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GEO MARINE CONSULTANTS (P) LTD.,

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PROJECT

PROPOSED CONSTRUCTION OF GROUP HOUSING DEVELOPMENT COMPRISING 3 BLOCKS WITH COMBINED BASEMENT FLOOR (BLOCK 1, 2 & 3); BLOCK 1 – COMBINED BASEMENT FLOOR + GROUND FLOOR+ 4 FLOORS (18.30M HEIGHT) RESIDENTIAL BUILDING WITH 59 DWELLING UNITS; BLOCK 2 – COMBINED BASEMENT FLOOR + GROUND FLOOR + 5 FLOORS (18.15M HEIGHT) RESIDENTIAL BUILDING WITH 324 DWELLING UNITS; BLOCK 3 – COMBINED BASEMENT FLOOR + GROUND FLOOR+ 5 FLOORS (18.15M HEIGHT) RESIDENTIAL BUILDING WITH 256 DWELLING UNITS; TOTALLY 639 DWELLING UNITS AND OPEN SWIMMING POOL, KIDS PLAY AREA, INDOOR GAMES ROOM, ASSOCIATION ROOM, GYM, AVAILING PREMIUM FSI AT KOVILANCHERI, CHENNAI COMPRISED IN S.NO.108 OF KOVILANCHERI VILLAGE WITHIN THE LIMITS OF ST.THOMAS MOUNT PANCHAYAT UNION.

CLIENT

M/s. CASAGRAND FRESH PVT. LTD.,
NEW NO. 111, OLD NO. 59,
NPL DEVI, LB ROAD, THIRUVANMIYUR,
CHENNAI – 600 041.

TITLE

GEOTECHNICAL INVESTIGATION REPORT

REPORT NO.: GT- 2597

DATE	REVISON	DESCRIPTION		AUTHORISED SIGNATORY
16/08/2023	0.0	SUBMISSION OF GEOTECHNICAL REPORT	SIGN	
			DATE	16/08/2023
			DESIGNATION	**MANAGING DIRECTOR**
			NAME	**DR. C.V.PRASAD**

GEOMARINE

CONTENTS

For Casagrand Fresh Private Limited

Authorised Signatory

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REPORT TEXT

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CHAPTER-1

INTRODUCTION

1.0 PROJECT INFORMATION MATRIX:

NATURE OF PROJECT	: **NON HIGH RISE GROUP DEVELOPMENT**
STRUCTURE	: **BASEMENT + GROUND + 5 UPPER FLOORS**
PROJECT OWNER	: **M/s. CASAGRAND FRESH PVT. LTD.**
PROJECT LOCATION	: **KOVILANCHERI VILLAGE, CHENGALPATTU**
JOB CODE	: **GT-2597**

1.1 SCOPE OF WORK:

1.1.1 FIELD WORK:

- Conducting twenty soil investigation bore holes of 150 mm diameter in Soil & Overburden. In case of rock formation NX Diameter with Core barrel shall be adopted to progress the drilling up the termination depth.
- Conducting Standard Penetration Test (SPT) within the borehole at:
  - Every 1.0m depth interval up to 6.0m depth
  - After 6.0m depth, every 1.5m depth interval up to the termination depth
- The depth of investigation varies from 7.5m to 10.0m below the existing ground level
- Collection of disturbed soil samples at SPT location and undisturbed samples from the clayey strata with SPT-value greater than 2 to less than 15 if met within the investigation depth
- Collection of water samples if groundwater table met within the investigation depth

1.1.2 LABORATORY WORK:

- Natural Moisture Content
- Atterberg's limits
- Grain Size Analysis
- Consolidation test on undisturbed samples if applicable
- Chemical Analysis test on soil and water samples to give pH, Chlorides and Sulphates

1.2 STRUCTURE OF THE REPORT:

- Contents
- Introduction
- Investigation Methodology & Test Results
- Sub-Surface Stratification
- Foundation System
- Recommendation
- Annexure

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CHAPTER-2

INVESTIGATION METHODOLOGY & TEST RESULTS

2.0 PREAMBLE:

Twenty soil investigation boreholes were put as per the planning of the engineer in-charge and these locations are shown in Fig.2.0. The equipment used and the methodology adopted to carry out the fieldwork is described below.

2.1 METHODOLOGY OF FIELD WORK:

2.1.1 EQUIPMENT USED AND METHOD OF DRILLING:

All the boreholes were sunk by conventional rotary drilling rigs. For borehole Methodology followed for boring conformed to IS: 1892 -2000. Boring was progressed by the cutting action of rotating bit with water circulation and stabilizing the side of the boreholes by using casing pipes/bentonite slurry up to required depth to prevent collapse of sidewall. Boring was continued by normal boring process using MS soil cutter in soil. However Tungsten Carbide (TC) bit drilling was resorted to drill in highly weathered rock stratum where the normal boring process became slow. Diamond Core (DC) bit drilling was adopted in moderately weathered rock formations where penetration using TC bit was became slow.

2.1.2 STANDARD PENETRATION TESTS:

This is a field test to determine "Penetration Resistance of Stratum at the Test Depth". This has been conducted in the boreholes generally up to refusal depth using procedures described in IS: 2131- 2002. In this test, split spoon sampler (50.8 mm OD and 35 mm ID) has replaced driving bit. Sampler is then driven by dropping 63.5 kg hammer on top of driving collar with free fall of 75 cm. The length of sampler is 60 cm.

The tests were conducted at the depth intervals indicated in Chapter-1 (Sec.1.1.1).

2.1.3 COLLECTION OF SOIL SAMPLES:

2.1.3.1 DISTURBED SAMPLES:

The SPT-samples collected were used as disturbed soil samples. These samples were used for visual and physical identification and for conducting laboratory classification tests as per I.S.1498-1970.

2.1.3.2 UNDISTURBED SAMPLES:

From the soft to stiff clay layer, representative undisturbed samples were collected. These samples were used primarily to establish the compressibility parameters to estimate the settlements of shallow foundation system wherever applicable.

2.1.4 COLLECTION OF GROUND WATER SAMPLES:

One representative water sample from each borehole was collected after 24 hours of completing the borehole if water table met within the investigated depth.

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NOTE ON GROUNDWATER TABLE RECORD:

- Groundwater table observation in geotechnical report is predominantly to arrive at foundation design criteria and shall not be construed as design guidelines for the design of dewatering systems
- The groundwater level indicated in the bore logs is specific to the duration of investigation and intensity of the monsoon rains during the time of investigation. Hence, the level shall be taken as guidelines only to plan the investigation for the dewatering system
- No foundation excavation or basement excavations if anticipated within the groundwater table zone shall be carried out without implementing groundwater lowering schemes

2.2 LABORATORY TESTING:

2.2.1 ON COARSE GRAINED SOIL:

On the representative samples, sieve analysis tests were conducted to arrive at grain size distribution. These tests were conducted as per I.S.2720 (part 4)-1985 and the results are presented in Tables-2.1 to 2.20. The graphical representation of grainsize distribution curve for the representative samples in each bore is presented in Fig 2.25 to 2.44.

2.2.2 ON FINE GRAINED SOIL:

On the SPT sample index property tests were conducted to estimate consistency. These test results are presented in Tables-2.1 to 2.20. The graphical representation of hydrometer analyses curve for the representative samples in each bore is presented in Fig.2.45 to 2.61.

2.2.3 CHEMICAL ANALYSIS TESTS:

On representative soil and water samples chemical analysis tests were conducted to estimate pH, Chloride and Sulphates and these results are presented in Table – 2.21 & 2.22.

2.3 SUMMARY:

The locations of the field investigation boreholes are shown in site plan given in Fig.2.0. The average sub soil profiles encountered at each location along with their classification and engineering properties are presented in Figs.2.1 to 2.20.

Further, the cross-sectional variation of the sub surface profile through different bore holes in vertical and horizontal direction longitudinally or transversely are presented in Figs.2.21 to 2.24.

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SITE PLAN

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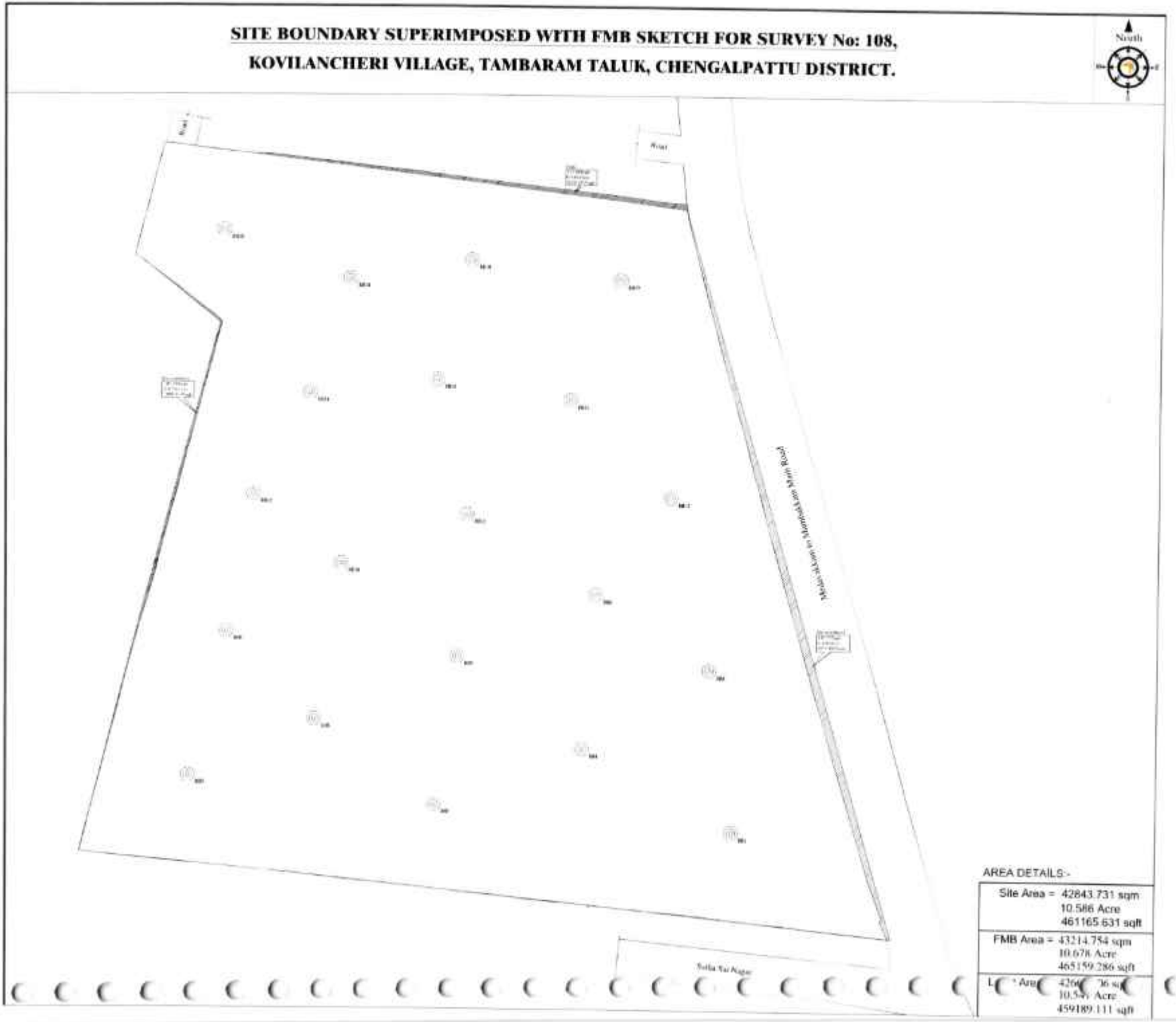
SITE BOUNDARY SUPERIMPOSED WITH FMB SKETCH FOR SURVEY No: 108, KOVILANCHERI VILLAGE, TAMBARAM TALUK, CHENGALPATTU DISTRICT.



AREA DETAILS:-

Site Area =	42843.731 sqm 10.586 Acre 461165.631 sqft
FMB Area =	43214.754 sqm 10.678 Acre 465159.286 sqft
L... Area	426[illegible] 36 sqm 10.54[illegible] Acre 459189.111 sqft

SOIL PROFILES

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-01						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm ✓ / NX ✓		
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	11/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	11/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	11/07/2023	09	15	SC	-	-	10	20	36	56	0.50	1	SS	-0.5				Brown Grey,Moist,Hard,Fine Sands, **Sandy Silty CLAY (CL)** Sandy Silty Clay of Low Plasticity
		To									0.95							
		09	19															
		09	24	SC	-	-												
1		To					15	27	47	74	1.25	2	SS	-1.3		L1	1.25	
		09	30								1.70							
		09	38	SC	-	-												
		To																
2		09	44				17	31	57	88	2.00	3	SS	-2.0				Brown Grey to Offwhite Grey,Moist,Fine & Medium Grains Sand Size Particles,Very Dense, **Residual Soil to Completely Weathered Rock - Graded W5 Rock Formation** Disintegrated Hypersthene Granitic Rock Formation
		09	49								2.45							
		To		SC	-	-												
		09	56															
3							14	29	61	90	3.00	4	SS	-3.0				
		10	05								3.45							
		To		SC	-	-												
		10	25															
4							20	23Cm Penet for 72 Blows		>100	4.00	5	SS	-4.0		L2	4.0	
		10	32								4.38							
		To		SC	-	-												
		10	46															
5							2Cm Penet for 52 Blows			>100	5.00	6	SS	-5.0				
		11	05								5.02							
		To		TCB	0	0												
		12	30															
6							SPT Hammer Rebounded			>100	6.00	-	WS	-6.0				
		13	42															
		To		TCB	0	0												
		14	56															
7																		Brown Grey to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
							SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				
		15	10															
		To		TCB	0	0												
8		16	22															
9							SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
		16	42															
		To		TCB	0	0												
		17	50															
10							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L3	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS		REMARKS	
SS - Split Spoon Sample	SC - Soil Cutter	DATE	11/07/2023	GROUND LEVEL (m)	0.00		
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	V.Aravindhan	WATER TABLE (m)	1.70		
WS - Wash Sample	DB - Diamond Bit	DATE	12/07/2023	CASING DEPTH (m)	0.00		

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.1 Sub Soil Profile at BH-01 Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-03				
SHEET	1	OF	1		
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES N	-
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite	CO-ORDINATES E	-
				BORE START DATE	03/07/2023
				BORE END DATE	04/07/2023
				TOTAL DRILL DAYS	2

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0		15	24															
		To		SC	-	-												
		15	32				28	48	74	122	0.50	1	SS	-0.5				
		15	36								0.95							
1		To		SC	-	-												
		15	48				15	33	56	89	1.25	2	SS	-1.3				Grey Brown,Moist,Poorly Graded,Fine & Medium Grains Sands With Gravels, Very Dense,**Silty SAND (SM) With Binder & Clayey Silty SAND (SC)** Observed Disintegrated Rock Texture Partially
		15	54								1.70							
		To		SC	-	-												
2		16	00				13	21	48	69	2.00	3	SS	-2.0				
		16	13								2.45							
		To		SC	-	-												
		16	19															
3	03/07/2023						9	21	36	57	3.00	4	SS	-3.0		L1	3.0	
		09	24								3.45							
		To		SC	-	-												
		09	29															
4		09	52				11	25	49	74	4.00	5	SS	-4.0				Offwhite Brown,Yellow & Brown Shades,Moist,Fine to Coarse Grains Sands With Gravels,Very Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		To		SC	-	-					4.45							
		09	55															
5		10	12				27	Hammer Rebound		>100	5.00	6	SS	-5.0		L2	5.4	
		To		TCB	0	0					5.15							
		10	48															
6							SPT Hammer Rebounded			>100	6.00	-	WS	-6.0				
		11	00															
		To		TCB	0	0												
7	04/07/2023	11	53															
							SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				
		12	00															Brown Grey to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		To		TCB	0	0												
8		12	36															
							SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
		12	44															
		To		TCB	0	0												
9		13	26															
							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L3	10.5	
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	03/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 1.60	
WS - Wash Sample	DB - Diamond Bit	DATE	05/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.3 Sub Soil Profile at BH-03 Location

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SITE INVESTIGATION RECORD

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BORE HOLE No.	BH-02						
SHEET	1	OF	1				
DIA OF BORE HOLE	150mm	✓					
	NX	✓					
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING						
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE START DATE	08/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	08/07/2023
JOB CODE	GT-2587	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr	Time: Min	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
1	08/07/2023	09	50	SC	-	-	10	24	44	68	0.50	1	SS	-0.5				
		To									0.95							
		09	56															
		10	09															
		To		SC	-	-	15	29	38	67	1.25	2	SS	-1.3				Brown Grey,Moist,Poorly Graded,Fine & Medium Grains Sands,Very Dense, **Clayey Silty SAND (SC)**
		10	15															
		10	22								1.70							Observed Disintegrated Rock Texture Partially
		To		SC	-	-												
2		10	28				14	35	74	109	2.00	3	SS	-2.0				
		10	36															
		To		SC	-	-					2.45							
		10	44															
3		10	58				9	38	83	121	3.00	4	SS	-3.0		L1	3.0	
		To		SC	-	-					3.45							
		11	10															
4		11	28				15	40	72	112	4.00	5	SS	-4.0				Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels Mixture,Very Dense,**Completely Weathred Rock - Grade W5 Rock Formation**
		To		SC	-	-					4.45							
		11	34															Weathered Hypersthene Granitic Rock Formation
		11	43				9Cm Penet for 52 Blows			>100	5.00	6	SS	-5.0				
5		To		SC	-	-					5.09							
		12	02															
		12	28				13Cm Penet for 78 Blows			>100	6.00	7	SS	-6.0				
6		To		TCB	0	0					6.13							
		13	47															
		15	06				SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				
7		To		TCB	0	0												Brown Grey to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation**
		16	29															
		16	41				SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				Weathered Hypersthene Granitic Rock
8		To		TCB	0	0												
		17	38															
							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L3	10.5	
9																		
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	08/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	S.Tysonraj	WATER TABLE (m) 1.52	
WS - Wash Sample	DB - Diamond Bit	DATE	10/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.2 Sub Soil Profile at BH-02 Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-04						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm ✓ NX ✓		
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	10/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	10/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	10/07/2023	09	10	SC	-	-												
		To																
		09	14				9	11	16	27	0.50	1	SS	-0.5				Brown Grey,Moist,Poorly Graded,Fine & Medium Grains Sands,Medium Dense. **Silty SAND (SM)**
		09	23								0.95					L1	1.25	
1		To		SC	-	-												
		09	27				8	20	32	52	1.25	2	SS	-1.3				Brown Grey,Offwhite Grey,Moist,Poorly Graded,Fine to Coarse Sand With Gravels,Very Dense.**Clayey Silty SAND (SC)** Disintegrated Hypersthene Rock Texture Partially
		09	36								1.70							
		To		SC	-	-												
2		09	47				11	26	41	67	2.00	3	SS	-2.0				
		10	04								2.45					L2	3.0	
		To		SC	-	-												
		10	13				23	17Cm Penet for 71 Blows		>100	3.00	4	SS	-3.0				Brown Grey,Moist,Fine to Coarse Grains Sand Size Particles,Traces of Gravels,Very Dense,**Residual Soil & Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated & Weathered Hypersthene Granitic Rock
3		10	24								3.32							
		To		SC	-	-												
		10	40				34	67	SPTHammer Rebound	>100	4.00	5	SS	-4.0				
4		10	49								4.30							
		To		SC	-	-												
		10	58				13Cm Penete for 58Blows			>100	5.00	6	SS	-5.0				
5		11	18								5.13					L3	5.0	
		To		TCB	0	0												
		12	48				SPT Hammer Rebounded			>100	6.00	-	WS	-6.0				
6		14	07															
		To		TCB	0	0												
7		15	14				SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		15	21															
		To		TCB	0	0												
8		16	36															
		16	42				SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
		To		TCB	0	0												
9		17	24															
10							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	10/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	V.Aravindhan	WATER TABLE (m) 2.20	
WS - Wash Sample	DB - Diamond Bit	DATE	12/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.4 Sub Soil Profile at BH-04 Location

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SITE INVESTIGATION RECORD

BORE HOLE No.	BH-05						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm	✓	
					NX	✓	
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE START DATE	04/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	04/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R Q D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0	04/07/2023	14	26	SC	-	-												
		To																
		14	31															
		14	36	SC	-	-												
1		To					8	23	37	60	0.50	1	SS	-0.5				Grey,Moist,Fine & Medium Grains Sands Mix,Hard,**Sandy Silty CLAY (CL)** Sandy Silty Clay of Low Plasticity
		14	41								0.95							
		14	49	SC	-	-	9	19	30	49	1.25	2	SS	-1.3		L1	1.25	
		To									1.70							
		14	54															
2		15	00	SC	-	-	7	19	32	51	2.00	3	SS	-2.0				Grey Brown to Offwhite Brown,Moist, Poorly Graded,Fine & Meduim Grains, **Clayey Silty SAND (SC) & Silty SAND (SM) With Binder** Disintegrated Hypersthene Rock Texture Partially
		To									2.45							
		15	06															
3		15	14				22	63	92	155	3.00	4	SS	-3.0		L2	3.0	
		To		SC	-	-					3.45							
		15	20															
4		15	29				17	46	89	135	4.00	5	SS	-4.0				
		To		SC	-	-					4.45							
		15	35															
5		15	51				21	51	Hammer Rebound	>100	5.00	6	SS	-5.0				Brown Grey,Moist,Fine to Coarse Grain Sand Size Particles,Very Dense, **Residual Soil - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		To									5.30							
		15	58	SC	-	-												
6		16	02				33	Hammer Rebound		>100	6.00	7	SS	-6.0		L3	6.6	
		To		TCB	0	0												
		16	34															
7							SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				
		16	41															
8		To		TCB	0	0												No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		17	08															
9							SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
		17	13															
		To		TCB	0	0												
10		17	48															
							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	04/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 2.30	
WS - Wash Sample	DB - Diamond Bit	DATE	05/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.5 Sub Soil Profile at BH-05 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-06
SHEET	1 OF 1
DIA OF BORE HOLE	150mm ✓ / NX ✓
BORE START DATE	12/07/2023
BORE END DATE	13/07/2023
TOTAL DRILL DAYS	2

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING						
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-		
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -		
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -		

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Mn.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm: 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No.	Depth	Geotechnical Description
0	12/07/2023	09	24	SC	-	-												
		To																
		09	38				4	6	12	18	0.50	1	SS	-0.5				Grey,Moist,Poorly Graded,Fine & Medium Grains Sands,Medium Dense. **Silty SAND (SM)**
		09	44								0.95							
1		To		SC	-	-										L1	1.25	
		09	52				10	19	26	45	1.25	2	SS	-1.3				
		09	59								1.70							Brown,Offwhite & Grey Brown,Moist, Fine & Medium Grains Sands With Gravels,Dense & Very Dense. **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		To		SC	-	-												
2		10	12				15	24	42	66	2.00	3	SS	-2.0				
		10	18								2.45							
		To		SC	-	-												
		10	26													L2	3.0	
3							12Cm Penet for 58 Blows			>100	3.00	4	SS	-3.0				
		10	38								3.12							
		To		SC	-	-												
		11	52															
4							SPT Hammer Rebounded			>100	4.00	-	WS	-4.0				
		13	08															
		To		TCB	0	0												
		15	15															
5							SPT Hammer Rebounded			>100	5.00	-	WS	-5.0				
		15	23															
		To		TCB	0	0												
		17	48															
6							SPT Hammer Rebounded			>100	6.00	-	WS	-6.0				
		09	11															
		To		TCB	0	0												Grey Brown,Moist,Fine to Coarse Sand Size Particles,Gravels Traces,Very Dense.**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		10	34															
7							SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				
	13/07/2023	10	49															
		To		TCB	0	0												
		11	52															
8																		
9							SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
		12	06															
		To		TCB	0	0												
		13	22															
10							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L3	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	13/07/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m)	1.35	
WS - Wash Sample	DB - Diamond Bit	DATE	14/07/2023	CASING DEPTH (m)	0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.6 Sub Soil Profile at BH-06 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-07						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING					DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE START DATE	07/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	07/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0	07/07/2023	09	36															
		To																
		09	40	SC	-	-	4	8	13	21	0.50	1	SS	-0.5				Brown Grey,Moist,Fine Grain Sand Mix, Very Stiff,**Sandy Silty CLAY (CH)** Clays of High Plasticity
		09	48								0.95							
		To																
1		09	50	SC	-	-	5	12	21	33	1.25	2	SS	-1.3		L1	1.25	
		09	56								1.70							
		To																
		10	02	SC	-	-	8	14	26	40	2.00	3	SS	-2.0				Brown Grey,Grey to Black,Moist,Poorly Graded,Fine to Coarse Grain Sands,Dense,**Clayey Silty SAND (SC)** Disintegrated Hypersthene Rock Texture Partially
2		10	09								2.45							
		To																
		10	16	SC	-	-												
		10	28				23	50	SPT Hammer Rebounded	>100	3.00	4	SS	-3.0		L2	3.0	
3		To									3.30							
		10	36	SC	-	-												Grey Brown,Moist, Fine & Medium Grains Sands With Gravels,Very Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		To																
4		10	58				5Cm Penet for 62 Blows			>100	4.00	5	SS	-4.0		L3	4.0	
		To									4.06							
		11	02	TCB	0	0												
		11	22				SPT Hammer Rebounded			>100	5.00	-	WS	-5.0				
5		To																
		12	52	TCB	0	0												
		14	17				SPT Hammer Rebounded			>100	6.00	-	WS	-6.0				
6		To																
		15	46	TCB	0	0												
		16	00				SPT Hammer Rebounded			>100	7.50	-	WS	-7.5				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
7		To																
		17	16	TCB	0	0												
		17	22				SPT Hammer Rebounded			>100	9.00	-	WS	-9.0				
8		To																
		18	17	TCB	0	0												
9																		
10							SPT Hammer Rebounded			>100	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	07/07/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	S.Tysonraj	WATER TABLE (m)	1.25	
WS - Wash Sample	DB - Diamond Bit	DATE	10/07/2023	CASING DEPTH (m)	0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.7 Sub Soil Profile at BH-07 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-08		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm	✓	
	NX	✓	

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING					BORE START DATE	01/07/2023
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE END DATE	03/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	TOTAL DRILL DAYS	2
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -		

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No.	Depth	Geotechnical Description
0	01/07/2023	15	03	SC	-	-												
		To																
		15	13				6	11	19	30	0.50	1	SS	-0.5				Red,Brown & Offwhite,Moist,Fine Grain Sands,Very Stiff,**Silty CLAY (CL) & (CI)** Lean Clay of Medium & Low Plasticity
		15	20								0.95							
1		To		SC	-	-												
		15	25				3	6	11	17	1.25	2	SS	-1.3				
		15	32								1.70							
		To		SC	-	-										L1	2.0	
2		15	38				8	16	22	38	2.00	3	SS	-2.0				Grey Brown,Moist,Poorly Graded,Fine to Coarse Grains Sand,Traces of Gravels,Dense,**Clayey Silty SAND (SC)** Disintegrated Hypersthene Rock Texture Partially
		15	48								2.45							
		To		SC	-	-												
		15	55													L2	3.0	
3							27	69	Hammer Rebound	>100	3.00	4	SS	-3.0				Grey Brown,Moist, Fine & Medium Grains Sands With Gravels,Very Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		16	09								3.30							
		To		SC	-	-												
		17	00													L3	4.0	
4							7Cm Penete for 55Blows			>100	4.00	5	SS	-4.0				
		08	50								4.07							
		To		TCB	0	0												
		09	42				-	-	-	-	5.00	-	WS	-5.0				
5		09	54															
		To		TCB	0	0												
		10	33															
6							-	-	-	-	6.00	-	WS	-6.0				
		10	44															
		To		TCB	0	0												
		11	20															No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
7	03/07/2023						-	-	-	-	7.50	-	WS	-7.5				
		11	36															
		To		TCB	0	0												
		12	17															
8																		
							-	-	-	-	9.00	-	WS	-9.0				
9																		
		12	22															
		To		TCB	0	0												
		13	07															
10							-	-	-	-	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	03/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 2.50	
WS - Wash Sample	DB - Diamond Bit	DATE	04/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.8 Sub Soil Profile at BH-08 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-09		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	13/07/2023		
BORE END DATE	14/07/2023		
TOTAL DRILL DAYS	2		

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING				
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GT-2587	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	13/07/2023	14	46	SC	-	-												
		To																
		14	53				8	9	32	41	0.50	1	SS	-0.5				Grey,Moist,Poorly Graced,Fine & Medium Grains Sands,Dense, **Silty SAND (SM) With Binder**
		15	02								0.95							
1		To		SC	-	-												
		15	09				12	22	31	53	1.25	2	SS	-1.3		L1	1.25	
		15	14								1.70							
		To		SC	-	-												
2		15	21				11	23	39	62	2.00	3	SS	-2.0				Grey,Brown & Yellow Shades,Moist, Fine to Coarse Grain Sand Size Particles,Very Dense,**Residual Soil to Completely Weathered Rock - Grade W5 Rock formation** Disintegrated Hypersthene Granitic Rock Formation
		15	26								2.45							
		To		SC	-	-												
		15	35															
3		15	43				30m Penet for 60 Blows			>100	3.00	4	SS	-3.0				
		To		TCB	0	0					3.03							
		16	57													L2	3.6	
4		17	08				SPT-Hammer Rebound			>100	4.00	-	WS	-4.0				
		To		TCB	0	0												
		18	19															
5		09	12				SPT-Hammer Rebound			>100	5.00	-	WS	-5.0				
		To		TCB	0	0												
		10	36															
6		10	47				SPT-Hammer Rebound			>100	6.00	-	WS	-6.0				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		To		TCB	0	0												
		12	06															
7	14/07/2023																	
		12	24				SPT-Hammer Rebound			>100	7.50	-	WS	-7.5				
		To		TCB	0	0												
8		14	46															
		15	06				SPT-Hammer Rebound			>100	9.00	-	WS	-9.0		L3	9.0	
		To		TCB	15	7												
9		16	40															
							SPT-Hammer Rebound			>100	10.50	5	CS	-10.5		L4	10.5	Brown,Brown Grey,Medium to Coarse Grain Structure,Highly Fractured & Disintegrated @ Parts,**Highly to Moderately Weathered Rock - Grade W4 & W3 Rock Formation** Hypersthene Granitic Rock
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	14/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	S.Tysonraj	WATER TABLE (m) 1.60	
WS - Wash Sample	DB - Diamond Bit	DATE	15/07/223	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.9 Sub Soil Profile at BH-09 Location

For Casagrand Fresh Private Limited

Authorised Signatory

SITE INVESTIGATION RECORD

GEOMARINE — THE SPIRIT OF ENGINEERING

BORE HOLE No.	BH-10						
SHEET	1	OF	1				
DIA OF BORE HOLE	150mm	✓					
	NX						
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING						
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	05/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	05/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	05/07/2023	09	57	SC	-	-												
		To																
		10	03															
		10	09	SC	-	-	6	18	27	45	0.50 / 0.95	1	SS	-0.5				Grey,Offwhite Shades,Moist,Fine & Medium Grains Sands,Hard,**Sandy Silty CLAY (Cl)**
		To																
		10	13															
		10	20	SC	-	-	8	16	28	44	1.25 / 1.70	2	SS	-1.3				
		To																
		10	24															
		10	31	SC	-	-	9	20	32	52	2.00 / 2.45	3	SS	-2.0		L1	2.0	Grey,Offwhite,Moist,Poorly Graded,Fine to Coarse Grain Sands, Very Dense, **Silty SAND (SM) With Binder** Disintegrated Hypersthene Rock Texture Partially
		To																
		10	38															
		10	41	SC	-	-	11	31	56	87	3.00 / 3.45	4	SS	-3.0		L2	3.0	Grey,Offwhite & Brown Shades,Moist, Fine to Coarse Grain Sand Size Particles,Very Dense,**Residual Soil to Completely Weathered Rock - Grade W5 Rock formation** Disintegrated Hypersthene Granitic Rock
		To																
		10	53															
		11	07	SC	-	-	50	3Cm Penet for 55Blows		>100	4.00 / 4.18	5	SS	-4.0		L3	4.0	
		To																
		11	14															
		11	32	SC	-	-	64	3Cm Penet for 54Blows		>100	5.00 / 5.18	6	SS	-5.0				
		To																
		11	40															
		11	44				15Cm Penet for 59 Blows			>100	6.00 / 6.15	7	SS	-6.0				
		To		TCB	0	0												Brown Grey to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		12	28															
		12	36				SPT-Hammer Rebound			>100	7.50	-	WS	-7.5				
		To		TCB	0	0												
		13	09															
		14	06				SPT-Hammer Rebound			>100	9.00	-	WS	-9.0				
		To		TCB	0	0												
		14	32															
							SPT-Hammer Rebound			>100	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	05/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 1.60	
WS - Wash Sample	DB - Diamond Bit	DATE	06/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.10 Sub Soil Profile at BH-10 Location

For Geogreen Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-11						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm ✓ / NX		
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE START DATE	06/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	06/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R Q D %	SPT Details: Blows/cm 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	06/07/2023	09	11	SC	-	-												
		To																
		09	14				18	30	38	68	0.50	1	SS	-0.5				
		09	22								0.95							
1		To		SC	-	-												Brown Grey,Fine & Medium Grains Sands With Coarse Grain Sand Traces,Very Dense,**Clayey Silty SAND (SC) & Silty SAND (SM) With Binder**
		09	26				12	22	36	58	1.25	2	SS	-1.3				
		09	33								1.70							
		To		SC	-	-												
2		09	36				11	22	28	50	2.00	3	SS	-2.0		L1	2.0	
		09	43								2.45							
		To		SC	-	-												
		09	48															Grey Brown,Moist, Fine & Medium Grains Sands With Gravels,Very Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
3		10	00				6	18	54	72	3.00	4	SS	-3.0				
		To		SC	-	-					3.45							
		10	06															
4		10	21				22	72	Hammer Rebound	>100	4.00	5	SS	-4.0		L2	4.0	
		To		SC	-	-					4.30							
		10	29															
5		10	40				21	Hammer Rebound		>100	5.00	6	SS	-5.0				
		To		SC	-	-					5.15							
		10	48															
6							13Cm Penet for 53 Blows			>100	6.00	7	SS	-6.0				
											6.13							
		11	00															
		To		TCB	0	0												
7		12	10															Brown Grey to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
							SPT-Hammer Rebound			>100	7.50	-	WS	-7.5				
		12	38															
		To		TCB	0	0												
8		12	42															
9							SPT-Hammer Rebound			>100	9.00	-	WS	-9.0				
		15	06															
		To		TCB	0	0												
10		16	22															
							SPT-Hammer Rebound			>100	10.50	-	WS	-10.5		L3	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Susil	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	06/07/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m)	1.55	
WS - Wash Sample	DB - Diamond Bit	DATE	07/07/2023	CASING DEPTH (m)	0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.11 Sub Soil Profile at BH-11 Location

for Sasagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-12						
SHEET	1	OF	1				
DIA OF BORE HOLE	150mm ✓	NX					
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING						
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-	BORE START DATE	30/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	01/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	2

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0	30/06/2023	15	46	SC	-	-												
		To																
		15	50				4	12	21	33	0.50	1	SS	-0.5				Red,Brown Red,Moist,Fine & Medium Grains Sands,Hard,**Sandy Silty CLAY (CL)** Sandy Silty Clay of Low Plasticity
		15	56								0.95							
1		To		SC	-	-										L1	1.3	
		16	02				7	17	34	51	1.25	2	SS	-1.3				
		16	07								1.70							Brown,Offwhite,Moist,Poorly Graded, Fine & Medium Grains Sands With Coarse Sand,Very Dense,**Clayey Silty SAND (SC)**
		To		SC	-	-												
2		16	14				14	37	34	71	2.00	3	SS	-2.0		L2	2.0	
		16	17								2.45							
		To		SC	-	-												
		16	23															
3		16	29				6Cm Penete for 55Blows			>100	3.00	4	SS	-3.0				
		To		SC	-	-					3.06							Grey Brown,Moist, Fine & Medium Grains Sands With Gravels,Very Dense. **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		16	35															
4		16	42				21	7Cm Penet for 58Blows		>100	4.00	5	SS	-4.0				
		To		SC	-	-					4.22							
		16	50													L3	5.0	
5		09	00				SPT-Hammer Rebound			>100	5.00	-	WS	-5.0				
		To		TCB	0	0												
		09	53				-	-	-	-	6.00	-	WS	-6.0				
6		10	07															
		To		TCB	0	0												
7		10	58															
							-	-	-	-	7.50	-	WS	-7.5				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		11	09															
8		To		TCB	0	0												
		11	52															
							-	-	-	-	9.00	-	WS	-9.0				
9		12	10															
		To		TCB	0	0												
10		12	56															
							-	-	-	-	10.50	-	WS	-10.5		L4	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	01/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 2.00	
WS - Wash Sample	DB - Diamond Bit	DATE	04/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.12 Sub Soil Profile at BH-12 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-13						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING					DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	14/07/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	15/07/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	2

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr	Time: Min	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	14/07/2023	17	08	SC	-	-												
		To 17	12				17	43	69	112	0.50	1	SS	-0.5				Grey,Moist,Poorly Graded,Fine & Medium Grains Sand,Very Dense, **Clayey Silty SAND (SC)**
		17	16								0.95							
1		To 17	21	SC	-	-	40	Hammer Rebound		>100	1.25	2	SS	-1.3		L1	1.25	
		17	25								1.40							
		To 17	29	SC	-	-												
2		17	34				12Cm Penet for 70 Blows			>100	2.00	3	SS	-2.0				
		To 17	39	SC	-	-					2.12							
3		09	09				5Cm Penet for 55 Blows			>100	3.00	4	SS	-3.0				
		To 09	48	TCB	0	0					3.05							
4		10	00				SPT-Hammer Rebound			>100	4.00	-	WS	-4.0				Grey Brown to Yellow Brown,Moist, Fine to Coarse Grain Sand Size Particles With Gravels Traces,Very Dense, **Residual Soil & Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated & Weathered Hypersthene Granitic Rock
		To 10	56	TCB	0	0												
5		11	12				SPT-Hammer Rebound			>100	5.00	-	WS	-5.0				
		To 12	07	TCB	0	0												
6	15/07/2023	12	18				SPT-Hammer Rebound			>100	6.00	-	WS	-6.0				
		To 12	36	TCB	0	0												
7		14	42				SPT-Hammer Rebound			>100	7.50	-	WS	-7.5		L2	7.5	
		To 16	02	TCB	23	6												
8							-	-	-	-	9.00	4	CS	-9.0				Brown Grey,Grey,Medium to Coarse Grain Structure,Highly Fractured & Weathered,Discoloured **Highly to Moderately Weathered Rock - Grade W4 & W3 Rock Formation** Hypersthene Granitic Rock
9		16	17															
		To 17	35	TCB	7	0												
10							-	-	-	-	10.50	5	CS	-10.5		L36	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	15/07/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 2.40	
WS - Wash Sample	DB - Diamond Bit	DATE	17/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.13 Sub Soil Profile at BH-13 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-14		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓		
	NX ✓		

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING							BORE START DATE	29/06/2023
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-01	CHAINAGE (m)	-	CO-ORDINATES	N -	BORE END DATE	30/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary				E -	TOTAL DRILL DAYS	2
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite						

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	29/06/2023	14	24	SC	-	-												
		To 14	29				4	12	22	34	0.50	1	SS	-0.5				Red Grey Moist,Poorly Graded,Fine to Coarse Grain Sand Size Particles,Dense,**Clayey Silty SAND (SC)**
		14	42								0.95							
1		To 14	52	SC	-	-										L1	1.25	
		15	20				12	38	73	111	1.25	2	SS	-1.3				
		To 15	26	SC	-	-					1.70							Grey Brown to Offwhite Brown,Moist, Fine to Coarse Grain Sand Size Particles With Gravels Traces,Very Dense, **Residual Soil & Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated & Weathered Hypersthene Granitic Rock
2		15	39				42	SPT Hammer Rebound		>100	2.00	3	SS	-2.0				
		To 15	44	SC	-	-					2.15							
		15	58				SPT-Hammer Rebound			>100	3.00	-	WS	-3.0				
3		To		TCB	0	0												
		16	46				-	-	-	-	4.00	-	WS	-4.0				
4		16	52															
		To 17	42	TCB	0	0												
		08	48				-	-	-	-	5.00	-	WS	-5.0				
5		To		TCB	0	0												
		09	53															
		10	03				-	-	-	-	6.00	-	WS	-6.0				
6		To 10	57	TCB	0	0												
		12	02															No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
7	30/06/2023	To 13	22	TCB	0	0	-	-	-	-	7.50	-	WS	-7.5				
		14	46															
8		To 15	09	TCB	0	0	-	-	-	-	9.00	-	WS	-9.0				
9																		
10							-	-	-	-	10.50	-	WS	-10.5		L3	10.5	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Sushil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	30/06/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	S.Tysonraj	WATER TABLE (m) 2.50	
WS - Wash Sample	DB - Diamond Bit	DATE	01/07/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.14 Sub Soil Profile at BH-14 Location

For Casagrand Fresh Private Limited

Authorised Signatory

SITE INVESTIGATION RECORD

GEOMARINE

BORE HOLE No.	BH-15		
SHEET	1	OF	1
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING	DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kovilanchari, Chennai	MACHINE No.	CR-01
CHAINAGE (m)	-	BORE START DATE	24/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary
CO-ORDINATES	N - / E -	BORE END DATE	24/06/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite
		TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm: 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	24/06/2023	08	29	SC	-	-												
		To																
		08	30				4	5	7	12	0.50	1	SS	-0.5				
		08	48								0.95							
1		To		SC	-	-												Brown,Offwhite Yellow,Moist,Fine & Medium Grains Sands,Medium Dense, **Clayey Silty SAND (SC)**
		08	49				5	9	15	24	1.25	2	SS	-1.3				
		09	10								1.70							
		To		SC	-	-												
2		09	11				13	11	26	37	2.00	3	SS	-2.0		L1	2.0	
		09	28								2.45							
		To		SC	-	-												Yellow Brown,Moist,Fine to Coarse Grain Sand Size Particles,Dense, **Residual Soil - Grade W5 Rock Formation** Disintegrated Hypersthene Granitic Rock
		09	31															
3							32	35	51	86	3.00	4	SS	-3.0		L2	3.0	
		09	47								3.45							
		To		SC	-	-												
		09	53															
4							11Cm Penet for 50 Blows			>100	4.00	5	SS	-4.0				Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely Weathered Rock - Grade W5 Rock Formation** Weathered Hypersthene Granitic Rock
		10	04								4.11							
		To		SC	-	-												
		10	15															
5							4Cm Penet for 30 Blows			>100	5.00	-	WS	-5.0		L3	5.0	
		10	26								5.04							
		To		TCB	0	0												
		10	47															
6							-	-	-	-	6.00	-	WS	-6.0				
		11	02															
		To		TCB	0	0												
7		11	15															
							-	-	-	-	7.50	-	WS	-7.5				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
8		11	37															
		To		TCB	0	0												
		11	46															
9							3Cm Penet for 15 Blows			>100	9.00	-	WS	-9.0				
		12	07								9.03							
		To		TCB	0	0												
10		12	16				-	-	-	-	10.00	-	WS	-10.0		L4	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	J.Baskar	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	24/06/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	S.Dhanapal	WATER TABLE (m) 2.60	
WS - Wash Sample	DB - Diamond Bit	DATE	27/06/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.1 Sub Soil Profile at BH-15 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-16		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓		
	NX ✓		
BORE START DATE	27/06/2023		
BORE END DATE	27/06/2023		
TOTAL DRILL DAYS	1		

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING						
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-		
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N	-	
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E	-	

Depth below E.G.L. (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drg Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R Q D %	SPT Details: Blows/cm: 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	27/06/2023	09	12	SC	-	-												
		To																
		09	17				5	16	30	46	0.50	1	SS	-0.5				Red Brown,Moist,Poorly Graded,Fine to Coarse Grain Sands,Dense,**Silty SAND (SM) With Binder**
		09	22								0.95							
1		To		SC	-	-										L1	1.25	
		09	28				27	67	Hammer Rebound	>100	1.25	2	SS	-1.3				
		09	38								1.55							
		To		SC	-	-												Yellow to Grey Brown,Moist,Fine to Coarse Grain Sand Size Particles With Gravels,Very Dense,**Completely Weathered Rock - Grade W5 Rock Formation** Weathered Hypersthene Granitic Rock
2		09	44				46	Hammer Rebound		>100	2.00	3	SS	-2.0				
		09	56								2.15							
		To		SC	-	-										L2	3.0	
		10	07				7Cm Penete for 58Blows			>100	3.00	4	SS	-3.0				
3		10	14								3.07							
		To		TCB	0	0												
		10	46				-	-	-	-	4.00	-	WS	-4.0				
4		10	52															
		To		TCB	0	0												
		11	27				-	-	-	-	5.00	-	WS	-5.0				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
5		11	32															
		To		TCB	0	0												
		11	57				-	-	-	-	6.00	-	WS	-6.0				
6		12	12															
		To		TCB	0	0												
		13	10															
7							-	-	-	-	7.50	-	WS	-7.5		L3	7.5	
8																		
9																		
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	27/06/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m)	2.90	
WS - Wash Sample	DB - Diamond Bit	DATE	30/06/2023	CASING DEPTH (m)	0.00	

Borehole terminated at 7.5 m depth below E.G.L

FIG.2.16 Sub Soil Profile at BH-16 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-17						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING					DIA OF BORE HOLE	150mm ✓ NX ✓
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	24/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	26/06/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	3

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No	Depth	Geotechnical Description
0	24/06/2023	15	49	SC	-	-	7	36	4Cm Penet for 50 Blows	>100	0.50	1	SS	-0.5				
		To 15	50								0.84							
		16	08	SC	-	-												Red Brown, Offwhite to Yellow Brown, Moist, Poorly Graded, Fine to Medium Grain Sands With Coarse Sand & Gravel Mix @ Parts, Dense & Very Dense, **Clayey Silty SAND (SC) & Silty SAND (SM) With Binder**
1		To 16	09				7	13	21	34	1.25	2	SS	-1.3				
		16	25								1.70							
		To 16	28	SC	-	-												
2		16	49				12Cm Penet for 50 Blows			>100	2.00	3	SS	-2.0		L1	1.9	
		To 16	52	SC	-	-					2.12							
3		17	01				6Cm Penet for 50 Blows			>100	3.00	4	SS	-3.0				
		To 17	07	SC	-	-					3.08							Grey Brown, Moist, Fine to Coarse Grain Sand Size Particles With Gravels, Very Dense, **Completely Weathered Rock - Grade W5 Rock Formation** Weathered Hypersthene Granitic Rock
4		17	19				5Cm Penet for 40 Blows			>100	4.00	5	SS	-4.0				
		To 17	25	SC	-	-					4.05							
5		17	39				3Cm Penet for 15 Blows			>100	5.00	-	WS	-5.0		L2	5.0	
		To 17	48	TCB	0	0					5.03							
6	26/06/2023						-	-	-	-	6.00	-	WS	-6.0				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		09	15															
		To 09	36	TCB	0	0												
7							-	-	-	-	7.50	-	WS	-7.5		L3	7.5	
8																		
9																		
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	Sushil	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	26/06/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G. Sharmila	WATER TABLE (m)	2.50	
WS - Wash Sample	DB - Diamond Bit	DATE	26/06/2023	CASING DEPTH (m)	0.00	

Borehole terminated at 7.5 m depth below E.G.L

FIG.2.17 Sub Soil Profile at BH-17 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-18						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING			DIA OF BORE HOLE	150mm ✓ / NX ✓		
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	26/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	26/06/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	1

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Layer Data: Geotechnical Description
0	26/06/2023	10	46	SC	-	-												
		To																
		10	50				8	25	40	65	0.50	1	SS	-0.5				Red Brown,Moist,Poorly Graded,Fine to Coarse Grain Sands,Very Dense, **Clayey Silty SAND (SC)**
		10	57								0.95							
1		To		SC	-	-										L1	1.25	
		11	03				24	46	68	>100	1.25	2	SS	-1.3				
		11	12								1.70							
		To		SC	-	-												
2		11	18				18	35	Hammer Rebound	>100	2.00	3	SS	-2.0				
		11	29								2.30							
		To		SC	-	-												
		11	32															Grey Brown & Yellow Shades,Moist, Fine to Coarse Grain Sand Size Particles,Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated & Weathered Hypersthene Granitic Rock
3							9cm Penete for 50 Blows			>100	3.00	4	SS	-3.0				
		11	49								3.09							
		To		SC	-	-												
		11	53															
4							5cm Penete for 50 Blows			>100	4.00	-	WS	-4.0				
		12	02								4.05							
		To		SC	-	-												
		12	08															
5							3cm Penete for 50 Blows			>100	5.00	-	WS	-5.0				
		12	12								5.03							
		To		TCB	0	0										L2	5.0	
		12	40				-	-	-	-	6.00	-	WS	-6.0				
6																		
		14	05															
		To		TCB	0	0												
7		15	09															No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
							-	-	-	-	7.50	-	WS	-7.5				
		15	18															
8		To		TCB	0	0												
		16	28															
9							-	-	-	-	9.00	-	WS	-9.0				
		16	38															
		To		TCB	0	0												
10		17	32				-	-	-	-	10.00	-	WS	-10.0		L3	10.0	

CS - Core Sample	DS - Disturbed Sample	LOGGED	Sushil	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	26/06/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G. Sharmila	WATER TABLE (m) 2.50	
WS - Wash Sample	DB - Diamond Bit	DATE	26/06/2019	CASING DEPTH (m) 0.00	

Borehole terminated at 10 m depth below E.G.L

FIG.2.18 Sub Soil Profile at BH-18 Location

For Oceagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-19						
SHEET	1	OF	1				
PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING					DIA OF BORE HOLE	150mm ✓ / NX ✓
LOCATION	Kovilancheri, Chennai	MACHINE No.	CR-03	CHAINAGE (m)	-	BORE START DATE	27/06/2023
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -	BORE END DATE	28/06/2023
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -	TOTAL DRILL DAYS	2

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr.	Time: Min.	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm. 0-15	15-30	30-45	SPT 'N' Value	Sample Details: Depth	No.	Type	RL (m)	Layer Data: Legend	No.	Depth	Geotechnical Description
0	27/06/2023	15	12	SC	-	-										L1	0.5	Clayey Silty SAND (SC)
		To 15	16				15	45	72	117	0.50	1	SS	-0.5				
		15	22								0.95							
1		To 15	27	SC	-	-	16	33	56	89	1.25	2	SS	-1.3				Grey Brown & Offwhite Shades,Moist, Fine to Coarse Grain Sand Size Particles,Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation**
		15	42								1.70							
		To 15	46	SC	-	-												
2		16	13				30	58	Hammer Rebound	>100	2.00 / 2.30	3	SS	-2.0				Disintegrated & Weathered Hypersthene Granitic Rock
		To 16	17	SC	-	-												
3		16	24				41	3Cm Penet for 55Blows		>100	3.00 / 3.18	4	SS	-3.0		L2	3.0	
		To 16	40	TCB	0	0												
4		16	52				-	-	-	-	4.00	-	WS	-4.0				
		To 15	48	TCB	0	0												
5		09	15				-	-	-	-	5.00	-	WS	-5.0				No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation**
	28/06/2023	To 10	01	TCB	0	0												
6		10	45				-	-	-	-	6.00	-	WS	-6.0				Weathered Hypersthene Granitic Rock
		To 11	38	TCB	0	0												
7							-	-	-	-	7.50	-	WS	-7.5		L3	7.5	
8																		
9																		
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS	REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	26/06/2023	GROUND LEVEL (m) 0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m) 2.80	
WS - Wash Sample	DB - Diamond Bit	DATE	26/06/2023	CASING DEPTH (m) 0.00	

Borehole terminated at 7.5 m depth below E.G.L

FIG.2.19 Sub Soil Profile at BH-19 Location

For Casagrand Fresh Private Limited

Authorised Signatory

GEOMARINE
THE SPIRIT OF ENGINEERING

SITE INVESTIGATION RECORD

BORE HOLE No.	BH-20		
SHEET	1	OF	1
DIA OF BORE HOLE	150mm ✓ / NX ✓		
BORE START DATE	28/06/2023		
BORE END DATE	29/06/2023		
TOTAL DRILL DAYS	2		

PROJECT NAME	PROPOSED CONSTRUCTION OF A RESIDENTIAL BUILDING				
LOCATION	Kovilancheri, Chennai	MACHINE No.	-	CHAINAGE (m)	-
STRUCTURE	1 Basement + Ground + 5 Floors	DRILLING METHOD	Rotary	CO-ORDINATES	N -
JOB CODE	GT-2597	FLUSHING MEDIUM	Bentonite		E -

Depth below E.G.L (m)	Drilling progress per metre: Date	Time: Hr	Time: Min	Type of Drill Bit (SC / TCB / DB)	Core Details: Total Core Recovery %	Core Details: R.Q.D %	SPT Details: Blows/cm 0-15	SPT Details: Blows/cm 15-30	SPT Details: Blows/cm 30-45	SPT 'N' Value	Sample Details: Depth	Sample Details: No.	Sample Details: Type	Sample Details: RL (m)	Layer Data: Legend	Layer Data: No	Layer Data: Depth	Geotechnical Description
0	28/06/2023	14	10	SC	-	-												
		To																
		14	16				10	19	30	49	0.50	1	SS	-0.5				Red Brown,Moist,Poorly Graded,Fine to Coarse Grain Sands,Dense, **Clayey Silty SAND (SC)**
		14	32								0.95							
1		To		SC	-	-										L1	1.25	
		14	38				9	25	48	73	1.25	2	SS	-1.3				
		14	56								1.70							
		To		SC	-	-												Grey Brown & Offwhite Shades,Moist, Fine to Coarse Grain Sand Size Particles,Dense, **Residual Soil to Completely Weathered Rock - Grade W5 Rock Formation** Disintegrated & Weathered Hypersthene Granitic Rock
2		15	16				4Cm Penete for 52 Blows			>100	2.00	3	SS	-2.0				
		15	33								2.02							
		To		SC	-	-												
		15	48															
3		To					SPT-Hammer Rebound			>100	3.00	-	WS	-3.0		L2	3.0	
		16	02															
		To		TCB	0	0												
		16	52				-	-	-	-	4.00	-	WS	-4.0				
4		17	06															
		To		TCB	0	0												
		17	20				-	-	-	-	5.00	-	WS	-5.0				
5		17	26															
		To		TCB	0	0												
		17	52				-	-	-	-	6.00	-	WS	-6.0				
6	29/06/2023	09	20															No Penetration & No Core Recovery Based on Drilling Observation the formation is **Completely to Highly Weathered Rock - Grade W5 & W4 Rock Formation** Weathered Hypersthene Granitic Rock
		To		TCB	0	0												
		10	12															
7							-	-	-	-	7.50	-	WS	-7.5				
		10	36															
		To		TCB	0	0												
		11	42															
8							-	-	-	-	9.00	-	WS	-9.0				
		11	56															
		To		TCB	0	0												
		12	47															
9							-	-	-	-	10.50	-	WS	-10.5		L3	10.5	
10																		

CS - Core Sample	DS - Disturbed Sample	LOGGED	K.Selvam	PROJECT SITE DETAILS		REMARKS
SS - Split Spoon Sample	SC - Soil Cutter	DATE	29/06/2023	GROUND LEVEL (m)	0.00	
UDS- Undisturbed Sample	TCB - Tungsten Carbide Bit	CHECKED	G.Sharmila	WATER TABLE (m)	2.60	
WS - Wash Sample	DB - Diamond Bit	DATE	30/06/2023	CASING DEPTH (m)	3.00	

Borehole terminated at 10.5 m depth below E.G.L

FIG.2.20 Sub Soil Profile at BH-20 Location

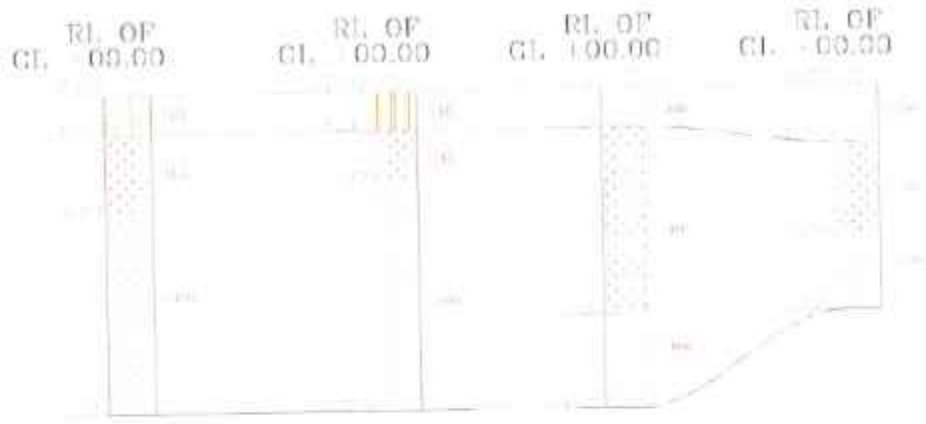
For Casagrand Fresh Private Limited

Authorised Signatory

CROSS SECTION PROFILE

For Casagrand Fresh Private Limited

Authorised Signatory



LEGEND

CLAYEY SILTY SAND (SC)

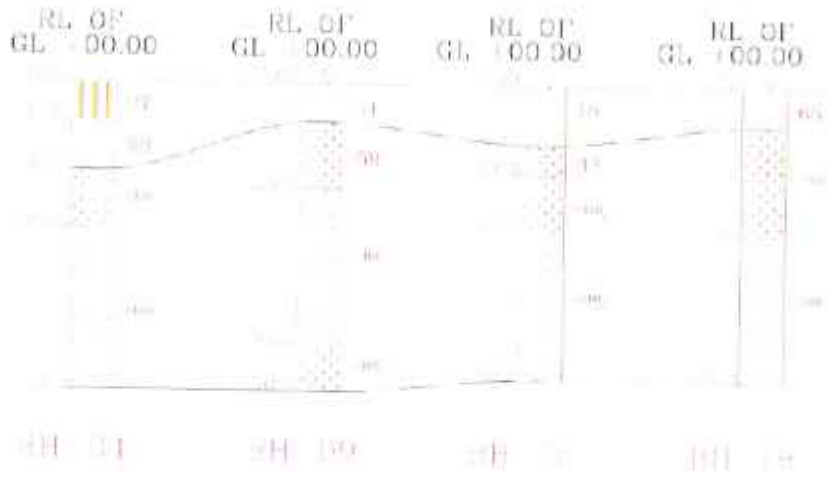
Silty Clay (CL)

SILTY SAND (SM)

Residual Soil,Residual Soil to Completely Weathered & Completely Weathered Rock

Completely to Highly Weathered Rock & Highly Weathered Rock

FIG No 2.21 CROSS SECTIONAL VARIATION OF SUB SOIL PROFILE THROUGH BH-01,06,08 & 12



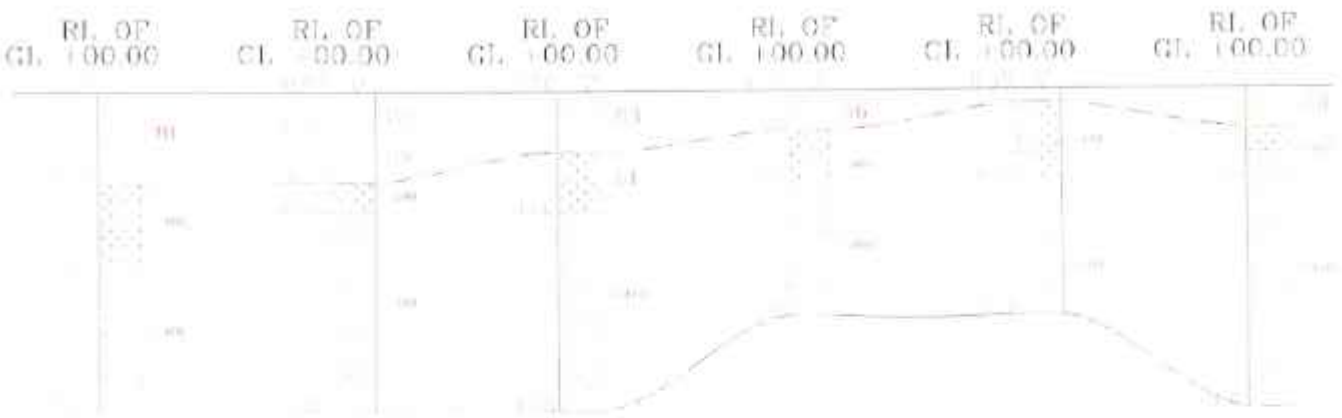
LEGEND

- SILTY SAND (SM)
- CLAYEY SILTY SAND (SC)
- Highly to Moderately Weathered Rock & Moderately Weathered Rock
- Residual Soil,Residual Soil to Completely Weathered & Completely Weathered Rock
- Completely to Highly Weathered Rock & Highly Weathered Rock

FIG No.2.22: CROSS SECTIONAL VARIATION OF SUB SOIL PROFILE THROUGH BH 01,09,16 & 18

For Casagrand Fresh Private Limited

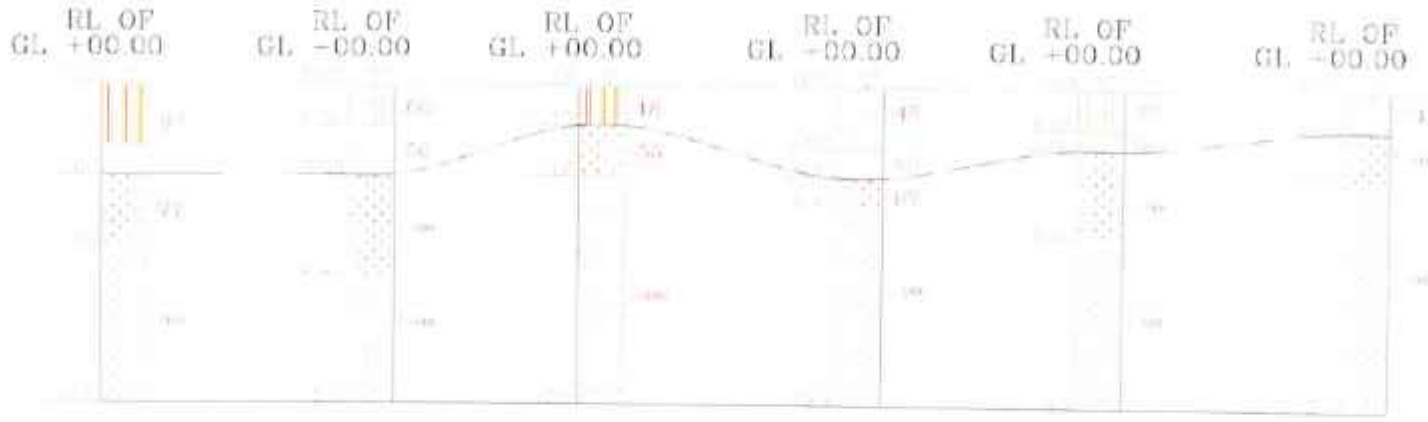
Authorised Signatory



LEGEND

- SILTY CLAY (CH)
- CLAYEY SILTY SAND (SC)
- Residual Soil,Residual Soil to Completely Weathered & Completely Weathered Rock
- Completely to Highly Weathered Rock & Highly Weathered Rock

FIG No.3.22 CROSS SECTIONAL VARIATION OF SUB SOIL PROFILE THROUGH BH 02,07,11, 6,10 & 20



LEGEND

- SILTY CLAY (CI)
- Silty Clay (CL)
- CLAYEY SILTY SAND (SC)
- Residual Soil,Residual Soil to Completely Weathered & Completely Weathered Rock
- Completely to Highly Weathered Rock & Highly Weathered Rock
- SILTY SAND (SM)

FIG No 2.34 CROSS SECTIONAL VARIATION OF SUB SOIL PROFILE THROUGH BH 03,05,06,10,12 & 14

GRAIN SIZE DISTRIBUTION CURVE

For Casagrand Fresh Private Limited

Authorised Signatory

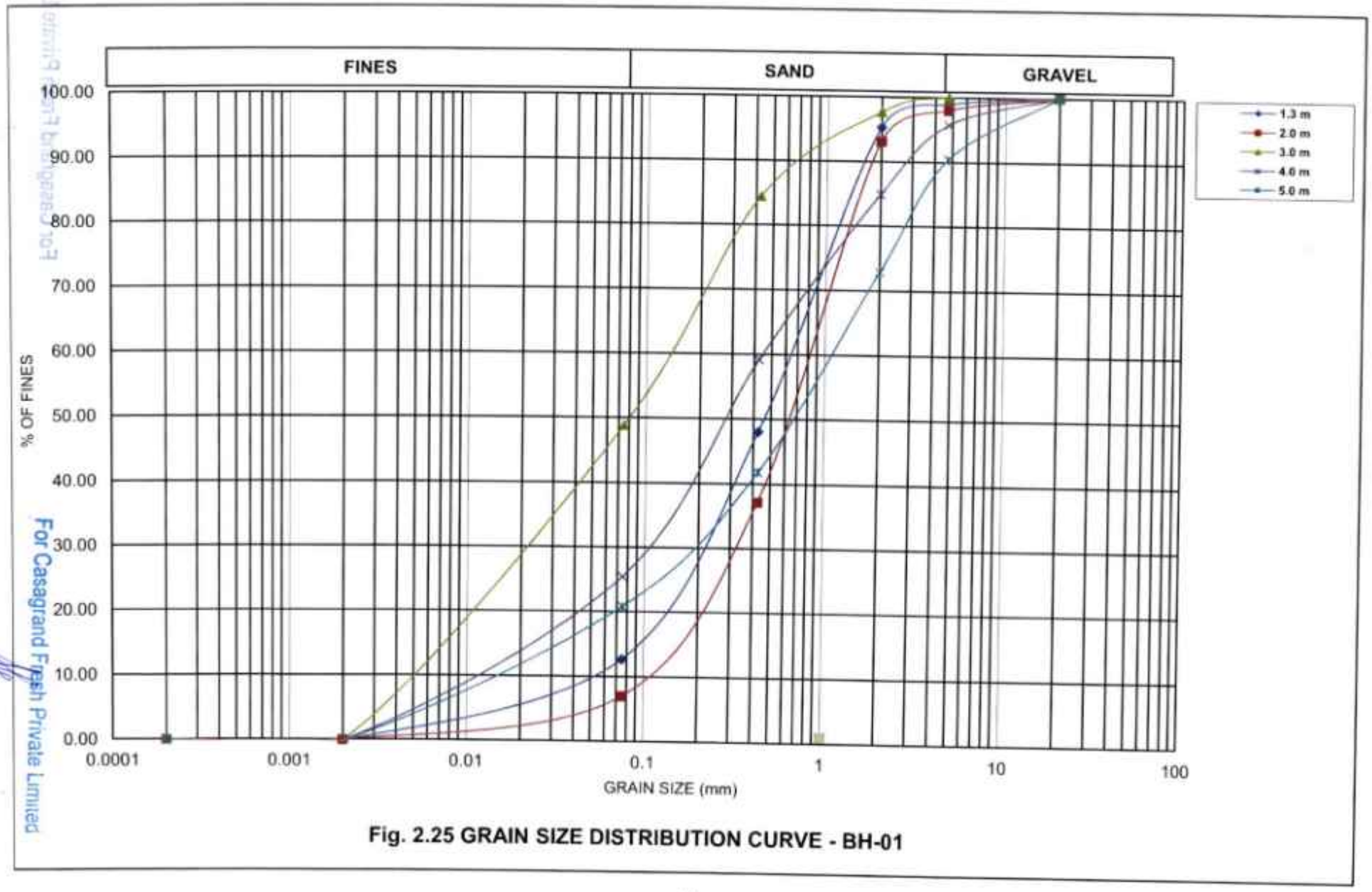


Fig. 2.25 GRAIN SIZE DISTRIBUTION CURVE - BH-01

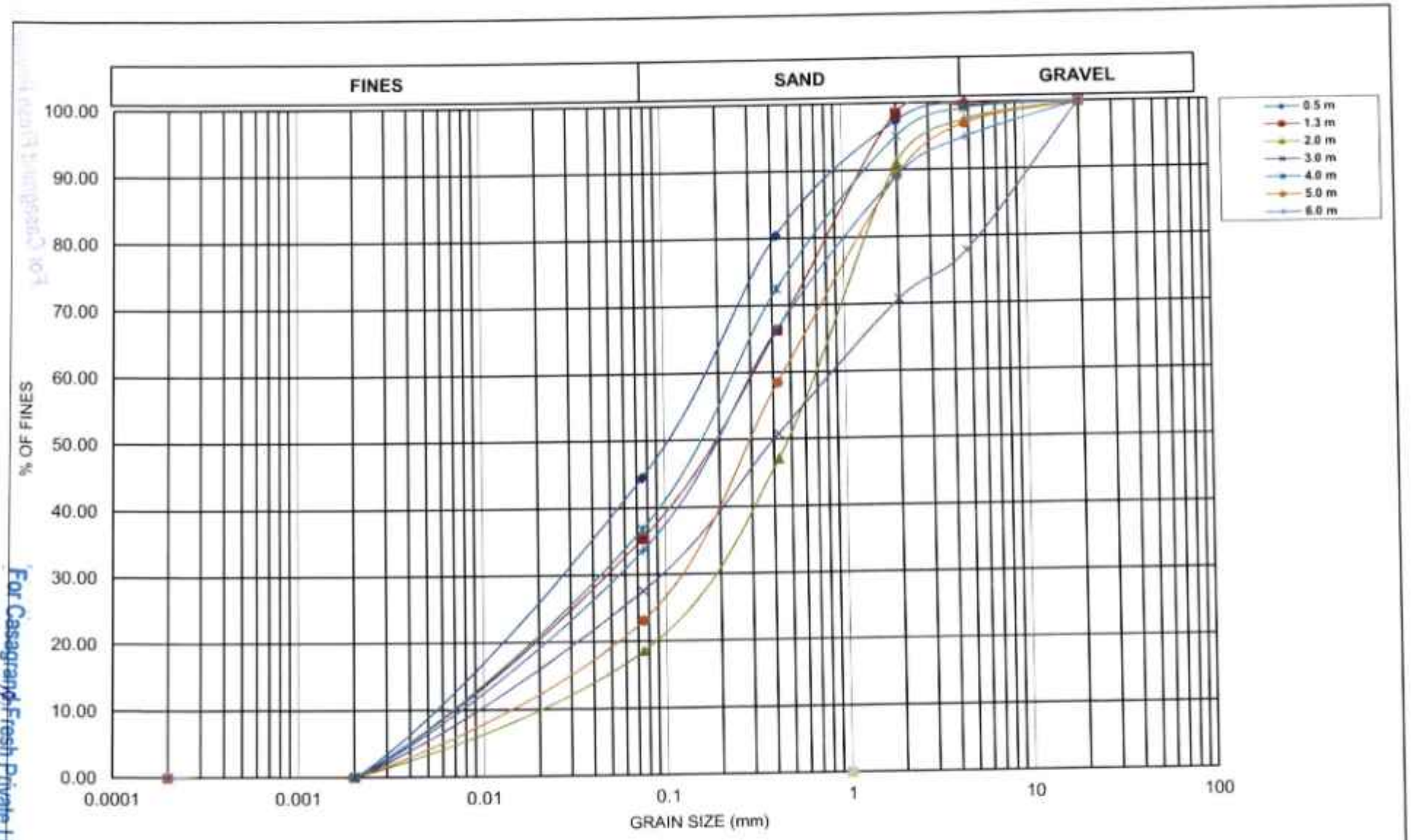


Fig. 2.26 GRAIN SIZE DISTRIBUTION CURVE - BH-02

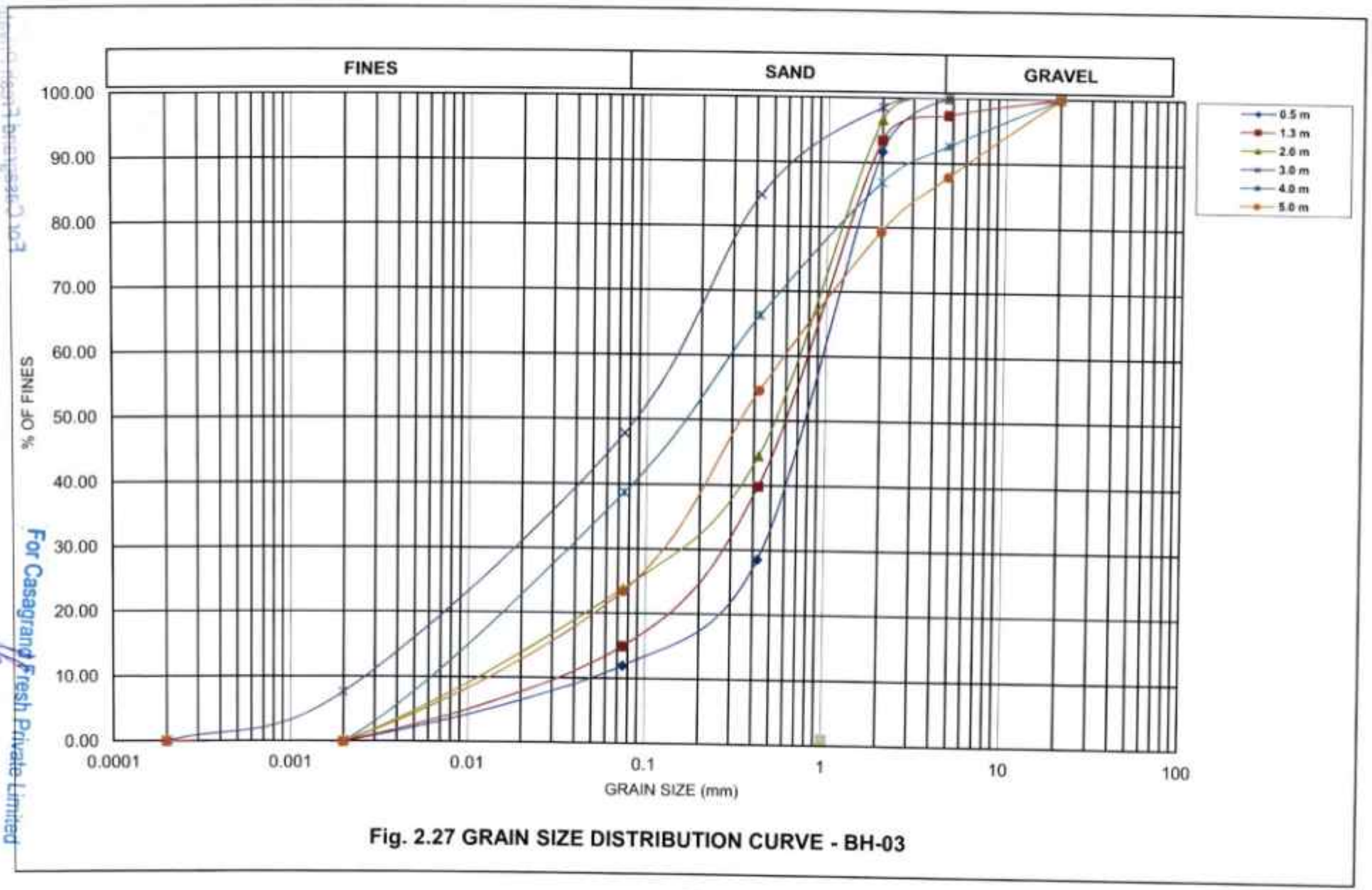


Fig. 2.27 GRAIN SIZE DISTRIBUTION CURVE - BH-03

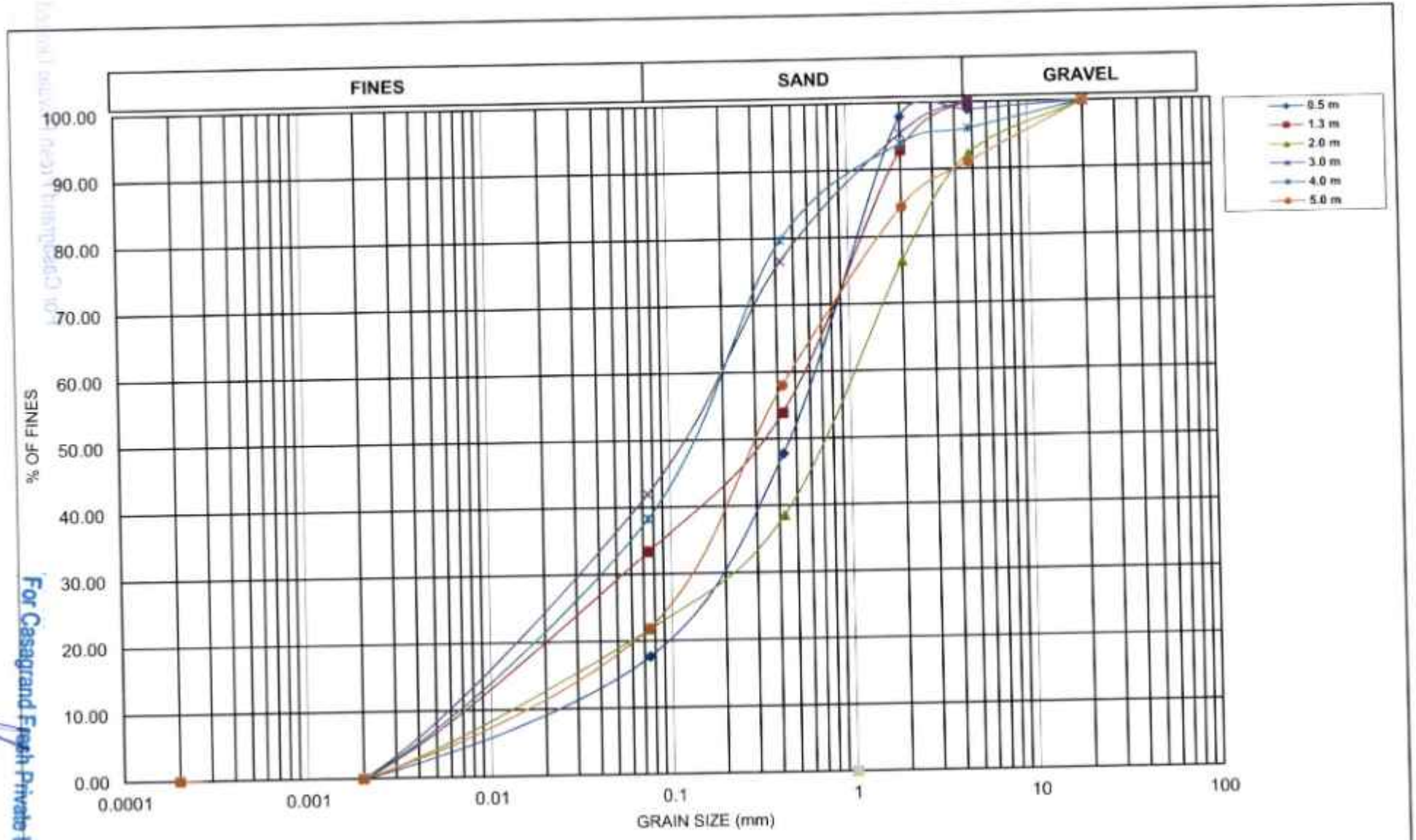


Fig. 2.28 GRAIN SIZE DISTRIBUTION CURVE - BH-04

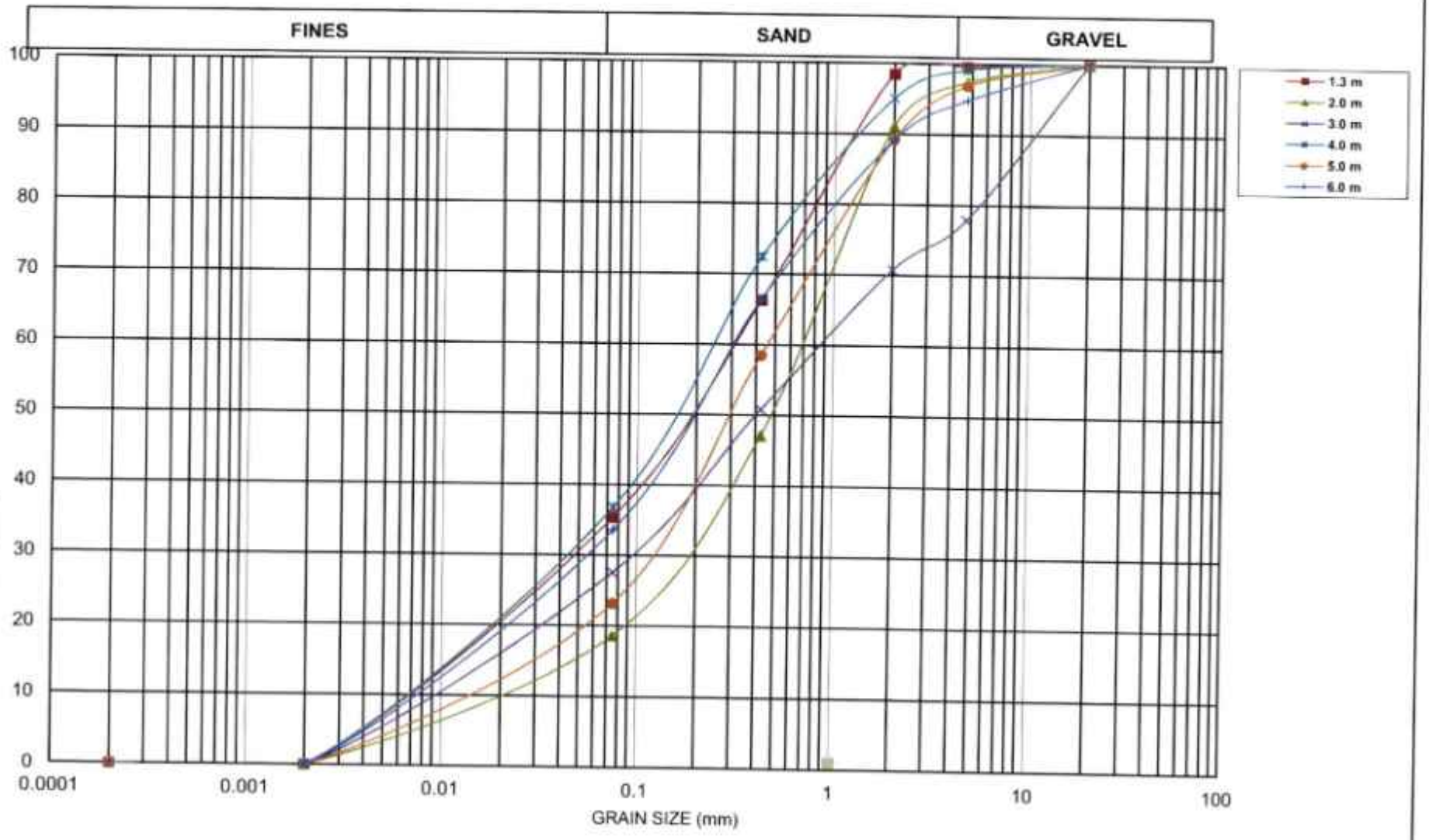


Fig. 2.29 GRAIN SIZE DISTRIBUTION CURVE - BH-05

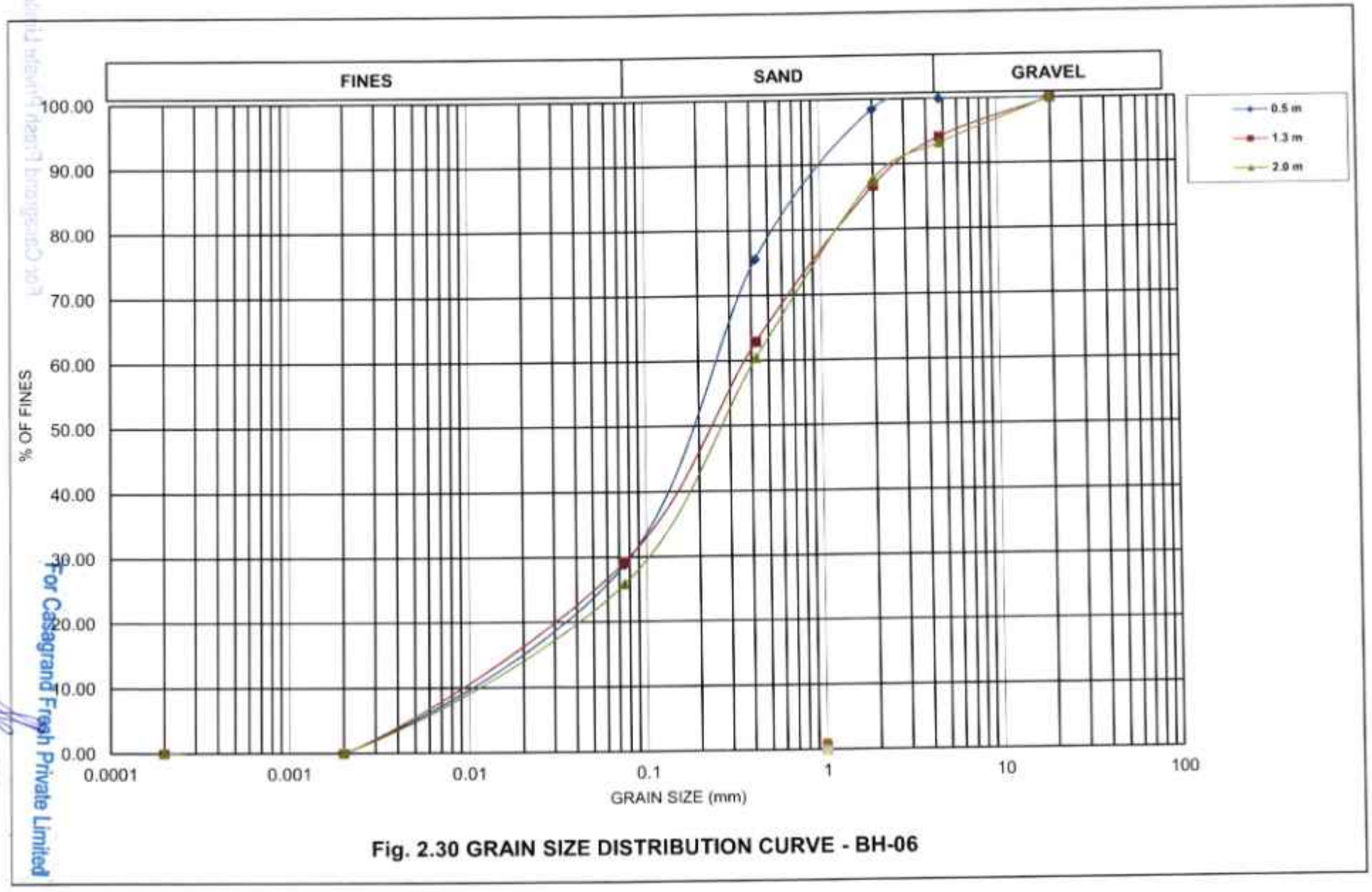


Fig. 2.30 GRAIN SIZE DISTRIBUTION CURVE - BH-06

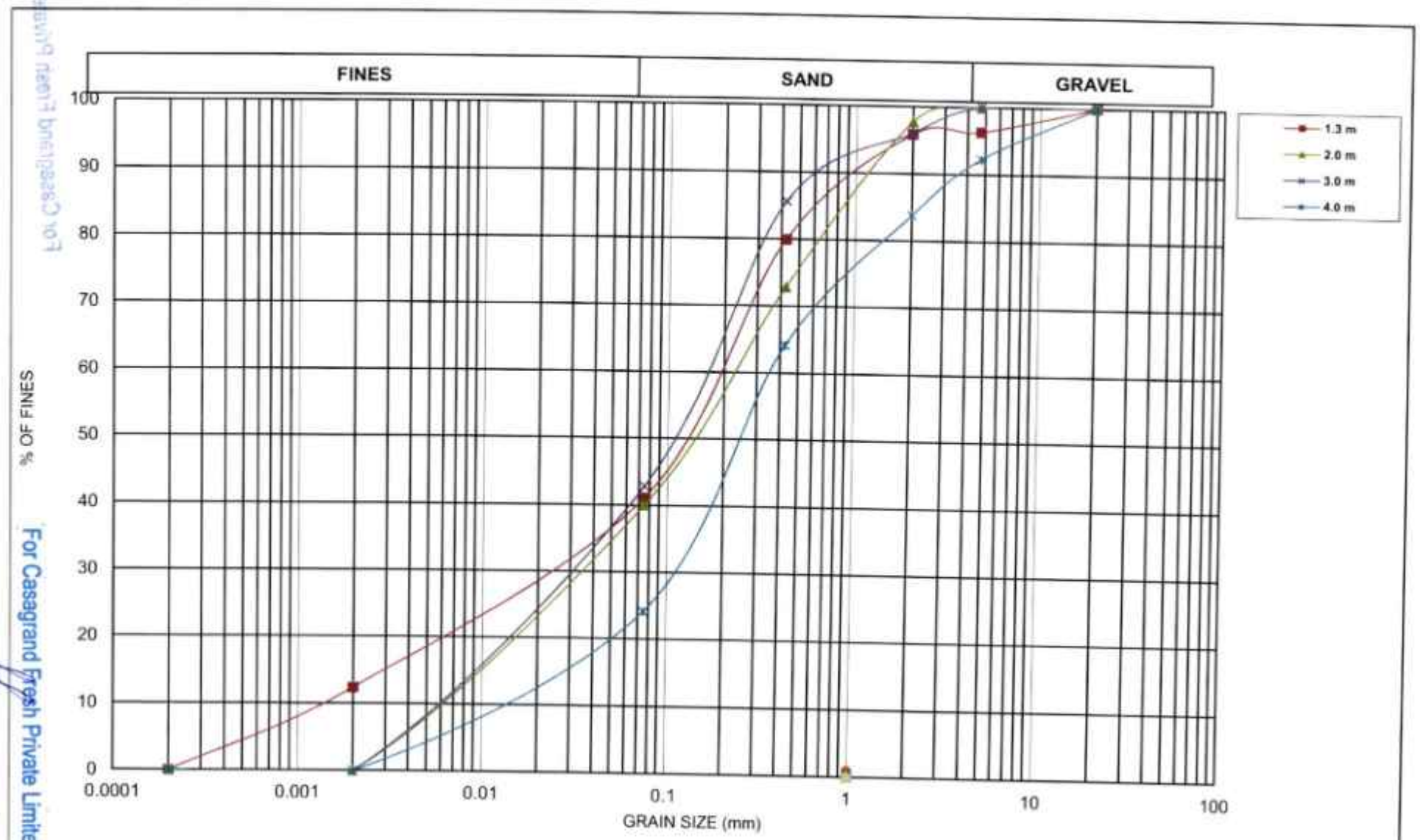


Fig. 2.31 GRAIN SIZE DISTRIBUTION CURVE - BH-07

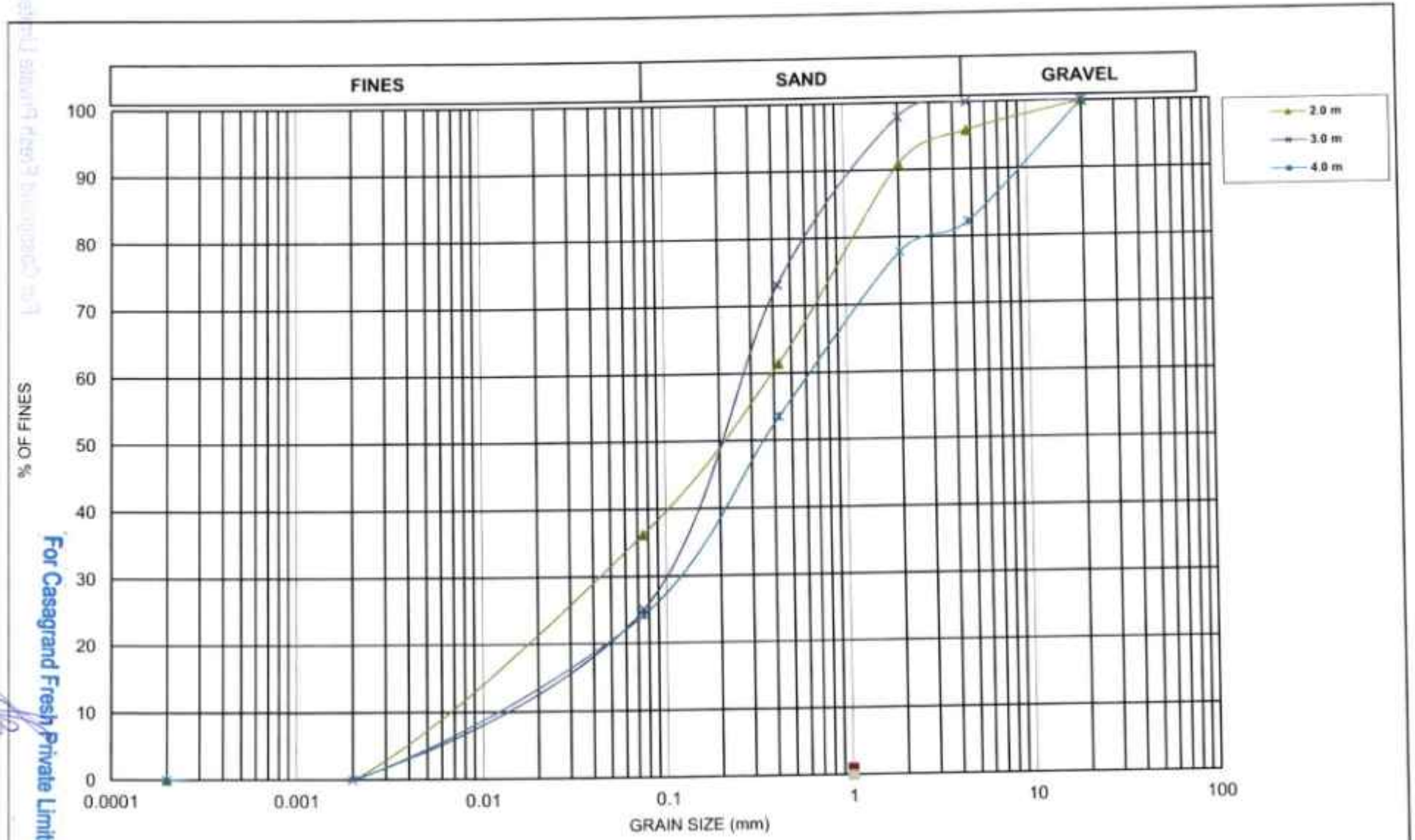


Fig. 2.32 GRAIN SIZE DISTRIBUTION CURVE - BH-08

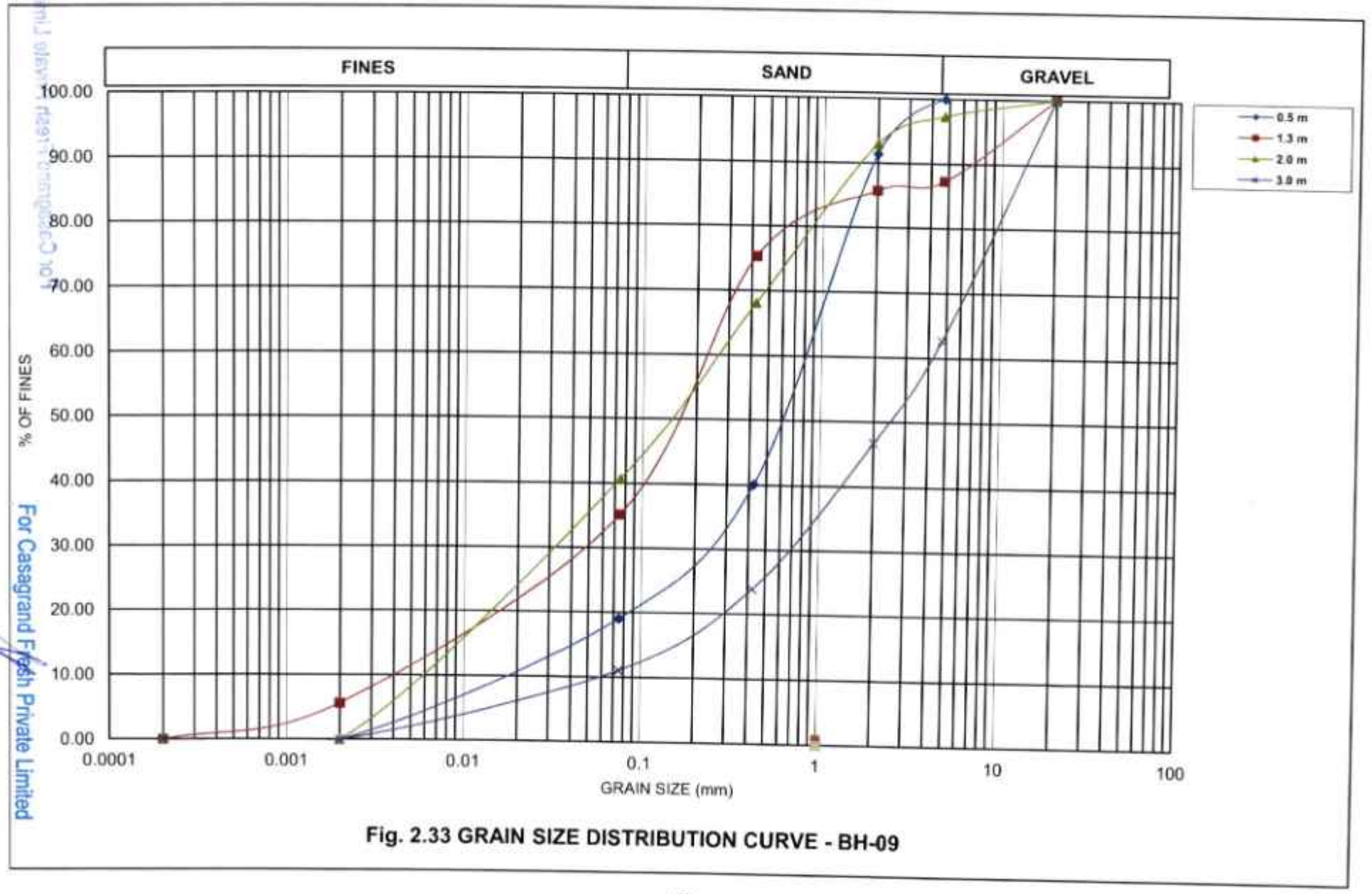


Fig. 2.33 GRAIN SIZE DISTRIBUTION CURVE - BH-09

Fig. 2.34 GRAIN SIZE DISTRIBUTION CURVE - BH-10

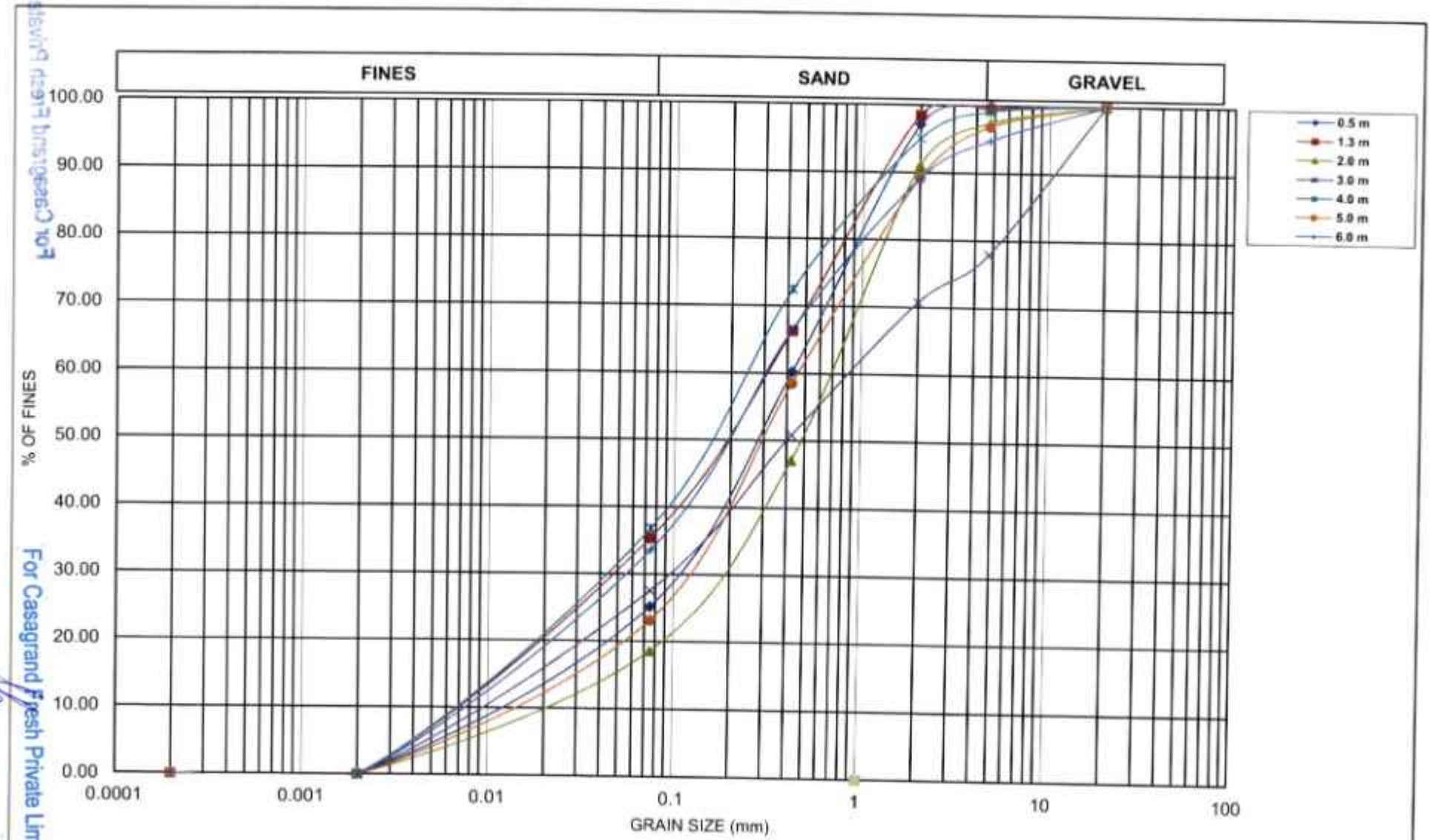


Fig. 2.35 GRAIN SIZE DISTRIBUTION CURVE - BH-11

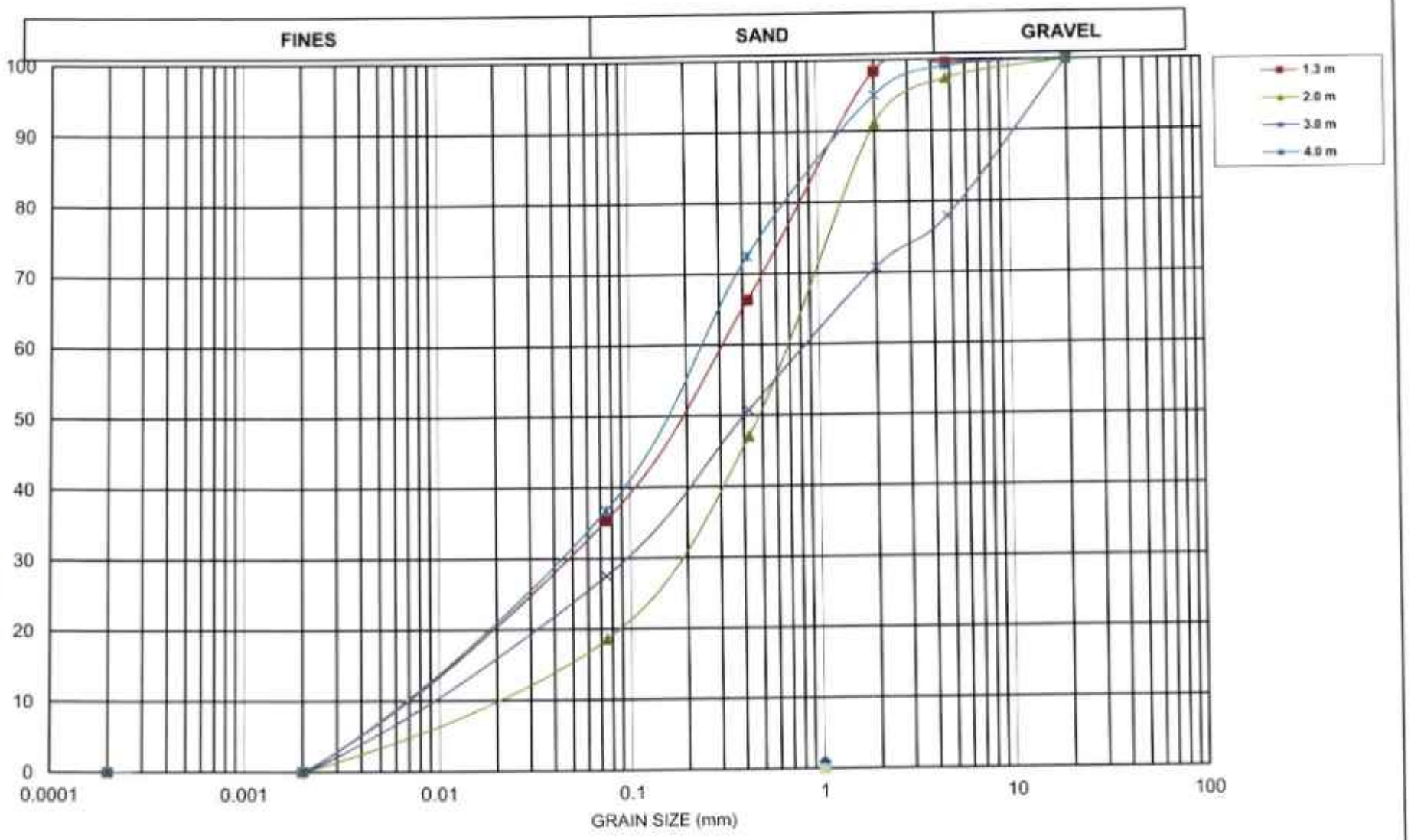


Fig. 2.36 GRAIN SIZE DISTRIBUTION CURVE - BH-12

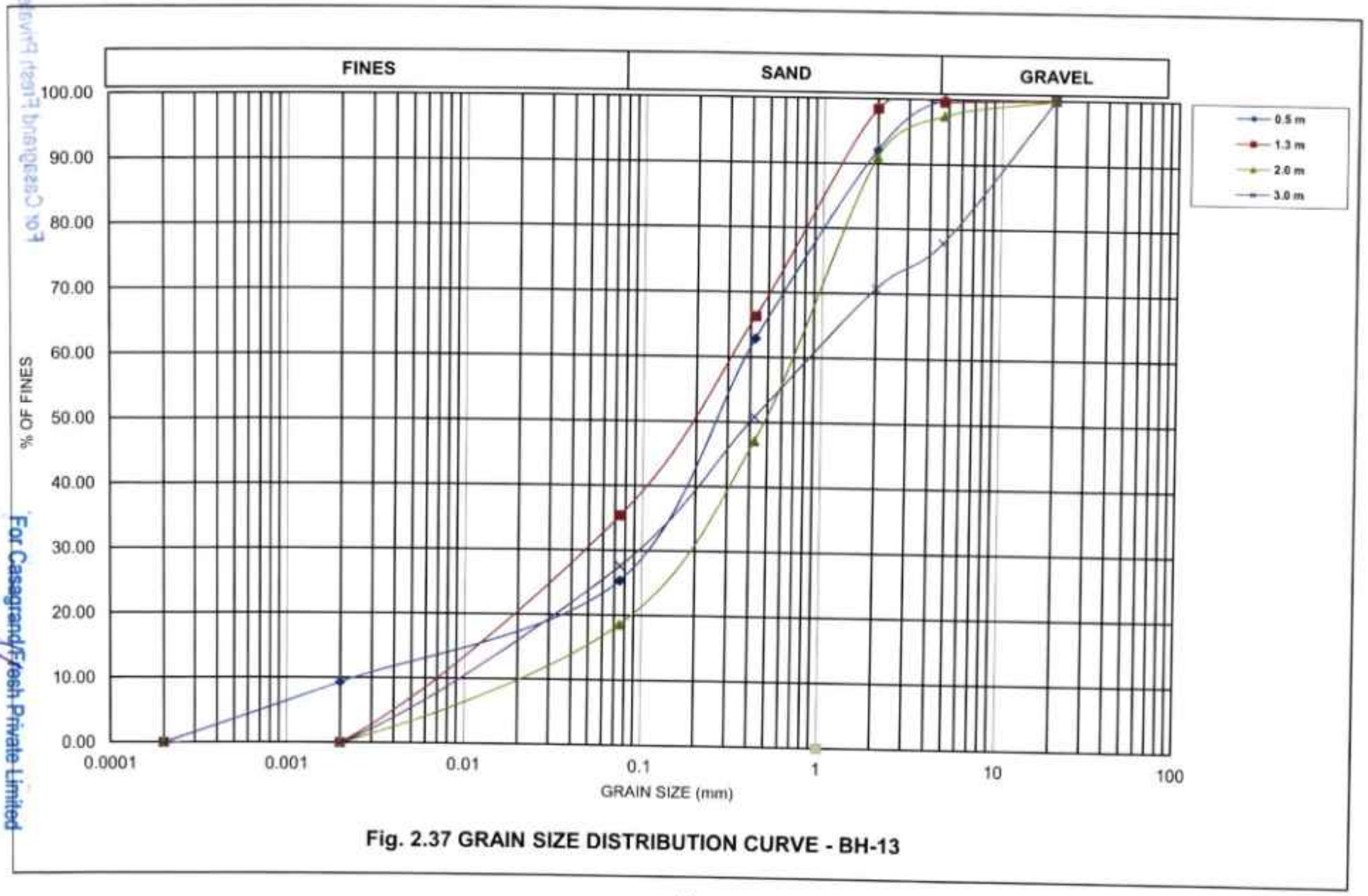


Fig. 2.37 GRAIN SIZE DISTRIBUTION CURVE - BH-13

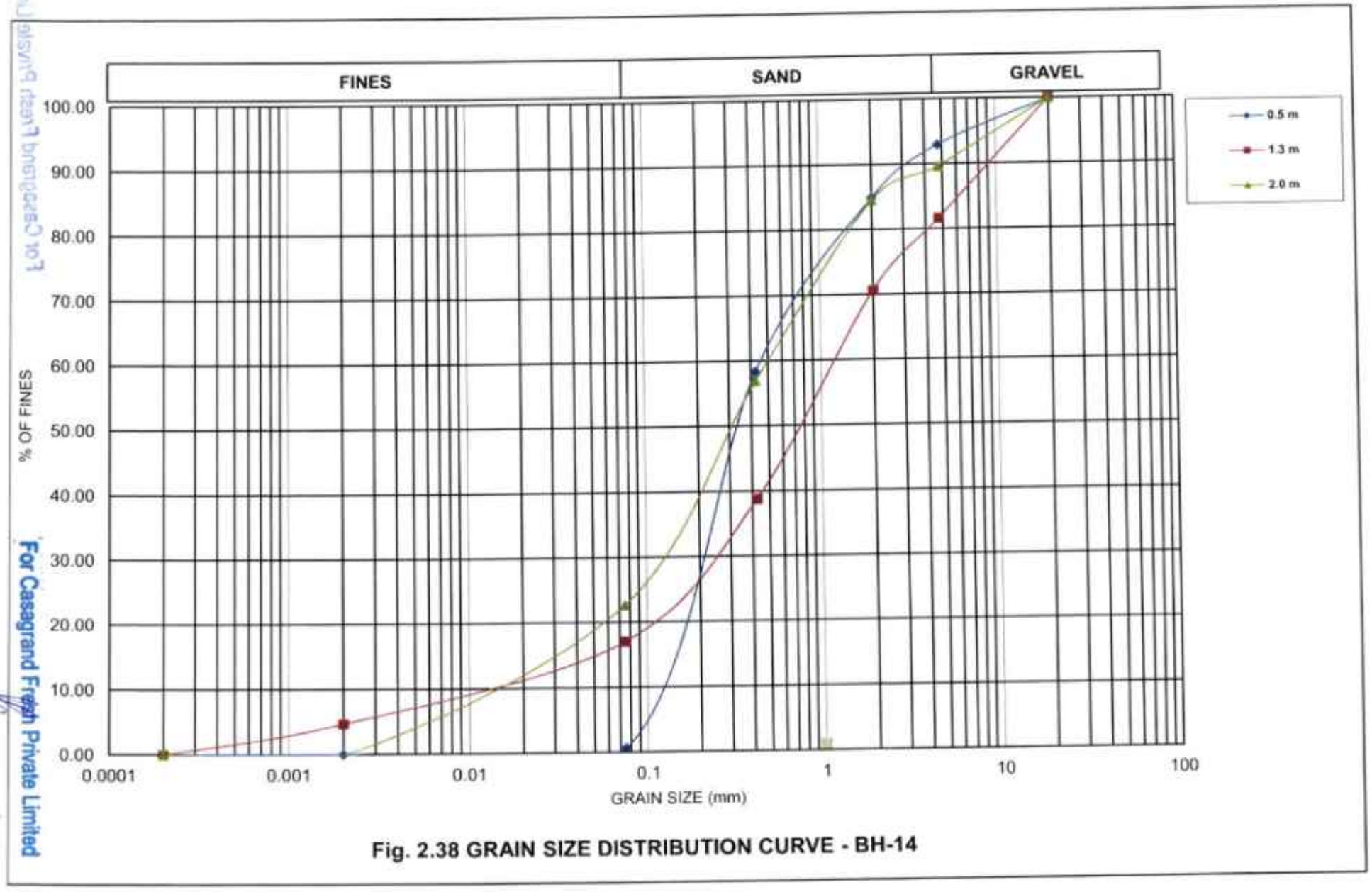


Fig. 2.38 GRAIN SIZE DISTRIBUTION CURVE - BH-14

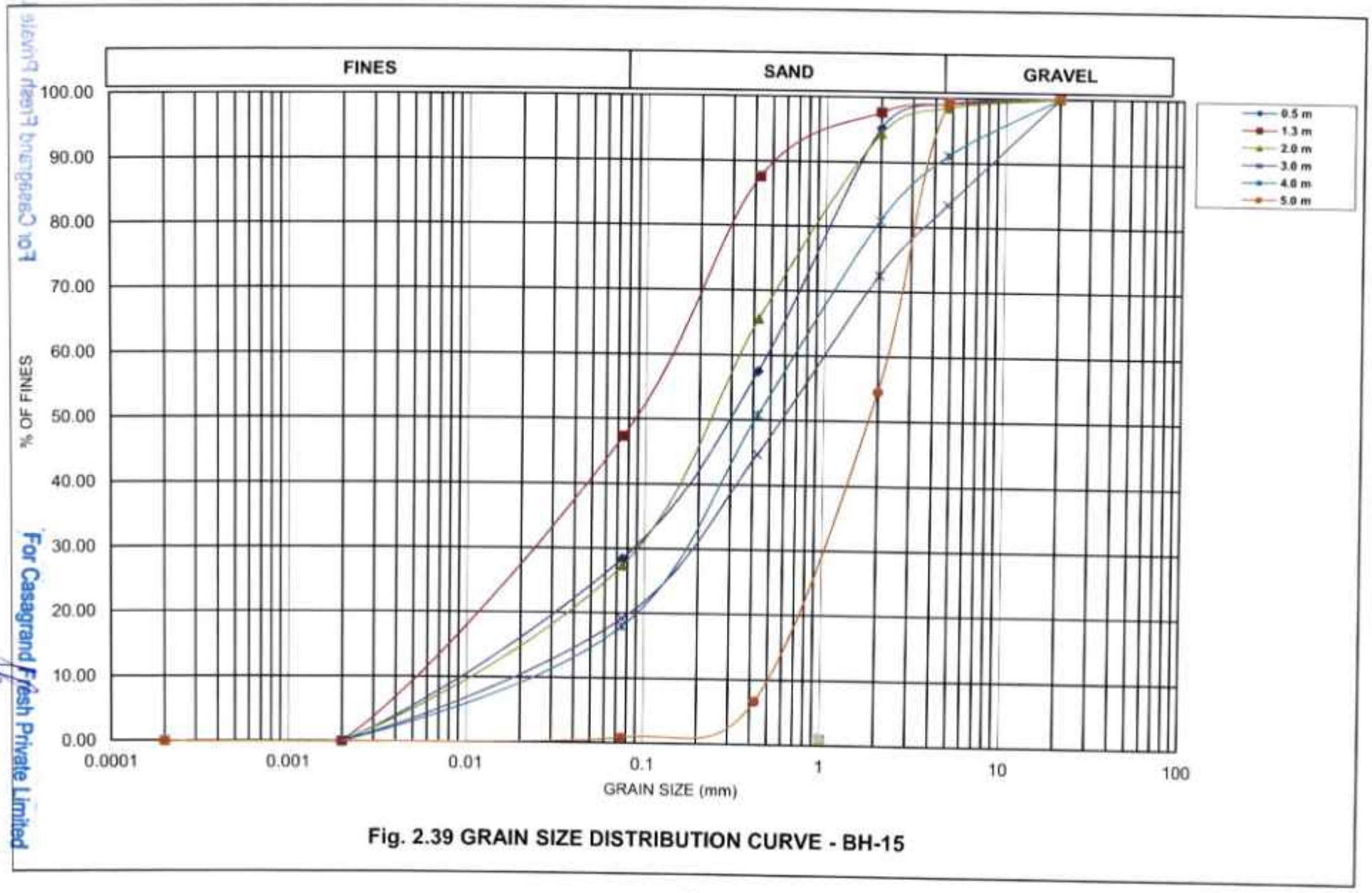


Fig. 2.39 GRAIN SIZE DISTRIBUTION CURVE - BH-15

our services doesn't just end there

Buying & Selling Services

Property Buying Assistance, Property Selling Support, Market Price Analysis, Owner Outreach and Negotiation.

Legal & Documentation Services

Certified EC, Patta, legal opinions, property verification, due diligence, litigation solutions, and legal heir certificates.

Property Development & Approvals

Building plan approvals, construction, layout and sub-division approvals, zone conversion, and occupancy certification.

NRI & Investment Services

Escrow Services, Rentals, Litigation Solutions, Property Valuation and Property Management

Compliance & Special Services

Demolition, Vaasthu checks, regularization of unauthorized buildings, and office space solutions.

empowering your real estate decisions with smart tools

Property Valuation & Cost Estimation

Guideline Value, Apartment Composite Value, Stamp Duty & Registration Fees Calculator, Building Value Calculator, Capital Gains Calculator, Area Unit Converter, Length Unit Converter

Ownership, Compliance & Legal Verification

Encumbrance Certificate (EC) Search, Find Your SRO, Temple Property Check, WAQF Property Check, View Patta/Chitta, View FMB, Patta Analyzer, EC Analyzer

Zoning & Land Use Analysis

Land Use Zone Finder, CRZ Zone Check, Aquifer Zone Check, CBA Check, EWS Check, Road Width Check, Proposed Road Widening Check, FSI Calculator

Property Documentation & Workflow Tools

Forms & Templates, Document Generator, Document Translation, Dictionary

Vastu & Property Management Tools

Home Vastu Shastra, Plot Vastu Shastra, Property Management

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