

### Bill of Quantity for Underground Earthing & Electrode

Project 765/400/220kV Banaskantha S/S

Customer : POWERGRID

Rev 00

S.No	Description	Unit	Qty. under package 1 (765KV)	Rate	Amount
<b>MAIN EQUIPMENT</b>					
1	Unloading, storing and laying of 40 mm dia MS Rod at a minimum depth of 600 mm measured from the top of <b>Finished Ground Level</b> and bringing out risers just below gravel level near the equipment foundations as per requirement including following works: - excavation - laying of MS rod - welding of rods (refer Drg No. C/ENG/STD/EARTHINGS/09 SHEET # 1, Sheet # 2 , SHEET # 3 for Welding details of rods) - backfilling of soil and compaction for bringing out pig tail risers of 40 dia MS rod for equipments. Risers shall be raised from the earthmat (at 600 mm depth) to approx 150 mm below finished ground level to the nearest point of the equipment. This shall include all cutting, bending, welding, fixing, application of paints on cutting & welding surface, etc to the main earthmesh. - any other work necessary to complete the laying of earthmat (40 mm dia MS rod will be supplied by BHEL).	MT	400		
2	Fabrication & laying of Auxiliary Mat of 40 mm Dia MS Rods at a depth of 300 mm from top of FGL including excavation & backfilling as per Drg No. C/ENG/STD/EARTHINGS/09 SHEET # 4 - any other work necessary to complete the laying of earthmat. - welding of rods (refer Drg No. C/ENG/STD/EARTHINGS/09 SHEET # 1, Sheet # 2 , SHEET # 3 for Welding details of rods. (40 Diameter MS rod will be supplied by BHEL)	Nos.	200		
3	Installation of Pipe Electrode(to be driven - 3.0 Mtr) as per Drg. No. C/ENG/STD/EARTHINGS/09 SHEET # 5 including following works: - excavation - installing the pipe electrode. - pipe electrodes in treated earth pit (as per IS) such as alternate layers of coke/ charcoal and salt or bentonite clay. - Backfilling and compaction - Cement Concrete pit with a ISI marked cast iron cover hinged to a cast iron frame to have an access to the joints. - any other work necessary to complete the work Remark :- <b>Pipe Electrode assembly i.e. GI Pipe, Nuts, Bolts &amp; Washers and funnel with wire mesh will be supplied by BHEL.</b>	nos.	2		
4	Installing of 40 mm diameter Rod Electrode with test pit as per Drg. No. Drg. No. C/ENG/STD/EARTHINGS/09 SHEET # 6 including following works: - excavation - installing the rod electrode - backfilling and compaction - Cement Concrete pit with a ISI marked cast iron cover hinged to a cast iron frame to have an access to the joints. - any other work necessary to complete the work Remark:- <b>40 mm dia MS rod, GI Flat, Nut Bolt washers will be supplied by BHEL.</b>	Nos.	100		
5	Installing of 40 mm diameter Rod Electrode without test pit including following works: - excavation/hammering of rod in earth - installing the rode electrode - backfilling and compaction - any other work necessary to complete the work (40 mm dia MS rod will be supplied by BHEL).	Nos.	10		
<b>Total Rs.</b>			.		
<b>Remark: Overall qty may vary by +/- 40%, however individual quantity may vary at any extend at contract stage.</b>					

Enclosed: Drawing C/ENG/STD/EARTHINGS/09 SHEET # 1 to SHEET # 6