

BILL OF QUANTITIES FOR UNDER GROUND EARTHING AND ELECTRODES**NAME OF PROJECT : 400/110 KV Substation at Thappagundu**

S. No	Description	Unit	Quantity	Rate	Amount
1	Unloading, storing and laying of Underground earthmat of 40mm dia MS Rod at a depth of at least 800 mm measured from the top of FGL (either top of gravel or top of land as the case may be) as per approved Earthmat drawing(after approval) including following works: - Excavation of trenches - laying of MS Rod for below ground mesh. - welding of Rods - bringing out risers just below gravel level near the equipment foundations as per requirement - Backfilling of soil - any other work necessary to complete the laying of earthmat (Only 40mm dia MS Rod shall be supplied by BHEL. Final size of Rod shall be confirmed at contract stage.)	MT	340		
2	Fabrication & laying of Auxiliary Mat of 40 mm dia MS Rod , 1500mm X 1500mm closely spaced (300mm) at a depth of 300 mm from top of FGL including excavation & backfilling. - any other work necessary to complete the laying of earthmat (Only 40 mm dia MS Rod will be supplied by BHEL)	Nos.	271		
3	Installing of 40mm dia MS Rod Electrode without Test Link with treated Earthpit including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer --providing of A4 Grade bentonite powder with 5 % common salt mixed with available site clay soil 5 KG/Mtr depth in earth bore as directed by the Field Engineer --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer. -- Provision for Water Arrangement to be provided. -- Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	79		
4	Installing of 40mm dia MS Rod Electrode without Test Link with treated Earthpit including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer -- Installing the electrode with alternate layers of Coke & charcoal, salt --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer. -- Provision for Water Arrangement to be provided. -- Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	20		
5	Installing of 40mm dia MS Rod Electrode with Test Link including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer --providing of A4 Grade bentonite powder with 5 % common salt mixed with available site clay soil 5 KG/Mtr depth in earth bore as directed by the Field Engineer --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer --Providing CI Frame & Cover to connect down conductor -- Provision for Water Arrangement to be provided. --Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	24		

SCHEDULE-IV

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S. No	Description	Unit	Quantity	Rate	Amount
6	Installing of 40mm dia MS Rod Electrode with Test Link including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer -- Installing the electrode with alternate layers of Coke & charcoal, salt --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer --Providing CI Frame & Cover to connect down conductor -- Provision for Water Arrangement to be provided. --Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	6		
7	Installing of 40mm dia GI Pipe Electrode without Test Link with treated Earthpit including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer --providing of A4 Grade bentonite powder with 5 % common salt mixed with available site clay soil 5 KG/Mtr depth in earth bore as directed by the Field Engineer --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer. -- Provision for Water Arrangement to be provided. -- Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	12		
8	Installing of 40mm dia GI Pipe Electrode without Test Link with treated Earthpit including following works: --The earth electrode to be fabricated for 5 mts length without joints with provision for inter connecting at least two numbers earth flats from main earth mat /structures. --Providing 140/150 mm dia bore including labour lead lift etc.,in all types of soils and erection of earth electrodes and providing earth bore as directed by the Field Engineer -- Installing the electrode with alternate layers of Coke & charcoal, salt --Supply and providing of 600mm mean dia, 300mm height , 36 mm thick cement collar for identification of earth electrode location including 1 primer and 2 coat of colour wash directed by the Field Engineer. -- Provision for Water Arrangement to be provided. -- Any other work necessary to complete the work. (Only Pipe/Rod Electrode/ Flats will be supplied by BHEL).	Nos.	4		
Total Rs.					
Notes:					
1	The Quantity given in the BOQ is tentative. For individual items it may vary to any extent or may get deleted.				