

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**NAME OF THE WORK:-Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.**

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18]- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 1. Plant Supplied from Abroad (Sub-station )**

**NAME OF THE BIDDER**

SL. NO.	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)	Code <sup>1</sup>	UNIT	Quantity for: Construction of 2x160MVA & 2x20 MVA, 220/132/33KV Grid S/S at Gunpur:220 KV Bay-5 Nos.(FDR-2,TFR-2& B/C-1),132KV Bay-7 Nos.(FDR-4,TFR-2 & B/C-1) & 33 KV Bay- 7 Nos.(FDR-4,TFR-2& B/C-1)	TOTAL QUANTITY	Unit Price <sup>2</sup>		Total Price <sup>2</sup>
						In Foreign Currency	CIP	
					(1)	(2)	(3)	(1) x (3)
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)		NOS	18	18			
2	<b>245 KV,2000A,40KA,ISOLATORS</b>							
2.1	S/I WITH OUT EARTH SWITCH		NOS	20	20			
2.2	S/I WITH SINGLE EARTH SWITCH		NOS	4	4			
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH		NOS	4	4			
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6			
4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	5	5			
5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III		NOS	12	12			
6	245 KV ,2 CORE,SINGLE PHASE,IVT		NOS	6	6			
7	220 KV Bus Post Insulators		NOS	72	72			
8	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)		NOS	21	21			
9	<b>145 KV,1250A,31.5KA,ISOLATORS</b>							
9.1	S/I WITH OUT EARTH SWITCH		NOS	11	11			
9.2	D/I WITH SINGLE EARTH SWITCH		NOS	2	2			
9.3	D/I WITHOUT EARTH SWITCH		NOS	4	4			

10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER		NOS	6	6		
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III		NOS	18	18		
12	145 KV, 2 CORE, SINGLE PHASE, IVT		NOS	3	3		
13	132 KV Bus Post Insulators		NOS	20	20		
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	7	7		
15	<b>36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI &amp; 1 0.2s CI)</b>		NOS	6	6		
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)		NOS	15	15		
<b>17</b>	<b>36 KV,1250A,25KA,ISOLATORS</b>						
17.1	S/I WITH OUT EARTH SWITCH		NOS	9	9		
17.2	D/I WITH SINGLE EARTH SWITCH		NOS	4	4		
17.3	D/I WITHOUT EARTH SWITCH		NOS	2	2		
17.4	S/I WITH BEAM MOUNTED		NOS	2	2		
18	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)		NOS	24	24		
19	36 KV ,2 CORE,SINGLE PHASE,IVT		NOS	3	3		
20	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE		NOS	7	7		
21	33 KV Bus Post Insulators		NOS	15	15		
<b>22</b>	<b>BUS BAR &amp; CIRCUIT MATERIALS</b>						
22.1	LONG ROD PORCELAIN INSULATORS						
22.1.1	160 KN LR INSULATOR FOR 220KV SIDE		NOS	132	132		
22.1.2	90 KN LR INSULATOR FOR 220KV SIDE		NOS	36	36		
22.1.3	120 KN LR INSULATOR FOR 132KV SIDE		NOS	78	78		
22.1.4	120 KN LR INSULATOR FOR 33KV SIDE		NOS	66	66		
22.1.5	90 KN INSULATOR FOR 132KV SIDE		NOS	27	27		
22.1.6	90 KN INSULATOR FOR 33KV SIDE		NOS	30	30		
22.2	ACSR MOOSE CONDUCTOR		KMS	10	10		
22.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.		MTRS	600	600		
<b>23</b>	<b>HARDWARES &amp; FITTINGS/SPACERS/CLAMP &amp; CONNECTORS</b>						
23.1	220 KV Double Tension( 160KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor(Single Anchoring Point)		NOS	48	48		
23.2	220 KV Single Tension(160KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor		NOS	36	36		
23.3	220 KV Single Suspension(90 KN)H/W fitting for single moose ACSR conductor		NOS	36	36		
23.4	132 KV Double Tension(120KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)		NOS	18	18		
23.5	132 KV Single Tension(120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor		NOS	42	42		
23.6	132 KV Single Suspension(90KN) H/W fitting for twin moose ACSR conductor		NOS	6	6		

23.7	132 KV Single Suspension(90KN) H/W fitting for single moose ACSR conductor		NOS	15	15		
23.8	33 KV Single Tension)120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor		NOS	24	24		
23.9	33 KV Double Tension (120KN)H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)		NOS	18	18		
23.10	33 KV Single Suspension(90KN) H/W fitting for single moose ACSR		NOS	30	30		
23.11	T-clamp for ACSR Moose run to IPS 4" aluminium pipe		NOS	32	32		
23.12	T- clamp for ACSR ZEBRA run to ACSR MOOSE drop		NOS	22	22		
23.13	T- clamp for ACSR PANTHER run to ACSR MOOSE drop		NOS	22	22		
23.14	T-Clamp for single Moose -Single Moose ACSR		NOS	220	220		
23.15	T-Clamp for twin Moose run -Single Moose drop ACSR		NOS	84	84		
23.16	220 KV PI clamp		NOS	46	46		
23.17	132KV PI clamp		NOS	18	18		
23.18	33KV PI Clamp		NOS	28	28		
23.19	Spacer for Moose ACSR		NOS	280	280		
23.20	220 KV Isolator pad clamp		NOS	216	216		
23.21	220 KV LA Clamp		NOS	18	18		
23.22	220 KV CB Clamp		NOS	42	42		
23.23	220 KV CVT Clamp		NOS	12	12		
23.24	220 KV CT Clamp		NOS	48	48		
23.25	220 KV IVT Clamp		NOS	12	12		
23.26	132 KV Isolator pad clamp		NOS	84	84		
23.27	132 KV LA Clamp		NOS	24	24		
23.28	132 KV CVT Clamp		NOS	12	12		
23.29	132 KV CT Clamp		NOS	30	30		
23.30	132 KV IVT Clamp		NOS	6	6		
23.31	132 KV CB Clamp		NOS	30	30		
23.32	33 KV Isolator pad clamp		NOS	119	119		
23.33	33 KV LA Clamp		NOS	33	33		
23.34	33 KV CT Clamp		NOS	60	60		
23.35	33 KV IVT Clamp		NOS	3	3		
23.36	33 KV CB Clamp		NOS	60	60		
23.37	PG Clamp for ACSR Moose		NOS	48	48		
<b>24</b>	<b>EARTH WIRES &amp; IT'S HARDWARES &amp; FITTING</b>						
24.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)		NOS	47	47		
24.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)		NOS	17	17		
24.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)		NOS	22	22		
<b>25</b>	<b>SUBSTATION EARTHING SYSTEMS</b>						
25.1	EARTHING CONDUCTOR FOR BURRIAL : 75X10 mm GI Flat for laying (spacing maximum 5m both way)		MT	138	138		
25.2	EARTHING CONDUCTOR: 50X6 mm GI Flat for Raiser from the burial earth mat to equipment,structure etc)		MT	35	35		
25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)		Nos.	240	240		

25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)		Nos.	190	190			
25.5	Supply of Pipe-in-Pipe type earthing electrode (0.5 Oms below)		Nos.	4	4			
<b>26</b>	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.							
26.1	G.I Cable Trays(size: 450x75x2500mm)		MTRS	2000	2000			
26.2	G.I Cable Trays(size: 300x75x2500mm)		MTRS	3500	3500			
26.3	G.I Cable Trays(size: 150x75x2500mm)		MTRS	3500	3500			
26.4	Support G. I angle 50x50x6 mm for cable tray		MT	6	6			
<b>27</b>	SUB STATION SWITCHYARD BMK,AC CONSOLE & OTHER MARSHALLING BOXES							
27.1	BAY MARSHALLING KIOSK (03Nos. in 220 KV Bay,03 Nos. in 132 KV Bay & 01Nos. in 33 KV Bay )		NOS	7	7			
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING (02 Nos. in 220 KV bay, 02No. in 132 KV Bay & 01 No. in 33KV Bay )		NOS	3	3			
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (01 No. near each 220/132 &132/33 KV Auto & Power Transformers)		NOS	2	2			
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 No. each in 220,132& 33 KV Bays )		NOS	3	3			
27.5	CT, PT/IVT & CVT Out door console boxes (220KV=6 nos., 132KV = 7 nos., 33KV = 7 nos.)PT/AVT=220 Kv -2nos+132 Kv-nos1+33 Kv-1nos,CVT=220 Kv-2nos+132 KV -2nos		NOS	28	28			
<b>28</b>	<b>SWITCH YARD STRUCTURES (LATTICE TYPE FOR COLUMN &amp; BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV, 132KV &amp; 33 KV CLASS INCLUDING FOUNDATION BOLTS &amp; NUTS.</b>							
28.1	<b>DIFFERENT TYPES OF COLUMNS WITH DETAILS</b>							
28.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.018 MT)- 30NOS)		MT	120.5	120.540			
28.1.2	P2S-220 KV (NOMINAL UNIT WT- 1.71 MT) (0NOS.)		MT	0.0	0.000			
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (28NOS.)		MT	33.6	33.600			
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(8NOS.)		MT	7.6	7.600			
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (10NOS.)		MT	8.3	8.300			
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (14NOS.)		MT	8.4	8.400			
<b>28.2</b>	<b>DIFFERENT TYPE OF BEAMS WITH DETAILS</b>							
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (24NOS.)		MT	36.0	36.000			
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (4NOS.)		MT	10.0	10.000			
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (0NOS.)		MT	0.0	0.000			
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (20NOS)		MT	12.4	12.400			
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) ( 4NOS.)		MT	2.5	2.480			
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (8NOS.)		MT	3.6	3.600			
28.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)		MT	0.0	0.000			
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (4NOS.)		MT	1.6	1.590			
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (12 NOS.)		MT	0.8	0.840			
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)		MT	1.0	1.040			
28.3	<b>TOTAL WEIGHT OF COLUMN &amp; BEAMS</b>		<b>MT</b>	<b>246.39</b>	246.390			

<b>28.4</b>	<b>EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV &amp; 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS &amp; NUTS</b>							
28.4.1	ISOLATORS-220KV (SI without E/S -24Nos.)		MT	30.504	30.504			
28.4.2	ISOLATORS-132KV ( SI with out E/S-11 Nos.)		MT	7.247	7.247			
28.4.3	ISOLATORS-132KV ( DI with E/S-2 Nos.)		MT	2.241	2.241			
28.4.4	ISOLATORS-132KV (DI with out E/S-4 No.)		MT	3.916	3.916			
28.4.5	ISOLATORS-33 KV ( SI w/o ES- 8Nos.)		MT	2.359	2.359			
28.4.6	ISOLATORS-33 KV ( DI with ES -6Nos.)		MT	4.024	4.024			
28.4.7	ISOLATORS-33 KV ( DI without ES-2 Nos.)		MT	1.312	1.312			
28.4.8	CTS-220 KV (18Nos.)		MT	4.050	4.050			
28.4.9	CTS-132 KV (21 Nos)		MT	5.250	5.250			
28.4.10	CTS-33 KV (21 Nos.)		MT	2.436	2.436			
28.4.11	CVTS-220 KV (6 Nos.)		MT	1.326	1.326			
28.4.12	CVTS-132 KV (6 Nos )		MT	1.344	1.344			
28.4.13	IVTS-220 KV (6 Nos.)		MT	1.723	1.723			
28.4.14	IVTS-132 KV (3 Nos.)		MT	0.426	0.426			
28.4.15	IVTS-33 KV (3 Nos.)		MT	0.355	0.355			
28.4.16	Surge Arrester-220 KV( 12 Nos.)		MT	3.505	3.505			
28.4.17	Surge Arrester-132 KV( 18 Nos.)		MT	4.932	4.932			
28.4.18	Surge Arrester beam mounted-33 Kv( 24Nos.)		MT	0.000	0.000			
28.4.19	BPI-220 KV (72Nos.)		MT	21.082	21.082			
28.4.20	BPI-132 KV (36Nos)		MT	7.128	7.128			
28.4.21	BPI-33 KV (16 Nos.)		MT	3.301	3.301			
<b>28.5</b>	<b>TOTAL WEIGHT OF EQUIPMENT STRUCTURES</b>		<b>MT</b>	<b>108.460</b>	108.460			
<b>28.6</b>	<b>Total weight of GI Nuts and Bolts for Columns, Beams &amp; Equipment Structures</b>		<b>MT</b>	<b>48.725</b>	48.725			
<b>29</b>	<b>GENERAL EQUIPMENT &amp; SUBSTATION ACCESSORIES</b>							
<b>29.1</b>	<b>POWER CABLES,1.1KV,XLPE &amp; PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)</b>							
29.1.0	XLPE 3.5 CX400 mm <sup>1</sup>		MTR	1000	1000			
29.1.1	XLPE 3.5 CX300 mm <sup>2</sup>		MTR	1000	1000			
29.1.2	XLPE 3.5 CX185 mm <sup>2</sup>		MTR	1000	1000			
29.1.3	XLPE 3.5 CX120 mm <sup>2</sup>		MTR	1100	1100			
29.1.4	PVC 3.5 CX70 mm <sup>2</sup>		MTR	1300	1300			
29.1.5	PVC 3.5 CX35 mm <sup>2</sup>		MTR	4000	4000			
29.1.6	PVC 4 CX 16 mm <sup>2</sup>		MTR	2200	2200			
29.1.7	PVC 4CX 6 mm <sup>2</sup>		MTR	6000	6000			
29.1.8	PVC 2CX 6 mm <sup>2</sup>		MTR	5500	5500			
<b>29.2</b>	<b>CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)</b>							
29.2.1	2 CX 2.5 mm <sup>2</sup>		MTR	10500	10500			
29.2.2	4 CX 2.5 mm <sup>2</sup>		MTR	16000	16000			
29.2.3	5 CX 2.5 mm <sup>2</sup>		MTR	7500	7500			
29.2.4	7CX 2.5 mm <sup>2</sup>		MTR	8600	8600			
29.2.5	10 CX 2.5 mm <sup>2</sup>		MTR	15000	15000			

29.2.6	12 CX 2.5 mm <sup>2</sup>		MTR	13500	13500			
29.2.7	16 CX 2.5 mm <sup>2</sup>		MTR	7500	7500			
29.2.8	19 CX 2.5 mm <sup>2</sup>		MTR	3000	3000			
29.2.9	1CX 120 mm <sup>2</sup> BAT TO BAT CHARGER & CHARGER TO DCDB		MTR	1200	1200			
<b>30</b>	<b>ACCESSORIES FOR PLCC SYSTEM With OPGW cable</b>							
30.1	24 Fibre Optic Approach cable along with HDPE Pipes		KM	0.00	0.0			
30.2	48 Fibre Optic Approach cable along with HDPE Pipes		KM	1.50	1.5			
30.3	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be compatible with existing OPTCL system		No	1	1			
30.4	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDHMUX		No	1	1			
30.5	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)		No	1	1			
30.6	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data acquisition & configuration of RTU.		No	1	1			
30.7	48 V, 300 AH, maintenance free VRLA Battery set.		Set	1	1			
30.8	SMPS based Battery Charger of 75A suitable for 48V VRLA Battery set		No	1	1			
30.9	2.5 sq. mm multi strand 2 core control cable(power supply,Transducer/MFT PT supply)		Metre	500	500			
30.10	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT supply)		Metre	500	500			
30.11	1.5 sq. mm multi strand 10 core control cable(Digital Input)		Metre	300	300			
30.12	10 sq. mm 2 core multi strand control cable(Battery)		Metre	200	200			
30.13	DCDB		Set	1	1			
30.14	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.		Set	1	1			
<b>31</b>	<b>SUPPLY OF POWER TRANSFORMER,STATION TRANSFORMER &amp; OTHER MATERIALS AS PER TECHNICAL SPECIFICATION</b>							
31.1	<b>AUTO TRANSFORMER: 220/132KV,160 MVA (AS PER SPECIFICATION)</b>		NOS	2	2			
31.2	<b>POWER TRANSFORMER: 132/33KV,20 MVA (AS PER SPECIFICATION)</b>		NOS	2	2			
31.3	<b>STATION TRANSFORMER 33/0.4KV,250 KVA, Energy Efficiency level-2 (AS PER SPECIFICATION &amp; IS 1180 (pt-1):2014)</b>		NOS	2	2			
31.4	<b>HDG DP STRUCTURE:</b> each set shall comprise of [ 2X 9.0 Mtrs (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].		SETS	2	2			

31.5	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch		SETS	2	2			
31.6	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)		SETS	2	2			
31.7	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.		SETS	2	2			
<b>32</b>	<b>SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS )(Switch yard and other street area)</b>							
32.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj/ other approved make of OPTCL) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)		SET	125	125			
32.2	<b>STREET LIGHTING:</b> IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE							
32.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.		SET	100	100			
32.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.		SET	100	100			

32.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.		NO	1	1			
32.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.		NO	1	1			
33	2 TR Air Conditioning Units with Remote Control Facility :Including Supply of Air Conditioners Voltage Stabiliser, Control Boxes Etc. For completing the A.C Scheme (As per technical specification )for Control Room,Carrier Room, & Conference Rom. (Supply of cables are covered in Cable item asindicated above at 29.2)		SET	30	30			
34	<b>FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)</b>							
34.1	FOAM TYPE-9 LTRS		NOS	6	6			
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS		NOS	6	6			
34.3	DRY POWDER TYPE - 5 KGS		NOS	6	6			
34.4	CO <sub>2</sub> - 4.5 KGS		NOS	10	10			
34.5	CO <sub>2</sub> - 9 KGS		NOS	10	10			
34.6	CO <sub>2</sub> (TROLLY MOUNTED)- 22.5 KGS		NOS	4	4			
34.7	9 litre Water type		Nos.	4	4			
34.8	50 Litres Mechanical Foam type		Nos.	2	2			
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND		SET	8	8			



35	<b>SUBSTATION AUTOMATION SYSTEM FOR 220/132/33 KV SUBSTATION ON PRP MODE: Design , engineering , drawing, supervision, installation , testing &amp; commissioning of Substation Automation system alongwith Supply of the following 220, 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C &amp; E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C &amp; E/F relay,Transformer trouble relay etc. Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System &amp; Numerical bay control unit etc.</b>						
35.1	<b>Yard AC Kiosks for 220KV, 132KV &amp; 33KV Switchyards</b>						
35.1.1	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification; for 220KV Switchyard		Nos.	2	2		
35.1.2	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification; for 132KV Switchyard		Nos.	2	2		
35.1.3	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification; for 33KV Switchyard		Nos.	1	1		
35.2	Gate way panel for Sub-Station Automation (in PRP as per the specification & indicative drg ) system (for All 220, 132 & 33 KV side bays including the future bays),other accessories (comprising servers, engg. Station, works station, Color Laser jet Printer, Ethernet Switches , LIU,Multimode glass fibre Double jacket armoured optical cables, Red boxes, Inverters(3 KVA) etc as per TS, a large vedio screen of 60 inches for display including all type of accessories & special cables like F.O patch cord & armoured FO cables of adequate length etc required for the system in all respect as per latest IEC 61850 standard & as per technical specification.		Set	1	1		
35.3	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)		Set	1	1		
35.4	GPS System with PTP		Set	1	1		
35.5	<b>220 KV SIDE PROTECTION &amp; OTHER PANELS as per TS</b>						

35.5.1	FEEDER PROTECTION PANEL (MAIN-I , MAIN-II & BACK-UP PROTECTION WITH AUTO RECLOSURE DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.		Nos.	2	2			
35.5.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL I &II , separate numerical REF protection & BACK-UP ,PROTECTION CONSIDERING HV side for 160 MVA 220/132 KV Transformer) with Bay control unit (BCU) for substation automation system.		Nos.	2	2			
35.5.3	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.		Nos.	1	1			
35.5.4	BUS-BAR PROTECTION PANEL ( with Automation)		Nos.	1	1			
35.6	<b>132 KV SIDE PROTECTION PANELS as per TS</b>							
35.6.1	FEEDER PROTECTION PANEL (MAIN-I & BACK-UP PROTECTION DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.		Nos.	2	2			
35.6.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL,REF & BACK-UP ,PROTECTION CONSIDERING HV side for 20 MVA 132/33 KV Power Transformer) with Bay control unit (BCU) for substation automation system.		Nos.	2	2			
35.6.3	TRANSFORMER PROTECTION PANEL (BACK-UP ,PROTECTION CONSIDERING LV side for 160 MVA 220/132 KV Auto Transformer) with Bay control unit (BCU) for substation automation system.		Nos.	2	2			
35.6.4	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.		Nos.	1	1			
35.7	<b>33 KV SIDE PROTECTION &amp; OTHER PANELS</b>							
35.7.1	FEEDER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system for two nos. of 33KV feeders [ 2nos. Feeder bays in one panel].		SET	2	2			
35.7.2	TRANSFORMER PROTECTION PANEL (REF & BACK-UP ,PROTECTION CONSIDERING LV side for 2x20 MVA 132/33 KV Power Transformer) with Bay control & pprotection unit (BCPU) for substation automation system. [ 2nos. Transformer bays in one panel].		SET	1	1			
35.7.3	BUS COUPLER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system.		NOS	1	1			
36	<b>AC &amp; DC SYSTEM</b>							
36.1	<b>AC SYSTEM</b>							
36.1.1	MAIN ACDB,(HAVING 800 A,50KA,DRAWOUT TYPE ACB WITH 3 O/C,E/F,U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION.(MAIN DB-1,MAIN DB-2 WITH B/C)		SET	1	1			

36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1, ACDB-2 WITH B/C)		SET	1	1			
36.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)		SET	1	1			
36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)		SET	1	1			
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD		SET	1	1			
36.1.6	INDOOR RECEPTACLE BOARD		SET	1	1			
<b>36.2</b>	<b>DC SYSTEM</b>							
36.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)		SET	1	1			
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD		SET	1	1			
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC		SET	2	2			
38	BATTERY CHARGER FOR 220 V, 350 AH PLANTE TYPE BATTERY (FLOAT AND FLOAT CUM BOOST)		SET	1	1			
39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS		SET	1	1			
40	WALKIE TALKIE SET		SET /PAIR	2	2			
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.		NOS	2	2			
42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.		SET	1	1			
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.		SET	1	1			
44	WATER COOLER WITH WATER PURIFIER SYSTEM		NOS	2	2			
45	MAINTENANCE TESTING EQUIPMENT (AS PER <b>ANNEXURE - I</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)		LOT	1	1			
46	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER <b>ANNEXURE - II</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OTHER T&P's)		LOT	1	1			
47	OFFICE FURNITURE (AS PER <b>ANNEXURE - III</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM,OFFICE ROOMS,LIBRARY,TESTING LAB,etc.		LOT	1	1			
48	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size		NO	50	50			
<b>TOTAL OF SUBSTATION-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)</b>								
					Name of Bidder: _____			
					Signature of Bidder: _____			

<sup>1</sup> Bidders shall enter a code representing *the country of origin of all* imported plant and equipment.

<sup>2</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

<b>Item</b>	<b>Description</b>		<b>Code</b>	<b>Country</b>

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**NAME OF THE WORK:-Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.**

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18/-] Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 1. Plant Supplied from Abroad (Transmission line -220KV)**

NAME OF THE BIDDER		Code <sup>1</sup>	UNIT	QUANTITY: Construction of 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) to proposed 220/132 /33 KV Grid S/S at Gunupur	TOTAL QUANTITY	Unit Price <sup>2</sup>		Total Price <sup>2</sup>
SL. NO.	SUPPLY OF FOLLOWING EQUIPMENTS (As per Technical Specification)					In Foreign Currency	CIP	
					(1)	(2)	(3)	(1) x (3)
<b>1</b>	<b>SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts &amp; Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs &amp; bracing members). All Supply should confirm to the Technical Specification.</b>							
1.1	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.473MT) - <b>30NOS.</b>		MT	134.19	134.190			
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT ) - <b>10NOS.</b>		MT	7.48	7.480			
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) - <b>6NOS.</b>		MT	8.97	8.970			
1.2	OB TYPE (30 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) - <b>9NOS.</b>		MT	61.06	61.056			
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) - <b>4NOS.</b>		MT	5.34	5.336			
1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.308MT)- <b>4NOS.</b>		MT	9.23	9.232			
1.3	OC TYPE (60 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) - <b>13NOS.</b>		MT	123.80	123.799			

1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) - <b>2NOS.</b>		MT	2.87	2.872			
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) - <b>2NOS.</b>		MT	5.20	5.200			
	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.849MT) - <b>3NOS.</b>		MT	26.55	26.547			
<b>1.5</b>	<b>TEMPLATES</b>							
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579MT) - <b>2NOS.</b>		MT	1.16	1.158			
1.5.2	OB (NOMINAL UNIT WEIGHT 0.794MT) - <b>1NOS.</b>		MT	0.79	0.794			
1.5.3	OC (NOMINAL UNIT WEIGHT 0.962 MT) - <b>1NOS.</b>		MT	0.96	0.962			
	OC (NOMINAL UNIT WEIGHT 2.107 MT) - <b>1NOS.</b>		MT	2.11	2.107			
<b>1.6</b>	<b>WEIGHT OF THE STRUCTURES &amp; Templates including Tower stubs &amp; cleats</b>		<b>MT</b>	<b>389.70</b>	<b>389.70</b>			
<b>1.7</b>	<b>Weight of different type G.I Nuts and Bolts for above structures</b>		<b>MT</b>	<b>16.100</b>	<b>16.100</b>			
<b>2</b>	<b>Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.</b>							
2.1	EARTHING DEVICE		Nos.	52	52			
2.2	DANGER BOARD		Nos.	52	52			
2.3	NUMBER PLATE		Nos.	52	52			
2.4	PHASE PLATE		Nos.	312	312			
2.5	BIRD GUARD		Nos.	192	192			
2.6	ANTICLIMBING DEVICE		Nos.	52	52			
2.7	CIRCUIT PLATE		Nos.	104	104			
<b>3</b>	<b>Supply of following POWER CONDUCTORS in the proposed 220KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.</b>							
3.1	LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR ZINC COATED STEEL WIRE.		Kms.	81.51	81.51			
<b>4</b>	<b>POWER CONDUCTOR ACESSORIES</b>							
4.1	<b>LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.</b>							
4.1.1	VIBRATION DAMPER		Nos.	630	630			
4.1.2	MID SPAN JOINT		Nos.	82	82			
4.1.3	Repair Sleeve		Nos.	40	40			
4.1.4	PREFORMED ARMOUR ROD		Nos.	192	192			
<b>5</b>	<b>OPGW fibre Optic Cable &amp; Hardwares</b>							

5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable		Kms.	14.4	14.4			
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.		Kms.	14.4	14.4			
<b>6</b>	<b>Supply of the following type Long Rod Insulators as per the technical specification and as per the instruction of the engineer in charge.</b>							
6.1	90 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)		SET	318	318			
6.2	160 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)		SET	348	348			
<b>7</b>	<b>Supply of the following Hard ware fittings suitable for following conductor as per the technical specification.</b>							
<b>7.1</b>	<b>FOR LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.</b>							
7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set	96	96			
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Set	96	96			
7.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.		Set	216	216			
7.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.		Set	66	66			
7.1.5	Hanger		Nos.	192	192			
7.1.6	U'-Bolt.		Nos	30	30			
7.1.7	PG Clamp		Nos	12	12			
	<b>TOTAL OF 220KV LINE-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)</b>							

Name of Bidder: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

<sup>1</sup> Bidders shall enter a code representing the country of origin of all imported plant and equipment.

<sup>2</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form

Item	Description	Code	Country

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**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**NAME OF THE WORK:-Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length- 2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.**

Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18/]- Reference Identification No: [OPTCL/JICA/PKG-5]

**Schedule No. 1. Plant and Mandatory Spare Parts Supplied from Abroad (Transmission line -132KV)**

NAME OF THE BIDDER								
Sl. No.	SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)	Code <sup>1</sup>	UNITS	QUANTITY FOR: Construction of 132 KV LILO line from existing 132 KV Akhusing-Paralakhemundi D/C line to proposed 220/132KV /33KV Grid S/S at Gunupur. (Approx. Line length-2.286 Kms.)	TOTAL QUANTITY	Unit Price <sup>2</sup>		Total Price <sup>2</sup>
						In Foreign Currency	CIP	
					(1)	(2)	(3)	(1) x (3)
<b>1</b>	<b>SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts &amp; Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs &amp; bracing members). All Supply should confirm to the Technical Specification.</b>							
1.1	PA TYPE (SUSPENSION ) TOWERS (Nominal unit weight 3.246MT) -6NOS.		MT	19.476	19.476			
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) -3NOS.		MT	1.827	1.827			
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) -2NOS.		MT	2.582	2.582			
1.2	PB TYPE (30 deg ANGLE ) TOWERS (Nominal unit weight 4.949 MT) -3NOS.		MT	14.847	14.847			
1.2.1	+3 EXTENSION (Nominal unit weight 0.975MT) -0NOS.		MT	0.000	0.000			
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) -1NOS.		MT	2.020	2.020			
1.3	PC TYPE (60 deg ANGLE ) TOWERS (Nominal unit weight 5.924 MT) -6NOS.		MT	35.544	35.544			
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) -2NOS.		MT	2.138	2.138			
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) -1NOS.		MT	2.246	2.246			

1.4	OC TYPE (60 deg ANGLE ) TOWERS (Nominal unit weight 9.806 MT) - <b>0NOS.</b>		MT	0.000	0.000			
1.4.2	+15 EXTENSION (Nominal unit weight 8.375 MT) - <b>0NOS.</b>		MT	0.000	0.000			
<b>1.4</b>	<b>TEMPLATES</b>							
1.4.1	PA (Nominal unit weight 0.644 MT) - <b>1NOS.</b>		MT	0.644	0.644			
1.4.2	PB (Nominal unit weight 0.592 MT) - <b>1NOS.</b>		MT	0.592	0.592			
1.4.3	PC (Nominal unit weight 0.876 MT) - <b>1NOS.</b>		MT	0.876	0.876			
1.4.4	OC+15 (Nominal unit weight 2.073 MT) - <b>0NOS.</b>		MT	0.000	0.000			
<b>1.5</b>	<b>WEIGHT OF THE STRUCTURES &amp; Templates including Tower Stub</b>		MT	<b>82.792</b>	<b>82.792</b>			
<b>1.6</b>	<b>Weight of different type G.I Nuts and Bolts</b>		MT	<b>4.800</b>	<b>4.800</b>			
<b>2</b>	<b>Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.</b>							
2.1	EARTHING DEVICE		Nos.	15	15			
2.2	DANGER BOARD		Nos.	15	15			
2.3	NUMBER PLATE		Nos.	15	15			
2.4	PHASE PLATE		Nos.	90	90			
2.5	BIRD GUARD		Nos.	42	42			
2.6	ANTICLIMBING DEVICE		Nos.	15	15			
2.7	CIRCUIT PLATE		Nos.	30	30			
<b>3</b>	<b>Supply of following POWER CONDUCTORS in the proposed 132 KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.</b>							
3.1	For ACSR Panther-30/7/3.18mm size power conductor POWER CONDUCTOR		Kms.	17.21	17.21			
<b>4</b>	<b>POWER CONDUCTOR ACESSORIES</b>							
<b>4.1</b>	<b>For ACSR Panther-30/7/3.18 mm size POWER CONDUCTOR</b>							
4.1.1	VIBRATION DAMPER		Nos.	184	184			
4.1.2	MID SPAN JOINT		Set	17	17			
4.1.3	REPAIR SLEEVE		Set	8	8			
4.1.4	P A ROD		Set	42	42			
4.1.5	Flexible Copper Earth Bond		Nos	32	32			
<b>5</b>	<b>OPGW Fibre Optic Cable &amp; Hardware</b>							
5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable		Kms.	2.83	2.83			
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.		Kms.	2.83	2.83			

<b>6</b>	<b>Supply of the following type Long Rod Porcelain Insulators as per the technical specification and as per the instruction of the engineer in charge.</b>						
6.1	90 KN Long Rod Insulator for 132KV		Nos.	60	60		
6.2	120 KN Long Rod Insulator for 132KV		Nos.	114	114		
<b>7</b>	<b>Supply of the following hard ware fittings suitable for ACSR Panther conductor as per the technical specification.</b>						
<b>7.1</b>	<b>For ACSR Panther-7/30/3.18 mm size power conductor</b>						
7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Nos.	30	30		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.		Nos.	12	12		
7.1.3	Single tension Hard wares fittings suitable for 120 KN Long Rod insulator.		Nos.	102	102		
7.1.4	Double tension Hard wares fittings suitable for 120 KN Long Rod insulator.		Nos.	6	6		
7.1.5	Hanger		Nos.	42	42		
7.1.6	U'-Bolt.		Nos	15	15		
7.1.7	PG Clamp		Nos	12	12		
<b>TOTAL OF 132KV LINE-SCHEDULE-1 -Plant (to Schedule No. 6 Grand Summary)</b>							

Name of Bidder: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

<sup>1</sup> Bidders shall enter a code representing the country of origin of all imported plant and equipment.

<sup>2</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid. Create and use as many columns for Unit Price and Total Price as there are currencies.

Country of Origin Declaration Form				
Item	Description		Code	Country

## ODISHA POWER TRANSMISSION CORPORATION LIMITED

**NAME OF THE WORK:-**Design, Supply and Installation of 2X160 MVA,and 2x20 MVA,220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

Loan Agreement No: [ID-P245] -

FB No: [CPC/JICA/ICB/05/17-18/]-

Reference Identification No: [OPTCL/JICA/PKG-5]

**Schedule No. 2. Plant Supplied from Within the Employer's Country (Sub-station )**

NAME OF THE BIDDER						
SL. NO.	SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)	UNIT	Quantity for: Construction of 2x160MVA & 2x20 MVA, 220/132/33KV Grid S/S at Gunpur:220 KV Bay-5 Nos.(FDR-2,TFR-2& B/C-1),132KV Bay-7 Nos.(FDR-4,TFR-2 & B/C-1) & 33 KV Bay-7 Nos.(FDR-4,TFR-2& B/C-1)	TOTAL QUANTITY	Unit Price <sup>2</sup>	Total Price <sup>2</sup>
				(1)	(2)	(1) x (2)
1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)	NOS	18	18		
2	<b>245 KV,2000A,40KA,ISOLATORS</b>					
2.1	S/I WITH OUT EARTH SWITCH	NOS	20	20		
2.2	S/I WITH SINGLE EARTH SWITCH	NOS	4	4		
2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	4	4		
3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6		
4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	5		
5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	12	12		
6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	6		
7	220 KV Bus Post Insulators	NOS	72	72		
8	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	21	21		
9	<b>145 KV,1250A,31.5KA,ISOLATORS</b>					
9.1	S/I WITH OUT EARTH SWITCH	NOS	11	11		
9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2		

9.3	D/I WITHOUT EARTH SWITCH	NOS	4	4		
10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6		
11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	18	18		
12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	3		
13	132 KV Bus Post Insulators	NOS	20	20		
14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7		
15	<b>36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI &amp; 1 0.2s CI)</b>	NOS	6	6		
16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)	NOS	15	15		
<b>17</b>	<b>36 KV,1250A,25KA,ISOLATORS</b>					
17.1	S/I WITH OUT EARTH SWITCH	NOS	9	9		
17.2	D/I WITH SINGLE EARTH SWITCH	NOS	4	4		
17.3	D/I WITHOUT EARTH SWITCH	NOS	2	2		
17.4	S/I WITH BEAM MOUNTED	NOS	2	2		
18	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	24	24		
19	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	3		
20	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7		
21	33 KV Bus Post Insulators	NOS	15	15		
<b>22</b>	<b>BUS BAR &amp; CIRCUIT MATERIALS</b>					
22.1	LONG ROD PORCELAIN INSULATORS					
22.1.1	160 KN LR INSULATOR FOR 220KV SIDE	NOS	132	132		
22.1.2	90 KN LR INSULATOR FOR 220KV SIDE	NOS	36	36		
22.1.3	120 KN LR INSULATOR FOR 132KV SIDE	NOS	78	78		
22.1.4	120 KN LR INSULATOR FOR 33KV SIDE	NOS	66	66		
22.1.5	90 KN INSULATOR FOR 132KV SIDE	NOS	27	27		
22.1.6	90 KN INSULATOR FOR 33KV SIDE	NOS	30	30		
22.2	ACSR MOOSE CONDUCTOR	KMS	10	10		
22.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side.	MTRS	600	600		
<b>23</b>	<b>HARDWARES &amp; FITTINGS/SPACERS/CLAMP &amp; CONNECTORS</b>					
23.1	220 KV Double Tension( 160KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor(Single Anchoring Point)	NOS	48	48		
23.2	220 KV Single Tension(160KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor	NOS	36	36		
23.3	220 KV Single Suspension(90 KN)H/W fitting for single moose ACSR conductor	NOS	36	36		
23.4	132 KV Double Tension(120KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)	NOS	18	18		
23.5	132 KV Single Tension(120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor	NOS	42	42		
23.6	132 KV Single Suspension(90KN) H/W fitting for twin moose ACSR conductor	NOS	6	6		
23.7	132 KV Single Suspension(90KN) H/W fitting for single moose ACSR conductor	NOS	15	15		
23.8	33 KV Single Tension)120KN) H/W fitting with adjustable turn buckle for single moose ACSR conductor	NOS	24	24		

23.9	33 KV Double Tension (120KN) H/W fitting with adjustable turn buckle for twin moose ACSR conductor (Single Anchoring Point)	NOS	18	18		
23.10	33 KV Single Suspension (90KN) H/W fitting for single moose ACSR	NOS	30	30		
23.11	T-clamp for ACSR Moose run to IPS 4" aluminium pipe	NOS	32	32		
23.12	T-clamp for ACSR ZEBRA run to ACSR MOOSE drop	NOS	22	22		
23.13	T-clamp for ACSR PANTHER run to ACSR MOOSE drop	NOS	22	22		
23.14	T-Clamp for single Moose -Single Moose ACSR	NOS	220	220		
23.15	T-Clamp for twin Moose run -Single Moose drop ACSR	NOS	84	84		
23.16	220 KV PI clamp	NOS	46	46		
23.17	132KV PI clamp	NOS	18	18		
23.18	33KV PI Clamp	NOS	28	28		
23.19	Spacer for Moose ACSR	NOS	280	280		
23.20	220 KV Isolator pad clamp	NOS	216	216		
23.21	220 KV LA Clamp	NOS	18	18		
23.22	220 KV CB Clamp	NOS	42	42		
23.23	220 KV CVT Clamp	NOS	12	12		
23.24	220 KV CT Clamp	NOS	48	48		
23.25	220 KV IVT Clamp	NOS	12	12		
23.26	132 KV Isolator pad clamp	NOS	84	84		
23.27	132 KV LA Clamp	NOS	24	24		
23.28	132 KV CVT Clamp	NOS	12	12		
23.29	132 KV CT Clamp	NOS	30	30		
23.30	132 KV IVT Clamp	NOS	6	6		
23.31	132 KV CB Clamp	NOS	30	30		
23.32	33 KV Isolator pad clamp	NOS	119	119		
23.33	33 KV LA Clamp	NOS	33	33		
23.34	33 KV CT Clamp	NOS	60	60		
23.35	33 KV IVT Clamp	NOS	3	3		
23.36	33 KV CB Clamp	NOS	60	60		
23.37	PG Clamp for ACSR Moose	NOS	48	48		
<b>24</b>	<b>EARTH WIRES &amp; IT'S HARDWARES &amp; FITTING</b>					
24.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)	NOS	47	47		
24.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	17	17		
24.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	22	22		
<b>25</b>	<b>SUBSTATION EARTHING SYSTEMS</b>					
25.1	EARTHING CONDUCTOR FOR BURIAL : 75X10 mm GI Flat for laying (spacing maximum 5m both way)	MT	138	138		
25.2	EARTHING CONDUCTOR: 50X6 mm GI Flat for Raiser from the burial earth mat to equipment, structure etc)	MT	35	35		
25.3	EARTHING DEVICE & ASSOCIATED ACCESSORIES (50 mm heavy duty GI PERFORATED PIPE 3 mtrs long for treated earth pit)	Nos.	240	240		
25.4	EARTHING DEVICE & ASSOCIATED ACCESSORIES 40mm MS rod 3 mtrs long for non treated earth pit)	Nos.	190	190		
25.5	Supply of Pipe-in-Pipe type earthing electrode (0.5 Oms below)	Nos.	4	4		
<b>26</b>	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.					

26.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	2000	2000		
26.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	3500	3500		
26.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	3500	3500		
26.4	Support G. I angle 50x50x6 mm for cable tray	MT	6	6		
<b>27</b>	<b>SUB STATION SWITCHYARD BMK,AC CONSOLE &amp; OTHER MARSHALLING BOXES</b>					
27.1	BAY MARSHALLING KIOSK (03Nos. in 220 KV Bay,03 Nos. in 132 KV Bay & 01Nos. in 33 KV Bay )	NOS	7	7		
27.2	SWITCH YARD AC CONSOLE FOR LIGHTING (02 Nos. in 220 KV bay, 02No. in 132 KV Bay & 01 No. in 33KV Bay )	NOS	3	3		
27.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (01 No. near each 220/132 &132/33 KV Auto & Power Transformers)	NOS	2	2		
27.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 No. each in 220,132& 33 KV Bays )	NOS	3	3		
27.5	CT, PT/IVT & CVT Out door console boxes (220KV=6 nos., 132KV = 7 nos., 33KV = 7 nos.)PT/AVT=220 Kv -2nos+132 Kv-nos1+33 Kv-1nos,CVT=220 Kv-2nos+132 KV -2nos	NOS	28	28		
<b>28</b>	<b>SWITCH YARD STRUCTURES (LATTICE TYPE FOR COLUMN &amp; BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV, 132KV &amp; 33 KV CLASS INCLUDING FOUNDATION BOLTS &amp; NUTS.</b>					
28.1	<b>DIFFERENT TYPES OF COLUMNS WITH DETAILS</b>					
28.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.018 MT)- 30NOS)	MT	120.5	120.540		
28.1.2	P2S-220 KV (NOMINAL UNIT WT- 1.71 MT) (0NOS.)	MT	0.0	0.000		
28.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (28NOS.)	MT	33.6	33.600		
28.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(8NOS.)	MT	7.6	7.600		
28.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (10NOS.)	MT	8.3	8.300		
28.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (14NOS.)	MT	8.4	8.400		
<b>28.2</b>	<b>DIFFERENT TYPE OF BEAMS WITH DETAILS</b>					
28.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (24NOS.)	MT	36.0	36.000		
28.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (4NOS.)	MT	10.0	10.000		
28.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (0NOS.)	MT	0.0	0.000		
28.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (20NOS)	MT	12.4	12.400		
28.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) ( 4NOS.)	MT	2.5	2.480		
28.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (8NOS.)	MT	3.6	3.600		
28.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)	MT	0.0	0.000		
28.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (4NOS.)	MT	1.6	1.590		
28.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (12 NOS.)	MT	0.8	0.840		
28.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)	MT	1.0	1.040		
28.3	<b>TOTAL WEIGHT OF COLUMN &amp; BEAMS</b>	<b>MT</b>	<b>246.39</b>	246.390		
<b>28.4</b>	<b>EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV &amp; 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS &amp; NUTS</b>					
28.4.1	ISOLATORS-220KV (SI without E/S -24Nos.)	MT	30.504	30.504		
28.4.2	ISOLATORS-132KV ( SI with out E/S-11 Nos.)	MT	7.247	7.247		

28.4.3	ISOLATORS-132KV ( DI with E/S-2 Nos.)	MT	2.241	2.241		
28.4.4	ISOLATORS-132KV (DI with out E/S-4 No.)	MT	3.916	3.916		
28.4.5	ISOLATORS-33 KV ( SI w/o ES- 8Nos.)	MT	2.359	2.359		
28.4.6	ISOLATORS-33 KV ( DI with ES -6Nos.)	MT	4.024	4.024		
28.4.7	ISOLATORS-33 KV ( DI without ES-2 Nos.)	MT	1.312	1.312		
28.4.8	CTS-220 KV (18Nos.)	MT	4.050	4.050		
28.4.9	CTS-132 KV (21 Nos)	MT	5.250	5.250		
28.4.10	CTS-33 KV (21 Nos.)	MT	2.436	2.436		
28.4.11	CVTS-220 KV (6 Nos.)	MT	1.326	1.326		
28.4.12	CVTS-132 KV (6 Nos)	MT	1.344	1.344		
28.4.13	IVTS-220 KV (6 Nos.)	MT	1.723	1.723		
28.4.14	IVTS-132 KV (3 Nos.)	MT	0.426	0.426		
28.4.15	IVTS-33 KV (3 Nos.)	MT	0.355	0.355		
28.4.16	Surge Arrester-220 KV( 12 Nos.)	MT	3.505	3.505		
28.4.17	Surge Arrester-132 KV( 18 Nos.)	MT	4.932	4.932		
28.4.18	Surge Arrester beam mounted-33 Kv( 24Nos.)	MT	0.000	0.000		
28.4.19	BPI-220 KV (72Nos.)	MT	21.082	21.082		
28.4.20	BPI-132 KV (36Nos)	MT	7.128	7.128		
28.4.21	BPI-33 KV (16 Nos.)	MT	3.301	3.301		
<b>28.5</b>	<b>TOTAL WEIGHT OF EQUIPMENT STRUCTURES</b>	<b>MT</b>	<b>108.460</b>	<b>108.460</b>		
<b>28.6</b>	<b>Total weight of GI Nuts and Bolts for Columns, Beams &amp; Equipment Structures</b>	<b>MT</b>	<b>48.725</b>	<b>48.725</b>		
<b>29</b>	<b>GENERAL EQUIPMENT &amp; SUBSTATION ACCESSORIES</b>					
<b>29.1</b>	<b>POWER CABLES,1.1KV,XLPE &amp; PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)</b>					
29.1.0	XLPE 3.5 CX400 mm <sup>1</sup>	MTR	1000	1000		
29.1.1	XLPE 3.5 CX300 mm <sup>2</sup>	MTR	1000	1000		
29.1.2	XLPE 3.5 CX185 mm <sup>2</sup>	MTR	1000	1000		
29.1.3	XLPE 3.5 CX120 mm <sup>2</sup>	MTR	1100	1100		
29.1.4	PVC 3.5 CX70 mm <sup>2</sup>	MTR	1300	1300		
29.1.5	PVC 3.5 CX35 mm <sup>2</sup>	MTR	4000	4000		
29.1.6	PVC 4 CX 16 mm <sup>2</sup>	MTR	2200	2200		
29.1.7	PVC 4CX 6 mm <sup>2</sup>	MTR	6000	6000		
29.1.8	PVC 2CX 6 mm <sup>2</sup>	MTR	5500	5500		
<b>29.2</b>	<b>CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)</b>					
29.2.1	2 CX 2.5 mm <sup>2</sup>	MTR	10500	10500		
29.2.2	4 CX 2.5 mm <sup>2</sup>	MTR	16000	16000		
29.2.3	5 CX 2.5 mm <sup>2</sup>	MTR	7500	7500		
29.2.4	7CX 2.5 mm <sup>2</sup>	MTR	8600	8600		
29.2.5	10 CX 2.5 mm <sup>2</sup>	MTR	15000	15000		
29.2.6	12 CX 2.5 mm <sup>2</sup>	MTR	13500	13500		
29.2.7	16 CX 2.5 mm <sup>2</sup>	MTR	7500	7500		
29.2.8	19 CX 2.5 mm <sup>2</sup>	MTR	3000	3000		
29.2.9	1CX 120 mm <sup>2</sup> BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1200	1200		
<b>30</b>	<b>ACCESSORIES FOR PLCC SYSTEM With OPGW cable</b>					



30.1	24 Fibre Optic Approach cable along with HDPE Pipes	KM	0.00	0.0		
30.2	48 Fibre Optic Approach cable along with HDPE Pipes	KM	1.50	1.5		
30.3	Optical line Terminal Equipment(OLTE) -STM4 type SDH equipment with integrated MUX & tributary cards for speech & data ports for interfacing of Speech & data which should be	No	1	1		
30.4	Digital Teleprotection Equipment and accessories to be suitable for interfacing with SDH MUX	No	1	1		
30.5	Supply of FODP(Fibre Optic Distribution Panel)48 F: Indoor type,rack mounted with FCPC coupling and pig tails(DWSm Fibre)	No	1	1		
30.6	Remote Terminal Unit (RTU) with MFT/MFM module designed for Power Utility SCADA operation. RTU should report in IEC 870-5-104 protocols to both main & backup control centre. RTU should have ports for interfacing with relay control panels,MFT/MFMs and port for LDMS facility. Laptop should be part of the supply contract of RTU for monitoring, local data acquisition & configuration of RTU.	No	1	1		
30.7	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	1		
30.8	SMPS based Battery Charger of 75A suitable for 48V VRLA Battery set	No	1	1		
30.9	2.5 sq. mm multi strand 2 core control cable(power supply,Transducer/MFT PT supply)	Metre	500	500		
30.10	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT supply)	Metre	500	500		
30.11	1.5 sq. mm multi strand 10 core control cable(Digital Input)	Metre	300	300		
30.12	10 sq. mm 2 core multi strand control cable(Battery)	Metre	200	200		
30.13	DCDB	Set	1	1		
30.14	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.	Set	1	1		
<b>31</b>	<b>SUPPLY OF POWER TRANSFORMER,STATION TRANSFORMER &amp; OTHER MATERIALS AS PER TECHNICAL SPECIFICATION</b>					
31.1	<b>AUTO TRANSFORMER: 220/132KV,160 MVA (AS PER SPECIFICATION)</b>	NOS	2	2		
31.2	<b>POWER TRANSFORMER: 132/33KV,20 MVA (AS PER SPECIFICATION)</b>	NOS	2	2		
31.3	<b>STATION TRANSFORMER 33/0.4KV,250 KVA, Energy Efficiency level-2 (AS PER SPECIFICATION &amp; IS 1180 (pt-1):2014)</b>	NOS	2	2		
31.4	<b>HDG DP STRUCTURE:</b> each set shall comprise of [ 2X 9.0 Mtrs (ISBM:200X100 mm(min) RS Joist(beam) with bracings of suitable channels(ISMC 75X40) & angles (L50X50X6) & different size Steel plate of 10 mm thick etc].	SETS	2	2		
31.5	33 KV AB SWITCH IN 33 KV SIDE(600AMP) including required GI pipe(horizontal & vertically down) & handle for operation of AB switch	SETS	2	2		
31.6	HG fuse set for 33 KV side of the Station transformer including base(each set comprises three single HG fuse)	SETS	2	2		
31.7	OUT DOOR KIOSK MADE OUT OF 3mm thick CRCA steel duly galvanised having gland plates OR BETTER quality WITH 3 NOS. OF CUT-OUTS(1000 AMPS) AT THE INCOMING SIDE , 1No. OF 3 PHASE SFU (500AMPS) AT THE OUTGOING SIDE AND SUITABLE BUS BAR ARRANGEMENT FOR TERMINATION of incoming cable from transformer & outgoing cable to Main ACDB.	SETS	2	2		
<b>32</b>	<b>SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS)(Switch yard and other street area)</b>					

32.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj/ other approved make of OPTCL) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)	SET	125	125		
32.2	<b>STREET LIGHTING:</b> IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE					
32.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.	SET	100	100		
32.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.	SET	100	100		
32.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.	NO	1	1		
32.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SQMM FROM KIOSK TO EACH QUARTER.	NO	1	1		
33	2 TR Air Conditioning Units with Remote Control Facility :Including Supply of Air Conditioners Voltage Stabiliser, Control Boxes Etc. For completing the A.C Scheme (As per technical specification )for Control Room,Carrier Room, & Conference Rom. (Supply of cables are covered in Cable item asindicated above at 29.2)	SET	30	30		
34	<b>FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE - I)</b>					

34.1	FOAM TYPE-9 LTRS	NOS	6	6		
34.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	6		
34.3	DRY POWDER TYPE - 5 KGS	NOS	6	6		
34.4	CO <sub>2</sub> - 4.5 KGS	NOS	10	10		
34.5	CO <sub>2</sub> - 9 KGS	NOS	10	10		
34.6	CO <sub>2</sub> (TROLLY MOUNTED)- 22.5 KGS	NOS	4	4		
34.7	9 litre Water type	Nos.	4	4		
34.8	50 Litres Mechanical Foam type	Nos.	2	2		
34.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	8	8		
35	<b>SUBSTATION AUTOMATION SYSTEM FOR 220/132/33 KV SUBSTATION ON PRP MODE: Design , engineering , drawing, supervision, installation , testing &amp; commissioning of Substation Automation system alongwith Supply of the following 220, 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C &amp; E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C &amp; E/F relay,Transformer trouble relay etc. Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System &amp; Numerical bay control unit etc.</b>					
35.1	<b>Yard AC Kiosks for 220KV, 132KV &amp; 33KV Switchyards</b>					
35.1.1	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification; for 220KV Switchyard	Nos.	2	2		
35.1.2	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification; for 132KV Switchyard	Nos.	2	2		
35.1.3	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification; for 33KV Switchyard	Nos.	1	1		
35.2	Gate way panel for Sub-Station Automation (in PRP as per the specification & indicative drg ) system (for All 220, 132 & 33 KV side bays including the future bays),other accessories (comprising servers, engg. Station, works station, Color Laser jet Printer, Ethernet Switches , LIU,Multimode glass fibre Doublet jacket armoured optical cables, Red boxes, Inverters(3 KVA) etc as per TS, a large video screen of 60 inches for display including all type of accessories & special cables like F.O patch cord & armoured FO cables of adequate length etc required for the system in all respect as per latest IEC 61850 standard & as per technical specification.	Set	1	1		
35.3	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)	Set	1	1		
35.4	GPS System with PTP	Set	1	1		
35.5	<b>220 KV SIDE PROTECTION &amp; OTHER PANELS as per TS</b>					

35.5.1	FEEDER PROTECTION PANEL (MAIN-I , MAIN-II & BACK-UP PROTECTION WITH AUTO RECLOSURE DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.	Nos.	2	2		
35.5.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL I &II , separate numerical REF protection & BACK-UP ,PROTECTION CONSIDERING HV side for 160 MVA 220/132 KV Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2		
35.5.3	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.	Nos.	1	1		
35.5.4	BUS-BAR PROTECTION PANEL ( with Automation)	Nos.	1	1		
35.6	<b>132 KV SIDE PROTECTION PANELS as per TS</b>					
35.6.1	FEEDER PROTECTION PANEL (MAIN-I & BACK-UP PROTECTION DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.	Nos.	2	2		
35.6.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL,REF & BACK-UP ,PROTECTION CONSIDERING HV side for 20 MVA 132/33 KV Power Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2		
35.6.3	TRANSFORMER PROTECTION PANEL (BACK-UP ,PROTECTION CONSIDERING LV side for 160 MVA 220/132 KV Auto Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2		
35.6.4	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.	Nos.	1	1		
35.7	<b>33 KV SIDE PROTECTION &amp; OTHER PANELS</b>					
35.7.1	FEEDER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system for two nos. of 33KV feeders [ 2nos. Feeder bays in one panel].	SET	2	2		
35.7.2	TRANSFORMER PROTECTION PANEL (REF & BACK-UP ,PROTECTION CONSIDERING LV side for 2x20 MVA 132/33 KV Power Transformer) with Bay control & pprotection unit (BCPU) for substation automation system. [ 2nos. Transformer bays in one panel].	SET	1	1		
35.7.3	BUS COUPLER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system.	NOS	1	1		
36	<b>AC &amp; DC SYSTEM</b>					
36.1	<b>AC SYSTEM</b>					
36.1.1	MAIN ACDB,(HAVING 800 A,50KA,DRAWOUT TYPE ACB WITH 3 O/C,E/F,U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION.(MAIN DB-1,MAIN DB-2 WITH B/C)	SET	1	1		
36.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1, ACDB-2 WITH B/C)	SET	1	1		
36.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)	SET	1	1		

36.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	1		
36.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	1		
36.1.6	INDOOR RECEPTACLE BOARD	SET	1	1		
<b>36.2</b>	<b>DC SYSTEM</b>					
36.2.1	220 V DC BOARD (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)	SET	1	1		
36.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	1		
37	BATTERY (350 AH PLANTE TYPE) FOR 220 V DC	SET	2	2		
38	BATTERY CHARGER FOR 220 V, 350 AH PLANTE TYPE BATTERY (FLOAT AND FLOAT CUM BOOST)	SET	1	1		
39	DISTILLED WATER PLANT OF 10 LTR/HR FOR BATTERY BANKS	SET	1	1		
40	WALKIE TALKIE SET	SET /PAIR	2	2		
41	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	2		
42	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	SET	1	1		
43	POWER WINCH NEAR STORE SHED FOR HANDLING MATERIALS UPTO 5 TON CAPACITY.	SET	1	1		
44	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	2	2		
45	MAINTENANCE TESTING EQUIPMENT (AS PER <b>ANNEXURE - I</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	LOT	1	1		
46	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER <b>ANNEXURE - II</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	LOT	1	1		
47	OFFICE FURNITURE (AS PER <b>ANNEXURE - III</b> ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM,OFFICE ROOMS,LIBRARY,TESTING LAB,etc.	LOT	1	1		
48	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NO	50	50		
<b>TOTAL OF SUBSTATION-SCHEDULE-2 -Plant (To Schedule 6 Grand Summary)</b>						

Name of Bidder: \_\_\_\_\_  
Signature of Bidder: \_\_\_\_\_

<sup>1</sup> Prices of Items quoted in Schedule No.1 shall not be quoted again in Schedule No. 2 and shall have a remark against the said row "Quoted in Schedule No.-1".

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**NAME OF THE WORK:-**Design, Supply and Installation of 2X160 MVA,and 2x20 MVA,220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line fromExisting 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.

**Loan Agreement No: [ID-P245] -**

**FB No: [CPC/JICA/ICB/05/17-18/-**

**Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 4. Installation and Other Services (Sub-station )**

**NAME OF THE BIDDER**

SL. NO.	ERECTION,TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNIT	Quantity for: Construction of 2x160MVA & 2x20 MVA, 220/132/33KV Grid S/S at Gunpur:220 KV Bay-5 Nos.(FDR-2,TFR-2& B/C-1),132KV Bay-7 Nos.(FDR-4,TFR-2 & B/C-1) & 33 KV Bay-7 Nos.(FDR-4,TFR-2& B/C-1)	TOTAL QUANTITY	Unit Price <sup>1</sup>		Total Price <sup>1</sup>	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				<b>1</b>	<b>2</b>	<b>3</b>	<b>(1x2)</b>	<b>(1x3)</b>
<b>PART A</b>	<b>CIVIL WORKS</b>							
<b>1</b>	<b>CONTOUR SURVEY,AND LEVELING, BACK FILLING</b>							
1.1	Contour survey and furnishing contour map including supply of all	SQ.MTRS.	80936	80936				
1.2	Soil investigation : Supply of labour,T&P and other necessary arrangements for Soil investigation/testing of the Switchyard,control Room, Quarters area etc.as per the site requirement,Technical specification & instruction of Engineer-in-Charge.	PER POINT	8	8				
<b>2</b>	<b>Cutting, Filling and Levelling of Sub-station area including supply of labour and T&amp;P</b>							

2.1	<b>LEVELLING OF S/S AREA:</b> Providing, neatly dressing up and levelling of substation area including switchyard area to a required level as decided by the Engineer in Charge, the work includes removal, clearing of the entire area from vegetation, trees, bushes, uprooting of plants and disposal of surplus earth and unusable material from the site by means of any mechanical transport, if required as per direction of the Project In charge, with all labours, tools, tackles and plants complete as per approved drawing and specification. This also includes excavation in all type of soils or rocks, back filling and disposal of excess earth or rocks to make the area to a level for construction as per scope and as per approved drawing and specification.							
2.1.1	<b>CUTTING</b> of substation area							
2.1.1.1	[i]Soft/loose soil	CUM	30166	30166				
2.2	<b>FILLING</b> of substation area with borrowed earth with supply of all labour,T & P.							
2.2.1	(i) Beyond 30 mtr & up to 100mtr lead	CUM	32007	32007				
2.2.2	(ii) Beyond 100mtr lead	CUM	38202	38202				
3	<b>Anti-Weed Treatment</b>							
3.1	Supply of labour,T&P,Chemicals and other necessary arrangements for anti-weed treatment of the switch-yard areas,controlroom etc. as per the instruction of Engineer-in-Charge.	Sq.Mtrs	20000	20000				
4	<b>Boundary wall</b> : Soil investigation,Design, engineering, procurement of material, labour including all associated works for construction of boundary-wall along the property line of the sub-station as per technical specification and instruction of the Engineer in Charge.(the size of the Fly ash Bricks shall be 250mm using fly ash Fly ash Brick & having compressive strength with 75kg/cm2). This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.(**APPROXIMATE LENGHTH OF THE BOUNDARY WALL) and approved drawing.							
4.1	Approx. length of the boundary walls(Brick works rested on RCC Beam and RCC Column & footings as per TS ) in mtrs	Mtrs.	1250	1250				
4.1.1	RCC Retaining cum boundary wall (3.5 mtr height&600 Mtr length) : Design, engineering, &supply of Cement,MS Rod (cutting bending binding with binding wire ,coarse ,fine aggregates )all labour for P.C.C (1:3:6) &R.C.C (1:1.5:3) including excavation , concreting ,shuttering ,grouting ,underpinning and back filling ,grade beam concreting etc. for boundary wall asper technical specification for all type of soil or rocks and disposal of excess earth as per direction of engineering in charge							
4.1.2	<b>Excavation</b>							



4.1.3	Soft/Loose soil	CUM	940	940				
4.1.4	Dense/Compact soil	CUM	1992	1992				
4.1.5	Soft/Disintegrated rock (not required blasting)	CUM	827	827				
4.1.6	R.C.C (1:1.5:3) with cost of cement, supply of shuttering &without steel	CUM	1748	1748				
4.1.7	P.C.C (1:3:6) with cost of cement, supply of shuttering	CUM	311	311				
4.1.8	Reinforcement : Cutting, bending, binding, placing of steel rod in foundation including supply of all types rod & binding wire (TATA/RINL/Sail make)	MT	99.1	99.1				
4.1.9	Sand filling of thickness of 200mm.	CUM	414	414				
4.2	RCC Retaining cum boundary wall (1.5 mtr height & 260 Mtr length) : Design, engineering, &supply of Cement,MS Rod (cutting bending binding with binding wire ,coarse ,fine aggregates )all labour for P.C.C (1:3:6) &R.C.C (1:1.5:3) including excavation , concreting ,shuttering ,grouting ,underpinning and back filling ,grade beam concreting etc. for boundary wall asper technical specification for all type of soil or rocks and disposal of excess earth as per direction of engineering in charge							
4.2.1	<b>Excavation</b>							
4.2.2	Soft/Loose soil	CUM	596	596				
4.2.3	Dense/Compact soil	CUM	672	672				
4.2.4	R.C.C (1:1.5:3) with cost of cement, supply of shuttering &without steel	CUM	340	340				
4.2.5	P.C.C (1:3:6) with cost of cement, supply of shuttering	CUM	95.7	95.7				
4.2.6	Reinforcement : Cutting, bending, binding, placing of steel rod in foundation including supply of all types rod & binding wire (TATA/RINL/Sail make)	MT	24.3	24.3				
4.2.7	Sand filling of thickness of 200mm.	CUM	127	127				
4.3	R.R Masonry Retaining cum boundary wall (2 mtr height & 435 Mtr length) : Design, engineering, &supply of Cement, ,coarse ,fine aggregates )all labour for P.C.C (1:3:6) &P.C.C (1:2:4) including excavation , concreting ,shuttering ,grouting ,underpinning and back filling , etc. for boundary wall asper technical specification for all type of soil or rocks and disposal of excess earth as per direction of engineering in charge							
4.3.1	<b>Excavation</b>							
4.3.2	Soft/Loose soil	CUM	311	311				
4.3.3	Dense/Compact soil	CUM	466	466				
4.3.4	R.C.C (1:1.5:3) with cost of cement, supply of shuttering &without steel	CUM	13	13				
4.3.5	P.C.C (1:3:6) with cost of cement, supply of shuttering	CUM	33	33				
4.3.6	Sand filling of thickness of 200mm.	CUM	1347	1347				

5	Foundations : Design, engineering, supply of all labour, material (Cement-OPC-43 Grade, MS Rod, coarse and fine aggregates(Sand and Metal Chips) etc.) for construction of RCC ( 1:1.5:3) & PCC (1:3:6), RCC footings of any depth, pedestal and piling as per requirement including soil investigation, excavation, concreting, shuttering, grouting, underpinning and back filling of foundations etc. complete for the following switch yard gantry/ portal structures and equipment support & others as per the technical specification and approved drawings.(RCC RATIO 1:1.5:3). This also includes excavation in all types of soil or rocks, back filling and disposal of excess earth as per the direction of Engineer In charge.							
5.1	EXCAVATION (Open Cast):.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.							
5.1.1	Soft Soil/Loose Soil.	CUM	5261	5261				
5.1.2	Hard Soil.	CUM	2630	2630				
5.1.3	Soft/Disintegrated Rock( not Requiring Blasting)	CUM	2023	2023				
5.1.4	Hard Rock (Requiring Blasting/Using Rock Breaker Machinery)	CUM	202	202				
5.2	<b>OPEN CAST/SHALLOW FOUNDATION CONCRETE WORKS</b>							
5.2.1	Foundations : Design, engineering, supply of all labour, material and construction(open cast foundation) of PCC, RCC footings of any depth, pedestal including the cost of soil investigation, concreting, cement, reinforcement steel, shuttering, grouting, underpinning and back filling of foundations etc. complete for the switchyard gantry/ portal /column structures and equipment support as per the technical specification and approved drawings & disposal of excess earth as per the direction of Engineer In charge.							
5.2.1.1	PCC(1:3:6)	CUM	617	617				
5.2.1.2	PCC(1:4:8)	CUM	3081	3081				
5.2.1.3	(RCC) MIX 1:1.5:3 (of grade M20)	CUM	142	142				
6	<b>FOUNDATIONS FOR TRANSFORMERS</b>							

6.1	Design, engineering, supply of labour, material, equipment and construction of Auto-transformer/Power Transformer foundation including piling if any, all associated works, rail tracks, jacking pads, anchor block RCC and PCC, miscellaneous structural steel including oil collection pits, MS grating(if required), gravel filling, and other items etc. not mentioned herein, but specifically required for the completion of the work as per technical specification and approved drawing and this foundation should be connected with Main concrete road of the switch-yard . (Rate shall be inclusive of cement, reinforcement steel, angles,RS joists,Channels ,Rails ,flats and form work etc.)(all cement concrete shall have RCC ratio 1:1.5:3).This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge.							
6.1.1	<b>160MVA</b> 220/132 kV Auto transformer a) Overall dimension of transformer(approx.) Length:8000 mm Width 6500 mm Height 6200 mm b) Total weight with oil and tank: 160 MT (approx.)	Nos	2	2				
6.1.2	<b>20MVA</b> ,132/ 33KV Power transformer: Overall dimension of transformer(approx.) Length:7200 mm Width 6000 mmX Height 6200 mm) Total weight with oil and tank: 97.5 MT (approx..) as per Technical Specification.	Nos	2	2				
7	<b>OIL SUMP PIT</b> :Oil collection (from transformers)sump pit with provision of pump(5 HP, with auto level control , including cabling, fixing of control gear )as per CIGRE. As per spec and approved drawing. >Oil capacity of each Transformer in ltrs approx.. a) 160 MVA,220/132 KV: 80000 ltrs.	Nos	1	1				
8	<b>OIL SUMP PIT</b> :Oil collection (from transformers)sump pit with provision of pump(5 HP, with auto level control , including cabling, fixing of control gear )as per CIGRE. As per spec and approved drawing. Oil capacity of each Transformer in ltrs approx.. a) 20 MVA,132/33 KV: 30000 ltrs.	Nos	1	1				

9	<b>Fire wall:</b> Design, engineering, procurement of labour, material including all associated works for construction of fire-walls as per technical specification and approved drawings(column shall be RCC ratio1:1.5:3 and the walls are of fire resistant bricks).This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. As per approved drawing and specification. Painting of the walls as per direction of the Site In charge							
9.1	<b>160MVA 220/132 kV Auto transformer</b>	Nos	1	1				
9.2	<b>20 MVA,132/ 33KV Power transformer</b>	Nos	1	1				
11	<b>STATION TRANSFORMER:</b> Design, engineering, procurement of labour,material including all associated works for construction of foundation and DP structure for station transformers 33/0.415 KV,250 KVA STN TRANSFORMER as per approved drawing and specification.33 KV AB Switch(600A),HG Fuse, DP Structure & Angles (duly painted),Channels, Plinth for erection of the transformer, including fixing and laying of (insulators, surge arresters,XLPE armoured power cables3.5 core 300 sq mm,LT out door kiosk near transformers and other accessories for complete installation of transformer as per standard) and instruction of Engineer In charge. As per the specification and approved drawing.	Nos	2	2				

12	<p>Cable Trenches: Design, engineering, and construction of RCC cable trenches and all associated works for cable trench and cable trench crossings as per technical specifications and approved drawings and as per direction of the Engineer in Charge including supply of all labour, T&amp;P, materials.</p> <p>(1) This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth as per the direction of Engineer in charge.</p> <p>(2) Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm), fine aggregates, cement in column and equipment foundation as blind layer inclusive of labour charges for concrete mixing &amp; curing. This includes supply of all labourers, T&amp;P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.</p> <p>(3) Open cast foundation for the cable trench with RCC: 1:1.5:3 (Grade M-20 Nominal mixing), including supply of Labour all materials like MS Rod (FE 500), Cement, coarse and fine aggregates, shuttering, cutting, bending, binding of M.S. Rod including supply of binding wire proper curing of the foundations/concrete and T&amp;P in line with the Specification and as per direction of Engineer in Charge.</p> <p>(4) Fly ash brickwork with Fly ash brick, plastering (1:6 Ratio) &amp; curing, wherever required including the supply of labour, material, cement, etc.</p> <p>(5) Supply, fabrication &amp; Fixing of MS Angle (G.I) for cable tray support (as per specification). The cable tray support frame shall be pre fabricated GI angle as per requirement and to be welded with the plate fixed on the trench wall for better rigidity. The plate (6mm) fixed on the wall are also to be welded with the MS rods provided for the trench wall.</p>						
12.1	Cable trench with covers						
12.1.1	Section 1-1	Mtrs	695	695			
12.1.2	Section 2- 2	Mtrs	625	625			
12.1.3	Section 3-3	Mtrs	280	280			
12.1.4	Section 4-4	Mtrs	370	370			
12.2	<p><b>Cable trench crossing: Design, engineering, construction including supply of labour, materials, cement, reinforcement steel, form box etc, and all associated works for construction of trench crossing as per technical specification and approved drawing.</b></p>						
12.2.1	Road crossing for						
12.2.2	Section 1-1	LOT	1	1			
12.2.3	Section 2- 2	LOT	1	1			
12.2.4	Section 3-3	LOT	1	1			

13	<b>PCC before site surfacing</b> :Providing and supplying all labour, material, equipment etc. required for proper levelling of earth after erection of structures and equipment and proper compaction by using roller of adequate capacity(minimum 3 Ton capacity) with water sprinkling of switch yard area .After proper levelling of the switch yard area (after anti-weed treatment), spreading of plain cement concert with mixing ratio 1:3:6 (M10) and maintaining proper sloping for easy discharge of storm water having concrete thickness of 75 mm. including rolling , dressing, compacting,the area . As per technical specification and approved drawing, and as per the instruction of the Engg-in-Charge.This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge and approved drawing.	CUM	1174	1174				
<b>14</b>	<b>METAL SPREADING IN THE SWITCH-YARD</b>							
14.1	Providing supplying and laying two layers of machine crushed metals (gravel) fill, the first layer after compaction shall make minimum 50 mm thickness coarse/ layer of 20 mm nominal size consolidated/ compacted and (by using roller as specified in the specification).A final layer of 50 mm thickness of machine crushed 20 mm nominal size of metals(gravel) above the first layer of 50 mm thickness and as per the technical specification and instruction of Engineer in charge above the PCC(1:4:8).The total compacted thickness of the metals(20 mm Nominal) 100mm above the PCC.	CUM	1494	1494				
<b>15</b>	<b>Roads:</b> Design, construction of roads and walkways/ shoulders within sub-station as per specification, layout and approved drawings complete. This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. Provision of drains on both the side of the roads for easy discharge of rain water.							
15.1	3.75 mtrs Concrete road with shoulder at both the side & shall have drain on both side of the road as per technical specification indicated in the civil section( Periphery roads outside switch yard fencing and colony roads)	MTRS	850	850				
15.2	7 mtrs concrete road with shoulder at both the side as per technical specification indicated in the civil section(from the switch yard main gate to all internal roads of the switch yard).Shall have drain on both side of the road.	MTRS	1200	1200				

16	<b>Drainage system:Collection of rainfall data</b> , Design, construction of storm water drainage scheme, road-culverts, and drains crossing cable trenches etc. as per specification and approved drawing. This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. All the switchyard bays , roads water drainage shall be connected to the main surface drain. As per approved drawing and specification.							
16.1	Storm water drain (Peripheral drain outside the boundary walls well as inside the s/s area .All drain shall be given a minimum slope of 1:1000							
16.1.1	Section 1-1 (1500x1000mm)(WxD) outer peripheral drain	MTRS	1360	1360				
16.1.2	Section 2-2 (1000x600mm)(WxD) inner peripheral &switchyard inside drain	MTRS	650	650				
16.1.3	Section 1-1 (500x300mm)(WxD) outer peripheral drain	MTRS	900	900				
16.2	Road-culverts, drain crossings	LOT	1	1				
16.3	Cable trench crossing	LOT	1	1				
17	<b>Rain water harvesting</b> system as per Technical specification and approval of drawing and as per the direction of the Engineer in charge.	LOT	1	1				
18	<b>Switchyard fencing:</b> Providing and fixing of G.I chain link(2.5mm dia) fencing( the posts and links shall be of HD Galvanised ) in switch yard and other areas of the substation with a total fence height complete as per specification and approved drawings, and as required under the safety regulation of local, state and central government bodies and as per instruction of the Engineer-in-Charge.(The PCC work for grouting the post shall be 1:2:4 and a continuous RR masonry work with ratio 1:5 and cement pointing of the joints, for the fencing up to a height of 350mm from the finished ground level) .This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. The earthing of the fencing as per specification.	MTRS	850	850				
19	<b>MAIN &amp; SWITCH YARD GATES:</b> Design, engineering, procurement of labour, material including all associated works for construction and fixing of of a main gate and one no. switch yard gates with men gates as per specification and approved drawing. This also includes excavation in all types of soil or rocks,backfilling,and disposal of excess earth as per the direction of Engineer In charge. Provision of gate lights (Post top lantern type) on each pillar of the gate. it includes supply & fixing of light fixtures including CFL lamp, LV XLPE cables, switchgear etc. required to complete works as per specification and approved drawings							

19.1	<b>MAIN GATE</b>	NOS	1	1				
19.2	<b>WICKET GATE NEAR MAIN GATE</b>	NOS	1	1				
19.3	<b>SWITCH YARD GATE(ON BOTH SIDES OF 7MTRS. CONCRETE ROAD OF SWITCHYARD)</b>	NOS	2	2				
19.4	<b>WICKET GATE NEAR SWITCHYARD</b>	NOS	3	3				
20	<b>SECURITY SHED &amp; CUM VISITOR ROOM AND VEHICLE PARKING SHED:</b> Design, engineering, procurement of labour, material including all associated works for construction of Security shed near main gate, watch tower shed at the corners of switch yard as per the approved drawing and instruction of Engineer in charge. This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth as per the direction of Engineer In charge. Internal electrification including supply of lighting fixtures, fan with regulators and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply))							
20.1	SECURITY SHED: The size of the security shed shall be 3.5 mtrsX5mtrs and height of 3.5mtrs RCC roof, Fly ash Brick masonry works, plastering and painting and fixing of MS doors and windows. Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire, conduits & its accessories, modular type switches & switch board, Junction boxes with required MCB & Earth leakage detector switchgear etc.),fixing of lighting fixtures with lamps(LED Type) & switchgear ,ceiling fans of 1400 sweep and regulators( including supply) and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply))	Nos	1	1				



21	<p><b>BORE WELL &amp; PUMP HOUSE:</b> Design, engineering, procurement of labour, material including all associated works for construction of two nos. borewells for control room building including switch yard and colony quarters as per specification and approved drawing and instruction of Engineer in charge. This includes supply and fixing and commissioning of two nos 5 HP submersible water pump with starter and other protection. Construction of two nos pump house at ideal location for fixing of the electrical starter units. The pump house be of RCC roof and having walls of Brick masonry and plastering and painting with MS door having locking arrangement. The size of the room shall be 2.5mtrsX2.5 mtrs having height of 3 mtrs. as per approved drawing and specification. There shall be approach road to the pump house. This includes supply of materials, labours and T&amp;P &amp; excavation of all type of soils including rock and disposal of excess materials as per instruction of Engineer In charge.</p> <p>Supply &amp; laying of LV XLPE 3.5CX.35 sqmm cable from ACDB to pump house, control gear &amp; earthing of the system etc. to complete the scheme as per approved drawing &amp; instruction of Engineer-in charge.</p>	NOS	2	2				
22	<p><b>PLATFORM FOR STORING EQUIMENTS:</b> Design, engineering, procurement of labour, material including all associated works for construction of a platform for storing of bushings, Instrument transformers etc., as per specification and approved drawing. This also includes excavation in all types of soil or rocks, backfilling, and disposal of excess earth as per the specification, approved drawing and direction of Engineer In charge. One no platform outside the store shed RR masonry (compacted) with PCC at the top for storing the transformer bushings, Instrument transformers, transformer oil drums etc. The floor size of the platform shall be 15mtrX10 mtr with Galvanised Corrugated Sheet (Tata Make) top cover and associated MS supporting structure duly painted.</p>	NOS	1	1				
23	<p><b>PROVISION OF RAMP:</b> Design, engineering, procurement of labour, material including all associated works for construction and fixing of Ramp as per specification and approved drawing. This also includes excavation in all types of soil or rocks, backfilling, and disposal of excess earth as per the direction of Engineer In charge. Provision of a ramp of adequate size and capable of for loading and unloading of the materials of 5 Ton capacity from the lorry or to the lorry near the store shed. Adequate size of MS frames and RCC (1:1.5:3) based ramps to be used for the said purpose.</p>	NOS	1	1				

24	<b>PROVISION OF PLANTATIONS:</b> Provision of plantation of 100 nos fruit bearing plants and 100 nos decorative plants at different locations, a garden in front of the control room including supply of plants,soil treatment and its plantation including materials,labour and T&P. As per the instruction of Engineer in Charge and specification.	LOT	1	1				
25	<b>Any other civil work</b> to be included in the schedule by the Bidder if required essential for successful completion of project, including supply of labour, material, cement reinforcement steel, form work etc. Bidder shall also quote the unit rate for the following items of works.(Rate shall be inclusive of supply of labour, material, cement, reinforcement steel, form work etc. )							
25.1	PCC 1: 4 : 8	PER CUM	1	1				
25.2	RCC M 15 excluding cost of steel	PER CUM	1	1				
25.3	Brick masonry work in cement sand mortar 1: 6 with bricks of class designation 150KG/SQ.MTR.	PER CUM	1	1				
25.4	Cement plastering with cement sand mortar of 1: 6 ratio.	PER SQ. MTR.	1	1				
25.5	Cutting,bending and fixing of reinforcement Including cost of steel	PER MT	1	1				
26	<b>STONE PITCHING &amp; TOE WALL:</b> Stone pitching including making of toe walls both at top and bottom, including surface drain both at top and bottom and partition wall in every 10 mtrs by using boulders and RR masonry walls respectively. This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth and supply of materials and labour & T&P as per the direction of Engineer In charge and as per approved drawing and specification.							
26.1	Excavation in Soft & Loose Soil	Cum	450	450				
26.2	P.C.C (1:3:6): Lean Concrete Grade M-10	Cum	110	110				
26.3	RR Masonry (1:5)	Cum	700	700				
26.4	P.C.C (1:2:4): Lean Concrete Grade M-15	Cum	25	25				
26.5	Provision for stone pitching (Rubble Stone Pitching)with supply of stone,labour,tools &plant	Cum	500	500				

27	<p><b>STORE SHED:Design, engineering, procurement of labour, material including all</b> associated works for construction of store shed as per specification and approved drawing. This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth as per the specification, approved drawing and direction of Engineer In charge. One no store shed of floor size 10X10 mtr having Fly ash Brick walls and plastering with RCC roof. The flooring shall be of 75 mm thickness PCC (mix ratio1:2:4) over RR masonry works (as per standard practice of flooring). Provision of adequate nos of MS racks (proper paintings also to be done as per the direction of site in charge) for keeping the spare materials. The height of the shed shall be 4mtrs above the plinth. Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire, conduits &amp; its accessories, modular type switches &amp; switch board, Junction boxes with required MCB &amp; Earth leakage detector switchgear etc.),fixing of lighting fixtures &amp; switchgear ,ceiling fans of 1400 sweep and regulators( including supply) and provision of incoming AC supply from the main ACDB/outdoor kiosks installed for street light or colony quarters. Also includes painting of the building (in side and out side) as per recommended for colony building in the specification. (* REMARKS : FOR SUPPLY OF ALL THE CABLES AS INDICATED ARE COVERED IN THE supply)}</p>	Lot	1	1				
28	<p><b>CONTROL ROOM BUILDING:</b> Design, engineering and construction of switch yard buildings including the piling where required, the cost of material, supply of all labour, T&amp;P, cement, reinforcement- steel, form work and excavation as per the approved drawing and technical specification ( The RCC structure frame should be in the ratio 1:1.5:3).This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth as per the direction of Engineer In charge. As per approved drawings and specification. <b>CONTROL ROOM BUILDING:(one building):</b> A) Area of the Ground floor with portico at front side, stair case to first floor and top of the building. The details of rooms to be provided are as per the Tech spec. B) Area of the first floor. The details of rooms to be provided are as per the Tech spec. Size of Ground floor. Nos./ area of ground floor/area of first floor . 01 No/ Area of <b>Ground Floor : 42 mtrsX13 mtrs (546 sq mtrs) &amp; Area of first floor 21 mtrsX13mtrs (273 sq mtrs)</b>, Only Fly ash brick is to used for brick work. One no. room shall be used for ladies rest room &amp; should have attached toilet facility meant for ladies staff is to be included in ground floor of the Control room building.</p>							
28.1	<p>RCC volume including MS rods(including column ,Beams and roofs etc.) as per technical spec &amp; approved drawings.</p>	Lot	1	1				

28.2	Fly ash brick masonry work in cement sand mortar 1: 6 with Fly ash bricks of class designation 75 as per technical spec & approved drawings.	Lot	1	1				
28.3	Flooring with <b>double charged</b> vitrified tiles with dado in all the rooms, Bath and toilets shall be provided with anti skid ceramic tiles(wall of the same also to be provided with ceramic tiles),Acid proof industrial tiles to be provided on the floor and wall of the battery room as per technical spec & approved drawings.	Lot	1	1				
28.4	External and internal wall (External (18mm the ) and internal (12 mm the) wall and ceiling plastering as per technical spec mentioned in the civil section) and Building internal & external & ceiling paintings as per technical spec mentioned in the civil section. The left over portion of walls and ceiling of Battery room shall be acid proof paints as per specification & approved drawings.	Lot	1	1				
28.5	Provision of ceiling in the control room area as per specification mentioned in the civil section & approved drawings.	Lot	1	1				
28.6	Doors and windows shall be of sliding type with locking facility and shall be of aluminium with glaze of 6mm & windows shall have aluminium grills. As per technical spec & approved drawing.	Lot	1	1				
28.7	Provision of PHD and other fittings(in Toilets, wash room, overhead water tank of adequate capacity etc.) of reputed make, provision of rain water discharge pipes at different locations and etc. as per requirement and approved drawing. There shall be septic tank and soak pit of required capacity including complete sewage system as per approved drawing & technical specification & as per instruction of Engg- in-Charge. It includes supply of all types of materials of reputed make, labour etc. to complete the work. Toilets for Gents & Ladies to be provided including all good quality reputed fittings as per technical specification. The toilets & wash room shall have antiskid floor tiles & wall tiles of ceramic up to height of 8 feet.	Lot	1	1				
28.8	Internal concealed wiring (including supply of flexible copper FRP 1.1 KV PVC wire, conduits & its accessories, modular type switches & switch board, Junction boxes with required MCB & Earth leakage detector switchgear etc.),supply & fixing of lighting fixtures & switchgear ,ceiling fans of 1400 sweep and regulators( including supply) ,exhaust fan (including supply), Erection of all Lighting FIXTURES & LAMPS (LED), D.C emergency lighting (including supply), as per technical specification and approved drawing and direction of Engineer In charge.	Lot	1	1				
28.9	Supply, fitting and fixing of stainless steel of 304 grade in hand railing using 50mm dia of 2mm thick circular pipe with balustrade of size 32mmx32mmx32mm @0.90mtr C/C and stainless square pipe bracing of size 32mmx32mmx32mm in three rows in staircase as per approved design and specification, buffing, polishing etc. with cost, conveyance,	Lot	1	1				

28.10	Provision of smoke and fire detection system of the building.	Lot	1	1				
29	Construction of township/colony (residential quarters) for staff and employees of the employer. Layout, design, survey, levelling, site dressing and clearing of the area, soil investigation, excavation, PCC, RCC, Fly ash Brick work, plastering ,flooring(flooring shall be with vitrified tiles of reputed make with a dado of minimum6 inches),fixing of doors windows and window grills, including all labour, T&P, material like cement ,sand aggregate, Fly ash Bricks, reinforcements etc. with all bought items required for completion of the quarters as per approved construction drawings with all facilities for supply of drinking water. The outer paint shall be applied with weather coat synthetic enamel paint as per the standard practice of application and the inner paint shall be applied with distemper of approved quality as per the instruction and approval of the same by OPTCL. This also includes excavation in all types of soil or rocks, back filling, and disposal of excess earth as per the direction of Engineer In charge. Internal electrical wiring with fixing of light fixtures and fans with electronic regulators and exhaust fans as per technical specification and approved drawing. Construction of over head RCC tank(1000 ltrs capacity one for each quarters), sewerage disposal and connection with main sewerage/ septic tank and soak pit, storm water and surface drainage, culverts, roads, with suitable radius on the curves and its connection with main road the substation, street lighting, internal lighting, internal plumbing and sanitation including internal/external finishing of quarters etc. required for completion of the town ship. (RCC column structure frame and the Fly ash Bricks to be used shall be fly ash Fly ash Brick, all the door and window frame & panels shall be aluminium with adequate size as indicated in the TS and also as per the National Building Code adopted.							
29.1	"D" type Quarter As per technical specification (one no. two storied flat. Each flat shall be with 1 no quarters on ground floor & 1 No quarters on 1st floor).							
29.1.1	"D" type Quarter As per technical specification: 1 no quarter on ground floor & the size of quarter plinth area shall be 120 Sq Mtrs(approx.)	SQ Mtr	120	120				
29.1.2	"D" type Quarter As per technical specification: 1 no quarter on first floor & the size of quarter plinth area shall be 120 Sq Mtrs(approx.)	SQ Mtr	120	120				
29.2	"E" type Quarter As per technical specification (one nos. two storied flat. Each flat shall be with 2 nos quarters on ground floor & 2 Nos quarters on 1st floor).(There shall be 4 Nos quarters to be accommodated in one flat as F1.F2.F3 & F4)							

29.2.1	"E" type Quarter As per technical specification:2 nos quarters on ground floor. The quarters to be accommodated in ground floor E1 & E2 in each FLAT (Each quarter size plinth area shall be 73 Sq Mtrs(approx.)	SQ Mtr	146	146				
29.2.2	"E" type Quarter As per technical specification: 2nos quarters on first floor. The quarters to be accommodated in First floor E3 & E4 in each FLAT (Each quarter size shall be 73 Sq Mtrs(approx.)	SQ Mtr	146	146				
<b>TOTAL OF CIVIL WORKS (PART-A)</b>								
<b>PART B</b>	<b>ELECTRICAL WORKS</b>							
<b>1</b>	<b>ERECTION OF SWITCH YARD STRUCTURES (LATTICE TYPE FOR TOWER COLUMN &amp; BEAMS AND PIPE TYPE FOR ALL EQUIPMENT) FOR 220KV,132KV &amp; 33 KV CLASS INCLUDING FOUNDATION BOLTS &amp; NUTS.</b>							
<b>1.1</b>	<b>DIFFERENT TYPES OF COLUMNS WITH DETAILS</b>							
1.1.1	P1S-220 KV (NOMINAL UNIT WT- 4.018 MT)- 30NOS)	MT	120.5	120.540				
1.1.2	P2S-220 KV (NOMINAL UNIT WT- 1.71 MT) (0NOS.)	MT	0.0	0.000				
1.1.3	T1S 132KV (NOMINAL UNIT WT-1.2MT (28NOS.)	MT	33.6	33.600				
1.1.4	T4S 132KV (NOMINAL UNIT WT-0.95MT(8NOS.)	MT	7.6	7.600				
1.1.5	T8S - 33KV(NOMINAL UNIT WT- 0.83 MT) (10NOS.)	MT	8.3	8.300				
1.1.6	T9S - 33KV(NOMINAL UNIT WT- 0.6 MT) (14NOS.)	MT	8.4	8.400				
<b>1.2</b>	<b>DIFFERENT TYPE OF BEAMS WITH DETAILS</b>							
1.2.1	Q1-220KV (NOMINAL UNIT WT- 1.5 MT) (24NOS.)	MT	36.0	36.000				
1.2.2	Q3-220KV (NOMINAL UNIT WT-2.5 MT) (4NOS.)	MT	10.0	10.000				
1.2.3	Q4-220KV (NOMINAL UNIT WT- 0.9 MT) (0NOS.)	MT	0.0	0.000				
1.2.4	G1 - 132KV (NOMINAL UNIT WT-0.62MT) (20NOS)	MT	12.4	12.400				
1.2.5	G1X - 132KV (NOMINAL UNIT WT-0.62MT) ( 4NOS.)	MT	2.5	2.480				
1.2.6	G2 - 132KV(NOMINAL UNIT WT-0.9MT) (8NOS.)	MT	3.6	3.600				
1.2.7	G1,2 - 132KV (NOMINAL UNIT WT-1.25MT) (0 NOS.)	MT	0.0	0.000				
1.2.8	G6 - 33KV (NOMINAL UNIT WT- 0.53 MT) (4NOS.)	MT	1.6	1.590				
1.2.9	G4 - 33KV(NOMINAL UNIT WT- 0.4 MT) (12 NOS.)	MT	0.8	0.840				
1.2.10	G4X - 33KV (NOMINAL UNIT WT- 0.52 MT) 2 NOS.)	MT	1.0	1.040				
<b>1.3</b>	<b>TOTAL WEIGHT OF COLUMN &amp; BEAMS</b>	<b>MT</b>	<b>246.39</b>	<b>246.390</b>				
<b>1.4</b>	<b>EQUIPMENT SUPPORT STRUCTURES (LATTICE TYPE) FOR ALL 220KV, 132 KV &amp; 33KV EQUIPMENTS INCLUDING FOUNDATION BOLTS &amp; NUTS</b>							
1.4.1	ISOLATORS-220KV (SI without E/S -24Nos.)	MT	30.504	30.504				
1.4.2	ISOLATORS-132KV ( SI with out E/S-11 Nos.)	MT	7.247	7.247				
1.4.3	ISOLATORS-132KV ( DI with E/S-2 Nos.)	MT	2.241	2.241				
1.4.4	ISOLATORS-132KV (DI with out E/S-4 No.)	MT	3.916	3.916				
1.4.5	ISOLATORS-33 KV ( SI w/o ES- 8Nos.)	MT	2.359	2.359				
1.4.6	ISOLATORS-33 KV ( DI with ES -6Nos.)	MT	4.024	4.024				
1.4.7	ISOLATORS-33 KV ( DI without ES-2 Nos.)	MT	1.312	1.312				

1.4.8	CTS-220 KV (18Nos.)	MT	4.050	4.050				
1.4.9	CTS-132 KV (21 Nos)	MT	5.250	5.250				
1.4.10	CTS-33 KV (21 Nos.)	MT	2.436	2.436				
1.4.11	CVTS-220 KV (6 Nos.)	MT	1.326	1.326				
1.4.12	CVTS-132 KV (6 Nos )	MT	1.344	1.344				
1.4.13	IVTS-220 KV (6 Nos.)	MT	1.723	1.723				
1.4.14	IVTS-132 KV (3 Nos.)	MT	0.426	0.426				
1.4.15	IVTS-33 KV (3 Nos.)	MT	0.355	0.355				
1.4.16	Surge Arrester-220 KV( 12 Nos.)	MT	3.505	3.505				
1.4.17	Surge Arrester-132 KV( 18 Nos.)	MT	4.932	4.932				
1.4.18	Surge Arrester beam mounted-33 Kv( 24Nos.)	MT	0.000	0.000				
1.4.19	BPI-220 KV (72Nos.)	MT	21.082	21.082				
1.4.20	BPI-132 KV (36Nos)	MT	7.128	7.128				
1.4.21	BPI-33 KV (16 Nos.)	MT	3.301	3.301				
1.4.25	NCTs (8Nos)	MT	0.928	0.928				
<b>1.5</b>	<b>TOTAL WEIGHT OF EQUIPMENT STRUCTURES</b>	<b>MT</b>	<b>109.388</b>	<b>109.388</b>				
<b>1.6</b>	<b>Total weight of GI Nuts and Bolts for Columns, Beams &amp; Equipment Structures</b>	<b>MT</b>	<b>48.725</b>	48.725				
<b>2</b>	<b>ERECTION OF EQUIPMENTS:Supply of all labour ,T&amp;P and Transportation from the site store,erections as per specification and testing commissioning etc. as per the instruction of the Engineer-in-charge.</b>							
2.1	245 KV,1200-600-300A,40KA,5CORE SINGLE PHASE CURRENT TRANSFORMER(4 PS CI & 1 0.2s CI)	NOS	18	18				
<b>2.2</b>	<b>245 KV,2000A,40KA,ISOLATORS</b>							
2.2.1	S/I WITH OUT EARTH SWITCH	NOS	20	20				
2.2.2	S/I WITH SINGLE EARTH SWITCH	NOS	4	4				
2.2.3	BEAM MOUNTED S/I WITHOUT EARTH SWITCH	NOS	4	4				
2.3	245 KV,4400pF,3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6				
2.4	245KV,3150A,40KA,SF6,CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	5	5				
2.5	216 KV, METAL OXIDE SURGE ARRESTOR,10 KA, class III	NOS	12	12				
2.6	245 KV ,2 CORE,SINGLE PHASE,IVT	NOS	6	6				
2.7	220 KV Bus Post Insulators	NOS	72	72				
2.8	145 KV,800-400-200 A,31.5 KA,4CORE SINGLE PHASE CURRENT TRANSFORMER (3 NOS PS CLASS & 1 NO. 0.2s CLASS)	NOS	21	21				
<b>2.9</b>	<b>145 KV,1250A,31.5KA,ISOLATORS</b>							
2.9.1	S/I WITH OUT EARTH SWITCH	NOS	11	11				
2.9.2	D/I WITH SINGLE EARTH SWITCH	NOS	2	2				
2.9.3	D/I WITHOUT EARTH SWITCH	NOS	4	4				

2.10	145 KV, 6600pF, 3CORE,SINGLE PHASE CAPACITOR VOLTAGE TRANSFORMER	NOS	6	6				
2.11	120 KV METAL OXIDE SURGE ARRESTOR, 10 KA, Class III	NOS	18	18				
2.12	145 KV, 2 CORE, SINGLE PHASE, IVT	NOS	3	3				
2.13	132 KV Bus Post Insulators	NOS	20	20				
2.14	145KV, 3150A, 40KA, SF6, CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7				
2.15	36 KV,800-400-200,25KA,4CORE SINGLE PHASE CURRENT TRANSFORMER(3 PS CI & 1 0.2s CI)	NOS	6	6				
2.16	36 KV,800-400-200,25KA,3CORE SINGLE PHASE CURRENT TRANSFORMER (2 PS CI & 1 0.2s CI)	NOS	15	15				
2.17	36 KV CLASS NCT FOR AUTO & POWER TRANSFORMER REF PROTECTION (RATIO 1200-600-300/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 220 KV SIDE: 1 NO)	NOS	4	4				
2.18	36 KV CLASS NCT FOR AUTO & POWER TRANSFORMER REF PROTECTION (RATIO 800-400-200/1-1 A) & HAVING TWO CORE (PS CLASS) (IN EACH POWER TRANSFORMER 33 KV SIDE:1 NO)	NOS	4	4				
<b>2.19</b>	<b>36 KV,1250A,25KA,ISOLATORS</b>							
2.19.1	S/I WITH OUT EARTH SWITCH	NOS	9	9				
2.19.2	D/I WITH SINGLE EARTH SWITCH	NOS	4	4				
2.19.3	D/I WITHOUT EARTH SWITCH	NOS	2	2				
2.19.4	S/I WITH BEAM MOUNTED	NOS	2	2				
2.20	30 KV, METAL OXIDE SURGE ARRESTOR, 10KA, class II(Beam Mounted)	NOS	24	24				
2.21	36 KV ,2 CORE,SINGLE PHASE,IVT	NOS	3	3				
2.22	36KV,1250A,25KA,VACUUM CIRCUIT BREAKER WITH SUPPORTING STRUCTURE	NOS	7	7				
2.24	33 KV Bus Post Insulators	NOS	15	15				
<b>3</b>	<b>BUS-BAR STRINGING</b>							
<b>3.1</b>	<b>Supply of labour,T&amp;P and other necessary arrangements for stringing of bus bar conductors, hoisting of single or double insulator strings, Single or Double Hard-wares Fittings, Clamp &amp; connectors, as per requirements, Jumpers, Aluminium Tubes, connections to Equipments,testing,commissioning etc. as per the instruction of Engineer-in charge.</b>							
3.1.1	Single conductor/Phase/Mtr. (ACSR Moose)	MTRS	5000	5000				
3.1.2	Twin Conductor /Phase/Mtr. (ACSR Moose)	MTRS	3000	3000				
3.1.3	IPS 4" ALUMINIUM TUBES(114.2 mm OD, & 8.51mm Thickness) for equipment to equipment connection in 220 KV side including all clamps and connectors.	MTRS	600	600				
<b>4</b>	<b>EARTH WIRES &amp; IT'S HARDWARES &amp; FITTING</b>							



4.1	Earthing Spikes of 9 mtr long each and Its Fittings in all respect. (220 kv side)	NOS	47	47				
4.2	Earthing Spikes of 7 mtr long each and Its Fittings in all respect. (132 kv side)	NOS	17	17				
4.3	Earthing Spikes of 5 mtr long each and Its Fittings in all respect. (33 KV side)	NOS	22	22				
<b>5</b>	<b>SUB-STATION EARTH-MAT</b>							
<b>5.1</b>	Substation earth-mat Design, engineering, supply inclusive of corrosion protection measures if any, laying of earth-mat conductors of Hot dip galvanized flats of size 75X10mm to the approval of Project Manager, excavation, welding/jointing, application of two coats of bituminous Paint, wrapping of HT Tape, filling of Bentonate powder of adequate depth etc of ground conductors along with risers (of size 50X6 mm GI flats) etc back filling and good compaction, grounding driven rods(40 mm MS solid rod), perforated GI pipes for treated earth pits(with details of treatment as per IS). The spacing between the earth conductor not more than 5 mtrs(both way) and to be buried at depth of 700mm from the finished ground level. For provision of treated earth-pit and untreated earth pit, refer the specification for designing. Provision of water taps inside the switch yard areas and peripheral treated and un-treated earth pit are required to be provided for watering the treated earth pits. The no. of treated and un treated earth pits are to be done as per the practice and as indicated in the drawing for different equipments. This is as per approved drawing and specification.							
5.1.1	(i)75x10 MM GI FLAT	MTRS	23290	23290				
5.1.2	(ii)50x6 MM GI FLAT	MTRS	14590	14590				
5.1.3	(iii)40 MM MS ROD FOR NON-TREATED EARTH PIT ELECTORDE	NOS	240	240				
5.1.4	50MM GI PIPE FOR TREATED EARTH PIT ELECTORDE WITH CHAMBER AND COVER	NOS	190	190				
5.1.5	Providing and supplying all labour, material, equipments etc. required for PIPE TYPE earthing by using <b>Pipe-in-Pipe</b> earthing electrode in order to minimize the earth resistance OF THE SWITCH-YARD below 0.5 OHM.	NOS	4	4				
<b>6</b>	G.I Cable Trays including support GI angle suitable for different sections i.e. Section:1-1,2-2,3-3 & 4-4 along with its accessories as per TS.							
6.1	G.I Cable Trays(size: 450x75x2500mm)	MTRS	2000	2000				
6.2	G.I Cable Trays(size: 300x75x2500mm)	MTRS	3500	3500				
6.3	G.I Cable Trays(size: 150x75x2500mm)	MTRS	3500	3500				
6.4	Support G. I angle 50x50x6 mm for cable tray	MT	6	6				
<b>7</b>	<b>SUB STATION SWITCHYARD BMK,AC CONSOLE &amp; OTHER MARSHALLING BOXES</b>							

7.1	BAY MARSHALLING KIOSK (03 nos on 220 kV bay 03 nos on 132 kv bay & 01Nos 33 KV bay )	NOS	7	7				
7.2	SWITCH YARD AC CONSOLE FOR LIGHTING (01 nos on 220 kV bay 01 no on 132 bay & 01 No in 33KV bay )	NOS	3	3				
7.3	SWITCH YARD RECEPTACLE BOARD FOR TFR OIL FILTERATION (01 no near 220/132 kV 160 MVA Auto Transformer&01 no. near 132/33 KV 20 MVA power Transformer )	NOS	2	2				
7.4	SWITCH YARD RECEPTACLE BOARD FOR WELDING & OTHER EMERGENCY (01 nos on 220/132 kV bay&01 no near 132/33 KV Bays )	NOS	3	3				
7.5	CT, PT/IVT & CVT Out door console boxes (220KV=10 nos., 132KV =9 nos., 33KV = 10nos.)	NOS	28	28				
7.6	Erection of Apex Metre Panel with metres	SET	1	1				
8	Laying of Power and Control Cable including fixing of cable with terminal connections both at equipments and control panels with supply of and fixing of lugs,Ferrules,clamps,connectors,glands,fixing of cable trays, including supply of N&B,Link plates,Cable Markers,PVC pipes Bends,Plaster of Paris, M-Seal compounds etc for sealing purpose and all necessary arrangements,laying of Earthing Flats,earthing ,laying of Cable trench slabs and chequered plate etc for the cable trench,Cable scheduled and cable diagram to be prepared by the contractor							
8.1	<b>POWER CABLES,1.1KV,XLPE &amp; PVC ARMOURED, ALUMINIUM CONDUCTOR (As per Specification)</b>							
	XLPE 3.5 CX400 mm <sup>1</sup>							
8.1.1	XLPE 3.5 CX300 mm <sup>2</sup>	MTR	1000	1000				
8.1.2	XLPE 3.5 CX185 mm <sup>2</sup>	MTR	1000	1000				
8.1.3	XLPE 3.5 CX120 mm <sup>2</sup>	MTR	1000	1000				
8.1.4	PVC 3.5 CX70 mm <sup>2</sup>	MTR	1100	1100				
8.1.5	PVC 3.5 CX35 mm <sup>2</sup>	MTR	1300	1300				
8.1.6	PVC 4 CX 16 mm <sup>2</sup>	MTR	4000	4000				
8.1.7	PVC 4CX 6 sqmm	MTR	2200	2200				
8.1.8	PVC 2CX 6 sqmm	MTR	5500	5500				
8.2	<b>CONTROL CABLES,1.1 KV, PVC,STRANDED COPPER(As per specification)</b>							
8.2.1	2 CX 2.5 mm <sup>2</sup>	MTR	10500	10500				
8.2.2	4 CX 2.5 mm <sup>2</sup>	MTR	16000	16000				
8.2.3	5 CX 2.5 mm <sup>2</sup>	MTR	7500	7500				
8.2.4	7CX 2.5 mm <sup>2</sup>	MTR	8600	8600				
8.2.5	10 CX 2.5 mm <sup>2</sup>	MTR	15000	15000				
8.2.6	12 CX 2.5 mm <sup>2</sup>	MTR	13500	13500				

8.2.7	16 CX 2.5 mm <sup>2</sup>	MTR	7500	7500				
8.2.8	19 CX 2.5 mm <sup>2</sup>	MTR	3000	3000				
8.2.9	1CX 120 mm <sup>2</sup> BAT TO BAT CHARGER & CHARGER TO DCDB	MTR	1200	1200				
<b>9</b>	<b>ERECTION FOR OPGW System</b>							
9.1	Erection/commissioning of SDH/MUX along with termination with FODP	No	1	1				
9.2	Erection/commissioning of RTU along with fixing, cabling of MFMs	No	1	1				
9.3	Erection/commissioning of digital tele-protection coupler	No	1	1				
9.4	48 V, 300 AH, maintenance free VRLA Battery set.	Set	1	1				
9.5	SMPS based battery charger of 75A suitable for 48V VRLA battery.	No	1	1				
9.6	2.5 sq. mm 2 core control cable(power supply, Transducer/MFT PT supply)	Metre	300	300				
9.7	2.5 sq. mm multi strand 4 core control cable(Transducer/MFT CT , supply)	Metre	300	300				
9.8	1.5 sq. mm 10 core control cable(Digital Input)	Metre	200	200				
9.9	10 sq. mm 2 core multi strand control cable(Battery)	Metre	100	100				
9.10	DCDB	Set	1	1				
9.11	Earth Flat, Cable Tray, Telephone cable, Foundation rail, Junction Box,.	Set	1	1				
9.12	Fax machine	NO	1	1				
<b>10</b>	<b>ERECTION, FILTRATION, TESTING &amp; COMMISSIONING OF AUTO TRANSFORMER(220/132KV, 160MVA) &amp; ITS OTHER RELATED ACCESSORIES.</b>							
10.1	ERECTION OF THE TRANSFORMERS AND ITS ACCESSORIES ON THE PLINTH AND PLACING IN POSITION, ERECTION OF ACCESSORIES OF THE TRANSFORMERS, EARTHING AS PER STANDARD(INCLUDING SUPPLY OF MATERIALS), VACUUM TREATMENT OF THE TANK AND WINDING, OIL FILTRATION(INCLUDING SUPPLY OF VACUUM CUM OIL FILTER MACHINE), SUPPLY & LAYING OF ALL TYPES OF CONTROL & POWER CABLES PERTAINING TO TRANSFORMERS, TESTING AND COMMISSIONING INCLUDING ALL TESTS OF THE OILS AS PER STIPULATION IN THE STANDARD APPROVED TESTING LABORATORY AND AS PER THE INSTRUCTION OF THE ENGINEER IN CHARGE. THIS INCLUDES ALL RELATED WORKS FOR ERECTION(Transformer and its accessories, RTCC Panel etc), TESTING AND COMMISSIONING OF THE POWER TRANSFORMERS.(CONTRACTOR TO ARRANGE POWER SUPPLY FOR FILTRATION AND VACUUM TREATMENT WORKS). IT ALSO INCLUDES SUPPLY OF ALL MATERIALS FOR ERECTION INCLUDING T&P's.	Nos	2	2				

11	<b>ERECTION,FILTRATION,TESTING &amp; COMMISSIONING OF POWER TRANSFORMER(132/33KV, 20MVA &amp; ITS OTHER RELATED ACCESSORIES</b>							
11.1	ERECTION OF THE TRANSFORMERS AND ITS ACCESSORIES ON THE PLINTH AND PLACING IN POSITION, ERECTION OF ACCESSORIES OF THE TRANSFORMERS, EART-HING AS PER STANDARD(INCLUDING SUPPLY OF MATERIALS),VACUUM TREATMENT OF THE TANK AND WINDING,OIL FILTRATION(INCLUDING SUPPLY OF VACUUM CUM OIL FILTER MACHINE),SUPPLY & LAYING OF ALL TYPES OF CONTROL & POWER CABLES PERTAINING TO TRANSFORMERS ,TESTING AND COMMISSIONING INCLUDING ALL TESTS OF THE OILS AS PER STIPULATION IN THE STANDARD APPROVED TESTING LABORATORY AND AS PER THE INSTRUCTION OF THE ENGINEER IN CHARGE.THIS INCLUDE ALL RELATED WORKS FOR ERECTION(Transformer and its accessories,RTCC Panel etc),TESTING AND COMMISSIONING OF THE POWER TRANSFORMERS.(CONTRACTOR TO ARRANGE POWER SUPPLY	Nos	2	2				
12	<b>ERECTION,TESTING &amp; COMMISSIONING OF STATION TRANSFORMER &amp; OTHER MATERIALS FOR MEETING THE AUXILIARY SUPPLY OF THE SUB STATION</b>							
12.1	STATION TRANSFORMER 33/0.4KV,250 KVA (AS PER SPECIFICATION)	NOS	2	2				
12.2	33 KV AB SWITCH IN 33 KV SIDE(600AMP), HG FUSE, DP STRUCTURE, ANGLE FOR BRACING OF DP STRUCTURE,POWER CABLES, CHANEL, INCLUDING INSULATORS, CONDUCTOR, CLAMPS & CONNECTOR, JUMPERING AND OTHER ACCESSORIES REQUIRED FOR ERECTION ,TESTING, COMMISSIONING OF STATION TRANSFORMER. ERECTION OF LT OUTDOOR KIOSK AND REQUIRED CABLE TERMINATION. THE NON-GALVANIZED STRUCTURES SHALL BE PAINTED WITH TWO COATS OF EPOXY BASED ALUMINIUM PAINT.	SETS	2	2				
13	<b>SUB STATION LIGHTING (AS PER SPECIFICATION AND APPROVED DRAWINGS )(Switch yard and other street area)</b>							
13.1	SUB-STATION SWITCH YARD LIGHTING,IT INCLUDES SUPPLY OF FIXTURES & LAMPS (LED) of reputed make (Philips/CGL/Bajaj) with switch gear,GI Conduit etc.(Lighting fixtures are to be fixed rigidly on the Column at a suitable height so that the required lux can be achieved).(150 watt each)	SET	125	125				

13.2	<b>STREET LIGHTING:</b> IT INCLUDES SUPPLY OF GI TUBULAR POLE AS PER TECHNICAL SPECIFICATION, LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light. (TO BE PROVIDED IN THE SWITCH YARD, ALONG THE ROADS (APPROACH INSIDE YARD AND OTHER ROADS), COLONY QUARTERS AND OTHER ROADS. ALL MATERIALS AS PER APPROVED DRAWING AND SPECIFICATION TO COMPLETE THE STREET LIGHTING SYSTEM. PROPER EARTHING AS PER STANDARD PRACTICE							
13.2.1	LED LIGHTING FIXTURES including LAMPS of reputed make (Philips/CGL/Bajaj/other approved make of OPTCL).(100 watt each) for Street Light.	SET	100	100				
13.2.2	GI Tubular Pole: (410-SP-24: IS 2713-Part-II-1980 or latest) Length of pole 8.5 mtrs(minimum weight 158 Kgs). (ALL THE STREET LIGHT POLE SHALL BE OF GI TUBULAR POLE AND PROVISION OF A GI JUNCTION BOX WITH SUITABLE COVERS AT A HEIGHT OF 1 METRE FROM THE GROUND. THE JUNCTION BOX SHALL HAVE PROVISION OF FUSES, BUSES, CONNECTORS FOR CABLE IN AND OUT.	SET	100	100				
13.2.3	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR STREET LIGHT HAVING 2 NOS 200 AMP SWITCH FUSE UNITS AND 10 NOS. OUT LETS OF 32 AMP MCB. XLPE CABLES(3.5 CORE 120 SQMM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. XLPE CABLE OF 4C X 16 SQMM FROM OUTDOOR KIOSK TO THE STREET LIGHT POLES AND 4CX6 SQMM FROM POLE TO POLE AND 2CX6 SQMM FROM POLE TO LIGHTING FIXTURES.	NO	1	1				
13.2.4	OUTDOOR KIOSK of 3 mm thick CRCA sheet duly hot dip galvanised FOR COLONY SUPPLY PURPOSE HAVING 2 NOS. 200 A SWITCH FUSE UNITS, 6 NOS.OUT LETS OF 32 AMP MCB FOR COLONY QUARTES. XLPE CABLES(3.5 CORE 120 SQM) FROM MAIN ACDB FROM CONTROL ROOM TO THE OUT DOOR KIOSK. 4CX16 SOMM FROM KIOSK TO EACH QUARTER	NO	1	1				
13.5	2 TR Air Conditioning Units with Remote Control Facility :Including Supply of Air Conditioners Voltage Stabiliser, Control Boxes Etc. For completing the A.C Scheme (As per technical specification )for Control Room,Carrier Room, & Conference Rom. (Supply of cables are covered in Cable item as indicated above at 29.2)	SET	30	30				
14.0	<b>FIRE FIGHTING SYSTEM(PORTABLE AND WHEEL MOUNTED SETS FOR CONTROL ROOM,EQUIPMENT LIKE TRANSFORMER AND OTHER AREAS AS PER TECH SPEC(REFER TS-INST TO BIDDER BEFORE DESIGN-SL NO 16-ANNEXURE- I)</b>							
14.1	FOAM TYPE-9 LTRS	NOS	6	6				
14.2	DRY CHEMICAL POWDER(TROLLEY MOUNTED)- 22.5 KGS	NOS	6	6				

14.3	DRY POWDER TYPE - 5 KGS	NOS	6	6				
14.4	CO2 - 4.5 KGS	NOS	10	10				
14.5	CO2 - 9 KGS	NOS	10	10				
14.6	CO2 (TROLLY MOUNTED)- 22.5 KGS	NOS	4	4				
14.7	9 litre water type	Nos.	4	4				
14.8	50 Litres Mechanical Foam type	Nos.	2	2				
14.9	FIRE BUCKET (6 NOS IN EACH STAND) WITH STAND	SET	8	8				
35	<b>SUBSTATION AUTOMATION SYSTEM FOR 220/132/33 KV SUBSTATION ON PRP MODE: Design , engineering , drawing, supervision, installation , testing &amp; commissioning of Substation Automation system alongwith Supply of the following 220, 132 and 33 kV level consisting of Panels, Bay control Units, DP Relays, Numerical O/C &amp; E/F Relays, DC Supervision relays, Trip Circuit Supervision, Trip Relay ,Test Block, Differential with REF, Overflux, High impednce REF, Numerical O/C &amp; E/F relay,Transformer trouble relay etc. Station level consisting of Industrial Computer with accessories, PC with accessories, laser printer, UPS, GPS System &amp; Numerical bay control unit etc.</b>							
<b>35.1</b>	<b>Yard AC Kiosks for 220KV, 132KV &amp; 33KV Switchyards</b>							
<b>35.1.1</b>	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air	Nos.	2	2				
<b>35.1.2</b>	Yard AC Kiosk :5000 mm (L)x4000mm (W)x 3500mm (H) with Air Conditioning as per the Specification; for 132KV Switchyard	Nos.	2	2				
<b>35.1.3</b>	Yard AC Kiosk :4500 mm (L)x3500mm (W)x 3300mm (H) with Air conditioning as per the Specification; for 33KV Switchyard	Nos.	1	1				

35.2	Gate way panel for Sub-Station Automation (in PRP as per the specification & indicative drg ) system (for All 220, 132 & 33 KV side bays including the future bays),other accessories (comprising servers, engg. Station, works station, Color Laser jet Printer, Ethernet Switches , LIU,Multimode glass fibre Double jacket armoured optical cables, Red boxes, Inverters(3 KVA) etc as per TS, a large video screen of 60 inches for display including all type of accessories & special cables like F.O patch cord & armoured FO cables of adequate length etc required for the system in all respect as per latest IEC 61850 standard & as per technical specification.	Set	1	1				
35.3	BCU for Substation Auxilliary System (Station,AC, Station DC, Lighting, Fire fighting, Diesel generator etc.)	Set	1	1				
35.4	GPS System with PTP	Set	1	1				
35.5	<b>220 KV SIDE PROTECTION &amp; OTHER PANELS as per TS</b>							
35.5.1	FEEDER PROTECTION PANEL (MAIN-I , MAIN-II & BACK-UP PROTECTION WITH AUTO RECLOSURE DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.	Nos.	2	2				
35.5.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL I & II , separate numerical REF protection & BACK-UP ,PROTECTION CONSIDERING HV side for 160 MVA 220/132 KV Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2				
35.5.3	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.	Nos.	1	1				
35.5.4	BUS-BAR PROTECTION PANEL ( with Automation)	Nos.	1	1				
35.6	<b>132 KV SIDE PROTECTION PANELS as per TS</b>							
35.6.1	FEEDER PROTECTION PANEL (MAIN-I & BACK-UP PROTECTION DISTANCE PROTECTION with Bay control unit (BCU) for substation automation system.	Nos.	2	2				
35.6.2	TRANSFORMER PROTECTION PANEL (DIFFERENTIAL,REF & BACK-UP ,PROTECTION CONSIDERING HV side for 20 MVA 132/33 KV Power Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2				

35.6.3	TRANSFORMER PROTECTION PANEL (BACK-UP ,PROTECTION CONSIDERING LV side for 160 MVA 220/132 KV Auto Transformer) with Bay control unit (BCU) for substation automation system.	Nos.	2	2				
35.6.4	BUS COUPLER PROTECTION PANEL with Bay control unit (BCU) for substation automation system.	Nos.	1	1				
35.7	<b>33 KV SIDE PROTECTION &amp; OTHER PANELS</b>							
35.7.1	FEEDER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system for two nos. of 33KV feeders [ 2nos. Feeder bays in one panel].	SET	2	2				
35.7.2	TRANSFORMER PROTECTION PANEL (REF & BACK-UP ,PROTECTION CONSIDERING LV side for 2x20 MVA 132/33 KV Power Transformer) with Bay control & ptection unit (BCPU) for substation automation system. [ 2nos. Transformer bays in one panel].	SET	1	1				
35.7.3	BUS COUPLER PROTECTION PANEL with Bay control & protection unit (BCPU) for substation automation system.	NOS	1	1				
16	<b>AC &amp; DC SYSTEM</b>							
16.1	<b>AC SYSTEM</b>							
16.1.1	MAIN ACDB (HAVING 800 A,50KA,DRAWOUT TYPE ACB WITH 3 O/C,E/F,U/V RELAYING FACILITY INDOOR TYPE AS PER SPECIFICATION.(MAIN DB-1,MAIN DB-2 WITH B/C)	SET	1	1				
16.1.2	ACDB (HAVING 400A MCCB) AS PER SPECIFICATION (ACDB-1,AC DB-2 WITH B/C)	SET	1	1				
16.1.3	MAIN LIGHTING DISTRIBUTION BOARD (HAVING 250A MCCB AS INCOMER)AS PER SPECIFICATION (WITH DB-1,DB-2 & B/C)	SET	1	1				
16.1.4	INDOOR LIGHTING DISTRIBUTION BOARD AS PER SPECIFICATION. (WITH DB-1,DB-2 & B/C)	SET	1	1				
16.1.5	EMERGENCY LIGHTING DISTRIBUTION BOARD	SET	1	1				
16.1.6	INDOOR RECEPTACLE BOARD	SET	1	1				
16.2	<b>DC SYSTEM</b>							
16.2.1	220 V DCDB (HAVING 100A DC MCCB AS INCOMER, E/F (EARTH LEAKAGE), UNDER & OVER VOLTAGE AS PER SPECIFICATION (DC DB-1,DC DB-2 & B/C)	SET	1	1				
16.2.2	220 V DC EMERGENCY DISTRIBUTION BOARD	SET	1	1				
16.3	<b>BATTERY (350 AH PLANTE TYPE) for 220 V DC</b>	SET	2	2				
16.4	BATTERY CHARGER FOR 220 V, 350 AH (Float and Float cum Boost)	SET	1	1				
16.5	DISTILLED WATER PLANT of 10 Litre./Hr. FOR BATTERY BANKS	NOS	1	1				



17	WALKIE TALKIE SET	SET/PAIR	2	2				
18	PORTABLE ALUMINIUM LADDER EXTENDABLE TYPE OF ADEQUATE HEIGHT TO BE USED FOR MAINTENANCE OF EQUIPMENT INSIDE SWITCH YARD.	NOS	2	2				
19	PEDESTAL MOUNTED WHEEL FITTED DERRICK FOR LIFTING/ LOWERING OF MATERIALS UP TO 1.5 TON CAPACITY.	NOS	1	1				
20	WATER COOLER WITH WATER PURIFIER SYSTEM	NOS	2	1				
21	MAINTENANCE TESTING EQUIPMENT (AS PER ANNEXURE - I ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OF MAINTENANCE EQUIPMENT)	SET	1	1				
22	OTHER TOOLS AND PLANTS (T&P's) REQUIREMENT (AS PER ANNEXURE - II ,INDICATED IN TS-TIMK-SCHEDULE OF REQUI-REMENTS OTHER T&P's)	SET	1	1				
23	OFFICE FURNITURE (AS PER ANNEXURE - III ,INDICATED IN TS-TIMK-SCHEDULE OF REQUIREMENTS OFFICE FURNITURE)>PLACING IN CONTROL ROOM,CONFERENCE ROOM,OFFICE ROOMS,LIBRARY,TESTING LAB,etc.	SET	1	1				
24	BEST QUALITY &APPROVED MAKE INSULATING MAT (Confirming to IS:15652:2006) TO BE KEPT INFRONT OF ALL PANELS,BOARDS ETC.(2000X1000X3)mm Size	NOS	50	50				
25	<b>COLOUR CODING, BAY MARKING Etc:</b> Design, engineering, procurement of labour, material including all associated works for the followings. This should be as per direction of site In charge. a)Colour coding (red,Yellow & Blue) for equipments,Bus gantry &column of entire switch yard. Good quality weather proof sticker may be used for identification. b)Each bay should be identified with the help of bay marker sign board, suitably grouted. MS sign board with stand to be installed. Proper painting and lettering to be done of the entire switch yard area.	LOT	1	1				
<b>TOTAL OF ELECTRICAL WORKS (PART-B)</b>								
<b>TOTAL OF ERECTION OF SUBSTATION (Electrical Work) &amp; (Civil Work) -Schedule-4-ss (to Schedule No. 6 Grand Summary)</b>								
					Name of Bidder: _____			
					Signature of Bidder: _____			

1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

**NAME OF THE WORK:-Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.**

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18]- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 2. Plant Supplied from Within the Employer's Country (Transmission Line-220KV)**

<b>NAME OF THE BIDDER</b>						
<b>Sl. No.</b>	<b>SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)</b>	<b>UNITS</b>	<b>QUANTITY: Construction of 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) to proposed 220/132 /33 KV Grid S/S at Gunupur</b>	<b>TOTAL QUANTITY</b>	<b>Unit Price<sup>2</sup></b>	<b>Total Price<sup>2</sup></b>
				<b>(1)</b>	<b>(2)</b>	<b>(1) x (2)</b>
<b>1</b>	<b>SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts &amp; Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs &amp; bracing members). All Supply should confirm to the Technical Specification</b>					
1.1	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.473MT) -	MT	134.19	134.190		
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT) - <b>10NOS.</b>	MT	7.48	7.480		
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) - <b>6NOS.</b>	MT	8.97	8.970		
1.2	OB TYPE (30 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) - <b>9NOS.</b>	MT	61.06	61.056		
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) - <b>4NOS.</b>	MT	5.34	5.336		
1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.308MT)- <b>4NOS.</b>	MT	9.23	9.232		
1.3	OC TYPE (60 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) - <b>13NOS.</b>	MT	123.80	123.799		
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) - <b>2NOS.</b>	MT	2.87	2.872		

1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) -2NOS.	MT	5.20	5.200		
	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.849MT) -3NOS.	MT	26.55	26.547		
<b>1.5</b>	<b>TEMPLATES</b>					
1.5.1	OA (NOMINAL UNIT WEIGHT 0.579MT) -2NOS.	MT	1.16	1.158		
1.5.2	OB (NOMINAL UNIT WEIGHT 0.794MT) -1NOS.	MT	0.79	0.794		
1.5.3	OC (NOMINAL UNIT WEIGHT 0.962 MT) -1NOS.	MT	0.96	0.962		
	OC (NOMINAL UNIT WEIGHT 2.107 MT) -1NOS.	MT	2.11	2.107		
<b>1.6</b>	<b>WEIGHT OF THE STRUCTURES &amp; Templates including Tower stubs &amp; clea</b>	<b>MT</b>	<b>389.70</b>	<b>389.70</b>		
<b>1.7</b>	<b>Weight of different type G.I Nuts and Bolts for above structures</b>	<b>MT</b>	<b>16.100</b>	<b>16.100</b>		
<b>2</b>	<b>Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.</b>					
2.1	EARTHING DEVICE	Nos.	52	52		
2.2	DANGER BOARD	Nos.	52	52		
2.3	NUMBER PLATE	Nos.	52	52		
2.4	PHASE PLATE	Nos.	312	312		
2.5	BIRD GUARD	Nos.	192	192		
2.6	ANTICLIMBING DEVICE	Nos.	52	52		
2.7	CIRCUIT PLATE	Nos.	104	104		
<b>3</b>	<b>Supply of following POWER CONDUCTORS in the proposed 220KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.</b>					
3.1	LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.	Kms.	81.51	81.51		
<b>4</b>	<b>POWER CONDUCTOR ACESSORIES</b>					
4.1	LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.					
4.1.1	VIBRATION DAMPER	Nos.	630	630		
4.1.2	MID SPAN JOINT	Nos.	82	82		
4.1.3	Repair Sleeve	Nos.	40	40		
4.1.4	PREFORMED ARMOUR ROD	Nos.	192	192		
<b>5</b>	<b>OPGW fibre Optic Cable &amp; Hardwares</b>					
5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable	Kms.	14.4	14.4		
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.	Kms.	14.4	14.4		
<b>6</b>	<b>Supply of the following type Long Rod Insulators as per the technical specification and as per the instruction of the engineer in charge.</b>					
6.1	90 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)	SET	318	318		
6.2	160 KN Long Rod Insulator for 220KV (2 Nos in 1 SET)	SET	348	348		
<b>7</b>	<b>Supply of the following Hard ware fittings suitable for following conductor as per the technical specification.</b>					
7.1	FOR LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.					

7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set	96	96		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Set	96	96		
7.1.3	Single tension Hard wares fittings, suitable for 160 KN Long Rod insulator.	Set	216	216		
7.1.4	Double tension Hard wares fittings, suitable for 160 KN Log Rod insulator.	Set	66	66		
7.1.5	Hanger	Nos.	192	192		
7.1.6	U'-Bolt.	Nos	30	30		
7.1.7	PG Clamp	Nos	12	12		
<b>TOTAL OF 220KV LINE-SCHEDULE-2 -Plant (to Schedule No. 6 Grand Summary)</b>						

Name of Bidder: \_\_\_\_\_  
Signature of Bidder: \_\_\_\_\_

<sup>1</sup> Prices of Items quoted in Schedule No.1 shall not be quoted again in Schedule No. 2 and shall have a remark against the said row "Quoted in Schedule No.-1".

## ODISHA POWER TRANSMISSION CORPORATION LIMITED

**NAME OF THE WORK:-**Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18]- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 4. Installation and Other Services (Transmission Line-220KV)**

NAME OF THE BIDDER								
Sl. No.	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	Unit	QUANTITY: Construction of 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) to proposed 220/132 /33 KV Grid S/S at Gunupur	TOTAL QUANTITY	Unit Price <sup>1</sup>		Total Price <sup>1</sup>	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				1	2	3	(1x2)	(1x3)
<b>PART-A</b>	<b>ELECTRICAL WORKS</b>							
<b>1</b>	<b>ERECTION, TESTING &amp; COMMISSIONING</b> of Following tested Lattice type Galvanized steel tangent / Angle tower without stubs and cleats including different type of G.I HT Nuts & Bolts, washer, spring washer for the above type towers ,hanger and all accessories, tower super structure complete with tightening, punching of bolts including step bolts. All other left out portion of the bolts above bottom cross arm shall be riveted by using suitable hammer. Painting of black bituminous paints three coats shall be provided up to a height of 500mm above the cooping legs & bracing members. All Erection should confirm to the Technical Specification laid there in the Tender Specification.							
1.1	OA TYPE (SUSPENSION) TOWERS (NOMINAL UNIT WEIGHT 4.473MT) - <b>30NOS.</b>	MT	134.190	134.190				
1.1.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 0.748MT) - <b>10NOS.</b>	MT	7.480	7.480				
1.1.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 1.495MT) - <b>6NOS.</b>	MT	8.970	8.970				

1.2	OB TYPE (30 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 6.784MT) - <b>9NOS.</b>	MT	61.056	61.056				
1.2.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.334MT) - <b>4NOS.</b>	MT	5.336	5.336				
1.2.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.308MT)- <b>4NOS.</b>	MT	9.232	9.232				
1.3	OC TYPE (60 deg ANGLE ) TOWERS (NOMINAL UNIT WEIGHT 9.523MT) - <b>13NOS.</b>	MT	123.799	123.799				
1.3.1	+3 EXTENSION (NOMINAL UNIT WEIGHT 1.436MT) - <b>2NOS.</b>	MT	2.872	2.872				
1.3.2	+6 EXTENSION (NOMINAL UNIT WEIGHT 2.600MT) - <b>2NOS.</b>	MT	5.200	5.200				
	+15 EXTENSION (NOMINAL UNIT WEIGHT 8.8490MT) - <b>3NOS.</b>	MT	26.547	26.547				
1.4	<b>WEIGHT OF THE STRUCTURES</b>	<b>MT</b>	<b>384.682</b>	<b>384.682</b>				
1.5	<b>Weight of different type G.I Nuts and Bolts for above structures</b>	<b>MT</b>	<b>16.100</b>	<b>16.100</b>				
<b>1.6</b>	<b>Fixing of of Templates &amp; setting of Stubs including G.I Nuts &amp; Bolts</b>							
<b>1.6.1</b>	OA (NOMINAL UNIT WEIGHT 0.830 MT) - <b>30NOS.</b>	MT	24.900	24.900				
<b>1.6.2</b>	OB (NOMINAL UNIT WEIGHT 1.276 MT) - <b>9NOS.</b>	MT	11.484	11.484				
<b>1.6.3</b>	OC (NOMINAL UNIT WEIGHT 1.764 MT) - <b>10NOS.</b>	MT	17.64	17.640				
<b>1.6.4</b>	OC+15 (NOMINAL UNIT WEIGHT 2.107MT) - <b>3NOS.</b>	MT	6.321	6.321				
<b>1.7</b>	TOTAL WEIGHT	MT	<b>60.345</b>	<b>60.345</b>				
<b>2</b>	<b>Erection of the following tower accessories as per technical specification and as directed by the engineer in charge.</b>							
2.1	EARTHING DEVICE	Nos.	52	52				
2.2	DANGER BOARD	Nos.	52	52				
2.3	NUMBER PLATE	Nos.	52	52				
2.4	PHASE PLATE	Nos.	312	312				
2.5	BIRD GUARD	Nos.	192	192				
2.6	ANTICLIMBING DEVICE	Nos.	52	52				
2.7	CIRCUIT PLATE	Nos.	104	104				
<b>3</b>	Hoisting and fixing of insulators with required accessories, paying out of conductor ,jointing, stringing, sagging & Jumpering etc. of power conductor with G.I. Earth wire in the proposed lines and without earth wire with all required accessories including scaffolding for 33 KV,11 KV, LT , P&T lines, roads and using own required T&P and compression jointing machines etc. with 1.5% provision for Sag & Wastage and as per the direction of Engineer in charge.							
3.1	Double Circuit LL-ACSR ZEBRA 490 mm2 size POWER CONDUCTOR with AS/ACSR-ZINC COATED STEEL WIRE.	RKM	13.385	13.385				
3.1.1	Additional charges for stringing of EHT line crossing	RKM	0.123	0.123				
3.1.2	Additional charges for stringing of River crossing	RKM	0.461	0.461				

4	<b>Erection of OPGW fibre Optic Cable for speech, data &amp; protection</b>							
4.1	Erection of 48Fibre(DWSM) OPGW fibre Optic along with hardware and approach cables	Kms.	13.835	13.835				
	<b>TOTAL OF ELECTRICAL WORKS (PART-A)</b>							
<b>PART B</b>	<b>CIVIL WORKS</b>							
1	<b>SURVEY OF LINE &amp; PREPARATION LAND SCHEDULE: Supply of required T&amp;P's, Technical personnel's, labours for conducting</b>							
1.1	Preliminary survey, Detail survey and resurvey (required for avoiding ROW problem) including but not limited to taking of levels, profile plotting, tower spotting ,marking of towers locations at site including showing P&T line, power line, Railway line, river crossing, roads and submission of route map and survey report etc. The P&T lines and railway lines for a minimum distance of 8 kms on either side of alignment shall be clearly indicated.	Route KM	13.835	13.835				
1.2	Check survey including supply of all labour, T&P as per instruction of Engineer in Charge and as per the approved profile.	Route KM	13.835	13.835				
1.3	Preparation of land schedule on revenue (if required)maps indicating alignment therein duly authenticated by Revenue Inspector & Tahasildar, enumeration of trees with the help of Forest officer and other prominent features required for alignment of the proposed 220 KV line. Final route to be plotted on 1:50000 topo sheet for approval.	Route KM	13.835	13.835				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.	7	7				
2	<b>EXCAVATION WORKS FOR OPEN CAST/SHALLOW TYPE FOUNDATIONS</b>							
2.1	<b>Excavation for following type of soil and rocks and back filling (back filling shall be done in layers of 500mm sprinkling of water and compaction thereafter and disposed of excess quantity of excavated soil at suitable place after back filling), &amp; if required for filling the foundation, borrowed earth/morrum/sand shall be brought for filling and compaction, including supply of sand, all T&amp;P, labour as required.</b>							
2.1.1	Soft/Loose soil	CUM	1361	1361				
2.1.2	Dense/Compact soil	CUM	2001	2001				
2.1.3	Wet soil	CUM	701	701				
2.1.4	Partial Submerged soil	CUM	2500	2500				
2.1.5	Fully submerged soil	CUM	320	320				



2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	960	960				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	160	160				
<b>3</b>	<b>FOUNDATION MATERIALS: Supply of all materials like cement, steel, all coarse aggregates, fine aggregates and making foundations of the required above mentioned type towers as per the direction laid down in the technical specification and the direction of the site- in charge</b>							
3.1	Design, Engineering, Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality coarse aggregates (Nominal size 12mm to 20mm) , fine aggregates, cement in tower foundation as blind layer inclusive of labour charges for concrete mixing & curing. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	CUM	118	118				
3.2	Design, Engineering and laying of reinforced cement concrete (RCC1:1.5:3) of grade M20 for open cast foundation with supply of approved quality coarse aggregates(Nominal size 12mm to 20mm), fine aggregates, cement and inclusive of labour charges for concrete mixing, supply and fixing of form boxes, curing, shoring, shuttering, testing of sample cement concrete cubes as per IS. The height of the coping shall be 350mm above the finished concrete level. The surrounding area shall be clear from materials. Damage of land if any by the contractor shall be repaired before measurement. This includes supply of all labourers, T&P and dewatering wherever required as per Technical specification and instruction of Engineer In charge.	CUM	1432	1432				
3.3	Supply and Cutting bending hooking ,fixing and binding in position of MS bars for reinforcement of foundation concrete of towers including supply of wire for binding (With supply of steel rod(TATA/RINL/SAIL Make).	MT	26.82	26.82				
3.5	<b>PILE FOUNDATION (UNDER-REAM PILE WORK)</b>							

3.5.1	Under Reamed Piling: Desin, Engineering, Supply of all materials like cement, steel, all coarse aggregates, fine aggregates and making In-Situ cast under reamed piles foundations for river crossing locations with vertical boring of piles (pile bore as per required depth, basing on design), preparation of cage, lowering and positioning of same (cutting, bending/welding of M.S. Rod including supply of binging wire/way of welding) as reqired for the above mentioned Tower foundations and as per requirement, including design, engineering, supply of all materials, labours, de-watering, proper curing of the foundations, T&P as per specification in the concrete ratio <b>1:1.5:3</b> (Grade <b>M-20</b> .) including stabilization of bores and disposal of excess earth as per the direction of Engineer In charge.,	Mtrs	960	960				
3.5.2	<b>PILE RISER,CAPPING,PEDESTAL &amp; TIE-BEAM CONCRETE WORKS</b>							
3.5.2.1	Pile riser, cap, tie-beam with RCC: 1:1.5:3 (Grade M-20) for above under reamed piling including supply of approved quality of coarse aggregates (Nominal size 12mm to 20mm), fine aggregates, cement and supply of all labours, dewatering, proper curing of the foundations/ concrete and T&P except steel in the line wherever required as per technical specification and direction of Engineer In charge.,	CUM	628.78	628.78				
3.5.2.2	Providing and laying of plain cement concrete (PCC 1:3:6) of grade M10 with approved quality of coarse aggregates, fine aggregates, cement in tower pile foundations as blind layer inclusive of all labour charges , T&P, dewatering wherever required as per technical specification and direction of Engineer In charge.,	CUM	21.26	21.26				
3.5.2.3	Supply of different size Rod (as per design)& Cutting, Bending, Binding Placing in position of steel rod for foundation including cost of binding wire with supply all size of rod (TATA/ RINL/ Sail Make)	MT	39.6	40				
4	<b>DE-WATERING(FOR OPEN CAST LOCATION)</b>							
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	290	290				
5	<b>Supply of borrowed earth/morrum for back filling for foundation/revetment works</b>							
5.1	beyond 30mtr & up to 100 mtr lead	CUM	1024	1024				
5.1	beyond 100 mtr lead	CUM	1536	1536				
6	<b>SHORING &amp; SHUTTERING-Required in wet/submerged or special locations of open cast/shallow type foundations with supply of all materials,T&amp;P and Labour.</b>	SQ.MTR.	1950	1950				

7	Head-Loading of all types of foundation-materials, towers, structures, conductors, Insulators, Hard-wares for inaccessible Locations beyond 400 mtrs from the nearest approach road as per the recommendation of site Engineer-In- Charge and approval of the General Manager of Concerned circle.	Per MT/ Per Mtr.	59339	59339				
<b>8</b>	<b>WELDING OF TOWER MEMBERS</b>							
8.1	Supply of all materials for continuous welding of bolts & nuts (around the bolts) up to top of tower without cross arm, including welding rods, welding generator machine (diesel engine operator.), application of required zinc rich paints around the welding portion after welding (two coats),fuel,lubricants,T&P and labours and other arrangements etc.	Nos.	43478	43478				
<b>9</b>	<b>REVETMENT: (including Benching) Supply of all materials like cement, Late-rite stone (stone masonry) all type aggregates, labours, &amp; T&amp;P for construction of revetment walls as per requirement to protect the towers, where felt unsafe and as per approved drawing and the direction of Engineer in charge.</b>							
<b>9.1</b>	<b>EXCAVATION</b>							
<b>9.1.1</b>	Soft/Loose soil	CUM	705	705				
<b>9.1.2</b>	Dense/Compact soil soil	CUM	972	972				
<b>9.1.3</b>	Soft/Di-integrated rock (not requiring blasting)	CUM	229	229				
<b>9.1.4</b>	Hard rock (requiring blasting)	CUM	38	38				
<b>9.1.5</b>	PCC in the ratio1:3:6 .	CUM	84	84				
<b>9.1.6</b>	PCC in the ratio 1:2:4 .	CUM	32	32				
<b>9.1.7</b>	RR/Laterite Stone Masonry work in the ratio 1:5.	CUM	2979	2979				
<b>9.2</b>	<b>Benching</b> in all type of soil including all required accessories, labour & T&P etc.							
<b>9.2.1</b>	Soft/Loose soil	CUM	2187	2187				
<b>9.2.2</b>	Dense/Compact soil soil	CUM	4225	4225				
<b>9.2.3</b>	Soft/Di-integrated rock (not requiring blasting)	CUM	875	875				
<b>9.2.4</b>	Stone Pitching with supply of boulder, T&P and labour.	CUM	0	0				
<b>9.3</b>	<b>Grouting</b>							
9.3.1	Supply of 20mm MS Rod for grouting hole	MT	1.99	2				
9.3.2	Grouting holes (40 mm dia) including cost of all materials supply of T&P and labour etc. necessary for the work as per the recommendation of site Engineer in charge and approval of General Manager of concern circle.	Nos.	512	512				

10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc. has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	Set	1	1				
<b>TOTAL OF CIVIL WORKS (PART-B)</b>								
<b>TOTAL OF ERECTION OF 220KV LINE (Electrical Work) &amp; (Civil Work) - Schedule-4-ss (to Schedule No. 6 Grand Summary)</b>								
					Name of Bidder: _____ Signature of Bidder: _____			
1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.								

## ODISHA POWER TRANSMISSION CORPORATION LIMITED

**NAME OF THE WORK:-Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA Loan.**

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18/- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 2. Plant and Mandatory Spare Parts Supplied from Within the Employer's Country (Transmission Line-132KV)**

<b>NAME OF THE BIDDER</b>					
<b>Sl. No.</b>	<b>SUPPLY OF FOLLOWING EQUIPMENT/MATERIALS (As per Technical Specification)</b>	<b>UNITS</b>	<b>QUANTITY FOR: Construction of 132 KV LILO line from existing 132 KV Akhusing-Paralakhemundi D/C line to proposed 220/132KV /33KV Grid S/S at Gunupur. (Approx. Line length-2.286 Kms.)</b>	<b>Unit Price<sup>2</sup></b>	<b>Total Price<sup>2</sup></b>
			(1)	(2)	(1) x (2)
1	SUPPLY of Following type tested Lattice type Galvanized steel tangent / Angle tower with stubs and cleats , different type of G.I HT Nuts & Bolts, washer, spring washer for the towers ,hanger and all accessories, tower super structure complete including step bolts. Supply of black bituminous paint for three coats up to a height of 500mm above the cooping(legs & bracing members). All Supply should confirm to the Technical Specification.				
1.1	PA TYPE (SUSPENSION ) TOWERS (Nominal unit weight 3.246MT) -6NOS.	MT	19.476		
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) -3NOS.	MT	1.827		
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) -2NOS.	MT	2.582		
1.2	PB TYPE (30 deg ANGLE ) TOWERS (Nominal unit weight 4.949 MT) -3NOS.	MT	14.847		
1.2.1	+3 EXTENSION (Nominal unit weight 0.975MT) -0NOS.	MT	0.000		
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) -1NOS.	MT	2.020		
1.3	PC TYPE (60 deg ANGLE ) TOWERS (Nominal unit weight 5.924 MT) -6NOS.	MT	35.544		
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) -2NOS.	MT	2.138		
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) -1NOS.	MT	2.246		
1.4	OC TYPE (60 deg ANGLE ) TOWERS (Nominal unit weight 9.806 MT) -0NOS.	MT	0.000		
1.4.2	+15 EXTENSION (Nominal unit weight 8.375 MT) -0NOS.	MT	0.000		

<b>1.4</b>	<b>TEMPLATES</b>				
1.4.1	PA (Nominal unit weight 0.644 MT) -1NOS.	MT	0.644		
1.4.2	PB (Nominal unit weight 0.592 MT) -1NOS.	MT	0.592		
1.4.3	PC (Nominal unit weight 0.876 MT) -1NOS.	MT	0.876		
1.4.4	OC+15 (Nominal unit weight 2.073 MT) -0NOS.	MT	0.000		
<b>1.5</b>	<b>WEIGHT OF THE STRUCTURES &amp; Templates including Tower Stub</b>	MT	<b>82.792</b>		
<b>1.6</b>	<b>Weight of different type G.I Nuts and Bolts</b>	MT	<b>4.800</b>		
<b>2</b>	<b>Supply of the following tower accessories as per technical specification and as directed by the engineer in charge.</b>				
2.1	EARTHING DEVICE	Nos.	15		
2.2	DANGER BOARD	Nos.	15		
2.3	NUMBER PLATE	Nos.	15		
2.4	PHASE PLATE	Nos.	90		
2.5	BIRD GUARD	Nos.	42		
2.6	ANTICLIMBING DEVICE	Nos.	15		
2.7	CIRCUIT PLATE	Nos.	30		
<b>3</b>	<b>Supply of following POWER CONDUCTORS in the proposed 132 KV line with 1.5% provision for sag and wastage as per the technical specification and as per the instruction of the engineer in charge.</b>				
3.1	For ACSR Panther-30/7/3.18mm size power conductor POWER CONDUCTOR	Kms.	17.21		
<b>4</b>	<b>POWER CONDUCTOR ACCESSORIES</b>				
<b>4.1</b>	<b>For ACSR Panther-30/7/3.18 mm size POWER CONDUCTOR</b>				
4.1.1	VIBRATION DAMPER	Nos.	184		
4.1.2	MID SPAN JOINT	Set	17		
4.1.3	REPAIR SLEEVE	Set	8		
4.1.4	P A ROD	Set	42		
<b>5</b>	<b>OPGW Fibre Optic Cable &amp; Hardware</b>				
5.1	48 Fibre(DWSM)OPGW Fibre Optic Cable	Kms.	2.83		
5.2	OPGW Hardware set like Suspension Assembly,Tension Assembly(Dead end Assembly, Pass through Assembly) ,Vibration Damper,Down Lead Clamp Assembly for 24/48 Fibre(DWSM) OPGW,Joint Box etc.	Kms.	2.83		
<b>6</b>	<b>Supply of the following type Long Rod Porcelain Insulators as per the technical specification and as per the instruction of the engineer in charge.</b>				
6.1	90 KN Long Rod Insulator for 132KV	Nos.	60		
6.2	120 KN Long Rod Insulator for 132KV	Nos.	114		
<b>7</b>	<b>Supply of the following hard ware fittings suitable for ACSR Panther conductor as per the technical specification.</b>				
<b>7.1</b>	<b>For ACSR Panther-7/30/3.18 mm size power conductor</b>				
7.1.1	Single suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Nos.	30		
7.1.2	Double suspension Hard wares fittings suitable for 90 KN Long Rod insulator.	Nos.	12		

7.1.3	Single tension Hard wares fittings suitable for 120 KN Long Rod insulator.	Nos.	102		
7.1.4	Double tension Hard wares fittings suitable for 120 KN Long Rod insulator.	Nos.	6		
7.1.5	Hanger	Nos.	42		
7.1.6	U'-Bolt.	Nos	15		
7.1.7	PG Clamp	Nos	12		
<b>TOTAL OF 132KV LINE-SCHEDULE-2 -Plant (to Schedule No. 6 Grand Summary)</b>					
		Name of Bidder: _____ Signature of Bidder: _____			
<sup>1</sup> Prices of Items quoted in Schedule No.1 shall not be quoted again in Schedule No. 2 and shall have a remark against the said row "Quoted in Schedule No.-1".					

## ODISHA POWER TRANSMISSION CORPORATION LIMITED

**NAME OF THE WORK:-**Design, Supply and Installation of 2X160 MVA, and 2x20 MVA, 220/132 /33 KV Grid Sub-station at Gunupur with associated 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) & 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.) in Odisha State of India under PACKAGE-5 Under Japan International Cooperation Agency (JICA)'s ODA

**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18]- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 4. Installation and Other Services (Transmission Line-132KV)**

### NAME OF THE BIDDER

Sl. No.	ERECTION, TESTING & COMMISSIONING OF FOLLOWING EQUIPMENT/MATERIALS ALONG WITH CIVIL WORKS (As per Technical Specification)	UNITS	QUANTITY FOR: Construction of 132 KV LILO line from existing 132 KV Akhusing-Paralakhemundi D/C line to proposed 220/132KV /33KV Grid S/S at Gunupur. (Approx. Line	TOTAL QUANTITY	Unit Price <sup>1</sup>		Total Price <sup>1</sup>	
					Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion	Local Currency Portion
				1	2	3	(1x2)	(1x3)
<b>PART-A ELECTRICAL WORKS</b>								
1	<b>ERECTION, TESTING &amp; COMMISSIONING</b> of Following tested Lattice type Galvanized steel tangent / Angle tower without stubs and cleats including different type of G.I HT Nuts & Bolts, washer, spring washer for the above type towers ,hanger and all accessories, tower super structure complete with tightening, punching of bolts including step bolts. All other left out portion of the bolts above bottom cross arm shall be riveted by using suitable hammer. Painting of black bituminous paints three coats shall be provided up to a height of 500mm above the cooping legs & bracing members. All Erection should confirm to the Technical Specification laid there in the Tender Specification.							
1.1	PA TYPE (SUSPENSION ) TOWERS (Nominal unit weight 2.994MT) - <b>6NOS.</b>	MT	17.964	17.964				
1.1.1	+3 EXTENSION (Nominal unit weight 0.609 MT) - <b>3NOS.</b>	MT	1.827	1.827				
1.1.2	+6 EXTENSION (Nominal unit weight 1.291 MT) - <b>2NOS.</b>	MT	1.291	1.291				
1.2	PB TYPE (30 deg ANGLE ) TOWERS (Nominal unit weight 4.517 MT) - <b>3NOS.</b>	MT	13.551	13.551				
1.2.1	+3 EXTENSION (Nominal unit weight .975MT) - <b>0NOS.</b>	MT	0.000	0.000				
1.2.2	+6 EXTENSION (Nominal unit weight 2.020 MT) - <b>1NOS.</b>	MT	2.020	2.020				



1.3	PC TYPE (60 deg ANGLE ) TOWERS (Nominal unit weight 5.315 MT) - <b>6NOS.</b>	MT	31.890	31.890				
1.3.1	+3 EXTENSION (Nominal unit weight 1.069 MT) - <b>2NOS.</b>	MT	2.138	2.138				
1.3.2	+6 EXTENSION (Nominal unit weight 2.246 MT) - <b>1NOS.</b>	MT	2.246	2.246				
<b>1.3.3</b>	<b>WEIGHT OF THE STRUCTURES</b>	MT	<b>72.927</b>	<b>72.927</b>				
<b>1.4</b>	<b>Weight of different type G.I Nuts and Bolts</b>	MT	<b>4.800</b>	<b>4.800</b>				
<b>1.5</b>	<b>Fixing of of Templates &amp; setting of Stubs including G.I Nuts &amp; Bolts</b>							
1.5.1	PA (Nominal unit weight 0.919 MT) - <b>6NOS.</b>	MT	5.514	5.514				
1.5.2	PB (Nominal unit weight 1.047 MT) - <b>3NOS.</b>	MT	3.141	3.141				
1.5.3	PC (Nominal unit weight 1.513 MT) - <b>6NOS.</b>	MT	9.078	9.078				
1.5.4	TOTAL WEIGHT	<b>MT</b>	<b>17.733</b>	<b>17.733</b>				
<b>2</b>	<b>Erection of the following tower accessories as per technical specification and as directed by the engineer-in charge.</b>							
2.1	EARTHING DEVICE	Nos.	15	15				
2.2	DANGER BOARD	Nos.	15	15				
2.3	NUMBER PLATE	Nos.	15	15				
2.4	PHASE PLATE	Nos.	90	90				
2.5	BIRD GUARD	Nos.	42	42				
2.6	ANTICLIMBING DEVICE	Nos.	15	15				
2.7	CIRCUIT PLATE	Nos.	30	30				
<b>3</b>	Hoisting and fixing of insulators with required accessories, paying out of conductor ,jointing, stringing, sagging & Jumpering etc. of power conductor in the proposed lines with all required accessories including scaffolding for 33 KV,11 KV, LT , P&T lines, roads and using own required T&P and compression jointing machines etc. with 1.5% provision for Sag & Wastage and as per the direction of Engineer in charge.							
3.1	Double Circuit ACSR Panther-30/7/3.18mm size power conductor	Route (Km)	2.83	2.83				
<b>4</b>	<b>Erection of OPGW fibre Optic Cable for speech, data &amp; protection</b>							
4.1	Erection of 48Fibre(DWDM) OPGW fibre Optic along with hardwares and approach cables	Kms	2.83	2.83				
	<b>TOTAL OF ELECTRICAL WORKS (PART-A)</b>							
<b>PART B</b>	<b>CIVIL WORKS</b>							
<b>1</b>	<b>SURVEY OF LINE &amp; PREPARATION LAND SCHEDULE: Supply of required T&amp;P's, Technical personnel's, labours for conducting</b>							

1.1	Preliminary survey, Detail survey and resurvey (required for avoiding ROW problem) including but not limited to taking of levels, profile plotting, tower spotting ,marking of towers locations at site including showing P&T line, power line, Railway line, river crossing, roads and submission of route map and survey report etc. The P&T lines and railway lines for a minimum distance of 8 kms on either side of alignment shall be clearly indicated.	KM.	2.826	2.826				
1.2	Check survey including supply of all labour, T&P as per instruction of Engineer in Charge and as per the approved profile.	KM.	2.826	2.826				
1.3	Preparation of land schedule on revenue (if required)maps indicating alignment therein duly authenticated by Revenue Inspector & Tahasildar, enumeration of trees with the help of Forest officer and other prominent features required for alignment of the proposed 132 KV line. Final route to be plotted on 1:50000 topo sheet for approval.Detail GIS (Geographical Information System) of towers to be included.	KM.	2.826	2.826				
1.4	Soil Testing in complete shape along with submission of report etc. up to the depth of 15 Mtrs.	Per Loc.	5	5				
2	<b>EXCAVATION WORKS FOR OPEN CAST/SHALLOW TYPE FOUNDATIONS</b>							
2.1	<b>Excavation for following type of soil and rocks and back filling (back filling shall be done in layers of 500mm sprinkling of water and compaction thereafter and disposed of excess quantity of excavated soil at suitable place after back filling), &amp; if required for filling the foundation, borrowed earth/morrum/sand shall be brought for filling and compaction, including supply of sand, all T&amp;P, labour as required for foundation</b>							
2.1.1	Soft/Loose soil	CUM	277	277				
2.1.2	Dense/Compact soil	CUM	408	408				
2.1.3	Wet soil	CUM	1	1				
2.1.4	Partial Submerged soil	CUM	653	653				
2.1.5	Fully submerged soil	CUM	66	66				
2.1.6	Soft/Disintegrated rock(Not requiring Blasting)	CUM	196	196				
2.1.7	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	33	33				
3	<b>FOUNDATION MATERIALS:</b> Supply of all materials like cement, steel, all coarse aggregates, fine aggregates and making foundations of the required above mentioned type towers as per the direction laid down in the technical specification and the direction of the site- in charge							
3.1	<b>PCC(Lean Concrete) in the ratio 1:3:6(Grade M-10)</b>	CUM	27	27				

3.2	(i) <b>FOR OPENCAST FOUNDATION:</b> Providing & laying of <b>RCC</b> work of ratio <b>1:1.5:3 (Grade M-20)</b> with approved quality stone chips of nominal size 12mm to 20mm in tower foundation and cooping inclusive of cost of mixing, supply of form boxes Chimney & fixing, curing, testing of sample cement concrete cubes & cost of all materials like cement,etc. as per IS.456 (ii) The cooping height shall be 350mm above the ground level. The surrounding area shall be clear from materials and damage of land if any shall be repaired before measurement and as per requirement, including labours and T&P as per specification in the concrete ratio 1:1.5:3 (Grade M-20.)	CUM	240	240				
3.2.1	Supply of Steel of different size (as per design ) with cutting,bending ,binding in position of M.S.Rod for reinforcement of foundation concrete of towers (open cast ) including supply of binding wire (With supply of steel rod -TATA/RINL/SAIL make )	MT	5	5				
<b>4</b>	<b>DE-WATERING(FOR OPEN CAST LOCATION)</b>							
4.1	With Supply of all T&P, Fuel, Lubricant & electricity on HP Hour basis.	HP Hour	85	85				
<b>5</b>	<b>Supply of borrowed earth/morrum for back filling for foundation/revetment works</b>							
	<b>Beyond 30 mte &amp;up to 100 mtr lead</b>	CUM	114	114				
<b>5.1</b>	Beyond 100 mtr lead	CUM	170	170				
<b>6</b>	<b>SHORING &amp; SHUTTERING</b> -Required in wet/submerged or special locations of open cast/shallow type foundations with supply of all materials,T&P and Labour.	SQ.MTR.	895	895				
<b>7</b>	<b>Head-Loading</b> of all types of foundation-materials, towers, structures, conductors, Insulators, Hard-wares for inaccessible Locations beyond 400 mtrs from the nearest approach road as per the recommendation of site Engineer-In- Charge and approval of the General Manager of Concerned circle.	Per MT/ Per Mtr.	36331	36331				
<b>8</b>	<b>WELDING OF TOWER NUTS &amp; BOLTS</b>							
8.1	Supply of all materials for continuous welding of bolts & nuts (around the bolts) up to top of tower without cross arm, including welding rods, welding generator machine (diesel engine operator.), application of required zinc rich paints around the welding portion after welding (two coats),fuel,lubricants,T&P and labours and other arrangements etc.	Nos.	11,654	11654				
<b>9</b>	<b>REVTMENT: (including Benching) Supply of all materials like cement, Late-rite stone (stone masonry) all type aggregates, labours, &amp; T&amp;P for construction of revetment walls as per requirement to protect the towers, where felt unsafe and as per approved drawing and the direction of Engineer in charge.</b>							

9.1	<b>Excavation&amp; back filling including supply of sand</b>						
9.1.1	Soft/Loose soil	CUM	208	208			
9.1.2	Dense/Compact soil	CUM	287	287			
9.1.3	Soft/Disintegrated rock(Not requiring Blasting)	CUM	68	68			
9.1.4	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	11	11			
9.2	Lean Concrete in the ratio1:3:6(Grade M-10) including supply of sand chips etc.	CUM	25	25			
9.3	PCC in the ratio 1:2:4(Grade M-15) as above.	CUM	10	10			
9.4	RR/Latrite Stone Masonry work in the ratio 1:5.	CUM	867	867			
9.5	<b>Benching</b> in all type of soil including supply of labour and T& P etc.						
9.5.1	Soft/Loose soil	CUM	122	122			
9.5.2	Dense/Compact soil	CUM	235	235			
9.5.3	Hard Rock(Requiring Blasting/Using breaker machinery)	CUM	49	49			
9.5.4	Grouting						
9.5.5	Supply of 20mm MS Rod for grouting hole	CUM	1	1			
9.5.6	Grouting holes (40mm dia)including cost of all materials supply of T&P labour etc. necessary for work as per the recommendation of site engineer in charge and approval of GM of concerned circle	Nos.	1	1			
10	PTCC approval, railway crossing has to be obtained by submitting the required documents to the concerned department through OPTCL. The documents for PTCC clearance & Railway clearance including required drawings etc. has to be submitted by the contractor within 5 months of award of contract. Beyond the above period L.D as applicable & the amount shall be deducted as specified in the specification.	LS	1	1			
	<b>TOTAL OF CIVIL WORKS (PART-B)</b>						
	<b>TOTAL OF ERECTION OF 132 KV LINE (Electrical Work) &amp; (Civil Work) -Schedule-4-ss (to Schedule No. 6 Grand Summary)</b>						
					Name of Bidder:_____		
					Signature of Bidder:_____		
1 Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bid, or ITB 34.1 in Two-Stage Bid.							

**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

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**Loan Agreement No: [ID-P245] - FB No: [CPC/JICA/ICB/05/17-18]- Reference Identification No: [OPTCL/JICA/PKG-5]**

**Schedule No. 6. Grand Summary**

NAME OF THE BIDDER		Total Price <sup>1</sup>	
		Foreign	Local
Item	Description		
1	Total Schedule No. 1. Plant, Supplied from Abroad (Substation+Line)		
2	Total Schedule No. 2. Plant, Supplied from Within the Employer's Country (substation+Line)		
3	Total Schedule No. 3. Design Services (Not Applicable)		
4	Total Schedule No. 4. Installation and Other Services (substation+Line)		
5	Total Schedule No. 5. Provisional Sums (Not to be considered for Evaluation)		
Total( to Bid Form)			

Name of Bidder: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

<sup>1</sup> Specify currency in accordance with specifications in Bid Data Sheet under ITB 19.1 in Single-Stage Bidding, or ITB 34.1 in Two-Stage Bidding. Create and use as many columns for Foreign





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**Schedule No. 8. Details of Taxes & Duties**

**NAME OF THE BIDDER**

Sl No	Description of Applicable Tax/Levy		Tax @ __%	Total Amount of Taxes /Duty/ Levies
1	Details of Taxes and levies on the direct / bought out transactions between Bidder and ODISHA POWER TRANSMISSION CORPORATION LTD included in the Bid Price above but as may be payable by ODISHA POWER TRANSMISSION CORPORATION LTD (Schedule-1 & 2)			
(i)	TOTAL IGST			
(ii)	TOTAL CGST			
(iii)	TOTAL OGST			
(iv)	TOTAL Any other tax			
	TOTAL OF TAXES AND DUTIES [Sum (i) to (iv)]			
2	Details of Taxes and levies on the direct / bought out transactions between Bidder and ODISHA POWER TRANSMISSION CORPORATION LTD included in the Bid Price above but as may be payable by ODISHA POWER TRANSMISSION CORPORATION LTD (Schedule- 4)			
(i)	TOTAL IGST			
(ii)	TOTAL CGST			
(iii)	TOTAL OGST			
(iv)	TOTAL Any other tax			
	TOTAL OF TAXES AND DUTIES [Sum (i) to (iv)]			
4	F. Total Bid Price: (including Taxes & Duties and other levies)			

Name of Bidder: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_