BORE TECH SERVICES
SOIL INVESTIGATION & FOUNDATION DESIGNING
Specialised in: ▸ Soil Investigation (Land & Water) ▸ Bridges Boring ▸ Rock Boring
GSTIN: 32BNWPS1509N1ZD PAN NO: BNWPS1509N SAC Code: 998346

SOIL INVESTIGATION REPORT

PROJECT

JalJeevan Mission (JJM)-JalJeevan Mission- 2020-21- CWSS to Agali and adjoining Panchayaths-Phase-II- Providing Distribution network & FHTC’s in AgaliPanchayath.-JalJeevan Mission- 2020-21- CWSS to Agali and adjoining Panchayaths-Phase-II- Providing Distribution network & FHTC’s in AgaliPanchayath.- Pipeline Work.(11 LAKH LTR WATER TANK,PLAMARAM,AGALI,PALAKKAD)

CLIENT

M/S. Superintending Engineer,
Public Health Circle,
Palakkad.

CONTRACTOR

M/s.Hill Track Constructions Pvt.Ltd.,
Nadavayalpo, Wayanad - 670721.

CONSULTANT (FOUNDATION)

Mr.JAYAKRISHNAN MENON, M.TECH.(S.M.F.E.),M.I.G.S.
M/s.TDAC Geotechnical Solutions,
Kochi.

REPORT ON SOIL INVESTIGATION CARRIED OUT FOR PROPOSED JAL JEEVAN MISSION(JJM)-JAL JEEVAN MISSION-2020-21-CWSS TO AGALI AND ADJOINING PANCHAYATH-PHASE-II-PROVIDING DISTRIBUTION NETWORK& AMP; FHTC& RSQUO;S IN AGALI PANCHAYATH.- JAL JEEVAN MISSION-2020-21-CWSS TO AGALI AND ADJOINING PANCHAYATHS-PHASE-II PROVIDING DISTRIBUTION NET WORK& FHTC&RSQUO;S IN AGALI PANCHAYATH.-PIPELINE WORK.(11LAKH LTR WATER TANK,PLAMARAM,AGALI,PALAKKAD).

1. SCOPE OF WORK

The scope of the project envisages sub-surface investigation carried out for the purpose of the design of foundation for the proposed project. The scope of the work also involves executing **Two Bore Holes** with related field tests, collection of disturbed SPT Soil Samples.

2. CODES AND STANDARDS

All works were carried our as per given specification. Where not specified, the latest relevant IS codes were followed.

3. PURPOSE

The purpose of the proposed Geo-Technical Investigation was to obtain the following:-

a. To perform the required field investigation including soil boring with related field tests within the bore hole, collecting samples.

b. To determine the type,extent to the sub-surface material upto **Hard strata .**

4. FIELD WORKS / TESTS

The Field work consists of:-

a. Executing **Two Bore Holes** upto **Hard strata.**

b. Obtaining disturbed soil samples and finding out SPT 'N' values.

5 . PROGRAMME OF INVESTIGATION

Keeping in view of the type of structure and loading pattern **Two Bore Holes** were proposed. The details of the boreholes are attached duly showing the approximate dimensions with respect to the site. (Site Plan).

6. PROCEDURE

The Boreholes were executed using **Rotary Drilling** method. Circulation of bentonite slurry was used for advancing the boreholes and stabilizing the side. Casing pipes were introduced to protect the first few meters. Standard penetration tests were conducted at regular intervals and also at points where change of strata was observed. Representative samples were collected and sent **BH - 2** for laboratory analysis.Foundation recommendation obtained from structural consultant.

7. LABORATORY INVESTIGATION

Laboratory tests consists of the following:-

a) Physical identification of soil

b) Determination of natural water content.

c) Specific Gravity

d) Atterberg's limit (Liquid limit and plastic limit)

e) Mechanical analysis of finding sand, clay and soil fractions.

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TDAC
GEOTECHNICAL
SOLUTIONS

PROJECT/SITE: Proposed 11 Lakh Ltr Water Tank, Plamaram, Agali, Palakkad
CLIENT: The Superintending Engineer, Palakkad
DATE : 07-07-2023

SUB SOIL PROFILE

In **BH-1**, the top 1.90m comprise of medium dense lateritic clayey sand having S.P.T value of 18. From 1.90m to 4.40m medium dense lateritic silty sand/weathered having S.P.T value of 21 to 25 was noted and BH1 was terminated at 4.40m depth. Water table was not met in the borehole during the time of investigation.

In **BH-2**, the top 1.60m comprise of dense lateritic clayey sand with gravel having S.P.T value of 40. Below this dense lateritic silty clayey sand having S.P.T value of 41 extending upto depth of 2.70m. This was followed by medium dense lateritic clayey sand/weathered having S.P.T value of 21 extending upto depth of 3.80m. From 3.80m to 7.20m very dense lateritic silty sand/weathered having S.P.T value of greater than 50 was noted and BH2 was terminated at 7.20m depth. Water table was not met in the borehole during the time of investigation.

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SUMMARY & RECOMMENDATIONS:

For the proposed structures, shallow foundation may be provided in the medium dense lateritic clayey sand with gravel strata at a depth of about 2.00m from the ground level. A safe bearing capacity of 18t/m^2 may be adopted for a footing of minimum width of width 1.0m commencing from the medium dense lateritic clayey sand with gravel strata at a depth of 2.00m from the ground level. Depending upon the intensity of loading wall footing, isolated foundation, strip footing or raft foundation may be adopted.

Recommendations are based on the soil samples and N-value provided by M/s BORETECH SERVICES, and in the assumption that the soil profile found in the boreholes tested is indicative of the entire plot area. Any deviation in soil profile other than those observed in the boreholes tested, should immediately be referred to the consultant and proper modification should be implemented. **The foundation execution is recommended under strict technical supervision.**

JAYAKRISHNAN MENON, M.TECH. (S.M.F.E.),M.I.G.S.
GEOTECHNICALCONSULTANT

TDAC Geotechnical Solutions (P) Ltd.

BORE TECH SERVICES

PROJECT	: Proposed 11 Lakh Ltr Water Tank	1/1	DATE OF COMMENCE : 23-06-2023
SITE	: Plamaram,Agali,Palakkad		DATE OF COMPLETION : 23-06-2023
BORE HOLE NO.	: 1		GROUND WATER LEVEL : Not Met With
TYPE OF BORING	: Rotary Drilling		

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value	Remarks
				Depth (m)	15	30	45	'N' Value	10 20 30 40 50 >50	
0.00		Lateritic clayey silty sand(W/Yellow)	1.90	1.00	6	7	11	18		
1.90		Slightly clayey silty sand-Weathered (W/Yellow)	2.50	2.00	7	10	11	21		
				3.00	10	12	13	25		
4.40				4.40	SPT Rebounded w/o sample					
		Bore Hole Terminated at 4.40m depth								

Site-in-charge

BORE TECH SERVICES

PROJECT	: Proposed 11 Lakh Ltr Water Tank	1/1	DATE OF COMMENCE : 23-06-2023
SITE	: Plamaram,Agali,Palakkad		DATE OF COMPLETION : 23-06-2023
BORE HOLE NO.	: 2		GROUND WATER LEVEL : Not Met With
TYPE OF BORING	: Rotary Drilling		

BORE LOG CHART & DATA SHEET

Depth in Meter	Soil Profile	Visual Description of Soil	Thickness of Layers (M)	Standard Penetration Test Data					Graph of 'N' Value	Remarks
				Depth (m)	15	30	45	'N' Value	10 20 30 40 50 >50	
0.00		Lateritic slightly gravelly clayey silty sand(W/ Yellow)	1.60	1.00	13	18	22	40		
1.60		Lateritic clayey silty sand(G/Yellow)	1.10	2.00	15	20	21	41		
2.70		Slightly gravelly clayey silty sand-Weathered soil(W/G/Yellow)	4.50	3.00	8	10	11	21		
				4.50	>50	-	-	>50		(Bal-32cm)
				6.00	>50	-	-	>50		(Bal-34cm)
7.20		**Bore Hole Terminated at 7.20m depth**		7.20	SPT Rebounded w/o sample					

Site in-charge

GEOMAT
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8592 03 88 99
8593 03 88 99

TEST CERTIFICATE

Report Reference	GML/23/360
Report Issued Date	30 June 2023

Lab Sample Ref.	GMS/23/360
Sample Received Date	26-Jun-2023

Information's given by the Client :

Project Name	Jal Jeevan Mission 2020-21, CWSS to Agali and Adjoining Panchayaths Phase-II, 11 Lakh Litre Water Tank @ Plamaram, Agali, Palakkad.				
Project Client	M/s. Superintending Engineer, Public Health Circle, Palakkad.				
Ground Water Level :	Not met with	Total Depth In Meter	7.20m	Type Of Boring :	Rotary Drilling
Sample Description	One sample of soil	Location	BH-02	Sampling Date	23 June 2023

"N" Value	Depth in m	Sample Number	Type of Sample	Description of soil	Natural water content (%)	IS Classification	Liquid Limit %	Plastic Limit %	Plasticity index	Grain size distribution % of Silt & Clay	Sand	Gravel	Specific gravity	Type Of Test	Cohesion c kg/cm²	Angle of internal friction ø
40	1.00	SPT-1	DS	Slightly Gravelly, Clayey, Silty, SAND (White Yellow) - Laterite Soil	16	SM				34	61	5	2.61			
41	2.00	SPT-2	DS	Clayey, Silty, SAND (Grey Yellow) - Laterite Soil	18	SM	28	24	4	38	62	0				
21	3.00	SPT-3	DS	Slightly Gravelly, Slightly Clayey, Silty, SAND (White Yellow) - Weathered Soil	13	SM				26	72	2	2.62			
>50	4.50	SPT-4	DS	Slightly Gravelly, Slightly Clayey, Silty, SAND (White Yellow) - Weathered Soil	13	SM				24	74	2				
>50	6.00	SPT-5	DS	Slightly Gravelly, Slightly Clayey, Silty, SAND (Golden Yellow) - Weathered Soil	11	SM				18	75	7	2.62			
-	7.20	SPT-REBOUNDED		HARD STRATA/ROCK												

Note :Direct Shear Test is Denoted as **D.S**, DIsturbed Sample is Denoted as **DS** & Non plasticity is.denoted as **N/P**

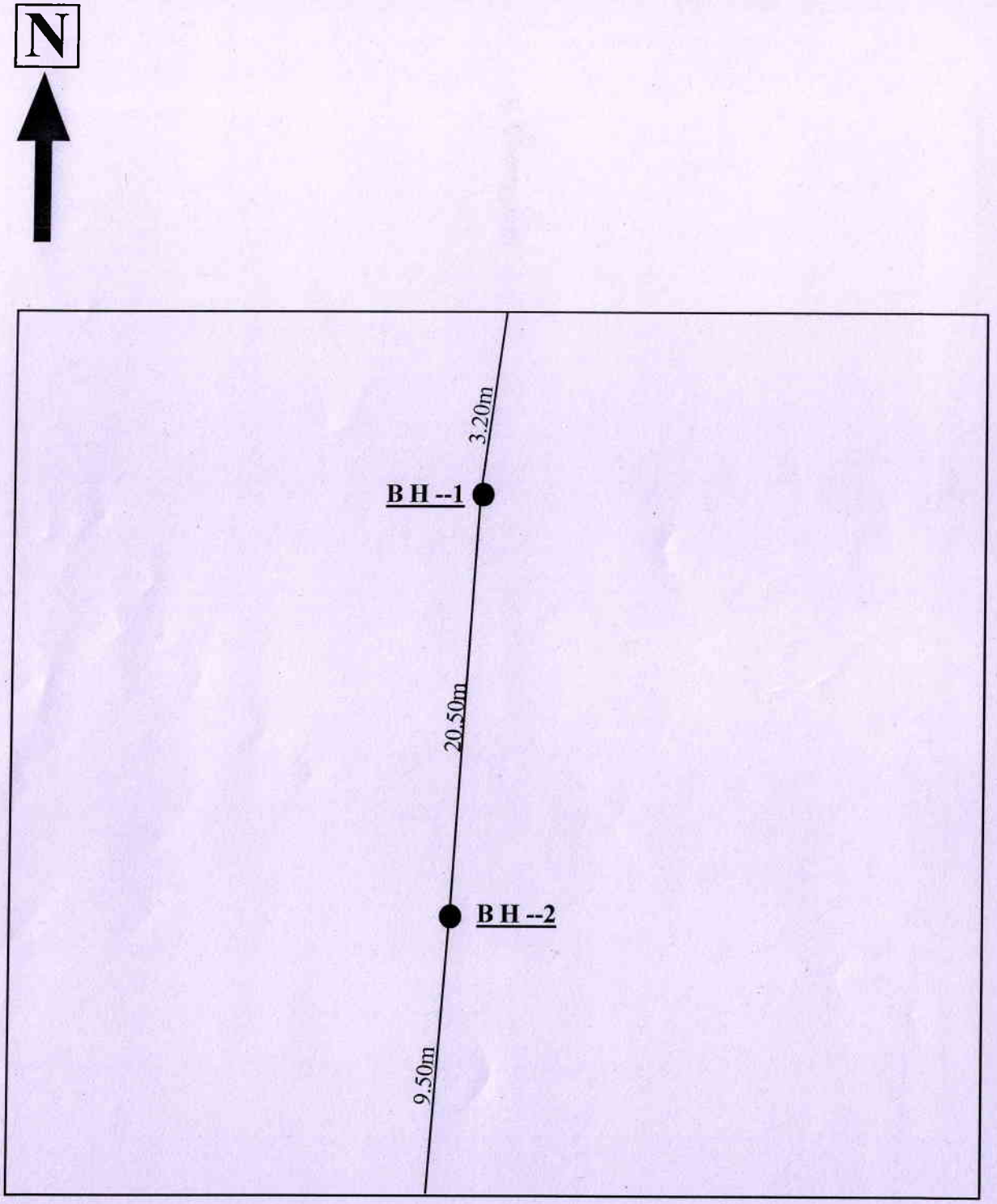
Remarks:- Results relate only to samples tested. This report shall not be reproduced except in full, without the prior written consent of the testing laboratory.

REC-33-Rev.00
Revised on 02/03/2022
Reviewed by QM & Approved by OM

Midhun Geetus (Quality Manager)
For and on behalf of GEOMAT Laboratory

End of Report

BORE HOLE LOCATIONS
PLAMARAM,AGALI,PALAKKAD.



S-1
D-160

(Not To Scale)