

CLIENT:

M/s GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI.

PROJECT:

**PROPOSED CONSTRUCTION OF G + 30 STOREY R.C.C. BUILDING AT
THE SITE LOCATED IN F/SOUTH WARD, PARMAR GURUJI MARG,
SUPARI BAUG ESTATE, SCHEME NO 31, PAREL SEWREE DIVISION
KNOWN AS "KOLI CHAWL", MUMBAI - 12**

FINAL GEO-TECHNICAL INVESTIGATION REPORT

SUBMITTED BY

Mr. KAMLESH PAZARE (GEO-TECHNICAL CONSULTANT)

MAY - 2022

KAMLESH PAZARE
Consultant – géotechnique

GST Id: 27ALMPP7376F1ZI

Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in

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FINAL GEO-TECHNICAL INVESTIGATION REPORT

CONTENTS-

1. INTRODUCTION
2. METHODOLOGY OF INVESTIGATION
3. SUB SURFACE SOIL / ROCK CONDITIONS
4. DISCUSSION AND BEARING CAPACITY ANALYSIS
5. CONCLUSION AND RECOMMENDATIONS

ANNEXURES

- A. LOCATION PLAN OF BOREHOLES
- B. BOREHOLE LOGS
- C. LABORATORY TEST RESULTS



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DIVISION KNOWN AS "KOLI CHAWL", MUMBAI - 12

FINAL GEO-TECHNICAL INVESTIGATION REPORT

1.0 INTRODUCTION-

1.1 Client M/s GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI proposed construction of multistory r.c.c. building ground plus upper thirty floors at the site located in F/South ward, Parmar Guruji Marg, Supari Baug Estate, scheme no 31, Parel Sewree Division known as "Koli Chawl", Mumbai -12.

1.2 To understand the subsurface ground soil / rock profile available at proposed building location, it is decided to carry out of detail geotechnical investigation by drilling five number of boreholes each 20.0 m depth below existing ground level. Location plan showing boreholes position is attached as an annexure.

1.3 The work of carrying out geo-technical investigation including laboratory testing on selected soil, rock and ground water samples and submission of geotechnical report is entrusted to Mr. Kamlesh S. Pazare - geo-technical consultant and author of this report. Author is having more than 15 years' experience in the field of geo-technical engineering.

1.4 Accordingly, drilling works are completed between 20th April to 3rd May 2022 by mobilizing two Calyx drilling rigs.

1.5 After completion of the boreholes, laboratory testing on selected soil, rock and ground water samples from each borehole has been carried out in NABL accredited laboratory of M/s Paresh Constructions and Foundations Pvt. Ltd.



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1.6 This report has been prepared incorporating discussion on soil / rock stratum met at borehole locations along with foundation recommendation and calculation of rock safe bearing capacity.

2.0 METHODOLOGY OF INVESTIGATION

A) FIELD INVESTIGATION

2.1 For proposed investigation, standard rotary type drilling rigs coupled with diesel engine fitted to a tripod frame and having all drilling accessories are used. These rigs are generally suitable for all geotechnical investigation works and has an arrangement for driving and extraction of casing, boring and drilling. Conducting SPT, collecting UDS, and conducting other tests such as In-situ packer permeability tests are possible with these rigs.

2.2 Boreholes of 100 mm and NX (76 mm) diameter has been drilled using purely rotary method. Double tube core barrel and 'Nx' sized diamond bits are used to drill through bedrock. Rock core samples recovered in drilling are arranged sequentially and numbered and subsequently calculated % **Core Recover** and % **Rock Quality Designation** values for each drilling run. In addition, based on visual inspection, petrography descriptions are done for all the drilled rock cores. All samples are stored in sturdy good quality GI boxes and boxes are identified. IS: 1892: 1979: Code of practice for subsurface investigations for foundations (First Revision) is referred for drilling work.

B) LABORATORY TESTING

2.3 On selected rock cores and ground water sample, necessary laboratory testing has been carried out in NABL accredited laboratory of **M/s Paresh Constructions and Foundations Pvt. Ltd.** List of IS codes referred for the testing is given below.

1. Test on Rock Samples.

a) IS: 9143: 1979: Method for the determination of unconfined compressive strength of rock materials.

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Contact: 9324803571

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b) IS: 13030: 1991: Method of test for laboratory determination of water content, porosity, density and related properties of rock material.

c) IS: 8764: 1998: Method of test for determination of Point Load Index

2. IS: 3025: 1983: Method of tests on water samples

a) Part 11: Determination of pH value

b) Part 24: Determination of total soluble sulphates

c) Part 26: Determination of chlorides

All laboratory test results are attached as an annexure.

3.0 SUB-SURFACE SOIL ROCK CONDITIONS

3.1 Subsurface soil / rock stratum met at each borehole location are described in details below. Refer borehole logs and laboratory test results attached as an annexure.

3.2 At all borehole locations, mainly following four stratum are encountered.

Stratum One	:	Filled up soil (Debris)
Stratum Two	:	Overburden soil
Stratum Three	:	Brown Highly Weathered Basalt rock
Stratum Four	:	Gray compact Basalt bed rock

Detail descriptions of all stratum are given below.

3.3 **Stratum One** : **Filled up soil (Debris)**

On entire plot debris are dumped. Depths of debris at borehole locations are varying from 1.0 m to 1.75 m.

3.4 **Stratum Two** : **Overburden soil**

Below debris is available overburden soil layer. Overburden soil layer extends up to 2.5 m to 4.5 m depths below existing ground levels. In overburden soil layer, in-situ SPT N values are varying from 7 to 20 indicating medium dense soil.



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3.5 Stratum Three : Brown Highly Weathered Basalt rock

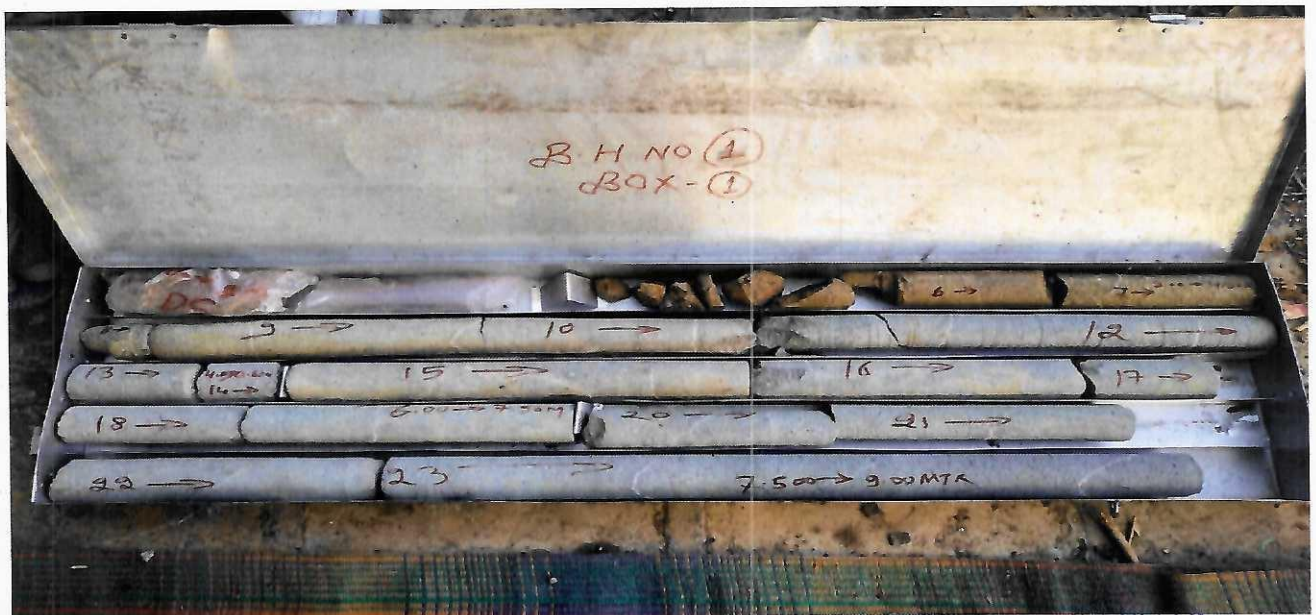
Below overburden soil layer i.e. from 2.5 m to 4.5 m depths is available brown highly weathered basalt rock layer. This layer is having thickness varying from minimum 1.5 m to maximum 5.0 m. In this layer, % Core Recovery (CR) values are varying from 17 % to 46 % and % Rock Quality Designation (RQD) are varying from 0 % to 28 % indicating highly weathering of rock mass.

3.6 Stratum Four : Gray compact Basalt bed rock

Below weathered rock stratum i.e. from depths 4.5 m at BH-1 location, 6.0 m at BH-2, BH-3 and BH-4 locations and 7.5 m at BH-5 location is available grey compact basalt bed rock stratum. In this stratum, % Core Recovery (CR) values are varying from 56 % to 100 % and % Rock Quality Designation (RQD) are varying from 30 % to 100 % indicating good quality rock stratum. Soaked UCS value of rock cores are varying from 40.4 Mpa to 92.0 Mpa indicating strong rock stratum.

3.7 Core boxes photographs showing rock cores are given below.

BH-1



KAMLESH PAZARE

Consultant – géotechnique

GST Id: 27ALMPP7376F1Z1

Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in



BH-2



Reg. Office: C-5-17, 1:1, Sector 4, CBD Belapur, Navi Mumbai - 400614



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Consultant – géotechnique

GST Id: 27ALMPP7376F1ZI

Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in



BH-3



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Consultant – géotechnique

GST Id: 27ALMPP7376F1ZI

Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in



BH-4



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KAMLESH PAZARE

Consultant – géotechnique

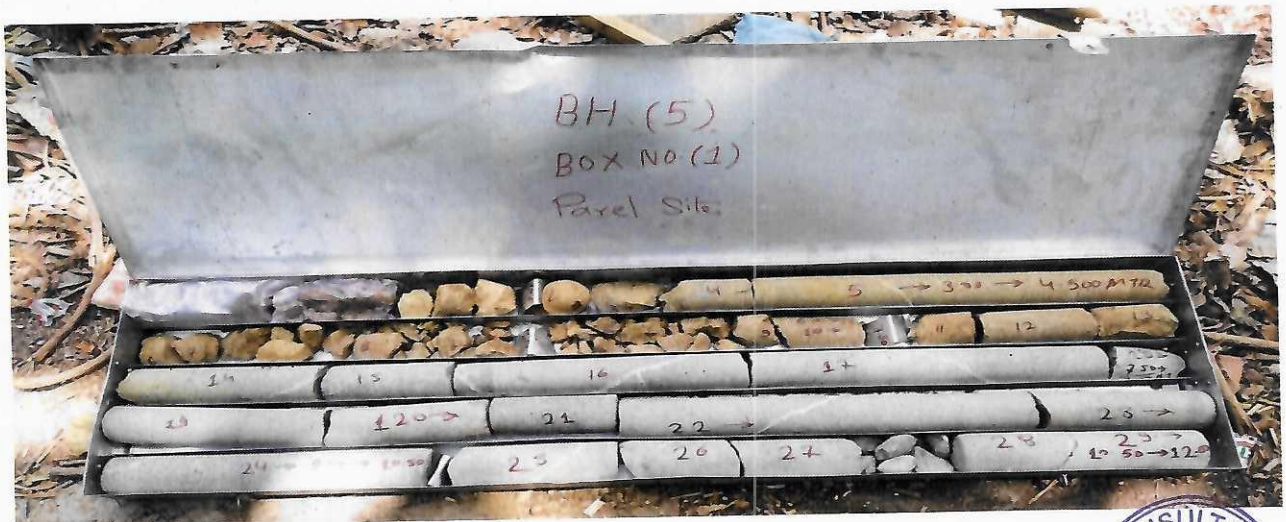
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Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in



BH-5



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GST Id: 27ALMPP7376F1ZI

Contact: 9324803571

Email: kamleshpazare@yahoo.com and pgeotechnics@yahoo.co.in



3.8 Ground water table is encountered at around 3.5 m depth below existing ground levels which is the surface runoff water.

4.0 DISCUSSION AND BEARING CAPACITY ANALYSIS

4.1 For proposed building structure, isolated / combined footing foundations should be adopted resting strictly on/in stratum four i.e. grey compact basalt bed rock stratum. Below existing ground levels, grey compact basalt bed rock stratum is available at following depths.

Bore Hole No	Depth of Grey compact Basalt bed rock below existing ground levels
BH-1	4.0 m
BH-2	5.5 m
BH-3	6.0 m
BH-4	5.5 m
BH-5	7.5 m



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4.2 Safe bearing capacity of stratum four i.e. grey compact basalt bed rock stratum can be calculated using rock mass rating method given in IS 13365 (Part 1): 1998. Calculation is given below.

Parameter	Values	Rating
Strength of Intact rock Material	50 - 100 MPa	7
Rock Quality Designation (RQD)	25 % to 75 %	10
Spacing of Discontinuities	Close	8
Condition of Discontinuities	Slightly rough and moderately to highly weathered wall rock surface, separation < 1mm	20
Ground Water Condition	Dripping	4
Adjustment for joint orientation: Fair		-7
Total RMR value=		42

For RMR value of 42, SBC value is 150.0 T/m². **Adopt SBC value equal to 150.0 T/sqm.**

4.3 Under foundation pressure, bed rock stratum will undergo only immediate settlement. Immediate settlement in rock stratum can be calculated using equation...

$$\delta H = (C_d * q_{net} * B * (1 - \nu^2)) / E \text{ in mm}$$

Where,

δH = immediate settlement in rock stratum

C_d = Shape and rigidity factor = 1.0

q_{net} = Foundation pressure = 150.0 T/m²

B = Width of foundation = say 5.0 m.

ν = Poisson's ratio = 0.17 – From Lab test result.

E = modulus of elasticity = 1/10th of minimum Lab value = 15.2 GPa /10 = 1,50,000 T/m².

Hence, immediate settlement =

$$\delta H = (1.0 * 150 * 5 * (1 - 0.17^2)) / 1,50,000 * 1000 = 4.85 \text{ mm, Hence o.k.}$$



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4.4 Chemical analysis has been carried out on ground water sample collected from borehole BH-3 location. Summary of test results is given below.

PROPERTY	VALUE	REMARK / LIMIT
PH value	7.56	Neutral
Sulphates, ppm	99	Class I / Table 4 / IS-456(2000)
Chlorides, ppm	263	Within permissible limits

Above results indicate that sulphate and chloride contents in ground water is within permissible limits. Following are the suggestions for type of cement to be used for the concrete.

Type of Cement : Ordinary Portland cement or Portland slag cement or Portland pozzolana cement

Minimum cement content : 330 Kg/m³

Maximum Face Water-Cement Ratio : 0.5



5.0 CONCLUSION AND RECOMMENDATIONS

Based on the above discussion, following are the conclusion and recommendations.

5.1 Mainly following four stratum are available at proposed building site location.

Stratum One	:	Filled up soil (Debris)
Stratum Two	:	Overburden soil
Stratum Three	:	Brown Highly Weathered Basalt rock
Stratum Four	:	Gray compact Basalt bed rock

5.2 Adopt shallow isolated / combined footing foundations for proposed building structure.

5.3 Foundations should strictly rest on/in stratum four i.e. grey compact basalt bed rock stratum.

5.4 Below existing ground levels, stratum four is available at following depths at boreholes locations.

Bore Hole No	Depth of Grey compact Basalt bed rock (Stratum 4) below existing ground levels
BH-1	4.0 m
BH-2	5.5 m
BH-3	6.0 m
BH-4	5.5 m
BH-5	7.5 m

5.5 Adopt net safe bearing capacity value of stratum four i.e. grey compact basalt bed rock equal to 150.0 T/sqm.

5.6 Adopt subgrade modulus value of grey compact basalt bed rock stratum equal 12.5 Kg/cm³.

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5.7 Sulphate and chloride contents in ground water is within permissible limits. Following are the suggestions for type of cement to be used for the concrete.

Type of Cement : Ordinary Portland cement or Portland slag cement or Portland pozzolana cement
Minimum cement content : 330 Kg/m³
Maximum Face Water-Cement Ratio : 0.5

5.8 Foundation stratum will certify by undersigned.

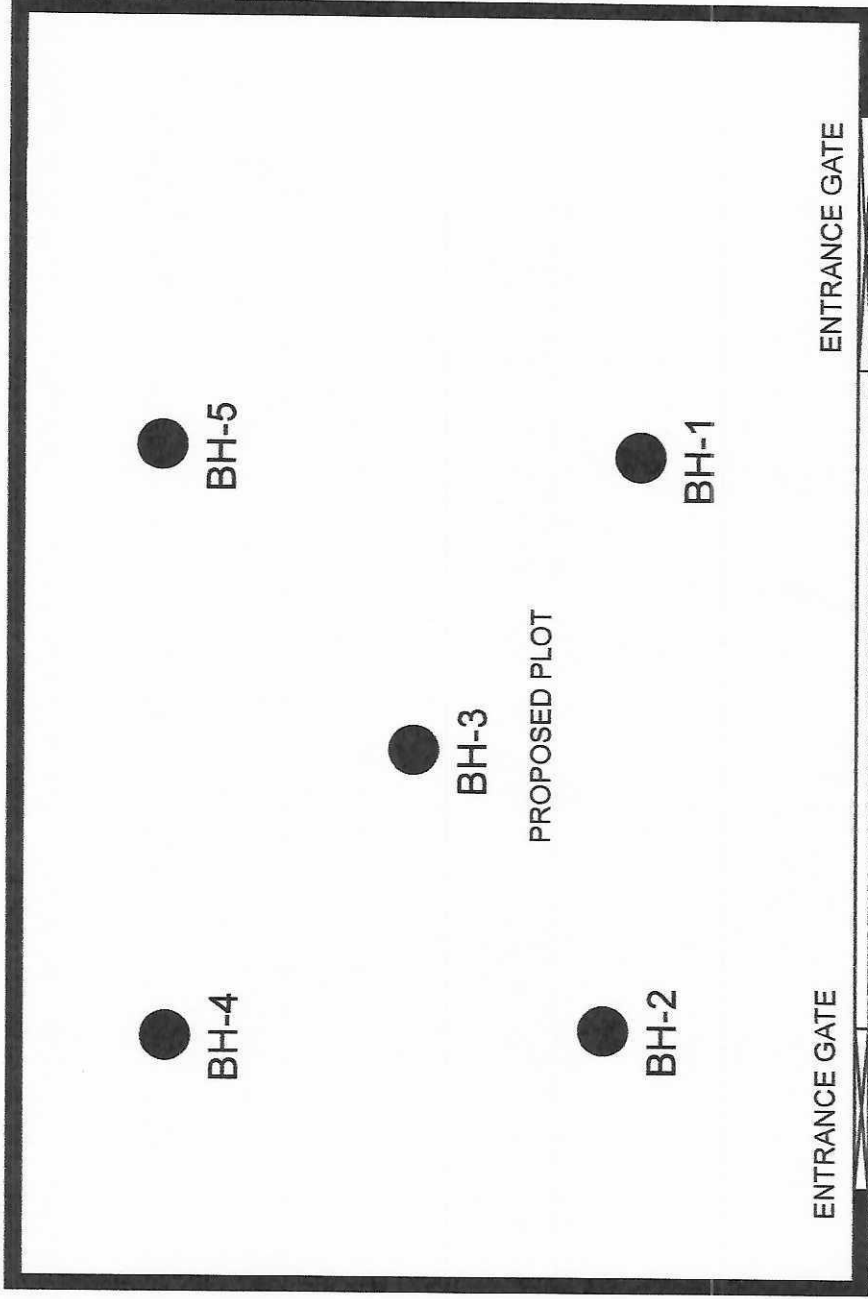


K S Pazare
(Geo-technical Engineer)

ANNEXURES

LOCATION PLAN

ADJACENT UNDER CONSTRUCTION BUILDING



ENTRANCE GATE

ENTRANCE GATE

FRONT SIDE ROAD

LOCATION PLAN SHOWING BOREHOLES POSITION

NOT TO SCALE

BORE HOLE LOGS

CLIENT : GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI

PROJECT : Geo-technical Investigation for proposed construction of G+30 storey r.c.c. building at site located in F/South Ward, Parnar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, known as "Koli Chawl", Mumbai-12.

SHEET NO. : 1 OF 2	DATE : 20 / 04 / 2022 TO 23 / 04 / 2022
BORE HOLE NO: BH - 1	METHOD : ROTARY DRILLING
GROUND R.L. : -	CASING : Up to 3.00 M BGL
GROUND W. T. : 3.50 M BGL	DIAMETER : 100 MM AND NX
LOCATION :	

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15				
1.00	100 MM		Filled up soil (Debris)								
1.75											
2.00	100 MM		Brown sandy Clay mixed with gravels								
3.00											
3.00	NX		Brown weathered BASALT	3.00 / 3.08	SPT1	50	--	--	--	R	
4.00											
4.50											
5.00	NX		Gray BASALT rock								
6.00											
6.00											
7.00											
7.50											
8.00											
8.00											
9.00											
9.00											
10.00											

SPT N = STANDARD PENETRATION TEST VALUE

UDS = UNDISTURBED SOIL SAMPLE

K = INSITU PERMEABILITY

DS = DISTURBED SOIL SAMPLE

CR = CORE RECOVERY

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE CONTINUES...

KAMLESH PAZARE

SCALE : 1: 50

JOB NO. ---

CLIENT : **GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI**

PROJECT : Geo-technical Investigation for proposed construction of G+30 storey r.c.c. building at site located in F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, known as "Koli Chawl", Mumbai-12.

SHEET NO. : 2 OF 2

DATE : 20 / 04 / 2022 TO 23 / 04 / 2022

BORE HOLE NO: BH - 1

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.00 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
		▽▽	Gray BASALT rock	10.50	CORE						80	76	
11.00		▽▽			CORE						87	76	43.8
12.00		▽▽		12.00									
13.00		▽▽			CORE						84	79	
14.00		▽▽		13.50									
15.00	NX	▽▽			CORE						82	74	80.2
16.00		▽▽		15.00									
17.00		▽▽			CORE						85	80	
18.00		▽▽		16.50									
19.00		▽▽			CORE						88	65	
20.00		▽▽	18.00										
		▽▽		CORE						90	90		
		▽▽	19.50										
		▽▽		CORE						93	93		
		▽▽	20.00										

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

UDS = UNDISTURBED SOIL SAMPLE

DS = DISTURBED SOIL SAMPLE

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE TERMINATED AT A DEPTH OF 20.00 METER BELOW GROUND LEVEL.

SCALE : 1 : 50

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SHEET NO. : 1 OF 2

DATE : 23 / 04 / 2022 TO 25 / 04 / 2022

BORE HOLE NO: BH - 2

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.50 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
1.00	100 MM		Filled up soil (Debris)										
1.50													
2.00	100 MM		Brown sandy Clay mixed with gravels	1.50/2.10	SPT1	2	3	4	6	7			
3.00													
4.00	100 MM		Brown sandy Clay mixed with gravels	3.00/3.60	SPT2	3	5	5	8	10			
4.50													
5.00	NX		Brown Weathered BASALT	4.50 / 4.58	SPT3	50	--	--	--	R			
6.00													
7.00	NX		Gray BASALT rock	6.00							32	23	52.4
7.50													
8.00	NX		Gray BASALT rock	7.50							76	70	
9.00													
9.00	NX		Gray BASALT rock	9.00							56	30	63.4
10.00													
10.00	NX		Gray BASALT rock								70	65	63.4

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

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DS = DISTURBED SOIL SAMPLE

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE CONTINUES...

SCALE : 1: 50

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SHEET NO. : 2 OF 2

DATE : 23 / 04 / 2022 TO 25 / 04 / 2022

BORE HOLE NO: BH - 2

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.50 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
		▽	Gray BASALT rock	10.50	CORE						76	65	
11.00		▽			CORE						83	76	
12.00		▽			CORE						85	65	92.0
13.00		▽			CORE						79	73	
14.00		▽			CORE						90	87	
15.00	NX	▽			CORE						88	85	
16.00		▽			CORE						92	92	
17.00		▽			CORE						98	98	
18.00		▽			CORE								
19.00		▽			CORE								
20.00		▽		CORE									

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

UDS = UNDISTURBED SOIL SAMPLE

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RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE TERMINATED AT A DEPTH OF 20.00 METER BELOW GROUND LEVEL.

SCALE : 1: 50

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SHEET NO. : 1 OF 2
 BORE HOLE NO: BH - 3
 GROUND R.L. : -
 GROUND W. T. : 3.50 M BGL

DATE : 25 / 04 / 2022 TO 27 / 04 / 2022
 METHOD : ROTARY DRILLING
 CASING : Up to 3.00 M BGL
 DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
1.00	100 MM		Filled up soil (Debris)										
1.50													
2.00	100 MM		Brown sandy Clay mixed with gravels	1.50/2.10	SPT1	5	9	11	28	20			
3.00													
4.00	NX		Brown Weathered BASALT	3.00 / 3.10	SPT2	50	-	-	-	R			
4.50				CORE							18	NIL	
5.00	NX		Brown Weathered BASALT										
6.00				CORE							28	NIL	
7.00	NX		Gray BASALT rock	6.00									
7.50				CORE							57	28	55.2
8.00	NX		Gray BASALT rock										
9.00				CORE							83	83	
10.00	NX		Gray BASALT rock	9.00									
				CORE							77	63	60.7

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K = INSITU PERMEABILITY
 DS = DISTURBED SOIL SAMPLE

CR = CORE RECOVERY
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REMARKS : BOREHOLE CONTINUES...

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BORE HOLE NO: BH - 3

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.00 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
		▽▽	Gray BASALT rock	10.50	CORE						77	63	
11.00		▽▽			CORE						79	69	
12.00		▽▽		12.00									
13.00		▽▽			CORE						80	52	69.1
14.00		▽▽		13.50									
15.00	NX	▽▽			CORE						83	80	
16.00		▽▽		15.00									
17.00		▽▽			CORE						92	92	
18.00		▽▽		16.50									
19.00		▽▽			CORE						89	86	68.2
20.00		▽▽	18.00										
		▽▽		CORE						93	93		
		▽▽	19.50										
		▽▽		CORE						100	100		
		▽▽	20.00										

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

UDS = UNDISTURBED SOIL SAMPLE

DS = DISTURBED SOIL SAMPLE

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE TERMINATED AT A DEPTH OF 20.00 METER BELOW GROUND LEVEL.

SCALE : 1: 50

KAMLESH PAZARE

JOB NO. --

CLIENT : GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI

PROJECT : Geo-technical Investigation for proposed construction of G+30 storey r.c.c. building at site located in F/South Ward, Parnar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, known as "Koli Chawl", Mumbai-12

SHEET NO. : 2 OF 2

DATE : 28 / 04 / 2022 TO 30 / 04 / 2022

BORE HOLE NO: BH - 4

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.00 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
		▽	Gray BASALT rock	10.50	CORE						82	65	
11.00		▽			CORE						85	74	58.1
12.00		▽			CORE						85	85	
13.00		▽			CORE						88	72	
14.00		▽			CORE						90	82	
15.00	NX	▽			CORE						77	37	21.6
16.00		▽	Grayish Brown BASALT rock	16.50	CORE						77	37	21.6
17.00		▽			CORE						69	40	
18.00		▽			CORE						86	40	5.6
19.00		▽			CORE								
20.00		▽		CORE									

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

UDS = UNDISTURBED SOIL SAMPLE

DS = DISTURBED SOIL SAMPLE

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE TERMINATED AT A DEPTH OF 20.00 METER BELOW GROUND LEVEL.

SCALE : 1 : 50

KAMLESH PAZARE

JOB NO. —

CLIENT : **GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI**

PROJECT : Geo-technical Investigation for proposed construction of G+30 storey r.c.c. building at site located in F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, known as "Koli Chawl", Mumbai-12

SHEET NO. : 1 OF 2	DATE : 01 / 05 / 2022 TO 03 / 05 / 2022
BORE HOLE NO: BH - 5	METHOD : ROTARY DRILLING
GROUND R.L. : -	CASING : Up to 3.00 M BGL
GROUND W. T. : 3.50 M BGL	DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE				BLOWS/15cm	SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)	
				DEPTH (m)	TYPE	15	15						15
1.00	100 MM		Filled up soil (Debris)										
1.75													
2.00			Brown sandy Clay mixed with gravels										
2.50													
3.00	NX		Grayish Brown Weathered BASALT	3.00	CORE					40	NIL		
4.00											46	28	
4.50													
5.00													
6.00													
7.00													
7.50													
8.00			Gray BASALT rock										
9.00													
10.00													

SPT N = STANDARD PENETRATION TEST VALUE

UDS = UNDISTURBED SOIL SAMPLE

K = INSITU PERMEABILITY

DS = DISTURBED SOIL SAMPLE

CR = CORE RECOVERY

RQD = ROCK QUALITY DESIGNATION

REMARKS : BOREHOLE CONTINUES...

KAMLESH PAZARE

SCALE : 1: 50

JOB NO. —

CLIENT : **GBD INFRA PROJECTS LLP., KANDIVALI (E), MUMBAI**

PROJECT : Geo-technical Investigation for proposed construction of G+30 storey r.c.c. building at site located in F/South Ward, Parnar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, known as "Koli Chaw", Mumbai-12.

SHEET NO. : 2 OF 2

DATE : 01 / 05 / 2022 TO 03 / 05 / 2022

BORE HOLE NO: BH - 5

METHOD : ROTARY DRILLING

GROUND R.L. : -

CASING : Up to 3.00 M BGL

GROUND W. T. : 3.50 M BGL

DIAMETER : 100 MM AND NX

LOCATION :

DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	TOTAL CORE RECOVERY (%)	RQD %	UCS (MPa)
				DEPTH (m)	TYPE	15	15	15	15				
11.00	NX	▽▽	Gray BASALT rock	10.50	CORE						86	82	
12.00		▽▽		12.00	CORE						65	30	
13.00		▽▽		13.50	CORE						73	45	40.4
14.00		▽▽		15.00	CORE						76	38	47.3
15.00		▽▽		16.50	CORE						92	50	
16.00		▽▽											
17.00			BOREHOLE TERMINATED AT A DEPTH OF 16.50 METER BELOW GROUND LEVEL.										
18.00													
19.00													
20.00													

SPT N = STANDARD PENETRATION TEST VALUE

K = INSITU PERMEABILITY

CR = CORE RECOVERY

UDS = UNDISTURBED SOIL SAMPLE

DS = DISTURBED SOIL SAMPLE

RQD = ROCK QUALITY DESIGNATION

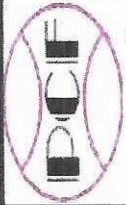
REMARKS : BOREHOLE TERMINATED AT A DEPTH OF 16.50 METER BELOW GROUND LEVEL.

SCALE : 1 : 50

KAMLESH PAZARE

JOB NO. —

LAB TEST RESULTS



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI



ULR No. TC911421000000271F

Page No.: 1/6

Test Order / Report No. PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. 2022 / May / 0373

TEST RESULTS OF ROCK CORE

Project Geo-technical Investigation for proposed construction of Ground plus Thirty storey r.c.c. building at the site located at F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Known as "Koli Chawl", Mumbai - 400 012.

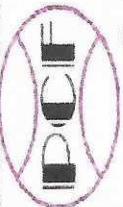
Clients GBD INFRA PROJECTS LLP.

Serial	Lab. ID.	Description			Dimension			H : D (1 : H / D)	Correction Factor	Condition Of Test	Strength							Physical Properties					Remarks		
		* Location	* Core Piece	* Depth in mtrs	Diameter	Length	Thickness				Failure Load	Unconfined Compressive	Point Load	Index / s	Brazilian Tensile Test	Modulus of Elasticity	Poisson's Ratio	Triaxial Compressio	Density	Dry Densy	Porosity	Water Absorption		Specific Gravity	
No.	No.	Name	*No.	From	To	cm	cm	cm	IS : 516	Soak ed	kN	IS : 9143	IS : 8764	IS : 10082	GPa	µ	Mpa	φ	IS : 13047	IS : 13030	IS : 13030	%	%	IS : 1124	IS : 2720
1	373/001		9	4.50	6.00	5.40	11.1	2.06	1.006	Soak ed	107	47.0	----	----	----	----	----	----	----	2.35	2.31	4.15	1.80	----	----
2	373/002		16	6.00	7.50	5.40	11.3	2.09	1.010	Soak ed	170	75.0	----	37.8	0.18	----	----	----	----	2.69	2.64	4.85	1.83	----	----
3	373/003	BH	21	7.50	9.00	5.40	11.1	2.06	1.006	Soak ed	101	44.4	----	----	----	----	----	----	----	2.25	2.20	5.01	2.28	----	----
4	373/004	01	32	10.5	12.0	5.40	11.0	2.04	1.004	Soak ed	100	43.8	----	----	----	----	----	----	----	2.65	2.62	3.10	1.18	----	----
5	373/005		45	13.5	15.0	5.40	11.0	2.04	1.004		183	80.2	----	----	----	----	----	----	----	2.77	2.74	2.13	0.78	----	----

Prepared By

Approved By

K.S.Pazare (T. M.) / Arvind K. (D.Y.TM)



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI



ULR No. TC911421000000271F

Page No. : ,2/6

Test Order / Report No. PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. 2022 / May / 0373

TEST RESULTS OF ROCK CORE

Project Geo-technical Investigation for proposed construction of Ground plus Thirty storey r.c.c. building at the site located at F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Known as "Koli Chawl", Mumbai - 400 012.

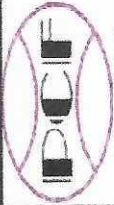
Clients GBD INFRA PROJECTS LLP.

Serial	Lab. ID.	Description		Dimension		H : D (1 : H / D)	Correction Factor	Condition Of Test	Strength							Physical Properties					Remarks				
		* Location	* Core Piece	* Depth in mtrs	Diameter				Length	Thickness	Failure Load	Unconfined Compressive	Point Load	Brazilian Tensile Test	Modulus of Elasticity	Poisson's Ratio	Triaxial Compressive	Dry Density	Porosity	Water Absorption		Specific Gravity			
No.	No.	Name	*No.	From	To	cm	cm	cm	IS : 9143	IS : 8764	IS : 10082	IS : 9221	Cohesio n	Degree	IS : 13047	IS : 13030	IS : 1124	IS : 2720							
						kN	MPa	MPa	GPa	μ	Mpa	ϕ	gm / cm ³	%	%	%	Part								
1	373/006		4	4.50	6.00	5.40	11.2	2.07	1.008	Soak ed	119	52.4	---	---	15.2	0.17	---	---	2.64	2.62	1.70	0.65	---	---	
2	373/007	BH	15	7.50	9.00	5.40	11.2	2.07	1.008	Soak ed	144	63.4	---	---	---	---	---	---	2.67	2.63	3.79	1.44	---	---	
3	373/008	02	20	9.00	10.5	5.40	11.2	2.07	1.008	Soak ed	144	63.4	---	---	---	---	---	---	2.70	2.66	3.65	1.37	---	---	
4	373/009		33	12.0	13.5	5.40	11.2	2.07	1.008	Soak ed	209	92.0	---	---	---	---	---	---	2.81	2.79	1.45	0.52	---	---	

Prepared By

Approved By

K.S.Pazare (T. M.) / Arvind K. (D.Y.TM)



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI



ULR No. TC91142100000271F

Page No. : ,3/6

Test Order / Report No. PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. 2022 / May / 0373

TEST RESULTS OF ROCK CORE

Project Geo-technical Investigation for proposed construction of Ground plus Thirty storey r.c.c. building at the site located at F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Known as "Koli Chawl", Mumbai - 400 012.

Clients GBD INFRA PROJECTS LLP.

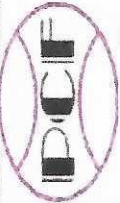
Serial No.	Lab. ID.	Description			Dimension		H : D (1 : H/D)	Correction Factor	Condition Of Test	Strength						Physical Properties					Remarks			
		* Location	* Core Piece	* Depth in mtrs	Diameter	Length				Thickness	Failure Load	Unconfined	Point Load	Brazilian Tensile	Modulus of Elasticity	Poisson's Ratio	Triaxial Compressio	Density	Dry Density	Porosity		Water Absorption	Specific Gravity	
No.	No.	Name	* No.	From	To	cm	cm	cm	IS : 516	kN	IS : 9143	IS : 8764	IS : 10082	IS : 9221	Cohesio	Degree	IS : 13030	gm / cm ³	%	%	IS : 1124	IS : 2720	Part	
1	373/010		13	6.00	7.50	5.40	11.0	2.04	1.004	Soak	126	55.2	----	----	----	----	2.70	2.65	4.83	1.82	----	----	----	
2	373/011	BH	23	9.00	10.5	5.40	11.2	2.07	1.008	ed	138	60.7	----	33.2	0.19	----	2.74	2.69	4.92	1.83	----	----	----	
3	373/012	03	34	12.0	13.5	5.40	10.9	2.02	1.002	Soak	158	69.1	----	----	----	----	2.80	2.78	2.24	0.81	----	----	----	
4	373/013		43	16.5	18.0	5.40	11.5	2.13	1.014	ed	154	68.2	----	----	----	----	2.81	2.79	2.26	0.81	----	----	----	

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Approved By

K.S.Pazare (T. M.) / Arvind K. (DY.TM)



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI



ULR No. TC911421000000271F

Page No. : 4/6

Test Order / Report No. PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. 2022 / May / 0373

TEST RESULTS OF ROCK CORE

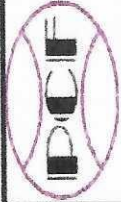
Project Geo-technical Investigation for proposed construction of Ground plus Thirty storey r.c.c. building at the site located at F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Known as "Koli Chawl", Mumbai - 400 012.

Clients GBD INFRA PROJECTS LLP.

Serial	Lab. ID.	*Location		*Depth in mtrs		Dimension		H : D (1 : H / D)	Correction Factor	Condition Of Test	Strength							Physical Properties				Remarks	
		*No.	*Name	From	To	Diameter	Length				Thickness	Failure Load	Unconfined Compressive	Point Load	Brazilian Index / s	Tensile Test	Modulus of Elasticity	Poisson's Ratio	Triaxial Compressive	Dry Density	Porosity		Water Absorption
No.	No.								IS : 516		kN	IS : 9143	IS : 8764	IS : 10082	IS : 9221	Cohesio n	Degree	IS : 13030	IS : 1124	IS : 2720			
1	373/015	7		6.00	7.50	5.40	11.3	2.09	1.010	Soak ed	177	78.1	---	---	28.6	0.17	---	---	2.72	3.42	1.27		
2	373/016	15		7.50	9.00	5.40	11.0	2.04	1.004	ed	124	54.4	---	---	---	---	---	2.68	6.50	2.49			
3	373/017	28	BH 04	10.5	12.0	5.40	11.6	2.15	1.016	Soak ed	131.0	58.1	---	---	---	---	---	2.80	0.89	0.32			
4	373/018	55		16.5	18.0	5.40	11.4	2.11	1.012	ed	49.0	21.6	---	---	---	---	---	2.37	8.78	3.85			
	373/019	77		19.5	20.0	5.40	10.0	1.85	0.983		13.0	5.6	---	---	---	---	---	2.08	7.36	3.67			

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Approved By K.S.Pazare (T. M.) / Arvind K. (DY.TM)



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI



ULR No. TC91142100000271F

Page No. : 5/6

Test Order / Report No. PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. 2022 / May / 0373

TEST RESULTS OF ROCK CORE

Project Geo-technical Investigation for proposed construction of Ground plus Thirty storey r.c.c. building at the site located at F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Known as "Koli Chawl", Mumbai - 400 012.

Clients GBD INFRA PROJECTS LLP.

Serial	Lab. ID.	Description			Dimension		H : D (1 : H/D)	Correction Factor	Condition Of Test	Strength							Physical Properties					Remarks
		* Location	* Core Piece	* Depth in mtrs	Diameter	Length				Thickness	Unconfined Compressi	Point Load Index / s	Brazilian Tensile	Modulus of Elasticity	Poisson's Ratio	Triaxial Compressi on IS : 13047	Density	Dry Densy	Porosity	Water Absorption	Specific Gravity	
No.	No.	Name	*No.	From	To	cm	cm	cm	IS : 516	kN	MPa	IS : 10032	GPa	μ	Mpa	φ	gm / cm ³	%	%	IS : 1124	IS : 2720	Part
1	373/020		14	7.50	9.00	5.40	11.0	2.04	1.004	106	46.5	---	---	---	---	---	2.69	2.66	2.63	0.99	---	---
2	373/021	BH	19	9.00	10.5	5.40	11.2	2.07	1.008	128	56.3	---	30.6	0.18	---	---	2.76	2.73	2.90	1.06	---	---
3	373/022	05	37	12.0	13.5	5.40	11.1	2.06	1.006	92	40.4	---	---	---	---	---	2.70	2.67	3.40	1.28	---	---
4	373/023		45	13.5	15.0	5.40	11.0	2.04	1.004	108	47.3	---	---	---	---	---	2.74	2.72	2.05	0.75	---	---

Prepared By



Approved By
K.S.Pazare (T. M.) / Arvind K. (D.Y.TM)



PARESH CONSTRUCTIONS AND FOUNDATIONS PVT. LTD., MUMBAI

ULR No. : TC91142100000271F

Page No. : ,6/6

Report No. : PCFPL / L 0327 / 0284

Date : 12.05.2022

Lab. Reference No. : 2022 / May / 0373

CHEMICAL ANALYSIS OF WATER SAMPLES

Proposed construction of G+30 storey r.c.c. building at the site of F/South Ward, Parmar Guruji Marg, Supari Baug Estate, Scheme no 31, Parel Sewree Division, Mumbai-12

Client : GBD INFRA PROJECTS LLP., KANDIVALI (E).

Serial	Lab. ID.	Location		Depth	pH Electrometrically	Sulphate		Chloride	Remarks
		No.	No.			SO ₃ mg / l	CL mg / l		
1	373 / 014		BH 03		7.56	99	263		

Prepared By



Approved By

K.S.Pazare (T. M.) / Arvind K. (D.Y.TM)

***** End of Report *****