

	Installation of TLF MCC cum lighting panel at Bhutan				
Sno	Job Description	Unit	Quantity	Rate	Amount
1	Supply ,installation , testing and commissioning of floor mounting , single front , compartmentalised ,non draw out type TLF MCC cum Lighting panel as per enclosed SLD and technical specification sheet and relevant IS standards . Panel and door shall be made of CRCA Sheet not less than 2 mm thick (removable gland plates of 3 mm thick). The panel shall be designed for front access only with cable entry from bottom. Scope includes installation, erection on base frame / foundation, assembling of various shipping sections, aligning, leveling, fixing / grouting / welding to the base frame or insert plates provided on the floor.Finishing painting of the panel shall be light gray shade no 631 as per IS:5. Scope also includes interconnection of shipping sections and inters panel wiring betweenshipping sections, testing and calibration of all the CTs, PTs, relays, meters and energizing of the switchgear at rated voltage. The Distribution Bus bar shall be located at the top of the panel and the total height of the panel shall be not more than 1.8 m. Bottom of the panel shall be mounted on 75 mm ISMC channel.There should be a minimum a gap of 200 mm between the bus bars which shall be segregated with Backelite Sheet at the openable portion , balance portion to be tap coated. Also a 50 mm x 6 mm GI Strip to be run along the length of the panel at GL+100 mm which shall be projected on either side by 100 mm with suitable hole for earthing.The scope includes the termination of newly laid cable at the panel side and commissioning the whole panel feeder by feeder. Construction drawing of the above panel to be prepared and prior approval to be taken from Owner/consultant. Also Prior approval is required after panel manufacturing to be taken from Owner/consultant before commissioning. Party to prepare and submit 6 sets of hard copies and CAD drawings of As-built drawing for entire electrical section. <i>Note : The channel supports on cable trench required to position the panels shall be measured and paid separately. Party shall be visiting the site before starting the job of Panel fabrication.</i>	EA	1		
2	Supply , Laying and dressing of "Power Cables: 1100V grade, XLPE insulated, Al conductor, armoured, FRLS,extruded PVC inner sheathed & extruded PVC outer sheathed conforming to IS 1554/7098 (Part 1): 3.5C x 120 SQ.MM. A2XWY cables" in ready trench/ trays supported on pipe rack structures at various locations, in cable trench/cellar inside substation. The scope includes supply and fixing of aluminum strip number tags. Supply and fixing of GI saddle and clamps on trays and necessary hardwares along with supply & fixing of cable identification tag as per standard installation drawing. The scope also includes supply and fixing of cable route marker in referred specification and standard power installation drawings. The cable laying work shall include transportation of cable drums from owner's store, cutting of cable length as per actual measurement and latest cable schedule, drum schedule, reconciliation of unused cables during stage wise measurement and stage wise billing of the job.	RM	15		
3	Supply , Laying and dressing of "Power Cables: 1100V grade, XLPE insulated, Al conductor, armoured, FRLS , extruded PVC inner sheathed & extruded PVC outer sheathed conforming to IS 1554/7098 (Part 1): 3C x 16 SQ.MM. A2XWY cables" in ready trench/ trays supported on pipe rack structures at various locations, in cable trench/cellar inside substation. The scope includes supply and fixing of aluminum strip number tags. Supply and fixing of GI saddle and clamps on trays and necessary hardwares along with supply & fixing of cable identification tag as per standard installation drawing. The scope also includes supply and fixing of cable route marker as stated in referred specification and standard power installation drawings. The cable laying work shall include transportation of cable drums from owner's store, cutting of cable length as per actual measurement and latest cable schedule, drum schedule, reconciliation of unused cables during stage wise measurement and stage wise billing of the job.	RM	1200		
4	Supply , Laying and dressing of "Power Cables: 1100V grade, XLPE insulated, Cu conductor, armoured, FRLS , extruded PVC inner sheathed & extruded PVC outer sheathed conforming to IS 1554/7098 (Part 1): 7C x 2.5 SQ.MM. A2XWY cables" in ready trench/ trays supported on pipe rack structures at various locations, in cable trench/cellar inside substation. The scope includes supply and fixing of aluminum strip number tags. Supply and fixing of GI saddle and clamps on trays and necessary hardwares along with supply & fixing of cable identification tag as per standard installation drawing. The scope also includes supply and fixing of cable route marker in referred specification and standard power installation drawings. The cable laying work shall include transportation of cable drums from owner's store, cutting of cable length as per actual measurement and latest cable schedule, drum schedule, reconciliation of unused cables during stage wise measurement and stage wise billing of the job.	RM	2000		
5	Supply , Laying and dressing of "Power Cables: 1100V grade, XLPE insulated, Cu conductor, armoured, FRLS , extruded PVC inner sheathed & extruded PVC outer sheathed conforming to IS 1554/7098 (Part 1): 4C x 2.5 SQ.MM. A2XWY cables" in ready trench/ trays supported on pipe rack structures at various locations, in cable trench/cellar inside substation. The scope includes supply and fixing of aluminum strip number tags. Supply and fixing of GI saddle and clamps on trays and necessary hardwares along with supply & fixing of cable identification tag as per standard installation drawing. The scope also includes supply and fixing of cable route marker in referred specification and standard power installation drawings. The cable laying work shall include transportation of cable drums from owner's store, cutting of cable length as per actual measurement and latest cable schedule, drum schedule, reconciliation of unused cables during stage wise measurement and stage wise billing of the job.	RM	160		
6	Supply , Laying and dressing of "Power Cables: 1100V grade, XLPE insulated, Cu conductor, armoured, FRLS , extruded PVC inner sheathed & extruded PVC outer sheathed conforming to IS 1554/7098 (Part 1): 3C x 2.5 SQ.MM. A2XWY cables" in ready trench/ trays supported on pipe rack structures at various locations, in cable trench/cellar inside substation. The scope includes supply and fixing of aluminum strip number tags. Supply and fixing of GI saddle and clamps on trays and necessary hardwares along with supply & fixing of cable identification tag as per standard installation drawing. The scope also includes supply and fixing of cable route marker in referred specification and standard power installation drawings. The cable laying work shall include transportation of cable drums from owner's store, cutting of cable length as per actual measurement and latest cable schedule, drum schedule, reconciliation of unused cables during stage wise measurement and stage wise billing of the job.	RM	150		
7	Supply and installation of 12 Way FLP Powerof JB for lighting suitable for Cable entry of 1 No 4Cx2.5 sqmm and Cable exit of 11 Nos 3C x 2.5 sqmm. The scope includes providing double GI Wire for earthing. Make-Baliga, FCG, Flaxpro, Ex-Protecta, CEAG, STAHL.	No.	1		
8	Supply and installation of 72 W LED Light fittings with flameproof well glass luminaire with external reflector.	No.	8		
9	Supply , installation testing and commissioning of Wall/Structure mounted FLP Push buttonstation with ammeter (72 mm) of suitable range , terminal blocks as per technical specification.	No.	16		
10	Testing & commissioning of Pump/Motor (50 klph/9.3 kW) with Powering ON and functional checking under the supervision of respective OEMs. Scope also includes Glanding & Termination of cable on motor side with all consumables complete in all respect.	No.	8		
11	Supply, erection, testing and commissioning of nickel plated, brass cable gland , double compression Non- flameproof (Ex-d) type, for zone-2, gas group IIA/IIB suitable for following size of cable 3.5C X 120 mm2.Make-Baliga, FCG, Flaxpro, Ex-Protecta, CEAG, STAHL	No.	2		
12	Supply, erection, testing and commissioning of nickel plated, brass cable gland , double compression Non- flameproof (Ex-d) type, for zone-2, gas group IIA/IIB suitable for following size of cable 3C X 16 mm2.Make-Baliga, FCG, Flaxpro, Ex-Protecta, CEAG, STAHL	No.	16		
	Supply, erection, testing and commissioning of nickel plated, brass cable gland , double compression Non- flameproof (Ex-d) type, for zone-2, gas group IIA/IIB suitable for following size of cable 7C X 2.5 mm2.Make-Baliga, FCG, Flaxpro, Ex-Protecta, CEAG, STAHL	No	8		
	Supply, erection, testing and commissioning of nickel plated, brass cable gland , double compression Non- flameproof (Ex-d) type, for zone-2, gas group IIA/IIB suitable for following size of cable 4C X 2.5 mm2.Make-Baliga, FCG, Flaxpro, Ex-Protecta, CEAG, STAHL	No.	1		
13	Supply, Installation and fixing of Cable Terminations: Industrial type double compression nickel plated brass cable gland, crimping type tinned Aluminium lugs & termination/fixing of the same including supply of crimping type tinned copper lugs & PVC/XLPE cable hoods etc for the following cable sizes FLP GLAND 3C x 16 mm²	No.	16		
14	Supply, Installation and fixing of Cable Terminations: Industrial type double compression nickel plated brass cable gland, crimping type tinned copper lugs & termination/fixing of the same including supply of crimping type tinned copper lugs & PVC/XLPE cable hoods etc for the following cable sizes.FLP GLAND 7C x 2.5 mm²	No.	8		
15	Supply, Installation and fixing of Cable Terminations: Industrial type double compression nickel plated brass cable gland, crimping type tinned copper lugs & termination/fixing of the same including supply of crimping type tinned copper lugs & PVC/XLPE cable hoods etc for the following cable sizes.FLP GLAND 4C x 2.5 mm²	No.	1		
16	Supply, Installation and fixing of Cable Terminations: Industrial type double compression nickel plated brass cable gland, crimping type tinned copper lugs & termination/fixing of the same including supply of crimping type tinned copper lugs & PVC/XLPE cable hoods etc for the following cable sizes.FLP GLAND 3C x 2.5 mm²	No.	19		

17	Excavation & backfilling of cable trenches ,Staking out, marking the outline for excavation, excavation in any type of soil, soft rock & hard rock, PCC for general site grading by machinery or manually up to 750 mm below NGL for all depths and 500 mm wide as given below including removal of stumps and roots to full extent removal of all vegetation including bushes and grass, leveling & dressing and back filling after cable is laid etc; complete as per specifications and instructions of Engineer In-Charge (EIC). Scope of work shall also include Supply/filling of sand & supply /placing of Class B bricks for cable protection in excavated trenches subsequent to laying of cables. Segregation of cables with proper partition for Power/Signal Cables shall be inclusive and part of the current scope of work.	RM	20		
18	Supply and Installation of 200 mm W X 50mm H size of 14 SWG perforated GI cable trays along with supply and installation of GI Tray cover of thickness 14 SWG and same size on walls , structures, columns , culverts etc. including fixing of same alongwith GI clamps, saddles, spacers etc. for fixing cables on cable trays , walls , structures with all accessories. (eg. coupler plate, aluminium saddles, screws, nuts , washers). The scope includes laying of Earth Strip 25 mm x 3mm along the entire length of the cable tray for earthing.	RM	75		
19	Supply and Installation of 100 mm W X 50mm H size of 14 SWG perforated GI cable trays along with supply and installation of GI Tray cover of thickness 14 SWG and same size on walls , structures, columns , culverts etc. including fixing of same alongwith GI clamps, saddles, spacers etc. for fixing cables on cable trays , walls , structures with all accessories. (eg. coupler plate, aluminium saddles, screws, nuts , washers).The scope includes laying of Earth Strip 25 mm x 3mm along the entire length of the cable tray for earthing.	RM	155		
20	Supply and Installation of 75 mm W X 50mm H size of 14 SWG perforated GI cable trays along with supply and installation of GI Tray cover of thickness 14 SWG and same size on walls , structures, columns , culverts etc. including fixing of same alongwith GI clamps, saddles, spacers etc. for fixing cables on cable trays , walls , structures with all accessories. (eg. coupler plate, aluminium saddles, screws, nuts , washers).The scope includes laying of Earth Strip 25 mm x 3mm along the entire length of the cable tray for earthing.	RM	50		
21	Supply, Installation & fabrication of structural steel: Supply, Installation & fabrication of structural steel in forms of M.S angles, channels, I-Sections, beams, flats, etc for supporting various items / equipment such as switchgears, panels, cable trays, push button stations, local control boxes, local control panels, junction boxes, distribution boards, lighting fittings, etc. Including, drilling, welding, grouting, grinding, chipping, bolting with supply of required hardware. Fabricated and installed structural steel shall be suitably painted with 2 coats of high build coal tar epoxy paint after applying 2 coats of epoxy zinc phosphate primer. Finish paint shade shall be same as that of main structure or will be as per site engineer's approval. Surface preparation shall be by manual cleaning & scrapping to SA 2. Make - SAIL, Tata, Jindal.	kg	1500		
22	Installation and testing of earthing pits as specified in codes and standards. The installation rates shall include excavation, construction of the earth pits including all materials required for construction of earth pits, placing pipe and fixing test links on those pipe electrodes in test pits and connecting to main earth grid conductors as per codes and standards. GI pipe electrode of 100mm Dia, min 3 m long and side fill compounds, funnel with mesh, test links, inspection chamber etc. as per latest version of is:3043 and installation drawing. Kindly note-rate is inclusive of supply of all necessary items and all civil jobs as per BPCL drawing for pipe earthing attached with tender schedule.	No.	7		
23	supply & laying of GI earthing strip of following sizes laid underground; run on wall; column; roof; truss; tie; neutral of the system embedded in floor or buried directly underground. The rate of installation shall include excavation of earth up to 600mm deep, laying of conductor at 600mm deep, brazing, welding, cad welding if required, of main grid conductor, joints as well as risers of length 500mm above ground at required locations and the backfilling.Size:- 50mmx 6mm	RM	200		
24	supply & laying of GI earthing strip of following sizes laid underground; run on wall; column; roof; truss; tie; neutral of the system embedded in floor or buried directly underground. The rate of installation shall include excavation of earth up to 600mm deep, laying of conductor at 600mm deep, brazing, welding, cad welding if required, of main grid conductor, joints as well as risers of length 500mm above ground at required locations and the backfilling.Size:- 25mmx 3mm	RM	150		
25	Supply and laying of earthing strips/wires of following sizes as per latest version of is:3043. 6 sq. mm cu insulated flexible wire with clamps at both the ends on each piece of such wire irrespective of its length.	RM	150		
26	Supply and laying of GI Pipe Heavy Grade for road crossing and underground as directed by Site In Charge. 100mm dia	RM	20		
27	Earth Pit Marker indicating earth resistance & tested date, next due date for testing. Refer attached standard installation drawing.	No.	7		
28	Supply & installation of metallic 440V Caution Board as per relevant IS of voltage grade as given below in English and local language	No.	1		
29	Earth work in excavation in all types of soil including soft rock, hard rock for all depth including removal of vegetation, shrubs and debris etc.,cutting and dressing of sides in slopes,levelling,grading and ramming of bottoms,dewatering of accumulated water from any source and keeping the surface dry for subsequent works and disposal or stacking of excavated material within a lead of 100 M as decided including shoring and strutting.But note that no separate payment shall be made on account of shoring, shuttering,bottom ramming which are included in this item.	Cu.M	1		
	Supplying and filling river fine sand of approved quality under floors, in foundation, plinth, in trenches etc. of any compacted thickness, transportation for all leads, lifts, loading and unloading, spreading in layers of thickness not exceeding 15cms at all depths, compacting mechanically including dressing as required etc. complete, as directed by site engineer. Kindly note- Sand filling shall be of local available river sand around the location.	Cu.M	1		
30	Supplying and laying Plain Cement Concrete of nominal volumetric mix 1:2:4(1Cement: 2Sand:4 Crushed stone aggregates) with 20mm and down size graded aggregates below floor & any other work as per requirement including any required permanent Note: Supply of all the materials are in the scope of contractor.Installation/erection/fixing rate shall include supply of consumables,labours, tools & tackles as required to complete the work	Cu.M	1		
31	BRICK MASONRY ABOVE PLINTH Cl. 50 Brick work in superstructure above plinth level including supplying and laying good quality bricks conforming to BIS std. of class 50 and above, satisfying efflorescence,water absorption and dimension test as per IS code) in superstructure using Cement Mortar 1:5(1part cement : 5 part coarse sand) including raking out joints, curing,providing ,openings,scaffolding,staging,curing,raking out joints etc. complete	Cu.M	0.5		