



Department of Civil Engineering

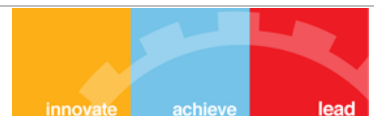
Consultancy Experiments and Charges

TRANSPORTATION ENGINEERING LABORATORY			
S.NO.	Test Name	Rate Per Test (Rs.)	
		Existing	Proposed = existing *1.5
1	CBR @ Field moisture Contents	2500	3750
2	CBR @ OMC, after 4 days soaking including OMC	5000	7500
3	LL, PL and PI for Sub replacement	2000	3000
4	In-situ density using sand replacement	1000	1500
5	In-situ density using Core Cutter Method	1000	1500
6	In-situ CBR using field CBR equipment (excluding the vehicle & Labor charges)	6000	9000
7	Aggregate Impact Value	2000	3000
8	Aggregate Crushing Value	2000	3000
9	Aggregate Shape (Flakiness and Elongation Indices)	2000	3000
10	Aggregate Specific Gravity	2000	3000
11	Aggregate Soundness test with Sodium Sulphate/Magnesium Sulphate -5 cycles (including chemical cost)	7000	10500
12	Los Angeles Abrasion Value	4000	6000
13	Stripping Value and Water Absorption	2000	3000
14	Bitumen Extraction Test for Surface Course (Bitumen Content and Sieve Analysis) (Including the cost of Benzene)	2000	3000
15	Bitumen Penetration	800	1200
16	Bitumen Softening Point	800	1200
17	Bitumen Specific Gravity	800	1200
18	Bitumen Ductility	800	1200
19	Bitumen Viscosity	1200	1800
20	Verification of Pavement Cross Section through borehole (Excluding Labor Cost)	2500/-Per Borehole	3750
21	Road Roughness Using Bump Integrator	1600/-Km Per	2400





		Lane	
22	Rebound Deflection Using Benkelmen Beam Test (Excluding Truck Hiring, Labor etc.) with overlay Design)	6000/Km (20 Test Points)	9000
23	Traffic Volume Counts	6000/Location/day for 2 Lanes	9000
24	New Pavement Design (excluding CBR Testing, Traffic Counts, Site visit charges) with both flexible and rigid pavement options using IRC procedures.	5000/- Per design	7500
25	New Pavement Design (excluding CBR Testing, Traffic Counts, Site visit charges) with both flexible and rigid pavement options using IRC as well as AASHTO procedures.	10000/-Per design	15000
26	3 Legged/4 Legged /Rotary intersection design excluding the cost of conduction the turning movement counts and plane table survey	12000/ Per design with 2 to 3 feasible best options given as AutoCAD files	18000
27	5 Legged/4 Legged /Rotary intersection design excluding the cost of conduction the turning movement counts and plane table survey	15000/ design with 2 to 3 feasible best options given as Auto CAD files	22500
28	Third party design verifications for flexible & rigid pavement as per IRC Specifications (excluding the cost of site visit)	2500/ Per design	3750
29	Third party design verifications for flexible & rigid pavement as per IRC &AASHTO Specifications (excluding the cost of site visit)	5000/ Per design	7500





30	Pavement failure investigation and recommendations (excluding the cost towards site visits by the faculty and labor charges)	To be decided after reconnaissance visit by the expert faculty	-
31	Mix Design for Pavement Quality concrete	10000/-	15000
32	Marshall"s Mix Design for bituminous Concrete	10000/-	15000
33	Pavement Rating and Analysis	5000/- Per Km Per Lane	7500

CEMENT/ CONCRETE / BRICK TESTING			
S. No.	Test Name	Rate Per Test (Rs.)	
		Existing	Proposed = existing *1.5
1	Cement test complete (Fineness test, soundness test, consistency test, setting time and strength test)	3000	4500
2	Sieve analysis of coarse aggregate	700	1050
3	sieve analysis of fine aggregate	700	1050
4	Determination of specific gravity of concrete	700	1050
5	Determination of the density of concrete	700	1050
6	Compression test on concrete cubes (3 samples)	700	1050
7	Mix design of concrete	8000	12000
8	Slump test	700	1050
9	Compaction factor	700	1050
10	Brick test (Absorption, flexure, compression, color test, soundness test, Dimension, Efflorescence test)	3500	5250
11	Tile test	1200	1800
12	silt content test on fine aggregate	1200	1800
13	10% fine value test of coarse aggregate	1000	1500
14	Water absorption test of stone boulders	1200	1800
15	Percentage of soft and deleterious material test	4000	6000





SOIL LABORATORY			
S.No.	Item	Rate Per Test (Rs.)	
		Existing	Proposed = existing *1.5
1	Natural moisture content	1200	1800
2	Specific gravity (3 observations)	1000	1500
3	Liquid limit, Plastic Limit, Shrinkage Limit (3 observations) each	2000	3000
4	Sieve analysis	700	1050
5	Proctor's test	1800	2700
6	Consolidation test	5000	7500
7	Direct shear box test (3 sets)	2500	3750
8	Permeability test	3500	5250
9	Unconfined Compressive Strength of soil test	5000	7500
9	Field Dry Density Test (Sand replacement or core cutter method)	4000	6000
10	<u>SBC soil testing for OHRCC water tank/GL Reservoir</u>		
a.	upto 2 lak liters	18000	27000
b.	greater than 2 but less than or equal to 4 lakh liters	21000	31500
c.	greater than 4 but less than or equal to 7 lakh liters	24000	36000
d.	greater than 7 but less than or equal to 10 lakh liters	27000	40500
e.	greater than 10 but less than or equal to 14 lakh liters	29000	43500
f.	greater than 14 but less than or equal to 18 lakh liters	32000	48000
11	DCPT or SPT per bore hole, (for building purpose)	6000	9000
12	Safety Checking	18000	27000





PUBLIC HEALTH AND ENVIRONMENT LABORATORY		Rate Per Test (Rs.)	
S.No.	Item	Existing	Proposed = existing *1.5
1	PH value (3 samples)	400	600
2	Conductivity (3 samples)	300	450
3	Turbidity (3samples)	300	450
4	Color (3 samples)	300	450
5	Alkalinity	700	1050
6	Acidity	700	1050
7	Hardness	700	1050
8	Chloride	1000	1500
9	Calcium	1000	1500
10	Fluoride	2000	3000
11	Sulphate	1400	2100
12	Iron and Manganese	1400	2100
13	Nitrate	1400	2100
14	Chlorine demand	1400	2100
15	Dissolved Oxygen	1000	1500
16	MPN Index test	3200	4800
17	Suspended Matter	1000	1500
18	Inorganic Solids	1000	1500
19	Organics Solids	1000	1500

Tax 12.36% + Transportation Extra (Where will applicable).





Consultancy Charges for Soil Investigation for the Project - BITS Non Teaching Staff Housing Block

Rs. 8000 per bore hole for conducting SPT in six bore holes up to 8 m or hard strata is encountered.

Total = Rs. 8000 × 6 = Rs.48000 + Service taxes (12.36%)

Scope of work includes conducting standard penetration test (SPT) in the boreholes at 1 m intervals in depth or every change of strata whichever is earlier as per IS 2131-1981. Collecting disturbed soil sample from the location of conducting the SPT. Conducting laboratory tests on samples collected for their different engineering properties such as Grain Size Distribution, liquid limit, plastic limit, specific gravity etc and soil classification. Net safe bearing capacity & suggested founding levels for open foundations (Net safe bearing capacity at a depth of 1m, 1.5m, 2m & 3m below the existing ground level). Recording the Ground Water Table if observed upto exploration depth, as per IS : 6395:1973 and analysis for liquefaction potential for Earthquake as per Zone – III of IS: 1893-2002 (Part –1)



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STRUCTURAL LABORATORY				
Sr. No.	Test Name	Rate Per Test (Rs)		
1.	Physical Test of TMT Rod	2100/-		
a.	Area or Dia Test			
b.	Density Test			
c.	Surface Characteristic Test			
d.	Sound Test			
e.	Rib Distance Test			
2.	Mechanical Test of TMT Rod	Dia 6mm To 16mm	Dia 18mm To 24mm	Dia 25mm To 45mm
a.	UTS Test	1500	2250	3750
b.	YS Test			
c.	Percentage of Elongation			
d.	Bend And Rebind Test	3000/-		

Tax 12.36% + Transportation Extra (Where will applicable).

Distribution of Consultancy Charges (effective from 20.06.2014)

Consulting fee to be paid to Investigators (PI, Co-PI, Lab and office staff) = X

Equipment Cost E = 0

Supplies and any contingent expenses = 0

Manpower (students, external experts) = 0

Travel etc. = J

Total other expenses = 0

Total expenses T = X+ 0 + 0 + 0 + J + 0 = X+J





BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus
Instruction Division

Overheads to BITS (50% of Total consulting fee) $L = 0.5 * T = 0.5 * (X+J)$

Sub-total including overheads $M = T + 0.5T = 1.5T = 1.5 * (X+J)$

Service tax $N = 0.1236 * M = 0.1236 * 1.5T = 0.1236 * 1.5(X+J)$

Total consulting charges $P = M + N = 1.5 * (X+J) + 0.1236 * 1.5(X+J) = 1.6236 * (X+J)$



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