

MEDICAL & DENTAL COLLEGE AND TEACHING HOSPITAL AT UNIVERSITY OF THE PUNJAB, QUAID-E-AZAM CAMPUS, LAHORE
(Main Hospital Building and Road/Parking Works)
GEOTECHNICAL INVESTIGATIONS
BILL OF QUANTITIES

Sr. No.	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
A.	FIELD INVESTIGATIONS				
A1	Mobilization and demobilization of at least one (1) straight rotary / percussion drilling rig at site including setting-up & shifting from one investigation point to another. The equipment should be sufficient to meet the time schedule.	L.S.	Job		
A2	Execution of: <i>i) Four (4)</i> boreholes up to a maximum depth of 25 m at Main Hospital building location, <i>ii) One (1)</i> borehole up to a maximum depth of 20 m at overhead water tank (OHWT) location, <i>iii) One (1)</i> borehole up to a maximum depth of 15 m at Mosque location in overburden soils below NSL by straight rotary drilling method including backfilling of boreholes to their original position by cement-sand-bentonite mix.	L.M.	135		
A3	Performance of Standard Penetration Tests (SPTs) in boreholes along with collection of SPT samples at 1 m depth interval in general, or as necessary, including their labelling, packing, storage & transportation to an approved testing laboratory.	No.	125		
A4	Collection of undisturbed soil samples from boreholes through Shelby/Denison/Pitcher samplers, including their waxing, labelling, packing, storage & transportation to an approved testing laboratory.	No.	10		
A5	Excavation of eight (08) testpits up to a maximum depth of 1.5 m below NSL including backfilling of pits to original condition.	L.M.	12		
A6	Performance of field density tests by sand replacement method in testpits generally @ 1 test/pit at selected horizons, including determination of in-situ bulk and dry density and collection of small disturbed samples in moisture tins for moisture content determination in laboratory by oven drying method as well as labelling, packing, storage & transportation to an approved testing laboratory.	No.	8		
A7	Collection of composite bulk soil samples (at least 50 - 60 kg) from testpits including their labelling, packing, storage & transportation to an approved laboratory.	No.	4		
A8	Collection of water samples (if encountered) from boreholes/testpits including their labelling, packing, storage & transportation to an approved testing laboratory.	No.	2		
	Sub-Total A	Rs.			

Establishment of coordinates and ground elevations of all the boreholes & testpits using **TOTAL STATION** are included in the scope of work. The coordinates should be provided with reference to a permanent local bench mark.

All the soil samples shall be stored and transported as per ASTM standards. The area and clearance ratio of the thin walled sampling tubes should be as per ASTM requirements.

The preferred method of drilling (in sandy / cley soil only) is straight rotary drilling. Percussion boring shall be used in case of presence of rock/grevals/hard strata.

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Sr. No.	Description	Unit	Qty.	Rate	Amount
B.	LABORATORY TESTING			(Rs.)	(Rs.)
B1	Sieve analysis	No.	25		
B2	Hydrometer analysis	No.	8		
B3	Liquid and plastic limits	No.	10		
B4	Bulk density / Dry density & NMC	No.	10		
B5	Consolidation with Swell Potential Measurements	No.	4		
B6	Direct Shear	No.	5		
B7	Unconfined Compression	No.	5		
B8	Modified AASHTO Compaction	No.	4		
B9	3-Point Soaked CBR	No.	4		
B10	Sulphate content of soil	No.	3		
B11	Chloride content of soil	No.	3		
B12	Organic matter content of soil	No.	3		
B13	Complete chemical analysis of water samples i/c TDS, Cl, SO4 & pH	No.	2		
Sub- Total B				Rs.	

Name of Laboratory:

Total (A+B)=

Rs.	
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