DEENDAYAL PORT AUTHORITY

An ISO 9001 : 2008 & ISO 14001 : 2004 Certified Port

Office of Superintending Engineer (Electrical), Ground Floor, P & C Building, New Kandla, Kutch – 370210
Tel: 02836 270 342

No.: EL/WK/2827_____ Date: 15/01/2024

EXPRESSION OF INTEREST [EOI] for of "Operation & Maintenance Contract of Industrial Lighting at cargo handling area, open plots, jetty area, Godowns, Street lighting connecting to port gates including maintenance of 11/0.433KV Substation inside cargo jetty area."

(This EOI is issued to elicit Expression of Interest from the parties interested in the work and does not constitute any binding commitment from the Deendayal Port Authority to proceed with the work or invite any or all the parties in the subsequent bidding process. The Open Tenders will be issued subsequently.)

Superintending Engineer (Electrical), DPA invites Expression of Interest for the work of "Operation & Maintenance Contract of Industrial Lighting at cargo handling area, open plots, jetty area, Godowns, Street lighting connecting to port gates including maintenance of 11/0.433KV Substation inside cargo jetty area." from the reputed firms from those who have executed similar work in Government/public sectors and other leading private organizations. The Expression of Interest (EOI) documents containing details of Scope of Work and Technical Specifications are enclosed herewith.

The interested firms are requested to submit their expression of interest for the said work in BOQ format as enclosed at Annexure I. The completed EOI (Expression of Interest) shall be submitted to the office of the undersigned on or before 31/01/2024. A soft copy of EOI is also acceptable through e-mail Id. see@deendayalport.gov.in

Superintending Engineer (E)
Deendayal Port Trust

"PART- 1"

Name of Work: Operation & Maintenance Contract of Industrial Lighting at cargo handling area, open plots, jetty area, Godowns, Street lighting connecting to port gates including maintenance of 11/0.433KV Substation inside cargo jetty area.

PART "A" (Operation & Maintenance contract of HT/ LT Electrical Installations & Lighting System from Zero panel to 10th Berth & its back up area).

Sr. no	Description	Qty.	Rate	Unit	Amount
1	Providing manpower to undertake Operation, periodical, Preventive and breakdown maintenance of 11/0.44KV substation along with electrical installations and its H.T / L.T equipment, and maintaining uninterrupted power supply at inside cargo jetty from berth no 1 to 10 and its back up area as per the enclosed Annexure-I along with Maintenance of industrial lighting system i.e., existing flood lighting, street lighting shed/bay lighting etc., provided in various transit sheds, Godowns, High Masts tower, RCC/ Rail/ Tubular Poles, Lattice Type Towers, Buildings/ structures all non-residential buildings, Pump house etc. as per Annexure-II situated inside cargo jetty area including road lighting From Zero Port to 13 Berth duly monitoring the fuse off calls of the above areas by maintaining a complaint register round the clock including maintenance of LT/ HT UG lines complete as per the following work schedules and as per the scope of work.	24		Month	
2	Providing Vehicle for transportation of material / execution of work & shifting manpower from one site to another site inside cargo jetty including driver. a) Tata Yodha / Mahindra Maxi truck Utility type vehicle of model 2024 inclusive fuel & driver round the clock for the use of monitoring maintenance works 24 hrs interval as indicated in the scope of work. b) Mahindra Bolero 5 seater type vehicle of model 2024 inclusive fuel & driver round the clock for the use of monitoring of lighting works by DPA staff whenever required 12 hrs intervals as indicated in the scope of work. c) TRUCK MOUNTED HYDRAULIC SKY LIFT for the use of Repairing inside Godown lighting, lighting tower works etc. for 24 hrs intervals as indicated in the scope of work.	24 24 24		Month Month Month	
				TOTAL OF PART A	

Sd/-

Seal & Sign of Contractor

Superintending Engineer (E)
Deendayal Port Authority

"PART -2"

Name of Work: Operation & Maintenance Contract of Industrial Lighting, open plots, jetty area, Godowns, Weight Bridges, Pump House and Height Mast & Mini Mast, port gates including maintenance of 11/0.433KV Substation inside Cargo Jetty area at Berth No. 13 to 16 area.

PART "A" (Operation & Maintenance contract of HT/ LT Electrical Installations & Lighting System from Berth no 13 to 16 & its back up area).

Sr. no	Description	Qty.	Rate	Unit	Amount
1	Providing manpower to undertake Operation, periodical, Preventive and breakdown maintenance of 11/0.44KV substation along with electrical installations and its equipment, and maintaining uninterrupted power supply from Berth No. 13 to Berth No. 16 including all non-residential buildings, Pump house etc. as per the enclosed Annexure-I along with Maintenance of industrial lighting system i.e., existing flood lighting, High Mast & Mini Mast lighting, Godown lighting etc., provided in various transit sheds, Godown's, High Masts tower RCC/ Rail/ Tubular Poles, Buildings/ structures etc. as per Annexure-II situated inside cargo jetty area including road lighting From Berth No. 13 to Berth No. 16 duly monitoring the fuse off calls of the above areas by maintaining a complaint register round the clock including maintenance of LT/ HT UG lines complete as per the following work schedules and as per the scope of work.	24		Month	
2 a)	Providing Vehicle for transportation of material / execution of work & shifting manpower from one site to another site inside Berth No. 13 to 16 including driver. Tata Yodha / Mahindra Maxi truck Utility type vehicle of model 2024 inclusive fuel & driver round the clock for the use of monitoring maintenance works 24 hrs interval as indicated in the scope of work.	24		Month	
				TOTAL OF PART A	

Sd /-

Seal & Sign of Contractor

Superintending Engineer (E)
Deendayal Port Authority

PART "B" (Maintenance Spares)

Sr. no	Description	Qty. of Part-1	Qty. of Part-2	Total qty.	Rate	Unit	Amount
1	Supply of Wire Rope as per tech Sp no 1 Suspension Wire Rope: (i) 8mm dia. (ii) 10mm dia AISI 316 grade with 7/19 construction of Make: Usha Martin / Bharat Wire Rope	 2000 1000	 500 500	 2500 1500		 Mtr Mtr	
2	Supply of Electrical Hoist trailing round Cable (5 core copper flexible round cable) as per technical Sp no 2	500	500	1200		Mtr.	
3	Supply of Sustaining type double drum double shaft winch suitable for High mast tower meeting the Technical specification no 3	15	5	20		No.	
4	Supply of Power tool suitable for the existing HM & above winch supplied in item no 3 the motor should be supplied along with sprocket & chain as per tech Sp no 4	20	10	30		No.	
5	Supply of following type of Distribution Boards as per Technical Specification No 5. (i) SP&N Double door IP 42 6 Way . (ii) TPN Double Door IP 42 DB 4 ways (iii) TPN Double Door IP 42 DB 8 ways	 10 05 05	 5 5 5	 15 10 10		 No No. No.	
6	Supply of following type of 4 pole MCCBs, as per Technical Specification No. 6 (i) 40Amps, 415V, 16KA, 50Hz. (ii) 63Amps 415V 16KA 50Hz. (iii) 100 Amps, 415 volts, 25KA, 50 Hz (iv) 125 Amps, 415 volts, 25KA, 50 Hz. (v) 160Amps, 415 Volts, 25KA, 50 Hz (vi) 250Amps,415 Volts, 35KA, 50 Hz.	 40 30 15 20 10 20	 10 20 5 5 5 5	 50 50 20 25 15 25		 No No. No. No No. No	
7	Supply of following type of MCBs as per Technical Specification No. 07 (i) SP MCB, 0-32 Amps, "C" type,230Volts. (ii) DP MCB, 0-32 Amps, "C" type,230Volts. (iii) 4 pole, 0-32 Amps, "C" type, 415 Volts. (iv) 4 pole, 40 Amps, "C" type, 415 Volts. (iii) 4 pole, 63 Amps, "C" type, 415 Volts.	 35 20 25 25 30	 35 20 25 25 30	 70 40 50 50 60		 No. No. No. No. No.	
8	Supply of Contactor, 70A capacity, 240 Volt with "NO" &"NC" Contacts of make L&T ML-70	36	25	61		No.	
9	Supply of 240V Coil suitable for Contactor of make L&T /Havell's	50	25	75		No	
10	Time Switch, 240V AC /28V DC, 16A make L&T/ Indo Kopp	10	10	20		No	
11	Supply of Switch disconnector fuse unit & as per Technical Specification No. 7 (i) FN 125 A Capacity (ii) FN 200 A Capacity (ii) FN 250 A Capacity	 10 05 05	 05 5 5	 15 10 10		 No No No	
12	Supply of surface mounting type Single Pole & Neutral switch fuse units/fuse switches with Rewire able Porcelain Fuse units. a) 32A 240V.	 20	 10	 30		 No	
13	Supply of surface mounting type Triple Pole, 415V AC, 50 Hz with Neutral Link						

	switch fuse units/fuse switches with Rewire able Porcelain Fuse units a) 100A, 415V b) 250A' 415V	10 25	10 20	20 45		No No	
14	Supply of surface mounting type On load Changeover Switch , housed in sheet steel enclosure with front access having side handle operation a) 63A, 415V b) 200A' 415V	10 15	2 2	12 17		No No	
15	Supply at site 4 Core LT armoured aluminium conductor XLPE cable of 1.1KV grade of the following type & size as per IS: 7098 (Part-I)1985 and as per technical specification no 9 (i) 4 Core X 25 sq. mm. (ii) 4 Core X 70 sq. mm. (iii) 4 Core X 120 sq. mm	2000 1500 1500	1000 500 500	3000 2000 2000		Mtr . Mtr Mtr	
16	Supply of Energy efficient T 5 LED Tube Light Fixture with complete accessories as per technical specification no 10. a) 40 watt LED Tube light Fixture.	900	500	1400		No	
17	Supply of Energy Efficient 120W LED lamp street light fixture with Complete accessories as per Tech Spec No . 11. a) 90Watt Road way Luminary.	30	25	55		No	
18	Supply of Energy Efficient LED flood light fixture with Complete accessories as per Tech Spec No . 12. a) 250 Watt LED Flood Light Luminary	150	50	200		No	
19	Supply of GI Strips Connecting earth station to the equipment as per Tech Specification No . 13. (i) 12 SWG GI earthing wire. (ii) G.I strip 50 X 6 mm thick.	1000 500	500 500	1500 1000		Mtr Mtr	
20	Supply of following type of supplied ceiling fan as per Tech Spec No. 14 (i) 1200 mm sweep ceiling fan (i) 1400 mm sweep ceiling fan	100 100	50 50	150 150		No. No.	
21	Supply at site 9 Meter long with detachable double Arm Octagonal type Pole as per Technical Specification No. 15	25	0	25		No.	
22	Supply of heat shrink straight through Joint kit of 11KV XLPE 3 Core Aluminium armoured cable, as per Technical Specification No. 16 3C X 95 SQMM 3C X 150 SQMM 3C X 300 SQMM 3c x 400S SQ MM	20 30 20 10	20 20 20 20	40 50 40 30		No. No. No. No.	
23	Supply of heat shrink End termination Joint kit of 11KV XLPE 3 Core Aluminium armoured cable, as per Technical Specification No. 17 3C X 150 SQMM 3C X 300 SQMM	10 08	05 04	15 12		No. No.	

	3c x 400S SQ MM	05	03	08		No	
24	Supply of heat shrink straight through Joint Kit suitable for L.T. 1.1 KV XLPE 4 Core armoured, as per Technical Specification No. 18						
	1. 4CX 25 SQMM	25	15	40		No.	
	2. 4CX 50 SQMM	25	15	40		No.	
	3. 4CX 70 SQMM	20	10	30		No.	
	4. 4CX 120 SQMM	20	10	30		No.	
	5. 4CX 185 SQMM	20	10	30		No.	
	6. 4CX 300 SQMM	20	10	30		No.	

PART "B-1" (Maintenance Spares for non-Residential buildings)

Srno	Description	Qty of Part-1	Qty of Part-2	Total qty	Rate	Unit	Amount
A	Supply of following electrical accessories of approved make as directed by Engineer-in-charge.						
1	6A 1-way piano switch	500	100	600		No	
2	16A 1-way piano switch	60	50	110		No	
3	6A 5Pin Socket	600	50	650		No	
4	16/6A- 6pin Socket	120	100	220		No	
5	3/5Pin 5A Top 230/250V	150	50	200		No	
6	3/5Pin 15A Top 230/250V	48	100	148		No	
7	16/6A 250V Switch socket combined with box	48	50	98		No	
8	16/6A 5in-one combined with box	50	50	100		No	
9	32A 2P w/neon indicator surface mounted	50	25	75		No	
10	Angle holder	50	25	75		No	
11	ELCB 40A, 30mA DP	30	20	50		No	
12	Ceiling fan Oil filled Capacitor (2.5/4mfd)	50	50	100		No	
13	Single module step cut regulator	70	50	120		No	
14	Surface mounted mini fan Regulator	100	25	125		No	
15	Water proof Tape	48	25	73		No	
16	1 /2 / 3 /4 way Gang Box	20 each	10 each	120		No	
17	1 switch 1 Socket Gang box	20	10	30		No	
18	3 Switch 3Socket Gang Box (computer point)	20	10	3		No	
19	15 A 1way Gang Box (for A/c)	20	10	30		No	
20	15A 2 way Gang Box (for A/c)	20	10	30		No	
21	Hot press moulded SMC junction box with outer Dia 230 x 170 x 105 with left hinged door	50	20	70		No	
21	1.5 Sq mm PVC copper wire (FRLS coil of 90mtrs)	12	10	22		No	
22	2.5 Sq mm PVC Copper wire (FRLS coil of 90mtrs)	12	10	22		No	
23	4 Sq mm PVC Copper wire (FRLS coil of 90mtrs)	12	10	22		No	
24	4 Sq mm PVC insulated, PVC sheathed Al Conductor service wire(90mtr coil)	12	10	22		No	
25	6Sq mm PVC insulated, PVC sheathed Al Conductor service wire (90mtr coil)	12	10	22		No	
26	1.5 sq mm x 4 core PVC Round Copper Flexible Cable of 1.1KV voltage grade (90mtrs Roll)	12	10	22		No	
27	2.5 sq mm x 4 core PVC Round Copper Flexible Cable of 1.1KV grade (90mtrs Roll)	12	10	22		No	
28	4 sq mm x 4 core PVC Round Copper Flexible Cable of 1.1KV grade (90mtrs Roll))	6	06	12		No	
29	6 Sq mm PVC Copper wire (FRLS coil of 90mtrs)	06	06	12		No	
30	Medium class round pipe 20mm size (standard length)	500	200	700		No	
31	Elbow /Tee & required accessories such as clamps ,screws etc. of 20mm size of medium class round pipe	300	100	400		No	
32	PVC Saddle/ PVC Clip, of Size: 20 To 50 Mm (20mm, 25mm,40mm & 50mm)	1pack each	1 pack each .	8		Pack	

		(4 Pack)	(4 Pack)				
33	Aluminium Ferrol of size from 10 Sq mm to 240 Sq mm (16,25,35,70,95,120,150,240, 300)	1pack each (9 Pack)	1 pack each . (9 Pack)	18		Pack	
34	Aluminium cable Lug of size from 10 Sq mm to 240 Sq mm (16,25,35,70,95,120,150,240, 300)	1pack each (9 Pack)	1 pack each . (9 Pack)	18		Pack	
35	Battery 180 AH ,Exide , Amaron, luminous	06	04.	10		Nos	
36	100 mm Dia HDPE , Class PE-100 pipe having 10 KG/cm2 pressure along suitable coupler	500	200	700		Mtr	
37	100 mm dia Heavy duty Class –B GI Pipe along suitable coupler	100	50	150		Mtr	
36	Enamel paint (2Ltr) Tin Grey/Black/Silver	10	10	20		No	
					TOTAL Of Part B		

PART – C (Miscellaneous Work)

Sr no	Description	Qty of Part-1	Qty of Part-2	Total qty	Rate	Unit	Amount
1	Dismantling and re-erection of 30 mtrs. High Mast Tower including lantern ring and lighting fixtures as per technical specification No. 1.	30	10	40		No.	
2	Laying of 3.5/4.0 Core LT armoured aluminium conductor XLPE cable of 1.1KV grade of the following type & size on wall through saddles & clamps as per Technical Spec No. 2 a) up to 3.5/4.0 core x 50 Sq.mm	1500	500	2000		Mtr	
3	Laying of all size of H.T/ L.T cable through Road crossing / cement concrete flooring by auguring method as per technical Specification no 3	1000	500	1500		Mtr	
4	Laying of LT armoured aluminium conductor XLPE cable of 1.1kV grade of size up to 150 Sq.mm through excavation in Hard/Soft Soil as per Technical Specification No. 4	1000	500	1500		Mtr	
5	Rewinding of Exhaust / Wall mounting Fan of 450mm to 750mm sweep with super enamelled copper winding wire as per Technical Spec No. 5. a) Exhaust Fan / Wall mounting Fan of all size.	25	25	50		No.	
6	Providing & fixing chemical treated back filled compound earthing, pipe In Pipe for 2000 Amps (LT) capacity, complete with civil work as per Tech Specification No:- 6.	30	25	55		No	
7	Laying, connecting of GI Strips Connecting earth station to the equipment as directed including all labour and material as per Technical Spec No. 7 (i) 12 SWG GI earthing wire. (ii) G.I strip 40 X6 mm thick.	1000 500	600 1000	1600 1500		Mtr Mtr	
8	Erection of supplied 9 Meter long pole along with civil work as per Technical Specification No. 8	25	0	25		No	

9	Hiring of Vehicle as per technical Specification as per Technical Spec No. 10 (i) Hiring of 30 meter height Telescopic mobile harbour crane for 8 hrs interval (1 Visit) for maintenance of high mast tower. (ii) Hiring of hydra for 4 hrs interval (1 visit) for maintenance of high mast tower. (iii) Hiring of pay loader/ excavator for 4 hrs interval (1 visit) for maintenance of high mast tower.	10 24 24	8 8 10	18 32 48		Visit Visit Visit	
					TOTAL of Part –C		

TOTAL OF PART-I of "A" =_____

TOTAL OF PART-I of "B" =_____

TOTAL OF "B" (PART-I & 2) =_____

TOTAL OF "C" (PART-I & 2) =_____

GRAND TOTAL =_____

Sd/-

Seal & Sign of
Contractor

Superintending Engineer (E)
Deendayal Port Authority

SCOPE OF WORK

Name of Work: Operation & Maintenance Contract of Industrial Lighting at cargo handling area, open plots, jetty area, Godowns, Street lighting connecting to port gates including maintenance of 11/0.433KV Substation inside cargo jetty area.

1. This Maintenance Contract shall be carried out on the basis of 24 X 7 at Inside Cargo jetty area from north Gate to Berth no 10 & from Berth no 13 to Berth no 16 including backup area.
    - Maintenance Contract includes Daily, Periodical, Preventive and Breakdown Maintenance,
    - Cable Fault finding both for H.T/ L.T cable which means fault finding, excavating the pin point location, jointing the cable by using Heat shrink cable jointing kit or M-Seal kit the complete work includes material, tools & tackles & man power for the cable to restore power within the stipulated time.
    - Attending Operation, breakdowns, routine testing and cleaning of electrical equipment's at 11KV Substations located at different location mentioned in Annexure-
    - Contractor has to obtain prior approval of maintenance schedule for equipment installed at 11KV substation & Lighting tower also should submit the pre-monsoon maintenance schedule for approval before commencement of monsoon.
    - Maintenance & trouble shooting of High mast lighting, mini mast, Lattice tower lighting, Pathway Lighting, Street Lights & its accessories including Non Residential Buildings (Gate office/ shed master room/ toilet block /traffic offices /Fire office etc.) situated inside cargo jetty from north gate to Berth no. 10 & at Berth no 13 to 16 .
    - The tentative details of various equipment's installed in each 11KV Substations, non-residential building & detail of high mast & lattice tower are given in Annexure – I , II, III & Annexure I(a) & I(b)

2. The Maintenance Contract will be entered initially for two year for Part 1 & 2 of A, B & C of the Schedule, however the same is likely to be extended for further period of One year or up to the finalization of new AMC contract on the same rates and terms and conditions of tender by mutual consent and approval of DPA.

3. Area of work: Inside Cargo jetty from North Gate to Berth no 10 & from Berth no 13 to Berth no 16 including entire backup area.

4. Maintenance of all electrical equipment like sub-station HT & LT panel boards, transformers, HT / LT cables, pump houses power supply system, power supply to all offices, non-residential buildings, internal wiring & its accessories and record maintain of earthing also is covered under scope of this maintenance contract.

5. MAINTENANCE SPARES
   The items which cover only supply items in Schedule "B" shall be supplied by the contractor as per the following schedule for the first year of AMC.

    (i) 50% of quantity of each of the individual item from Schedule "B" of BOQ (**Section VI**) of Electrical spares **(part B & B-1)** to be supplied **in 60 days from the issue of work order** with written intimation of Engineer-in-charge.

    (ii) Remaining Quantity of material of the Supply Items to be supplied in **240 days from the date of issue of work order** with written intimation of Engineer-in-charge.

    (iii) However, whenever the quantity of **Electrical spares (Part B& B-1) supplied & Miscellaneous works (Part C)** by Contractor is exhausted within 2 year of AMC period and if any requirement arises prior to completion of the contract variation in Quantities of Schedule of **Electrical spares (Part B & B-1) supplied & Miscellaneous works (Part C)**shall be considered by DPA. The overall as well as individual

variations shall be ± 30% in quantity for which the rate quoted by the bidder and accepted by the employer shall be applicable.

(iv) The miscellaneous works as mentioned in Schedule "C" will be informed as per requirement and availability at site accordingly the contractor shall deploy adequate manpower to meet target given by DPA during execution of work. AMC staff should not be involved for the work mentioned in Schedule" C" also if the work is not carried out within the stipulated period the work will be carried out by outside agencies and the amount will be deducted from the RA Bill

6. The spares mentioned in Schedule "B" supplied by the contractor will be maintained by DPA for smooth Operation & Maintenance. But if any spares left out from Schedule "B" and is not available in DPA stores and required urgently for the functioning of the equipment (un-interrupted power supply) the contractor should arrange the proprietary spare immediately for smooth maintenance the reimbursed by DPA on actual basis to the contractor on production of relevant original documents. The rate includes the charges of packing, forwarding and transportation up to site at Kandla. (The supply order regarding proprietary material shall be placed to the Contractor after approval of competent authority) (Format of draft Supply order is incorporated at Pg no ___).

7. During the execution of Maintenance Contract, if any kind of repairs is considered to be of the major nature like repairing/rewinding of transformer, replacement of potential/current transformer, Major repair of RMU, Including Gas filling, Compact Substation etc. and if same is absolutely necessary for healthy power supply system, the cost of such repairs shall be reimbursed by Deendayal Port Authority on actual basis to the contractor on production of relevant original documents. The rate includes the charges of dismantling, packing, forwarding and transportation up to manufacturer's place and back to site at Kandla and re-erection of same material. . (The Work order regarding such major repairs shall be placed to the Contractor after approval of competent authority). However, the loading, unloading and transportation will be responsibility of AMC contractor during the AMC period.

8. The contractor shall keep separate tools and tackles, testing instruments for i) From Zero panel to 10th berth & 2) Berth no 13 to 16 at site during maintenance contract period.

9. a) The contractor shall inform well in advance in writing for taking power shut down as and when required for preventive / periodical maintenance in 11 kV Substation in order to intimate concerned port officials to enable them to make necessary arrangements during power shutdown. The above permission letter record should be maintained by the contractor in proper manner. Before executing any work, work Permit is to filled up by the contractor Supervisor / in-charge signed by DPA supervisor, sample of work permit is placed at section XII.

   b) At the time of maintenance work is carried out for any 11KV line / substation which are feed from 66KV Substation line clearance is required to be obtained from the concerned official of DPA Supervisor / Junior Engg/ Asst. foreman etc. A line clearance register is to be maintained in the format given at XIII.

   c) Contractor's Site in-charge has to submit the date of monthly maintenance schedule of each substation at the beginning of each month for all the substation available at Zero panel to 10th berth and from 13th to 16th berth. At the end of each month the Site in-charge should submit the maintenance carried out and report of each substation along with the LC register having both LC taken & return back dully signed by 66KV operator & DPA Supervisor, daily maintenance & cleaning work should be carried out regularly.

10. The Contractor shall attend day-to-day maintenance work like housekeeping, cleaning of Substation, HT & LT panels, Transformers & Compact substation etc.

11. Contractor has to maintain all the D.G Set situated inside Cargo jetty area 0 to 10 berth & from Berth no 13 to Berth no 16 as mentioned in Annexure -III with its connected Electrical system (i.e. AMF PANEL) if provided with the system, by properly cleaning and maintaining the water level in battery & twice a day running of D.G set for at least 1/2hr & provide backup power under load shedding immediately. Register should be maintained giving the running hrs & status of the DG set Working in Auto / Manual mode & regular maintenance of the DG set should be carried out, also diesel top up should be done as and when required with entry in register & entry of requisition slip no in the register all the register should be updated with signature & name of the foreman/ In-charge with entry of Diesel top-up in each Gen-set with signature of DPA in-charge (Diesel, filer, coolant & Engine oil will be supplied by DPA)

12. The AMC also includes filtration of transformer oil within first 6 months from date of award of contract and second time after one year from date of first one (18 months from date of issue of work order)(Transformer Oil supplied by Deendayal Port Authority).

13. Maintenance of the complete Industrial lighting system in various cargo handling area in DPA including repairing, rectifying, re-fixing and commissioning of High Mast light fittings, lattice type tower light fittings, Godown & street light fittings, flood light fittings with the material & manpower mentioned in Schedule A, B & C. Maintenance register separately for the HM, Lattice tower, Street light & Godown lighting areawise to be maintained by the contractor mentioning the material repaired / replaced and issued from the store with signature of store-in-charge. While replacing the material such as MCCB/ Contractor/ timer /MCB the Site-in-charge should give in writing and deposit the old material to store keeper. However, if any spares or repair required and not mentioned in the schedule same will be done through clause no 6 & 7.

14. Each High Mast raising up & lowering down operation for lantern shall be carry out once in two month including complete servicing and overhauling of high mast accessories and apply of grease & oil on wire ropes. Also filling of gear oil in gear of motor and accordingly record should be maintained while undergoing this operation all the Luminary glass should be properly cleaned with sweet water. AMC site-in-charge should maintain separate register for the high mast and Lattice tower maintenance mentioning the complete detail (history) of the high mast & material available & Condition of the LT/ HM with that total no of lights in working condition. In short history book should be maintained for both HM & LT from the day of taking over the site by the AMC contractor

15. Contractor should submit monthly bill within one week after completion one month AMC, along with the bill below mentioned documents should be submitted by Contractor all the connected register should be submitted to site office
    a) Maintenance schedule daily/weekly & monthly of all 11 KV Substation (both part) along with approved Schedule date chart of each substation, power shut down register, LC register, Work Permit. Substation wise equipment wise Register. Register for earthing resistance value of each substation updated to be submitted.
    b) Lighting details such as ON & OFF Register, Tower wise / Area wise HM /LM register (history book), Schedule date and maintenance report along with work permit duly signed by DPA supervisor,
    c) 11KV Staff & lighting Staff attendance sheet for 0to 10^{th} berth & 13 to 16^{th} berth, approved Duty Roaster of the AMC staff, Daily Progressive Register having signature of the staff, Xerox copy of gate pass of AMC Staff, NOC of staff engaged in AMC work, up dated profile of the staff with left out & new Staff duly signed by Site in charge of Contractor.
    d) Register maintained for DG set duly signed by Site-in-charge of Contractor and DPA supervisor.
    e) Site order book, tools & tackle register & updated site consumable material register with Requisition book.

16. Fixing, connection and commissioning of SFUs/switches/ MCB's/ MCCB's, Time switches etc. of various capacities as directed (Required material will be supplied by DPA.)

17. Switching 'ON' and 'OFF' the lighting system in all locations during the 'Sunset' and 'Sun rises' as per instructions /directions, and adjustment of Auto-timer settings of High mast/Lattice/Min mast tower as per the instruction/direction of Engineer-in-charge.

18. This AMC include repairing of High Mast Accessories like repairing of damaged lantern carriage, repair/replacement of lighting fixtures of High Mast, replacement of safety and suspension wire rope, replacement of hoist trailing cable, repairing/overhauling of double drum winch, power tool, Gear Box complete, Replacement/Fixing of luminaries with wiring and control gear box etc (Material required will be supplied by DPA).

19. The Repairing / welding work required in the AMC the work has to be done by the contractor for which a welder and welding rod /tools required for welding is to be provided by Contractor.

20. This AMC also includes laying and testing of varies sizes of cable as and when required, LT/HT cables shall be lay in through excavated hard/soft soil, in existing RCC Cable trench, on wall through saddles & clamps, through GI Class-B pipe on wall or road. (The cables required for laying will be supplied by DPA).

21. Contractor shall get approval of maintenance schedule including pre-monsoon maintenance for equipment's installed at various Substations & Load point / feeder panel of all towers (H.M& L.T) within one week of commencement of maintenance contract from Engineer-in-Charge during the submission of the staff profile.

22. Consumables are to be provided by Contractor during period of Maintenance Contract at his own cost to carry out routine maintenance work which has to be maintained in the register & the same is to be Deposit in DPA store and material will be issued on production of requisition by Contractor. The following minimum quantity of consumables mentioned below are to be maintained within 7 days of commencement of every month (monthly billing) during currency of Maintenance Contract and shall be verified by Engineer-in-Charge, if any shortage found penalty will be levied for per week per item after that double the rate will be charged per item per week till the consumable not updated in DPA store. Consumable for Part-1&2 should be handed over to store and maintained in different register. Part-1 is the consumable for zero to 10th berth & Part -2 is the consumable for 13 to 16th Berth

    CONSUMABLE TO BE MAINTAINED FOR PART -1 for North Gate to Berth no 10.

Sr No	Description	Minimum Qty
1	Gear oil, each drum of 25 Kg.	2no (50KG)
2	Wire rope grease / Dresser each drum of 25Kg.	2 no(50KG)
3	Petroleum Jelly	1Kg
4	"U" clamp and Stainless steel nut bolt	(As per site requirement) at least material of 5no H.M Tower
5	Sprocket of 30 mt HM	5 no's
6	Chain link	15 mt length(10 no's)
7	Silica Gel	5 Kg
8	Araldite & M-Seal	250 gms. each
9	Insulation tape / H.T heat shrink Tape	50 Roll / 10 Roll
10	H.T Tape /AVL Tape	10 Roll each
11	Water proof flex adhesive sealant Tape	10 Roll

12	Space heater for Panels	20 no's
13	T-5 tube & Choke	100 each
14	40W Fluorescent tube & Choke	100 each
15	Indication lamps LED type / lamp holder	100 each
16	HC-80 (Anti Tracking Spray) make ASV	10 tin's
17	Penetroil (Rust Remover Against WD-40) make ASV	10 tin's
18	Elepro 200 (Moisture Displacer) make ASV	10 tin's
19	Premium (On Line Contact Cleaner) make ASV	10 tin's
20	Aluminum Foil Tape (Cravity Sealing Tape) make 3M	5 No
21	Scotch 23 (High Voltage Tape) make 3M	10 no's
22	Scotch fill Putty (Insulation Putty) make 3M	5 No's
23	Foam Tape (Gasket Form Tape) make 3M	5 No's
24	IIKV HT & 1.1 KVLT Heat shrink Tubes. 	20 no's each for HT & LT
25	Cotton waste /Muslin cloth	50 Kg /20 Mtr.
26	Stainless steel / copper Nut bolts, and washer	25 no's (As per site requirement)
27	Emery paper & Scotch Brite	10 Nos each
28	HT Heat shrink wraparound sleeves for cable repair and joint outer re-jacketing . 	i) Suitable for 150Sqmm 10no's. ii) Suitable for 300Sqmm 06 no's. iii) Suitable for 400Sqmm 04 no's
29	LT Heat shrink wraparound sleeves for cable repair and joint outer re-jacketing .	i) Suitable for 10-25 Sqmm 10 no's. ii) Suitable for 35-50 Sqmm 15 no's. iii) Suitable for 70- 95 Sqmm 10 no's iv) Suitable for 120- 185 Sqmm 5 no's v) Suitable for 220- 300 Sqmm 5 no's
30	DG Set's Air filter	10 no's
31	DG Sets' Fuel Filter	10 no's
32	DG Set's Coolant	3 Ltr.
33	DG Sets Hose Pipe	As per requirement
34	AMF Panel Contactors suitable for 30 KVA DG Sets.	04 Nos.
35	AMF Panel Contactors suitable for 125 KVA DG Sets.	08 Nos.
36	Lugs & ferrule for LT cable size up to 150 sq.mm	100 Nos.
37	Lugs & ferrule for HT cable size up to 150 sq.mm	50 Nos.
38	Lugs & ferrule for HT cable size from 150 sq.mm up to 300Sqmm	50 Nos.
39	Spare L&T make contractor coil CAT NO CS90718 (specify voltage works CAT no CS90741 240V, 50Hz	50 nos
40	Stanvac Z730 Steelweld, 284GMS, Tin	5 tin
41	Stanvac Z814 One Minute Epoxy Putty, Packaging Type: Syringe	5 Syringe
Note : If any other consumables are felt necessary for execution of the work, on the written instructions of EIC, the same shall be arranged by the contractor at their cost.		

CONSUMABLE TO BE MAINTAINED FOR PART -2 for 13 to 16th Berth.

Sr No	Description	Minimum Qty
1	Gear oil, each drum of 25 Kg.	1no
2	Wire rope grease / Dresser each drum of 25Kg.	1 no
3	Petroleum Jelly	1/2Kg
4	"U" clamp and Stainless steel nut bolt	(As per site requirement) at least material of 1 no H.M Tower
5	Sprocket of 30 mt HM	3 no's
6	Chain link	05 mt length (10 no's)
7	Silica Gel	1 Kg
8	Araldite & M-Seal	100 gms. each
9	Insulation tape / H.T heat shrink Tape	30 Roll / 10 Roll
10	H.T Tape /AVL Tape	05 Roll each
11	Water proof flex adhesive sealant Tape	05 Roll
12	Space heater for Panels	05 no's
13	T-5 tube & Choke	25 each
14	Fluorescent tube & Choke	25 each
15	Indication lamps LED type / lamp holder	15 each
16	HC-80 (Anti Tracking Spray) make ASV	05 tin's
17	Penetroil (Rust Remover Against WD-40) make ASV	02 tin's
18	Elepro 200 (Moisture Displacer) make ASV	03 tin's
19	Premium (On Line Contact Cleaner) make ASV	15 tin's
20	Aluminum Foil Tape (Cravity Sealing Tape) make 3M	2 No
21	Scotch 23 (High Voltage Tape) make 3M	05 no's
22	Scotchfill Putty (Insulation Putty) make 3M	3 No's
23	Foam Tape (Gasket Form Tape) make 3M	3No's
24	HT & LT Heat shrink sleeves	05 Sets each for HT & LT
25	Cotton waste /Muslin cloth	50 Kg /20 Mtr.
26	Stainless steel / copper Nut bolts, and washer	25 no's (As per site requirement)
27	Emery paper & Scotch Brite	10 Nos each
28	Fuse wire HT & LT	As per Site requirement
29	DG Set's Air filter	6 no's
30	DG Sets' Fuel Filter	6 no's
31	DG Set's Coolant	2 Ltr.
32	DG Sets Hose Pipe	As per requirement
33	AMF Panel Contactors suitable for 125 KVA DG Sets.	02 Nos.
34	AMF Panel Contactors suitable for 400 KVA DG Sets.	02 Nos.
35	Lugs & ferrule for LT cable size up to 150 sq.mm	100 Nos.
36	Lugs & ferrule for HT cable size up to 150 sq.mm	25 Nos.
37	Stanvac Z730 Steelweld, 284GMS, Tin	5 tin
37	Stanvac Z814 One Minute Epoxy Putty, Packaging Type: Syringe	5 Syringe
38	Spare L&T make contractor coil CAT NO CS90718 (specify voltage works CAT no CS90741 240V, 50Hz	10 nos
Note : If any other consumables are felt necessary for execution of the work, on the written instructions of EIC, the same shall be arranged by the contractor at their cost.		

23. Statutory Tools & Tackles are to be arranged by Contractor during period of Maintenance Contract and shall be provided by Contractor to his workmen at his own cost.

24. Deployment of Manpower: The following minimum manpower shall be deployed by the Contractor to carryout effective maintenance as per the instructions of the Engineer-in-charge

Staff requirement for Part -1 of "A"

S. No	Designation	General shift (10.00 hrs- 18.00 hrs)	1st Shift (08.00hrs – 16.00 hrs)	2nd Shift (16.00hrs – 24.00 hrs)	3rd Shift (24.00hrs – 08.00 hrs)
1	Site In-charge	1 Nos.	------	------	------
2	Shift Supervisor	2 Nos.	1 Nos.	1 Nos.	1 Nos.
3	Electrician	6 Nos.	3 Nos.	3 Nos.	3 Nos.
4	Helpers to Artisans	6 Nos.	3 Nos.	3Nos.	3Nos.
5	Sweepers	2 Nos.	------	------	------
6	Office clerk	2 Nos.			
	Total	19 no's	7 no's	7 no's	7 no's
	Reliever: - 1 Shift Supervisor, 2 Electrician & 2 Helper to Artisan				
	Total = 45 nos.				

Staff requirement for Part -2 of "A"

S. No	Designation	General shift (10.00 hrs- 18.00 hrs)	1st Shift (08.00hrs – 16.00 hrs)	2nd Shift (16.00hrs – 24.00 hrs)	3rd Shift (24.00hrs – 08.00 hrs)
1	Site incharge	1 Nos.	------	------	------
2	Shift Supervisor	1 Nos.	1 Nos.	1 Nos.	1 Nos.
3	Electrician	2 Nos.	1 Nos.	1 Nos.	1 Nos.
4	Helpers to Artisans	5 Nos.	2 Nos.	2 Nos.	2 Nos.
5	Sweepers	1 Nos.	------	------	------
	Total	10 no's	4 no's	4 no's	4 no's
	Reliever: - 1 Shift Supervisor, 1 Electrician & 2 Helper to Artisan				
	Total = 26 nos.				

25. Staff mentioned in the above chart shall be posted as per their location separate attendance register & DPR should be maintained as per the location and separate Daily progress report book in which signature of individual person should be there & duly verified by DPA in-charge stationed at Cargo jetty S/s. General staff should be stationed at Cargo jetty Substation for Part -1 & for Part -2 staff should be stationed at 13th / 16th Berth Substation as per the situation posting of the staff should be carried out from Cargo jetty Substation.
26. The above posting of the supervisor staff can be changed as per the situation arise and as per the requirement of DPA site in-charge i.e. JE / AE. The posting done to the staff should be informed though WhatsApp to concern officer
27. The above mentioned staff should have the minimum qualifications mentioned as under:

Sr. No.	Designation	Qualification
1	**Site Engineer:**	Degree in Electrical Engineering and at least 3 years' experience in operation & maintenance of 11/0.433 KV Substations "OR" Diploma with Electrical Engineering having 5 years' experience of operation & maintenance of 11/0.433 KV Substations
2	**Supervisor**	Diploma in Electrical Engineering with 3 years' experience on operation & maintenance of 11/0.433 KV Substations & having sound in 11 KV & LT U/g network with competency certificate issued by State Government.

3	**Electrician/Wireman (Technician)**	ITI Certification in Electrician Trade / Wireman trade with at least 5 year experience on HT/LT Electrical Operation & maintenance of 11/0.433 KV Substations
4	**Helper to Artisan**	Worked as Helper, Technician fresh ITI holder in Electrician/Wireman field "OR" At least 3-year experience of operation & maintenance of 11/0.433KV Substations & knowledge of wiring of residential & non-residential building
5	**Office clerk**	12th pass Having knowledge of computer & office work.

(i) Site Engineer: The Site Engineer shall be overall in charge on behalf of Contractor at the site of work specified in the tender i.e. Inside Cargo jetty.

- The Duty of the site in-charge is to collect the report of the activities happen in 24hrs from individual location and new work / maintenance to be carried out at site and submitted a daily report location wise to DPA in-charge in duplicate with attendance statement of individual Location.
- The Site Engineer shall inspect that all the received complaints from internal and external offices, users etc. & Recording of same in the respective complaint register, allocation of complaint no., phone no. of consumer/user etc. is been carried out properly by the supervisor staff and monitor the complaint attended at individual location.
- The Site Engineer shall instruct his supervisor staff to depute the staff to attend the respective complaints depending on the priority. Priority may be given as specified i.e. 11KV Incoming & outgoing feeders, 11KV HT service connections if any, water towers, Lighting as directed by Engineer-in-charge.
- Also, operation of LT and HT indoor sub-station switchgear and recording and issue of Line clearance & normalization of HT / LT Electrical shutdowns works & breakdowns works as per DPA procedures. The recording of the vehicles running and monitoring shall be controlled by Site Engineer.
- Site Engineer being overall in charge shall reach at site during any major break down even in late hours by calling the Site vehicle and simultaneously inform the above situation to Engineer-in charge and remain present in site up till the restoration of power.

(ii) **Site Supervisor:** The Site Foreman shall be in charge during Shift on behalf of Contractor at the site of work specified in the Tender and fully responsible to attend the breakdowns/faults during his shift and reporting to his Site Engineer.

- Attending of 11KV HT/LT / UG cable complaints including service connections as informed by Site Engineer along with available staff.
- Feedback collection after attending of completes from the customer/ user.
- Reporting of works attended to Site Engineer.
- Recording of details of works executed, rectifications / repairs.
- Efficiently utilizing of staff providing for repair / ratification & solving of complaints recorded / reported from time to time.
- Safety of staff provided for work, proper usage of PPE.
- Communicating with the representative of KPT from time to time for further guidance / instructions from Engineer-in-Charge or superior officials.
- Issue of Line clearance & normalization of HT / LT Electrical shutdowns works & breakdowns works as per DPA procedures.
- Troubleshooting and breakdown Maintenance of electrical equipment's.
- Carrying out of jobs like giving connections for Temporary power supply, lighting / welding machines / fans / utility / Etc.
- Material shifting within site including to / from sub-stores.

- Record keeping of operation & Maintenance activities of shifts in Registers and on Computers. Daily log book should be updated of individual substation from cargo jetty
- Coordinating with the GETCO staff for attending complaints regarding LT / HT service connections will be entrusted.
- No idle time will be entertained. In case non-receipt of any complaint the pending complaints received by the officer-in-charge / noticed during the preventive maintenance will be entrusted.
- Operate all outdoor & indoor switchgear and maintain trouble free power supply for all non- residential building specially Gate office.
- He has to maintain the tower lighting and pathway lighting of oil jetty. Street lighting from 13th Berth to zeera port by the respective area staff if any major break down in lighting same should be noted in the register and forward the information to Site in charge.
- Daily lighting report should be prepared by the night shift site supervisor showing the status of lighting area wise collecting the detail from Electrician / Wireman and submit the report to Shift in charge.

(iii) **Electrician:**

Work on poles, PSC poles, DP/Four Pole structures, HT & LT cables, sub-station equipment, lighting etc., as directed by the Site Engineer / Site Supervisor of Firm and shift engineer / in charge of DPA.

- He should have the knowledge of operating the 11/0.433KV substation equipment and maintain register properly in each Substation. Taking proper safety during switching on /off the H.T/L.T Switch Gear.
- All the safety equipment should be utilized and power break down time should be noted in the S/S register, Every hour current reading should be noted in the log book of the Substation posted by DPA shift-in-charge
- Attend the complaints related to High mast tower, Lattice tower, pathway lighting, street lighting also if required switching ON & OFF of the lights are to done by the electrician and accordingly submit the detail report area wise
- Attend the complaints related to pump house, gen sets, panels, HT /LT cables, control schemes etc.
- Work on pump houses, various starters, gen sets, LT / HT panel boards, lighting etc., as directed by Site Supervisor/Site Engineer (Contractor) and shift in charges (DPA).
- Trimming & cutting of tree branches falling on HT /LT overhead lines / cable trench line, panels etc.
- During any major work care should be taken to take line clearance from particular substation with his name and signature noted in the register with (Do NOT OPERATE) board fixed on the panel. Apart from above work he has to assist the electrician for the above mentioned work.
- Electrician posted in respective area should maintain the log book of individual sub- station and note down the timings of power breakdown. He should note down in the log book the name of the person switching off the power with its signature and simultaneously during restoring period he should take the signature of the same person to avoid any accident. He should have full knowledge in operating the equipment installed in the substation any damage due to wrong operation then contractor will be held responsible & same repairs has to be carried by them at their own cost.

(iv) **Office Clerk**

Office clerk shall perform duty for maintaining the document, attendance register, other statuary register, staff profile register, documentation etc. Office clerk having good proficiency in Computer. Shall be posted in day shift only.

(v) Helper to artisan shall assist Electrician/wireman in their work and time to time work given by Site Supervisor/Site Engineer during shift such as excavation during cable fault etc. The Contractor should engage some of the helper expert in excavation in any type of Soil.

(vi) House keeping Assistant: - The House keeping Assistant: should daily sweep all the Substation periodically manner as instructed by EIC.

28. Responsibilities of Contractor:

- It is fully the responsibility of the contractor to deploy qualified Site Engineer, Site Foreman, Electricians and Wiremen on experience, relevant License/permits to handle electrical equipment's, etc., as applicable. The Contractor has to submit the Notarized Aadhaar Card/Election Card, Educational & Experience.
- Certificates of his deployed personnel along with Profile of Staff. In case of Helper to Artisans, the Notarized copy of Aadhaar Card/Election Card shall be submitted along with Profile of Staff. No person below 18 years should be deployed for Maintenance Contract. The deployed personnel of Contractor should be well conversant with Indian Standards, Indian Electricity Rule and acts as applicable and should have knowledge of electrical and Industrial safety practices.
- Contractor will ensure consistency of work and work force, correct trouble shooting, good workmanship, follow all safety procedures and will make all necessary efforts to maintain healthy environment and reliable services.
- If any of the staff member appointed by Contractor is found to be 'not competent', he has to be replaced by a right person within a stipulated time as instructed by Electrical Engineer- In-charge
- In no case, the contractor or his/her employees shall claim job / employment with DPA. No transport facility shall be provided for the contractor or his employees.
- It is purely contractor's responsibility to get his staff acquainted/trained with the site conditions, operation and maintenance procedure, equipment detail, safety devices, scope of work etc.,
- Contractor will be responsible for any act of theft, sabotage, misdeed, indiscipline, and negligence on the part of contractor or his employees. Penalty or legal action, as decided by EIC shall be imposed on the contractor.
- The contractor or his supervisor shall meet the EIC or his nominee every day to receive the details of issues / complaints to be attended and after attending to these complaints, a report on the same has to be submitted to the concerned Officer.
- The contractor shall maintain Cell phones (Android type) round the clock for with internet facility for video conference & communication 2 set for 11KV Staff & one set for Lighting Staff for controlling AMC staff of north to 10th berth at the cost and responsibility of the Contractor.
- The contractor shall maintain Cell phones round the clock for proper communication 2 set for 11KV maintenance staff with internet facility for video conference & communication 1 no for controlling AMC & two set for lighting staff at the cost and responsibility of the Contractor.
- The Contractor shall provide his office set up with table and at least five no's chairs, one cupboard and latest Computer (Core i-5) with Xerox cum printer all the documents submitted to DPA should not be hand written.
- The contractor is responsible for restoring power in case of faults occurring in the above-mentioned areas. The contractor must ensure that their deployed personnel are equipped with all the necessary tools and resources required for prompt and effective troubleshooting and resolution of electrical issues. This includes having access to testing equipment, replacement parts, and any other tools deemed essential for restoring power.

29. DPA will not be responsible for death, accident or injury to the Contractor's employees engaged by him, which may arise in the course of their duty at our premises, nor shall we be responsible and be liable to pay damages or compensation to such persons or to third parties. The Contractor shall at all times indemnify and keep DPA indemnified against all claims which may be under the Workmen's Compensation Act, 1923, or any statutory modifications thereof or otherwise for or in respect of any damages or compensation payable in consequence of any accident or injury sustained by any workman or other person/ person at the Centre or premises, building, equipment's etc. is attributable to the Contractor or his workmen, such damages shall be made good by the Contractor or his workmen, such damages shall be made good by the Contractor.

30. WORKING DAYS AND HOURS:

The working days for the maintenance contract will be all days throughout the year. The working hours for day to day maintenance will be as follows:

a). General Shift: 10.00 Hrs to 18.00 Hrs.
b). 1st Shift 07.00 Hrs to 15.00hrs
c). 2nd Shift 15.00 Hrs to 23.00 Hrs.
d). 3rd Shift 23.00 Hrs to 07.00 Hrs.

Accordingly, Contractor shall prepare the Duty Roaster and same shall be submitted to the Engineer-in-charge and the staff should follow the duty roaster, no staff will be entertained to violate the roaster and will be marked absent.

Arrival & Departure of staff should be well-planned to up-keep the maintenance requirement. Punctuality should be maintained at site any person coming late will not be tolerated a grace period of 10 minutes will be accepted above 10 minutes period absent will be marked against the above candidate. Prior permission should be obtained by the Engineer-in – charge for coming late in written only in that condition he may be allowed to attend his duties. The staff should leave the site at end of each shift only after arrival of staff of next shift if any person leaving the site before time the person will be marked absent.

Model Roster for Service Engineer, Site Supervisor, Technicians, Helpers & Sweepers for both AMC of Part 1 & 2. To be submitted to Site in-charge every month along with Gate pass zerox. Copy of the staff.

	Mo	Tue	We	Th	Fri	Sa	Su	Mo	Tu	We	Th	Fri	Sat	Su	Mo	Tu
Shifting Staff for Operation & Maintenance of 11KV Substation & Lighting Inside Cargo Jetty																
Site Supervisor																
Site Supervisor (1)	W	1	1	1	1	1	1	W	3	3	3	3	3	3	W	2
Site Supervisor (2)	1	W	3	3	3	3	3	3	W	2	2	2	2	2	2	W
Site Supervisor (3)	3	3	W	2	2	2	2	2	2	W	1	1	1	1	1	1
Site Supervisor (R)	2	2	2	2	2	2	W	1	1	1	2	2	2	W	3	3
Electrician																
Electrician (1)	W	1	1	1	1	1	1	W	3	3	3	3	3	3	W	2
Electrician (2)	1	W	3	3	3	3	3	3	W	2	2	2	2	2	2	W
Electrician (3)	3	3	W	2	2	2	2	2	2	W	1	1	1	1	1	1
Electrician (1)	2	2	2	W	1	1	1	1	1	1	W	3	3	3	3	3
Electrician (2)	1	1	1	1	W	3	3	3	3	3	3	W	2	2	2	2
Electrician (3)	3	3	3	3	3	W	2	2	2	2	2	2	W	1	1	1
Electrician (R)	2	2	2	2	2	2	W	1	1	1	1	1	1	W	3	3
Electrician (1)	W	1	1	1	1	1	1	W	3	3	3	3	3	3	W	2
Electrician (2)	1	W	3	3	3	3	3	3	W	2	2	2	2	2	2	W
Electrician (3)	3	3	W	2	2	2	2	2	2	W	1	1	1	1	1	1
Electrician (R)	2	2	2	2	2	2	W	1	1	1	2	2	2	W	3	3
Helper																
Helper (1)	W	1	1	1	1	1	1	W	3	3	3	3	3	3	W	2
Helper (2)	1	W	3	3	3	3	3	3	W	2	2	2	2	2	2	W
Helper (3)	3	3	W	2	2	2	2	2	2	W	1	1	1	1	1	1

Helper (1)	2	2	2	W	1	1	1	1	1	1	W	3	3	3	3	3
Helper (2)	1	1	1	1	W	3	3	3	3	3	3	W	2	2	2	2
Helper (3)	3	3	3	3	3	W	2	2	2	2	2	2	W	1	1	1
Helper (R)	2	2	2	2	2	2	W	1	1	1	1	1	1	W	3	3
Helper (1)	1	1	1	1	1	1	W	3	3	3	3	3	3	W	2	2
Helper (2)	W	3	3	3	3	3	3	W	2	2	2	2	2	2	W	W
Helper (3)	3	W	2	2	2	2	2	2	W	1	1	1	1	1	1	1
Helper (R)	2	2	2	2	2	W	1	1	1	2	2	2	W	3	3	3
GENERAL STAFF																
Site –In-Charge																
Site–In-Charge	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Clerk -1	G	G	G	G	G	G	W	G	G	G	G	G	G	W	G	G
Clerk-2	G	G	G	G	G	G	W	G	G	G	G	G	G	W	G	G
Site Supervisor																
Site Supervisor(G-1)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Site Supervisor(G-2)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician																
Electrician (G-1)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician (G-2)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician (G-3)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician (G-4)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician (G-5)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician (G-6)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Electrician I	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper																
Helper (G-1)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper (G-2)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper (G-3)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper (G-4)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper (G-5)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper (G-6)	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Helper I	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Sweeper																
Housekeeping-1	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2
Housekeeping-2	2	2	2	2	2	2	W	2	2	2	2	2	2	W	2	2

31. DOCUMENTATION

a) Substation Equipment's parameters should be recorded in daily logbooks. Detailed inventory records like Consumables, materials movement, material consumption; materials disposed etc. also should be maintained. In all documents, for each work, contractor should get signature from Engineer In-charge (Electrical) or his nominees.

b) Detailed inventory records like materials movement, material consumption, materials disposed etc. also should be maintained. In all documents, for each work, contractor should get signature from Engineer In-charge (Electrical) or his nominees.

- Following Register is to be strictly maintained by AMC Contractor during AMC period as the Contract Labour (Regulation & Abolition) Central Rules, 1971
- Muster Roll Register Form No:-16.
- Register of Wages i.e. Form No:-17.
- Register of overtime i.e. Form No: - 23.
- Register of advance pay i.e. Form No:-22.
- Register of accident, major accident & dangerous occurrence i.e. Form No:-29
- Register of Workman employed by Contractor i.e. Form No:-13.

A. Profile of staff personnel for posted staff during AMC period.
B. Consumable register & Store Requisition.
C. Tools and Plants.

D. Entry Permit of Staff & Vehicle (Gate Pass).
E. Maintenance Register of High Mast
F. Earthing value register to be maintained every month as per EIC.
G. Duty Roaster 3 copies
H Power failure register
I Maintenance & Diesel record register of DG set inside cargo jetty

All the documents prepared by the contractor will be the property of DPA. The contractor will not share the information contained in the above said log books registers with any outside person without written permission of EIC.
The contractor will hand over the logs and registers to DPA at the time of completion of contract period.

32. Tools & tackles

Following measuring instruments after the date of issuance of LOI should be available at site for Part-1 AMC;

Sr No	Description	Quantity of tools of PART-1	Quantity of tools of PART-2
1	Multi meters	2 No	1
2	Lux meter	2 no	1
3	5000V Megger (H.T MEGGER)	3 No	1
4	Earth resistance measurement instrument (0.1 Ohm LC) with kit	1 No	1
5	Phase sequence meter.	1 No	NA
6	Tong tester.	2 No	1
7	Transformer oil testing kit.	Whenever required	

Apart from above instrument contractor shall make available the Testing equipment for performing the Half yearly/ Yearly Maintenance schedule for RMU, VCB, Transformers , CT, PT, Meters as and when required.

Following tools after the date of issuance of LOI should always be available at site;

Sr. No	Description	Quantity of tools of PART-1	Quantity of tools of PART-2
1	Double end open spanner from size 6-7 to 30 – 32 size 9 (metric)	4 sets	2 sets
2	Double end ring spanner from size 6-7 to 30 – 32 size 9 (metric)	4 sets	2 sets
3	6-7 to 30 – 32 size (metric) set	4sets	2sets
4	Adjustable wrenches (12 inch)	2 sets	1sets
5	Hydraulic Crimping tool	2 sets	1 sets
6	Allen keys set	2 sets	1 sets
7	Tubular spanner set	4 sets	2 sets
8	star screw driver set	4 sets	2 sets
9	Screw driver set	4 sets	2 sets
10	Hammers each (1lb & 2lb)	3 sets each	1 sets each
11	15000V grade Hand gloves.	8 pairs	3 pairs
12	Torque Wrench set	2 set	NA
13	High voltage discharge rod	2 no	1 no
14	Dual mode Air Blower (Normal and Heating Mode)	2 no	2 no
15	Safety Belt	4 no	4 no
16	Emergency lights	4 no's	4 no's
17	Cable Jointing Kit (Gas bottle & Burner)	1 no	1 no
18	Spade	4 no	2 no
19	Aluminium Ladder as site requirement	2 no	1no
20	Concrete / RCC Breaker M/c with RCC breaking Bit	1no	Not required
21	Regular use Drill heavy duty M/c with all types of drill Bit	2 no	1 no
22	Single phase Welding Set with complete Accessories	1no	1no

23	Extension board with hand lamp	2 no	2 no
24	Hot air Blower	5 no	2 no
25	3 Phase 32KVA Tyre / Trolley mounted D.G Set (new)	1 no	
26	3 Phase 5 HP Diesel operated Dewatering pump with all accessories such as cotton hose pipe & G.I fitting etc	1 no	
27	Hydraulic Scissor Lift (operating Height 40-50 ft)	1 no	
28	SF6 Gas filling kit with gas	As per requirement	
29	Pliers to every Electrician and Wireman		
30	Line Tester to every Electrician and Wireman		
31	Test lamps to every Electrician and Wireman		
32	Long through rechargeable Torches to each shifting staff		
33	First aid kits at all substation		
34	5 Sets of Wiper broom stick, Wipers, buckets & Dust bin		

However, any other tools felt necessary for execution of the work would also have to be arranged by the contractor.

33. Uniform & PPE:

The Contractor has to provide uniform to all the employees deployed for Maintenance Contract. Also all the employees of Contractor shall wear the uniform and PPE while on duty the uniform should be with company Logo.

The following PPE shall be provided by Contractor to his deployed staff during Maintenance contract.

Sr no	Description	
1	Helmet	For each Staff member
2	Safety Shoes	For each Staff member
3	Goggles	For each Staff member
4	Rain Coat	For each Staff member
5	Reflective Jacket	For each Staff member
6	H.T Rubber Hand Gloves	Each Substation 2 no's
7	Face Shield (fire Proof)	Each Substation 2 no's
8	Gum boot	Each Substation 2 no's

34. **H.T MAINTENANCE WORKS**:

- Maintenance of 11 KV feeders of inside port area, Earth pits, Earthing flats/ Earthing Wires, etc.,(material for replacement will be supplied by DPA on free of cost)
- Maintenance of RMU daily cleaning of RMU and routine / periodic maintenance should be carried out. (material for replacement such as P.T, C.T etc will be supplied by DPA on free of cost)
- Maintenance of HT & LT Capacitor Banks located at various places including maintenance/ repair/ replacement of associated switch gears i.e. pole mounted capacitor switches etc., (Material for replacement will be supplied by DPA on free of cost)
- Maintenance of 2 pole/ 3 pole/ 4 pole/ 6 pole structure/ yard including maintenance of Earth pits/ Earth flats/ Earth wires and removal of rank vegetation etc.
- Maintenance of HT / LT lines in port area and including maintenance / repair of LT overhead lines, LT pins /shackle insulators, jumpers, switch fuse units, MCCBs etc., (Materials/ accessories will be supplied on free of cost by DPA).
- Maintenance of the Earth pit, regularly checking of healthiness and taking the record of all the earthing and properly maintain in a log book. Separate log book for substation and its equipment's, Lighting tower & feeder pillar/ Load point & non- residential buildings. If in any area earthing value is found weak same is to put in the knowledge of Engineer-in-charge.

35. **NON- RESIDENTIAL BUILDINGS MAINTENANCE WORKS**

- Replacement of defective/damaged flush type S.P. switches (material will be supplied by DPA at free of cost).
- Replacement of damaged Teak wood switch boards of various sizes with PVC Boards including fixing and commissioning and connection of existing switches (PVC Boards will be supplied by DPA at free of cost).
- Repairing/replacement of the T/L fittings/bulk head fittings/post top lanterns etc. at Non-Residential Buildings. (Required material will be supplied by the DPA at free of cost).
- Replacement of various sizes of defective/damaged switch combined sockets at Non-Residential Buildings. (switch combined sockets will be supplied by DPA at free of cost)
- Repairing/replacement of the existing damaged/unserviceable, buzzer/calling bell with new ones duly fixing on suitable T/W board/round block at Non-Residential Buildings. (Buzzer/calling bell will be supplied by DPA at free of cost).
- Repairing /dressing /replacement of the existing damaged/unserviceable casing capping/conduit wiring with required cable on suitable casing capping/conduit pipe with clips, clamps screws etc., including connections to the devises as directed (required sizes of wires PVC pipes will be supplied by DPA at free of cost)
- Repairing/replacement of defective/unserviceable ICDP/ICTP switch fuse units distribution Boards etc., as required (material will be supplied by DPA at free of cost).
- Replacement of damaged ceiling roses with new ones on suitable round blocks as directed complete with connection etc. (ceiling roses will be supplied by DPA at free of cost).
- Replacement of defective/unserviceable ceiling fan regulators on the existing switch boards with new ones using suitable screws etc., as directed (Ceiling fan regulators will be supplied by DPA at free of cost).
- Replacement of unserviceable energy meters with new/reconditioned energy meters (whichever applicable) on the existing switch board/plank as directed (energy meters will be supplied by DPA at free of cost).
- Repairing/replacement of defective bulk heads/batten holders/pendent holders etc., existing in the stair case of the buildings by replacing holder, lamps, cover glass, wire guard etc., (required material will be supplied by DPA at free of cost).
- Replacement of unserviceable earth wire with 8/6 SWG GI wire duly fixing to the wall are drawing recessed in the ground and connecting to earth electrode and to the gadgets (GI wire will be supplied by DPA at free of cost).
- Fixing, connecting, commissioning of ICDP/ICTP switches/ DBs /MCCBs of various capacities with suitable hardware as directed by the Engineer-in-Charge (required material will be supplied by DPA at free of cost).
- Clamping of various sizes of cables to the wall/pole with suitable clamps at equal intervals using suitable hardware as directed by the Engineer-in-Charge (required sizes of clamps will be supplied by contractor & Cable will be supplied by DPA free of cost).
- Replacement of defective/unserviceable ceiling fans/wall mounted fans/exhaust fans etc., (fans will be supplied by DPA at free of cost).
- Checking of ceiling fans/wall mounted fans i.e., checking of cotter pin rubber, ceiling bush bolts, nuts, check nuts, washers, hook of the ceiling fan, etc.
- The maintenance staff should attend to electrical works other than those mentioned in the scope of work as per instructions of Engineer-in-Charge from time to time.
- Over hauling & cleaning of ceiling fans/pedestal fans/exhaust fans etc.
- Maintenance of distribution boards / L.T. panel if necessary replacement of MCCB/MCB/Contractors etc. as per the directions of Engineer-in-Charge. (Material will be supplied by DPA at free of cost against the defective material).
- All 3 pin sockets should have proper earthing connection and ensure the voltage between neutral.
- All loose wirings shall be made updated.
- All electrical installations, wirings, lines in non-residential buildings should be maintained intact, handed over to DPA in good working condition/intact on completion of contract.

36. HIGH MAST LIGHTING, LATTICE TOWER LIGHTING, PATHWAY LIGHTING AND STREET LIGHTING

- Repairing/replacement of the HPSV/MH/LEP / LED Flood Light fittings at High mast / Lattice tower situated at Inside Cargo jetty.(Required material will be supplied by the DPA at free of cost).

- Repairing / Replacement of HPSV/MH/LED fittings on Lattice tower, pump room, substation etc. .(Required material will be supplied by the DPA at free of cost).
- Repairing / Replacement of HPSV/MH/LED Pathway fittings (Required material will be supplied by the DPA at free of cost) west gate 2 inside cargo jetty area. (Required material will be supplied by the DPA at free of cost).
- Maintenance of distribution boards / L.T. panel if necessary replacement of MCCB/MCB/Contractors etc. as per the directions of Engineer-in-Charge. (Material will be supplied by DPA at free of cost against the defective material).
- Repairing of Door / hinges of the boards / L.T. panel wielding m/c and tools with manpower is in the contractor scope if any panel door found open during routine visit contractor will be held responsible for any damage and repair / replacement
- Painting of Street light pole / lighting panel etc. (Required material will be supplied by the DPA at free of cost).
- Repairing of feeder pillar of Lattice / High mast tower.

37. **Vehicle:**

1. Tata yodha / Mahindra Maxi Truck utility type vehicle shall be procured by Contractor after getting LOI from DPA and the documentary evidence shall be produced with registration number to Engineer-in-Charge. The vehicle shall be of model 2024. The vehicle shall be exclusively used for shifting of men & material inside cargo jetty, collection of Diesel for DG Sets from Gandhidham.
2. Mahindra Bolero of 5 seater vehicle shall be procured by Contractor after getting LOI from DPA and the documentary evidence shall be produced with registration number to Engineer-in-Charge. The vehicle shall be of model 2024. The vehicle shall be exclusively used for shifting of men inside cargo jetty at different site of work, to & Fro from Gandhidham to Cargo jetty for material purchase etc. which will be under complete control of Engineer-in –charge. The vehicle will work for 12hrs period as decided by Engineer-in-charge.
3. TRUCK MOUNTED HYDRAULIC SKY LIFT:-

   Contractor shall provide at site, the Hydraulic sky lift vehicle for O/H line maintenance/breakdown, street light maintenance purpose 24 Days X 7 Hrs. basis, the truck mounted hydraulic sky lift vehicle shall be stationed at Cargo Jetty S/S. The works includes providing Drivers on all time basis. The hydraulic sky lift vehicle, fuel, repair, maintenance, damage/failure repair responsibility is under contractor scope. Time to time hydraulic vehicle maintenance & always ready to availability is responsibility of contractor.

   Hydraulic sky lift should be provided with safety precautions, elevating platform, having 10 -20 mtr height reachable. So that two person can safely work on the bucket provided at the end. Stability Legs to be provided to stabilize the equipment during process to carry out work safely. Lock valves should be provided to safeguard against the failure of hydraulic system and hand operated hydraulic power pack is to be provided to use during emergency lowering of the bucket to rescue the crew members. Stability legs should be provided at chassis of vehicle which give the stability to whole structure during the working of the equipment and provided swivel pads. Bucket must be of fiberglass material, insulated to 600V, non-slippery and light weight. Parallel links should be provided to keep the bucket horizontal during lifting up its position it should be rotated 360 degree for taking position for working. Operating Valves should be provided at the deck and at bucket. Legs control switches are lever operated and provided at the deck only. emergency Operating system should be provided to stop the equipment in position at the time of vehicle engine failure.

   Performance:

1	Max. Working Height Approx.	10-20 meters.
2	Approx. Max. Outreach Approx.	3.5 - 5 meters.
3	Approx. Swivelling angle	360°
4	Safe working Load	120 Kg
5	System Pressure	170

Individual log book should be maintained for each vehicle the site supervisor of DPA shall be responsible and total control of the vehicle. The vehicle should not be used for transportation of manpower from their home to work site. However, for transportation of shift staff, loading & unloading the material for which contractor shall arranged the own arrangement of vehicle at their own cost. The vehicle should not be older than January 2024. Separate log book should be kept in each vehicle and properly maintained daily showing the

Kilometre travelled with signature of the supervisor / Site in-charge using the vehicle. The vehicle driver should be provided with company uniform and vehicle should be stationed at Cargo Jetty Substation.

38. **OEM Inspection: -** Contractor shall arrange OEM /Authorize Service centre , Engineers visit for Inspection , Overhauling, Gas filling (In case CSS), others essential services of the installed equipments only, RMUs, DG Sets , Transformers, Compact Substation at inside cargo jetty area S/s & 13 to 16 berth S/s. The frequency of OEM / Authorize Service Centre Engineers at least yearly two times.

Contractor shall take joint visit with DPA; OEM / Authorize Service Centre engineers for assessment for all type spares accordingly purchase the genuine spares for carry out the Plan / Preventive / Breakdown maintenance, cost of such spares parts (other than Part-B &Part-C) shall be reimbursement by DPA on production documentary evidence & actual invoice.

Half yearly (Two Time Yearly), however after receipt the work orders first half yearly inspection shall be conducted within one month period.

OEM Engineer / Authorize Service Centre Engineers, service charges, accommodation, Transportation is under the scope of contractor.

39 During the currency of the contract, the contractor is required to assess the condition of the transformers by conducting Dissolved Gas Analysis (DGA) technique. In this regard, the results of the DGA for each transformer should be built into a data bank and based on the trend of the gas level over a period of time as well as the faults, if any, that the transformer had suffered, an analysis may be done to establish the exact nature of the incipient fault that may be developing in the transformer. The DGA shall be done through any approved NABL accredited laboratory.

40 All substations are required to be cleaned and moped once in a day. Once in every month all the unwanted material from the wall and ceiling should be removed & once in every year white washing of all the substation should be carried out only after doing white washing the next year bill will be released.

41 .PENALTIES:

41.1 Shortfall of consumables

As per Clause No. 22 the quantity of Consumables shall be maintain & same should be re-couped and to be deposited in cranes sub division store every month (i.e. 1st week of every month). The said consumable will be issued on production of Requisition by contractor duly signed by DPA representative. If the consumable is not maintained by Contractor the penalty amounting to Rs: 100/- per one week per item after that double the rate will be charged per item per week till the consumable not updated in DPA store

41.2 Shortfall of staff

If manpower mentioned above Clause No. 24 of Scope of Work, shall not report on any day same shall be treated as non-deployment of staff on that days/day. In that case the penalty amounting to Rs. 1500/- per day for Site Engineer, Rs. 1200/- per day for Site Supervisor, Rs. 1000- per day for Electrician, Rs 800/- day for Helper & Rs. 500/- day Sweeper whosoever absent on that day.

41.3 Tools and tackles

During the inspection if any instruments mentioned above Clause No. 18(a) and tools at Clause 18(b), which required to be kept by the contractor during the contract period as per the tender condition, are not available, penalty at the rate of Rs.: 100/- per instrument per day and Rs. 50/- per tool per day and part thereof will be recovered from the payment due to the contractor till such tools are brought back by the contractor.

41.4 Restoration of H.T power Supply

In case if the contractor fails to restore the HT power supply within stipulated time period 2hrs after intimation, (through text /mobile message / WhatsApp / email or through any mode of communication which will be subsequently recorded in site order book also) except for major breakdown like cable fault/ transformer fault, PGVCL incomer failure the penalty of Rs 500 per Hour basis for the period of 24 hrs after which double the amount will be charge uptill the restoration of power.

41.5 Restoration of L.T power Supply

In case if the contractor fail to restore the LT power supply within stipulated time period 2hrs after intimation, ,(through text /mobile message / WhatsApp / email or through any mode of communication which will be subsequently recorded in site order book also) except for major breakdown like cable fault/ transformer fault, PGVCL incomer failure the penalty of Rs 500 per day uptill the restoration of power.

41.6 vehicle

If the vehicle mentioned in schedule Part 1 of A for item no 2 (a), (b) & (c) & Part -2 of "A" for item no 2 (a) is not made available on any working day, penalty at the rate of Rs 1000/- per day of 24hrs period will be levied till the vehicle is made available relaxation will be given for servicing of vehicle once in a month for 8hrs period. If log book of the vehicle not maintained daily, then penalty of Rs 200/- per day per vehicle will be imposed

41.7 Penalty for lighting

(i) Contractor is required to maintain 85% glowing of fixture in single tower if the glowing of fixture is reduced below 85% in particular tower then penalty of Rs 1000/- per day will be charged up till illumination of the complete towers.

(ii) If in any area the tower is completely not working except for the incomer cable fault of the feeder panel of the particular tower then penalty will be levied @ Rs.500/- each Tower per day up-till one week after that double the rate will be charged till the 100% Glowing of fixture on the tower.

(iii) If any of the High mast / Lattice tower not working or illumination is reduced below 80% in the particular area for i.e 7th berth area, 8th berth back up area, Cargo jetty, 40hectar, New NDA, Old NDA etc.). Then penalty of Rs1000/- per tower will be imposed up till one week after that double the rate will be charged till the 100% illumination of the all the tower is maintained.

41.8 **Non-use of PPE by the staff engaged by the contractor.**

In case it is noticed that any of the staff engaged by the contractor are working on the site without PPE, a penalty of Rs. 1000.00 per person per incident will be levied on the contractor.

41.9 Any delay in the submission of the documents mentioned at clause no. 1 of Section III, penalty of Rs. 1000.00 per day and part thereof will be levied till completion of complete documents.

41.10 **Non raising up and down of high mast tower.**

All High Mast tower needs to be raise up and down once in every 60 days of time for carrying out maintenance as per the scope of work. Any failure to do so in the prescribed time period of 60 days, penalty of Rs. 1000.00 per high mast per day and part thereof will be levied. The quantum of penalty will double after every eight day.

41.11 **Time line for find of cable faults**.

The maximum time allowed to finding fault and fixing the same is 48 hours for LT cable and 24 hours for HT cables failing which Rs. 500.00 per fault per hour and part thereof will be levied.

41.12 **Non-functioning of Diesel Generator Set**

In the event of any requirement, if DG set is found to be non-functioning, it will be considered as poor maintenance of the contractor and penalty of Rs. 1000.00 per hour and part thereof will be levied till the DG set starts functioning. The DG Set should function in auto mode.

41.13 **Taking shutdown without work permit**

It is found that the contractor has taken up the specific work as envisaged in the Work permit form and for the purpose of shutdown as mentioned in clause no. 9 (a) of Section V without obtaining the permission in the Work Permit Format given at Section-XII, a penalty of Rs. 10,000.00 per such incident will be levied. This lapse on the part of the contractor will be specifically reflected in the completion certificate.

41.14 **Not Taking Line Clearance**

While carrying out maintenance work at 11 KV sub stations and downstream, Line clearance as per clause no, 9 (b) is invariably required to be obtained from the concerned official not below the rank of Jr. Engineer failing which a penalty of Rs.10,000.00 per such incident will be levied. This lapse on the part of the contractor will be specifically reflected in the completion certificate.

41.15 **Non Maintenance of 11KV Sub-Stations.**

If any Substation inside cargo jetty area from berth no 0 to 10 & from 13 to 16 berth is not taken under maintenance during the particular month mention in the date mention in the schedule penalty of Rs 5000/- per substation will be lived if same is continued for next month double the amount will imposed. While submitting the maintenance schedule all the documents proof should be submitted such as informal letter submitted to DPA supervisor requesting for power shut down, LC register, Work permit all signed by DPA Supervisor.

41.16 If any substations found in filthy condition or not cleaned properly or any unwanted material lying in the substation then penalty of Rs 500/- will be imposed.

41.17 Contractor should submit the duty roaster duly signed by the Engineer-in-charge and same to be updated in group WhatsApp and notice board both in cargo jetty substation and 13 berth substation and accordingly the staff should follow the duty roaster if there is any change or staff not following the duty roaster penalty will be levied as per 4.2 (short fall of Staff).

Sd/-

Seal & Sign of
Contractor

Superintending Engineer (E)
Deendayal Port Authority

TECHNICAL SPECIFICATION FOR PART – B

1. Technical Specification for Item no :-1
   The contractor should supply Stainless Steel safety wire rope of Usha martin make which should be of make 0f ANS1-316 type and 8 mm / 10mm dia, with breaking load capacity of 32000 Kgf .sq. and the length of one set of wire rope for each mast should be (32 x 5) i.e 160 mtr.

2. Technical Specification for Item no :-2
   The Contractor should supply Electrical Hoist trailing round Cable with PVC insulation copper core should be 5 core x 4.0 sq.mm and the length for each mast should be (35 x 2) 70mtr.

3. Technical Specification for Item no :-3.

The Sustaining type double drum winch for high mast to be provided checking load to be carried for lowering down / raising up mechanism / maintenance cage operation. The double drum disc shall fulfil following technical parameters

- The system enables the light fitting to be lowered to ground level on a wire rope.
- The winch system enables the light fitting to be lowered to ground level on a single or double wire rope.
- Columns from 8 to 30 meters in height can be supplied.
- In all cases self-sustaining winches are fitted in the column base.
- INDEPENDENT DRIVES for each drum which allow rope equalising at any time by simply removing the splitter gearbox from the two input shafts, doing the necessary adjustment, replacing the splitter gearbox and continuing the operation.
- SELF SUSTAINING worm gear drives which offer maximum safety and load control.
- DOUBLE ROPES from the independent drums give maximum safety through load sharing.
- GROOVED DRUMS with undercut flanges facilitate even rope laying which gives best rope life and helps ensure that the ropes will share the load once they have been levelled.
- PORTABILITY has been achieved by keeping the weight to a minimum. OIL FILLED work gear housings ensure years of maintenance free duty

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4. Technical Specification for Item no :-4(POWER TOOL)
   Supply of Induction motor with Sprocket attached which should match the existing HM fitting

(a)	Model	:	Internal
(b)	Input supply	:	415 Volts, 3 Phase 50 Hz.
(c)	Wattage / HP	:	1.5 Watts / 2 HP
(d)	RPM	:	950 (rpm).
(e)	Duty	:	S4.
(f)	Frame	:	100L.

(g)	IP	:	55.
(h)	Number Of Speeds	:	Single speed. (Reversible)
(i)	Operating Speed	:	2M / Min
(g)	Remote control winch	:	
	i) Type	:	Push button with cords
	ii) Length of control cable	:	5 / 6 Mts

5. Technical Specification for Item no :-5

a) This includes supply of 6 Way double door vertical SP&N MCB DB with IP42 degree of protection. The DB shall be made from special grade of CRCA sheet and powder coated. The DB shall be fitted with Busbar, DIN Rail and neutral link. The rates shall be excluding the cost of MCB as directed by Engineer-in-Charge.

b) This includes supply of 4 Way double door TPN DB with IP42 degree of protection. The DB shall be made from special grade of CRCA sheet and powder coated. The DB shall be fitted with Busbar, DIN Rail and neutral link. The rates shall be excluding the cost of MCB as directed by Engineer-in-Charge.

c) This includes supply of 8 Way (8 Incomer + 24 Outgoing) double door TPN DB with IP42 degree of protection. The DB shall be made from special grade of CRCA sheet and powder coated. The DB shall be fitted with Busbar, DIN Rail and neutral link. The rates shall be excluding the cost of MCB as directed by Engineer-in-Charge.

6. Technical Specification for Item no :-6

This includes supply at site MCCB as per the capacity and Breaking capacity mention in the schedule the MCCB supplied to DPA store should match the existing MCCB fitted in the present panels therefore before supply of above material return clearance should be obtained by the Engineer-in-charge to avoid any addition alteration in the existing panel.

7. Technical Specification for Item no :-7.

a) This includes supply of DIN Rail mounted 'C' Series 6-32 Amps. X 240 Volts 50 Hz. Single Pole MCB with 10kA Breaking Capacity.. The terminals of MCB shall be serrated type.

b) This includes supply of DIN Rail mounted 'C' Series 6-32 Amps. X 240 Volts 50 Hz. Double Pole MCB with 10kA Breaking Capacity. The terminals of MCB shall be serrated type.

c) This includes supply of DIN Rail mounted 'C' Series 6-32 Amps. X 415 Volts 50 Hz. Four Pole MCB with 10kA Breaking Capacity. The terminals of MCB shall be serrated type.

d) This includes supply of DIN Rail mounted 'C' Series 40 Amps. X 415 Volts 50 Hz. Four Pole MCB with 10kA Breaking Capacity. The terminals of MCB shall be serrated type.

e) This includes supply of DIN Rail mounted 'C' Series 63 Amps. X 415 Volts 50 Hz. Triple Pole Neutral (TPN) MCB with 10kA Breaking Capacity. The supplied MCB shall be conform to IS:8828:1996, IEC:60898-1:1995. The terminals of MCB shall be serrated type.

8. Technical Specification for Item no :-11.

This work includes providing approved make electrical accessories such as Switch disconnector fuse unit with the quantity as mention in schedule as per the capacity and

existing make required to be replaced from the panel and as directed by Engineer-in-charge.

9. Technical Specification for Item no :-15.

This includes supply at site 1.1 KV grade 4 core Aluminium conductor, XLPE insulated armoured cable confirming to IS: 7098 (Part-I) 1985 with up to date amendments and of approved make with ISI mark. The manufacturer shall produce TYPE TEST certificate with similar size of cable, which shall not be more than 3 years old. The cable shall have marking/embossing at the interval of every meter showing its progressive length. During the cable inspection, the manufacturer shall show the relevant ROUTINE TESTS to inspecting authority or otherwise the manufacturer shall produce the routine test certificate during supply of cable at site.

The rate shall exclusive of GST & inclusive of all taxes, packing, forwarding, insurance, transportation and unloading at site of work etc.

10. Technical Specification for Item no :-16.

Supply at site environmental friendly energy efficient 40Watt tube fixture. The fixture should be of low power consumption & having high efficiency. The housing provided for the above luminary should be of Epoxy powder coated white extruded Aluminium channel housing for efficient heat dissipation. With cover having milky white special polycarbonate diffuser for glare free light distribution and end caps made of elegantly designed white coloured ABS end caps to enhance the aesthetic view for fixture. The luminary should be suitable to be mounted on wall/ceiling by means of mounting SS clips provided in the fixture. The luminary should be, short circuit and surge protection and should be provided with suitable connecting terminal for electrical connection as per technical description given below..

Technical Requirement for LED 40Watt tube fixture

Sr no	PARAMETER	VALUE
1	Input Voltage	120-260V However, condition for voltage fluctuation should be considered and the system should be robust enough to withstand such variation in supply source.
2	Total Harmonics Distortion	Should be less than 10%
3	Lamp efficiency	≥ 70/w
4	Power consumption	Minimum 40W
5	Power Factor	≥ 0.90
6	Life Expectancy	About 50,000 burning hours at a ambient temp 45degree centigrade
7	LED Driver	Constant Voltage and current
8	Control Circuit	Compatible to LED
9	Input Frequency	50+/-1Hz
10	Colour Rendering Index	Minimum CRI of 70
11	Colour Temperature	Minimum 3000K
12	Make LED	Cree/Nichia/Edison/Osram/Philips Lumilied / Seoul Semiconductor /Epistar / Samsung (The contractor should produce the certificate of LED Make in the particular luminary used.)
13	Guarantee / Warrantee	**Minimum 03 year**
14	Certification preferred/ essential	LM79/ LM 80

11. Technical Specification for Item no :-17.

` This includes supply of 120W LED pre-wired Street Light Fitting with constant current LED driver. Operating voltage for luminaries shall be 230 Volts 50Hz. A.C. supply. The rate shall inclusive of all taxes, packing, forwarding, insurance, transportation and unloading at site of work etc except GST. The luminaries shall be comprises with following Technical particulars.

Sr.	DESCRIPTION	MINIMUM VALUE
01	Input Power	**90W**
02	Input voltage AC	120-300 V
03	Input Frequency	50 HZ +/-1 HZ
04	Life	50,000 glow hrs.
05	Inter-changeability	Suitable for pole pipe bracket
06	Total Harmonic Distortion	<15% maximum
07	Working Temperature	-20°C to +50°C
08	Working Humidity	10% to 90% RH
09	Temperature	6500° K
10	Colour rendering index	>75
11	Lumens / Watt	120 Lum/W
12	Finishing	Excellent with Powered Coating
13	Power factor	Not less than 0.90
14	Warrantee	**Minimum 02 year**
15	Heat sink	Good thermal management System should be provided & LED must be mounted on heat Sink conductive aluminium bars With suitable large surface area by Means of fines to dissipate the heat to ambient air.
16	Working Humidity	10% to 90% RH
17	Lamp Housing	Pressure Die cast aluminium housing
18	LENS Material	Convex Lens (Polycarbonate cover/PMMA) 65mm dia
19	Ingress protection Level	IP 67
20	Power efficiency	Min. 80%
22	Road viewing angle Light Source	**Horizontal 120 Degree & Vertical 70 Degree SMD LED array with lens**
23	Guarantee / Warrantee	**Minimum 03 year**
24	Makes of LEDs	Cree/Nichia/Edison/Osram/Philips Lumilied / Seoul Semiconductor /Epistar / Samsung (The contractor should produce the certificate of LED Make in the particular luminary used.)
25	Certification preferred/essential	LM79/ LM 80

12. Technical Specification for Item no :-18.

a) This includes supply of 250W LED pre-wired Street Light Fitting with constant current LED driver. Operating voltage for luminaries shall be 230 Volts 50Hz. A.C. supply. The rate shall exclusive of GST & inclusive of all taxes, packing, forwarding, insurance, transportation and unloading at site of work etc. The luminaries shall be comprises with following Technical particulars.

Sr.	DESCRIPTION	MINIMUM VALUE
01	Input Power / Lumen Out put	250W / 21000 lumens
02	Light Source	High power discrete LEDs with secondary lenses for optimum optical performance
03	Input voltage AC	110-270 V
04	Input Frequency	50 HZ +/-1 HZ
05	LED efficiency	>100(Lumen/watt)
06	Colour rendering index	>70
07	Operating Maintenance	L70 at 50,000 glow hrs.
08	Working Temperature	-10°C to +50°C
09	LED driver efficiency	> 90%
10	Driver	Driver with in built protection surge vg (upto 405KV) open/short Ckt.
11	Power factor	Not less than 0.95
12	Surge Protection	> /= 10KV (External)
13	Total Harmonic Distortion	<20%
14	Ingress protection rating (IPrating)	IP 66
15	IK rating	IK 08
16	Lamp Housing	Extruded aluminium housing cum heat sink. Pressure Die cast aluminium end covers. Heat resistant toughened glass with IKO8 impact resistance.
17	Correlated colour Temperature	5700K+/-500K (option of colour temp)
18	Installation	M.S powder coated mounting bracket Suitable for mounting, Stirrup fixation, mounting bracket
19	Finishing	Excellent with Powered Coating
20	Guarantee / Warrantee	**Minimum 03 year**
21	Makes of LEDs	Cree/Nichia/Edison/Osram/Philips Lumilied / Seoul Semiconductor /Epistar / Samsung (The contractor should produce the certificate of LED Make in the particular luminary used.)
22	Viewing angle Light Source	Graduation Disc for precise aiming of flood lights
23	Certification preferred/essential	LM79/ LM 80

13. Technical Specification for Item no :-19.

This includes supply at site, laying, G.I Wire 12SWG & G.I strip of size 50 x 6 mm from earth station / existing earthing system to L.T. panel, L.T switchgears, etc. as directed. The G.I strip is required for earth station, earth linking of LT switch gears & transformers etc. directly connected to two separate and distinct main earth as directed and shall be clamped suitably on wall/floor or buried in the ground / pucca trench as directed. The work includes all material & labour required shall done as directed by Engineer-in-charge.

14. Technical Specification for Item no :-20.

This includes supply of 1200 mm sweep ceiling fan inclusive of all taxes, packing, forwarding, insurance, transportation and unloading at site of work. The fan should be fitted with heavy duty grease filled double ball bearing that ensures noiseless performance and long lasting smoother life of fan suitable upto 250V AC supply. The Fan blades

aerodynamically balanced to ensure air delivery 210 M^3/Minute at 340 RPM & 52 Watts power consumption with ISI & 5 star rating. The blades shall be made of 'heavy gauge' aluminium sheet so as to retain the blade's angel over a longer period. The Fan motor made of superior grade copper wire and impregnated in special varnish for long life operation. The motor shall be totally enclosed and low-loss-silicon steel stampings ensure minimum power consumption with high optimum output. The Fan coated with a special anticorrosive enamel paint that makes them rust free and ensures a classic appearance and longer life. The supplied fan conforming to ISI specifications. The fan shall be supplied with rotary step cut electronic regulator all accessories such as down rod 30/60/120cm long, PVC Bobbin, Stainless Steel Nut Bolt with cotter pin, capacitor etc. of approved make and as per IS: 374 specification as directed by Engineer-in-charge.

15. Technical Specification for Item no :-21.

This includes supply at site double arm detachable type 9 Meter long GI Octagonal Pole. The Octagonal pole shall be designed to withstand the maximum wind speed of 180 Km/hr. Maximum deflection of the pole shall meet the requirement of BS 5649: part 6 1982.The pole shaft shall have Octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. The Octagonal pole shaft shall be provided with the rigid Flange plate of 20mm thickness with provision for fixing 4 bolts of size 1200mm long and of 20mm dia. This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside.

The Octagonal pole shall have door of approximate 500mm length at the elevation of 1 meter from the Base plate. The door shall be flush with the exterior surface and shall have suitable locking arrangement. The door shall be vandal resistance and shall be dust proof to ensure safety of inside connections. The base compartment shall have provision to fix up the small Bakelite wooden board of suitable size to mount two nos. of SP MCB, terminal connector & service connections etc. The contractor shall supply the bakellite wooden board. There shall also be welded a cleat of size 40 x 40 x 4mm for the purpose of Earthing as per IS 3043. The pole shall be adequately strengthened at the location of the door to compensate for the loss in section.

The steel of Octagonal pole shall be confirming to St35 grade, base plate of the Octagonal pole shall be confirming to IS 226/IS2060 steel and foundation bolts as per IS. The pole shall be hot dip galvanized as per IS 2629/IS 2633/IS 4759 standards with minimum coating thickness of 65 micron.

The dimensions of the pole are stated as under:

1.	Overall Length	:	9 Meter
2.	Top diameter	:	100 mm and thickness 3mm
3.	Bottom diameter	:	200 mm and thickness 3mm
4.	Thickness of base plate	:	20 mm
5.	PCD	:	310 x 310 mm
6.	Size of foundation bolts	:	1200 mm long with 20mm Dia

The pole shall be provided on top with the detachable type canopy having double arm emerging from the canopy pipe at an angle of 105 degrees with respect to vertical top pipe. The side arm shall be of 1500 mm and made from approx. 75 mm OD with having 2.35 mm wall thickness. The octagonal canopy shall be suitable size with respect to top of pole. The overall height of canopy shall be 600 mm, 4 nos. of locking bolts shall be provided on the canopy to hold it in position when put on the top pipe of Octagonal pole. The side arm pipe shall project inside the canopy pipe by 30 mm and shall be suitable nipple for receiving 90 watt LED Road light luminary.

The pole manufacturing & galvanizing unit shall be preferably ISO 9001: 2000 & ISO 14001 certified to ensure consistent quality & environmental protection.

16. Technical Specification for Item no:-22.

This includes supply of heat shrinkable Straight through joint suitable for 3 core HT 11KV XLPE cables including providing fixing Aluminium solder lugs for HT switchgears and copper lugs for transformer of suitable size with all required materials. The Heat Shrinkable Straight through joints shall comply with all currently applicable statutes, regulations and safety codes. Nothing in this specification shall be construed to relieve the bidder off his responsibilities. the Heat Shrinkable Straight through joints offered shall conform to the latest applicable Indian, IEC, or International Standards and in particular, to the IS: 13573- Part 2, 2011 : Type Test and Performance requirement for Cable Termination & Joints on XLPE cable for 6.6KV

17. Technical Specification for Item no:-23.

This includes supply of heat shrinkable indoor/ outdoor end termination joint suitable for 3 core HT 11KV XLPE cables including providing fixing Aluminium solder lugs for HT switchgears and copper lugs for transformer of suitable size with all required materials. The Heat Shrinkable end termination joints kit shall comply with all currently applicable statutes, regulations and safety codes. Nothing in this specification shall be construed to relieve the bidder off his responsibilities. the Heat Shrinkable Straight through joints offered shall conform to the latest applicable Indian, IEC, or International Standards and in particular, to the IS: 13573- Part 2, 2011 : Type Test and Performance requirement for Cable Termination & Joints on XLPE cable for 6.6KV

18. Technical Specification for Item no:-24.

This includes supply of heat shrinkable Straight through joint suitable for 31/2 / 4 core core LT 1.1KV XLPE / PVC-A-PVC cables including providing fixing Aluminium solder lugs for LT switchgears and copper lugs.

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TECHNICAL SPECIFICATION FOR PART – C

1. Technical Specification for Item no :-1.

This includes Dismantling and Re-erection of the high mast (30M) with the help of suitable tools, Crane/Earthmover, plants & equipment at the existing foundation with replacement of Hardware by new one as per original.

- However, fixing of all the accessories like safety and suspension wire rope, trailing cable, power tool, Gear Box, luminaries with all wiring and control gear box and hire of Crane/earthmovers charges are to be operated from item considered in Schedule "B-I" & "C". However if any major item left out and required to complete the work then the Contractor has to undergo the work and reimbursements can be done as per clause no 6 & 7 of scope of work .
- The details scope as under.
- The works include repair/replaced to lantern carriage & Head Frame its accessories same to be dismantle & dented parts to be strengthen and re-assemble with appropriate size nut, bolts, brackets, hardware and same is to be fitted on High Mast tower as per its original position. Necessary fabrication & fittings, required High Mast Spares (as mentioned in Schedule B-1,B-II & C).

- The work includes replacement of old damaged wire rope, The contractor should replace safety wire rope of length (35X2) and suspension wire rope (35X3).both the suspension and safety wire rope replace for each High mast should be stainless steel, after replacement of new wire rope, contractor should deposit the old exiting wire rope in sub-division store. The work includes all labour and material such as clamps etc. as directed by Engineer-In-Charge.
- The work include repairing/replace to Double Drum winches, Motor, Chain, sprocket, and same is to be made functionally operation, & also implement the necessary oiling greasing in Gear Assembly. The work includes fixing the single /double luminaries fixture as per requirement / as directed by EIC, with control gear box on repaired lantern carriage, with necessary connection of Trailing Cable (Male & Female socket), & same rising on its original position, its control wiring connection is in the scope of contractor with required flexible cable, taken from JB to individual luminaries control gear box.
- Necessary hardware & fasteners shall be SS, shall be under scope of contractor. During the execution of work, contractor shall take the damaged lantern ring / Head frame / Pulley /Bracket from the individual High Mast Location or Sub Division Store for strengthening / necessary special repair, if not available the head Frame / Double Drum winch / Compensating Disc/Motor /Lantern Ring etc. same should be arranged /supplied by contractor reimbursements can be done as per clause no 6 & 7 of scope of work.
- If any reason power supply not available at site for rising & lowering the high mast or other necessary High Mast work, firm shall arranged, own their arrangement for complete the work.
- The work includes Replacement of Lantern Carriage/Double Drum winch / Compensating Disc as & when required. The carriage shall be arranged to locate firmly against stops when in the service position (dock in point) and those stops shall be of adequate strength to ensure that they cannot be damaged by over – winding of the winch. They shall be of stiff enough construction to provide an immediately recognizable increase in winch drive effort when they make contact and to withstand the full pretensioning of the wire rope and the varying forces which will occur in service. The fixing for the luminaries and control gear units shall be such that those units can readily be removed.
- The work includes all labour and material such as U size clamps (S.S), Nut & Bolts etc. which is to be procured by contractor as directed by Engineer-In-Charge.

2. Technical Specification for Item no :-2.

The work consists of laying LT cables of 3.5 / 4 x Core 50 on wall surface, beam, cable tray, etc. with suitable size of G.I. saddles/spacer of 2mm thick and shall be rigidly fixed on cemented wooden gutties or polymeric gutties at a distance of not more than 0.6 mtr interval. And wherever the cable is to be run on tray same shall be fixed with suitable size of clamp & hardware. This also includes termination at both end by required size of cable gland and with suitable size of lugs with all material and labour and as directed by Engineer-in-charge.

3. Technical Specification for Item no :-3.

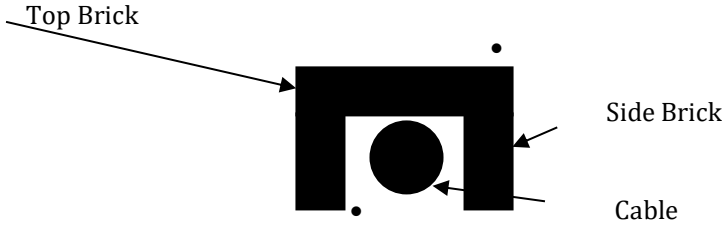
Cable shall be laid underneath by using Horizontal Directional Drilling (HDD) method by putting suitable diameter HDPE pipe (suitable for cable size up to LT 4C X 300 Sq.mm having strength 10Kg/sq.cm, shall in contractor scope), The contractor should arrange JCB Machine for excavation, water for drilling, de- watering pump, HDD equipment's of 32 Ton or above capacity along with mud pump at their own cost. The cable shall be pass through heavy duty HDPE pipe buried at nominal minimum depth 165 cm or according to construction of RCC Road/ Rail network or as per directed by EIC. For single cable individual HDPE shall be pass through a road /rail crossing, for separate cable. Separate HDPE pipe shall pass through the Tunnel / trench. Laying of HDPE pipes coupled by HDPE

socket only after standard length in excavated trench/tunnel and also sealing of HDPE pipe ends by suitable cap at every manhole. Back filling & dressing of excavated trenches as per specification. This includes all labour and material as directed by Engineer-in-Charge.

4. Technical Specification for Item no :-4.

This includes laying of single length cable of size up to 4 core, 150 Sq.mm LT armoured aluminium Conductor XLPE Cable of 1.1KV Grade through excavation in soft/hard soil. The trench to be excavated 300mm wide, 600mm deep. The bed of 50mm of river sand shall be provided in the bottom of the excavated trench. The cable shall be laid over the bed of river sand. The cable shall be protected as per Sketch shown below by providing and laying bricks both the sides lengthwise parallel to the cable & the gaps shall be filled with river sand. The cable shall be covered by keeping two bricks over the side bricks shown in the sketch. The filling of the trench shall be done with the excavated stuff & should be watered and rammed properly to its original position. The excess excavated stuff shall be disposed off from the Site of work and spreaded in low laying area as directed. This includes all labour and material as directed by Engineer-in-Charge.

- **Sketch**



5. Technical Specification for Item no :-5.

Rewinding of Exhaust Fan / Wall mounting fan etc with super enamelled copper winding wire, insulated with insulating varnish and baking of winding including overhauling etc as per Scope of Work

- The Contractor shall collect the defective/failed Wall mounting type Fan from Electrical site offices Cranes Section on 1st & 3rd week of every month, subject to handing over the previous lot collected by Contractor.
- The Contractor shall arrange the transport from DPA site offices to their works & vice-versa on their own.
- The winding of Fan motor shall be done by super enamelled copper wire with 'H' Class insulation Polyester Imide + Polyamide (Dual Coat) & Temp. Index 180ºC & good quality of insulation paper of 'F' Class. After rewinding, the Red Dr. Beck Polymer shall be applied to the winding after varnishing and fan motor shall be kept for baking for suitable time. However, the rated RPM shall be maintained at the time of winding.
- Bearing should be replaced by new one and same is to shown to DPA Supervisor and same should be procured by contractor.
- Proper register should be maintained by the contractor supervisor and replacement time and DPA supervisor signature should be obtained.
- There should be minimum (10no) stock of the repaired fan kept in the store.
- The scrap material like winding wire, worn out shaft/ bearing shall be retained by Contractor.
- The Supervisors / JE of DPA side shall inspect & confirm the quantity of repaired fans at the works of Contractor and same shall be listed out (Signed by both the Supervisor of DPA & the Contractor) as per of B.O.Q. The copy of list shall be submitted by Contractor along with the Bill.

6. Technical Specification for Item no :- 6.

The works include Providing & fixing chemical treated back filled compound earthing station, in Pipe for 2000 Amps (LT) capacity , complete with civil work. Marking on each earth pit coloured / painted by yellow painted on top and value also mentioned on top which less than 1 ohm. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge.

7. Technical Specification for Item no :- 7.

The works include providing & fixing the following size earth strip from earth station to equipment / Main DB or as per requirement. The complete work consists necessary wiring connections and earth linking at both the ends with all materials and labour as directed by Engineer-in-charge

i) 12 SWG Hot DIP GI wire,

ii). 50X 6 Hot DIP GI strips.

8 Technical Specification for Item no :- 8

The poles shall be bolted on a precast RCC foundation with a set of four foundation bolts for greater rigidity. This includes fixing & erection of 9 meter long with detachable type double arm Octagonal pole on foundation to be prepared by excavation of pit of 600mm (W) x 1000mm (L) x 1300mm deep after carrying out necessary excavation. At the bottom of pit 10cm of sand layer shall be provided and over that 10cm CC of 1:4:8 mix shall be provided and then foundation bolt of size 1200mm long of 20mm dia. shall be buried in the CC up to the length of 1165mm and thereafter pit shall be filled with 1:2:4 CC mix of cement sand and 6 to 20mm graded metal course aggregate concrete. The termination and connection through connector and MCB of junction box shall be done through cable brass glands of suitable size including earth linking to the pole and junction box with 8 SWG GI wire with all material and labour as directed by Engineer-in-charge.

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Contractor

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Deendayal Port Authority

Annexure-I

DETAILS OF ASSETS/EQUIPMENTS AVAILABLE FROM ZERO PANEL TO BERTH NO. 10 AND BERTH NO. 13 TO BERTH NO. 16

(DETAILS OF SUSTATION EQUIPMENT FROM NORTH GATE TO BERTH NO 10

(1) Cargo Jetty Substation:

- The 11/0.433kV Substation has 11 way RMU which comprise of 2 Incomer, 3 Transformer Feeder and 6 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	66kV Substation
2	Incomer	6th Berth Substation
3	O/G Feeder	Port Power House – 1
4	O/G Feeder	Port Power House – 2
5	O/G Feeder	TS – 4 Substation
6	O/G Feeder	Spare
7	O/G Feeder	MBE Crane No. 3
8	O/G Feeder	MBE Crane No. 4
9	Transformer Feeder	Transformer – 2
10	Transformer Feeder	Transformer – 1
11	Transformer Feeder	Spare

- There are two 1500kVA, ONAN, 11/0.433 kV Distribution Transformer of 'Voltamp' make.
- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Make: C & S, Rating of Incomer Feeder ACB: 3200 A, Rating of Bus Coupler Feeder: 3200 A and other Outgoing Feeder's Rating is 800 A.

Sr.No.	Panel Tag	Feeder Tag
1	LT Panel-1 (C&S)	TS-4 Tower
2		TS-4 Toilet
3		LT JB
4		MBE Crane – 2
5		MBE Crane – 1
6		Spare
7		Bus Coupler
8		Incomer from Transformer – 3
9		Incomer from Transformer – 1
10		WT main cable
11		Main Canteen
12		Spare
13		Spare
14		Godown light No. 10 to 17
15		LP-1

(2) LT Panel – 2:

Make: CG, Rating of Incomer Feeder ACB: 3200 A, Rating of Bus Coupler Feeder: 3200 A and other Outgoing Feeder's Rating is 800 A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-2 (CG)	Incomer from Transformer – 2
2		TS-1&2,Warehouse A&B

3		Indian Molasis
4		Warehouse
5		Bajaj-2
6		Cargo Jetty S/s
7		ATM Office
8		Bus coupler
9		Bajaj-1 (Not in service)
10		NG 30
11		SDB-12
12		HM Tower (1 To 4)
13		ATM office
14		SDB-13
15		I/c feeder

(3) LT Panel 3:
Rating of Incomer Feeder ACB: 3200 A, Rating of Bus Coupler Feeder: 3200 A and other Outgoing Feeder's Rating is 800 A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-3	Indication and metering feeder
2		ACB
3		Relay Panel
4		Spare
5		Mukand office
6		TS-4
7		Spare
8		Spare
9		Spare
10		Bus Coupler
11		SS lighting
12		Spare
13		Spare
14		Spare
15		Spare
16		Spare
17		I/c feeder

(4) LT Panel 4: (Make: Bajaj) LT panel is not in service.

- Substation Lighting & Miscellaneous:

Total tube light	28
(a) On condition	19
Vacant	9
LED Flood Light	3
Industrial Fan	3 Nos.
Fire Extinguisher	3
First Aid box	1 no.

(2) TS-4 Substation:

- The 11/0.433kV Substation has 6 way RMU which comprise of 2 Incomer, 2 Transformer Feeder and 2 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	From Cargo Jetty Substation
2	Incomer	Spare
3	O/G Feeder	MBE Crane No. 5
4	O/G Feeder	Spare

5	Transformer Feeder	Transformer – 1
6	Transformer Feeder	Transformer – 2

- There are 2, 1500 kVA, ONAN, 11/0.433 kV Distribution Transformer of 'Voltamp' make, out of which one Transformer is in service and another is out of service.
- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Rating of Incomer Feeder ACB: 3200 A, Rating of Bus Coupler Feeder: 3200 A and Outgoing Feeder's Rating is 800 A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel	Indication and metering feeder
2		ACB
3		Relay Panel
4		Spare
5		Mukand office
6		TS-4
7		Spare
8		Spare
9		Spare
10		Bus Coupler
11		SS lighting
12		Spare
13		Spare
14		Spare
15		Spare
16		Spare
17		I/c feeder

(2) LT Panel – 2: LT panel is not in service.

- Substation Lighting & Miscellaneous:

Total tube light	28
LED Flood Light	250W LED flood light: 3 Nos.
Fire Extinguisher	1 No.
First Aid box	1 No

(3) 6th Berth Substation:

- The 11/0.433kV Substation has 8 way RMU which comprise of 2 Incomer, 2 Transformer Feeder and 4 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	From 66 kV Substation
2	Incomer	Spare
3	O/G Feeder	Cargo Jetty Substation (LiLo)
4	O/G Feeder	Isolator Room (LiLo)
5	O/G Feeder	Spare
6	O/G Feeder	Spare
7	Transformer Feeder	Transformer – 1
8	Transformer Feeder	Transformer – 2

- There are 2 ONAN, 11/0.433 kV Distribution Transformer of 750kVA 'Bharat Bijlee' make and 1000kVA 'Patson' make, out of which 1000kVA Transformer is working & 750kVA Transformer is out of service.

- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Make: Popular Power Control, Rating of Incomer Feeder ACB: 1000A, Rating of Outgoing (SFU) Feeder: 125A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-1	1F-1 Indication and metering feeder
2		1F-2 ACB
3		1F-3 (Relay Panel)
4		2F-1 (Street light 6 berth)

5		2F-2 (Weight bridge 6 and 7)
6		2F-3
7		2F-4 (Tower-1)
8		2F-5
9		3F-1 (Marine Unloader)
10		3F-2 (Spare)
11		3F-3 (Opposite crane)
12		3F-4 (HM-2)
13		3F-5 (Tower-5)
14		4F-1 (Tower-1)
15		4F-2 (Tower-2)
16		4F-3 (Tower-3)
17		4F-4 (Tower-1 (ii))
18		4F-5 (Tower-5)

(2) LT Panel – 2: LT panel is not in service.

Make: Popular Power Control, Rating of Incomer Feeder ACB: 1000A, Rating of Outgoing (MCCB) Feeder: 250A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-2	Indication and metering feeder
2		ACB
3		Load Point at crane section (Canteen)
4		Spare
5		Spare
6		Substation lighting
7		Spare
8		Spare

- Substation Lighting & Miscellaneous:

Total tube light	14 Nos.
LED Flood Light	1 No.
Fire Extinguisher	2 Nos.
First Aid box	1 No

(4) 7th Berth Substation:

- The 11/0.433kV Substation has 6 way RMU which comprise of 2 Incomer, 2 Transformer Feeder and 2 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	From 66kV Substation
2	Incomer	Spare
3	O/G Feeder	Isolator Room (LiLo)
4	O/G Feeder	Scanner Panel
5	Transformer Feeder	Transformer – 1
6	Transformer Feeder	Transformer – 2

- There are 2 ONAN, 500kVA, 11/0.433 kV Distribution Transformer of 'Kirloskar' make and 'EMCO' make, out of which Kirloskar make Transformer is working & EMCO make Transformer is out of service.
- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Make: Popular Power Control, Rating of Incomer ACB: 1000A, Rating of Bus coupler ACB: 1000A, Rating of Outgoing (MCCB) Feeder: 250A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-1	1F-1 HM tower 5 & 6
2		1F-2. LM-9
3		1F-3. CK Lighting
4		1F-4.(Spare)
5		2F-1.(Back High Mast)
6		2F-2.(Spare)

7		2F-3.(11KV VCB panel 230 V supply)
8		2F-4.(Spare)
9		3F-1.(I/c metering feeder)
10		3F-2 (ACB)
11		4F-1 (I/c metering feeder)
12		4F-2 (ACB)
13		4F-3 (ACB)
14		5F-1 (RAS berth-13)
15		5F-2 (Tower no. 15)
16		5F-3 (Tower no. 15)
17		5F-4 (CK lighting)
18		6F-1 (CK lighting)
19		6F-2 (Spare)
20		6F-3 (LM-10)
21		6F-4 (Tower-1 7 berth)

(2) LT Panel – 2:

Make: Popular Power Control, Rating of Incomer ACB: 1000A, Rating of Bus coupler ACB: 1000A, Rating of Outgoing (SFU) Feeder: 125A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel 2	1F-1 to 1F-5.(Spare)
2		2F-1 to 2F-5.(Spare)
3		3F-1 to 3F-5.(Spare)
4		4F-1 (I/c metering feeder)
5		4F-2 (ACB)
6		4F-3 (Relay feeder)
7		5F-2 (Bus coupler ACB)
8		6F-1 (I/c metering feeder)
9		6F-2 (ACB)
10		6F-3 (Relay feeder)
11		7F-1 to 7F-3 (Spare feeder)
12		7F-4 (S/s Light)
13		7F-5 (Spare feeder)
14		8F-1 To 8F-5 (Spare feeder)
15		9F-1 and 9F-2 (Spare feeder)
16		9F-3 (LM Tower 1-7)
17		9F-4 and 9F-5 (Spare feeder)

- Substation Lighting & Miscellaneous:

Total tube light	17 Nos.
Exhaust Fan	6 No.
Fire Extinguisher	1 No
First Aid box	I No

(5) <u>40 Hectare Substation</u>:

- The 11/0.433kV Substation has 4 VCB Panels. The details of the VCB Panel installation are as below:

Circuit Breaker Type	From/To	Remark
I/c-1	66kV Substation	All VCB feeders have energy meter installed.
O/G-1	Transformer – 1	
O/G-2	Transformer – 2	
I/c-2	66kV Substation	

- There are 2 ONAN, 1000kVA, 11/0.433 kV Distribution Transformer of 'Voltamp' make.

- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Rating of Incomer ACB: 1600A, Rating of Bus coupler ACB: 1600A, Rating of Outgoing (SFU) Feeder: 250A/125A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-1	1F-1. (LP-1)
2		1F-2. (LP-2)
3		1F-3. (Weigh Bridge-9)
4		1F-4. (West Gate-2)
5		1F-5. (34 Hector DB side HM)
6		2F-1. (Metering feeder)
7		2F-2. (ACB)
8		3F-1. (Metering feeder)
9		3F-2. (ACB B/C)
10		4F-1. (Metering feeder)
11		4F-2. (ACB I/C)
12		5F-1. (LP-3)
13		5F-2. (Vacant)
14		5F-3 (Spare)
15		5F-4 (West Gate-3)

(2) LT Panel – 2:

Rating of Incomer ACB: 1600A, Rating of Bus coupler ACB: 1600A, Rating of Outgoing (SFU) Feeder: 400A/250A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-2	Metering and ACB Feeder
2		Energy meter feeder
3		400 A MCCB
4		Tag not Available
5		400 A MCCB
6		250 A MCCB (No tag Available)

- There is 1 no. 125kVAr, APFC Panel which is not in service.

- Substation Lighting & Miscellaneous:

Total tube light	16 Nos.
LED Flood Light	1 No. 250W LED flood light
Fire Extinguisher	2 Nos.
First Aid box	1 No
Exhaust Fan	4 Nos.
Industrial Fan	2 Nos.

(6) <u>Old NDA Substation</u>:

- The 11/0.433kV Substation has 6 way RMU which comprise of 2 Incomer, 2 Transformer Feeder and 2 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	From 66 kV Substation
2	Incomer	Spare
3	O/G Feeder	Spare
4	O/G Feeder	Spare
5	Transformer Feeder	Spare
6	Transformer Feeder	Transformer – 1

- There is 2 ONAN, 1500kVA, 11/0.433 kV Distribution Transformer of 'Voltamp' make and out of which one Transformer is out of Service.

- The details of LT distribution panel are as below:

(3) LT Panel – 1:

Rating of Incomer ACB: 1000A.

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-1	1F-1 Metering feeder

2		1F-2 ACB-1000 A
3		1F-3 Relay feeder
4		2F-1 Not in Service
5		2F-2 LP-7
6		2F-3 Not in Service
7		2F-4 Not in Service
8		2F-5 Tag not available
9		3F-1 Not in Service
10		3F-2 Substation power
11		3F-3 Godown no.19
12		3F-4 Godown no. 22
13		3F-5 Godown no. 23
14		4F-1 to 4F-5 (Not in used)

- Substation Lighting & Miscellaneous:

Total tube light	14 Nos.
LED Flood Light	1 No. 250W LED flood light
Fire Extinguisher	1 No.
First Aid box	1 No.
Exhaust Fan	4 Nos.

- The cable trench inside the Substation is open and needs to be covered by chequered plates.

(7) <u>New NDA Substation</u>:

- The 11/0.433kV Substation has 6 way RMU of 'Siemens' make. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	From 66kV Substation
2	O/G Feeder	Transformer-1
3	O/G Feeder	Transformer-2
4	O/G Feeder	Spare
5	Incomer	From 66kV Substation (Off Position)
6	O/G Feeder	Godown no. 34 (Bagging Plant)

- There are 2 ONAN, 1000kVA, 11/0.433 kV Distribution Transformer of 'Danke' make out of which one Transformer is working and the other is out of Service.

- The details of LT distribution panel are as below:

(1) LT Panel – 1:

Incomer/Bus coupler ACB Rating: 800A

Sr. No.	Panel Tag	Feeder Tag
1	LT Panel-1	1F-1 Patel Weighbridge
2		1F-2 Load Point-2
3		1F-3 ACB
4		1F-4
5		2F-1
6		2F-2
7		2F-3 Bus Coupler ACB
8		3F-1 HM 19 to 26
9		3F-2 Load Point-1
10		3F-3 I/c ACB

(2) LT Panel – 2:

Incomer/Bus coupler ACB Rating: 800A

1	LT Panel-2	B/C
2		I/c ACB
3		SFU (125A) HM-15 to 18
4		SFU (125A) HM-6
5		3
6		HM-17 to 18

7		HM-15 to 16
8		6 to 9
9		HM-13 and 14

- Substation Lighting & Miscellaneous:

Total tube light	8 Nos.
LED Flood Light	1 No. 250W LED flood light
Fire Extinguisher	2 No. (Empty)
First Aid box	1 No.
Exhaust Fan	6 Nos.

(8) <u>Isolator Room</u>:

- The Isolator room has 6 way RMU which comprise of 2 Incomer, 2 Transformer Feeder and 2 Outgoing Feeder. The details of the RMU installation is as below:

Circuit Breaker No.	Type of Feeder	From/To
1	Incomer	7th
2	Incomer	6th
3	O/G Feeder	Spare
4	O/G Feeder	TIL Crane no. 10
5	Transformer Feeder	TIL Crane no. 11
6	Transformer Feeder	TIL Crane no. 12

- Isolator Room's 11kV Cable entry/exit hole in wall is not properly closed, needs to close the hole properly through Civil Engineering Department.

- Substation Lighting & Miscellaneous:

LED Flood Light	1 No. 250W LED flood light
Fire Extinguisher	Not Available
First Aid box	Not Available

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Annexure-II

The details from North Gate to Berth no 10:

Sr no	Area / Location	Qty.
01	40 Hector	20 No. High Mast Towers
02	Cargo Jetty Wharf Area (Berth No:-1 to 5)	6 No. High Mast, 9 nos. lattice type Towers
03	7th Berth Area	7 No. Lattice Type Tower, Located on wharf area (Berth No: - 7 to 10), 14 No. Lattice Tower on back area
04	6th Berth Area	8 No. lattice Type Tower
05	OLD NDA area	9 No. Lattice Type Towers.
06	West Gate area.	02 No's High Mast Towers
07	West Gate-I	01 No. High Mast Towers
08	North Gate	01 No. High Mast Towers
09	66 Hector Area	34 No. High Mast
10	8th Berth Back Up area	06 No. High Mast
11	Godown	34 Nos.
12	Street light poles	West gate-1, 2 & 3 From berth no 13 to
13	Gate Office	North Gate, West Gate1,2 &3
14	Office	ATM Office , Traffic Shed Office at all berth, Fire Brigade office etc.
15	Toilet Block	All Toilet Blocks & Rest Rooms at berth area & back Up area
16	Weigh Bridge	All Weigh Bridge form zero Panel to 10 an its Berth back Up area

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Annexure-III

The details North Gate to Berth no 10:

Sr no	Area / Location	Qty	Age	Location
1	Transformer 1500 KVA 11/.433KV Voltamp make Sr. No. 4856/1	10/98	25 Yrs	Cargo Jetty Substation
2	Transformer 1500 KVA 11/.433KV Voltamp make Sr. No. 4856/2	10/98	25 Yrs	Cargo Jetty Substation
3	Transformer 1500 KVA 11/.433KV Voltamp make Sr. No. 4856/5	10/98	25 Yrs	Cargo Jetty Substation
4	Transformer 1000 KVA 11/.433KV Danke make Sr. No. DP136/1	06/04	19 Yrs	Cargo Jetty Substation
5	Transformer 1500KVA 11/.433KV Voltamp make Sr. No. 4856/4	10/98	25 Yrs	TS -4 Sub station
6	Transformer 1500KVA 11/.433KV Voltamp make Sr. No. 4856/3	10/98	25 Yrs	TS -4 Sub station
7	Transformer 1000KVA 11/.433KV PETSON make Sr. No. 4171/2	09/03	20 Yrs	6th Berth Substation
8	Transformer 750 KVA 11/.433KV SIEMENS make Sr. No. 1421/Z	09/03	20 Yrs	6th Berth Substation
9	Transformer 500 KVA 11/.433KV Power Volt make Sr. No.	03/1993	30 Yrs	7th Berth Substation
10	Transformer 500 KVA 11/.433KV Kirloskar make Sr. No. 99P/1000977	04/1990	30 Yrs	7th Berth Substation
11	Transformer 1000KVA 11/.433KV Voltamp make Sr. No. 41042/1	05/2013	10 Yrs	40 Hector Substation
12	Transformer 1000KVA 11/.433KV Voltamp make Sr. No. 41042/2	05/2013	30 Yrs	40 Hector Substation
13	Transformer 1500KVA 11/.433KV Voltamp make Sr. No. 4856/5	10/98	25 Yrs	Old NDA Substation
14	Transformer 1000KVA 11/.433KV PETSON make Sr. No. 4171/1	09/03	18 Yrs	Old NDA Substation
15	Transformer 1000KVA 11/.433KV Danke make Sr. No. 135/01	2005	18 Yrs	NEW NDA Substation
16	Transformer 1000KVA 11/.433KV Danke make Sr. No. 135/02	2005	18 Yrs	NEW NDA Substation

DG set Available From North Gate to 10th Berth

Sr no	Area / Location	Location	Qty	Make
1	30KVA	North Gate	1 no	Sonalika
2	30KVA	West Gate-1	1no	Sonalika
3	30KVA	West Gate-2	1no	Sonalika
4	30KVA	West Gate-2	1no	Sonalika

ANNEXURE-I (a)

The tentative details 13 Berth to 16 Berth areas:

Sr. No.	Description	QTY	Unit
1	13 BERTH SUBSTATIONS	1	No.
2	OFFICES	5	No.
3	WEIGHT BRIDGE	5	No.
4	GODOWNS	2	No.
5	15 BERTH SUBSTATIONS	1	No.
6	TOILET BLOCKS	3	No.
7	GATES	2	No.
8	ALL HIGH MAST 25-30 meter Height	29	No.
9	MINI MAST 20 meter height	20	No.
10	AREA LIGHTING OF VERIOUS OFFICES/GATES/JETTYS		

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ANNEXURE-I (b)

DETAILS OF TENATAIVE EQUIPMENTS, HT/LT PANELS AT BERTH NO.13 & BERTH NO.16.

Sr no	Area / Location	Location	Qty	Make
1	RMU, 3 Way	11 KV, 630 Amps	ABB	1
2	RMU, 5 Way	11 KV, 630 Amps	ABB	1
3	Transformer	11/0.433 KV, 630 KVA	Hind Electrical	1
4	LT Panel, 16 Way	1250 Amps	OHM Energy Management Pvt. Ltd.	1
5	AMF Panel	250 Amps	Siddhi vinayak	1
6	DG Set	200 KVA	Sudhir	1

Sr no	Area / Location	Location	Qty	Make
1	Transformer (Dry Type)	11/0.433 KV 630 KVA	Voltamp	1
2	RMU	630 Amp	Siemens	1
3	VCB	1250 Amp	ABB	1
4	Metering Panel	11 KV	Expel Prosys	1
5	LT Panel	11 KV, 1250 Amps	OHM Energy Management Pvt. Ltd.	1
6	DG Set	200 KVA		1

Note: - The above equipment's details are tentative. However scope of equipment's (under AMC) covers all the High mast & Mini mast Lighting and HT/LT.

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