2020-21

GEETHANJALI COLLEGE OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF CIVIL ENGINEERING

Report on Expert Lecture Conducted on 29/05/2021

"IMPROVEMENT OF SITE INVESTIGATION IN CIVIL ENGINEERING"

Department of Civil Engineering, GCET has organized an expert lecture in collaboration with "**Indian Geotechnical Society** - Student Chapter" on **"Improvement of Site Investigation in Civil Engineering"** by **Dr.K.Madhusudan Reddy** (Professor, Anurag University) on 29-05-2021.

The topics covered in this Expert lecture are:

- Importance of Site investigation
- Introduction to Site exploration
- Methodology
- Samples and Types of Foundations
- Tests
- Results and recommendations

Importance of Site investigation:

Site Investigation is an important aspect in the Civil Engineering field. They are very important to recommend. One should analyse the ground through conducting boreholes, collecting various soil samples, lab tests and various engineering properties.Site investigation for Low-rise buildings recommends that site investigation expenditure should be 0.2% of the total project cost.

Risks inherent within the ground are attributed to significant cost and time overruns on construction projects. Instead of addressing such risks by comprehensive site investigation, they are often ignored as unnecessary costs.

Introduction to Site exploration:

Soil exploration happens to be one of the most important parts of Foundation Engineering and also at the same time the most neglected part of it. The success or failure of a foundation depends essentially on the reliability of the various soil parameters from the field testing and laboratory testing and is used as an input into the design of foundations.

Soil exploration is a must in design of foundations and should provide the following:

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The lecture strengthen the following POs & PSOs of the department:

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO 1: Apply knowledge in core areas of Civil Engineering such as Structural, Geotechnical, Water Resources, Transportation and Environmental Engineering to Civil Engineering practice.

PSO 2: Utilize Civil Engineering principles that are appropriate to produce detailed drawings, design reports, quantity and cost estimates, specifications, contracts and other documents appropriate for the design, construction, operations and maintenance of Civil Engineering projects.

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PSO 3: Shall interact and collaborate with stakeholders; execute quality construction works applying Civil Engineering tools namely, Total Station, Global Positioning System (GPS), ArcGIS, AutoCAD, STAAD and other necessary tools.

HOD/CE

Expert Lecture Coordinators
G.Raju, Asst.Prof, CED
D.Ramachander, Asst.Prof, CED

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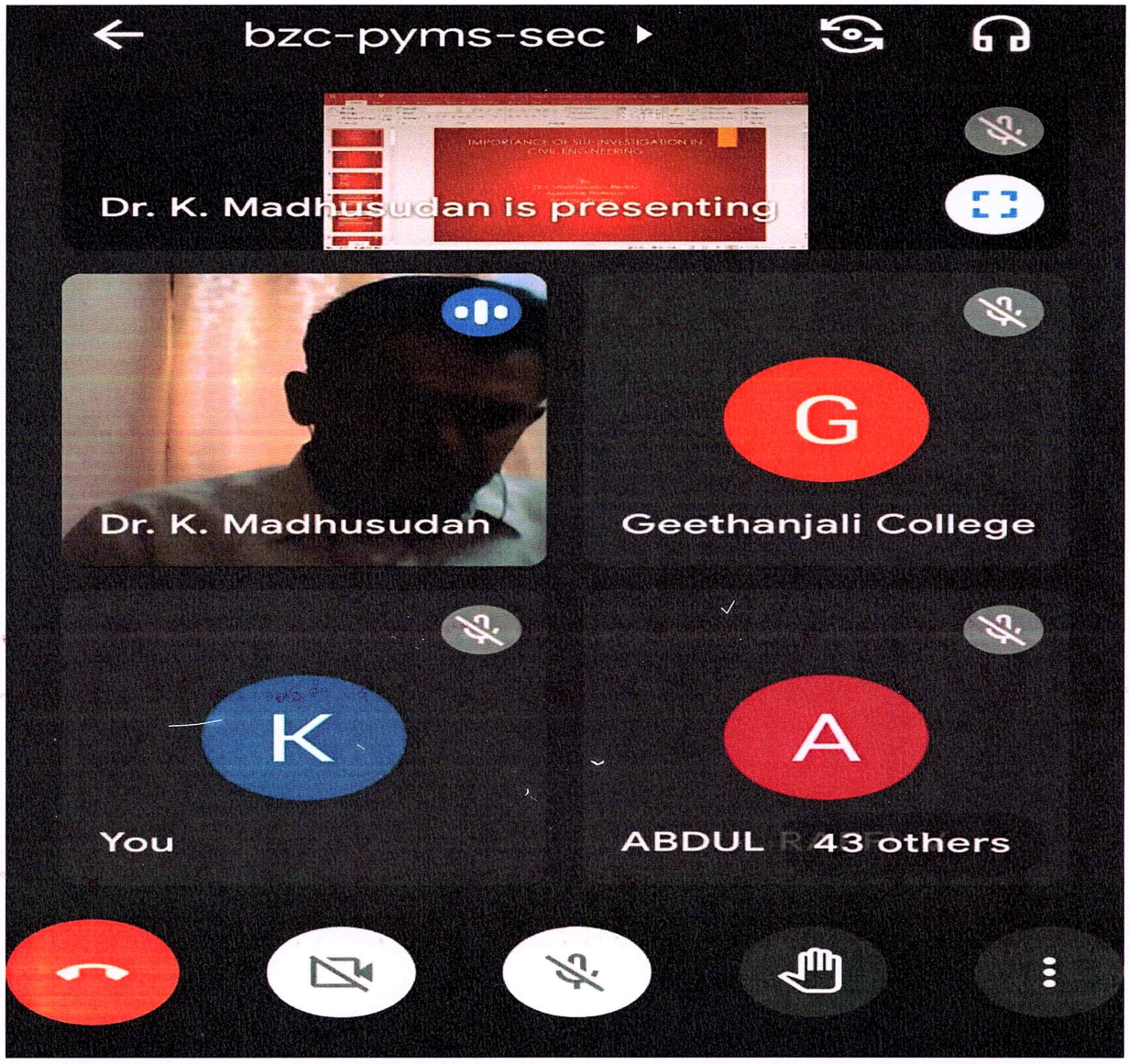

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Results and Recommendations:

Results obtained from Soil investigations are generally represented in the form of Borehole logs and Soil profile diagrams.

Borehole logs are used to represent the soil strata at a particular location.

BORE LOG-5

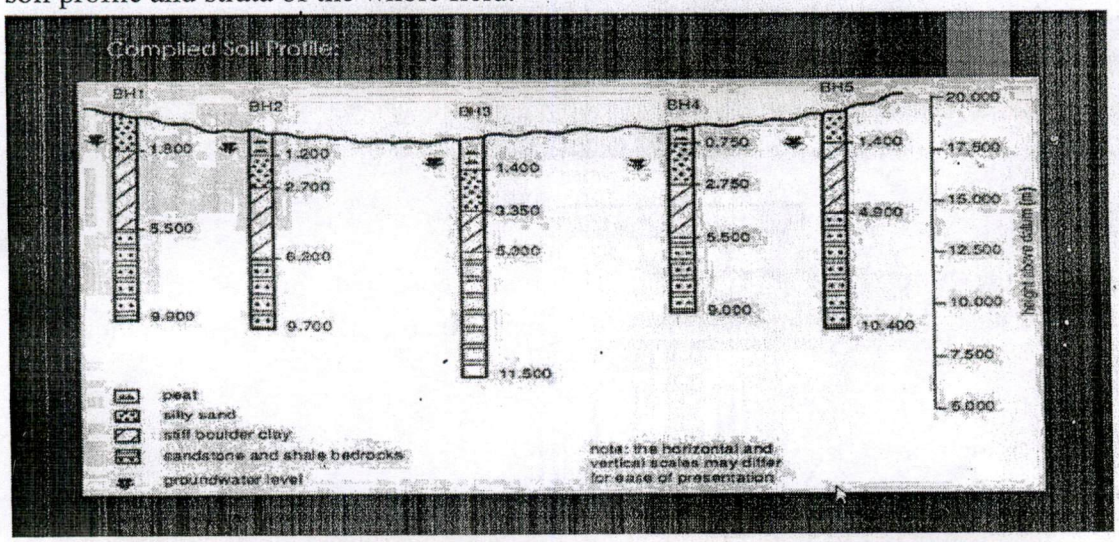
BH No BH-5 | Date of commencement 21.11.2005
Ground Water Table 1.4m | Date of completion 22.11.2005

Depth Below GL(m)	Soil Description	Thickness of Strata (m)	Legend	Details of Sampling Type	Details of Sampling Depth (m)	SPT N Value
0.0	Filled Up Soil	2		SPT	1.5	N=8
2.0	Reddish Clayey sand	2.5		UDS	3.0	
3.0				SPT	3.5	N=20
4.5	Yellowish Sandy Silt	1.5		UDS	4.5	
6.0				SPT	6.0	N=23
7.0	Greyish/ Yellowish Silty sand with mica			UDS	6.0	
				SPT	6.5	N=52
12.0				SPT	7.5	N=52
14.0				SPT	9	N=100
16.5		10.5		SPT	10.5	75R for 5cm Penetration
17.0	Weathered Rock 16.5m to 17m CR=15% ROD=Nil	0.5		SPT	12" and Below	75R for no Penetration

Bore hole Terminated at 17 m
* Sample not retrived
CR-Core Recovery
ROD-Rock Quality Designation

Note
SPT Standard Penetration Test
UDS Undisturbed Sample
R Rebound

Soil profile diagrams are used to represent the number of borehole logs in a field representing the soil profile and strata of the whole field.



Recommendations:

Following recommendations are provided based on the soil investigation report.

1. Suitable Foundation type
2. Depth and Size of footing
3. Provision of additional structural members such as tie beams for safety.

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