



		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 3</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Schneider	France	A	
8.	Floor mounted Fixed type indoor LT Switchgear Panel ( ACDB / DCDB / MLDB etc.) Refer Note-5	I	Q-005	Switching Circuits	Kolkata	A	BOIs preferably with CE/VDE/UL/CSA marked or BIS approved with valid CML no.
				Hindustan Control & equipment Ltd	kolkata	A	With fabrication & painting at unit II & MP Electrical Narendrapur
				Maktel	Vadodara	A	Prior Type Testing
				Jakson	Greater Noida	A	
				Vidyut Control	Gaziabad	A	
				Adlec Power	Rohad ( Jhajjar)	A	
				Pyrotech	Udaipur	A	
				Conquerent Control System	Manesar	A	Condition apply ,upto 1250A
				Control & Schematics	Hyderabad	A	
				Positronics	Vadodara	A	
				Anand Power Ltd.	Noida	A	
				Additionally all vendors identified for Floor mounted Draw out type indoor LT Switchgear Panel			
9.	Wall mounted fixed type indoor / outdoor LT	I	Q-006	Control Devices	Kolkata	A	BOIs preferably with CE/VDE/UL/CSA marked or BIS approved with valid CML no.

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 4</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
	Switchgear non compartmentalized Panel ( Lighting panels / AC / DC Fuse boards etc.) Refer Note-5						
				Jasper	Noida	A	
				Havells	Faridabad	A	
				Novateur Electrical & distribution systems	Murthal	A	
				Avaid Technovator	Manesar	A	
				Additionally all vendors identified for Floor mounted Draw out type indoor LT Switchgear Panel			
				Additionally all vendors identified for Floor mounted fixed type indoor LT Switchgear Panel			
10.	Lighting & Welding Transformer	III	Q-007	Southern Electric	Chennai	A	
				Indcoil	Thane	A	
				Pragati	Thane	A	
				Prayog	Pune	A	
				Precise	Mumbai	A	
				Logicstat	Delhi	A	
				Gujarat Plug in	Vadodara	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 5</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				AE	Thane	A	
				Power Pack Enterprises	Mumbai	A	
				Amex Impex,	Ahmedabad	A	
11.	LT CT/PT/CBCT/ Control Transformer	III		Kappa	Bangalore	A	
				Southern Electric	Chennai	A	
				Precise	Mumbai	A	
				G&M	Baroda	A	CBCT Only
				Silkaans	Mumbai	A	
				Ind Coil	Mumbai	A	
				Pragati	Thane	A	
				Prayog	Pune	A	
				AE	Mumbai	A	
				Logicstat	Delhi	A	For control transformer only
				C&S Electric	Noida	A	For CT only
				Newtek	Aurangabad	A	For CT/PT/Control transformer
12.	1.1Kv LT Power Cable (From SMB to PCU)	Refer Note-2	Q-008	Universal Cable Ltd.	Satna	A	
				NICCO	Shamnagar , Kolkata	A	
				Torrent Cable Ltd	Nadiad	A	
				Incab	Pune	A	
				Hindustan Vidyut Products Ltd	Faridabad	A	
				KEI Industries	Bhiwadi	A	
				Delton Cable Ltd	Faridabad	A	A) Unarmoured cable all sizes.


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 6</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS


							B) Armoured cable up to 3.5 x 240 sq. Mm with GI strip armour and 1CX70 sq mm with Al strip armour
				Paramount Cable	Khushkhera	A	
				Polycab Wires Pvt. Ltd	Daman	A	
				Gemscabs Industries	Bhiwadi	A	
				Cords Cables	Bhiwadi	A	
				Havells India Ltd.	Alwar	A	
				Ravin Cables	Pune	A	
				Thermocables	Hyderabad	A	
				Sbee Cables	Bangalore	A	
				Suyog Cables	Vadodara	A	
				Gupta Power Cables	Khurda	A	
				Finolex	Pune	A	
				Scot Innovation wires and cables	Baddi	A	
				Anhui Hualing	China	A	
				LS Cable	Korea	A	
				Radiant Cables	Hyderabad	A	
				Tirupati Plastomatics	Jaipur	A	
				Apar Industries	Umbergaon	A	
				Special Cables	Rudrapur	A	
				ABB Kabel	Germany	A	
				Advance cable	Bengaluru	A	
				Step Industries	Shahjahanpur	A	
				Taihan Electric Wire	Korea	A	
				Tbea Shandong	China	A	
				CMI	Baddi	A	
				Dynamic Cables	Jaipur	A	Conditional Approval

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 7</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS


				Indo Alusys	Bhiwadi	A	
13.	1.1 KV Control Cable	Refer Note-2	Q-009	Universal Cable Ltd.	Satna	A	
				NICCO	Shamnagar , Kolkata	A	
				Torrent Cable Ltd	Nadiad	A	
				Incab	Pune	A	
				Polycab WiresPvt. Ltd	Daman	A	
				Hindustan Vidyut Products Ltd	Faridabad	A	
				KEI Industries	Bhiwadi	A	
				Delton Cable Ltd	Faridabad	A	
				Paramount Cable	Khushkhera	A	
				Gemscabs Industries	Bhiwadi	A	
				Cords Cables	Bhiwadi	A	
				SPM Cables	Hyderabad	A	
				Elkay Telelink	Faridabad	A	
				Havells India Ltd.	Alwar	A	
				R.R. Kabel	Silvasa	A	
				Ravin Cables	Pune	A	
				Gupta Power cable	Khurda	A	
				Thermocables	Hyderabad	A	
				Finolex	Pune	A	
				Sbee Cables	Bangalore	A	
				Suyog Cables	Vadodara	A	
				Scot Innovation wires and Cables	Baddi	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 8</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Anhui Hauling	China	A	
				LS Cable	Korea	A	
				Radiant Cables	Hyderabad	A	
				Tirupati Plastomatics	Jaipur	A	
				Apar Industries	Umbergaon	A	
				Special Cables	Rudrapur	A	
				Advance cable	Bengaluru	A	
				Step Industries	Shahjahanpur	A	
				Taihan Electric Wire	Korea	A	
				Tbea Shandong	China	A	
				CMI	Baddi	A	
				Goyoline Fibres(I) Ltd	Daman	A	
				Indo Alusys	Bhiwadi	A	
14.	HT Cable Upto 11KV	Refer Note 2	Q-010	Universal Cable Ltd.	Satna	A	
				NICCO	Shamnagar, Kolkata	A	
				Torrent Cable Ltd	Nadaid	A	
				Incab	Pune	A	
				Polycab Wires Pvt. Ltd	Daman	A	
				KEI Industries	Bhiwadi	A	
				Havells India Ltd.	Alwar	A	
				Sri ram Cables	Bhiwadi	A	
				Krishna Electrical Industries Ltd	Gwalior	A	
				Apar Industries	Valsad	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 9</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Finolex	Pune	A	
				KEC International	Vadodara	A	
				Tirupati Plastomatics	Jaipur	A	
				Gupta Power	Kashipur	A	
				Paramount	Khushkhera	A	
				Gemscab	Bhiwadi	A	
				Sterlite	Haridwar	A	
15.	HT Cable upto 33KV	Refer Note 2	Q-011	Universal Cable Ltd.	Satna	A	
				Torrent Cable Ltd	Nadiad	A	
				Polycab Wires Pvt. Ltd	Daman	A	
				KEI Industries	Bhiwadi	A	
				Havells India Ltd.	Alwar	A	
				Apar Industries	Valsad	A	
				Finolex	Pune	A	
				KEC International	Vadodara	A	
				Gupta Power	Kashipur	A	
				Paramount	Khushkhera	A	
				Gemscab	Bhiwadi	A	
				Sterlite	Haridwar	A	
16.	DC Cable (Interconnecting SPV Modules, SPV Module to SMB) As per NTPC specification	I	Q-012	Siechem	Pondicherry	A	Upto 35 sq.mm.


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 10</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Apar	Khatalwada	A	Conditions apply
17.	Battery ( Ni-Cd)	II	Q-013	M/S HBL-Power System	Hyderabad	A	Up to 990 Ah with conditions
				M/S Amcosoft	Bangalore	A	8Ah to 990Ah- KPH type 10Ah to 1365 Ah- KPM type 11Ah to 1550Ah – KPL type
18.	Battery Plante /Tubular	II	Q-014	M/s Exide	Kolkata	A	
				Hoppeke	Brilon, Germany	A	
19.	Battery charger	II	Q-015	M/s Amara Raja	Tirupati	A	
				M/s HBL- Power System	Hyderabad	A	
				M/s Chhabi electrical	Jalgaon	A	
				M/s. Chloride Power	Kolkatta	A	
				M/s Statcon	Hapur	A	Up to 220, V 850 A
				M/s Dubas	Bangalore	A	Up to 220 V, 250 A
				M/s Saft Nife Power Systems	Singapore	A	
				M/s Masstek	Jalgaon	A	
20.	Earthing & Lightning Protection Material like GI Strip/GI Wire etc	III		Main contractor Approved Sources box subject to galvanization at NTPC approved sources as per Note-4			
21.	HT Cable Termination Kits & Straight Through Jointing Kit	III		M/s 3M Electro & Communication	Pune	A	Upto 33KV





		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 11</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
	(Heat shrinkable type)						
				Raychem	Halol	A	Upto 33KV
				Hari Consolidated	Delhi	A	Upto 11KV( conditions apply)
22.	Lighting fixtures with accessories including lamp (Filament type)	II	Q-016	M/s Crompton	Mumbai	A	
				M/s Bajaj Electricals	Mumbai	A	
				M/s Philips	Noida	A	
				M/s Wipro	Mumbai	A	
				M/s Surya Roshni	Noida	A	Conditions apply
23.	Lighting fixtures with accessories including lamp (LED type)	II	Q-017	M/ s Wipro	Pune	A	Conditions apply
				M/s Surya Roshni	Noida	A	Conditions apply
				M/s Bajaj	Mumbai	A	Conditions apply
				M/s Goldwyn	Noida	A	
				M/s Philips	Noida	A	
24.	MCB Boxes/Junction boxes / Link Boxes/ Test Link Box/ Adopter box, Switch Boxes, Pull Boxes (Hot Dip Galvanized)	III		Main Contractor approved sources with galvanization from NTPC approved sources			BOIs preferably with CE/VDE/UL/CSA marked or BIS approved with valid CML no, Refer Note-6
25.	Industrial /welding	III		Schneider	Nasik	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 12</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
	receptacles & boxes						
				M/s BCH	Faridabad	A	
				M/s Ajmera	Mumbai	A	
				M/s. Sakthi & Crown	Chennai	A	
				Any other make having CE / UL / CSA mark or BIS approval with valid CML number.			
26.	PVC conduit/hume pipe/lighting wire/GI pipes/HDPE pipe/Structural Steel/ GI steel rigid conduit/ epoxy conduit	III		BIS licensee with valid CML number / ISI marked with valid CML number			
27.	MV Switchgear Panel (Refer Note-5)	I	Q-018	BHEL	Bhopal	A	Upto 33KV
				Megawin	Salem	A	Upto 33KV
				L&T	Ahmednagar	A	Upto 33KV
				Siemens	Mumbai	A	Upto 33KV
				Jyoti	Vadodara	A	Upto 33KV
				ABB	Nasik	A	Upto 33KV
				Schneider	Kolkata	A	Upto 11KV -Salt lake works -VG series Interrupter made at Salt Lake Works
28.	MV Vacuum Type Circuit Breaker	(part of		Siemens	Mumbai	A	Upto 33kv

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 13</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
		Swgr MQP)					
				BHEL	Bhopal	A	Upto 33kv
				L&T	Ahmednagar	A	Upto 33kv
				ABB	Nasik	A	Upto 33kv
				ABB	Italy	A	Upto 33kv
				Megawin	Salem	A	Upto 33kv
				Jyoti	Vadodara	A	Upto 33kv
				Schneider	Kolkata	A	Upto 11kv
29.	IEC 61850 compliant Numerical Protection Relays	(Part of Swgr MQP)		SEL	Pullman, USA	A	
				ALSTOM T&D	Stafford, UK	A	P14X, P34X, P44X, P64X, P74X models only.
				ALSTOM T&D	Chennai	A	P14X, P24X, P34X, P44X, P64X, P74X models only.
				ABB	Finland	A	
				ABB	Baroda	A	For 6XX Series
				GE Multilin	Zamudio, Vizcaya, Spain/ Markham, Ontario, Canada	A	F-650 only
				Schneider	Stone, UK	A	PX30, PX40, VAMP 5X and VAMP 2XX models only.
				Siemens	Germany	A	7SX Series only


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 14</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Siemens	Goa	A	7SR2X , 7SJ66X series only
30.	Single Rod Air Terminal Type Solar Array Lightning Arrestor	III		Main Contractor approved sources: subject to manufacturer / supplier having valid Type Test Report as per IS 2309 or equivalent Standard			
31.	ESE Type Solar Array Lightning Arrestor	III		Main Contractor approved sources: subject to manufacturer / supplier having valid Type Test Report as per latest version of NF C 17-102 & country of origin documents			
32.	Lighting Poles	III		BIS Licensee as per IS 2713			
33.	Cable Lug	III		M/s Dowell	Mumbai	A	
				M/s Billets Elektro Werke Ltd. ( 3 D)	Umbergaon	A	
				M/s Chetna	Nasik	A	
				Additional Vendors with Make-Model having mark of VDE/ UL /CSA / BIS with CML no. Refer Note-1			
34.	Cable Gland	III		Any Make-Model having mark of VDE/ UL /CSA / BIS with CML no. Refer Note-1			
35.	GI Cable Tray, fitting, accessories including bends	Refer Note-3	Q-019	Inar Profiles Ltd	Enkapalli (Vishakhapatnam)	A	

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 15</b>
SI. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Vatco	Mumbai	A	Galvanization at Sigma Mumbai
				Indiana cable trays	Mumbai	A	Galvanization at Karamtara galvanizer- Mumbai
				Industrial Perforation	Kolkata	A	Galvanized and offered for inspection at M/s Industrial Perforation Pvt Ltd, Ganganagar , Kolkata, WB
				Ratan Projects	Howrah	A	Galvanization at DMP Projects- Howrah
				India Electric Syndicate	Kolkata	A	Galvanization at BMW Industries/B.P Projects- Howrah
				Steelite engg.	Mumbai	A	
				Premier Power Products	Howrah	A	Galvanising at Neha Galvaniser- Howrah
				Indiana Gratings	Pune	A	
				M.J. Engineering	Okhla/ Bhiwadi	A	
				T.R.G	Chennai	A	Galvanization at TM Radhakrishna Chetty & Co-Chennai
				Amtech	Pune	A	Galvanization at B.G. Shirke - Pune
				Kannade Anand Udyog	Mumbai	A	Fabrication at their units: Plot No. 42, Morivali, MIDC Thane & Plot No.: D-35 Anand Nagar MIDC, Addl. Ambernath , Dist.Thane Galvanization and offer the galvanized cable trays for inspection at D-34 Anand Nagar MIDC, Addl. Ambernath, Dist.Thane.
				Rukmani	Raipur	A	Ladder type cable trays only
				Passive Infra	Hasangarh (Rohtak)	A	
				Unitech Fabricators & Engineers	Howrah/ Hoogly (Kolkata)	A	
				Patny System	Hyderabad	A	
				Rabi Engg	Kolkata	A	Galvanizing from NTPC approved sources
				MKSD Industries	Taloja	A	Galvanising at Encorp Power trans PVT Ltd, Palghar


		<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 16</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				Reliable Sponge	Kalunga	A	
				Rukmani	Hoogly	A	Galvanization at Rukmani Fab & Gal- Howrah
				Eros Metal Works	Nagpur	A	Conditions apply
				Indmark Formtech	Pune	A	Conditions Apply
36.	Cable Tray Flexible Tray Support System	Refer Note-3	Q-020	Vatco	Mumbai	A	Galvanising at Sigma Mumbai
				Inar profiles	Enkapalli	A	
				Industrial perforations	Kolkata	A	
				Premier power products	Howrah	A	Galvanising at Neha Galvaniser- Howrah
				Steelite engg.	Mumbai	A	
				Indiana gratings	Pune	A	Galvanising at Poona Galvaniser- Pune
				Amtech	Pune	A	Galvanising at B.G. Shirke- Pune
				Ratan Projects	Howrah	A	Galvanization at NTPC approved sources
				MKSD Industries	Taloja	A	Galvanising at Encorp Power trans PVT Ltd, Palghar
				Indmark Formtech	Pune	A	Conditions apply
				Patny Systems	Hyderabad	A	
37.	Piping – ERW ( IS 1239)	II		Main Contractor approved sources; with valid BIS license			
38.	Fire Extinguisher	III		BIS approved sources with valid BIS License.			
39.	Circuit Breaker 33KV (outdoor type)	I	Q-027	Siemens	Aurangabad	A	
				ABB	Vadodara	A	
				CGL	Nasik	A	
				BHEL	Hyderabad	A	

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 17</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS


				GE T&D	Kanchipuram	A	
40.	Isolator 33 kv (outdoor type)	I	Q-028	GR Power	Hyderabad	A	
				Hivelm	Chennai	A	
				S&S Power	Pondicherry	A	
				Switchgear & Structural	Hyderabad	A	
				Siemens Ltd	Hyderabad	A	
41.	PT (Outdoor Type, upto 33Kv)	I	Q-029	Mehru	Bhiwadi	A	
				Vishal Transformer	Meerut	A	
				Heptacare	Meerut	A	
42.	33KV CT (Outdoor Type)	I	Q-030	Mehru	Bhiwadi	A	
				GE T&D	Hosur	A	
				ABB	Vadodara	A	
				CGL	Nasik	A	
				BHEL	Jhansi/Bhopal	A	
				Vishal Transformer	Meerut	A	
				Heptacare	Meerut	A	
43.	Surge Arrestor	I	Q-032	Oblum	Hyderabad	A	
				Lamco	Hyderabad	A	
				Xian	China	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 18</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				CGL	Nasik	A	
44.	AB Tariff energy meter	II	Q-033	SEMS	Udaipur/Solan	A	Inspection with representative from Local Electricity Board.
				Elster	Mumbai	A	
				L&T	Mysore	A	With CMS software.
45.	Conductor	II		Smita	Ghaziabad	A	
				Gupta Power Infra	Bhubaneswar	A	
				Saravathy	Bangalore	A	
				Galaxy	Sangli	A	
				Hindustan Vidyut products	Faridabad	A	
				Apar Industries	Vadodara / Silvassa	A	
				Hira Cables	Hirakud	A	
				JSK	Silvasa	A	
				DIAMOND	VADODARA	A	
				HIREN ALUMINIUM	SILVASSA	A	
				LUMINO	KOLKATA	A	
46.	Disc Insulator/Pin Insulator	II		Aditya Birla	Rishra	A	
				IEC	Bhopal	A	
				WSI	Chennai	A	
				BHEL	Bangalore	A	
				Imperial Ceramics	Bikaner	A	Upto 90KN
				SARVANA	CUDDALORE	A	




		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 19</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS

47.	Bus Post Insulator	II		Aditya Birla	Halol	A	
				IEC	Bhopal	A	
				WSI	Chennai	A	
				MODERN Insulator	Abu Road	A	
				SARAVANA Global Energy	Cuddalore	A	
48.	Clamps & connectors	III		KLEMMEN ENGG	CHENNAI	A	
				MILIND	MUMBAI	A	
				EMI	MUMBAI	A	
				NOOTAN ENGG	MUMBAI	A	
				TAG CORPORATION	CHENNAI	A	
				ITPL	MUMBAI	A	
				RASHTRAUDYOG	KOLKATA	A	
				PEE VEE ENGG	BANGALORE	A	
				MEGHA Engg	CHENNAI	A	
				EXALT	Mumbai	A	
49.	Insulator hardware, conductor accessories & earthwire accessories	III		RASHTRA UDYOG	KOLKATA	A	
				IAC	KOLKATA	A	
				ITPL	MUMBAI	A	
				EMI Transmission	MUMBAI	A	
				EMTT	Kolkatta	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 20</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
50.	Aluminium tube	II		HINDALCO	RENUKUT	A	
				INDALCO	ALUPURAM	A	
				CENTURY EXTRUSIONS	KOLKATA	A	
				JINDAL ALUMINUM TUBE	BANGALORE	A	
				ALOM EXTRUSIONS	KOLKATA	A	
				BALCO	KORBA	A	
				SUDAL	NASIK	A	
				Banco	Vadodara	A	
51.	Switchyard Control & Relay Panel / SAS	I	Q-034	GE (Alstom)	Chennai	A	
				Siemens	Kalwa/Goa	A	
				ABB	Peenya	A	
				Schneider	Noida	A	
				BHEL	Bhopal	A	Approved for C&R Panel only
52.	Numerical Relays for Switchyard	(part of C&R MQP)		GE	UK/Chennai	A A	
				Siemens	Germany	A	
				ABB	Sweden/ Bangalore	A	
53	FIBRE OPTIC CABLES	III		BIRLA ERICSSON OPTICAL	REWA	A	
				AKSH FIBER	BHIWADI	A	


		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 21</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS

				FINOLEX	PUNE/GOA	A	
				R&M	SWITZERLAND	A	
				HFCL	GOA	A	
54	RELAY TEST KIT	III		OMICRON	USA/AUSTRALIA	A	
				DOBLE	USA	A	
				MEGGER	UK	A	
55	LEAKAGE CURRENT ANALYSER FOR SURGE ARRESTOR	III		DOBLE ENGG	USA	A	
				ISA	ITALY	A	
				TRANSINOR	NORWAY	A	
56	GPS	III		HATHWAY	USA	A	
				SIEMENS	GERMANY	A	
				HOPF	GERMANY	A	
				SERTEL	CHENNAI	A	
				ARBITER	USA	A	
57	SF6 GAS FILLING AND EVACUATING PLANT, GAS RECYCLING & PURIFYING PLANT, GAS LEAKAGE	III		AI QUALITEK	USA	A	
				DILO	GERMANY	A	
				EMT	UK	A	
				ENERVAC	CANADA	A	
				VACCUUM PLANT INDUSTRIES	PUNE	A	
				WIKA	USA	A	

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 22</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS

	DETECTOR						
58	Transformer (Oil filled type) Refer Note-8	I		BHEL	Bhopal		up to 400 kV Class
				GE( T&D)	Naini		up to 400 kV Class
				Toshiba	Hyderabad	A	up to 400 kV Class
				TELK	Agnamaly, Kerala	A	up to 400 kV Class
				ABB	Vadodara	A	up to 765 kV Class
				CG Power & Industrial Solutions Ltd.	Kanjur Marg	A	up to 400 kV Class
				EMCO	Thane	A	up to 400 kV Class
				BHEL	Jhansi	A	up to 220 kV Class
				Schneider	Vadodara	A	up to 50 MVA, 132 kV Class
				T&R	Ahmedabad	A	up to 90 MVA, 132 kV Class
				Kanohar	Merrut	A	up to 16 MVA, 33 kV Class
				EMCO	Jalgaon	A	up to 16 MVA, 33 kV Class
				Kirloskar	Mysore	A	up to 16 MVA, 33 kV Class
				Andrew Yule	Chennai	A	up to 10 MVA, 33 kV Class
				Tesla (unit-2)	23A, Sector-B, Industrial Area, Govindpura, Bhopal	A	up to 5.0 MVA, 33 kV Class
				Indotech Transformers	Chennai	A	up to 16 MVA, 11 kV Class
				Hammond Power Solutions	Hyderabad	A	up to 10 MVA, 33 kV Class

		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 23</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
				CG Power & Industrial Solutions Ltd.	Malanpur	A	up to 7.5 MVA, 33 kV Class
				ECE	Sonepat	A	up to 4.0 MVA, 11 kV Class
				Voltamp	Savli	A	up to 3.5 MVA, 33 kV Class
				Kirloskar	Pune	A	up to 2.0 MVA, 33 kV Class
				RAYCHEM RPG	Pune	A	Up to 5 MVA, 33 kV Class
				Esennar	Medak	A	Up to 16 MVA, 66 kV Class
				Technical Associate Ltd	Sitarganj	A	up to 16 MVA, 33 kV Class, Approval Conditions Apply
				Prime Meiden Ltd	Nellur	A	up to 63 MVA, 132 kV Class
				KRYFS Power Components Ltd	Silvassa	A	Up to 2.5 MVA, 33 kV Class
				Sudhir Transformers	Bangalore	A	Up to 12.5 MVA, 33KV Class
				Sudhir Power Ltd	Silvassa	A	Up to 12.5 MVA, 33KV Class
59	Dry Type Transformer (refer note-8)	I	Q-036	ABB	Savli	A	up to 8 MVA, 24 kV Class
				Raychem	Pune	A	Up to 3.5 MVA, 33 kV Class
				Toshiba	Hyderabad	A	Up to 2.0 MVA, 33 kV Class
				BHEL	Jhansi	A	Up to 6.3 MVA, 33 kV Class
				Kirloskar	Pune	A	Up to 4.0 MVA, 33 kV Class
				Voltamp	Savli	A	Up to 3.25 MVA, 33 kV Class
				Hammond Power Solutions	Hyderabad	A	Up to 95 KVA, 33 kV Class
				Sudhir Power Ltd	Silvassa	A	Up to 1 MVA, 11 KV Class
60.	132KV Cables	I	Q-037	Iljin Electric	South Korea	A	
				KEI Industries	Bhiwadi	A	
				Phelps Dodge	Bangkok	A	
				Universal Cable Ltd.	Satna	A	

		<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 24</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS
61.	Battery Health Monitoring System (220V/110V)	II	Q-038	M/s. Chloride Power	Kolkatta	A	
				M/s Dubas	Bangalore	A	
				M/s HBL- Power System	Hyderabad	A	

Under Sub Supplier approval status as per NTPC column:

A: mean that manufacturer proposed main contractor for this items is acceptable to NTPC.

CA: mean that manufacturer proposed by main contractor is acceptable to NTPC with certain conditions

DR-mean that manufacturer proposed by main contractor for the items will be assessed by NTPC. Main contractor is obliged to procure the item from "DR" category manufacturer only after written approval from NTPC

**Under QP / INSPN CATEGORY column:**

CAT-I : For these items the Quality Plans approved by NTPC & final acceptance will be on physical inspection & witness by NTPC

CAT-II : For these items the Quality Plans approved by NTPC. However no physical inspection shall be done by NTPC. The final acceptance by NTPC shall be on basis of verification of documents as per approved QP

CAT-III : For these items Main supplier approves the Quality Plans. The final acceptance by NTPC shall be on basis of certificate of conformance by the main supplier.

**General Notes:**


**1) Vendors acceptance is subject to sub-QR clearance as applicable. Sub-QR/Proveness criteria as per the scope/technical specification shall also be applicable for consideration as approved manufacturer/vendor**

2) Vendor list & inspection category of the mandatory spares shall be as mentioned above.

3) For item not appearing in the above list, Main Contractor to approach NTPC for acceptable vendors & inspection categorization of the same.

4) NTPC Approval conditions to above identified vendors shall be adhered to. Vendor's approval conditions will be informed on specific request of Main Contractor.

**Note-1-** "TYPE TEST REPORT AS PER EN 50521" OR "VDE / CE / UL / CSA MARKING CERTIFICATION PREFERABLY FROM THIRD PARTY AGENCY" OR "BIS APPROVAL LETTER" SHALL BE SUBMITTED FOR NTPC's VERIFICATION /INFORMATION.

		<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 25</b>
<b>Sl. No.</b>	<b>ITEM</b>	<b>QP / INS CAT.</b>	<b>QP No. -</b>	<b>ACCEPTABLE SUPPLIER AS PER DATABASE</b>	<b>PLACE</b>	<b>SC APPL STATUS</b>	<b>REMARKS</b>

**Note-2-**

**Category of inspection for LT Power Cable:**

<b>TOTAL CONTRACT QUANTITY PER SIZE</b>	<b>CATEGORY OF INSPECTION</b>
For cable total quantity $\leq 2.5$ KM	Cat-III - submission of TC & Certificate of Conformance by Main Contractor for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years
For cable total quantity above 2.5 km & up to $\leq 10$ km per size/type	Cat-II for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for atleast 2 years
TOTAL QUANTITY MORE THAN 10 KM PER SIZE/TYPE	Cat-I

**Category of inspection for Control Cable :**

<b>TOTAL CONTRACT QUANTITY PER SIZE</b>	<b>CATEGORY OF INSPECTION</b>
For cable total quantity $\leq 2.5$ KM	Cat-III - submission of TC & Certificate of Conformance by Main Contractor for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for at least 2 years
For cable total quantity above 2.5 km & up to $\leq 10$ km per size/type	Cat-II for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for at least 2 years
For cable total quantity above 10 km per size/type	Cat-I


**Category of inspection for HT cables**

<b>TOTAL CONTRACT QUANTITY PER SIZE/TYPE</b>	<b>CATEGORY OF INSPECTION</b>
LESS THAN EQUAL TO 500 M	CAT-III
GREATER THAN 500 M	CAT-I

**Note-3-**

**FOR CABLE TRAYS & CABLE TRAY SUPPORT SYSTEM THE CATEGORY OF INSPECTION SHALL BE AS FOLLOWS**



		<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 26</b>
Sl. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS

TOTAL CONTRACT QUANTITY PER SIZE /TYPE	CATEGORY OF INSPECTION
For cable total quantity $\leq$ 2.5 KM	Cat-III - submission of TC & Certificate of Conformance by Main Contractor for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for at least 2 years
For cable total quantity above 2.5 km & up to $\leq$ 10 km per size/type	Cat-II for the manufacturers having successfully supplied to any NTPC project-site through Corporate contracts for at least 2 years
TOTAL QUANTITY MORE THAN 10 KM PER SIZE/TYPE	Cat-I

**Note-4- Indicative List of acceptable galvanizing sources:**

1. M/s M J Engg, Delhi	8. M/s National Galvanizer, Kolkata	15. M/s Sigma, Mumbai	22. Indian Gratings, Pune
2. M/s Indmark, Pune	9. M/s Unistar Galvanizer, Kolkata	16. M/s Radhakrishnan Shetty, Chennai	23. Encorp Power trans PVT Ltd, Palghar
3. M/s A.V. Engg, Kolkata	10. M/s B.P. Project. Kolkata	17. Karamtara Mumbai	24. Reliable Sponge, Kalunga
4. M/s Inar Profiles, Vishakapatnam	11. M/s Bajaj Pune	18. Poona Galvanizers Pune	25- Rukmani Fab & Gal- Howrah
5. M/s Anand Udyog, Mumbai	12. M/s Electrocure Industries, Mumbai	19. Neha Galvanizer- Kolkata	
6. M/s Techno Engg, Chandigarh	13. M/s B.G. Shirke, Pune	20. Unitech Fabricators & Galvanizers- Hoogly	
7. M/S Steelite Engg, Mumbai	14. M/s Gurpreet Galvanizer, Hyderabad	21. Patny Systems- Mehdak	


**Note-5:**

a. Raw material & Bought Out components for main equipment will be finalized with vendor identified by Main Contractor.

**Note-6:** "VDE / CE / UL / CSA MARKING CERTIFICATION PREFERABLY FROM THIRD PARTY AGENCY" OR "BIS APPROVAL LETTER" SHALL BE SUBMITTED FOR NTPC's VERIFICATION / INFORMATION.

**Note-7:** Approval conditions shall be adhered to.



		<b>PROJECT : Development of 100 MW Floating Solar PV</b> <b>Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE : SOLAR</b> <b>CONT. NO. :</b>			<b>INDICATIVE VENDOR LIST</b> <b>Subsystem- Electrical &amp; Mechanical</b>		<b>DOC NO. :</b> <b>REVISION NO. 00</b> <b>PAGE : 27</b>
SI. No.	ITEM	QP / INS CAT.	QP No. -	ACCEPTABLE SUPPLIER AS PER DATABASE	PLACE	SC APPL STATUS	REMARKS

**Note-8:**

**8.1** Raw material & bought out components for main equipment will be finalized with vendor identified by Main Contractor.

**8.2** For Auxiliary Transformers (Oil Filled & Dry Type- below 1.0 MVA, 11 KV Class):

- Main Contractor's approved sub-vendors will also be acceptable subject to sub-vendor shall have minimum two years of supply experience for similar rating & type of transformers.
- NTPC will review the Routine Test Inspection Report, witnessed by Main Contractor as per IS 2026/IS 1180 for Oil Filled Transformer and as per IS 11171 for Dry type Transformer



**PROJECT : Development of 100 MW Floating Solar  
PV Project at NTPC Ramagundam in Telanagana**  
**PACKAGE:**  
**SUPPLIER :**  
**CONT. NO.:**

**LIST OF ITEMS  
REQUIRING QUALITY  
PLAN AND SUB- SUPPLIER  
APPROVAL  
SUB SYSTEM: C & I**

**DOC. No. :**  
**Revision No. :**  
**DATE: 28.11.2018**  
**PAGE : 1 OF 7**

SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS
1	INSTRUMENTATION CABLE(REFER NOTE-1)	I		DELTON CABLES LTD	FARIDABAD	A	PVC, FRLS TYPE
		I		PARAMOUNT COMMUNICATION LTD	KHUSHKHERA	A	PVC, FRLS TYPE
		I		CORDS CABLE INDUSTRIES LTD	BHIWADI/ KAHARANI	A	PVC, FRLS TYPE
		I		KEI INDUSTRIES LTD	BHIWADI	A	PVC, FRLS TYPE
		I		POLYCAB WIRES PVT. LTD	DAMAN	A	PVC, FRLS TYPE
		I		THERMOCABLES	HYDERABAD	A	PVC, FRLS TYPE
		I		ELKAY TELELINKS	FARIDABAD	A	PVC, FRLS TYPE
		I		GUPTA POWER	KHURDHA	A	PVC,FRLS,SHIELDED, MULTI PAIR,TWISTED ,TYPE A,B,F&G
		I		NICCO	KOLKATA	A	PVC, FRLS TYPE
		I		UNIVERSAL CABLE	SATNA	A	PVC, FRLS TYPE
		I		CMI	FARIDABAD	A	ONLY FOR F& G TYPE
		I		ADVANCE CABLES PVT LTD	BANGLORE	A	ONLY FOR 0.5 SQMM F&G TYPE CABLES
		I		GEMSCAB INDUSTRIES LTD	BHIWADI	A	ONLY FOR 0.5 SQMM F&G TYPE CABLES
		I		APAR INDUSTRIES LIMITED	VALSAD	A	ONLY FOR 0.5 SQMM F&G TYPE CABLES
		II		SUYOG ELECTRICALS LTD	HALOL	A	ONLY FOR 0.5 SQMM F&G TYPE CABLES
		I		SPECIAL CABLES PVT LTD	RUDRAPUR	A	ONLY FOR 0.5 SQMM F&G TYPE CABLES
		I		T C COMMUNICATION	GHAZIABAD	A	PVC, FRLS TYPE
		II		TEW & C	USA	A	
		II		HABIA CABLES	SWEEDEN	A	
		II		KERPEN CABLES	GERMANY	A	
		II		LAPP CABLES	GERMANY	A	
		II		THERMO ELECRTA BV	NETHERLAND	A	
2	FIRE ALARM PANEL -MICROPROCESSOR BASED & MANNUAL CALL POINTS	II		NOTIFIER	USA	A	UL CERTIFICATION OF MODEL NO ALSO PROVIDED WITH COC
				TYCO	USA	A	SIMPLEX BRAND
				AUTRONICA	NORWAY	A	



**PROJECT : Development of 100 MW Floating Solar  
PV Project at NTPC Ramagundam in Telanagana**  
**PACKAGE:**  
**SUPPLIER :**  
**CONT. NO.:**

**LIST OF ITEMS  
REQUIRING QUALITY  
PLAN AND SUB- SUPPLIER  
APPROVAL  
SUB SYSTEM: C & I**

**DOC. No. :**  
**Revision No. :**  
**DATE: 28.11.2018**  
**PAGE : 2 OF 7**

SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS
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				SCHRAK	AUSTRIA	A	
				EDWARDS	USA	A	
				TOSHNIWAL INDUSTRIAL PVT LTD	AJMER	A	CONDTIONAL AS PER APPROVAL LETTER NETRA/STH/03
				M/S SHIELD FIRE SAFETY AND SECURITY LTD	UK	A	
3	ADDRESSABLE DETECTORS (MULTI SENSOR), INTERFACE UNITS ,HOOTER CUM STROBE & HOOTER	II		NOTIFIER	USA/GURGAON	A	
				TYCO	USA	A	SIMPLEX BRAND
				AUTRONICA	NORWAY	A	
				SCHRAK	AUSTRIA	A	
				EDWARDS	USA	A	
				SHIELD FIRE SAFTY	UK	A	
4	FIBRE OPTIC CABLES (REFER NOTE 2)	II		BIRLA ERICSSON OPTICAL	REWA	A	
				AKSH FIBER	BHIWADI	A	
				FINOLEX	PUNE/GOA	A	
				R&M	SWITZERLAND	A	
				HFCL	GOA	A	
				JIANGSU TONGGUANG	CHINA	A	
		I		R&M	SWITZERLAND	A	
		II		MOLEX	UK	A	
		II		CORNING	USA	A	
5	OPERATOR WORK STATION	III		DELL/HP/IBM/LENEVO/COMPAQ /FUJITSU OR OEM APPROVED SOURCES		A	
6	24V INTELLIGENT BATTERY CHARGER /DCDB & BHMS	I		ELTEK	GURGAON	A	MODULES FROM ELTEK
				MASS TECH	JALGAON	A	MODULES FROM ELTEK
				CHHABI	JALGAON	A	MODULES FROM EMERSON



**PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana**  
**PACKAGE:**  
**SUPPLIER :**  
**CONT. NO.:**

**LIST OF ITEMS  
REQUIRING QUALITY  
PLAN AND SUB- SUPPLIER  
APPROVAL  
SUB SYSTEM: C & I**

**DOC. No. :**  
**Revision No. :**  
**DATE: 28.11.2018**  
**PAGE : 3 OF 7**

SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS
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				VERTIV ENERGY PVT LTD	MUMBAI	A	WITH MODULES FROM EMERSON-CHINA
7	PLC BASED SCADA SYSTEM	I		M/S BEIJING K&U ELECTRICAL	BEIJING	A	CQA/9518/LWA/B-437 DTD 01.02.2018
				GE INTELLEGENT PLATFORMS PVT LTD	BANGALORE	A	NOTESHEET NO. 3428 DTD 12.11.2010
				ABB	BANGALORE	A	
				SCHNEIDER	NASIK	A	
				ROCKWELL	SAHIBABAD	A	
				SIEMENS	NASIK	A	
				HONEYWELL	PUNE	A	APPROVAL AS PER LETTER DATED CW-EN-9661-M03-001 DTD 28.02.2014
				M/S VIRTUAL AUTOMATION	RANGAREDDY	A	CQA/001/151/NKTPP/V-205/VIRTUAL AUTOMATION DTD 29.08.2017
				M/S COTMAC ELECTRONICS PVT LTD	PUNE	A	CQA/001/151/NKTPP/C-352/COTMAC DTD 16.08.2017
				M/S TECH-MASTERS	HYDERABAD	A	CQA/001/151/NKTPP/T-440/TECH MASTER DTD 16.08.2017
				M/S POWERTECH SWITCHGEAR (I) PVT LTD	SONEPAT	A	CQA/001/147/KHARGONE/PLC PANEL DTD 10.07.2017
				M/S UNITY INDUSTRIAL AUTOMATION PVT LTD	DELHI	A	CQA/5505/906/TAPOVAN/U-131/PLC PANEL DTD 27.10.2017
				EMCONS	RANCHI	A	CQA/4410-155E/E-350/EMCONS DTD 31.01.2018
				SCHNEIDER	BANGALORE	A	01/PETF/9548-155/TATA DTD 06.11.2015
8	NI-CD BATTERY FOR PLC SYSTEM (REFER NOTE 5)	I		AMCO SAFT	BANGALORE	A	
				HLB POWER SYSTEM	HYDERABAD	A	
		II		SAFT	FRANCE/ SWEDEN	A	
				HOPPECKE BATTERIEN GMBH & CO KG	GERMANY		
9	BATTERY(LEAD-ACID PLANTE)	II		HOPPECKE BATTERIEN GMBH & CO KG	GERMANY	A	



**PROJECT : Development of 100 MW Floating Solar  
PV Project at NTPC Ramagundam in Telanagana**  
**PACKAGE:**  
**SUPPLIER :**  
**CONT. NO.:**

**LIST OF ITEMS  
REQUIRING QUALITY  
PLAN AND SUB- SUPPLIER  
APPROVAL  
SUB SYSTEM: C & I**

**DOC. No. :**  
**Revision No. :**  
**DATE: 28.11.2018**  
**PAGE : 4 OF 7**

SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS
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	(REFER NOTE 3)	I		EXIDE	KOLKATA	A	
10	ELECTRICAL ACTUATOR	II		ANTRIEB TECHNIK PVT LTD	CHENNAI	A	
		II		AUMA	BANGALORE	A	
		II		LIMITORQUE	FARIDABAD	A	
		II		ROTORK	BANGLORE	A	
		I		ROTORK CONTROLS (INDIA) PRIVATE LTD	CHENNAI	A	
		III		AUMA	GERMANY	A	
		III		LIMITORQE	USA	A	
		III		ROTORK	UK	A	
		III		NIPPON GEAR	JAPAN	A	
		III		DREHMO GMBH	GERMANY	A	
11	SMF LEAD-ACID BATTERY FOR MICROPROCESSOR BASED FIRE ALARM PANEL	III		AMARRAJA	TIRUPATI	A	
				EXIDE	KOLKATTA	A	
				HBL POWER SYSTEM	HYDERABAD	A	
12	UPS SYSTEM WITH ACDB (REFER NOTE 4)	I		FUJI ELECTRIC	JAPAN	A	
				HITACHI HIREL	GANDHINAGAR	A	APPROVED UP TO 120 KVA, 1Φ
				VERTIV ENERGY PVT LTD	PUNE	A	UP TO 125 KVA FOR 1 PHASE & 300 KVA FOR 3 PHASE
				VERTIV ENERGY PVT LTD	MUMBAI	A	UP TO 160 KVA
				KELTRON	TRIVENDRUM	A	
				MERLIN & GERIN	FRANCE	A	
				GUTUR	SWITZERLAND	A	
				AEG (SAFT)	GERMANY	A	




**PROJECT : Development of 100 MW Floating Solar  
PV Project at NTPC Ramagundam in Telanagana**  
**PACKAGE:**  
**SUPPLIER :**  
**CONT. NO.:**

**LIST OF ITEMS  
REQUIRING QUALITY  
PLAN AND SUB- SUPPLIER  
APPROVAL  
SUB SYSTEM: C & I**

**DOC. No. :**  
**Revision No. :**  
**DATE: 28.11.2018**  
**PAGE : 5 OF 7**

SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS
13	GPS/MASTER SLAVE CLOCK SYSTEM	I		SIGNALS AND SYSTEMS PVT. LTD. (SANDS )	CHENNAI	A	
		I		MASIBUS	GANDHINAGAR	A	
		I		SERTEL ELECTRONICS PVT. LTD.	CHENNAI	A	
		II		HOPF ELECTRONIK GMBH	GERMANY	A	BRAND NAME:MOBATIME
		II		HATHWAY	USA	A	
		II		MEIN BERG	GERMANY	A	
		II		MOSER BAER AG	SWITZERLAND	A	
14	CONTRO DESK	I		PYROTECH WORKSPACE SOLUTIONS PVT LTD	UDAIPUR	A	BOI SHALL BE AS PER NTPC APPROVED MAKES
		I		COSMOS MEDIA PRODUCTS PVT LTD	GREATER NOIDA	A	1. H BLOCK SHOULD BE FROM KNURR GERMANY 2. COMPLETE INTEGRATED MOSAIC GRID SHOULD BE PROCURED FROM NTPC APPROVED SOURCES LIKE PRO PLAN/SUBKLEW 3. SOLID ACRYLIC SURFACE SHOULD BE PROCURED FROM DU PONT/NTPC APPROVED SOURCES 4. EXTRUDED AL PROFILE STRUCTURE SHOULD BE PROCURED FROM HINDALCO (WITH KNURR DESIGN)
				ADARSHA CONTROL SYSTEM PVT LTD	BANGALURU	A	1. MOSAIC ITEMS SHOULD BE FROM NTPC APPROVED SOURCES . 2. ACRYLIC SOLID SURFACE (ASS) SHOULD BE PROCURED FROM DU PONT /NTPC APPROVED SOURCES 3. WOOD WORKS ARE TO BE DONE BY M/S C K FURN BANGALURU
15	BLANK PANELS / CABINETS	III		MAIN CONTRACTOR APPROVED SOURCES			
16	COMPRESSION	III		MAIN CONTRACTOR APPROVED SOURCES			

	<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE:</b> <b>SUPPLIER :</b> <b>CONT. NO.:</b>				<b>LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB- SUPPLIER APPROVAL</b> <b>SUB SYSTEM: <u>C &amp; I</u></b>		<b>DOC. No. :</b>	
							<b>Revision No. :</b>	
							DATE: 28.11.2018	
							<b>PAGE : 6 OF 7</b>	
SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS	

	FITTINGS(SS)							
17	COMPUTER FURNITURE	III		MAIN CONTRACTOR APPROVED SOURCES				
18	DESK FOR OWS/EWS/PRINTER/SERVER	III		MAIN CONTRACTOR APPROVED SOURCES				
19	FRP JUNCTION BOX	III		MAIN CONTRACTOR APPROVED SOURCES				
20	GRAPHIC INTERFACE UNIT	III		MAIN CONTRACTOR APPROVED SOURCES				
21	IMPULSE PIPES/TUBES	III		MAIN CONTRACTOR APPROVED SOURCES				
22	LEVEL INDICATOR (FLOAT & BOARD TYPE)	III		MAIN CONTRACTOR APPROVED SOURCES				
23	MINI UPS UP TO 3.5 KVA	III		MAIN CONTRACTOR APPROVED SOURCES				
24	PRINTER (INKJET / LASER)	III		MAIN CONTRACTOR APPROVED SOURCES				
25	TERMINAL BOX	III		MAIN CONTRACTOR APPROVED SOURCES				
26	INSTRUMENTATION VALVES AND FITTINGS	III		MAIN CONTRACTOR APPROVED SOURCES			UP TO 300 CLASS AND SIZES UP TO 600 NB	

#### LEGENDS:

##### 1. SYSTEM SUPPLIER / SUB-SUPPLIER STATUS CATEGORY (SHALL BE FILLED BY NTPC).


**A** – For those items proposed Sub-vendors are acceptable to NTPC subject to meeting NTPC Technical specification requirement.

##### 2. INSPECTION CATEGORY:

**Cat I:** For those items the quality plans are approved by NTPC and final acceptance will be on physical inspection witness by NTPC.

**CAT II:** For those items the quality plans are approved by NTPC. However no physical inspection will be done by NTPC. The final acceptance by NTPC shall be on the basis of review of documents as per QP.

**CAT III:** For those items Main Supplier approves quality plans. The final acceptance by NTPC shall be on the basis of certificate of conformance by Main Supplier.

		<b>PROJECT : Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana</b> <b>PACKAGE:</b> <b>SUPPLIER :</b> <b>CONT. NO.:</b>			<b>LIST OF ITEMS REQUIRING QUALITY PLAN AND SUB- SUPPLIER APPROVAL</b> <b>SUB SYSTEM: <u>C &amp; I</u></b>		DOC. No. :	
							Revision No. :	
							DATE: 28.11.2018	
							PAGE : 7 OF 7	
SL. NO.	ITEM	QP/IN SPN CAT	QP NO.	PROPOSED SUPPLIER	PLACE	SUB-SUPPLIER APPROVAL STATUS/ CATEGORY	REMARKS	

**NOTE-1:** For total contract quantity per size/type more than 10 km, inspection category will be CAT-I. For quantity more than 1 km but less than or equal to 10 km, inspection category will be CAT II with COC. And for quantity less than or equal to 1 km, inspection category will be CAT-III.

**NOTE-2:** For quantity less than or equal to 10 km, inspection category for fiber optic cable will be CAT-III.

**NOTE 3:** For UPS less than or equal to 10 KVA rating and Intelligent Battery Charger 24v Dc less than or equal to 40 amp rating, inspection category will be CAT-III.


**NOTE 4:** For UPS with ACDB less than or equal; to 10 KVA rating, inspection category of the same will be CAT-III.


**NOTE 5:** For item not appearing in the pre-award list, bidder and NTPC will mutually discussed in future


NTPC


Main Contractor





		INDICATIVE FIELD QUALITY PLAN				Annexure-II				
		ITEM : CIVIL WORK		QP NO. :	1	PROJECT:	Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana			
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS		REV. NO. :	0	PACKAGE:				
				DATE :		CONTRACT NO.				
				PAGE :		MAIN CONTRACTOR				
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3		4	5	6	7	8	9	D* 10
1	GENERAL REQUIREMENTS									
A	Availability of QA& QC manpower and laboratory		-	A	Physical	Once prior to start of work and thereof monthly	Tech Specs and Const. Drawings	SR	√	
B	Sampling for testing of building materials, concrete mix design etc.		As agreed / required	A	Physical	As specified in FQP for various materials	Tech Specs and Const. Drawings	SR/TR	√	Test report along with the recommendations from specialist agency to be submitted to NTPC.
C	Submission of schedule of tests to be done monthly / quarterly		-	A	Physical	Once prior to start of work and thereof monthly	Tech Specs and Const. Drawings	SR	√	
D	Stacking and storage of construction materials and components at site		As per IS:4082	A	Physical	Random	Tech Specs and Const. Drawings and IS: 4082	SR	√	
2	EXCAVATION AND FILLING IN FOUNDATION WORKS									
	Excavations-									
2.1		Nature, type of soil/rock before and during excavations	As agreed / required	C	Visual	Random in each shift	Tech Specs and Const. Drawings	SR		
2.2		Initial ground level before start of excavations	As agreed / required	C	Measurement	100%	Tech Specs and Const. Drawings	SR	√	
2.3		Final shape and Dimensions of excavations.	As agreed / required	C	Measurement	100%	Tech Specs and Const. Drawings	SR		
2.4		Final excavation levels	As agreed / required	B	Measurement	100%	Tech Specs and Const. Drawings	SR	√	
2.5		Side slope of final excavation	As agreed / required	B	Measurement	Random in each shift	Tech Specs and Const. Drawings	SR		
	Fill/ Backfill -									
2.6	Standard proctor Test	Optimum moisture content and max. dry density before fill	As per IS: 2720, Proctor needle apparatus, etc.	B	Physical	One in every 10000 cum for each type and source of fill materials	IS 2720 (Pt.VII), Tech Specs and Const. Drawings	SR/TR	√	
2.70	Moisture content	Moisture content of fill before compaction	As per IS: 2720, balance, oven, rapid moisture meter, etc.	B	Physical	One in every 10000 cum for each type and source of fill materials	IS 2720 (Pt.II), Tech Specs and Const. Drawings	SR/TR	√	
2.8	Degree Of Compaction Of Fill / Backfill									
i		Dry density by core cutter method ---- OR---- Dry density in place by sand displacement method	As per IS: 2720/compaction test (core cutter), balance, rapid moisture meter etc.	A	Physical	One sample for every 10000 SQM area for each compacted layer.	IS 2720 (Pt. XXIX), Tech Specs and Const. Drawings OR IS 2720 (Pt. XXVIII), Tech Specs and Const. Drawings	SR/TR	√	


	INDICATIVE FIELD QUALITY PLAN						Annexure-II					
	ITEM : CIVIL WORK	QP NO. :		1		PROJECT:	Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana					
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS	REV. NO. :		0		PACKAGE:					
			DATE :				CONTRACT NO.					
			PAGE :				MAIN CONTRACTOR					
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Remarks	
1	2	3		4	5	6	7	8	9	D*	10	
3.0	MATERIALS											
3.1	CEMENT											
		Physical & Chemical Properties	as per IS:4031	A	Testing	At Random	As per relevant IS Codes/ Tech Specification		TR	√	Each consignment of cement shall be duly correlated with manufacturers TC. One sample from each lot shall be tested for setting time and compressive strength . If cement is stored more than 90 days in godown of contractor same shall be retested for comp. Strength & setting time.	
3.2	Coarse Aggregate	Moisture content	as per IS:2386	B	Physical	Once for each stack of 100 Cu.M. or part there of	IS : 456 IS : 383/Tech Spec		SR/LB	√	During monsoon when this has to be done every day before start of concreting	
ii		Specific gravity, water absorption	IS:2386	A	Physical	Once for each source & for every change of source	IS: 2386 Part-III, IS:383/Tech Spec	IS:456,	SR/LB/ TR	√		
iii		Sieve analysis, flakiness index, elongation index,	IS:2386	B	Physical	One per 100 cum., or part thereof	IS: 2386 Part-I, Spec	IS:383/Tech	SR/LB	√		
iv		Deleterious materials (coal & lignite, clay lumps, material finer than 75 micron sieve, soft fragment, shale)	IS:2386	A	Physical	Once per source/ on every change of source	IS: 2386 Part-II, Spec	IS:383/Tech	SR/LB/ TR	√		
v		Soundness	IS:2386	A	Physical	-do-	IS: 2386 Part-V, IS:383		SR/LB/ TR	√		
vi		Crushing value abrasion value and impact value	IS:2386	A	Physical	-do-	IS:383, IS-2386 Part IV/Tech Spec		SR/LB/ TR	√		
3.3	Fine Aggregate											
i		Moisture content, water absorption	balance , oven, rapid moisture meter etc.	B	Physical	To be done every day before start of work	IS: 2386 Part-III	IS:383	SR/LB/ TR	√		
ii		Deleterious materials (coal & lignite, clay lumps, material finer than 75 micron sieve, soft fragment, shale)	IS:2386	A	Physical	Once per source& for on every change of source	IS: 2386 Part-II, IS:383		SR/LB/ TR	√		
iii		All other tests similar to coarse aggregates as mentioned above.					IS-2386, IS-383		SR/LB/ TR	√	except test for flakiness index, elongation index, abrasion value, impact value	
3.4	Water											
i		Complete tests as per IS:456	Burette, conical flask, pipette etc.	B	Testing	One for each source.	IS:3025 part 22 and 23 (for test procedure ), IS:456(for acceptance criteria )		SR/LB/ TR	√		


		INDICATIVE FIELD QUALITY PLAN				Annexure-II				
		ITEM : CIVIL WORK	QP NO. :	1	PROJECT:	Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana				
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS	REV. NO. :	0	PACKAGE:					
			DATE :		CONTRACT NO.					
			PAGE :		MAIN CONTRACTOR					
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3		4	5	6	7	8	9	D* 10
3.5	CONCRETE									
		4 Trial mixes to ascertain the workability and cube strength	After receiving the recommended mix design from specialist agency.	A	Physical	One for each mix proportion	NTPC tech specification	SR/LB	✓	
i		Crushing strength (works Tests cubes)	IS:516	A	Physical	One set of 6 cubes per 50 CuM or part thereof for each grade of concrete per shift whichever is earlier.	IS:516, IS:456, NTPC Tech. Spec.	SR/LB/ TR	✓	Min. of 6 cubes for each mix; 3 specimen shall be tested at 7 days remaining 3 shall be for 28 days comp. Strength.
ii		Workability - slump test	IS:1199	B	Physical	At the time of concrete pouring at site every two hrs.	IS:456/NTPC Tech. Spec.	SR/LB/ TR	✓	
3.5.1	Admixtures for Concrete	Type of admixture	As per IS:9103	B	Review of MTC	For each lot received at site	Designed mix and IS:9103	MTC	✓	Admixture of appd. Brand and tested quality shall be used (each lot of admixture will included with brochure in which the type of admixture and its properties shall be clearly indicated)
3.6	Concrete conveying, placing & compaction									
i		mixing of concrete shall be done in a approved mixer such as to produce a homogenous mix				To be calibrated at the time of starting and subsequently once in three months, and shall conform to IS:4925	Review of calibration chart/ Certificate, IS 4926		✓	
ii		Arrangement for transportation & placement of concrete.	As required	C	Visual	100%	Before clearance for concreting	Inspection Report	✓	
iii		Handling and Transportation of concrete	As required	C	Physical	100%	As per construction/erection methodology (to be approved one week prior to start of	SR		
iv		Placement of concrete	Visual	B	Physical	100%	As per construction/erection methodology and tech.specs / No segregation	SR	✓	
v		Compacting	As required	C	Physical	At Random	IS:456	SR	✓	
vi		Curing	As required	C	Physical	At Random	Period of curing as per IS 456 (use gunny bags / curing compound)	SR	✓	
3.7	TEST/CHECK ON RCC STRUCTURE IN HARDENED CONDITIONS									
i		Dimensional check on finished structures & Dimensional tolerances	As required	B	Measurement	Approved Drawing	As per IS:456/ tech. Specification.	SR/LB	✓	
ii		Water Tightness Test of liquid retaining structure/ tanks	As required	B	Test	100%	IS:3370/ Tech. Specification	SR/LB	✓	
3.8	REINFORCEMENT STEEL									
i		Physical and Chemical Properties for each lot as per relevant IS codes	As required/ agreed	A	Review of MTC	Each batch of delivery	IS : 1786, IS:432, IS:1566, Tech Specs and Const. Drawings	MTC	✓	
ii		Freedom from cracks surface flaws, Lamination.	As agreed / required	C	Visual	Random in each shift	IS: 1852, IS:432, IS:1786, Tech Specs and Const. Drawings	SR		To be checked at site. Steel collected from source should be free from excessive rust. To be stored as per Technical Specs.

		INDICATIVE FIELD QUALITY PLAN					Annexure-II				
		ITEM : CIVIL WORK		QP NO. :		1	PROJECT:	Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana			
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS		REV. NO. :		0	PACKAGE:				
				DATE :			CONTRACT NO.				
				PAGE :			MAIN CONTRACTOR				
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Remarks
1	2	3		4	5	6	7	8	9	D*	10
3.9	PLACEMENT OF REINFORCEMENT STEEL										
i		Bar bending schedule with necessary lap, Spacers & Chairs	As agreed / required	B	Visual & Measurement	Random in each shift	Approved Drawings, Tech Specs and Const. Drawings, IS:2502	SR		√	
ii		Bending of bars, cutting tolerance	As agreed / required	C	Visual & Measurement	Random in each shift	Approved Drawings, Tech Specs and Const. Drawings, IS:2502	SR		√	
iii		Acceptance - Cover, spacing of bars, spacers and chairs after the reinforcement cage is put inside the formwork	As agreed / required	B	Visual & Measurement	Random in each shift	Approved Drawings, Tech Specs and Const. Drawings	SR		√	
3.10	STAGING AND FORMS										
i		Materials and accessories	As agreed / required	C	Visual	Once before start of work	As per relevant IS, Tech Specs and Const. Drawings	SR			
ii		Soundness of staging, shuttering and scaffolding including application of mould oil / release agent	As agreed / required	C	Visual	Once before start of work	As per manufacturer's spec.and as per 3696,4014, 4990, Tech Specs and Const. Drawings	SR			
iii		Acceptance of formwork before start of concreting		B	Physical / visual	Before start of each concreting	As per provisions and tolerances, Tech Specs and Const. Drawings	SR		√	
3.11	DAMP PROOF COURSE										
i		Material - Hot bitumen and water proofing materials etc.	As agreed / required	B	Review of MTC	Each batch of delivery at site	Tech Specs and Const. Drawings, IS 702	SR		√	
ii		Acceptance of damp proof course	As agreed / required	B	Acceptance	100%	Tech Specs and Const. Drawings	SR			
3.12	GROUTING										
i		Material	As agreed / required	B	Review of MTC	Each batch of delivery	Tech Specs and Const. Drawings	SR		√	
		Type of mix - fluid mix, plastic mix, stiff mix etc.	As agreed / required	C	Physical	Prior to start of work	Tech Specs and Const. Drawings	SR		√	
ii		Mixing, placement, application and grout pressure	As agreed / required	C	Physical	Random in each shift	Tech Specs and Const. Drawings	SR			
iii		Compressive strength	As agreed / required	C	Physical	Random in each shift	Tech Specs and Const. Drawings	SR		√	
iv		Acceptance of the grouts	As agreed / required	B	Physical	Each grout section	Tech Specs and Const. Drawings	SR			
3.13	PRE-CAST CONCRETE										
i		Crushing strength	compression strength testing machine	A	Physical	one sample of six cubes per 50m m3 or part thereof	IS:516 & IS: 456	SR/LB		√	A minimum of three specimen shall be tested for 7 and 28 days compressive strength
ii		Workmanship and dimensions	Visual	B	Physical	100%	As per IS:456/NTPC Tech. specification.	Register			
iii		Load Test	As required	B	Physical	1% up to 1000 nos. and 0.5% for more than 1000 nos. for each type	IS:456/ As decided by NTPC Site Engr. In charge.	Inspection Report		√	Applicable members i.e. drains covers .

		INDICATIVE FIELD QUALITY PLAN						Annexure-II					
		ITEM : CIVIL WORK		QP NO. :		1		PROJECT:		Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana			
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS		REV. NO. :		0		PACKAGE:					
				DATE :				CONTRACT NO.					
				PAGE :				MAIN CONTRACTOR					
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Remarks		
1	2	3		4	5	6	7	8	9	D*	10		
4.00	BRICK MASONARY												
4.1	Test on Bricks												
		Dimensions , shape, compressive strength, water absorption, warpage, efflorescence.	As agreed / required	B	Measurement/ Physical Test	As per relevant IS Code/ One Sample for 30,000 nos. or part thereof	IS: 1077, IS:13757, IS: 12894 / Tech Specs and const. Drawings	Inspection Report	√		Efflorescence shall be checked at each source. Warpage test is applicable for facing bricks only as per IS:2691. For clay bricks as per IS 1077, warpage test is not required.		
4.2	Masonry construction	Workmanship, verticality and alignment	As agreed / required	B	Visual/ Physical	100%	IS 2212, IS 1905 , Tech Specs and Const. Drawings	SR/LB					
5.00	FINISHING AND ALLIED WORKS												
5.1	PLASTERING - WORKMANSHIP												
i		Curing	As agreed / required	C	Physical	100%	Tech specifications, construction drawings and agreed methodology	SR					
ii		Thickness and finishing of plaster, grooves etc.	As agreed / required	B	Visual/ Measurement	Random in each shift	Tech Specs and Const. Drawings	SR/LB					
iii		Trueness of plastering system	As agreed / required	B	Visual/ Physical	Random in each shift	Tech Specs and Const. Drawings	SR					
6.00	SHEETING AND OTHER WORKS												
6.1	PAINTING SYSTEM - CONCRETE WORKS AND PLASTERED MASONARY SURFACES												
i	Materials and accessories- Oil Bound, Acrylic Emulsion, Chemical Resistant, Oil EIC	Shade, type from brand and manufacturer as approved by NTPC	As agreed / required	B	Review of MTC	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	√				
ii	Surface preparation	As required	As agreed / required	C	Physical /visual	Random in each shift	Tech Specs and Const. Drawings	SR					
iii	Acceptance of painted surfaces	As required	As agreed / required	B	Physical	Each surface at random	Tech Specs and Const. Drawings	SR					
6.1.1	PAINTING SYSTEM - STEEL WORKS (OTHER THAN STRUCTURAL STEEL WORKS)												
i		Painting Materials and accessories	-	B	Review of MTC	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	√				
ii		Surface preparation	As agreed / required	C	Physical /visual	Each Erection Mark	Tech Specs and Const. Drawings,	SR	√				
iii		Primer Thickness	Elcometer	B	Measurement	Each Erection Mark	Tech Specs and Const. Drawings	SR	√				
iv		DFT of paint	Elcometer	B	Measurement	Each Erection Mark	Tech Specs and Const. Drawings	SR	√				
v		Acceptance of painted surfaces	Elcometer	B	visual and measurement	Each Erection Mark	Tech Specs and Const. Drawings	SR					
7.3	WATER PROOFING												
		Methodology for the application of water proofing system	As required	B	Review	for each type of treatment	Tech Specs and Const. Drawings	SR	√				
7.3.1	Roof / Basement Treatment												
i	Graded under bed	Levels / slopes	As required	C	Physical	100%	Tech Specs and Const. Drawings						
ii	Elastomeric coatings	Material- Primer coat, finishing coat	As required	B	Review of MTC	Each lot of delivery	Tech Specs and Const. Drawings	SR	√				
iii	Wearing course	Materials - PCC, chicken wire mesh, elastomeric sealant	As required	B	Review of MTC	Each lot of delivery	Tech Specs and Const. Drawings	SR	√				
iv		Acceptance of water proofing work	As agreed / required	B	Physical	100%	Tech Specs and Const. Drawings						

		INDICATIVE FIELD QUALITY PLAN					Annexure-II			
		ITEM : CIVIL WORK		QP NO. :		1	PROJECT:	Development of 100 MW Floating Solar PV Project at NTPC Ramagundam in Telanagana		
		SUB-SYSTEM : CIVIL AND STRUCTURAL STEEL WORKS		REV. NO. :		0	PACKAGE:			
				DATE :			CONTRACT NO.			
				PAGE :			MAIN CONTRACTOR			
Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record	Remarks
1	2	3		4	5	6	7	8	9	D* 10
7.4	Fencing and Gates									
i	PVC coated chain link fencing, Welded wire mesh (IS 1566), Reinforced barbed tape galvanized (IS 2629) etc.	Materials	As agreed / required	B	Review of MTC	Each batch of delivery	Tech Specs and Const. Drawings	SR/MTC	√	MTC shall contain all the parameters specified in the technical specifications / relevant IS Codes
ii		Acceptance of the installation	As agreed / required	B	Physical / measurements	Each installation	Tech Specs and Const. Drawings	SR		
7.5	FLOOR FINISHES AND ALIED WORKS									
7.5.1	Cement Concrete Flooring									
i		Glass/ PVC strips in joints	As agreed / required	C	Physical	Random in each shift	Tech Specs and Const. Drawings	SR		
ii		Finishing and acceptance	As agreed / required	B	Physical	100%	Tech Specs and Const. Drawings	SR		
7.5.2	Tiles									
i	Ceramic, vitrified, glass mosaic, acid alkali resistant, heavy duty cement concrete	Materials	As agreed / required	B	Review of MTC	Each lot of delivery	Tech Specs and Const. Drawings	SR	√	MTC shall contain all the parameters specified in the technical specifications / relevant IS Codes
ii		Finishing and acceptance	As agreed / required	B	Physical	100%	Tech Specs and Const. Drawings	SR		
7.5.3	Kota Stone, Granite and Marble									
i		Quality, texture, thickness, colour for each lot of delivery from approved source	As agreed / required	C	Physical	Each batch of delivery	Tech Specs and Const. Drawings	SR	√	
ii		Finishing and acceptance	As agreed / required	B	Physical	100%	Tech Specs and Const. Drawings	SR		
8.0	WATER SUPPLY / SANITORY INSTALLATIONS									
8.1	Water supply fittings and fixtures									
i	Materials	GI/ MS pipes and fittings	As agreed / required	B	Review of MTC	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings	SR	√	
ii	Disinfection	Before use	As agreed / required	C	Physical	Each installation	Tech Specs and Const. Drawings	SR		
iii	Hydraulic test	Before use / leakage	As agreed / required	B	Physical	Each installation	Tech specs and const drawings	SR	√	
iv		Acceptance and working	As agreed / required	B	Acceptance	Random	Tech Specs and Const. Drawings	SR		

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1	2	3		4	5	6	7	8	9	D*	10
8.2	Sand cast iron / cast iron pipes										
i	Material	SCI / CI pipes and fittings / joints	As agreed / required	B	Review of MTC	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings	SR	√		
ii		Acceptance and leakage	As agreed / required	B	Physical	Random	Tech Specs and Const. Drawings	SR			
8.3	Sanitary fittings and fixtures										
i	Material	Sanitary items and fixtures i.e. water closets, urinals, wash basins, sinks, mirrors, shelves, towel rail, soap containers, geyser, water cooler, etc.,	As agreed / required	B	Physical	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings	SR	√		
ii		Water supply / installations of all sanitary items and fixtures	As agreed / required	B	Acceptance	100%	Tech Specs and Const. Drawings	SR			
8.4	RCC Pipes										
i	Material	RCC pipes	As agreed / required	B	Review of MTC	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings /IS 458	SR	√		
ii		Acceptance and leakage	As agreed / required	B	Physical	Random	Tech Specs and Const. Drawings	SR			
8.5	Water Storage Tanks										
i	Material	Over head / loft type	As agreed / required	B	Physical	Each lot of delivery as per Specifications	Tech Specs and Const. Drawings	SR	√		
ii		Acceptance and leakage	As agreed / required	B	Acceptance	Random	Tech Specs and Const. Drawings	SR			
9.0	SPECIAL ITEMS										
9.1	Earthing Mat (Grounding System)										
i	Material	Earthing mat	As agreed / required	B	Physical	Each lot of delivery as per Specifications	As per relevant IS and Tech. Specs / Manufacturer's, IS 3043	SR/MTC	√		
ii		Weld sizes & length	Visual/Tape	B	Visual/ Measurement	100%	Tech Specs and Const. Drawings				NTPC approved electrodes shall be used
iii		D P test	DP test Kit	B	Physical	10% at random of the offered lot	Tech Specs and Const. Drawings	TR	√		
iv		Earth test	Earthing test kit	A	Physical	100%	Tech Specs and Const. Drawings,	SR	√		

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Sl. No	Activity and operation	Characteristics / instruments		Class of check	Type of Check	Quantum Of check	Reference Document	Acceptance Norms	Format of Record		Remarks		
1	2	3		4	5	6	7	8	9	D*	10		
10.00	ROAD WORKS												
10.1	Construction of Sub-Grade and earthen/hard shoulders												
i		Standard proctor Test to determine optimum moisture content and max. dry density	As per IS: 2720, Proctor needle apparatus,etc.	A	Physical	One in every 2000 cum for each type and source of fill materials	As per Technical Specifications/ BOQ /IRC/MORTH	SR/TR	√				
ii		Moisture content of fill before compaction	As per IS: 2720, balance, oven etc.	B	Physical	One in every 2000 cum for each type and source of fill materials		SR/TR					
iii		Dry density by core cutter method ----- OR----- Dry density in place by sand displacement method	As per IS: 2720/compaction test (core cutter), balance etc.	A	Physical	One in every 500 SQM area for each compacted layer.		SR/TR	√				
10.2	Granular Sub Base (GSB)												
i		Gradation	As required / agreed	B	Physical	One test per 200 cum of aggregate		SR	√				
ii		Atterberg Limit	As per IS: 2720	B	Physical	One test per 200 cum of aggregate		SR	√				
iii		Moisture content prior to compaction	As per IS: 2720	B	Physical	One test per 250 SQM of aggregate		SR	√				
iv		Density of compacted layer	As per IS: 2720	A	Physical	One test per 500 SQM of aggregate		SR / TR	√				
v		Deleterious constituents	As required / agreed	B	Physical	As required		SR	√				
vi		CBR	As per IS: 2720	B	Physical	As required		SR / TR	√				
10.3	Water Bound Macadam (Non-Bituminous)												
i		Aggregate Impact value	Aggregate Impact value Test Apparatus	A	Physical	One test per 200 cum of Test aggregate		SR	√				
ii		Grading	Set of IS Sieves	B	Physical	One test per 100 cum of aggregate		SR					
iii		Flakiness index and elongation index	Flakiness test gauge	B	Physical	One test per 200cum of aggregate		SR					
iv		Atterberg Limits of binding material	Atterberg limits determination	A	Physical	One test per 25 cum of binding material		SR	√				
v		Atterberg Limits of portion of aggregate passing 425 micron sieve	Atterberg limits determination	A	Physical	One test per 100cum of aggregate		SR	√				