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Q: Write a Geotechnical Report on any Civil Engineering Project near to your home town.

Answer.

## Geotechnical Report on Tanda Dam:-

### Introduction:

Tanda Dam is a small dam & also a lake view park located in Kohat District of Khyber Pakhtunkhwa. The dam supplies water for irrigation to Jurma, Shahpur & many villages by means of canals from Tanda Lake.

### Tests Performed on Dam Site for Soil Investigation:

1. Sieve Analysis of Soil
2. Determination of Moisture Content of Soil
3. Analysis Specific Gravity of Soil
4. Determination of Free Swell Index of Soil
5. Determination of Liquid Limit of Soil
6. Determining the Plastic limit of soil

7. California Bearing Ratio Test (CBR)
8. Unconfined Compression Strength

## Test Results

Soil Type	§ Silty Clay
AASHTO Classification	A-7-5
% Passing Sieve No. 200	25.40
Liquid Limit (L.L)%	26.5
Plastic Limit (P.L)%	31.0
Plasticity Index (P.I)%	5.5
Optimum Moisture Content	10.7
Maximum Dry Density (MDD) ( $\text{kg/m}^3$ )	1.94
California Bearing Ratio (CBR)%	10.42
Unconfined Compression Strength ( $\text{KN/m}^2$ )	209.18
Natural Moisture Content	13.4
Specific Gravity	2.7

## Quiz

### Software used in Geotechnical Engineering:

A high variety of Geotechnical software can be found in this category. Geotechnical software is defined as software designed especially in order to deal with geotechnical issues such as slope stability, seismic analysis, foundation etc. The famous software used in the field of Geotechnical Engineering are mentioned below:-

#### 1- 3DEEP:-

This software is fully integrated with a design software package for automatic model generation. It is a virtual reality software for deep excavations.

#### 2- GEOS:-

It can be used for Excavation design, Shallow foundation & deep foundation design, stability analysis, settlement analysis & for various other field works.

3. ~~PLAXIS~~3. PLAXIS :-

Plaxis 2D, Plaxis 3D is a finite element package intended for the two dimensional & 3 dimensional analysis of deformation & stability of soil structures, as well as ground water & heat flow.

4. EDUSHAKE :-

It is normally used for earthquake & geotechnical analysis.

5. MATLAB :-

It uses mathematical stimulation for analyzing structural & foundation problems using series of arrays.

6. DEEPIX :-

Deep X<sub>can</sub> is a software program for the design of embedded earth retaining walls with limit-equilibrium & advanced non linear elastoplastic analysis methods.

## 7. DARTISLAB :-

Dartis Lab is a geotechnical software for easily processing lab test data. Dartis Lab features Water content, Index, Specific Gravity, Particle size & USCS classification of Soil.

## 8. DEEPEND :-

DeepEND is a powerful interactive software for deep foundation & pile design. Axial, lateral, settlement, structural & geotechnical analysis options.

## 9. Qult :-

Bearing Capacity analysis for shallow foundations.

## 10. FLAC3D :-

It is used in advanced geotechnical analysis of soil, rock & structural support in three dimensions. FLAC3D is used in analysis, testing & design by geotechnical, civil, & mining engineers.