

DETAILS OF MAJOR RESEARCH FACILITIES IN GTE LABORATORY & UTILIZATION STATUS

1. PC Controlled Cyclic Tri-axial Compression Test Facility

Procured under : TEQIP-I
Year of Installation : 2005-06
Cost in Rs. : 25.60 lakh

Utilisation :

Description	No. of Project works		
	Completed	Proposed	Total
BE Projects	02	-	02
ME Dissertations	04	-	04
Ph.D. Dissertations	01	01	02

(*) Require replacement of dysfunctional Pore Pressure Device. Hence no ongoing projects.

Developments : (04) ME + (02) BE projects were completed on cyclic Tri-axial facility

Submersible Load Cell life expired in 2010

Converted in to Cyclic Load Test Facility with load cell in Air in 2010 and completed (01) Ph.D & (02) ME Dissertation works.

New Submersible Load Cell procured in 2015 under TEQIP-II

Later, Pore water pressure measurement device life expired in 2017

Waiting for funding to replace it.

Present Statue : Require replacement of Pore Pressure Device & Overhauling to resume the work. May require Rs. 5.00 lakh.



Fig. 1 The PC Controlled Cyclic Triaxial converted in to Cyclic Load Test Facility



Fig. 2 Specimen before and after the tests in a PC Controlled Cyclic Tri-axial facility



Fig. 3 Monotonic Load Tests on Pond Ash test bed

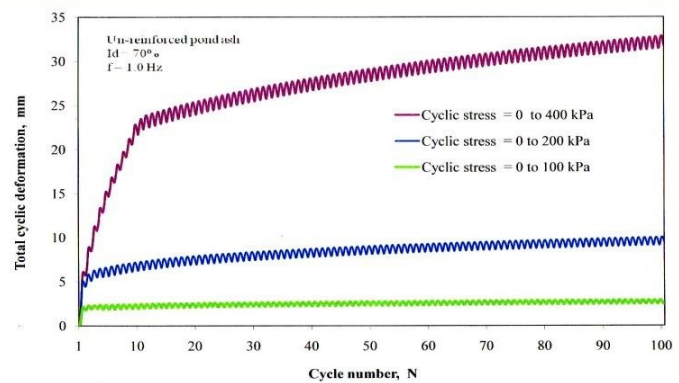


Fig. 4 Cyclic Load Tests on compacted pond ash test bed

2. Laboratory Plate Load Test Facility with Manually applied Monotonic load

Procured under : Research Fund
Year of Installation : 1995-96
Cost in Rs. : 2.50 lakh
Utilisation :

Description	No. of Project works			
	Completed	On-going*	Proposed	Total
BE Projects	11	-	-	11
ME Dissertations	28	-	03	31
Ph.D. Dissertations	-	-	01	01

(*) Facility is currently under upgradation. Hence no ongoing projects.

Developments : Proposed to upgrade the facility with hydraulically applied Monotonic and Cyclic Load Test Facility
Procured Cyclic Load Applicator under TEQIP-III
Installed in 2019

Present Statue : Soft ware improvisation, re-calibration work and Pilot studies of Cyclic Load Applicator is in progress.
Hence, temporarily work on this system is kept in abeyance.
Work will begin in Aug-2021.



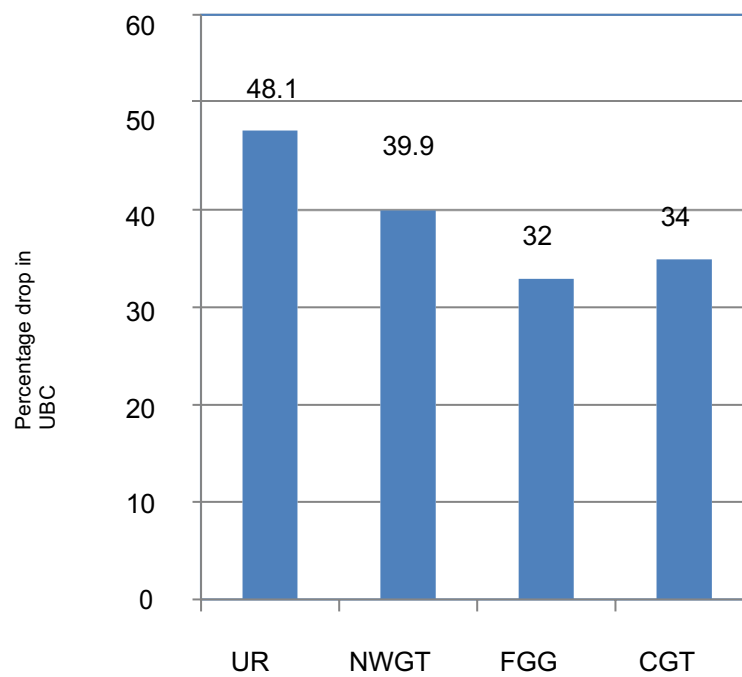


Fig. 5 Research on Effect of submergence on the Bearing Capacity of Shallow Foundations laid on Geosynthetic Reinforced Test Bed

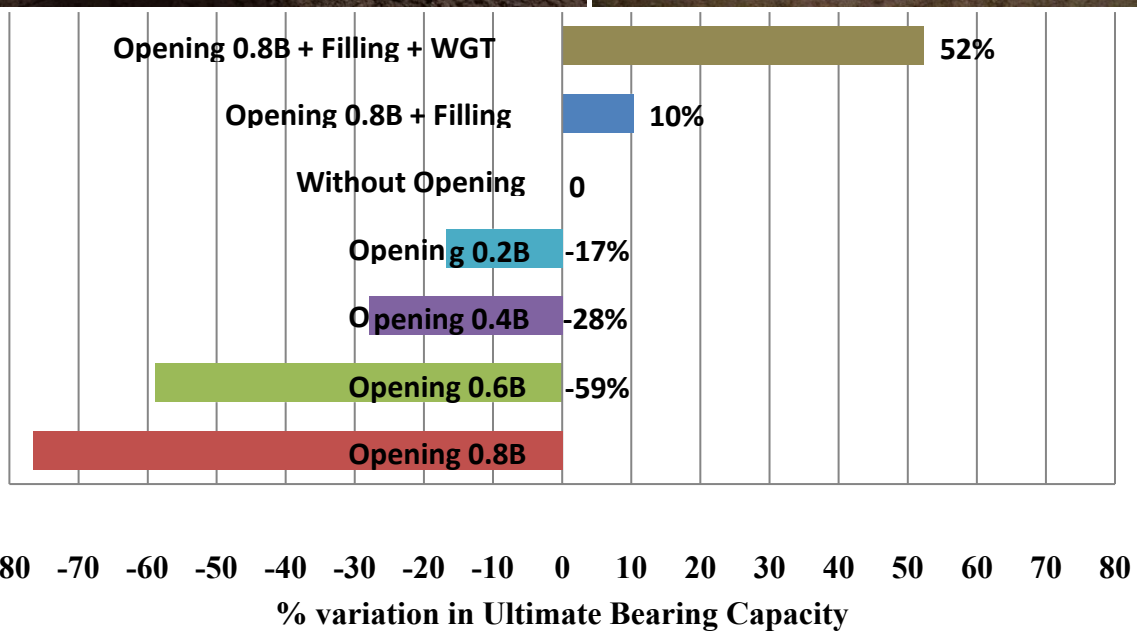
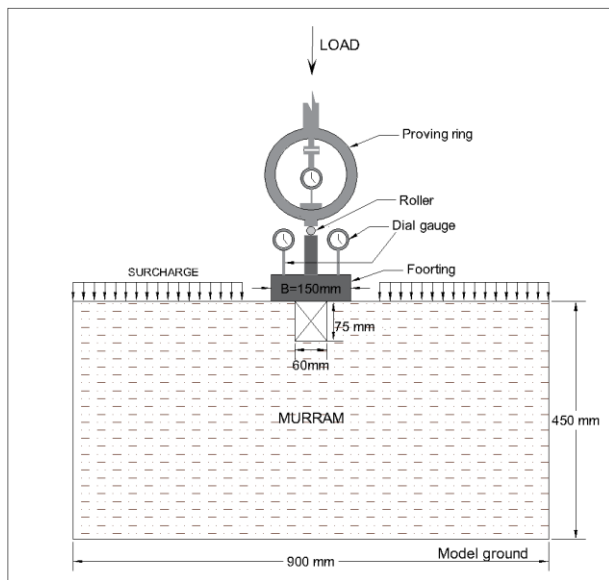


Fig. 6 Research on effect of Cavity on Bearing Capacity of Shallow Foundations



**Fig. 7(a) Industry (M/s Rambol Engineers) Sponsored research project on
Effect of submergence on the uplift capacity of shallow foundations**

3. Laboratory Plate Load Test Facility with Cyclic Load Applicator

Procured under : TEQIP-III
Year of Installation : 2019-20
Cost in Rs. : 8.50 lakh

Utilisation : Soft ware upgradation & re-calibration works
are in progress

Proposed 03 ME & 02 Ph.D. in 2021-22

Current Status : Stabilisation & validation of the facility in progress
Servo controller is required. Est. Cost. Rs. 9.0 lakh



Fig. 7 (b) A view of Plate Load Test Facility after installation of Cyclic Load Applicator

4. Block Resonance Test Facility

Procured under : TEQIP-II
 Year of Installation : 2011-12
 Cost in Rs. : 3.50 lakh

Utilisation :

Description	No. of Project works			
	Completed	On-going*	Proposed	Total
BE Projects	-	-	-	-
ME Dissertations	05	01	01	06
Ph.D. Dissertations	-	-	01	01

1. Completed

1	Mr. J.Abhishek (1005-13-741301)	Response of Geosynthetic Reinforced Soil Beneath Machine Foundation	2014-15
2	Mr. Pranay Raj (1005-13-741310)	Effect of density of soil beneath the machine foundation on dynamic characteristics.	2014-15
3	Mr. Rajasekhar Reddy (1005-18-741303)	Response of Geosynthetic Reinforced Soil Beneath Machine Foundation	2020-21
4	Mr. Abhilash Reddy, A (1005-21-741301)	Effectiveness of Geosynthetic Reinforced Pond Ash on Improvement of Dynamic Behaviour of Model Machine Foundation- A comparative Study with Sand	2024-25
5	Mr. Sai Karthik, M (1005-21-741306)	Investigation on effectiveness of Partial Replacement of Soil Beneath a Model Machine Foundation by MSM with and without Geocell Reinforcement	2024-25

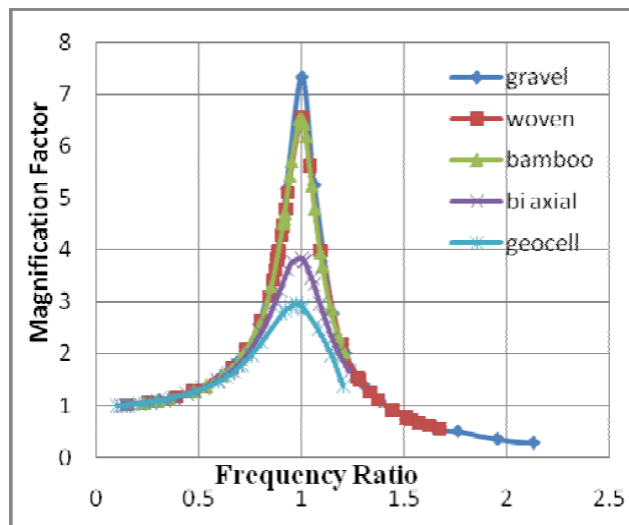


Fig. 9 Research on Block Resonance Tests on Geosynthetic reinforced Test Bed

5. Rain fall Simulator for Embankment Slope Soil Erosion Studies

Procured under : Industry Sponsored Research Project
 Year of Installation : 2016
 Cost in Rs. : 1.00 lakh
 Utilisation :

Description	No. of Project works			
	Completed	On-going*	Proposed	Total
BE Projects	-	-	-	-
ME Dissertations	04	02	01	07
Ph.D. Dissertations	-	-	01	01

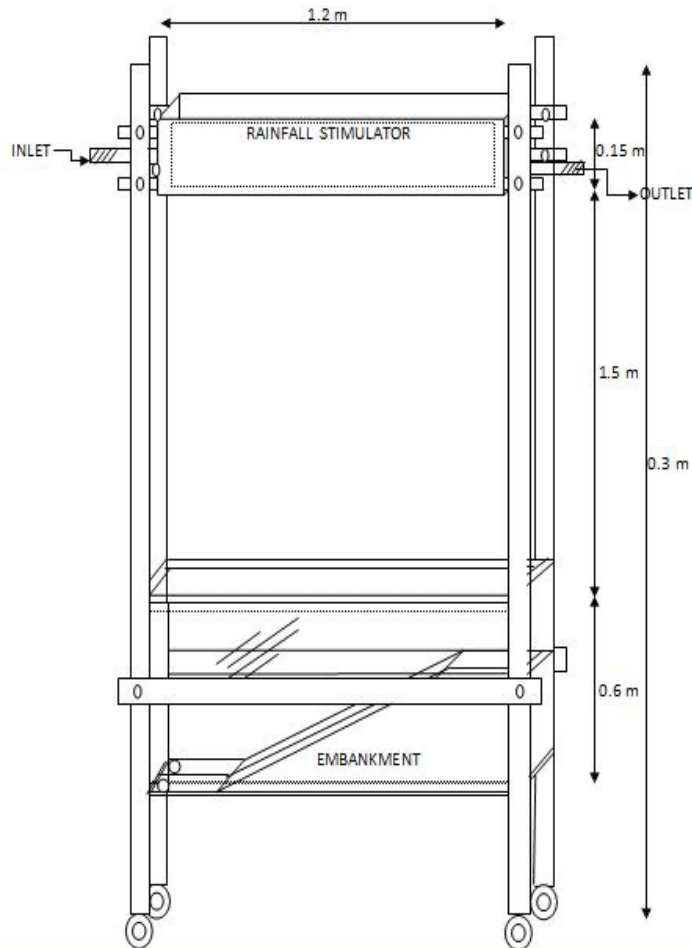


Fig 13 Schematic Diagram



Fig 14 Laboratory setup

6. Modification of Compression Testing Machine

Procured under : TEQIP-III
 Year of Installation : 2017
 Cost in Rs. : 1.00 lakh

Utilisation :

Description	No. of Project works			
	Completed	On-going	Proposed	Total
BE Projects	04	-	-	04
ME Dissertations	11	04	05	20
Ph.D. Dissertations	-	-	02	01

S.No.	Project	Roll No.	Name of the Student	Title	Name of the Supervisor	Year of completion
1	ME	1005-16-741311	Mohamed Adulrazig Abdalla Yagoup	Monotonic and Cyclic response of a model footing resting on Geosynthetic Reinforced Pond Ash Bed	Dr. M.V.S. Sreedhar	2017-18
2	BE	1005-15-732053	Vinay, M	Performance of Shell Foundations under Uplift Loading	Dr. M.V.S. Sreedhar	2018-19
		1005-15-732055	Salman, A.A.J.			
		1005-15-732057	Amir Isak Adan			
		1005-15-732058	Khaja Arfauddin			
		1005-15-732061	Aiman Hasan Md.			
3	ME	1005-17-741307	Kanakati Edukondalu	Effect of submergence on the Uplift capacity of shallow Foundations laid on Clays	Dr. M.V.S. Sreedhar	2018-19
4	ME	1005-18-741304	K.Naresh	Effect of Submergence on the Bearing capacity of Geosynthetic Reinforced Sand	Dr. M.V.S. Sreedhar	In progress (2019-20)
5	ME	1005-18-741308	R.Kalyan Kumar	Effect of width of replacement on the Bearing Capacity of Soft Clay replaced partially by Geosynthetic reinforced Sand	Dr. M.V.S. Sreedhar	In progress (2019-20)
6	ME	1005-18-741309	S.Babu	Study on uplift capacity of shallow foundations in c- ϕ soils	Dr. M.V.S. Sreedhar	In progress (2019-20)
7	ME	1005-18-741310	Ashwini	Investigations on the effect of Geosynthetic reinforcement in improvement of Uplift Capacity of Shallow Foundations	Dr. M.V.S. Sreedhar	In progress (2019-20)
8	BE	Group-2	Group of four BE students	Improvement in bearing capacity of Soft Clay with Geosynthetic Basal Mattress	Dr. M.V.S. Sreedhar	In progress (2019-20)

BEFORE MODIFICATION



Fig. 15 Un-used CTM for CBR Test

AFTER MODIFICATION



Fig. 16 Modification of an un-used CTM in to Load Test Facility under TEQIP-III



Fig. 17 A view of Test bed with instrumentation placed



Fig. 18 A view of the test bed after failure

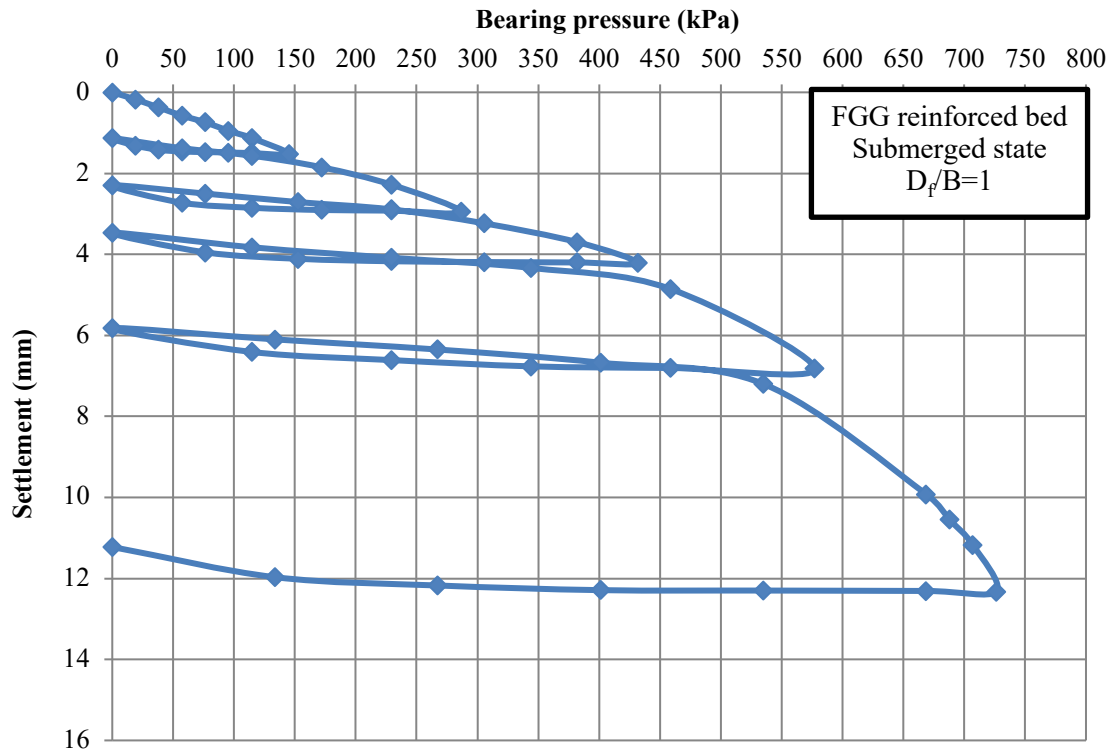


Fig. 19 A plot obtained from model cyclic load test

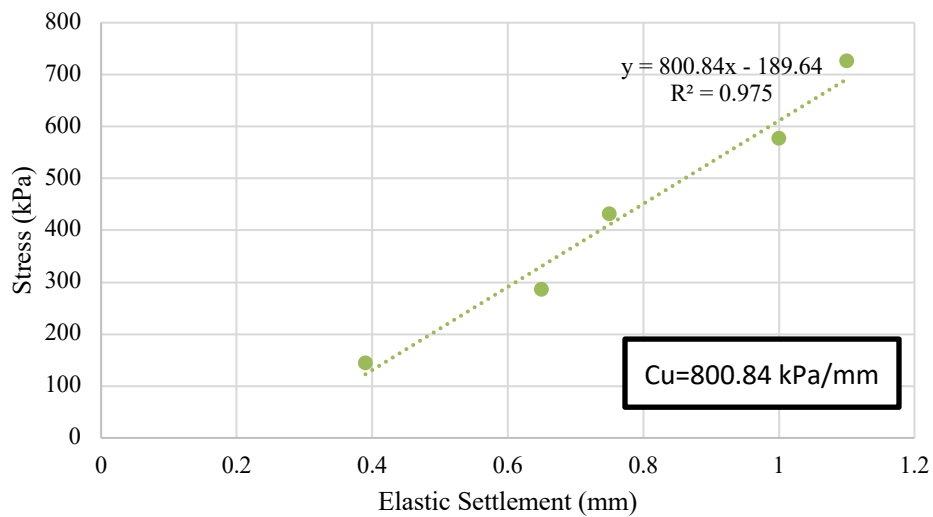


Fig. 20 Plot for determination of dynamic property (C_u)

7. Rock Core Specimen Preparation Equipment

Procured under : TEQIP-III
Year of Installation : 2018-19
Cost in Rs. : 3.50 lakh

Utilisation :

This is a Rock Specimen Preparation Equipment.

Helps in extraction of a specimen from rock mass

Being used for ME-CIVIL-GTE / ME-Mining Rock Mechanics Laboratory Course

Useful in related consultancy works



Fig 21 Rock Specimen Preparation Equipment