

**MADHYA PRADESH POWER TRANSMISSION CO. LTD.
SHAKTI BHAWAN RAMPUR: JABALPUR**



VOLUME-VI

**Bid Identification Number: JICA-II/MPPTCL/TR-211
(Package No-8-1)**

**“ADDITIONAL SCHEDULES, ANNEXURES AND BID
FORMATS”**

**O/o CHIEF ENGINEER (PROCUREMENT)
MPPTCL, JABALPUR.**

Volume-VI
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SCHEDULE-8

**QUANTITY OF EQUIPMENTS AND MATERIALS TO BE SUPPLIED
FOR SUB-STATIONS, AUGMENTATION AND FEEDER BAYS.**

S No.	PARTICULARS	Unit	Qty.
1	2	3	4
A	400 KV EQUIPMENTS		
1	400KV SF6 Gas Circuit Breaker With PIR	Nos.	0
2	400KV SF6 Gas Circuit Breaker Without PIR	Nos.	0
3	400KV CT (multi core) 2000-1000-500/1-1-1-1-1 Amp.	Nos.	0
4	400KV Pantograph Isolators with ES (set) complete with Structure	Set.	0
5	400KV Horizontal Centre Break single phase Isolator (set of Three) with ES complete with structure and solid core insulators	Nos.	0
6	400KV Horizontal Centre Break Isolator without ES complete with structure and solid core insulators	Nos.	0
7	400KV Horizontal Centre Break Isolator with ES complete with structure and solid core insulators	Nos.	0
8	400KV Solid Core Insulators for Substation work	Nos.	0
9	400KV Operating Rod Insulator for Pantograph Isolators	Nos.	0
10	400KV Capacitive Voltage Transformer	Nos.	0
11	400kv Wave Trap pedestal mounting with support insulator and structure	Nos.	0
12	400KV LAs	Nos.	0
13	C&R Panel For Transformer	Nos.	0
14	C&R Panel for Feeders	Nos.	0
15	C&R Panel for Bus Coupler	Nos.	0
16	C&R Panel for Bus Tie	Nos.	0
17	C&R Panel for Reactors	Nos.	0
18	125 MVAR 3 Phase 400KV Shunt Reactor	Nos.	0
19	145 KV neutral reactor	Nos.	0
20	Bus Differential Protection Panel	Nos.	0
21	Telemetry	Nos.	0
B	220KV EQUIPMENTS		
1	Circuit Breaker	Nos.	2
2	220 KV CT 1200/1-1-1-1-1 Amp.	Nos.	0
3	220 KV CT 800/1-1-1-1-1 Amp.	Nos.	6
4	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.	0
5	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.	6
6	Single phase Isolators (Set of three ,with structure and Solid core Insulator)	Nos.	0
7	LA	Nos.	6
8	Solid Core Insulators for substation work	Nos.	10
9	C&R Panel for Feeder	Nos.	0
10	C&R Panel for BC	Nos.	0
11	C&R Panel for 220 KV Side of 315MVA Transformer	Nos.	0
12	C&R Panel for 220/132kv Transformer	Nos.	2
13	C&R Panel (Bus Tie)	Nos.	0
14	PT	Nos.	0

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S No.	PARTICULARS	Unit	Qty.
1	2	3	4
15	Bus Differential Protection Panel	Nos.	0
16	Synchronization Trolley	Nos.	0
C	132KV EQUIPMENTS		
1	Circuit Breaker	Nos.	41
2	132KV CT 800/1-1-1 Amp.	Nos.	6
3	132KV CT 400/1-1-1Amp	Nos.	117
4	132KV CT 200/1-1-1Amp	Nos.	0
5	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.	17
6	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.	106
7	Single phase Isolators (with structure and Solid core Insulator)	Nos.	0
8	PT	Nos.	21
9	LA	Nos.	102
10	C&R Panel (for 220/132KV Xmer)	Nos.	2
11	C&R Panel (for 132/33KV Xmer)	Nos.	15
12	C&R Panel (for Feeder)	Nos.	17
13	C&R Panel (for Bus coupler)	Nos.	7
14	Solid Core Insulators for substation work	Nos.	417
D	33KV EQUIPMENTS		
1	Vacuum Circuit Breaker	Nos.	59
2	33KV CT 1200/1-1-1-1 Amp.	Nos.	45
3	33KV CT 800/1-1-1-1 Amp.	Nos.	0
4	33KV CT 400/1-1 Amp	Nos.	132
5	33KV CT 10/1-1 Amp.	Nos.	0
6	NCT	Nos.	7
7	LA 36kV	Nos.	21
8	LA 33kV	Nos.	156
9	PT	Nos.	21
10	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.	30
11	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.	102
12	Isolator (without E/S) 1200 Amps. (with structure and Solid core Insulator)	Nos.	16
13	C&R Panel (for 1T+1F)	Nos.	15
14	C&R Panel (for 3 F)	Nos.	8
15	C&R Panel (for 1 F)	Nos.	6
16	C&R Panel for CAP BANK	Nos.	7
17	Solid Core Insulators for substation work	Nos.	180
18	Solid Core Insulator special set with structures	Nos.	7
19	36kV 12MVAR Capacitor Bank with structures and accessories(SET)	Nos.	7
E	TRANSFORMER & ASSOCIATED EQUIP.		
1	315 MVA 400/220/33 KV Auto Transformer (with Oil and associated equipments)	Nos	0
2	100MVA 400/132KV Transformer (with Oil and associated equipments)	Nos	0

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S No.	PARTICULARS	Unit	Qty.
1	2	3	4
3	160MVA 220/132KV Transformer (with Oil and associated equipments)	Nos.	0
4	50MVA 220/33KV Transformer (with Oil and associated equipments)	Nos	0
5	40MVA 132/33KV Transformer (with Oil and associated equipments)	Nos.	0
6	Oil filtration Machine (6000 Lt. per Hr.)	Nos.	0
7	Oil filtration Machine (2250 Lt. per Hr.)	Nos	7
8	Oil Storage Tank (10 KL)	Nos.	7
F	400KV,220KV & 132KV CARRIER COMMUNICATION EQUIPMENT		
1	Carrier Cabinet With Protection coupler	Nos.	0
2	Coupling Devices (LMU)	Nos.	0
3	Carrier Cabinet Without Protection coupler	Nos.	0
4	RTU & Telemetry (SET)	Nos.	7
5	EPAX (32/16)	Nos.	7
6	Telephone Sets	Nos.	84
7	Coaxial Cable	KMs	0
8 (a)	Telephone Cable (10 Pair Armoured)	KMs	7
8 (b)	Telephone Cable (06 Pair Armoured)	KMs	0
9	220kV Wave Trap	Nos.	0
10	132kV Wave Trap	Nos.	0
11	220kV CVT	Nos.	0
12	132kV Coupling Capacitors	Nos.	0
13	Jointing Box (splice enclosure)	Set	14
14	Approach Cable	KMS	7
15	Fiber optical distribution panel	Nos.	14
16	Terminal equipment for optical fiber	Nos.	14
17	GPS System with accessories (1 Set), including installation cost if any		7
18	CCTV (Electronic Surveillance System) (1 Set) including installation cost if any		7
(G)	400 kV , 220kV, 132kV and 33kV Fabricated, Galvanised Steel Structures.		
(i)	M.S. Steel sections.	MT	716.55
(ii)	G.I. Foundation bolts, G.I. Bolts & Nuts, Spring, plain and pack washers for structures as per Sl. No. (i) above	MT	48.81
H	BUSBAR, EARTHING MATERIAL		
1	ACSR Moose Conductor	KMs	0
2	Zebra Conductor	KMs	0
3	4" IPS Allu.Tubes	Mtrs	0
4	MS Round 40 mm Dia for 400 KV S/s Earth mat	MT	0
5	M.S.Flat for earthing (75 x 8)	MT	6
6	M.S.Flat for earthing (65 x 8)	MT	180
7	M.S.Flat for earthing (50 x 6)	MT	116
8	Earthing rods (25mm x 3000mm)	Nos.	1170
9	GI Pipe 40 mm Dia., 4mm Thk along with clamp for Earth Pit	Mtrs	2340
10	Power Cable 3.5 core 300 sq.mm	KMs	4

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S No.	PARTICULARS	Unit	Qty.
1	2	3	4
11	Screening conductor /O.H. Shield wire	KMs	35
12	Junction Box (36 Ways)	Nos.	87
13	Junction Box (64 Ways)	Nos.	104
14	Junction Box (128 Ways)	Nos.	0
15	Fire fighting equipments set		
(i)	Dry-Chemical Powder (DCP) Type, Capacity-75Kg, Trolley Mounted	Nos.	7
(ii)	CO ₂ Type , Capacity-22.5Kg, Trolley Mounted	Nos.	14
(iii)	Mechanical Foam Type, Capacity-50Ltr, Trolley Mounted (Cylinder Type)	Nos.	14
(iv)	Set Of Fire Buckets Comprising 6 Nos Buckets, Capacity-9Kg , Each with Stand (Set)	Nos.	14
16	Rail 52 Kg 3 Mtr Long for Power Transformer	Nos.	34
17	R.S. Joist 175x85 ,11 Mtr for Station Transformer	Nos.	14
18	MS Chanel 100x50x6 Mtr Long for station Transformer	Nos.	21
19	PT Distribution Box	Nos	0
I	Disc insulators & Substation Hardware		
1	400 KV 160KN Double tension with Quadruple Moose	Nos	0
2	400 KV 160KN Double tension with Twin Moose	Nos	0
3	400 KV 160KN Suspension with Twin Moose with Through Clamp (450 mm)	Nos	0
4	400 KV160KN Suspension with Twin Moose with drop Clamp (450 mm)	Nos	0
5	220 KV 120 KN Single Tension with Twin Moose Harware	Nos.	0
6	220 KV 120 KN Single Tension with Single Moose Harware	Nos.	0
7	220 KV 120 KN Suspension with Twin Moose with Through Clamps (300 mm)	Nos.	0
8	220 KV 120 KN Suspension with Twin Moose with Drop Clamps (300 mm)	Nos.	0
9	220 KV 120 KN Suspension with Single Moose with Through Clamps (300 mm)	Nos.	0
10	220 KV 120 KN Single Tension string for single Zebra	Nos.	54
11	220 KV 120 KN Single Tension string for twin Zebra	Nos.	24
12	220 KV 90 KN Single Suspension string single Zebra	Nos.	18
13	220 KV 90 KN Single Suspension string twin Zebra	Nos.	0
14	132 KV 90 KN Single Tension string for single Zebra	Nos.	384
15	132 KV 90 KN Single Tension string for twin Zebra	Nos.	228
16	132 KV 90 KN Single Tension string for single Panther	Nos.	63
17	132 KV 70KN Single Suspension string single Zebra	Nos.	135
18	132 KV 70 KN Single Suspension string twin Zebra	Nos.	36
19	33 KV 70 KN Single Tension string for single Zebra	Nos.	300
20	33 KV 70 KN Single Tension string for twin Zebra	Nos.	264
21	33 KV 70 KN Single Suspension string single Zebra	Nos.	84
22	33 KV 70 KN Single Suspension string twin Zebra	Nos.	90

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S No.	PARTICULARS	Unit	Qty.
1	2	3	4
J	AC/DC SUPPLY		
1	L T Distribution Box	Nos.	7
2	25 KVA DG Set Complete with all accessories	Nos.	0
3	Station Transformer, 200KVA, 33/0.4KV	Nos.	7
4	Station Transformer, 500KVA, 33/0.4KV	Nos.	0
5	220Volt 600Ah Battery	Nos.	0
6	220Volt 600Ah Battery Charger	Nos.	0
7	110Volt 300Ah Battery	Nos.	7
8	110Volt 300Ah Battery Charger	Nos.	7
9	48Volt 300Ah Battery	Nos.	7
10	48Volt 300Ah Battery Charger	Nos.	7
11	AC Distribution Boxes 415Volt	Nos.	7
12a	DC Distribution Boxes 220 Volts	Nos.	0
12b	DC Distribution Boxes 110 Volts	Nos.	7
13	Lighting Fixtures with HPSV/ HPMH (250 Watt)	Nos.	221
14	Lighting Fixtures complete with fitting arrangement (CFL 36 Watt)	Nos.	420
15	3 Phase ICTP MCB (32 Amp) for No. of difference circuit	Nos.	18
16	1 Phase Main switch with fuse, link and 4 connectors	Nos.	420
17	Tubular Poles for Lighting Fixtures	Nos.	420
18	D.O.Set	Nos.	7
19	Aluminium /Red oxide Paints and Nuts and Bolts washers and other misc material	LS	LS
20	Roof Top Solar System(25KW) (1 Set)including installation cost if any		7
K	Control cable		
1	2Core 2.5 Sq.mm Unarmoured	KMs	46
2	4Core 2.5 Sq.mm Unarmoured	KMs	151
3	8Core 2.5 Sq.mm Unarmoured	KMs	68
4	12Core 2.5 Sq.mm Unarmoured	KMs	57
5	19 Core 2.5 Sq.mm Unarmoured	KMs	62
6	4Core 4 Sq.mm Armoured	KMs	0
7	4Core 10 Sq.mm Armoured	KMs	0
8	4Core 2.5 Sq.mm Armoured	KMs	0
9	12Core 2.5 Sq.mm Armoured	KMs	0
10	19 Core 2.5 Sq.mm Armoured	KMs	0
11	2Core 2.5 Sq.mm Armoured	KMs	0
L	SUB STATION CLAMPS		
1	T CLAMPS		
a.	TWIN ZEBRA RUN-ZEBRA TAP	Nos.	336

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S No.	PARTICULARS	Unit	Qty.
1	2	3	4
b.	ZEBRA RUN-ZEBRA TAP	Nos.	1338
2	P.G.CLAMPS		
a.	ZEBRA –ZEBRA	Nos.	228
b.	ZEBRA –PANTHER	Nos.	144
c.	ZEBRA –RECOON	Nos.	84
3	P.I. CLAMPS 220 KV		
a.	SINGLE ZEBRA /MOOSE	Nos.	24
b.	TWIN ZEBRA / MOOSE	Nos.	12
4	P.I. CLAMPS 132 KV		
a.	SINGLE ZEBRA	Nos.	147
b.	TWIN ZEBRA	Nos.	102
5	P.I. CLAMPS 33 KV		
a.	SINGLE ZEBRA	Nos.	108
b.	TWIN ZEBRA	Nos.	87
6	SPACERS FOR TWIN ZEBRA	Nos.	522
7	T Clamp		
a	TWIN MOOSE RUN –MOOSE TAP	NOS	0
b	MOOSE RUN –MOOSE TAP	NOS	0
C	4" IPS Run –MOOSE TAP	NOS	0
d	Quad. Moose to twin moose	NOS	0
8	PG CLAMP		
a	MOOSE- MOOSE	NOS	0
b	MOOSE-ZEBRA	NOS	0
9	Bus Post Clamp		
a	Sliding type for 4" IPS tube	NOS	0
b	Flexible type 4" IPS tube & Twin Moose	NOS	0
C	Twin Moose	NOS	0
10	Coupling sleeves for tubular bus conductor	NOS	0
11	Spacer		
a	TWIN MOOSE	NOS	0
b	QUADRA MOOSE	NOS	0
c	Sag Comp. Spring	NOS	0
12	Earth wire clamps	NOS	318

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SCHEDULE - 9

**QUANTITY OF MATERIALS TO BE SUPPLIED FOR
TRANSMISSION LINES.**

NOT APPLICABLE

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SCHEDULE-10

**QUANTITY FOR ERECTION, TESTING & COMMISSIONING OF
OUTDOOR & INDOOR EQUIPMENTS**

S. No.	Description of work	Unit	Qty.
1	2	3	4
(A)	Structures :		
i)	Erection of structures including tightening and punching of nuts, bolts.	MT.	670
(B)	Stringing of overhead gantries, vertical droppers with ACSR conductor including fixing of insulator string, spacers, clamps etc.		
i)	4" IPS allu. Tube	Mtr	0
ii)	Quad moose	Mtr	0
iii)	Twin Moose	Mtr	0
iv)	Twin Zebra	Mtr	9975
v)	Single Zebra	Mtr	18855
vi)	Stringing of overhead shield wire with 7/3.66 mm standard galvanized steel complete with fixing of strain clamps at the structures.	Mtr	7390
C	Installation of transformers		
I.	Complete assembly and erection of power transformer with connections etc including installation of marshalling boxes, control cabinets, air sealing radiators, cooling fans, all accessories etc for transformer including their preliminary checks. Unloading /handling of transformer accessories, handling and filling of transformer oil along with associated equipments.		
i)	315 MVA 400/220/33 KV Auto Transformer (with Oil and associated equipments)	No	0
ii)	160MVA 220/132KV Transformer (with Oil and associated equipments)	No.	2
iii)	100MVA 400/33KV Transformer (with Oil and associated equipments)	No.	0
iv)	63MVA 132/33KV Transformer (with Oil and associated equipments)	No.	1
v)	40/50MVA 132/33KV Transformer (with Oil and associated equipments)	No.	14
vi)	125 MVAR 400 KV Reactor (with Oil and associated equipments)	No.	0
II.	STATION TRANSFORMER		
i)	Shifting of 33/0.4 KV Station transformer up to plinth and placing on plinth & connection to bushing & earth connection alongwith associated work etc.	No.	7
(D)	Installation and erection of out-door equipments.		
I.	CIRCUIT BREAKERS		
I)	400 KV SF-6 circuit breaker (3 Phase) with PIR		
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of all 3 circuit breaker poles on structure and alignment.		
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping		

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S. No.	Description of work	Unit	Qty.
1	2	3	4
	work, erection of all accessories for the equipment.		
c)	SF-6 gas filling for which gas cylinder & filling equipments shall be provided by Company.		
d)	Preliminary check, test including test for leakage of air/gas.		
	Total quantity of item (i)	No	0
ii)	400 KV SF-6 circuit breaker (3 Phase) without PIR		
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of all 3 circuit breaker poles on structure and alignment.		
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping work, erection of all accessories for the equipment.		
c)	SF-6 gas filling for which gas cylinder & filling equipments shall be provided by Company.		
d)	Preliminary check, test including test for leakage of air/gas.		
	Total quantity of item (ii)	No	0
iii)	220 KV SF-6 circuit breakers (3 phase)		
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of all 3 circuit breaker poles on structure and alignment.		
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping work, erection of all accessories for the equipment.		
c)	SF-6 gas filling for which gas cylinder & filling equipments shall be provided by Company.		
d)	Preliminary check, test including test for leakage of air/gas.		
	Total quantity of item (iii)	No.	2
iv)	132 KV SF-6 circuit breakers (3 phase)		
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of all 3 circuit breaker poles on structure and alignment.		
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping work, erection of all accessories for the equipment.		
c)	SF-6 gas filling for which gas cylinder & filling equipments shall be provided by Company.		
d)	Preliminary check, test including test for leakage of air/gas.		
	Total quantity of item (iv)	No.	41
v)	33 KV Vacuum circuit breakers (3 Phase)		
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of circuit breaker on structure and alignment.		
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping work erection of all accessories for the equipment.		
c)	Preliminary check, test including test for leakage of air/gas.		
	Total quantity of item (v)	No.	59
2	Isolators		
i)	400 KV Pantograph Isolator (with one earth switch)		
a)	Shifting upto civil foundation & placements of complete isolator in all 3 phase of isolator structure.		

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S. No.	Description of work	Unit	Qty.
1	2	3	4
b)	Erection/ mounting of mechanism box, interconnection, pipings, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (i)	Set	0
3	Isolators without earth switch (3 Phase)		
i)	400 KV isolators (3 Phase)		
a)	Shifting upto civil foundation & placements of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, pipings, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (i)	No	0
ii)	220 KV isolators (1 Phase set of three)		
a)	Shifting up to civil foundation & placements of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, pipings, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (ii)	No.	0
iii)	220 KV isolators (3 Phase)		
a)	Shifting upto civil foundation & placements of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, pipings, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (iii)	No.	6
iv)	132 KV isolators (3 Phase)		
a)	Shifting up to civil foundation & placements of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (iv)	No.	106
v)	132 KV isolators (Single Phase set of three)		
a)	Shifting upto civil foundation & placements of complete isolator in all Single phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (v)	No.	0
vi)	33 KV isolators (3 phase)		
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (vi)	No.	118

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S. No.	Description of work	Unit	Qty.
1	2	3	4
4.	Isolators with earth switch (3 Phase)		
i)	400 KV HCB isolators (3 phase)		
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (i)	No	0
ii)	400 KV isolators (1 phase)(set of Three)		
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (ii)	No	0
iii)	220 KV isolators (3 phase)		
a)	Shifting upto civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (iii)	No.	0
iv)	132 KV isolators (3 phase)		
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (iv)	No.	17
v)	33 KV isolators (3 Phase)		
a)	Shifting upto civil foundation & placement of complete isolator in all 3 phase of isolator structure.		
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.		
	Total quantity of item (v)	No.	30
5.	Shifting of current X'mer up to civil foundation and placement on structure and fixing of junction box including all accessories etc.		
a)	400 KV	No.	0
b)	220 KV	No.	6
c)	132 KV	No.	123
d)	33 KV	No.	184
6.	Shifting of CC/CVT/P.T. up to civil foundation & placement on structure and fixing of junction box including all accessories etc.		
a)	400 KV	No.	0

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S. No.	Description of work	Unit	Qty.
1	2	3	4
b)	220 KV	No.	0
c)	132 KV	No.	21
d)	33 KV	No.	21
7.	Erection of lightning arrestors :		
i.	Shifting of surge/lightening arrestors & placement of equipments on structure including all accessories and making all connections also include checking & installation of insulator base and surge counters.		
a)	400 KV	No.	0
b)	220 KV	No.	6
c)	132 KV	No.	102
d)	33 KV	No.	177
8	Erection of Solid Core Insulators (PI):		
a)	400 KV	No	0
b)	220 KV	No.	10
c)	132 KV	No.	129
d)	33 KV	No.	84
9.	Wave trap with overhead suspension and other accessories.		
a)	400 KV	No	0
b)	220 KV	No.	0
c)	132 KV	No.	0
10	Set of coupling devices line matching unit for PLCC purposes.	Set	0
11	Erection of Fiber optics Tele communication equipments	set	0
12	Erection of 36 kV 12 MVAR Capacitor bank with structures and accessories complete in all respect.	No.	7
(E)	Earthing Installation :		
	Installation & testing of the following including jointing, equipment termination, fixing & clamping with accessories & hardware required such as saddle, clamps, cleats, plugs, screws, nuts, bolts, washers and welding, brazing etc.		
i)	25 mm dia X 3000 mm long M.S. rod earth electrodes installation directly driven/drilled (40 to 50 mm dia) into earth including excavation (irrespective of type of soil encountered) backfilling with betonite soil (to be arranged by contractor) welding to earth conductor etc.	No.	1170
ii)	Providing of steel risers and making earth mat (duly buried at a depth of 0.5 mtrs) including backfilling with black cotton soil (to be arranged by the contractor) welding etc. and bolting of risers to the structure at desired place.		
a)	MS Round 40 mm Dia for 400 KV S/s Earth mat	Mtr	0
b)	MS flat 75 X 8 mm	Mtr	1200
c)	MS flat 65X 8 mm	Mtr	39600
d)	MS flat 50X 6 mm	Mtr	46400
(F)	Preparation of earthing pits (1.5X1.5.X3 Mtrs.) as per drawing attached with bid document, which includes excavation (Irrespective of the soil encountered) embedding of 4 No. GI Pipes of size 40 mm dia, 3 Mtrs. Long, back filling with B.C.	No.	103

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S. No.	Description of work	Unit	Qty.
1	2	3	4
	soil (to be arranged by the contractor) free from boulders and harmful mixture. These GI pipes are to be welded with MS flats by making mesh frame and cutting of pipes as also making holes in the pipe for water seepage. The earth pit is to be connected with earth mesh of MS flat.		
(G)	Yard Lighting :		
i)	Erection of pole for yard lighting and fitting of fixtures.	No.	520
ii)	Installation of light fixtures on gantry columns, supply connections to the light fitting from the nearest lighting board in the yard etc.	No.	121
(H)	Erection of DO fuse set	NO.	7
(I)	Erection of junction box	NO.	191
(J)	Erection of PT Junction Box	NO	0
(K)	For installation and erection of indoor equipments in the Control-Room building. :		
(i)	415V AC Distribution Board		
	Shifting up to control room (including storage, if required), placement in AC/DC room. The AC Distribution Board to be suitably grouted in AC/DC room as per drawing. Proper alignment of AC Board to be done and earthing to be done. Making of all 3 Phase and Single phase AC connections in terminal block as per drawing.	NO.	7
(ii)	220V DC Distribution Board		
	Shifting up to control room (including storage, if required), placement in AC/DC room. The DC Distribution Board to be suitably grouted in AC/DC room as per drawing. Proper alignment of DC Board to be done and earthing to be done. Making of all 110V DC connections in terminal block as per drawing.	NO.	0
(iii)	110V DC Distribution Board		
	Shifting up to control room (including storage, if required), placement in AC/DC room. The DC Distribution Board to be suitably grouted in AC/DC room as per drawing. Proper alignment of DC Board to be done and earthing to be done. Making of all 110V DC connections in terminal block as per drawing.	NO.	7
(iv)	Control and Relay Panel for 400KV Feeder/X-mer/Bus coupler/Bus tie/Bus Diff. Protection :		
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting, welding & fabrication of of MS channel frame is to be done as per drawing. Proper alignment of C&R panel to be done. The earthing of C&R Panel to be done. Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.	NO.	0
(v)	Control and Relay Panel for 220KV Feeder/X-mer/Bus coupler/Bus tie/Bus Diff. Protection :		
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The	NO.	2

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S. No.	Description of work	Unit	Qty.
1	2	3	4
	placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting, welding & fabrication of of MS channel frame is to be done as per drawing. Proper alignment of C&R panel to be done. The earthing of C&R Panel to be done. Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.		
(vi)	Control and Relay Panel for 132KV Feeder/X-mer/Bus coupler		
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing.The cutting, welding & fabrication of of MS channel frame is to be done as per drawing.Proper alignment of C&R panel to be done.The earthing of C&R Panel to be done.Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.	NO.	41
(vii)	C&R Panel for 33KV Feeder/X-mer/Bus coupler:		
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing.The cutting,welding & fabrication of of MS channel frame is to be done as per drawing.Proper alignment of C&R panel to be done. The earthing of C&R Panel to be done. Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.	NO.	36
(viii)	RTU & Telemetry (Set):		
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of RTU to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting, welding & fabrication of of MS channel frame is to be done as per drawing. Proper alignment of RTU to be done. The earthing of RTU to be done. Making of all interconnections for the RTU on terminal block as per drawing including all AC & DC connections.	NO.	7
(ix)	CARRIER CABINET:		
	Shifting up to control room (including storage if required) and placement in control room .The cabinet will be suitably grouted in control room as per drawing.The proper alignment of panel to be done on MS channel frame and MS Channel frame will be suitably grouted in control room.The earthing of panel to be done. Making of all AC/DC connections in terminal block as per drawing.	NO.	0
(x)	EPAX:		
	Shifting up to control room (including storage if required) and placement in control room with all accessories.	No.	7
(xi)	220V Battery		
a)	Shifting of 220V Battery set (having 110 cells of 1.2 V) up to control room along with battery stand & electrolyte containers		

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S. No.	Description of work	Unit	Qty.
1	2	3	4
	shifting up to control room with all accessories. Checking of breakage and condition of cover seals.		
b)	Erection of mounting racks, placement of battery cells (after proper cleaning of cells) on battery set including their interconnections and connections to their battery chargers. Providing number identification sticker / plates for each cell.		
c)	Charging of batteries as per manufacturer's recommendation under guidance of engineer incharge including two to three charge/discharge cycle complete with maintaining record of battery charging. This work includes initial filling of electrolyte topping up of electrolyte/distilled water during charge/discharge cycle.		
	Total quantity of (xi)	No	0
(xii)	110V Battery		
a)	Shifting of 110V Battery set (having 55 cells of 1.2 V) up to control room along with battery stand & electrolyte containers shifting up to control room with all accessories. Checking of breakage and condition of cover seals.		
b)	Erection of mounting racks, placement of battery cells (after proper cleaning of cells) on battery set including their interconnections and connections to their battery chargers. Providing number identification sticker / plates for each cell.		
c)	Charging of batteries as per manufacturers recommendation under guidance of engineer incharge including two to three charge/discharge cycle complete with maintaining record of battery charging. This work includes initial filling of electrolyte topping up of electrolyte/distilled water during charge/discharge cycle.		
	Total quantity of (xii)	No	7
(xiii)	220/110V Battery Charger		
	Shifting up to control room & placement in AC/DC room with all accessories. The grouting of charger to be done as per drawings. Proper alignment and earthing of Charger to be done. Making of all AC/DC connection in terminal block as per drawing.	No	7
(xiv)	48V Battery		
a)	Shifting of 48V Battery set (having 24 cells of 1.2 V) up to control room along with battery stand & electrolyte containers shifting up to control room with all accessories. Checking of breakage and condition of cover seals.		
b)	Erection of mounting racks, placement of battery cells (after proper cleaning of cells) on battery set including their interconnections and connections to their battery chargers. Providing number identification sticker / plates for each cell.		
c)	Charging of batteries as per manufacturer's recommendation under guidance of engineer incharge including two to three charge/discharge cycle complete with maintaining record of battery charging. This work includes initial filling of electrolyte topping up of electrolyte/distilled water during charge/discharge cycle.		
	Total quantity of (xiv)	NO.	7
(xv)	48V Battery Charger		
	Shifting up to control room & placement in AC/DC room with all	NO.	7

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S. No.	Description of work	Unit	Qty.
1	2	3	4
	accessories. The grouting of charger to be done as per drawings. Proper alignment and earthing of Charger to be done. Making of all AC/DC connection in terminal block as per drawing.		
(N)	Cable terminations including fixing of cable glands, lugs etc. for each type of control/ power cables, including terminations at both ends. I.R. value between cores and I.R. value with respect to its armouring is to be verified. The continuity of all cores is also to be verified. Both work to be done before connecting cable to the terminal block. Making suitable hole in bottom/side plate of C&R panel, AC/DC Board, Marshaling box, CT/PT sec box and CB mechanism box for fixing cable glands in addition to cable gland holes already provided. The hole should be free from burrs. Fixing all cables in respective cable glands and refixing gland plate to its original place. All cable identification plate is to be provided on both ends of each cable. Stripping of outer insulation cover , armouring etc. of cable, fixing ferrules on each core at both ends. Stripping all cores to suitable length, making eye, crimping terminal lugs (as the case may be) and fixing it to terminal block as per drawing followed by proper bending/ dressing of all cores.		
	Details of cables to be provided:		
a	2 Core x 2.5 Sq.mm.(Unrmoured)	NO.	421
b	4 Core x 2.5 Sq.mm.(Unrmoured)	NO.	1114
c	8 Core x 2.5 Sq.mm. (Unrmoured)	NO.	108
d	12 Core x 2.5 Sq.mm. (Unrmoured)	NO.	91
e	19 Core x 2.5 Sq.mm. (Unrmoured)	NO.	257
f	2 Core x 2.5 Sq.mm.(Armoured)	NO	0
g	4 Core x 2.5 Sq.mm.(Armoured)	NO	0
h	12 Core x 2.5 Sq.mm. (Armoured)	NO	0
i	19 Core x 2.5 Sq.mm. (Armoured)	NO	0
j	4 Core x 4 Sq.mm.(Armoured)	NO	0
k	4 Core x 10 Sq.mm.(Armoured)	NO	0
l	Coaxial Cable	NO.	0
m	3.5 Core x 70 /300 Sq.mm.Power Cable	NO.	7
(n)	Laying of copper cables (armoured/unarmoured) on racks/cable trays/ angle support overhead racks conduits including dressing of cables with accessories for copper conductor & armoured control cables.		
	Details of cables to be provided are as under:		
a	2 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	45500
b	4 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	150500
c	8 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	68100
d	12 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	57100
e	19 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	61800
f	4Core 4 Sq.mm Armoured	Mtr.	0
g	4Core 10 Sq.mm Armoured	Mtr.	0
h	4Core 2.5 Sq.mm Armoured	Mtr.	0
i	12Core 2.5 Sq.mm Armoured	Mtr.	0
j	19 Core 2.5 Sq.mm Armoured	Mtr.	0
k	2Core 2.5 Sq.mm Armoured	Mtr.	0
l	Coaxial Cable	Mtr.	0

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S. No.	Description of work	Unit	Qty.
1	2	3	4
m	3.5 Core x 300 Sq.mm.Power Cable	Mtr.	3500
n	Lying of optic Approach cable	Mtr.	7000
O	Erection Testing & commissioning of OFTE including termination of optical Fiber Approach Cables , fixing of jointing Box (splicing),fixing of FODP etc	set	14
(P)	Erection & Commissioning of 25 KVA DG Set	No.	0

SCHEDULE- 11

**QUANTITY FOR ERECTION, TESTING & COMMISSIONING OF
TRANSMISSION LINES**

NOT APPLICABLE

SCHEDULE-12A
COMPLETION SCHEDULE FOR SUPPLY OF PLANTS, EQUIPMENTS
& OTHER MATERIALS

be submitted separately for each work supported with Bar Chart

S. No.	Description of work	Period in weeks from the effective date
[A]	Proto type of substation structures	
i.	400 kV	
ii.	220 kV	
iii.	132 kV	
iv.	33 kV	
[B]	Supply of sub-station structures	
i.	400 kV	
ii.	220 kV	
iii.	132 kV	
iv.	33 kV	
[C]	Supply of indoor equipments along with accessories	
i.	400 kV	
ii.	220 kV	
iii.	132 kV	
iv.	33 kV	
[D]	Supply of outdoor equipments along with accessories	
i.	400 kV	
ii.	220 kV	
iii.	132 kV	
iv.	33 kV	
[E]	Supply of earthing materials	
i.	Supply of 40 MM round bars	
ii.	MS FLAT (75X8 MM)	
iii.	MS FLAT (50X6 MM)	
iv.	Hot dip galvanized earthing rods 25 mm dia, 3 Mtr length.	

Date:

Signature:

Name:

Seal:

SCHEDULE- 12B
COMPLETION SCHEDULE FOR CIVIL, ERECTION TESTING & COMMISSIONING OF SUB-STATION AND FEEDER BAYS

To be submitted separately for each work supported with Bar Chart

S. No.	Description of work	Period in weeks from effective date	
		Commencement	Completion
[A]	Civil work:		
i.	Control room		
ii.	Structure/equipment foundations		
iii	Cable trenches		
iv	Yard area fencing		
v	Yard leveling, metaling/ construction of BMW road/ culvert		
[B]	Erection of structure:		
i.	Gantry column		
ii.	Gantry beam.		
iii	Erection of Equipment structure, Busbar and gantry structure & Earth wire stringing.		
iv	Erection of bus bar and its auxiliaries including commissioning from the date of receipt of Transformer		
v	Equipments.		
vi	Erection of Outdoor Equipments and Inter connection of equipment including jumpering.		
vii	Erection of Indoor Equipments including A/C, D/C board, Battery & Battery charger C&R Panels etc.		
viii	Laying of control cable & its termination		
ix	Laying of earth mat & risers		
x	Erection of Transformer		
xi	Testing & Commissioning		

Date:

Signature:

Name:

Seal :

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SCHEDULE- 12C

COMPLETION SCHEDULE FOR ERECTION TESTING AND COMMISSIONING
OF TRANSMISSION LINES

(be submitted separately for each work supported with Bar Chart)

NOT APPLICABLE

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SCHEDULE-13

LIST OF TOOLS AND PLANTS AVAILABLE FOR CONSTRUCTION OF FACILITIES

Under this schedule, list of tools and plants required for execution of various activities excavation, structure foundation, concreting and erection, testing & commissioning etc. available with the Contractor should be indicated.

S. No.	Name of activity	List of tools and plants with quantity.

Date:

Signature:

Name:

Seal :

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SCHEDULE - 14

COMMERCIAL QUESTIONNAIRE

Note: Bidders may please note that submission of this questionnaire duly and properly filled in is essential. Non-submission of this document duly filled in will make the bid non-responsive. It may be noted by the bidders that all replies should be clear and affirmative without any confusion and without mentioning that the cross reference may be made to the bid document submitted by the bidder. To clarify, the details furnished in this questionnaire should be clear and complete in itself. Bidders have to be careful in furnishing all details clearly in this questionnaire.

1. (a) Name and address of Bidder
(b) Contact Person(s)
(c) Contact Nos.
2. Whether copy of following documents (duly validated) has been furnished;
 - (i) "A" Class Electrical contractor certificate:
 - (ii) EPF Account No:
 - (iii) GST Registration No:
3. Please indicate whether bidder has participated on individual basis or Joint Venture (JV) basis.
4. (a) In case of participation on JV basis, please indicate the name, address & other details of Lead Partner and also of Member Partners of the JV.

(b) Name, designation & contact nos. of authorised signatory of JV.
5. Please refer clause ITB 1.1 Section-II Bid Data Sheet and confirm that you have noted the details of works. Please also confirm that you have participated for the complete scope of Bid. The bid received for a part of total scope of work covered under Bid, shall be treated as non-responsive.
6. Please refer Section-II Bid Data sheet clause ITB 4.1 and confirm that in case of participation in the Bid on JV basis,
 - (a) All parties/ partners shall be jointly and severally liable.
 - (b) Supporting legal documents and Power of Attorney have been enclosed

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- (c) The Lead Partner has signed each & every document in the bid submitted.
 - (d) The Lead Partner shall be responsible for timely execution & completion of all the activities according to the Bid Document.
 - (e) An agreement for authorizing one partner to act as Lead partner in prescribed format (form of power of attorney for Joint Venture enclosed in Section-IV have been provided with the bid).
 - (f) Once contract is awarded on a company participating as Joint Venture concern, it may be explicitly noted that leader of the Joint Venture after award of contract shall not be permitted to change his status or any of the responsibilities on the basis of which the leader of Joint Venture has participated against bid invitation.
7. Please confirm that you have gone through all the requirements conditions stipulated under ITB 7.1 to 7.6 of Section-II Bid Data Sheet have been furnished with the Bid.
 8. Please confirm that all documents as per ITB11.1(1) of Section-II Bid Data Sheet have been furnished with the Bid and uploaded in the web site as per the procedure and steps of E-Tender portal stipulated therein.
 9. In accordance with ITB 13.1, Section-II, Bid Data Sheet alternative bid are not permitted, please confirm that you have noted and bid has been submitted accordingly.
 10. In accordance with ITB 13.2, Section-II, Bid Data Sheet alternative to the Time Schedule are not permitted, please confirm that you have noted and bid has been submitted accordingly.
 11. In accordance with ITB 13.4, Section-II, Bid Data Sheet alternative technical solutions are not permitted, please confirm that you have noted and bid has been submitted accordingly.
 12. Please confirm that in compliance to ITB 16.1(b), Section-II, Bid Data Sheet, spare

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parts shall be made available for 5 years of time the Goods are expected to be functioning.

13. Please confirm that you have noted and agreed to stipulations made in ITB 18.4, Section-II, Bid Data Sheet.
14. Please refer Section-II, Bid Data Sheet, ITB 18.5 (a), (b) (Incoterm) & (c) and confirm that you have noted and agreed to stipulations made there in and your bid is based on the requirement.
15. Please refer clause ITB 18.7(a) Section-II Bid Data Sheet and confirm that the offered prices of for all items of supply of Plants (except the prices of Circuit Breakers, Control & Relay Panels and Substation Switchyard Structures) and each activity of civil works & Installation Services are FIXED. The prices of Circuit Breakers, Control & Relay Panels and Substation Switchyard Structures are adjustable/variable. In case of any deviation in the above, the bid shall be treated as non-responsive.
16. Please refer clause ITB 19.1 Section-II Bid Data Sheet and confirm that you have noted the conditions mentioned therein;
 - (a) Indicate currency of bid for supply of Plants
 - (b) Indicate currency of bid for civil works & Installation Services
17. Please refer clause ITB 20.1 Section-II Bid Data Sheet and confirm that the bid validity period shall be 150 days. In case, validity is found to be short, bid will be rejected.
18. (a) Please confirm that the requirement of bid security to be furnished as given in Section-II the Bid Data Sheet clause ITB 21.1 has been noted & accepted, and bid security for correct amount has been furnished.
 - (b) Please indicate in which form Bid Security is submitted.
 - (c) In case Bank Guarantee (BG) is submitted towards bid security please confirm that the same has been issued by a reputed Bank.

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(d) Please confirm that validity of bid security is 178 days i.e., 150 days (validity period from the date of bid opening) plus 28 days (to sign the contract agreement). In case, validity is found to be short, bid will be rejected.

(e) Please confirm that you have noted that, in case any discrepancy is noticed in the amount of bid security mentioned in figures and in words, the amount mentioned in words shall be considered to verify adequacy of bid security.

19. Please confirm that bid in two copies (Original + 1) have been submitted as per as per ITB 22.1.
20. Please refer clause ITB 23 Section-II Bid Data Sheet and confirm that you have noted & accepted the methodology for Submission of Bid.
21. Please confirm you have noted that conditional bid of any nature is not acceptable & in case any condition has been mentioned by you, the same may be specified here.
22. Please confirm that all details and the conditions mentioned in the Section-I & Section-II of Volume-I have been carefully gone through, noted & accepted to you.
23. Please refer clause 1.1 'Technical Evaluation' of Section-III & confirm that the conditions mentioned therein have been noted in regard to the minimum required technical level for the Goods/plants and Services and shall be evaluated on a pass-fail system with minimum acceptable level.
24. Please refer clause 1.1.3 of Section-III and confirm that (a) you have noted & agreed to our requirements of losses of Transformer & Reactor for performance and productivity of equipment. Bids offering reactor with losses in excess of ceiling limit mentioned therein shall be treated as non-responsive and rejected.
25. Please refer clause 1.2 'Economic Evaluation' of Section-III & confirm that the conditions mentioned therein have been noted & accepted to you.

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26. Please refer clause 1.2.1 of Section-III & confirm that the conditions mentioned therein have been noted & agreed to, also in regard to loading for all quantifiable nonmaterial nonconformities or omissions (minor omissions or missing items).
27. Please refer clause 1.2.3 of Section-III & confirm that the conditions mentioned therein have been noted in regard to time for completion as also specified in Section-IX (**Appendix 4 of Contract Agreement**).
28. Please confirm that the conditions mentioned in clause 1.2.3 of Section-III have been noted & accepted in regard to bids offering late contract time schedule and Deviation from terms of payment will be treated as non-responsive.
29. Please confirm that the conditions mentioned in clause 1.2.4 of Section-III have been noted & accepted in regard Award Criteria for Multiple Contracts.
30. Please refer clause 2.1 'Eligibility' of Section-III & confirm that the conditions mentioned therein have been noted & agreed.
31. Please specifically confirm condition of History of non-performing Contracts & litigation as per clause 2.2 of Section-III has been noted, agreed by you and necessary documentation has been given.
32. Please refer clause 2.3 'Financial Situation' of Section-III & confirm that the conditions mentioned therein have been noted, agreed and necessary documentation to this effect has been submitted as per prescribed format.
33. Please refer clause 2.4.1 & 2.4.2 of Section-III & confirm that the conditions mentioned therein have been noted, agreed and necessary documentation to this effect has been submitted.
34. Please refer clause 2.5 'Qualification Criteria for Multiple Contracts' of Section-III & confirm that the requirements mentioned therein have been noted, agreed and necessary documentation to this effect has been submitted.
35. Please refer clause 2.5 of Section-III and indicate your participation in the Bids.

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JICA-II/MPPTCL/TR-211 Yes/ No
JICA-II/MPPTCL/TR-211 Yes/ No

36. If participated for more than one Bid, please indicate the Order of Preference for opening of Price Bid as per clause 2.5 of Section-III of Volume-I;

Preference-I : JICA-II/MPPTCL/TR-
Preference-II : JICA-II/MPPTCL/TR-

37. Please confirm that all details and the conditions mentioned in the Section-III of Volume-I have been carefully noted by you.

38. Please confirm Letter of Technical Bid in prescribed formate, duly filled of Section-IV of Volume-I have been submitted.

39. Please confirm Letter of Price Bid in prescribed formate, duly filled of Section-IV of Volume-I have been submitted.

40. Please confirm Schedule-1, 2, 3, 4, 5, 6 & Schedule-7 have been submitted as per conditions mentioned therein.

41. Please confirm for the purpose of offering prices, you have strictly followed the Schedules/ formats furnished under Section-IV without any deviation. Please confirm you have noted that no modification in the proforma is to be done.

42. Please confirm that all requirement of Section-IV have been carefully noted by you.

43. Please refer clauses for Scope of works, Safety Plan, Equipment, Experience requirement for manufacturer, Bar Charts, Labour Laws, Protection of Environment, Safety Precautions & Conditions of Non Responsiveness of Bids etc of Section-6 "Employer's Requirement" of Volume-I & confirm that the details mentioned therein regarding have been noted & agreed.

44. Please confirm you have noted all conditions detailed under clause 1 'Definition' of Section-VIII "Particular Conditions of Contract".

45. Please confirm you have noted that the Contract shall be governed by and interpreted in accordance with laws of Union of India as stipulated under clause

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5.1 of Section-VIII "Particular Conditions of Contract".

46. As stipulated under clause 8.1 of Section-VIII "Particular Conditions of Contract", Please confirm, you have noted that you shall commence work on the Facilities as specified in the Contract Agreement.
47. Time for Completion of the whole of the Facilities shall be the essence of the contract. Please refer clause 8.2 of Section-VIII "Particular Conditions of Contract" & confirm that the total completion period is acceptable to you.
48. Please refer clause 13 'Securities' of Section-VIII "Particular Conditions of Contract" of Volume-I and confirm that condition stipulated therein are noted & agreed to you.
49. Please confirm you have noted all conditions mentioned under clause 14 'Taxes and Duties' of Section-VIII "Particular Conditions of Contract" of Volume-I.
50. Please refer clause 18 'Work Program' of Section-VIII "Particular Conditions of Contract" of Volume-I and confirm that condition stipulated therein are noted & agreed to you.
51. Please confirm you have noted all conditions mentioned under clause 21 of Section-VIII "Particular Conditions of Contract" of Volume-I, regarding customs duty.
52. Please confirm you have noted all conditions mentioned under clause 22 of Section-VIII "Particular Conditions of Contract" for carrying out various activities for execution of work based on approved design and other details given in technical specification.
53. Please confirm you have noted all conditions mentioned under clause 22.2.1 of Section-VIII "Particular Conditions of Contract" regarding use of contract labour for carrying out various activities for execution of work.
54. Please confirm you have noted & agreed for all conditions mentioned under clause 26 "Completion Time Guarantee" of Section-VIII "Particular Conditions of Contract".

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55. Please confirm you have noted & agreed for all conditions mentioned under clause 27 of Section-VIII "Particular Conditions of Contract" regarding Defect Liability of the facility.
56. Please confirm you have noted & agreed all conditions mentioned under clause 39 "Change in Facility" of Section-VIII "Particular Conditions of Contract".
57. Please confirm you have noted & agreed for all conditions mentioned under clause 45 "Disputes and Arbitration" of Section-VIII "Particular Conditions of Contract".
58. Please confirm that all requirement of Section-VIII have been carefully noted by you.
59. Please confirm that 'Terms and Procedure for Payment' as per Appendix-1 of Section-IX, without any deviation is acceptable to you. Please note in case any deviation; your bid will be treated as non-responsive.
60. Please confirm that 'Price Adjustment' as per Appendix-2 of Section-IX, without any deviation is acceptable to you. Please note in case any deviation; your bid will be treated as non-responsive.
61. Please confirm that 'Insurance Requirements' as per Appendix-3 of Section-IX is acceptable to you.
62. Please confirm that 'Time Schedule' as per Appendix-4 of Section- IX, without any deviation is acceptable to you.
63. Please confirm that all requirement of Section- IX have been carefully noted by you.
64. Please confirm you have furnished required Form of Undertaking by the Joint Venture Partners or similar instrument in line with Format prescribed in Section-IV.
65. Please confirm you have furnished required notarized Power of Attorney for authorized signatory or similar instrument in line with Format prescribed in Section-IV.
66. Please confirm that all details and requirements of Section-I, II, III, IV, V, VI, VII, VIII & IX of Volume-I and conditions

Volume-VI

mentioned in Volume-II to Volume-VI of Bid document have been carefully noted & agreed to you.

Date:

Signature:

Name:

Seal:

SCHEDULE- 15

DEVIATION FROM TERMS & CONDITIONS OF BID DOCUMENT

The bidder shall state under this schedule, how his offer deviates, varies or departs from the Employer's Specification.

S. No.	Subject	Employer's Specification Clause reference and page	Proposed deviation by the bidder	Reasons for such deviations
1.	2.	3.	4.	5.

Date:

Signature:

Name :

Status :

Seal :

IT MAY BE NOTED THAT IN CASE OF ANY DEVIATIONS, EMPLOYER RESERVES THE RIGHT TO REJECT THE BID IN WHICH CASE PRICE BIDS OF SUCH BIDDERS WILL NOT BE OPENED THEREFORE THE BIDDERS SHOULD FURNISH THEIR OFFER EXACTLY IN LINE WITH ALL OUR BID CONDITIONS PROVIDED THEY QUALIFY AS PER REQUIREMENT SPECIFIED IN THE SPECIFICATION.

SCHEDULE- 16

QUALITY ASSURANCE PROGRAMME

The Bidder shall submit here complete details of Quality Assurance Program required as per terms of the Specification.

Date:

Signature :

Name :

Designation:

Seal :

SCHEDULE – 17

**UNDER TAKING FOR CONFIRMATION IN REGARD TO
GUARANTEED TECHNICAL PARTICULARS OF EQUIPMENTS**

- (i) We have noted all the technical requirements and make of various plants/equipments/materials to be supplied against this tender. We have also noted that the plants/equipments/materials, as per the list of ANNEXURE –1(A) “LIST OF PREFERRED EXPERIENCED MANUFACTURERS FOR EQUIPMENTS” are acceptable to EMPLOYER.

We hereby confirm that we will supply the plants/equipments/materials meeting all the technical requirement and of make as per the list given in Annexure-1 or otherwise we shall supply the plants/ equipments/ materials complying all the criteria prescribed in the tender document such as experience/ performance/ supply capacity/ type test/ technical & guaranteed particulars etc. We shall furnish all necessary particulars/ details in this respect to analyze and take a decision for acceptance of alternative make equipment by EMPLOYER.

The decision of EMPLOYER in this regard shall be final and binding on us. We further confirm that in case the alternative make equipment is not acceptable to EMPLOYER, we shall supply the equipment from the preferred experienced manufacturers only indicated in Annexure-1.

Date:

Signature :

Name :

Seal :

Volume-VI
SCHEDULE- 18

Progress of works being executed for Employer

S.No.	Name of Work	Target as per contract	Progress as on last day of month one month prior to the date of opening

**Signature of Authorised
Signatory with seal
of the Company**

Place:-

Date:-

SCHEDULE – 19

**IMPORTANT TECHNICAL PARTICULARS OF 400KV 125MVAR
SHUNT REACTORS/POWER TRANSFORMERS**

NOT APPLICABLE

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SCHEDULE- 20
CHECK LIST

S. No.	Items	Reference	Declaration strike out whichever not applicable
1.	Bid Security and Cost of the Bid document (if downloaded the document) enclosed in Technical Bid		Yes/No
2.	Letter of Technical Bid enclosed duly filled in		Yes/No
3.	Price Schedules enclosed in separate envelope	Schedule-1 to 7 (Section IV, Volume-I)	Yes/No
4.	Details of Nationality in accordance with ITB Sub-Clause 4.2, Volume-I of Bid document and compliance to ITB Sub-Clause 4.5.	Forms ELI - 1; ELI – 2 (Section IV, Volume-I) with attachments	Yes/No
5.	JICA Eligibility (Not having been declared ineligible by JICA, as described in ITB Sub-Clause 4.4.)	Letter of Bid and Form ACK (Section IV, Volume-I) with attachments	Yes/No
6.	Historical Poor Performance of Bidders	Form CON (Section IV, Volume-I) with attachments	
7.	Details of Pending Litigation	Form CON (Section IV, Volume-I) with attachments	Yes/No
8.	Financial data for last 5 Years	Form FIN-1 (Section IV, Volume-I)	Yes/No
9.	Average annual turn Over	Form FIN-2 (Section IV, Volume-I)	Yes/No
10.	Financial resources	Form FIR-1 (Section IV, Volume-I)	Yes/No
11.	Current Contract Commitments	Form FIR-2 (Section IV, Volume-I)	Yes/No
12.	Qualification & Experience Criteria (For transmission lines)	Form EXP-1, EXP-2(a), EXP-2(b) (Section IV, Volume-I)	Yes/No
13.	Completion Schedules	Schedule-12A, 12B, and 12-C	Yes/No
14.	List of tools and plants available for construction of facilities	Schedule-13	Yes/No
15.	Commercial Questionnaire	Schedule-14	Yes/No
16.	Deviation from terms & conditions of Bid Document	Schedule-15	Yes/No
17.	Quality Assurance Plan	Schedule-16	Yes/No
18.	Under taking for confirmation in regard to guaranteed technical particulars of equipments and Power Transformers	Schedule-17	Yes/No
19.	Progress of works being executed for Employer	Schedule-18	Yes/No
20.	Important Technical Particulars of 400kV 125MVAR Shunt reactors	Schedule-19	Yes/No

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ANNEXURE -1

LIST OF PREFERRED EXPERIENCED MANUFACTURERS FOR OTHER EQUIPMENTS

S.No.	Equipment	Approved Makes
1	400 KV Power Transformer	BHEL/CGL /EMCO/TELK/ALSTOM/ABB
2	400 KV Reactor	BHEL/ ALSTOM/ CGL
3	220 KV Power Transformer	BHEL/BBL/EMCO /CGL /TELK/ALSTOM/ABB
4	132 KV Power Transformer	BHEL/BBL/EMCO /CGL /TELK/ALSTOM/ABB
Circuit Breakers		
5	400KV SF6	ABB/ALSTOM/ SIEMENS
	220KV SF6	ABB/ ALSTOM / CGL/ SIEMENS
	132KV SF6	ABB/ ALSTOM / CGL/Siemens
	33KV Vacuum	BHEL/ ABB/ MEGAWIN/ ALSTOM / CGL/ ANDREW YULE/ STELMEC
C&R Panels		
6	400KV & 220KV	ABB/ VENSON/ ALSTOM /GE
	132KV	ABB/ VENSON/ ALSTOM /GE/ UNIVERSAL CONTROLS/SIEMENS/DANISH/MAKTEL
	33KV	HERTZ/ SYSTEM/ VENSON/ MAKTEL/ GE/ ALSTOM /ABB/ POPULAR/ UNIVERSAL CONTROLS/AARTEK SOLONIKS/ DANISH
Instrument Transformer		
7	400 KV Current Transformer	BHEL/ABB/ALSTOM/TELK/CGL
	220 KV Current Transformer	ABB/BHEL /TELK/ ALSTOM/MEHRU/CGL
	132 KV Current Transformer	ABB/BHEL /TELK/ MEHRU/ HEPTACARE/CGL
	33 KV Current Transformer	UNIVERSAL /VISHAL/ LAMCO/ LAXMI ENGG /AMBARNATH / HEPTACARE/MEHRU/VIDYUT
	400 KV CVT	BHEL / ABB / ALSTOM / CGL/SIEMENS
	220 KV CVT	BHEL / ALSTOM / CGL/SIEMENS/ABB
	220 KV Potential Transformers	BHEL/ CGL /MEHRU
	132 KV Potential Transformers	BHEL / MEHRU / CGL/HEPTACARE
	33 KV Potential Transformers	UNIVERSAL / VISHAL / LAMCO / AMBARNATH / LAXMI ENGG/ HEPTACARE/MEHRU/VIDYUT/ KAPCO
	Lightning Arrester	
8	390 KV	OBLUM/ CGL / LAMCO / ELPRO
	198 KV	OBLUM/ CGL / LAMCO/ ELPRO
	120 KV	OBLUM/ CGL / LAMCO/ ELPRO
	30 KV	OBLUM/ CGL / LAMCO/ ELPRO
Isolators		
9	400 KV	HIVELM / SIEMENS / BIMCO/SWITCHGEAR & STRUCTURALS /CGL/ALSTOM

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S.No.	Equipment	Approved Makes
	220 KV	HIVELM / GR POWER / STERLING / SWITCHGEAR & STRUCTURALS/ ELEKTROLITES / UNIVERSAL / BIMCO/SIEMENS/ CGL/ALSTOM
	132KV	GR POWER / UNIVERSAL / STERLING / BIMCO/ELEKTROLITES /SIEMENS/ SWITCHGEAR & STRUCTURALS / ALSTOM/CGL
	33 KV	ELEKTROLITES / G.NANDY / GR POWER / ROMA / UNIVERSAL / SIEMENS/ SWITCHGEAR & STRUCTURALS /RAMA ENGG/ CGL/ ALSTOM
	Solid Core Insulators	
10	400 KV	WS INDUSTRIES/ADITYA BIRLA / MODERN/SARAVANA/ BHEL/IEC
	220 KV	WS INDUSTRIES / ADITYA BIRLA / MODERN / IEC/ SARAVANA/ BHEL
	132 KV	WS INDUSTRIES/ADITYA BIRLA /IEC/MODERN// SARAVANA/ BHEL
	33 KV	WS INDUSTRIES / ADITYA BIRLA / MODERN/ IEC/ SARAVANA/ BHEL
11	Coupling Capacitor	
	132KV	CGL/ABB/AREVA/BHEL/SIEMENS/ ENERGY CAPACITORS
	Wave Traps	
12	400 KV	ALSTOM /BPL / ABB
	220 KV	ALSTOM /BPL / ABB
	132KV	ALSTOM /BPL/ ABB/ QUALITY
	Power Line Carrier Communication Equipments	
13	Carrier Cabinet	ABB / BPL / PUNCOM
	Protection Coupler	ABB / BPL / ALSTOM /PUNCOM
	Coupling Devices	ABB / BPL / ALSTOM
14	EPAX & Telephone sets	
	EPAX	MATRIX / BPL / INTELLICON
	Telephone sets	BPL / BEETEL /CGL
	Coaxial & Telephone Cables	
15	Coaxial Cable	RUCHIKA/ALFA COMMUNICATION/ BHANSALI/MAHARAJA/ AJANTA/ KEI
	Telephone Cables	RUCHIKA/ALFA COMMUNICATION/BHANSALI /BPL
16	Station Batteries	EXIDE/ TEJA/ POWER BATTERIES/AAJ
17	Battery Chargers	HERTZ/ SYSTEM / AZ /ARMO/STATCON
18	AC/DC Board	HERTZ/ SHRI RAM/ POPULAR/SHREEM
19	Station Transformer	STAR DELTA/TELAWANE/ARYA/ABB
20	Junction Boxes	HERTZ/ SHRI RAM/ RMC/ PYROTECH/ POPULAR/ELEKTROCARE
21	LT Distribution Board	HERTZ/ SYSTEM/ SHRI RAM/ R.K. INDUSTRIES/ RMC /ELEKTROCARE
22	D.O Fuse	G.K.ELECTRICAL/ELECTROLITE
23	Lighting Equipments	BAJAJ/ SURYA/ CGL/PHILIPS/HEVELLS
24	Transmission line towers and Substation Structures	L&T/ GAMMON/ ASSOCIATED POWER/ SHRI ASHUTOSH/ NL ENGINEERS / ASTER / ICOMM/ SUJANA / VARSANA / UNIQUE / VIJAY TRANSMISSION / AMITASHA / GURPREET GALVANISING
25	MS Flats & MS Round	SAIL/ RINL/ KARAM/ UNIQUE/ PUSHPAK / ANKIT STEEL /KONTINENTAL/ MAHADEVA

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S.No.	Equipment	Approved Makes
26	Copper Control & Aluminium Power Cable	PARAMOUNT/ UNIVERSAL CABLES/ PASONDIA/MAHARAJA/AJANTA/KEI
27	Clamps & Connectors	PEE VEE/ RASHTRAUDHYOG/ EMI / AFLON/ EXACT/ELECTROMECH/ PRECIECAST /UTSAV
28	IPS Tube	HINDALCO/ SUDAL/ RASHTRAUDHYOG/ UTSAV
29	Sag compensating Spring	PIPE HANGERS/ COVENTRY SPRINGS
30	Hardware FITTINGS	EMI/ IAC/ ERITECH/ RUPL/KTHL/RAJSTHAN TRANSMAT /AUMNI/ TLP
31	ACSR Conductors	APAR/ STERLITE/ JSK/ HVPNL/ SAVITA/LUMINO
32	Screening Conductor (Earth Wire)	RATLAM WIRES/ GEEKAY/ BEDMUTHA / UIC UDYOG
33	OPGW	STERLITE TECHNOLOGIES / LS CABLES
34	Long Rod Polymer Insulator	ADITYA BIRLA / DECCAN / GOLDSTONE
35	Disc Insulators	ADITYA BIRLA / WS INDUSTRIES / BHEL / IEC / INDIA POTTERY
37	GI Bolts & Nuts	AR FASTENRS / REMAX / NEXO /GARG FASTERNERS / ANAND BOLTS/ROSHAN/ RAVI /TECHMAN
Note	<p>Make of various equipments and materials indicated above are on the basis of past supplies received by EMPLOYER and also past performance of various suppliers. As a special case, EMPLOYER may also examine and consider to accept alternative make equipments and materials provided that the same are type tested, proven for quality, must have been supplied to other Electricity Boards / PGCIL/ Transmission Utilities and also subject to the condition that the supplier/ manufacturer meets the requirement of experience as per clause-2.7 of Section III Volume-I. In case of some items required in small quantity like rails, lighting fixtures, we may consider procurement from authorised dealers.</p>	

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S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers								Total Quantity									
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETMA	Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA						
5	400KV Horizontal Centre Break single phase Isolator (set of Three) with ES complete with structure and solid core insulators'	Nos.																														0
6	400KV Horizontal Centre Break three phase Isolator without ES complete with structure and solid core insulators	Nos.																														0
7	400KV Horizontal Centre Break three phase Isolator with ES complete with structure and solid core insulator	Nos.																														0
8	400KV Solid Core Insulators for Substation work	Nos.																														0
9	400KV Operating Rod Insulator for Pantograph Isolators	Nos.																														0
10	400KV Capacitive Voltage Transformer	Nos.																														0
11	400kv Wave Trap	Nos.																														0

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S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers										Total Quantity														
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/S BETWA	Transformer at 132KV S/s AMBRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA													
	pedestal mounting with support insulator and structure																																						
12	400KV Las	Nos.																																				0	
13	C&R Panel For Transformer	Nos.																																				0	
14	C&R Panel for Feeders	Nos.																																				0	
15	C&R Panel for Bus Coupler	Nos.																																				0	
16	C&R Panel for Bus Tie	Nos.																																				0	
17	C&R Panel for Reactors	Nos.																																				0	
18	125 MVAR 3 Phase 400KV Shunt Reactor	Nos.																																				0	
19	145 KV neutral reactor	Nos																																				0	
20	Bus Differential Protection Panel	Nos.																																				0	
21	Telemetry	Nos																																				0	
																																						0	
B	220KV EQUIPMENTS																																						
1	Circuit Breaker	Nos.																1	1																			2	
2	220 KV CT 1200/1-1-1-1 Amp.	Nos.																																				0	
3	220 KV CT 800/1-1-1-1 Amp.	Nos.																3	3																			6	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers												Total Quantity																	
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/S BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA																			
4	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.																																									0	
5	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.																																										6
6	Single phase Isolators (with structure and Solid core Insulator)	Nos.																																										0
7	LA	Nos.																																										6
8	Solid Core Insulators for substation work	Nos.																																										10
9	C&R Panel for Feeder	Nos.																																										0
10	C&R Panel for BC	Nos.																																										0
11	C&R Panel for 220 KV Side of 315MVA Transformer	Nos.																																										0
12	C&R Panel for 220/132kv Transformer	Nos.																																										2
13	C&R Panel (Bus Tie)	Nos.																																										0
14	PT	Nos.																																										0
15	Bus Differential Protection Panel	Nos.																																										0
16	Synchronization	Nos.																																										0

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S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers									Total Quantity										
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETMA	Transformer at 132KV S/s AMEAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JIGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA								
	Trolley																																	
C	132KV EQUIPMENTS																																	
1	Circuit Breaker	Nos	3	4	4	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	41		
2	132KV CT 800/1-1-1 Amp.	Nos.													3	3																6		
3	132KV CT 400/1-1-1Amp	Nos.	9	12	12	9	9	9	9	6	6	3	3	3	3			3	3	3	3	3	3	3	3	3	3	3	3	3	117			
4	132KV CT 200/1-1-1Amp	Nos.																														0		
5	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.	1	2	2	1	1	1	1	2	2	1	1	1	1																	17		
6	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.	8	10	10	8	8	8	8	4	4	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	106			
7	Single phase Isolators (with structure and Solid core Insulator)	Nos.																														0		
8	PT	Nos.	3	3	3	3	3	3	3																							21		
9	LA	Nos.	6	9	9	6	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	102			
10	C&R Panel (for 220/132KV Xmer)	Nos.													1	1															2			
11	C&R Panel (for 132/33KV Xmer)	Nos.	1	1	1	1	1	1	1								1	1	1	1	1	1	1	1	1	1	1	1	1	15				
12	C&R Panel (for	Nos.	1	2	2	1	1	1	1	2	2	1	1	1	1																	17		

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S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers										Total Quantity	
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA
	Feeder)																									
13	C&R Panel (for Bus coupler)	Nos.	1	1	1	1	1	1																		7
14	Solid Core Insulators for substation work	Nos.	9	9	9	9	9	9	9	9	9	9	9	9	6	6	39	39	39	39	39	39	39	39	39	417
D	33KV EQUIPMENTS																									
1	Vacuum Circuit Breaker	Nos.	7	9	7	7	7	7	7								1	1	1	1	1	1	1	1	1	59
2	33KV CT 1200/1-1-1-1 Amp.	Nos	3	3	3	3	3	3	3								3	3	3	3	3	3	3	3	3	45
3	33KV CT 800/1-1-1-1 Amp.	Nos.																								0
4	33KV CT 400/1-1 Amp	Nos	18	24	18	18	18	18	18																	132
5	33KV CT 10/1-1 Amp.	Nos.																								0
6	NCT	Nos.	1	1	1	1	1	1	1																	7
7	LA 36kV	Nos.	3	3	3	3	3	3	3																	21
8	LA 33kV	Nos.	18	24	18	18	18	18	18								3	3	3	3	3	3	3	3	3	156
9	PT	Nos.	3	3	3	3	3	3	3																	21
10	Isolator (with E/S) (with structure and Solid core Insulator)	Nos.	4	6	4	4	4	4	4																	30
11	Isolator (without E/S) (with structure and Solid core Insulator)	Nos.	14	18	14	14	14	14	14																	102

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers						Total Quantity						
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
12	Isolator (without E/S) 1200 Amps. (with structure and Solid core Insulator)	Nos.	1	2	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	16
13	C&R Panel (for 1T+1F)	Nos.	1	1	1	1	1	1	1							1	1	1	1	1	1	1	1	1	1	1	15
14	C&R Panel (for 3 F)	Nos.	1	2	1	1	1	1	1																		8
15	C&R Panel (for 1 F)	Nos.	1		1	1	1	1	1																		6
16	C&R Panel for CAP BANK	Nos.	1	1	1	1	1	1	1																		7
17	Solid Core Insulators for substation work	Nos.	12	12	12	12	12	12	12							12	12	12	12	12	12	12	12	12	12	12	180
18	Solid Core Insulator special set with structures	Nos.	1	1	1	1	1	1	1																		7
19	36kV 12MVAR Capacitor Bank with structures and accessories(SET)	Nos.	1	1	1	1	1	1	1																		7
E	TRANSFORMER & ASSOCIATED EQUIP.																										
1	315 MVA 400/220/33 KV Auto Transformer (with Oil and associated equipments)	Nos.																									0

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay							Additional Transformers										Total Quantity														
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA															
2	100MVA 400/132KV Transformer (with Oil and associated equipments)	Nos.																																						0
3	160MVA 220/132KV Transformer (with Oil and associated equipments)	Nos.																																						0
4	50MVA 220/33KV Transformer (with Oil and associated equipments)	Nos.																																						0
5	40MVA 132/33KV Transformer (with Oil and associated equipments)	Nos																																						0
6	Oil filtration Machine (6000 Lt..per Hr.)	Nos.																																						0
7	Oil filtration Machine (2250 Lt..per Hr.)	Nos	1	1	1	1	1	1	1																															7
8	Oil Storage Tank (10 KL)	Nos.	1	1	1	1	1	1	1																															7
F	400KV, 220KV & 132KV CARRIER COMMUNICATION EQUIPMENT	.																																						

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers										Total Quantity							
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA						
1	Carrier Cabinet With Protection coupler	Nos	0	0	0	0	0	0	0	0																						0
2	Coupling Devices (LMU)	Nos.	0	0	0	0	0	0	0	0																						0
3	Carrier Cabinet Without Protection coupler	Nos.	0	0	0	0	0	0	0	0																						0
4	RTU & Telemetry (SET)	Nos.	1	1	1	1	1	1	1	1																						7
5	EPAX (32/16)	Nos.	1	1	1	1	1	1	1	1																						7
6	Telephone Sets	Nos.	12	12	12	12	12	12	12	12																						84
7	Coaxial Cable	KMs																														0
8(a)	Telephone Cable (10 Pair armoured)	KMs	1	1	1	1	1	1	1	1																						7
8(b)	Telephone Cable (06 Pair armoured)	KMs																														0
9	220kV Wave Trap	Nos.																														0
10	132kV Wave Trap	Nos.																														0
11	220kV CVT	Nos.																														0
12	132kV Coupling Capacitors	Nos.																														0
13	Jointing Box (splice enclosure)	Set	1	1	1	1	1	1	1	1	2	1	1	1	1	1																14

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMBAWADKHLUD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
14	Approach Cable	Mtr.	500	500	500	500	500	500	500	500	500	500	500	500															7000
15	Fiber optical distribution panel	Nos.	1	1	1	1	1	1	1	2	1	1	1	1														14	
16	Terminal equipment for optical fiber	Nos.	1	1	1	1	1	1	1	2	1	1	1	1														14	
17	GPS System with accessories (1 Set)		1	1	1	1	1	1	1																			7	
18	CCTV (Electronic Surveillance System) (1 Set)		1	1	1	1	1	1	1																			7	
(G)	400 KV, 220kV, 132kV and 33kV Fabricated, Galvanised Steel Structures.																												
(G-I)	400 KV STRUCTURE																											0	
1	FGC-1 Column	Nos.																										0	
2	FBC-2 Column	Nos.																										0	
3	FBC-1 Column	Nos.																										0	
4	FGC-2 Column	Nos.																										0	
5	FTC Column	Nos.																										0	
6	FBB Beam	Nos.																										0	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers											Total Quantity								
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Addl 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA									
7	FGB-1M Beam	Nos.																																0
8	FGB-2 Beam	Nos.																																0
9	FTB Beam	Nos.																																0
10	CT Structure	Nos.																																0
11	Solid Core Structure	Nos.																																0
12	CVT Structure	Nos.																																0
13	LA Structure	Nos.																																0
	Sub-Total																																	0
	Total weight of structures (In MT)(GI)	MT																																0
	weight of Fondation bolts,Nut bolt & washers	MT																																0
(G-II)	220KV STRUCTURE																																	
1	Gantry Column(AAGT)	Nos.																																0
2	Gantry Column(AGT)	Nos.															4	3																7
3	Gantry Beam(AGB)	Nos.														2	2																	4
4	Main Busbar Structure(ABM)	Nos.														1																		1
5	Auxiliary Busbar Structure(ABA)	Nos.														1																		1
6	CT Structure	Nos.														3	3																	6

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers								Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA				
7	LA Structure	Nos.													3	3														6
8	Solid Core Structure	Nos.													5	5														10
9	PT/CVT Structure	Nos.																												0
	Sub-Total	Nos.																												
	Total weight of structures (In MT)(GII)	Nos.													27.1	19.5														47
	weight of Fondation bolts,Nut bolt & washers	Nos.													0.2707	0.19505														0.5
(G-III)	132KV STRUCTURE																													
1	Gantry Column	Nos.	10	12	12	10	10	10	10	6	6	2	2	3	4	2	10	3	2	4		4	1	3	4				130	
2	Gantry Beam	Nos.	6	8	8	6	6	6	6	6	4	2	2	2	2	1	5	2	2	2		2	2	2	2				84	
3	Main Busbar Structure	Nos.	3	3	3	3	3	3	3			1			1				1	1	1							1	27	
4	Aux. Busbar Structure	Nos.	3	3	3	3	3	3	3			1			1	2			1	1	1							1	29	
5	CT Structure	Nos.	9	12	12	9	9	9	9	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	123	
6	LA Structure	Nos.	6	9	9	6	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	102	
7	Solid Core Structure	Nos.	3	3	3	3	3	3	3							3	3	3	3	3	3	3	3	3	3	3	3	3	51	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers								Total Quantity						
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA 132/33 KV Transformer at 132KV S/s	Add 40/50MVA 132/33 KV Transformer at 132KV S/s	Add 40/50MVA 132/33 KV Transformer at 132KV S/s		Add 40/50MVA 132/33 KV Transformer at 132KV S/s	Add 40/50MVA 132/33 KV Transformer at 132KV S/s	Add 40/50MVA 132/33 KV Transformer at 132KV S/s	Add 40/50MVA 132/33 KV Transformer at 132KV S/s		
8	Isolator Structure	Nos.												3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	30
9	Coupling Capacitor	Nos.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	PT Structure	Nos.	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
	Sub-Total																												
	Total weight of structures (In MT)(G-III)		37.536	44.701	44.701	37.536	37.536	37.536	37.536	20.424	18.284	9.594	7.165	9.142	13.548	8.692	30.712	11.768	12.276	16.224	6.172	13.742	7.82	11.768	16.224				490.64
	weight of Fondation bolts,Nut bolt & washers		3.7536	4.4701	4.4701	3.7536	3.7536	3.7536	3.7536	2.0424	1.8284	0.9594	0.7165	0.9142	1.3548	0.0869	0.3071	0.1176	0.123	0.162	0.062	0.137	0.078	0.118	0.162				36.88
(G-IV)	33KV STRUCTURE																												
1	Gantry Column	Nos.	7	10	7	7	7	7	7									2	1	2		2	2	2	2	2	2	65	
2	Gantry Beam	Nos.	10	14	10	10	10	10	10									1	1	1		1	1	1	1	1	1	81	
3	Main Busbar Structure	Nos.	4	4	4	4	4	4	4									1						1		1		31	
4	Aux. Busbar Structure	Nos.	5	5	5	5	5	5	5									1						1		1		38	
5	CT/NCT Structure	Nos.	21	27	21	21	21	21	21									3	3	3	3	3	3	3	3	3	3	177	
6	LA Structure	Nos.	3	3	3	3	3	3	3									3	3	3	3	3	3	3	3	3	3	45	
7	Isolator Structure	Nos.																1	1	1	1	1	1	1	1	1	1	8	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity									
			PATI (SILAWAD)	Mahaxaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHLUD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATHWA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA							
8	PT Structure	Nos.	3	3	3	3	3	3																									21
9	Solid Core Structure	Nos.	3	3	3	3	3	3																									21
	Sub-Total																																
	Total weight of structures (In MT) (G-IV)	MT	15.644	18.832	15.644	15.644	15.644	15.644									3.653	1.633	2.155	0.791	2.155	3.653	2.155	3.653								132.54	
	weight of Fondation bolts,Nut bolt & washers	MT	1.5644	1.8832	1.5644	1.5644	1.5644	1.5644								0.037	0.016	0.022	0.008	0.022	0.037	0.022	0.037									11.47	
(G-V)	Total weight of Fondation bolts,Nut bolt & washers	MT	5.318	6.3533	6.0345	5.318	5.318	5.318		2.0424	1.8284	0.9594	0.7165	0.9142	1.3548	0.35762	0.50217	0.154	0.139	0.184	0.070	0.159	0.115	0.139								48.81	
	Total weight of structures (In MT) G(I)+G(II)+G(III)+G(IV)	MT	58.498	69.8863	66.3795	58.498	58.498	58.498		22.4664	20.1124	10.5534	7.8815	10.0562	14.9028	35.762	50.217	15.421	13.909	18.379	6.963	15.897	11.473	13.923								716.55	
H	BUSBAR, EARTHING MATERIAL																																
1	ACSR Moose	Kms																															0

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers						Total Quantity						
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
13	Junction Box (64 Ways)	Nos.	12	12	12	12	12	12							6	6	1	1	1	1	1	1	1	1	1	1	104
14	Junction Box (128 Ways)	Nos.																									0
15	Fire fighting equipments set																										
(i)	Dry-Chemical Powder (DCP) Type, Capacity-75Kg, Trolley Mounted	Nos.	1	1	1	1	1	1																			7
(ii)	CO ₂ Type , Capacity-22.5Kg, Trolley Mounted	Nos.	2	2	2	2	2	2																			14
(iii)	Mechanical Foam Type, Capacity-50Ltr, Trolley Mounted (Cylinder Type)	Nos.	2	2	2	2	2	2																			14
(iv)	Set Of Fire Buckets Comprising 6 Nos Buckets, Capacity-9Kg , Each with Stand (Set)	Nos.	2	2	2	2	2	2																			14
16	Rail 52 Kg 3 Mtr Long for Power Transformer	Nos.	2	2	2	2	2	2							2	2	2	2	2	2	2	2	2	2	2	2	34
17	R.S. Joist 175x85 ,11 Mtr for Station Transformer	Nos	2	2	2	2	2	2																			14

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
15	132 KV 90 KN Single Tension string for twin Zebra	Nos.	12	12	12	12	12	12	12	24	24	6	6	6	6	12	12	6	6	6	6	6	6	6	6	6	6	6	228
16	132 KV 90 KN Single Tension string for single Panther	Nos.	3	6	6	3	3	3	3	12	12	3	3	3	3														63
17	132 KV 70KN Single Suspension string single Zebra	Nos.	9	15	15	9	9	9	9	6	6	6	6	6	6			3	3	3	3	3	3	3	3	3	3	3	135
18	132 KV 70 KN Single Suspension string twin Zebra	Nos.								12	12					6	6												36
19	33 KV 70 KN Single Tension string for single Zebra	Nos.	36	36	36	36	36	36	36									6	6	6	6	6	6	6	6	6	6	6	300
20	33 KV 70 KN Single Tension string for twin Zebra	Nos.	24	24	24	24	24	24	24									12	12	12	12	12	12	12	12	12	12	12	264
21	33 KV 70 KN Single Suspension string single Zebra	Nos.	12	12	12	12	12	12	12																				84
22	33 KV 70 KN Single Suspension string twin Zebra	Nos.	6	6	6	6	6	6	6									6	6	6	6	6	6	6	6	6	6	90	
J	AC/DC SUPPLY																												

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers								Total Quantity											
			PATI (SILAWAD)	Mahalaxmi	Mahawadua	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMBAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s JEGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA										
	Unarmoured																																			
4	12Core 2.5 Sq.mm Unarmoured	Kms	5	5.5	5	5	5	5	5						2	2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	57	
5	19 Core 2.5 Sq.mm Unarmoured	Kms	6	6.5	6.5	6	6	6	6	2	2	0.5	0.5	0.5	0.5	2	2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	62		
6	4Core 4 Sq.mm Armoured	Kms																																		
7	4Core 10 Sq.mm Armoured	Kms																																		
8	4Core 2.5 Sq.mm Armoured	Kms																																		
9	12Core 2.5 Sq.mm Armoured	Kms																																		
10	19 Core 2.5 Sq.mm Armoured	Kms																																		
11	2Core 2.5 Sq.mm Armoured	Kms																																		
L	SUB STATION CLAMPS																																			
1	T CLAMPS	.																																		
a.	TWIN ZEBRA RUN-ZEBRA TAP	Nos	30	33	33	30	30	30	30	21	21	3	3	3	3	9	9	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	336		
b.	ZEBRA RUN-ZEBRA TAP	Nos.	120	123	123	120	120	120	120	12	12	21	21	21	21	24	24	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	1338		
2	P.G.CLAMPS																																			

Volume-VI

ANNEXURE-3

WORK WISE QUANTITY OF MATERIALS TO BE SUPPLIED FOR TRANSMISSION LINES

NOT APPLICABLE

Volume-VI

ANNEXURE-4

BILL OF QUANTITY FOR CIVIL WORKS

**Please refer Volume-III for
Bill of quantity for civil works**

ANNEXURE-5

WORKWISE QUANTITY FOR ERECTION, TESTING & COMMISSIONING OF OUTDOOR & INDOOR EQUIPMENTS (Package 8-1)

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGHGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	TRANSFORMER AT 132KV S/S BETIMA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGAH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATAWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
A	400 KV EQUIPMENTS																												
(A)	Structures :																												
i)	Erection of structures including tightening and punching of nuts, bolts.	MT.	53.18	63.533	60.345	53.18	53.18	53.18	53.18	20.424	18.284	9.594	7.165	9.142	13.548	35.762	50.217	15.421	13.909	18.379	6.963	15.897	11.473	13.923	19.877				670
(B)	Stringing of overhead gantries, vertical droppers with ACSR conductor including fixing of insulator																												

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay						Additional Transformers								Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
	marshalling boxes, control cabinets, air sealing radiators, cooling fans, all accessories etc for transformer including their preliminary checks. Unloading /handling of transformer accessories, handling and filling of transformer oil along with associated equipments.																												
i)	315 MVA 400/220/33 KV Auto Transformer (with Oil and associated equipments)	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ii)	160MVA 220/132KV Transformer (with Oil and associated equipments)	No.	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	
iii)	100MVA 400/33KV Transformer (with Oil	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
	mechanism box, interconnecting piping work, erection of all accessories for the equipment.																										
c)	SF-6 gas filling for which gas cylinder & filling equipments shall be provided by Company.																										
d)	Preliminary check, test including test for leakage of air/gas.																										
	Total quantity of item (ii)	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
iii)	220 KV SF-6 circuit breakers (3 phase)																										
a)	Erection of structures and alignment, shifting of breaker upto the place and placement of all 3 circuit breaker poles on structure and alignment.																										
b)	Complete assembly of																										

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantit y					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATAWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
	shifting of breaker upto the place and placement of circuit breaker on structure and alignment.																												
b)	Complete assembly of circuit breaker including erection of control cabinet & mechanism box, interconnecting piping work erection of all accessories for the equipment.																												
c)	Preliminary check, test including test for leakage of air/gas.																												
	Total quantity of item (v)	No.	7	9	7	7	7	7	7	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	59	
2	Isolators																												
i)	400 KV Pantograph Isolator (with one earth switch)																												
a)	Shifting upto civil foundation & placements of																												

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers						Total Quantity							
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA		
	complete isolator in all 3 phase of isolator structure.																											
b)	Erection/ mounting of mechanism box, interconnection, pipings, alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.																											
	Total quantity of item (i)	set	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Isolators without earth switch (3 Phase)																											
i)	400 KV isolators (3 Phase)																											
a)	Shifting upto civil foundation & placements of complete isolator in all																											

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay						Additional Transformers						Total Quantit y																			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/S BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATAWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA															
	isolators (3 phase)																																								
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.																																								
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.																																								
	Total quantity of item (i)	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ii)	400 KV isolators (1 phase)(set of Three)																																								
a)	Shifting up to civil foundation &																																								

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay					Additional Transformers								Total Quantit y				
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEIGARH		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATAWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
	placement of complete isolator in all 3 phase of isolator structure.																										
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.																										
	Total quantity of item (ii)	No	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
iii)	220 KV isolators (3 phase)																										
a)	Shifting upto civil foundation & placement of complete isolator in all 3 phase of isolator structure.																										
b)	Erection/ mounting of mechanism box, interconnection, piping																										

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers						Total Quantity																			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETIMA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA														
	alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical and electrical operation.																																							
	Total quantity of item (iii)	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
iv)	132 KV isolators (3 phase)																																							
a)	Shifting up to civil foundation & placement of complete isolator in all 3 phase of isolator structure.																																							
b)	Erection/ mounting of mechanism box, interconnection, piping alignment of contacts & all associated activities to make the installation complete including checking of successful mechanical																																							

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
	foundation and placement on structure and fixing of junction box including all accessories etc.																										
a)	400 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b)	220 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	6
c)	132 KV	No.	9	12	12	9	9	9	9	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	123
d)	33 KV	No.	22	28	22	22	22	22	22	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	184
6	Shifting of CC/CVT/P.T. up to civil foundation & placement on structure and fixing of junction box including all accessories etc.																										
a)	400 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b)	220 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c)	132 KV	No.	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
d)	33 KV	No.	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
7	Erection of lightning arrestors :																										
i.	Shifting of surge/lightening																										

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
	arrestors & placement of equipments on structure including all accessories and making all connections also include checking & installation of insulator base and surge counters.																										
a)	400 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b)	220 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	6
c)	132 KV	No.	6	9	9	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	102
d)	33 KV	No.	21	27	21	21	21	21	21	0	0	0	0	0	0	0	3	3	3	3	3	3	3	3	3	3	177
8	Erection of Solid Core Insulators (PI):																										
a)	400 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b)	220 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	10
c)	132 KV	No.	9	9	9	9	9	9	9	6	6	6	6	6	3	3	3	3	3	3	3	3	3	3	3	3	129
d)	33 KV	No.	12	12	12	12	12	12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
9	Wave trap with overhead suspension and other accessories.																										
a)	400 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity				
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TELGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA		
b)	220 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
c)	132 KV	No.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	Set of coupling devices line matching unit for PLCC purposes.	Set	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	Erection of Fiber optics Tele communication equipments	set	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Erection of 36 kV 12 MVAR Capacitor bank with structures and accessories complete in all respect.	No.	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
(E)	Earthing Installation :																											
	Installation & testing of the following including jointing, equipment termination, fixing & clamping with accessories & hardware required such as saddle, clamps, cleats, plugs,																											

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay					Additional Transformers							Total Quantity						
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Addl 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETIMA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA		
a)	place. MS Round 40 mm Dia for 400 KV S/s Earth mat	Mtr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b)	MS flat 75 X 8 mm	Mtr	0	0	0	0	0	0	0	0	0	0	0	0	600	600	0	0	0	0	0	0	0	0	0	0	0	1200
c)	MS flat 65X 8 mm	Mtr	3740	4400	4180	3740	3740	3740	3740	440	440	220	220	220	0	0	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	1320	39600
d)	MS flat 50X 6 mm	Mtr	4000	4000	4000	4000	4000	4000	4000	800	800	400	400	400	1200	1200	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	46400
(F)	Preparation of earthing pits (1.5X1.5.X3 Mtrs.) as per drawing attached with bid document, which includes excavation (Irrespective of the soil encountered) embedding of 4 No. GI Pipes of size 40 mm dia, 3 Mtrs. Long, back filling with B.C. soil (to be arranged by the	No.	9	9	9	9	9	9	9	2	2	1	1	1	1	4	4	3	3	3	3	3	3	3	3	3	3	103

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity				
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA		
	contractor) free from boulders and harmful mixture. These GI pipes are to be welded with MS flats by making mesh frame and cutting of pipes as also making holes in the pipe for water seepage. The earth pit is to be connected with earth mesh of MS flat.																											
(G)	Yard Lighting :																											
i)	Erection of pole for yard lighting and fitting of fixtures.	No.	60	60	60	60	60	60	60	60	60	60	60	60	10	10	10	10	10	10	10	10	10	10	10	10	10	520
ii)	Installation of light fixtures on gantry columns, supply connections to the light fitting from the nearest lighting board in the yard etc.	No.	13	13	13	13	13	13	13	13	13	13	13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	121
(H)	Erection of DO fuse set	No.	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	7	
(I)	Erection of junction	No.	21	21	21	21	21	21	21	21	21	21	21	21	6	6	2	2	2	2	2	2	2	2	2	2	191	

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay						Additional Transformers							Total Quantity				
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
(J)	box Erection of PT Junction Box	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(K)	For installation and erection of indoor equipments in the Control-Room building. :																										
(i)	415V AC Distribution Board																										
	Shifting up to control room (including storage, if required), placement in AC/DC room. The AC Distribution Board to be suitably grouted in AC/DC room as per drawing. Proper alignment of AC Board to be done and earthing to be done. Making of all 3 Phase and Single phase AC connections in terminal block as per drawing.	NO.	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay					Additional Transformers						Total Quantity										
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TELGAPUR	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA					
	AC/DC room as per drawing. Proper alignment of DC Board to be done and earthing to be done. Making of all 110V DC connections in terminal block as per drawing.																														
(iv)	Control and Relay Panel for 400KV Feeder/X-mer/Bus coupler/Bus tie/Bus Diff. Protection :																														
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting,	NO.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETIMA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
	welding & fabrication of MS channel frame is to be done as per drawing. Proper alignment of C&R panel to be done. The earthing of C&R Panel to be done. Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.																												
(v)	Control and Relay Panel for 220KV Feeder/X-mer/Bus coupler/Bus tie/Bus Diff. Protection :																												
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of C&R	NO.	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity																	
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Add 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEIGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA															
	panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting, welding & fabrication of MS channel frame is to be done as per drawing. Proper alignment of C&R panel to be done. The earthing of C&R Panel to be done. Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.																																								
(vi)	Control and Relay Panel for 132KV Feeder/X-mer/Bus coupler																																								
	Shifting up to control	NO.	3	4	4	3	3	3	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	41		

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay					Additional Transformers							Total Quantity									
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TELGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA					
	room (including storage if required) and placement complete with all relays & accessories. The placement of C&R panel to be done on MS channel frame and MS Channel frame will suitable grouted in control room as per drawing.The cutting, welding & fabrication of of MS channel frame is to be done as per drawing.Proper alignment of C&R panel to be done.The earthing of C&R Panel to be done.Making of all interconnections for the control & relay panel on terminal block as per drawing including all AC & DC connections.																														

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay						Additional Transformers							Total Quantity						
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
	the control & relay panel on terminal block as per drawing including all AC & DC connections.																												
(viii)	RTU & Telemetry (Set):																												
	Shifting up to control room (including storage if required) and placement complete with all relays & accessories. The placement of RTU to be done on MS Channel frame and MS Channel frame will suitable grouted in control room as per drawing. The cutting, welding & fabrication of of MS channel frame is to be done as per drawing. Proper alignment of RTU to be done. The earthing of	NO.	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay						Additional Transformers							Total Quantity								
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA					
	terminal block as per drawing.																														
(x)	EPAX:																														
	Shifting up to control room (including storage if required) and placement in control room with all accessories.	No.	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7		
(xi)	220V Battery																														
a)	Shifting of 220V Battery set (having 110 cells of 1.2 V) up to control room along with battery stand & electrolyte containers shifting up to control room with all accessories. Checking of breakage and condition of cover seals.																														
b)	Erection of mounting racks, placement of battery cells (after proper cleaning of																														

Volume-VI

S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay				Additional Transformers								Total Quantity					
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Add 160MVA Transformer at 220KV S/s BARWAHA	Add 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Transformer at 132KV S/s AMRAWADKHURD	Add 40/50MVA Transformer at 132KV S/s KHIRKIYA	Add 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA		Add 40/50MVA 132/33 KV Transformer at 132KV S/s TEIGARH	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SATAWAS	Add 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU	Add 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
	C&R panel, AC/DC Board, Marshaling box, CT/PT sec box and CB mechanism box for fixing cable glands in addition to cable gland holes already provided. The hole should be free from burrs. Fixing all cables in respective cable glands and refixing gland plate to its original place. All cable identification plate is to be provided on both ends of each cable. Stripping of outer insulation cover, armouring etc. of cable, fixing ferrules on each core at both ends. Stripping all cores to suitable length, making eye, crimping terminal lugs (as the case may be)																										

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S No.	PARTICULARS	Unit	132 KV Substation						132 KV Feeder Bay						Additional Transformers										Total Quantity				
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETMA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TELGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA			
	and fixing it to terminal block as per drawing followed by proper bending/ dressing of all cores.																												
	Details of cables to be provided:																												
a	2 Core x 2.5 Sq.mm.(Unrmoured)	NO.	39	39	39	39	39	39	6	6	3	3	3	3	22	22	10	10	10	10	10	10	10	10	10	10	10	10	421
b	4 Core x 2.5 Sq.mm.(Unrmoured)	NO.	106	106	106	106	106	106	24	24	12	12	12	12	34	34	26	26	26	26	26	26	26	26	26	26	26	26	1114
c	8 Core x 2.5 Sq.mm. (Unrmoured)	NO.	10	10	10	10	10	10	0	0	0	0	0	0	3	3	4	4	4	4	4	4	4	4	4	4	4	4	108
d	12 Core x 2.5 Sq.mm. (Unrmoured)	NO.	9	9	9	9	9	9	0	0	0	0	0	0	2	2	3	3	3	3	3	3	3	3	3	3	3	3	91
e	19 Core x 2.5 Sq.mm. (Unrmoured)	NO.	21	21	21	21	21	21	10	10	5	5	5	5	11	11	6	6	6	6	6	6	6	6	6	6	6	6	257
f	2 Core x 2.5 Sq.mm.(Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g	4 Core x 2.5 Sq.mm.(Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay							Additional Transformers							Total Quantity			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Add 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TELGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SILAMAU	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA	
h	12 Core x 2.5 Sq.mm. (Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i	19 Core x 2.5 Sq.mm. (Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
j	4 Core x 4 Sq.mm.(Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
k	4 Core x 10 Sq.mm.(Armoured)	NO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
l	Coaxial Cable	NO.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
m	3.5 Core x 70 /300 Sq.mm.Power Cable	NO.	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
(n)	Laying of copper cables (armoured/unarmoured) on racks/cable trays/ angle support overhead racks conduits including dressing of cables with accessories for copper conductor & armoured control cables.																										
	Details of cables to be provided are as under:																										

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S No.	PARTICULARS	Unit	132 KV Substation							132 KV Feeder Bay					Additional Transformers										Total Quantity			
			PATI (SILAWAD)	Mahalaxmi	Mahawadia	Tendukheda	Gormi	Suthaliya	chachhoda	02 Nos Bays at 400KV S/s JULWANIA	02 Nos Bays at 220KV S/s MUNGALIYA CHHAP	01 No Bay at 132KV S/s UDAIPURA	01 No Bay at 132KV SUBSTATION GOHAD	01 No Bay at 132KV S/s NARSINGGARH	01 No Bay at 220KV S/s RAJGARH (B)	Addl 160MVA Transformer at 220KV S/s HOSHANGABAD	Addl 160MVA Transformer at 220KV S/s BARWAHA	Addl 40/50MVA TRANSFORMER AT 132KV S/s BETWA	Addl 40/50MVA Transformer at 132KV S/s AMRAWADKHURD	Addl 40/50MVA Transformer at 132KV S/s KHIRKIYA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s AMLA	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s TEJGARH	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SATWAS	Addl 40/50MVA 132/33 KV Transformer at 132KV S/s SITAMAU		Addl 40/50MVA 132/33 KV Transformer at 132KV S/s BARODA		
a	2 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	4000	5000	4500	4000	4000	4000	2000	2000	500	500	500	500	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	45500
b	4 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	15000	16000	15500	15000	15000	15000	3000	3000	500	500	500	500	2000	2000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	150500
c	8 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	5000	6000	5500	5000	5000	5000	2000	2000	500	500	500	500	2000	2000	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	2700	68100
d	12 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	5000	5500	5000	5000	5000	5000	0	0	0	0	0	0	2000	2000	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	57100
e	19 Core x 2.5 Sq.mm. (Unrmoured)	Mtr.	6000	6500	6500	6000	6000	6000	2000	2000	500	500	500	500	2000	2000	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	1100	61800
f	4Core 4 Sq.mm Armoured	Mtr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
g	4Core 10 Sq.mm Armoured	Mtr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
h	4Core 2.5 Sq.mm Armoured	Mtr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
i	12Core 2.5 Sq.mm Armoured	Mtr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
j	19 Core 2.5 Sq.mm	Mtr.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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ANNEXURE-6

WORKWISE QUANTITY FOR ERECTION, TESTING & COMMISSIONING OF TRANSMISSION LINES

NOT APPLICABLE

Modifications in Technical Specifications

There is no modification in technical specifications