

Assignment & Quiz

SUBJECT : GEOTECHNICAL ENGR.

SECTION : "B"

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SEMESTER : 6th.

SUBMITTED TO : ENGR. Liaquat Bacha

DATE : 5th - July - 2020

QUESTION:

Write a geotechnical report on any civil engineering project near your area?

Geotechnical Report of RoadABSTRACT:

This is the geotech report of reconstruction of road and the object of this is to describe the process/progress and the work plan.

- this report is also indicate stand of skill, workshop and reporting to be applied.

INTRODUCTION:-

The document of the project has been prepared to assist in the planning and reporting of geotechnical investigation of reconstruction of the road.

OBJECT AND SCOPE:-

the object for their guideline are is.

- To describe the process of work.
- To indicate standard of skill and reporting.
- the following things need to be considered to assess the number, section and depth of the test.

- 1) Expected sub-surface conditions.
- 2) Requirement to minimizing contractor and NHA risk of changes during in construction program due to variation in sub-surface conditions.

STAGE OF INVESTIGATION:-

- **FIELD RECONNAISSANCE SURVEY:-** it is necessary for F.T.S to be conducted as the 1st stage of geo-investigation. information on the following should be obtained.
 - Legal and physical aspect of access to site.
 - Availability of any source, service or supplies of water, electricity and earthwork plant.
 - Buried or overhead service.
 - Photograph of surface condition.
 - Traffic control requirement.

DISK TOP STUDY:-

- Every Disk top study should contain following.
- Design Drawing of previous structure.
 - Previous investigation report, bore hole, penetrometer result etc.

(3)

- Geological map, survey data and yield.
- Hydrological data.
- Aerial photographs.
- Local knowledge and resource.

3. SITE INVESTIGATION :-

A compression report on characteristics, nature and variability of material should be carried out.

→ The investigation should include sampling of soil logging of existing cut slope and excavation field and laboratory testing.

4. Embankment & Foundation :-

The embankment investigation. Considered the following issues.

- the range of materials in embankment foundation and where appropriate the pavement subgrade.
- Settlement potential.
- Stability.
- Hydrology, moisture regime & drainage requirement.
- Special construction requirement.

5. CUTTING IN SOIL:-

the cutting investigation should contain the following issues.

- the range of material in cutting and pavement subgrades.
- Slope stability and subgrade strength.
- Suitability of cut material for base course and sub-base.

6. SOFT/WET AREAS:

where soft/wet soil are found. Particularly in the vicinity of low embankment.

• in shallow cutting. additional investigation:

Sampling - and testing should be carried out.

• the location and characteristics of any soft/wet area or spring should be recorded & report.

• the treatment required to enable construction on these kind of roads across or through there. area showed also be recommend.

7. Embankment Material:-

The suitability of materials within the cutting should be assessed for embankment or pavement construction.

It should be made as to the use of selected fill material within one meter of pavement subgrade level.

(5)

2. Road Reconstruction & widening, -

The investigation should include.

- Following weigh Deflectometer testing for assessing the structural adequacy of existing pavement material.
- In situ test on the subgrade using path sand penetrometers or Dynamic cone penetrometer
- Subgrade sampling for moisture content determination.

GROUND WATER..

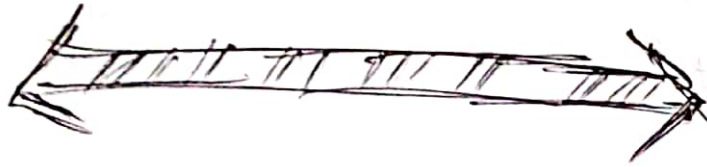
Ground water must be investigated to determine.

- level of W.T.
- Occurrence of perched water table condition & its level.
- the presence of sub-Arterian condition.

GEOTECHNICAL REPORT:-

The report should provide sufficient information to allow tenders to prepare bids and to manage the principle risk on together with the location and result. of all investigation. Sampling & testing should be detailed in report.

6.
• the report should identify the extent
nature and variability of all soil types
and shall draw particular attention
to the following matter:



QUESTION:

Write a note Software on Software
Which used in geotechnical Engineering.

ANSWER:-

A 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.

1. 3 Deep:- (SOFTWARE BY DEEP EXCAVATION LLC)

The software is fully integrated with design software package for automatic model generation. It is virtual software for deep excavations, ultimate walls and number of excavations multiple stage in same model.

2. ADONIS:-**(SOFTWARE BY Roozben Geyali Milede)
PHP**

ADONIS is free finite element software for Geo-Engineers. The goal of the ADONIS development is to improve the modeling and computational simulation in geotechnical engineering. ADONIS is an easy to use yet powerful geotechnical engineering tool.

3. ACCRALC

(Software by geond soft international)

The program analyzes the behavior of the rock slope under seismic conditions. It evaluates the displacement of a rock block subjected to dynamic forces on the basis of given accelerogram. The use of a calculation method based on a given accelerogram.

4. ALLPILE

(Software by civiltech. InCh)

Allpile is a windows-based analysis program that handles virtually all types of piles including steel pipes - H-piles pre-cast concrete piles auger cast-piles, drilled shaft-timber piles. Jelled piles. tapered piles. piers with bell. micropiles.

5. ALP:

(S.W. by oasys)

The easy way to analyze soil structure interaction of a laterally loaded pile when it comes to laterally loaded pile design software, ALP makes things simple this laterally loaded pile analysis software models soil shear failure & non linear.

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6. ALP 99: (S.W by Arnold Verwit)

Axially loaded pile, Elastic pile supported by elastic-plastic Springs.

7. AMRETAIN:-

(S.W by Terrasol)

AMRetain is software for checking single or double retaining walls made of Arcelor Mittal - Sheet Piles. It has been developed by Terrasol, For Arcelor Mittal & is based on the commercial software k-Geo.

8. ANALYSIS OF ROCKY ELEMENTS - Rock plane.

(S.W By Geostu Software)

Rockplane is a software tool for the evaluation of localized instability rocky element effected by seismic movement and/or by presence of water pressure within intersurface fracture. The software provide slide & overturning risk safety factors.

9. APILE .. (S.W BY ENSOFT INC.)

It is used to computer the axial capacity as a function of depth, of a driven pile in clay, sand or mixed soil profiles.

10. AXIATR :-

(Software by Vulcanhammer)

Program AXIATR, Axial load-transfer
Consists of a main routine & two
subroutines. The main routine
feeds in the input data, calculates
the effective overburden stress
and determines whether the load
is axial down-directed, pullout
or upright/down drag.