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Section – "A"

Program: Bse Civil Engineering

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Q: Write a Geotechnical Report on any Civil engineering project near to your home town:

Geotechnical Report on Kurrum Tangi Dam:

Introduction:-

Kurrum tangi dam is a small dam and also a lake on Kurrum river located in District North Waziristan, KP (previously FATA) about 14 Km upstream of Kurram Garhi Headworks and 32 Km North of Bannu District

- Rs 84. million has been transferred to APA/LAC Miranshah, North Waziristan Agency for land compensation.
- 515 acres of land has been acquired.
- About 68-acres of land is under process with

APA mir Ali. The remaining land of about 85 acres is under process by PD KTDP for Survey, measurment & demarcation of distribution and access road.

Tests performed on Dam site for Soil investigation:

Following test shows their results that are performed on Dam side for the investigation of soil of that area that help in preparing a Geotechnical Report

1- Sieve Analysis of soil.
2- Analysis specific Gravity of soil.
3- Determine the moisture content of soil.
4- Determination of Liquid limit of soil.
5- Determination the plastic limit of soil.

6- Determination of Free Swell Index of soil

7- CBR

8- UCS

Test Results

Soil type	silty clay.
AASHTO Classification	A-7-5
1- % passing Sieve No. 200	25.40
2- Liquid limit %	27 %
3- plastic limit %	32 %
4- plasticity index %	5.5 %
5- Optimum moisture content	60.7 %
6- California Bearing Ratio (CBR)	11 %
7- maximum Dry Density (MDD)	2 %
8- Unconfined Compression Strength KN/m^2	208 %
9- Specific Gravity	2.7 %

Quiz:

Software used in Geotechnical Engineering :-

A high variety of Geotechinal Software can be found in this Category. Geotechinal Softevare is define as Software designed eapeciallly in order to deal with Geotechnical issues such as Such slope stability, seismic analysis, foundations, etc.

The famous softwares used in the fiebl of Geotechnical Engineering are mentioned below.

1- Geo Studio :-

The Geo Studio Suite includes eight products which Can be used for analysing slope stability, Ground water seepage, stress deformations and various other geotechinal problems.

2- Plaxis :-

Plaxis 2D, plaxis 3D is a finite element package intended for the two dimensional and 3 dimentional analysis of deformation and stability of soil structure, as well as groundwater and heat flow. in Geo-technical Engineering applications, such as excavation, foundations, embankment and tunnels.

3- Deepx :-

Deepx cav is a software program for design of embedded earth retaining wall with limit-equilibrium and advantage non linear elastoplastic analysis methods. DeepxCav offers a one-stop complete geotechnical and structure Solution for deep excavation.

4- DARTISLAB :-

Dartis lab is a geotechnical software for easily processing lab test data. Dartic lab features. water content, Index, Specific gravity, Particle Size Shallow foundations.

5- Allpile (pile analysis)

Allpile is a windows-based analysis program that handles virtually all type of piles, including steel pipes, H-piles, pre-cast concrete piles, auges-cast piles, uplift plate and sfrallow foundations.

6- matlab :-

it usesd mathematical simulation for analyzing Structure and foundation problem using series of arrays.

7. EDUSHAKE :-

it is normally used for earthquake and geotechnical analysis.

8- 3DEEP :-

This Software is fully integrated with a design Software package for automatic model generation. it is a virtual reality Software for deep excavation.

9- Qult :-

Bearing capacity analysis for shallow foundations Some other simple Software are :- SEEP2D, STABL, SVFlux, Svslope, UTEXAS. These are Simple programmer and not much versatile as compare to above mentioned Software..