



SNS COLLEGE OF TECHNOLOGY



AN AUTONOMOUS INSTITUTION

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COIMBATORE

DEPARTMENT OF CIVIL ENGINEERING

23GET102 – BASIC CIVIL AND MECHANICAL ENGINEERING

I YEAR / I SEMESTER

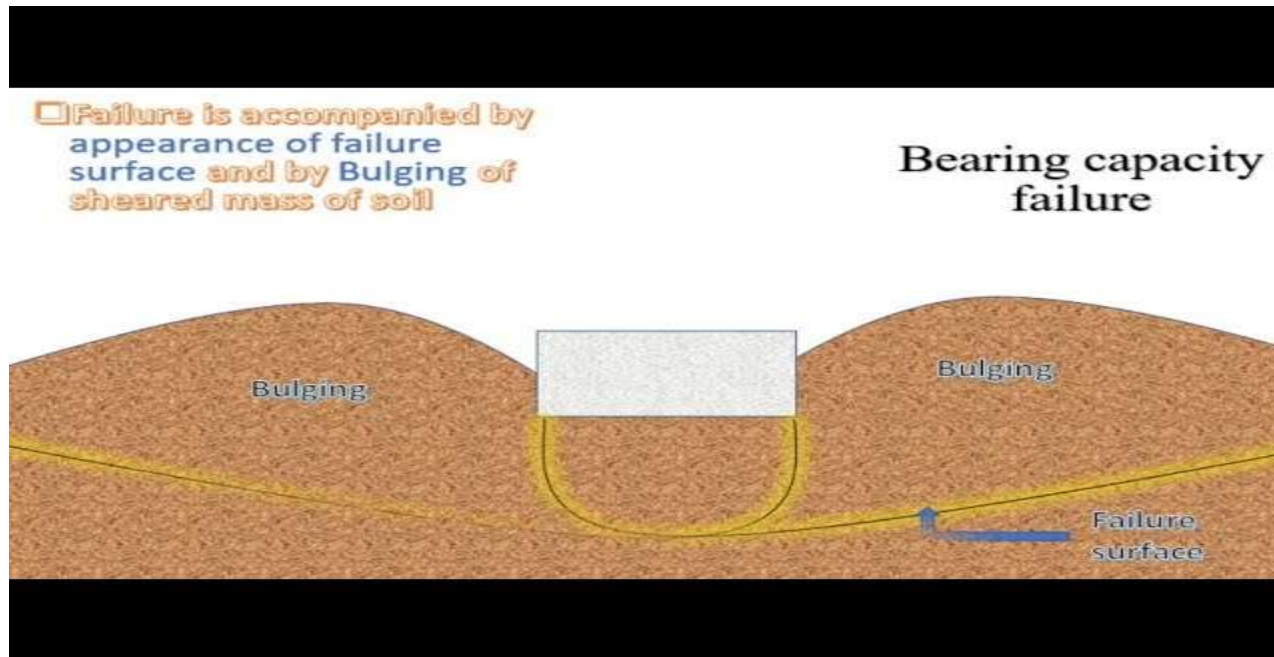
Unit 1 : Civil Engineering Materials and Surveying

Topic : SUB STRUCTURE-TYPES OF FOUNDATION



Bearing Capacity

The maximum load per unit area which the soil can withstand without any displacement or settlement or shear failure is called the “Safe bearing capacity of the soil.





Bearing Capacity

Bearing Capacity Of

Different Types Of Soil

Soil Type	Allowable Bearing (lb/ft ²)	Drainage
BEDROCK	4,000 to 12,000	Poor
GRAVELS	3,000	Good
GRAVELS w/ FINES	3,000	Good
SAND	2,000	Good
SAND W/ FINES	2,000	Good
SILT	1,500	Medium
CLAYS	1,500	Medium
ORGANICS	0 to 400	Poor

The diagram illustrates a foundation on soil. A downward arrow indicates the load applied to the foundation. Below the foundation, several upward arrows represent the drainage of water from the soil, indicating the drainage characteristics of the soil type.





REQUIREMENTS OF GOOD FOUNDATION

- ❖ The foundation should have the capacity to carry all imposed loads without failure.
- ❖ The settlement should be within permissible limits
- ❖ The centre of gravity of the base plane and the centre of gravity of the foundation should be in the same vertical plane.
- ❖ No resonance should occur
- ❖ The amplitudes under the service conditions, should be in permissible limits.
- ❖ The foundation should be planned so as to permit a subsequent alteration of natural frequency.



REQUIREMENTS OF GOOD FOUNDATION

- ❖ Expansion joints should be implemented to separate machine foundations from adjacent buildings.
- ❖ The Ground water table should be as low as possible and ground water level must be deeper by one-fourth width of foundation below base plane
- ❖ Steam (or) hot air pipes must be properly isolated, when embedded in the foundation.
- ❖ The foundation should be protected from machine oil by suitable chemical element.
- ❖ Machine foundations should have a deeper foundations level than the foundation of adjoint buildings.



Thank You!!