



बृहन्मुंबई महानगरपालिका
Municipal Corporation of Greater Mumbai



Mithi River Water Quality Improvement Project

Package 3: Dry Weather Flow Interception at Tidal Outfalls (including Gate Pumps), Transfer Sewer, Training of River (Retaining wall and Service Road), Beautification including Promenades and Allied Works from CST Bridge to Prem nagar outfall, Kurla including Vakola River.

Design Build Operate Contract

Volume 5 - Background Information

Employer:
Municipal Corporation of Greater Mumbai
Municipal Head Office Building, Mahapalika Marg,
Fort, Mumbai - 400 001.

Consultant:
Frischmann Prabhu (India) Pvt. Ltd.
315, Balgovind Wadi, New Prabhadevi Road,
Prabhadevi, Mumbai - 400 025



MUNICIPAL CORPORATION OF GREATER MUMBAI

Mithi River Water Quality Improvement Project

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Design Build Operate Contract

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Employer:
Municipal Corporation of Greater Mumbai
Municipal Head Office Building,
Mahapalika Marg, Fort, Mumbai - 400001
India

Consultant:
Frischmann Prabhu (India) Pvt. Ltd.
315, Balgovind Wadi, New Prabhadevi Road,
Prabhadevi, Mumbai - 400 025.
India

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1 INTRODUCTION

This volume contains background information provided in conjunction with the Tender Documents for the wastewater interception, transfer and adjacent beautification works.

Attention is drawn to Instruction to Tenderers section 7.0 and to the amended Clause 4.10 of the Conditions of Contract.

The Employer and its agents do not represent or warrant the accuracy or completeness of any information set out in this document or of any other background or reference information or documents prepared by the Employer or by third parties.

All data provided by the Employer, including any background information provided by the Employer herein is indicative and for information only, and any reliance on, interpretation of, or use of the data shall be at the user's own risk.

Background of Mithi River Quality Improvement Project:

MCGM had appointed the Consultant, M/s. Frischmann Prabhu (I) Pvt. Ltd. to suggest Short Term & Long Term measures for Mithi River Water Quality Improvement. After survey & study the Consultant had proposed Short Term Works and Long Term Works in 4 different packages to divert Dry Weather Flow of about 285 MLD discharging into Mithi River to Municipal Sewer system.

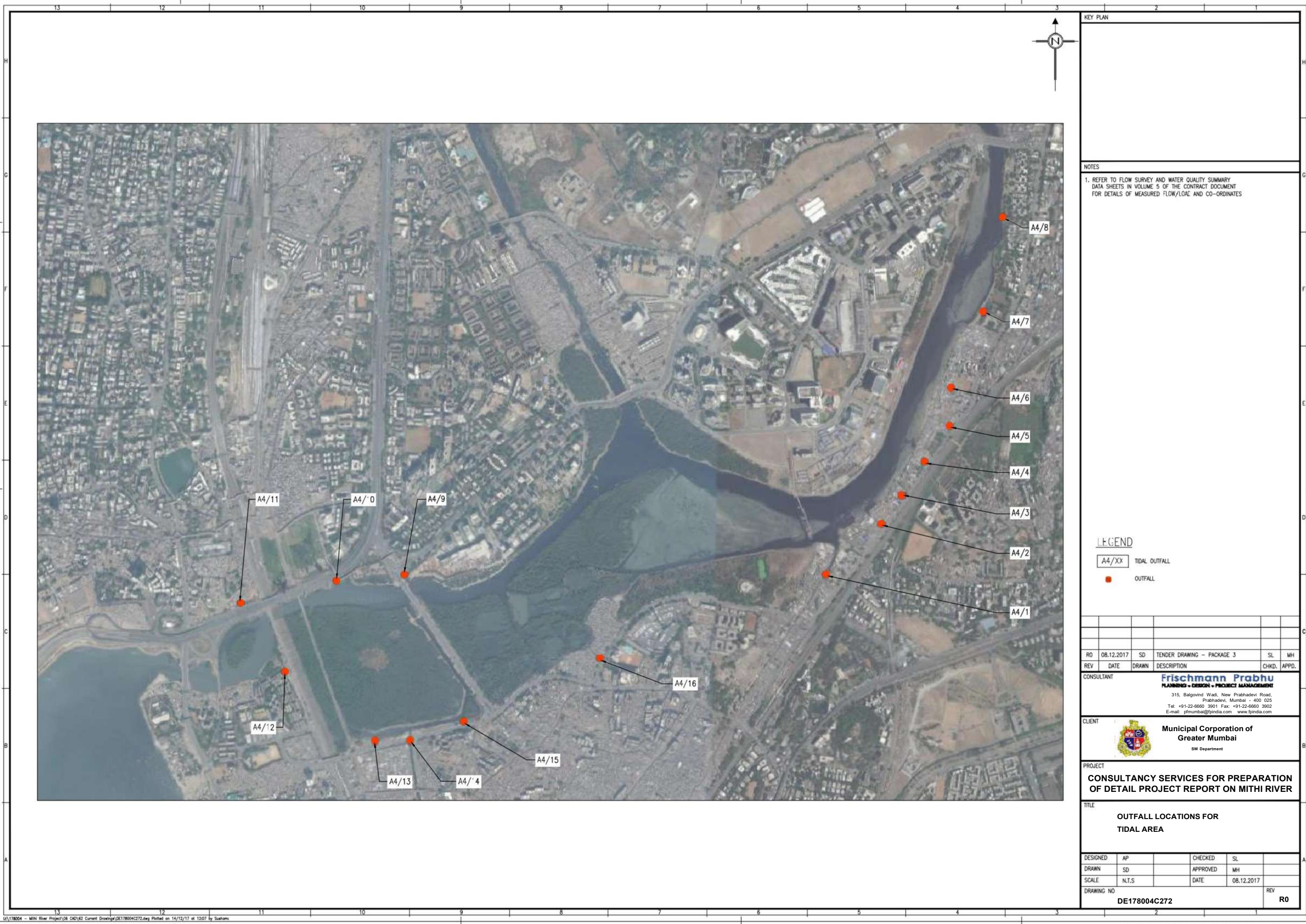
Package- I comprises of Providing & Laying Sewer line of 1.65 km length along banks of Mithi River from Filter Pada to WSSD Garage at Powai, Construction of Influent Pumping Station, Effluent Pumping Station and 8 MLD STP at WSSD Garage and Construction of service roads along banks of Mithi River.

Package II (from WSSD garage to CST Bridge) works are located in non-tidal influence zone. It includes 8.07 km length of sewer line along and nearby Mithi River and 102 nos. of minor interceptors to divert DWF from minor nallas to Municipal sewer network system. Along with this, works of retaining wall of 3.325 km length, service road of 9.375 km length are also proposed.

Package III (from CST bridge to Mahim Causeway including Vakola River), works are located in tidal influence zone. It includes training of river (Construction of Retaining Wall & Service Road), Pumping Stations, Interceptions & Diversion works for diverting Dry Weather Flow (DWF) of various outfalls / nallas into nearby existing Municipal Sewer networks along with Gate Pumps, Beautification including Promenades & allied works.

It comprises of Sewer line work (7.61km), Retaining Wall (7.490 km), Service Roads (6.421 km), 28 nos. of Interceptors, 26 nos. of Gate Pumps, 3 nos. of Sewage Pumping Stations and 8.850 kms of beautification of river including Promenades with their O&M for 10 years.

Package IV- This work comprises of construction of Tunnel for diversion of intercepted Dry Weather Flow from Bapat Nalla and Safed Pool Nalla to the proposed WwTF at Dharavi. The diameter of proposed sewer tunnel is 2.6m and length is about 6.5km.



KEY PLAN

NOTES

1. REFER TO FLOW SURVEY AND WATER QUALITY SUMMARY DATA SHEETS IN VOLUME 5 OF THE CONTRACT DOCUMENT FOR DETAILS OF MEASURED FLOW/LOAD AND CO-ORDINATES

LEGEND

A4/XX

TIDAL OUTFALL

OUTFALL

RO	08.12.2017	SD	TENDER DRAWING - PACKAGE 3	SL	MH
REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.

CONSULTANT

Frishmann Prabhu

PLANNING - DESIGN - PROJECT MANAGEMENT

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CLIENT

**Municipal Corporation of
Greater Mumbai**
SW Department

PROJECT

**CONSULTANCY SERVICES FOR PREPARATION
OF DETAIL PROJECT REPORT ON MITHI RIVER**

TITLE

**OUTFALL LOCATIONS FOR
TIDAL AREA**

DESIGNED	AP	CHECKED	SL
DRAWN	SD	APPROVED	MH
SCALE	N.T.S	DATE	08.12.2017

DRAWING NO

DE178004C272

REV

R0

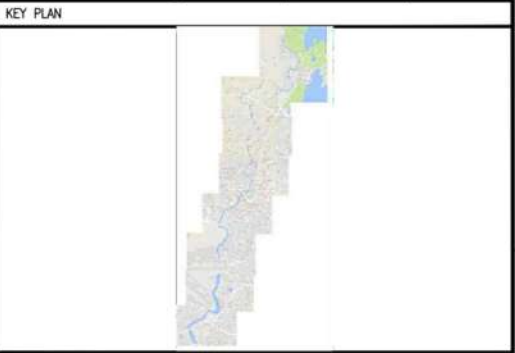
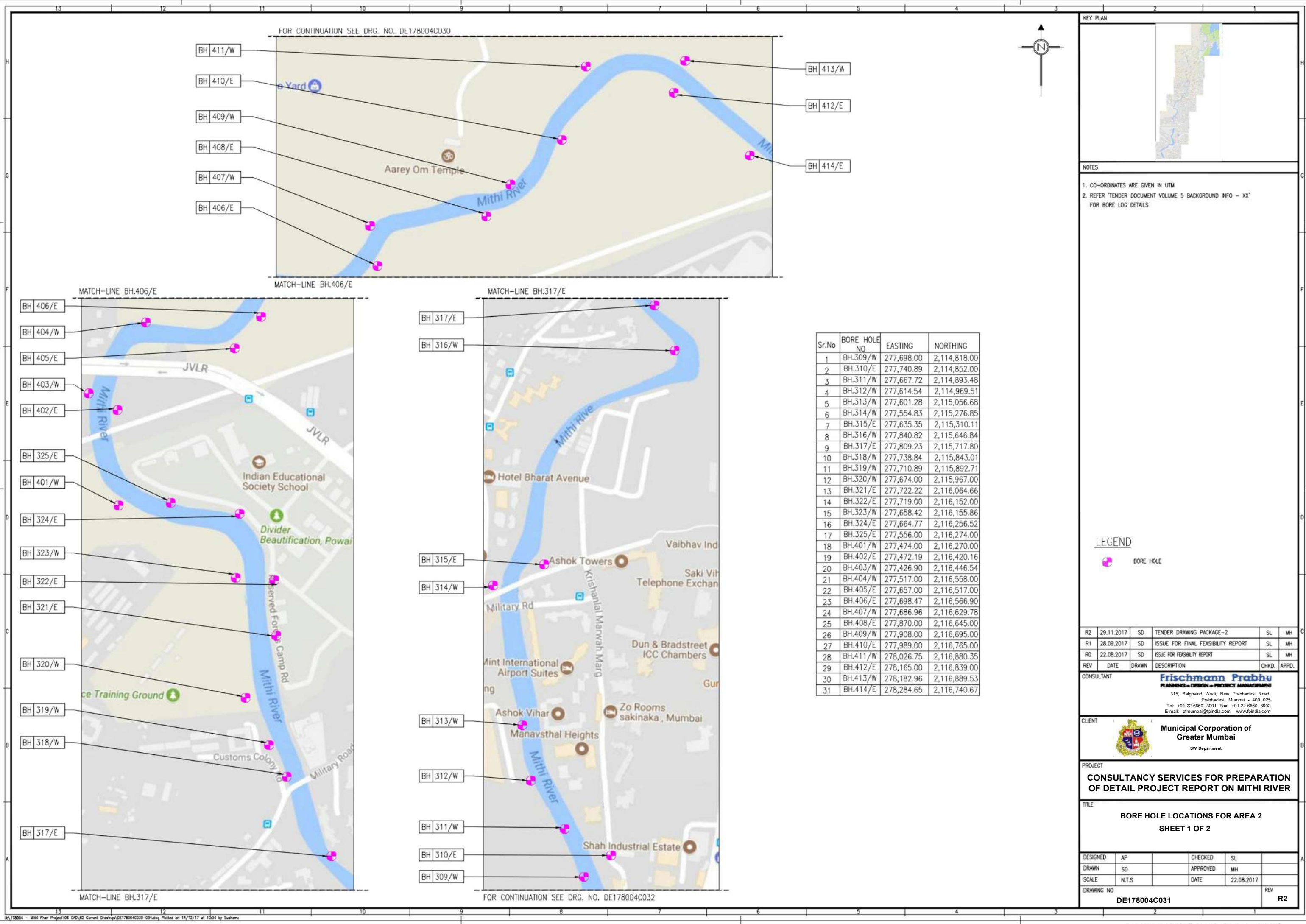
2 INFORMATION PROVIDED

2.1 Tidal Area Flow and Load Data

Sr. No.	Tidal Area Location Ref.	MLD Day 1	MLD Day 2	MLD Day 3	Max (MLD)	Additional Comments
1	A4-9	1.37	1.64	1.80	37.04	Kalanagar
2	A4-10	7.67	4.03	9.67	37.04	Indian Oil
6	A4-11	1.89	2.41	1.00	5.71	WEH
3	A4-14	19.17	18.43	14.57	61.70	L bridge
4	A4-15	6.47	8.95	10.89	36.46	Metro
5	A4-16	0.39	0.29	0.53	2.21	Krida Sankul
	TOTAL	36.96	35.77	38.46	180.16	

2.2 Ground Investigation Data

Bore Hole Location Plan with Bore Logs



NOTES

1. CO-ORDINATES ARE GIVEN IN UTM
2. REFER 'TENDER DOCUMENT VOLUME 5 BACKGROUND INFO - XX'
FOR BORE LOG DETAILS

Sr.No	BORE HOLE NO	EASTING	NORTHING
1	BH.309/W	277,698.00	2,114,818.00
2	BH.310/E	277,740.89	2,114,852.00
3	BH.311/W	277,667.72	2,114,893.48
4	BH.312/W	277,614.54	2,114,969.51
5	BH.313/W	277,601.28	2,115,056.68
6	BH.314/W	277,554.83	2,115,276.85
7	BH.315/E	277,635.35	2,115,310.11
8	BH.316/W	277,840.82	2,115,646.84
9	BH.317/E	277,809.23	2,115,717.80
10	BH.318/W	277,738.84	2,115,843.01
11	BH.319/W	277,710.89	2,115,892.71
12	BH.320/W	277,674.00	2,115,967.00
13	BH.321/E	277,722.22	2,116,064.66
14	BH.322/E	277,719.00	2,116,152.00
15	BH.323/W	277,658.42	2,116,155.86
16	BH.324/E	277,664.77	2,116,256.52
17	BH.325/E	277,556.00	2,116,274.00
18	BH.401/W	277,474.00	2,116,270.00
19	BH.402/E	277,472.19	2,116,420.16
20	BH.403/W	277,426.90	2,116,446.54
21	BH.404/W	277,517.00	2,116,558.00
22	BH.405/E	277,657.00	2,116,517.00
23	BH.406/E	277,698.47	2,116,566.90
24	BH.407/W	277,686.96	2,116,629.78
25	BH.408/E	277,870.00	2,116,645.00
26	BH.409/W	277,908.00	2,116,695.00
27	BH.410/E	277,989.00	2,116,765.00
28	BH.411/W	278,026.75	2,116,880.35
29	BH.412/E	278,165.00	2,116,839.00
30	BH.413/W	278,182.96	2,116,889.53
31	BH.414/E	278,284.65	2,116,740.67

LEGEND

BORE HOLE

R2	29.11.2017	SD	TENDER DRAWING PACKAGE-2	SL	MH
R1	28.09.2017	SD	ISSUE FOR FINAL FEASIBILITY REPORT	SL	MH
R0	22.08.2017	SD	ISSUE FOR FEASIBILITY REPORT	SL	MH
REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.

CONSULTANT

Frishmann Prabhu
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CLIENT

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SW Department

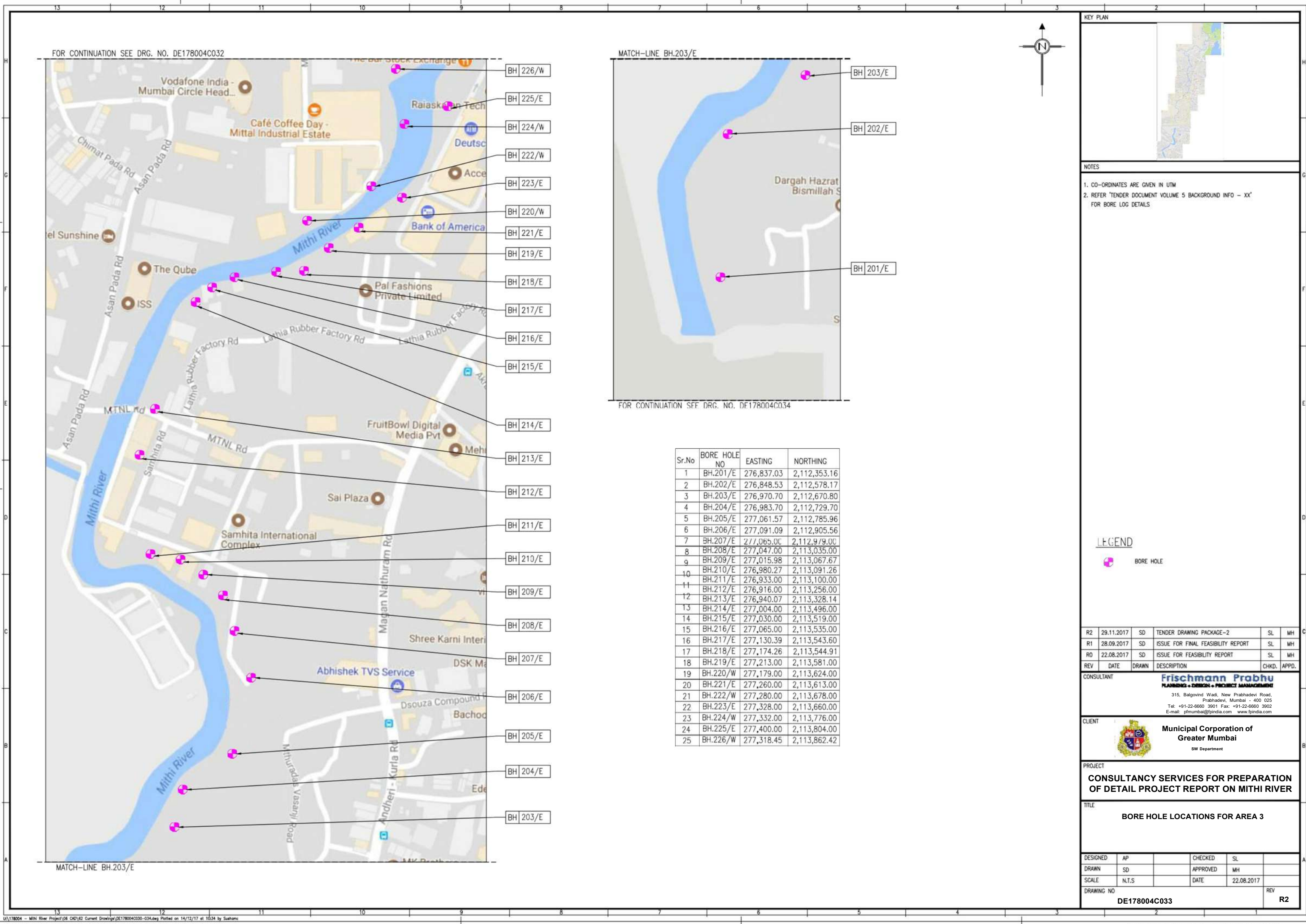
PROJECT

CONSULTANCY SERVICES FOR PREPARATION OF DETAIL PROJECT REPORT ON MITHI RIVER

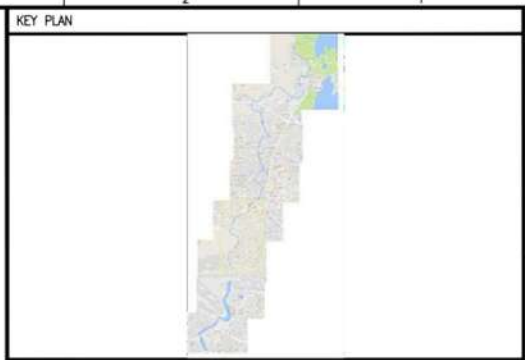
TITLE

**BORE HOLE LOCATIONS FOR AREA 2
SHEET 1 OF 2**

DESIGNED	AP	CHECKED	SL
DRAWN	SD	APPROVED	MH
SCALE	N.T.S	DATE	22.08.2017
DRAWING NO	DE178004C031		
			R2



Sr.No	BORE HOLE NO	EASTING	NORTHING
1	BH.201/E	276,837.03	2,112,353.16
2	BH.202/E	276,848.53	2,112,578.17
3	BH.203/E	276,970.70	2,112,670.80
4	BH.204/E	276,983.70	2,112,729.70
5	BH.205/E	277,061.57	2,112,785.96
6	BH.206/E	277,091.09	2,112,905.56
7	BH.207/E	277,065.00	2,112,979.00
8	BH.208/E	277,047.00	2,113,035.00
9	BH.209/E	277,015.98	2,113,067.67
10	BH.210/E	276,980.27	2,113,091.26
11	BH.211/E	276,933.00	2,113,100.00
12	BH.212/E	276,916.00	2,113,256.00
13	BH.213/E	276,940.07	2,113,328.14
14	BH.214/E	277,004.00	2,113,496.00
15	BH.215/E	277,030.00	2,113,519.00
16	BH.216/E	277,065.00	2,113,535.00
17	BH.217/E	277,130.39	2,113,543.60
18	BH.218/E	277,174.26	2,113,544.91
19	BH.219/E	277,213.00	2,113,581.00
20	BH.220/W	277,179.00	2,113,624.00
21	BH.221/E	277,260.00	2,113,613.00
22	BH.222/W	277,280.00	2,113,678.00
23	BH.223/E	277,328.00	2,113,660.00
24	BH.224/W	277,332.00	2,113,776.00
25	BH.225/E	277,400.00	2,113,804.00
26	BH.226/W	277,318.45	2,113,862.42



NOTES

1. CO-ORDINATES ARE GIVEN IN UTM

2. REFER 'TENDER DOCUMENT VOLUME 5 BACKGROUND INFO - XX' FOR BORE LOG DETAILS

LEGEND

BORE HOLE


R2	29.11.2017	SD	TENDER DRAWING PACKAGE-2	SL	MH
R1	28.09.2017	SD	ISSUE FOR FINAL FEASIBILITY REPORT	SL	MH
R0	22.08.2017	SD	ISSUE FOR FEASIBILITY REPORT	SL	MH
REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.

CONSULTANT

Frischmann Prabhu
PLANNING • DESIGN • PROJECT MANAGEMENT

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CLIENT

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SW Department

PROJECT

CONSULTANCY SERVICES FOR PREPARATION OF DETAIL PROJECT REPORT ON MITHI RIVER

TITLE

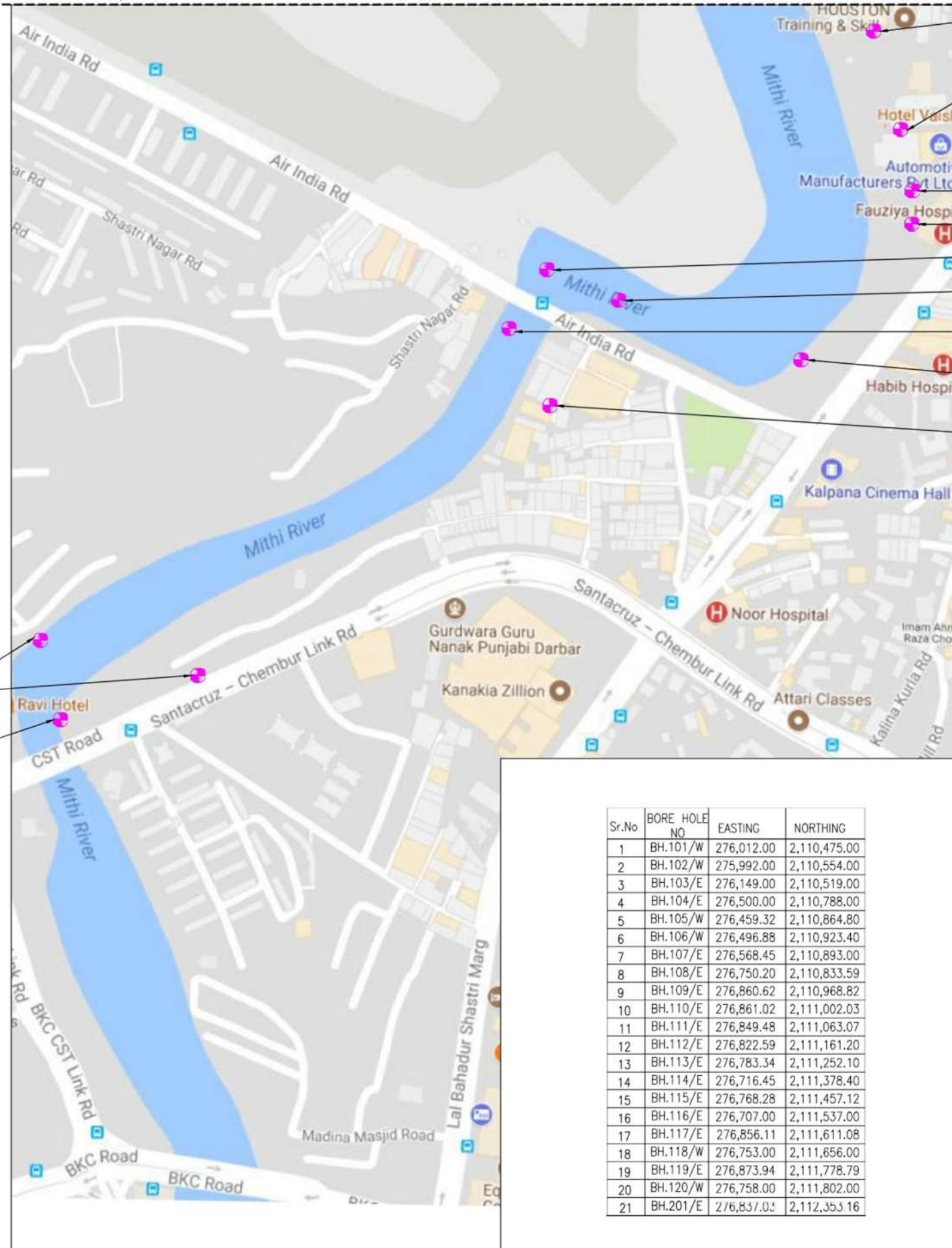
BORE HOLE LOCATIONS FOR AREA 3

DESIGNED	AP	CHECKED	SL
DRAWN	SD	APPROVED	MH
SCALE	N.T.S	DATE	22.08.2017
DRAWING NO	DE178004C033		
REV	R2		

FOR CONTINUATION SEE DRG. NO. DE178004C033



MATCH-LINE BH.112/E



Sr.No	BORE HOLE NO	EASTING	NORTHING
1	BH.101/W	276,012.00	2,110,475.00
2	BH.102/W	275,992.00	2,110,554.00
3	BH.103/E	276,149.00	2,110,519.00
4	BH.104/E	276,500.00	2,110,788.00
5	BH.105/W	276,459.32	2,110,864.80
6	BH.106/W	276,496.88	2,110,923.40
7	BH.107/E	276,568.45	2,110,893.00
8	BH.108/E	276,750.20	2,110,833.59
9	BH.109/E	276,860.62	2,110,968.82
10	BH.110/E	276,861.02	2,111,002.03
11	BH.111/E	276,849.48	2,111,063.07
12	BH.112/E	276,822.59	2,111,161.20
13	BH.113/E	276,783.34	2,111,252.10
14	BH.114/E	276,716.45	2,111,378.40
15	BH.115/E	276,768.28	2,111,457.12
16	BH.116/E	276,707.00	2,111,537.00
17	BH.117/E	276,856.11	2,111,611.08
18	BH.118/W	276,753.00	2,111,656.00
19	BH.119/E	276,873.94	2,111,778.79
20	BH.120/W	276,758.00	2,111,802.00
21	BH.201/E	276,837.03	2,112,353.16




KEY PLAN



NOTES

1. CO-ORDINATES ARE GIVEN IN UTM
2. REFER 'TENDER DOCUMENT VOLUME 5 BACKGROUND INFO - XX' FOR BORE LOG DETAILS

LEGEND

 BORE HOLE

R2	29.11.2017	SD	TENDER DRAWING PACKAGE-2	SL	MH
R1	28.09.2017	SD	ISSUE FOR FINAL FEASIBILITY REPORT	SL	MH
R0	22.08.2017	SD	ISSUE FOR FEASIBILITY REPORT	SL	MH
REV	DATE	DRAWN	DESCRIPTION	CHKD.	APPD.


CONSULTANT	Frishmann Prabhu PLANNING • DESIGN • PROJECT MANAGEMENT 315, Balgovind Wadi, New Prabhadevi Road, Prabhadevi, Mumbai - 400 025 Tel: +91-22-6660 3901 Fax: +91-22-6660 3902 E-mail: pfmumbai@fpindia.com www.fpindia.com
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CLIENT	 Municipal Corporation of Greater Mumbai SW Department
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PROJECT	CONSULTANCY SERVICES FOR PREPARATION OF DETAIL PROJECT REPORT ON MITHI RIVER
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TITLE	BORE HOLE LOCATIONS FOR AREA 4
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DESIGNED	AP	CHECKED	SL
DRAWN	SD	APPROVED	MH
SCALE	N.T.S	DATE	22.08.2017
DRAWING NO	DE178004C034		
			R2

		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.414/E	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 14728.630m		Coordinates : N: 2116740.871; E: 278284.660	
Diameter of Borehole : 100 / 76mm NX		Ground RL : 47.489m	
Depth of casing :		Start Date : 6-12-2011	
Depth of water : 6.6m		End Date : 7-12-2011	

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %	RQD %	Core recovery				Remarks / Other
									0	25	50	75			100	0	25	50	
0	0.000				Ground Surface		47.489												
1	1.500				Yellowish brownish silty sand	SS	45.989												
2	2.100		SPT-1		Soft clay with gravel	SS	45.389	24											
3			1-8		Highly to moderately Fractured weathered basalt	R					24	0							
4			9-10			R					15								
5			11-16			R					22	0							
6			17-20			R					20	10							
7			21-28			R					42	16							
8			29-32			R					35	23							
10	10.000				End of Log		37.489												
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples	Site Engr. O.P. Thewari	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
UDS: Undisturbed Samples	Drawn By AAJ	
SPT: Standard Penetration Test	Chkd. By SRK	
CR: Core Recovery	SS - Soil	
RQD: Rock Quality Designation	R- Rock	
GWL: Ground water Level	F - Filling	

		Job No. : MITHI RIVER	
		Bore Hole No : BH.416W	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2116783.881; E: 278341.068	
Location : CH: 14780.640		Ground RL : 47.281m	
Diameter of Borehole : 100 / 75mm NX		Start Date : 10-12-2011	
Depth of casing :		End Date : 12-12-2011	
Depth of water : 6.4m			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	RL (m)	SPT N value	SPT N graph				Core recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
0	0.000				Ground Surface		47.281												
1	1.000				Brownish silty Clay	SS	46.281												
2					Highly to moderately Fractured weathered basalt	R	45.281												
3			1-3			R						12	0						SPT-1 Refusal
4			4-7			R						16	7						
5			8-11			R						19	12						
6			12-16		basalt	R	40.281					43	37						
7	7.000		17-19			R	37.281					49	49						
8																			
9																			
10	10.000				End of Log		37.281												
11																			
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test N > 100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Thwart Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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 Powai, Mumbai - 400076
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 F: +91-22-2572-3480

					Job No. : MITHI RIVER Bore Hole No : BH.416/E Depth of BH : 10.0m Coordinates : N: 2116889.000; E: 278344.000 Ground RL : 47.263m Start Date : 11-12-2011 End Date : 13-12-2011									
Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH-14803.680m Diameter of Borehole : 100 / 76mm NX Depth of casing : Depth of water : 4.8m														

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %	RQD %	Core recovery				Remarks / Other
									0	25	50	75/100			0	25	50	75/100	
0	0.000				Ground Surface		47.253												
1	1.500				Completely disintegrated rock as hard murum	SS	45.753												
2					Boulders	R	44.253												
3	3.000				Highly to moderately Fractured weathered basalt	R						11	0						
4			1-3			R						17	7						
5			4-8			R						25	11						
6			9-13			R						37	32						
7	7.000				Moderately to slightly weathered fractured basalt	R	40.253					54	41						
8			14-17			R													
9			18-24			R													
10	10.000				End of Log		37.253												
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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Indian Institute of Technology, Bombay
Powai, Mumbai - 400076
T: +91-22-2572-2545 / 2576-7325
F: +91-22-2572-3480

		Job No. : MITHI RIVER Bore Hole No : BH.417W Depth of BH : 10.0m Coordinates : N: 2118657.032; E: 278487.103 Ground RL : 48.380m Start Date : 14-12-2011 End Date : 16-12-2011									
		Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 14846.480 Diameter of Borehole : 100 / 75mm NX Depth of casing : Depth of water : 0.72m (100% water loss form 3m to 10m)									

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	ROD %	0	25	50	
0	0.000				Ground Surface		48.380												
1	1.000				Brownish silty clay	SS	47.380												
2					Highly to Completely disintegrated weathered rock	R	45.330					0	0						
3	3.050				Highly to moderately Fractured weathered basalt	R	40.880					10	0						
4			1-3			R						23	0						
5			4-9			R						37	11						
6			10-15			R						47	36						
7	7.500		16-20		Moderately to slightly weathered, fractured basalt	R	38.380					57	48						
8			21-24			R													
9	10.000				End of Log		10.000												
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3460
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		Job No. : MITHI RIVER Bore Hole No : BH.418/W Depth of BH : 10.0m Coordinates : N: 2118813.822; E: 278687.283 Ground RL : 49.210m Start Date : 18-12-2011 End Date : 17-12-2011									
		Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH:16044.880 Diameter of Borehole : 100 / 75mm NX Depth of casing : Depth of water : 0.8m (100% water loss form 3m to 10m)									

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									%	25	50	75/100	%	25	50	75/100			
0	0.000				Ground Surface		49.210												
1	1.550				Brownish silty clay with gravel	SS	47.860												
2					Boulders	R	46.210					0	0					SPT-1 Refusal	
3	3.000						3.000											Rock small piece	
4			1-5		Highly to moderately Fractured weathered basalt	R						27	0						
5			6-8			R						18	0						
6			9-11			R						16	0						
7	6.500				Moderately to slightly weathered, fractured basalt	R	42.710					40	27						
8			12-17			R	6.500												
9			18-23			R						48	40						
10	9.500						39.710												
11	10.000		24-27		Compact greyish basalt	R	9.500					92	68						
12					End of Log														
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Thwart Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.418/E	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH:16114.030		Coordinates : N: 2116681.000; E: 278827.000	
Diameter of Borehole : 100 / 76mm NX		Ground RL : 48.270m	
Depth of casing :		Start Date : 14-12-2011	
Depth of water : 1.6m		End Date : 16-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %	RQD %	Core recovery				Remarks / Other
									0	25	50	75/100			0	25	50	75/100	
0	0.000				Ground Surface		48.270												
1	1.000				Silty clay with Boulders	SS	48.270												
2					Boulders	R	48.270												
3	3.000		1-4			R	48.270											SPT-1 Refusal	
4			5-8		Highly to moderately Fractured weathered basalt	R	48.270					14	10					Rock small piece	
5			9-12			R	48.270					30	18						
6	6.000		13-17		Moderately to slightly weathered, fractured basalt	R	48.270					40	34						
7			18-23			R	48.270					38	23						
8			24-26			R	48.270					44	44						
9	10.000				End of Log		48.270												
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
		Bore Hole No : BH.420/E	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2118671.083; E: 278883.340	
Location : CH: 16148.840		Ground RL : 60.010m	
Diameter of Borehole : 100 / 75mm NX		Start Date : 13-12-2011	
Depth of casing :		End Date : 14-12-2011	
Depth of water : 1.8m			

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		0.000												
0.500	0.500				Filled Up Soil	n	0.500												
1					Boulders	R												Rock small piece	
2						R													
3	3.000					R	-3.000												
4			1-17		Highly to moderately Fractured weathered basalt	R	3.000					18	12						
5			18-22			R						26	10						
6	6.000					R	-6.000												
7			23-27		Moderately to slightly weathered, Compact black basalt	R	6.000					36	28						
8			28-30			R						42	38						
9			31-34			R						57	52						
10	10.000				End of Log		-10.000												
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples	Site Engr. G.P. Tiwari	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3460
UDS: Undisturbed Samples	Drawn By AAJ	
SPT: Standard Penetration Test : 100 > Refusal	Chkd. By SRK	
CR: Core Recovery	SS - Soil	
RQD: Rock Quality Designation	R- Rock	
GWL: Ground water Level	F - Filling	

		Job No. : MITHI RIVER	
		Bore Hole No : BH.421/E	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River training for MCGM, Mumbai		Coordinates : N: 2116682.000; E: 278883.000	
Location : CH: 16183.480		Ground RL : 60.290m	
Diameter of Borehole : 100 / 75mm NX		Start Date : 14-12-2011	
Depth of casing :		End Date : 16-12-2011	
Depth of water : 0.86m (100% water loss form 2.3m to 10m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	RL (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
	0.000				Ground Surface		50.290												
	0.500				Filled Up Soil	F	51.000						0	0					
1					Highly to Completely disintegrated weathered rock														
2						R													
3						R													
4	4.500					R	45.790												
5			1-3		Highly to moderately Fractured weathered basalt	R	44.290					22	22						
6	6.000					R	44.290												
7			4-7		Moderately to slightly weathered, fractured basalt	R						38	34						
8			8-10			R						44	44						
9			11-12			R						35	35						
10	10.000				End of Log		40.290												
11																			
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Thwart Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
Client : Indian Institute of Technology, Bombay		Bore Hole No : BH.422E	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16382.230		Coordinates : N: 2116742.417; E: 278810.314	
Diameter of Borehole : 100 / 75mm NX		Ground RL : 60.230m	
Depth of casing :		Start Date : 16-12-2011	
Depth of water : 0.8m (100% water loss from 2.6m to 10m)		End Date : 17-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	RL (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		50.230												
0	0.500				Filled Up Soil	F	0.000					0	0						
1	1.550				Boulders	R	48.880											Rock small piece	
2					Highly to completely disintegrated weathered rock	R	1.550											SPT-1 Refusal	
3						R						0	0					Rock small piece	
4	4.030					R	48.200												
5	5.000		1-9		Highly to moderately Fractured weathered basalt	R	45.230					35	0						
6			10-12		Moderately to slightly weathered, fractured basalt	R	5.000					52	45						
7			13-16			R						44	44						
8			17-20			R						51	51						
9	9.000					R	41.230												
10	10.000		21-24		Compact grey basalt	R	9.000					61	61						
10	10.000				End of Log		40.230												
11							10.000												
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N-100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr: O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
		Bore Hole No : BH.601/E	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2117081.000; E: 278888.000	
Location : CH: 16773.880		Ground RL : 64.348m	
Diameter of Borehole : 100 / 76mm NX		Start Date : 17-12-2011	
Depth of casing :		End Date : 18-12-2011	
Depth of water : 1.6m (100% water loss from 3m to 10m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %	RQD %	Core recovery				Remarks / Other
									0	25	50	75/100			0	25	50	75/100	
0	0.000				Ground Surface		54.348												
1					Boulders	R	51.348												
2						R	51.348												
3	3.000				Highly to completely disintegrated weathered rock	R	48.348												
4						R	48.348												
5			1-3			R	45.848												
6	5.000				Highly to moderately Fractured weathered basalt	R	45.848												
7			4-8			R	45.848												
8			9-15			R	44.348												
9	8.500				Moderately to slightly weathered, fractured grey basalt	R	44.348												
10	10.000		16-15			R	44.348												
11					End of Log		44.348												
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N-100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr: O.P. Tiwari Drawn By: AAJ Chkd. By: SRK SS - Soil R- Rock F - Filling
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 <p> Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 16780.330 Diameter of Borehole : 100 / 75mm NX Depth of casing : Depth of water : 4.7m (100% water loss from 2.6m to 10m) </p>		<p> Job No. : MITHI RIVER Bore Hole No : BH.602W Depth of BH : 10.0m Coordinates : N: 2117108.000; E: 278888.000 Ground RL : 63.818m Start Date : 18-12-2011 End Date : 18-12-2011 </p>	
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Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
	0.000				Ground Surface		53.918												
	0.000				Filled up Soil	R	0.000												
	1					R													
	2					R													
	3.700					R	50.218												
	4		1-5		Highly to moderately Fractured weathered basalt	R	3.700					31	24						
	5					R													
	6		6-8			R						26	20						
	6.500					R	47.418												
	7		9-14		Moderately to slightly weathered, fractured black basalt	R	6.500					47	35						
	8					R													
	9		15-19			R						45	39						
	10.000		20			R	43.918					46	46						
	10.000				End of Log		10.000												
	11																		
	12																		
	13																		
	14																		
	15																		

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER Bore Hole No : BH.603/E Depth of BH : 10.0m Coordinates : N: 2117120.488; E: 278733.382 Ground RL : 62.898m Start Date : 18-12-2011 End Date : 18-12-2011	
Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 16862.880 Diameter of Borehole : 100 / 75mm NX Depth of casing : Depth of water : 1.6m (100% water loss from 3m to 10m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		52.899												
1	1.600				Filled Up Soil	R	51.299					0	0					Rock small piece	
2					Boulders	R	1.500											SPT-1 Refusal	
3						R						0	0					Rock small piece	
4						R						0	0					SPT-2 Refusal	
5	5.000					R	47.899					0	0						
6			1-4		Highly to moderately Fractured weathered basalt	R	5.000					22	0						
7			5-9			R						30	14						
8	7.500				Moderately to slightly weathered, fractured grey basalt	R	45.399					47	47						
9			10-13			R	7.500												
10	10.000		14-18			R						45	40						
11					End of Log		42.899												
12							10.000												
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N-100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr: O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER	
		Bore Hole No : BH.604W	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2117171.000; E: 278737.000	
Location : CH: 16888.680		Ground RL : 61.780m	
Diameter of Borehole : 100mm/ 75mm		Start Date : 18-12-2011	
Depth of casing :		End Date : 21-12-2011	
Depth of water : 8.6m (100% water loss from 3m to 6m & 60% loss from 6m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
0	0.000				Ground Surface		51.780												
1	1.000				Filled-up material	F	50.780												
2					Highly to Completely disintegrated weathered rock		1.000												
3	3.500				Highly to moderately Fractured weathered basalt	R	48.280											SPT- 1 Refusal	
4			1-4			SS	3.500					26	0					Rock small piece	
5																			
6	6.500		5-9			R	45.280					28	7						
7					Compact Basalt		6.500												
8			10-13			R						55	55						
9			14-15			R						74	61						
10	10.000		16			R	41.780					70	70						
11					End of Log		10.000												
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test CR: Core Recovery RQD: Rock Quality Designation OWL: Ground water Level	Site Engr: O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.606/W	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16823.800		Coordinates : N: 2117168.221; E: 278806.438	
Diameter of Borehole : 100mm/ 75mm		Ground RL : 63.888m	
Depth of casing :		Start Date : 22-12-2011	
Depth of water : 6.4m (100% water loss from 6m & 60% at 8.6m)		End Date : 23-12-2011	

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core recovery %		Remarks / Other
									0	25	50	75	100	Core Recovery %	
0	0.000				Ground Surface		53.898								
1	2.300				Filled-up material	"	51.598								
2					Highly to moderately Fractured weathered basalt	R	2.300								
3															
4			1-5			R						15	0		
5			6-7			R						24	7		
6	6.500				Moderately to slightly weathered fractured Basalt	R	47.198								
7			8-11			R	6.500					52	52		
8			12-14			R						48	41		
9			15-16			R						60	52		
10	10.000				End of Log		43.898								
11							10.000								
12															
13															
14															
15															


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.608/E	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16838.480		Coordinates : N: 2117121.001; E: 278807.888	
Diameter of Borehole : 100mm/ 75mm		Ground RL : 66.348m	
Depth of casing :		Start Date : 22-12-2011	
Depth of water : 7.16m (80% water loss from 6m to 10m)		End Date : 23-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
0	0.000				Ground Surface		66.348												
1	1.900				Filled-up material	F	63.448												
2			1-3		Highly to moderately Fractured weathered basalt	R	61.900					15	7						
3			4-6			R						19	7						
4	5.000				Moderately to slightly weathered fractured Basalt	R	60.348					25	15						
5			7-9			R						56	52						
6	8.000		8 - 13			R	47.348					51	46						
7			13- 16		Compact Basalt	R						78	78						
8	10.000		17-19			R	45.348												
9					End of Log		10.000												
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.607W	
Project : Mithi River Development Project , Mumbai		Depth of BH : 10.0m	
Location : CH: 18051.050		Coordinates : N: 2117171.038; E: 278886.131	
Diameter of Borehole : 100mm/ 75mm		Ground RL : 63.764m	
Depth of casing :		Start Date : 23-12-2011	
Depth of water : 7.2m (80% Water loss at 6m)		End Date : 24-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		53.754												
1	1.000				Filled-up material	F	52.754												
2					Highly to completely disintegrated weathered rock	R	50.754												
3	3.000				Highly to moderately Fractured weathered basalt	R	50.754												
4			1-3			R						11	0						
5			4-5			R						16	7						
6	6.000				Moderately to slightly weathered fractured Basalt	R	47.754												
7			6-9			R						26	14						
8			10-16			R						52	42						
9			17-20			R						60	52						
10	10.000				End of Log		43.754												
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples	Site Engr. O.P. Thwart	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
UDS: Undisturbed Samples	Drawn By AAJ	
SPT: Standard Penetration Test : N>100 Refusal	Chkd. By SRK	
CR: Core Recovery	SS - Soil	
RQD: Rock Quality Designation	R- Rock	
GWL: Ground water Level	F - Filling	

		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.608W	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16122.700		Coordinates : N: 2117236.218; E: 278886.227	
Diameter of Borehole : 100mm/ 76mm		Ground RL : 64.007m	
Depth of casing :		Start Date : 26-12-2011	
Depth of water : 7.6m (100% Water loss at 6m & 60% at 7m depth)		End Date : 28-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
	0.000				Ground Surface		64.007												
	2.700				Filled-up material	F	61.307												
					Basaltic Boulders	R	57.000												
	5.700				Moderately to slightly weathered fractured Basalt	R	48.307					12	0						
			1-2			R						38	38						
			3-4			R						46	46						
			5-7			R						55	48						
	10.000		8-10			R	44.007												
					End of Log		10.000												


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Thewari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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 <p> Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 18220.270 Diameter of Borehole : 100mm/ 75mm Depth of casing : Depth of water : 7.7m (80% water loss from 8m) </p>		<p> Job No. : MITHI RIVER Bore Hole No : BH.606W Depth of BH : 10.0m Coordinates : N: 2117327.138; E: 278831.208 Ground RL : 54.320m Start Date : 22-12-2011 End Date : 23-12-2011 </p>	
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Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		54.320												
1	2.100				Filled-up material	F	52.220												
2			1-2		Highly to moderately Fractured weathered basalt	R						9	0						
3			3-5			R						16	7						
4	5.000				Moderately to slightly weathered fractured Basalt	R	49.320					19	12						
5			5-6			R						42	37						
6	8.000		7-10		Compact Basalt	R	46.320					46	46						
7			11-14			R						78	66						
8	10.000		15-17			R	44.320												
9					End of Log		10.000												
10																			
11																			
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test; N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER									
		Bore Hole No : BH.510/E									
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m									
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2117624.000; E: 278885.000									
Location : CH: 18430.290		Ground RL : 64.760m									
Diameter of Borehole : 100mm/ 75mm		Start Date : 24-12-2011									
Depth of casing :		End Date : 26-12-2011									
Depth of water : 6.8m (100% Water loss at 6m & 80% at 7m depth)											

Scale (m)	Depths (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	ROD %	0	25	50	75/100	
0	0.000				Ground Surface		54.750												
1	2.800				Filled-up material	"	51.950												
2					Highly to completely disintegrated weathered rock	R	48.950					0	0					Rock small piece	
3			1-3		Highly to moderately Fractured weathered basalt	R	46.750					24	7						
4			4-7			R	46.750					32	12						
5	8.000		8-10		Moderately to slightly weathered fractured Basalt	R	44.750					59	50						
6			11-14			R	44.750					51	44						
7	10.000				End of Log		44.750												
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.611/E	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16667.730		Coordinates : N: 2117814.886; E: 278788.040	
Diameter of Borehole : 100mm/ 76mm		Ground RL : 55.130m	
Depth of casing :		Start Date : 23-12-2011	
Depth of water : 7.3m (80% Water loss at 8m depth)		End Date : 24-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		55.130												
1	1.400				Filled-up material	F	53.730												
2					Highly to completely disintegrated weathered rock	R	1.400					0	0						
3																			
4																			
5	5.000				Highly to moderately Fractured weathered basalt	R	50.130					16	7					Rock small piece	
6			1-3																
7	7.500		4-7			R	47.830					30	10						
8					Moderately to slightly weathered fractured Basalt	R	7.500					44	30						
9			8-12																
10	10.000		13-17			R	45.130					67	51						
11					End of Log		10.000												
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. O.P. Thawar Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER Bore Hole No : BH.612W Depth of BH : 10.0m Coordinates : N: 2117814.140; E: 278730.414 Ground RL : 66.740M Start Date : 1-01-2012 End Date : 2-01-2012	
Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 18808.080 Diameter of Borehole : 100 / 75mm NX Depth of casing : Depth of water : 6.6m (100% water loss form 2.5m to 8.6m & 50% from 8.6m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
0	0.000				Ground Surface		55.740												
1	2.200				Filled up	F	53.540												SPT-1 Refusal
2	3.700		1-2		Highly to completely weathered basalt	R	52.040					12	7						
3			3-4		Highly to moderately Fractured weathered basalt	R						19	15						
4			5-8			R						32	12						
5	8.000		9-16			R	47.740					34	15						
6	9.500		17-22		Moderately to slightly weathered, fractured basalt	R	46.240					49	40						
7	10.000		23-25		Compact Basalt	R	45.500					80	62						
8					End of Log														
9																			
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr: O.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER	
		Bore Hole No : BH.613/E	
Client : Municipal Corporation of Greater Mumbai		Depth of BH : 10.0m	
Project : Mithi River Development Project, Mumbai		Coordinates : N: 2117887.318; E: 278683.800	
Location : CH: 18883.340		Ground RL : 66.897m	
Diameter of Borehole : 100mm/ 75mm		Start Date : 27-12-2011	
Depth of casing :		End Date : 28-12-2011	
Depth of water : 6.8m (100% Water loss at 3m to 6m depth & 60% after 6m depth)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		66.897												
1	2.500				Filled-up material	"	63.397												
2			1		Highly to moderately Fractured weathered basalt	R	62.500					5	0						
3			2-3			R						16	7						
4			4-7			R						21	14						
5	6.000				Moderately to slightly weathered fractured Basalt		60.897												
6			7-9			R						34	18						
7			10-13			R						47	32						
8			14-16			R						61	61						
9	10.000				End of Log		65.897												
10							65.000												
11																			
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.614W	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 16838.620		Coordinates : N: 2117770.800; E: 278668.408	
Diameter of Borehole : 100/ 76mm		Ground RL : 68.377M	
Depth of casing :		Start Date : 27-12-2011	
Depth of water : 8.2m (80% Water loss at 2.6m depth)		End Date : 28-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		68.377												
1	1.000				Filled-up material	F	68.000												
2	2.500						63.877												
3	3.500		1-5		Highly to moderately weathered fractured basalt	R	62.877					24	13						
4			6-9		Moderately to slightly weathered fractured Basalt	R	63.500					36	30						
5																			
6			10-12			R						41	37						
7			13-15			R						47	47						
8																			
9	9.500		16-18			R	66.877					54	54						
10	10.000		19-20		Compact Basalt	R	69.500					70	70						
End of Log																			
11																			
12																			
13																			
14																			
15																			

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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Client : Municipal Corporation of Greater Mumbai
Project : Mithi River Development Project, Mumbai

Location : CH: 18807.700

Diameter of Borehole : 100/ 76mm

Depth of casing :

Depth of water : 8.6m (100% Water loss from 3m to 10m depth)

Job No. : MITHI RIVER

Bore Hole No : BH.616/E

Depth of BH : 10.0m

Coordinates : N: 2117860.078; E: 278684.824

Ground RL : 58.090m

Start Date : 28-12-2011

End Date : 30-12-2011

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	RL (m)	SPT N value	SPT N graph	Core Recovery %	RQD %	Core recovery	Remarks / Other
	0.000				Ground Surface		58.090						
	1.900				Filled-up material	F	54.190						
	1.900		1-3		Highly to Moderately weathered fractured Basalt	R	54.190			7	0		
	4.500		4-5			R				14	6		
	6.500		7-12			R	49.590			35	15		
	6.500		13-18		Moderately to slightly weathered fractured Basalt	R	48.590			48	36		
	9.000		19-22			R				73	73		
	10.000		23			R	48.090			70	70		
	10.000				End of Log		10.000						
	11												
	12												
	13												
	14												
	15												

DS: Disturbed Samples

UDS: Undisturbed Samples

SPT: Standard Penetration Test : N>100 Refusal

CR: Core Recovery

RQD: Rock Quality Designation

GWL: Ground water Level

Site Engr. G.P. Thawar

Drawn By AAJ


Chkd. By SRK

SS - Soil

R- Rock

F - Filling


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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.618W	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 18875.340		Coordinates : N: 2117807.881; E: 278614.468	
Diameter of Borehole : 100/ 76mm		Ground RL : 68.340M	
Depth of casing :		Start Date : 30-12-2011	
Depth of water : 8.3m (80% Water loss from 3m to 10m depth)		End Date : 1-1-2012	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75	100	Core Recovery %	RQD %	0	25	50	
0	0.000				Ground Surface		68.340												
1	1.500				Filled-up material	F	64.840												
2	3.000		1-3		Highly to moderately weathered fractured basalt	R	63.340					15	0						SPT-1 Refusal
3			4-8		Moderately to slightly weathered fractured Basalt	SS						37	32						
4			9-13			SS						39	39						
5			14-18			R						42	42						
6			19-25			R						62	38						
7			26-31			SS						51	46						
8	10.000				End of Log		68.340												
9																			
10																			
11																			
12																			
13																			
14																			
15																			


DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : N>100 Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling
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		Job No. : MITHI RIVER Bore Hole No : BH.517/E Depth of BH : 12.0m Coordinates : N: 2117880.000; E: 278801.000 Ground RL : 58.430 Start Date : 1-01-2012 End Date : 2-01-2012	
Client : Municipal Corporation of Greater Mumbai Project : Mithi River Development Project, Mumbai Location : CH: 17071.080 Diameter of Borehole : 100 / 76mm NX Depth of casing : Depth of water : 6.6m (100% water loss form 2.6m to 8.6m & 60% from 8.6m)			

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %	RQD %	Core recovery				Remarks / Other
									0	25	50	75			0	25	50	75	
0	0.000				Ground Surface		58.430												
1	1.000				Filled up	F	55.430												
2	2.500				Boulders	R	53.930												
3					Highly to completely weathered basalt		2.500											SPT-1 Refusal	
4						R						0	0					Rock small piece	
5	5.500						50.930												
6			3-9		Highly to moderately Fractured weathered basalt	R	5.500					36	10						
7																			
8	8.500		10-15			R						31	10						
9					Moderately to slightly weathered, fractured basalt	R	47.930												
10	10.000		16-22				5.500					55	47						
11					Compact Basalt	R	46.430												
12	12.000		23-26				10.000					63	63						
13			27-28			R						84	84						
14					End of Log		44.430												
15							12.000												

DS: Disturbed Samples UDS: Undisturbed Samples SPT: Standard Penetration Test : 100 > Refusal CR: Core Recovery RQD: Rock Quality Designation GWL: Ground water Level	Site Engr. G.P. Tiwari Drawn By AAJ Chkd. By SRK SS - Soil R- Rock F - Filling	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
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		Job No. : MITHI RIVER	
Client : Municipal Corporation of Greater Mumbai		Bore Hole No : BH.618W	
Project : Mithi River Development Project, Mumbai		Depth of BH : 10.0m	
Location : CH: 17083.640		Coordinates : N: 2117998.000; E: 278602.00	
Diameter of Borehole : 100/ 76mm		Ground RL : 68.764M	
Depth of casing :		Start Date : 28-12-2011	
Depth of water : 8.1m (60% Water loss at 4.6m depth)		End Date : 29-12-2011	

Scale (m)	Depth (m)	Run	Sample No	Symbol	Lithological Description	Type	R.L. (m)	SPT N value	SPT N graph				Core Recovery %		Core recovery				Remarks / Other
									0	25	50	75/100	Core Recovery %	RQD %	0	25	50	75/100	
0	0.000				Ground Surface		68.754												
0	0.800				Filled-up material	F	68.954												
1			1-2		Highly to moderately weathered fractured basalt	R	68.800					12	0						
2			3-5			R						24	16						
3	3.000				Moderately to slightly weathered fractured Basalt		63.754												
4			6-9			R	3.000					36	29						
5																			
6			10-13			R						33	33						
7																			
8			14-18			R						43	33						
9																			
10			19-25			R						51	47						
11																			
12			26-31			R						46	46						
13	10.000						68.754												
14					End of Log		10.000												
15																			

DS: Disturbed Samples	Site Engr. O.P. Tiwari	Indian Institute of Technology, Bombay Powai, Mumbai - 400076 T: +91-22-2572-2545 / 2576-7325 F: +91-22-2572-3480
UDS: Undisturbed Samples	Drawn By AAJ	
SPT: Standard Penetration Test : N>100 Refusal	Chkd. By SRK	
CR: Core Recovery	SS - Soil	
RQD: Rock Quality Designation	R- Rock	
OWL: Ground water Level	F - Filling	

