Jumper (50 sq mm)	0.25	MT	8,54,060.81	2,13,515.20
123		GI Bolts 16*220/57mm with Nut , Locknut & washer	130	Nos	52.28	6,796.55
124		GI Bolts 16*320/57mm with Nut , Locknut & washer	30	Nos	80.80	2,423.94
125		SS Bolts 16*65/38mm with Nut , Locknut & washer	130	Nos	19.01	2,471.47



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PART - A1

SCHEDULE - E - T&P and Spares - BOQ

Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
126		SS Bolts 16*30/25mm with Nut , Locknut & washer	130	Nos	11.88	1,544.67
127		GI Bolts 20x230/65mm with Nut , Locknut & washer	39	Nos	92.68	3,614.53
128		SS U bolt for Suspension clamp	1000	Nos	154.47	1,54,466.96
129		25kV DO Switch Complete	20	Nos	11,725.23	2,34,504.61
130	1222	Swevil clip pin	2450	Nos	19.01	46,577.73
131		bond sleeve	1600	meter	118.82	1,90,113.18
132	5030	Anchor double strap	150	Set	140.21	21,031.27
133	5007-1	Anchor V-Bolts	60	Nos	434.88	26,093.03
134	11010	Terminal Connectors to suit ASCR ZEBRA	8	Nos	5,180.58	41,444.67
135	11030	Bimetallic terminal connector 132kv isolator to ACSR Zebra connectors	8	Nos	4,990.47	39,923.77
136	11190	Sliding type terminal connectors for 25 kv support insulator	8	Nos	3,386.39	27,091.13
137	11150	TEE Connector for 50mm all tube bus bar	8	Nos	4,572.22	36,577.78
138	11040	TEE connector for ACSR ZEBRA connector to ACSR ZEBRA Conductor	8	Nos	4,740.95	37,927.58
139	11040	TEE connector for 50mm all tube to spider conductor 20mm dia	8	Nos	4,740.95	37,927.58
140	11040	TEE Connector	8	Nos	4,740.95	37,927.58
141	11060	Expn type terminal connector	8	Nos	10,406.32	83,250.56
142	6480-1	Aluminium Conductor Terminal Connector	8	Nos	3,949.60	31,596.81
143	11090	Rigid bimetallic terminal connector	8	Nos	4,786.10	38,288.80
144	11140	50mm to spider TEE	8	Nos	4,629.26	37,034.05
145	11150	50mm to 50mm tee	8	Nos	4,572.22	36,577.78
146	11180	50mm rigid bus splice	8	Nos	4,966.71	39,733.66
147	11200	Rigid connector to suit 50mm	8	Nos	3,160.63	25,285.05
148	1174	Paking saddle	4000	Nos	49.90	1,99,618.84
149	5092	Counter weight 660 kg with one coat of red oxide paint 5091(. 40kg)-1 no, 5092(40kg)-15, 5093 (20kg)-1no	4	Set	93,040.64	3,72,162.57
150	6020	9 Ton insulator composite	70	Nos	3,564.78	2,49,534.29
151	2161-1	Large register arm hook	80	Nos	551.33	44,106.26
152	5005	Gay rod 9.7mtrs	12	Nos	9,386.84	1,12,642.06
153	OHE-18 (a)	Fabricated Cantileaver assembly for various implantation	10	Nos	21,715.68	2,17,156.82
154	OHE-18 (a)	Fabricated Cantileaver assembly for 4.75 meter implantation (paltform)	10	Nos	21,715.68	2,17,156.82
155		Caution board for neutral section 500m warning board	20	Nos	2,233.83	44,676.60
156		Caution board for neutral section 250m warning board	20	Nos	2,233.83	44,676.60
157		DJ Close	20	Nos	2,233.83	44,676.60
158		DJ open	20	Nos	2,233.83	44,676.60
159		Public Caution board	50	Nos	3,992.55	1,99,627.43
160		satff caution boards	50	Nos	2,138.77	1,06,938.67
161		25KV danger board for height guage	50	Nos	3,326.98	1,66,349.04



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PART - A1						
SCHEDULE - E -T&P and Spares - BOQ						
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)						
Sl. No.	Item Code	DESCRIPTION OF WORK	Qty	UNIT	Rate (in INR)	Amount (in INR)
162		Electric Engine stop caution board	50	Nos	4,277.55	2,13,877.33
163		Unwired T/O board	50	Nos	4,039.91	2,01,995.26
164		Power block working limit	50	Nos	1,901.13	95,056.59
165		Sigma Board	50	Nos	1,901.13	95,056.59
166		OHE nearby restricted board	50	Nos	1,009.98	50,498.81
167		Silica Gel	80	Kg	297.05	23,764.15
168		Bond strip 75*8	200	mtrs	242.68	48,536.53
169		Bond strip 50x6	200	mtrs	117.84	23,568.22
170		Numerical panto flashover relay ANPF041 (AN series)	1	Nos	3,80,823.38	3,80,823.38
171		Numerical feeder protection relay ANZ114(AN series)	1	Nos	6,99,045.66	6,99,045.66
172		Numerical delta protection relay ANPD112(AN series)	1	Nos	5,47,759.66	5,47,759.66
173		Numerical intergrated transformer diffrential protection relay ANTD 201 (AN series)	1	Nos	4,27,774.21	4,27,774.21
174		Numerical AC & DC Aux voltage monitoring relay ANSM022(AN series)	1	Nos	3,88,126.84	3,88,126.84
175		Numerical capacitor bank protection relay ANC 214 (AN series)	1	Nos	6,05,144.00	6,05,144.00
176		Inter trip relay 86AEIH 50	1	Nos	75,121.32	75,121.32
177		Inter trip relay 86 AEIH 32	1	Nos	75,121.32	75,121.32
178		Feeder trip relay 86F AEMS 32	1	Nos	75,121.32	75,121.32
179		Inter trip relay 86L AEIH 32	1	Nos	75,121.32	75,121.32
		Sub-Total (Schedule-D)				5,70,66,100.38
		Add Labor Cess @ 1%				5,70,661.00
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)				5,76,36,761.38
		Add GST @ 18%				1,03,74,617.05
		Total Amount (Incl. of all taxes & duties) (Schedule-E)				6,80,11,378.43



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BILL OF QUANTITY									
PART - A1									
SCHEDULE - F -Misc. Works - BOQ									
Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)									
Sl. No.	Item Code	Item no.	Description	Qty	Unit	Rate		Amount	
						Supply	Installation	Total Supply	Total Installation
									Total INR (Supply + Installation)
1			SHEQ Management						
a	16001	OHE-1(c)(i)	Manager (SHE) for the project	18	Man Month	-	2,51,760.44	-	45,31,688.00
b	16001	OHE-1(d)(i)	Manager (Electrical), Quality management	18	Man Month	-	2,51,760.44	-	45,31,688.00
c	16001	OHE-1(c)(ii)	SHE Expert	18	Man Month	-	73,492.94	-	13,22,873.00
d	16001	OHE-1(d)(ii)	Electrical Expert for Quality Management (OHE/PSIGS/SCADA)	18	Man Month	-	73,492.94	-	13,22,873.00
e	49000		Supply of project office & temporary depot cum workshop for storage of materials	1	LS		20,00,000.00		20,00,000.00
2			Laying of 25kV traction single phase cables						
a	50001		Supply and laying (includes tagging, securing by cable tie) of 52.5kV, 1C x 300sq. mm XLPE (E) insulated, armoured, copper conductor HT cable.	500	Metre	7529.36	205.60	37,64,682.00	1,02,798.00
b	50002		Supply of outdoor type, heat shrinkable, end termination kit, suitable for 52.5kV, 1 Core 300sq. mm XLPE(E) insulated, armoured copper conductor cable and making termination, connections with overhead conductor, testing and commissioning etc.	8	Nos	10309.18	2746.95	82,473.00	21,976.00
c	50003		Provision of cable trench	500	Metre	-	405.19	-	2,02,597.00
d	50004		Supplying and Laying of HDPE pipe of 160mm dia PN6 class PE 80 rating ISI marked, for crossing cables through the rail track inside tunnels and near portals, conforming to IS 14930	500	Metre	326.08	25.70	1,63,039.00	12,850.00
3			Safety Items						
a	50005		Supply of printed register (power block, key & assurance register) (power block, key & assurance register for each station i.e. 3 x 4 = 12 and for each SP/SSP/TSS i.e. 3 x 4 = 12	24	Nos	122.79	-	2,947.00	-
b	50006		Manufacturing, supply and fixing of Wooden Key Box size 45 x 30 x 8 cm having top cover transparent glass in which 12 nos hooks for hanging Key with locking hook outside	4	Nos	856.64	-	3,427.00	-
c	50007		Rubber gloves shall be shall be ISI marked (IS-4770/1991)	20	Nos	414.44	-	8,289.00	-
d	50008		Rail Jumpers of 14 meters each to be procured from CORE/RDSO approved source.	2	Nos	5784.22	-	11,568.00	-
e	50009		EIG Charges	1	LS	-	5,10,279.00	-	5,10,279.00
f	50010		Web enabled digitisation of work process & Quality assurance	1	LS	-	66,38,112.00	-	66,38,112.00
			Sub-Total Sch-F					60,36,425.00	1,91,97,734.00
			Total including Labour cess@1%					60,96,789.25	1,93,89,711.34
			Total including GST@18%					71,94,211.32	2,28,79,859.38
			Total Amount Total (Incl. of all taxes & duties) Schedule-F					71,94,211.32	2,28,79,859.38



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Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - B1	
Bill of Quantities	
Schedule G (Comprehensive Annual Maintenance for 5 years) - Optional	

Sr.No.		Description of Item	Amounts (Rs).
	PART-B1	Schedule G (Comprehensive Annual Maintenance for 5 years) - Optional	
1	Section-I	Comprehensive Annual Maintenance Contract of Rigid / Flexible Overhead Catenary System complete with the equipment at ISS, SP, SSP, etc. including all the switchgears and every associated equipment (After completion of DLP)	8,92,87,845.34
2	Section-II	Comprehensive maintenance contract of SCADA system complete with software, RCC equipment and Remote Terminal Units as per RDSO specification No.TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions (After completion of DLP)	1,78,46,843.25
		Sub-Total	10,71,34,688.59
		Add Labor Cess @ 1%	10,71,346.89
		Sub-Total (Including all taxes, labour cess @ 1%, but excluding GST)	10,82,06,035.48
		Add GST @ 18%	1,94,77,086.39
		Total Amount (Incl. of all taxes & duties)	12,76,83,121.86



Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - B1						
Bill of Quantities (Schedule-G)						
SECTION-I						
COMPREHENSIVE MAINTENANCE CONTRACT OF OHE (ROCS/FOCS, SP, SSP, ISS, ALL ASSOCIATED WORK)						
SCH NO	SOR Item	Description	Unit	Qty	Rate (In Rs)	Total Amount (in Rs.)
Section-1	Non-SOR	Comprehensive Annual Maintenance Contract of Rigid / Flexible Overhead Catenary System complete with the equipment at ISS, SP, SSP, etc. including all the switchgears and every associated equipment (After completion of DLP)				
	a	Price for first year of Comprehensive Annual Maintenance Contract	Month	12	12,18,760.34	1,46,25,124.13
	i)	ROCS / FOCS - 40%				
	ii)	SP / SSP - 20%				
	iii)	TSS / ISS - 40%				
	b	Price for second year of Comprehensive Annual Maintenance Contract	Month	12	13,40,636.38	1,60,87,636.55
	i)	ROCS / FOCS - 40%				
	ii)	SP / SSP - 20%				
	iii)	TSS / ISS - 40%				
	c	Price for third year of Comprehensive Annual Maintenance Contract	Month	12	14,74,700.02	1,76,96,400.20
	i)	ROCS / FOCS - 40%				
	ii)	SP / SSP - 20%				
	iii)	TSS / ISS - 40%				
	d	Price for fourth year of Comprehensive Annual Maintenance Contract	Month	12	16,22,170.02	1,94,66,040.22
	i)	ROCS / FOCS - 40%				
	ii)	SP / SSP - 20%				
	iii)	TSS / ISS - 40%				
	e	Price for fifth year of Comprehensive Annual Maintenance Contract	Month	12	17,84,387.02	2,14,12,644.24
	i)	ROCS / FOCS - 40%				
	ii)	SP / SSP - 20%				
	iii)	TSS / ISS - 40%				
		Sub Total				8,92,87,845.34
		Labor Cess @ 1%				8,92,878.45
		Sub Total including all taxes except GST				9,01,80,723.80
		GST @ 18%				1,62,32,530.28
		Total (Section-I)				10,64,13,254.08



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Name of Work: Detailed Design Engineering, Supply, Installation, Testing & Commissioning of 25kV Overhead Equipment ROCS/FOCS, ISS, SP, SSP, SCADA and associated works on Bridges, Tunnels and Open Routes of SRRP (OHE Package)

PART - B1						
Bill of Quantities (Schedule-G)						
SECTION-II						
COMPREHENSIVE MAINTENANCE CONTRACT OF SCADA SYSTEM						
SCH NO	SOR Item	Description	Unit	Qty	Rate (In Rs.)	Total Amount (in Rs.)
Section-2	Non-SOR	Comprehensive maintenance contract of SCADA system complete with software, RCC equipment and Remote Terminal Units as per RDSO specification No.TI/SPC/RCC/SCADA/0134, with latest amendments and as per site environmental conditions (After completion of DLP)				
	a)	Cost for Comprehensive maintenance contract for the first year				31,03,401.24
	i)	RCC & UPS	Months	12	2,33,157.96	27,97,895.52
	ii)	SP / SSP	Months	48	4,728.05	2,26,946.40
	iii)	TSS / ISS	Months	12	6,546.61	78,559.32
	b)	Cost for Comprehensive maintenance contract for second year				33,20,639.16
	i)	RCC & UPS	Months	12	2,49,479.02	29,93,748.24
	ii)	SP / SSP	Months	48	5,059.01	2,42,832.48
	iii)	TSS / ISS	Months	12	7,004.87	84,058.44
	c)	Cost for Comprehensive maintenance contract for the third year				35,53,083.72
	i)	RCC & UPS	Months	12	2,66,942.54	32,03,310.48
	ii)	SP / SSP	Months	48	5,413.14	2,59,830.72
	iii)	TSS / ISS	Months	12	7,495.21	89,942.52
	d)	Cost for Comprehensive maintenance contract for the fourth year				38,01,796.68
	i)	RCC & UPS	Months	12	2,85,628.27	34,27,539.24
	ii)	SP / SSP	Months	48	5,792.06	2,78,018.88
	iii)	TSS / ISS	Months	12	8,019.88	96,238.56
	e)	Cost for Comprehensive maintenance contract for the fifth year				40,67,922.45
	i)	RCC & UPS	Months	12	3,05,622.25	36,67,466.99
	ii)	SP / SSP	Months	48	6,197.50	2,97,480.20
	iii)	TSS / ISS	Months	12	8,581.27	1,02,975.26
		Sub Total				1,78,46,843.25
		Labor Cess @ 1%				1,78,468.43
		Sub Total including all taxes except GST				1,80,25,311.68
		GST @ 18%				32,44,556.10
		Total (Section-II)				2,12,69,867.78



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Signature Not Verified

Digitally signed by JAYAKRISHNAN
CHANDRASEKARAN NAIR
Date: 2025.01.17 21:58:30 IST
Location: eProcurement System for
Central PSUs