



ORBITAL INFRASTRUCTURE CONSULTANCY & RESEARCH PRIVATE LTD

PLOT NO. 1134, MAHANADI BIHAR, CUTTAK - 753 004

PH: 0671- 2443588 Tele Fax: 0671 - 2443408

N: ____

PROJECT NAME Geotechnical Investigation for NTPC Talcher Thermal Stage III (2 x 660 MW)

GROUND SURFACE ELEVATION: 71.467 m

EAST: E or X = 752.75

NORTH: N or Y = 4745.75

TYPE OF BORING: Rotary

BORING NO: BH 116

DIAMETER OF BORING: 150mm upto 5.80m & Nx from 5.80 to 25m BGL

TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 15/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
0			Filled up soil													
1																
2				1.5	SPT	1	2	3	4	7						
3	68.867		Greyish coloured clay	3	UDS	1	---	---	---	Recovered						
4																
5				4.5	SPT	2	3	4	6	10						
6	65.667		Moderately weathered yellowish brown coloured Siltstone.	5.8	RC		---	---	---				58	0		
7				6.8	RC		---	---	---				65	0		
8				7.8	RC		---	---	---				64	0		
9				8.8	RC		---	---	---				68	23		
10				9.8	RC		---	---	---				65	0		

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
Ref: I.S : 1892; 1498; 2131 & 2132.
SPT : Standard Penetration Test & UDS : Undisturbed soil sample.

Borehole termination at 25 m

For O.I.C & R. PVT. LTD



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BORING NO: BH 116

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TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 15/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
10			Moderately weathered yellowish brown coloured Siltstone. (continued)													
11				10.8	RC		---	---	---				65	0		
12				11.8	RC		---	---	---				72	26		
13				12.8	RC		---	---	---				66	0		
14	57.967		Moderately weathered greyish coloured Siltstone.	13.8	RC		---	---	---				75	0		
15				14.8	RC		---	---	---				65	12		
16				15.8	RC		---	---	---				70	0		
17				16.8	RC		---	---	---				72	0		
18				17.8	RC		---	---	---				75	19		
19				18.8	RC		---	---	---				70	0		
20				19.8	RC		---	---	---				72	0		
				19.8	RC		---	---	---				75	0		

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
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Borehole termination at 25 m

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NORTH: N or Y = 4745.75

TYPE OF BORING: Rotary

BORING NO: BH 116

DIAMETER OF BORING: 150mm upto 5.80m & Nx from 5.80 to 25m BGL

TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 15/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
20			Moderately weathered greyish coloured Siltstone. <i>(continued)</i>													
21				20.8	RC		---	---	---				75	0		
22				21.8	RC		---	---	---				70	0		
23				22.8	RC		---	---	---				68	10		
24				23.8	RC		---	---	---				74	0		
25	46.467			24.8			---	---	---				76	11		
				25			---	---	---				75	0		
26																
27																
28																
29																
30																

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
Ref: I.S : 1892; 1498; 2131 & 2132.
SPT : Standard Penetration Test & UDS : Undisturbed soil sample.

Borehole termination at 25 m

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N: ____

PROJECT NAME Geotechnical Investigation for NTPC Talcher Thermal Stage III (2 x 660 MW)

GROUND SURFACE ELEVATION: 73.811 m

EAST: E or X = 853.43

NORTH: N or Y = 4752.53

TYPE OF BORING: Rotary

BORING NO: BH 117

DIAMETER OF BORING: 150mm upto 8.60m & Nx from 8.60 to 25m BGL

TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 16/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
0			Filled up soil													
1																
2																
3	70.911		Greyish coloured clay	3	UDS	1	---	---	---	Recovered						
4																
5																
6	67.811		Brownish coloured clay	6	UDS	2	---	---	---	Recovered						
7																
8																
9	65.211		Moderately weathered yellowish brown coloured Siltstone.	8.6	RC		---	---	---				70	24		
10				9.6	RC		---	---	---				70	14		

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
Ref: I.S : 1892; 1498; 2131 & 2132.
SPT : Standard Penetration Test & UDS : Undisturbed soil sample.

Borehole termination at 25 m

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NORTH: N or Y = 4752.53

TYPE OF BORING: Rotary

BORING NO: BH 117

DIAMETER OF BORING: 150mm upto 8.60m & Nx from 8.60 to 25m BGL

TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 16/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
10			Moderately weathered yellowish brown coloured Siltstone. (continued)													
				10.6	RC		---	---	---				70	14		
11													68	37		
				11.6	RC		---	---	---				72	49		
12			Moderately weathered greyish coloured Siltstone grading to fine grained Sandstone.	12.6	RC		---	---	---				66	50		
13				13.6	RC		---	---	---				67	43		
				14.6	RC		---	---	---				70	70		
15				15.6	RC		---	---	---				64	44		
16				16.6	RC		---	---	---				70	60		
17				17.6	RC		---	---	---				67	30		
18				18.6	RC		---	---	---				62	23		
19				19.6	RC		---	---	---				68	40		
20																

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
Ref: I.S : 1892; 1498; 2131 & 2132.
SPT : Standard Penetration Test & UDS : Undisturbed soil sample.

Borehole termination at 25 m

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NORTH: N or Y = 4752.53

TYPE OF BORING: Rotary

BORING NO: BH 117

DIAMETER OF BORING: 150mm upto 8.60m & Nx from 8.60 to 25m BGL

TYPE OF BIT USED: Double tube

TOTAL HOLE DEPTH: 25 m

SOIL SAMPLER USED: _____

LOCATION: Water Treatment Plant

DATE STARTED: 4/12/10

COMPLETED: 16/4/10

DEPTH (m)	Reduced Level (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE			BLOWS/15cm			"N" Field	Water Level	Bulk Density gmc/cc	Recovery Length/ Recovery (%)	RQD (%)	Fracture Frequency per Meter	Serial Number of Recovered
				Sample Depth (m)	SAMPLE TYPE	Sample Number	15 cm	15 cm	15 cm							
20																
			Moderately weathered greyish coloured Siltstone. (continued)	20.6	RC		---	---	---				68	40		
21													70	53		
	52.211			21.6	RC		---	---	---							
22			Moderately to slightly weathered greyish coloured fine grained Sandstone.										77	65		
				22.6	RC		---	---	---							
23													73	64		
				23.6	RC		---	---	---							
24													85	36		
				24.6	RC		---	---	---							
25	48.811			25			---	---	---				95	50		
26																
27																
28																
29																
30																

Remarks: Boring, field test and sample collection conducted as per B.I.S Specification only.
Ref: I.S : 1892; 1498; 2131 & 2132.
SPT : Standard Penetration Test & UDS : Undisturbed soil sample.

Borehole termination at 25 m

For O.I.C & R. PVT. LTD

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/09/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. MWBH-1 Co-ordinates E=883 N=4587

Field Test	Nos	Samples	Nos	Commencement Date : 21/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 21/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 70.392 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.30 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of yellowish red, silty clay with boulders.									DS-1	0.50
0.90m									UDS-1	1.00-1.45
		3	5	6	11				SPT-1	1.45-1.90
									DS-2	2.50
Stiff, grey, silty clay. Obs. kankars. (CI)		3	6	7	13				SPT-2	3.00-3.45
4.00m									UDS-2	4.00-4.45
		4	7	9	16				SPT-3	4.45-4.90
Very stiff, grey, silty clay. Obs. kankars. (CI)		5	8	11	19				SPT-4	5.00-5.45
5.45m										

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-2** Co-ordinates E=1358 N=5009

Field Test	Nos	Samples	Nos	Commencement Date : 03/09/17
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Completion Date : 03/09/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 71.492 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 0.80 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of yellowish red silty sand with moorum.									DS-1	0.50
									*UDS-1	1.00-1.45
1.50m										
		3	3	4		7			SPT-1	1.55-2.00
Medium, deep grey, silty clay with kankars. (CI)									DS-2	2.50
3.50m										
		4	6	6		12			SPT-2	3.50-3.95
Stiff, deep grey, silty clay with kankars. (CI)									DS-3	4.30
5.00m										
Very stiff, deep grey, silty clay with kankars. (CI)		5	7	9		16			SPT-3	5.00-5.45
N.B. - '*' means sample could not be recovered.										
5.45m										

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-3** Co-ordinates E=1889 N=5486

Field Test	Nos	Samples	Nos	Commencement Date : 02/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 03/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 71.942 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 0.60 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of silty sand with clay binder. Obs. gravels, boulders & moorum.								DS-1	0.80
		4	5	7		12		SPT-1	1.30-1.75
								DS-2	2.20
								*UDS-1	2.60-2.72
2.70m									
Stiff / very stiff to hard, grey, silty clay with kankars. (CI)		5	7	9		16		SPT-2	2.80-3.25
								DS-3	3.80
		5	8	10		18		SPT-3	4.20-4.65
		4	6	8		14		SPT-4	5.00-5.45
5.45m									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-4** Co-ordinates E=2439 N=5974

Field Test	Nos	Samples	Nos	Commencement Date : 30/08/17
Penetrometer (SPT)	3	Undisturbed (UDS)	2	Completion Date : 31/08/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 72.592 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.10 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of deep grey to brownish grey, silty clay with boulders & sand mixture.									DS-1	0.50
									*UDS-1	0.80-1.20
		7	16	11			27		SPT-1	1.35-1.80
1.80m										
Stiff, brownish grey, silty clay / clayey silt with sand mixture. Obs. kankars. (CI)									DS-2	2.50
		6	7	6			13		SPT-2	3.00-3.45
									DS-3	4.00
									*UDS-2	4.50-4.95
5.10m										
Very stiff, brownish grey, silty clay / clayey silt with sand mixture. Obs. kankars. (CI)		6	8	8			16		SPT-3	5.10-5.55
5.55m										

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-5** Co-ordinates E=2763 N=6535

Field Test	Nos	Samples	Nos	Commencement Date : 31/08/17
Penetrometer (SPT)	3	Undisturbed (UDS)	2	Completion Date : 31/08/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 72.942 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.60 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of reddish brown, silty clay with boulders & moorum.									DS-1	0.50
									*UDS-1	1.00-1.45
		6	11	26		37			SPT-1	1.60-2.05
2.50m										
Stiff, brownish grey, silty clay. Obs. kankars & sand mixture. (CI)									DS-2	2.50
		6	7	7		14			SPT-2	3.00-3.45
4.60m										
Very stiff, brownish grey, silty clay. Obs. kankars & sand mixture. (CI)									UDS-2	4.60-5.05
		7	8	9		17			SPT-3	5.05-5.50
5.50m										
N.B. - '*' means sample could not be recovered.										

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-6** Co-ordinates E=2942 N=7160

Field Test	Nos	Samples	Nos	Commencement Date : 01/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 01/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 73.452 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.40 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of yellowish brown, clayey silty sand with moorum.									DS-1	0.50
									*UDS-1	1.00-1.45
		4	6	9		15			SPT-1	1.55-2.00
									DS-2	2.50
2.60m										
Hard, reddish brown, silty clay with kankars. Obs. moorum. (CI)										
		8	15	23		38			SPT-2	3.00-3.45
		9	16	21		37			*UDS-2	4.00-4.10
									SPT-3	4.20-4.65
5.50m										
		10	28	36		64			SPT-4	5.05-5.50
N.B. - '*' means sample could not be recovered.										

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-7** Co-ordinates E=2842 N=7830

Field Test	Nos	Samples	Nos	Commencement Date : 01/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 01/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 74.755 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.30 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of greyish brown, silty sand with kankars.								DS-1	0.70
								*UDS-1	1.20-1.65
		3	4	4		8		SPT-1	1.80-2.25
2.30m									
Hard, dark greyish brown, silty clay with kankars. Obs. moorum. (CI)								DS-2	3.00
		12	16	19		35		SPT-2	3.40-3.85
								*UDS-2	4.20-4.30
5.00m		38	62			≥100		SPT-3	4.40-4.63
			8.0	cm	Penth.				
5.36m		36	39	35		≥100		SPT-4	5.00-5.36
			6.0	cm	Penth.				
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. MWBH-8 Co-ordinates E=2462 N=8499

Field Test	Nos	Samples	Nos	Commencement Date : 31/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 31/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 78.052 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Hard, brownish grey, silty clay. Obs. moorum. (CI)								DS-1	0.50
								*UDS-1	1.00-1.15
		17	23	35	58			SPT-1	1.50-1.95
								DS-2	2.50
2.80m									
Hard, brownish grey, silty clay. Obs. traces of moorum & pebbles. (CI)									
		16	18	23	41			SPT-2	3.00-3.45
								*UDS-2	4.00-4.10
		13	20	32	52			SPT-3	4.50-4.95
		17	25	37	62			SPT-4	5.10-5.55
5.55m									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-9** Co-ordinates E=2277 N=9277

Field Test	Nos	Samples	Nos	Commencement Date : 01/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 01/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 81.812 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.20 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Stiff, brownish grey, silty clay. Obs. moorum. (CI)								DS-1	0.50
								*UDS-1	1.00-1.20
		10	7	4	11			SPT-1	1.40-1.85
								DS-2	2.50
2.70m									
Hard, yellowish brown, silty clay / clayey silt. Obs. steel grey patches. (CI)		18	21	32	53			SPT-2	3.00-3.45
								DS-3	4.00
		16	24	34	58			SPT-3	4.50-4.95
		22	27	38	65			SPT-4	5.00-5.45
5.45m									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-10** Co-ordinates E=2472 N=10059

Field Test	Nos	Samples	Nos	Commencement Date : 31/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 31/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 79.562 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.70 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Stiff, deep grey, silty clay. Obs. black spots & kankars. (CI)								DS-1	0.50
								*UDS-1	1.00-1.45
		4	4	5		9		SPT-1	1.55-2.00
2.40m									
Hard, brownish grey, silty clay / clayey silt. Obs. reddish spots. (CI)								DS-2	2.50
		13	22	15		37		SPT-2	3.00-3.45
4.30m									
Hard, brownish grey, clayey silt. Obs. sand mixture. (CI)								DS-3	4.00
		25	47	28		≥100		SPT-3	4.50-4.85
5.27m									
N.B. - '*' means sample could not be recovered.									
		38	62			≥100		SPT-4	5.00-5.27

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-11** Co-ordinates E=2627 N=10996

Field Test	Nos	Samples	Nos	Commencement Date : 03/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 03/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 78.809 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.80 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Medium, deep grey, silty clay. Obs. kankars. (CI)								DS-1	0.50
								*UDS-1	1.00-1.45
		2	3	4		7		SPT-1	1.60-2.05
								DS-2	2.50
2.80m									
Very stiff, deep grey, silty clay. Obs. traces of sand mixture. (CI)		6	8	11		19		SPT-2	3.00-3.45
								DS-3	4.00
4.20m									
Hard, brownish grey, clayey silt. Obs. traces of sand mixture. (CI)		17	26	42		68		SPT-3	4.50-4.95
5.50m									
N.B. - '*' means sample could not be recovered.		23	32	45		≥100		SPT-4	5.10-5.50
						10.0 cm Pentn.			

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-12** Co-ordinates E=2794 N=11896

Field Test	Nos	Samples	Nos	Commencement Date : 03/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 03/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 81.752 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of reddish brown, silty clay with moorum.								DS-1	0.50
								*UDS-1	1.00-1.08
1.30m									
Hard, brownish grey, silty clay. Obs. moorum. (CI)		10	14	20	34			SPT-1	1.35-1.80
								DS-2	2.50
2.60m									
		18	37	45	>100			SPT-2	3.00-3.40
					10.0 cm Pentn.				
								DS-3	4.00
Hard, yellowish brown, silty clay. Obs. boulders pieces & sand mixture. (CI)									
		46	54		>100			SPT-3	4.50-4.72
					7.0 cm Pentn.				
5.13m								SPT-4	5.00-5.13
		100			>100				
					13.0 cm Pentn.				
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 12/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-13** Co-ordinates E=2873 N=12436

Field Test	Nos	Samples	Nos	Commencement Date : 02/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 02/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 81.269 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.20 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of brownish grey, silty clay. Obs. boulder pieces.								DS-1	0.50
1.20m								*UDS-1	1.00-1.10
		10	13	18	31			SPT-1	1.30-1.75
Very stiff to hard, brownish grey, silty clay. Obs. calcareous nodules. (CI)								DS-2	2.50
3.80m		13	17	21	38			SPT-2	3.00-3.45
								DS-3	4.00
Hard, brownish grey, silty clay / clayey silt. Obs. traces of sand mixture & mica. (CI)		21	35	44	≥100			SPT-3	4.50-4.87
					7.0 cm Penth.				
5.25m		38	62		≥100			SPT-4	5.00-5.25
					10.0 cm Penth.				
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-14** Co-ordinates E=2913 N=13035

Field Test	Nos	Samples	Nos	Commencement Date : 03/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 04/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 77.956 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.20 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
									DS-1	0.60
									UDS-1	1.00-1.45
		2	2	3		5			SPT-1	1.45-1.90
									DS-2	2.50
		2	3	4		7			SPT-2	3.00-3.45
									DS-3	4.00
		3	4	6		10			SPT-3	4.50-4.95
5.05m		3	3	8		11			SPT-4	5.05-5.50

Medium to stiff, deep grey, silty clay. Obs. kankars & brownish grey patches. (CI)

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-15** Co-ordinates E=2406 N=13511

Field Test	Nos	Samples	Nos	Commencement Date : 04/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 04/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 77.683 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 0.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
Medium, deep grey, silty clay with kankars. (CI)								DS-1	0.50
								UDS-1	1.00-1.45
		3	3	5		8		SPT-1	1.45-1.90
Dense, brownish grey, silty sand with boulder pieces. (SM)								DS-2	2.50
								SPT-2	3.00-3.45
		12	16	19		35			
Very dense, brownish grey, silty sand with boulder pieces. (SM)								*UDS-2	4.00-4.12
								SPT-3	4.20-4.65
		14	19	23		42			
N.B. - '*' means sample could not be recovered.								SPT-4	5.10-5.45
		29	43	38		>100			
					5.0	cm Pentn.			

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-16** Co-ordinates E=1682 N=13909

Field Test	Nos	Samples	Nos	Commencement Date : 04/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 04/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 76.044 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.30 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
									DS-1	0.50
Medium dense, greyish brown, silty sand with clay binder. Obs. gravels & kankars. (SM)		4	6	9		15			SPT-1	1.20-1.65
									*UDS-1	2.10-2.55
2.70m		12	19	25		44			SPT-2	2.70-3.15
Dense, greyish brown, silty sand with clay binder. Obs. gravels & kankars. (SM)									DS-2	3.60
4.20m		16	21	31		52			SPT-3	4.20-4.65
Very dense, greyish brown, silty sand with clay binder. Obs. gravels & kankars. (SM)										
N.B. - '*' means sample could not be recovered.		29	43	38		≥100			SPT-4	5.00-5.37
5.37m						7.0 cm Pentn.				

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-17** Co-ordinates E=938 N=14355

Field Test	Nos	Samples	Nos	Commencement Date : 05/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 05/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 77.180 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.60 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of greyish brown, silty sand with clay binder.								DS-1	0.70
								*UDS-1	1.00-1.45
1.50m									
		3	4	4		8		SPT-1	1.60-2.05
								DS-2	2.60
Stiff / very stiff, yellowish brown, silty clay with kankars & boulders. (CI)									
		5	5	9		14		SPT-2	3.20-3.65
								DS-3	4.10
		5	8	11		19		SPT-3	4.30-4.75
5.05m									
		4	6	9		15		SPT-4	5.05-5.50
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-18** Co-ordinates E=699 N=14642

Field Test	Nos	Samples	Nos	Commencement Date : 05/09/17
Penetrometer (SPT)	7	Undisturbed (UDS)	2	Completion Date : 05/09/17
Cone (Pc)		Penetrometer (SPT)	7	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	6	Level Of Ground : 76.026 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.60 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Very stiff, greyish yellow, silty clay / clayey silt with sand mixture. Obs. kankars. (CI)								DS-1	0.60
								UDS-1	1.00-1.45
		5	7	9		16		SPT-1	1.45-1.90
								DS-2	2.50
								SPT-2	3.05-3.50
4.50m								*UDS-2	4.00-4.15
		9	12	23		35		SPT-3	4.50-4.95
		6						DS-3	5.50
5.80m									
Very dense, greyish brown, silty sand with gravels & clay binder. Obs. pocket of clayey silt at SPT-05. (SM)								SPT-4	6.00-6.35
		21	29	50		>100		DS-4	7.00
								SPT-5	7.50-7.84
		26	38	36		>100		DS-5	8.50
								SPT-6	9.00-9.28
		38	62			>100		DS-6	9.70
								SPT-7	10.00-10.33
N.B. - '*' means sample could not be recovered.		26	39	35		>100			
10.33m									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-19** Co-ordinates E=673 N=14685

Field Test	Nos	Samples	Nos	Commencement Date : 06/09/17
Penetrometer (SPT)	7	Undisturbed (UDS)	2	Completion Date : 06/09/17
Cone (Pc)		Penetrometer (SPT)	7	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	5	Level Of Ground : 76.114 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.30 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Very stiff to hard, brownish yellow, silty clay with traces of calcareous nodules. Obs. sand mixture. (CI)								DS-1	0.70
		6	8	13			21	SPT-1	1.00-1.45
								*UDS-1	2.00-2.45
		9	9	16			25	SPT-2	2.60-3.05
								DS-2	3.60
		11	15	19			34	SPT-3	4.15-4.60
								*UDS-2	5.15-5.27
		10	11	15			26	SPT-4	5.80-6.25
								DS-3	7.00
		33	67				≥100	SPT-5	7.50-7.75
Very dense, greyish yellow, silty sand with kankars. Obs. clay binders. (SM)								DS-4	8.50
		21	39	40			≥100	SPT-6	9.00-9.34
								DS-5	9.80
N.B. - '*' means sample could not be recovered.		45	55				≥100	SPT-7	10.00-10.28
10.28m									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. MWBH-20 Co-ordinates E=243 N=15448

Field Test	Nos	Samples	Nos	Commencement Date : 06/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 06/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 81.805 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.70 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
									DS-1	0.80
									*UDS-1	1.10-1.25
		5	7	11	18				SPT-1	1.40-1.85
→ Medium dense, yellowish brown, clayey silty sand with moorum & kankars. (SM)									DS-2	2.30
		9	16	29	45				SPT-2	3.00-3.45
									DS-3	3.80
04.00m		11	23	34	57				SPT-3	4.00-4.45
Very dense, yellowish brown, silty sand with clay binder, kankars & moorum. (SM)		36	43	21	≥100				SPT-4	5.00-5.35
N.B. - '*' means sample could not be recovered.		5.0	cm	Pentn.						

Sheet No:

Co-ordinates	E= $\langle - \rangle 121$ N=16056
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0	Standing Water Level : 1.10 m.
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	38	62						
		10.0	cm	Pentn.				

Sheet No:

Co-ordinates	E= $\langle - \rangle 628$ N=16787
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0	Standing Water Level : 2.30 m
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N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-23** Co-ordinates E=(-)1367 N=17011

Field Test	Nos	Samples	Nos	Commencement Date : 07/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 07/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 79.570 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.45 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Very stiff, yellowish brown, clayey silt with sand mixture / clayey silty sand. Obs. moorum & kankar. (CI)								DS-1	0.70
		6	7	9		16		SPT-1	1.00-1.45
								*UDS-1	2.00-2.12
						35		SPT-2	2.50-2.95
2.50m		11	16	19					
Hard, yellowish brown, clayey silt with sand mixture / clayey silty sand. Obs. moorum & kankar. (CI)								DS-2	3.50
		26	58	36		>100		SPT-3	4.00-4.33
						3.0 cm Pentn.			
Very dense, yellowish brown, silty sand. (SM)		36	64			>100		SPT-4	5.00-5.25
2.50m									
5.25m						10.0 cm Pentn.			
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-24** Co-ordinates E=(-)1883 N=17480

Field Test	Nos	Samples	Nos	Commencement Date : 07/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 07/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 7.165 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.40 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Medium, reddish brown, clayey silt with sand mixture. Obs. kankars. (CI)									DS-1	0.80
		1	2	2			4		SPT-1	1.00-1.45
									*UDS-1	2.00-2.45
		2	2	3			5		SPT-2	2.55-3.00
									DS-2	3.50
4.10m		3	4	7			11		SPT-3	4.10-4.55
Stiff, reddish brown, silty clay / clayey silt with sand mixture. (CI)										
5.05m							15			
N.B. - '*' means sample could not be recovered.		4	6	9					SPT-4	5.05-5.50

Sheet No:

Co-ordinates	E= $\langle - \rangle 2737$ N=17758
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Standing Water Level : 1.70 m.

5.00–5.45

5.00m

5.45m

Sheet No:

Co-ordinates	E= $\langle - \rangle$ 3638 N=18389
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Standing Water Level : Not Found

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. MWBH-27 Co-ordinates E=(-)4089 N=19900

Field Test	Nos	Samples	Nos	Commencement Date : 10/09/17
Penetrometer (SPT)	7	Undisturbed (UDS)	2	Completion Date : 10/09/17
Cone (Pc)		Penetrometer (SPT)	7	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 78.345 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : Not Found

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Medium dense to dense, reddish brown, silty sand with clay binder / clayey silty sand Obs. moorum & kankars. (SM)								DS-1	0.50
		4	9	13	22			SPT-1	1.00-1.45
								*UDS-1	2.00-2.45
		5	10	19	29			SPT-2	2.50-2.95
								DS-2	3.60
		8	16	23	39			SPT-3	4.00-4.45
								*UDS-2	5.00-5.12
5.50m		39	61		>100			SPT-4	5.50-5.70
Very dense, reddish brown, silty sand with clay binder / clayey silty sand. Obs. moorum & kankars. (SM)			5.0	cm	Penth.			DS-3	6.40
		32	68		>100			SPT-5	7.00-7.25
			10.0	cm	Penth.			*SPT-6	7.50-7.53
		100	3.0	cm	Penth.			*SPT-7	7.60-7.62
7.50m		100			Refusal				7.60
Highly to moderately weathered, brownish grey, medium grained, fractured sandstone.			2.0	cm	Penth.			R1	CR=32% RQD=NIL
								R2	CR=36% RQD=NIL
								R3	CR=42% RQD=22%
								R4	CR=51% RQD=26%
10.00m									10.00
N.B. - '*' means sample could not be recovered.									

Sheet No:

Co-ordinates	E= $\langle - \rangle 5125$ N=21023
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Standing Water Level : Not Found

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 03/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-30** Co-ordinates E=(-)6658 N=21624

Field Test	Nos	Samples	Nos	Commencement Date : 09/09/17
Penetrometer (SPT)	3	Undisturbed (UDS)	2	Completion Date : 09/09/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 83.300 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.50 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of grey, silty sand.									
0.50m								DS-1	0.50
Medium, light brown, silty clay. (CI)								UDS-1	1.00-1.45
		3	3	4				SPT-1	1.45-1.90
								DS-2	2.50
3.00m		4	4	6				SPT-2	3.00-3.45
Stiff, light brown, silty clay. (CI)								DS-3	4.00
								*UDS-2	4.50-4.95
4.50m									
Very loose, yellowish brown, silty sand. (SM)									
		1	1	1				SPT-3	5.05-5.50
5.50m									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-31** Co-ordinates E=(-)12915.251
N=17702.404

Field Test	Nos	Samples	Nos	Commencement Date : 10/09/17
Penetrometer (SPT)	3	Undisturbed (UDS)	2	Completion Date : 10/09/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 80.913 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.80 m.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m										
Filled up soil consists of grey, silty sand.									DS-1	0.50
0.70m									UDS-1	1.00-1.45
		8	13	15			28		SPT-1	1.45-1.90
									DS-2	2.50
Very stiff, light brown, silty clay with sand mixture. (CI)										
		6	8	12			20		SPT-2	3.00-3.45
									DS-3	4.00
4.50m									UDS-2	4.65-5.10
Stiff, grey, silty clay. (CI)										
		3	5	5			10		SPT-3	5.10-5.55
5.55m										

Sheet No:

Co-ordinates	E=(-)13185.161 N=17276.429
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Standing Water Level : 3.70 m.

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-33** Co-ordinates E=(-)13553.451 N=17077.124

Field Test	Nos	Samples	Nos	Commencement Date : 09/09/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 09/09/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 78.719 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.20 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
								DS-1	0.50
								*UDS-1	1.00-1.10
		10	24	29	53			SPT-1	1.20-1.65
								DS-2	2.10
		17	31	41	72			SPT-2	2.60-3.05
								DS-3	3.60
		29	48	23	>100			SPT-3	4.00-4.35
					5.0 cm Pentn.				
		41	59		>100			SPT-4	5.00-5.25
					10.0 cm Pentn.				
5.25m									

Hard, deep grey, silty clay with gravels, sand mixture & rock pieces. (CI)

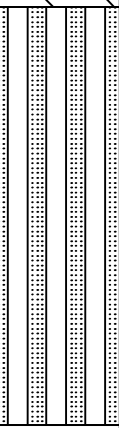
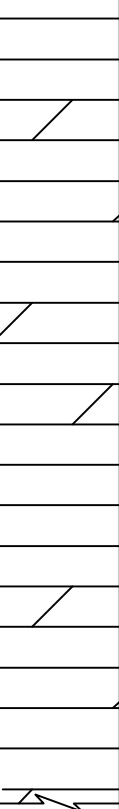
N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-34** Co-ordinates E=(-)13822.427 N=16928.393

Field Test	Nos	Samples	Nos	Commencement Date : 17/09/17
Penetrometer (SPT)	19	Undisturbed (UDS)	1	Completion Date : 20/09/17
Cone (Pc)		Penetrometer (SPT)	19	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	16	Level Of Ground : 81.3198 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.50 m.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
0.00m							DS-1	0.50
Hard, reddish brown, silty clay / clayey silt with moorum, gravels & traces of sand mixture. (CI)		100	>100				*UDS-1	1.00-1.10
		11.0 cm	Penth.				SPT-1	1.20-1.31
		100	>100				DS-2	2.00
		13.0 cm	Penth.				SPT-2	2.50-2.63
3.20m							DS-3	3.50
Very dense, brownish grey, silty sand with mica. Obs. disintegrated rock pieces. (SM)		100	>100				SPT-3	4.00-4.12
		12.0 cm	Penth.				DS-4	5.00
		NX, drilling from 6.55m to 25.00m					SPT-4	5.50-5.60
		10.0 cm	Penth.				*SPT-5	6.10-6.13
6.55m							R1	6.55-6.58
Completely weathered, light grey to steel grey, fine to medium grained, fully decomposed & disintegrated rock.		100	>100				*SPT-6	6.55-6.58
		3.0 cm	Penth.				R2	7.00-7.03
		3.0 cm	Penth.				*SPT-7	7.00-7.03
		50	Refusal				R3	7.75-7.78
		3.0 cm	Penth.				*SPT-8	7.75-7.78
		50	Refusal				R4	8.50-8.53
		3.0 cm	Penth.				*SPT-9	8.50-8.53
		50	Refusal				R5	9.25-9.27
		2.0 cm	Penth.				*SPT-10	9.25-9.27
		50	Refusal				R6	10.00-10.03
		3.0 cm	Penth.				*SPT-11	10.00-10.03
		52	Refusal				R7	10.75-10.77
		2.0 cm	Penth.				*SPT-12	10.75-10.77
		50	Refusal				R8	11.50-11.52
		2.0 cm	Penth.				*SPT-13	11.50-11.52
		51	Refusal				R9	12.25-12.28
		3.0 cm	Penth.				*SPT-14	12.25-12.28
13.00m								

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-34** Co-ordinates E=(-)13822.427 N=16928.393

Field Test	Nos	Samples	Nos	Commencement Date : 17/09/17
Penetrometer (SPT)	19	Undisturbed (UDS)	1	Completion Date : 20/09/17
Cone (Pc)		Penetrometer (SPT)	19	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	16	Level Of Ground : 81.3198 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.50 m.

DESCRIPTION	SYMBOL	N-VALUE				SAMPLES	
		EACH DIVN. = 15cm.				Ref. No	Depth (m)
Completely weathered, light grey to steel grey, fine to medium grained, fully decomposed & disintegrated rock.	13.00m	50	Refusal			DS-12	13.00-13.0213.00
		2.0	cm Pentn.			*SPT-15	CR=NIL
		50	Refusal			R10	RQD=NIL
		3.0	cm Pentn.			DS-13	13.75-13.7813.75
		50	Refusal			*SPT-16	CR=NIL
		2.0	cm Pentn.			R11	RQD=NIL
Highly weathered, light grey, fine grained, medium fractured hornblend gneiss.	16.75m	50	Refusal			DS-14	14.50-14.5214.50
		2.0	cm Pentn.			*SPT-17	CR=NIL
		52	Refusal			R12	RQD=NIL
		2.0	cm Pentn.			DS-15	15.25-15.2715.25
		50	Refusal			*SPT-18	CR=NIL
		2.0	cm Pentn.			R13	RQD=NIL
		50	Refusal			DS-16	16.00-16.0216.00
		2.0	cm Pentn.			*SPT-19	CR=24%
						R14	RQD=NIL
						R15	CR=32%
							RQD=NIL
						R16	CR=30%
							RQD=NIL
						R17	CR=32%
							RQD=NIL
						R18	CR=36%
							RQD=NIL
						R19	CR=39%
							RQD=NIL
						R20	CR=30%
							RQD=NIL
						R21	CR=34%
							RQD=NIL
						R22	CR=36%
							RQD=NIL
						R23	CR=39%
							RQD=16%
						R24	CR=36%
							RQD=20%
						R25	CR=38%
							RQD=NIL
N.B. - '*' means sample could not be recovered.	25.00m						25.00

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-35** Co-ordinates E=(-)13804.776 N=16913.920

Field Test	Nos	Samples	Nos	Commencement Date : 11/09/17
Penetrometer (SPT)	17	Undisturbed (UDS)	1	Completion Date : 16/09/17
Cone (Pc)		Penetrometer (SPT)	17	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	16	Level Of Ground : 80.742 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.30 m.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
0.00m							DS-1	0.50
Hard, reddish brown, silty clay with moorum, sand mixture & rock pieces. (CI)		100					*UDS-1	1.00-1.10
		13.0	cm	Penth.			SPT-1	1.10-1.23
							DS-2	2.00
		78					SPT-2	2.70-2.89
		22					DS-3	3.50
		4.0	cm	Penth.			SPT-3	4.00-4.45
3.50m							DS-4	5.00
Medium dense to dense, brownish grey, silty sand with mica. (SM)		7					SPT-4	5.50-5.95
		11					DS-5	6.50
		17					SPT-5	7.00-7.20
		20					DS-6	7.40-7.44
							SPT-6	7.40-7.44
6.60m							DS-7	8.00-8.03
Very dense, deep grey, silty sand with mica & decomposed rock. (SM)		43					SPT-7	8.00-8.03
		65					DS-8	8.75-8.79
		15					SPT-8	8.75-8.79
		5.0	cm	Penth.			DS-9	9.50-9.54
7.40m		100					SPT-9	9.50-9.54
Completely weathered, light to steel grey, fine to medium grained, fully decomposed rock.							DS-10	10.25-10.28
							SPT-10	10.25-10.28
							DS-11	11.00-11.05
							SPT-11	11.00-11.05
							DS-12	11.75-11.79
							SPT-12	11.75-11.79
							DS-13	12.50-12.55
							SPT-13	12.50-12.55
							DS-14	13.00-13.00
							SPT-14	13.00-13.00
							DS-15	13.00-13.00
							SPT-15	13.00-13.00
13.00m							DS-16	13.00-13.00
							SPT-16	13.00-13.00

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-35** Co-ordinates E=(-)13804.776 N=16913.920

Field Test	Nos	Samples	Nos	Commencement Date : 11/09/17
Penetrometer (SPT)	17	Undisturbed (UDS)	1	Completion Date : 16/09/17
Cone (Pc)		Penetrometer (SPT)	17	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	16	Level Of Ground : 80.742 M.
		Water Sample (WS)	0	Water Struck At : Standing Water Level : 2.30 m.

DESCRIPTION	SYMBOL	N-VALUE				SAMPLES	
		EACH DIVN. = 15cm.				Ref. No	Depth (m)
13.00m Completely weathered, light to steel grey, fine to medium grained, fully decomposed rock.		50	3.0	cm	Refusal Penth. Refusal	DS-13 *SPT-14 R9 DS-14 *SPT-15	13.25-13.2813.25 CR=NIL RQD=23%
14.00m Complertely to highly weatherd, brownish grey, medium to fine grained, highly fractured hornblend gneiss.		50	4.0	cm	Penth. Refusal Refusal Penth.	R10 DS-15 *SPT-16 R11 DS-16 *SPT-17	14.00-14.0414.00 CR=23% RQD=NIL 14.75 CR=NIL RQD=NIL 15.50-15.5315.50 CR=NIL RQD=NIL 16.25-16.2816.25 CR=21% RQD=NIL
17.00m Highly weathered, light grey to greyish black, medium to coarse grained, highly fractured hornblend gneiss.		50	3.0	cm	Penth.	R13 R14 R15 R16 R17 R18 R19 R20 R21 R22 R23 R24	17.00 CR=34% RQD=NIL 17.75 CR=28% RQD=NIL 18.50 CR=30% RQD=13% 19.25 CR=36% RQD=NIL 20.00 CR=29% RQD=NIL 20.75 CR=35% RQD=NIL 21.50 CR=38% RQD=NIL 22.25 CR=32% RQD=NIL 23.00 CR=30% RQD=NIL 23.75 CR=34% RQD=NIL 24.50 CR=40% RQD=NIL 25.00
25.00m N.B. - '*' means sample could not be recovered.							

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-36** Co-ordinates E=(-)13800.149 N=16937.321

Field Test	Nos	Samples	Nos	Commencement Date : 06/09/17
Penetrometer (SPT)	17	Undisturbed (UDS)	2	Completion Date : 09/09/17
Cone (Pc)		Penetrometer (SPT)	17	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	12	Level Of Ground : 81.278 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.10 m.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
0.00m								
Hard, reddish brown, silty clay with boulders & moorum. (CI)							DS-1	0.50
							*UDS-1	1.00-1.05
							SPT-1	1.05-1.15
		100				>100		
		10.0	cm	Penth.				
							DS-2	2.00
							SPT-2	2.50-2.63
		100				>100		
		13.0	cm	Penth.				
3.00m							DS-3	3.00
Medium dense to dense, brownish grey, silty sand. Obs. pocket of clayey silt at SPT-04. (SM)							SPT-3	3.50-3.95
		8	13	14		27		
							*UDS-2	4.20-4.65
							SPT-4	4.80-5.25
		11	16	16		32		
6.00m							DS-4	5.80
							SPT-5	6.20-6.41
							*SPT-6	6.50-6.54
		38	62			>100		
6.50m		100	6.0	cm	Penth.	Refusal		
Completely weathered, deep grey, fine grained, disintegrated & decomposed rock.			4.0	cm	Penth.		R1	CR=NIL RQD=NIL
						Refusal	DS-5	
		50					*SPT-7	7.25-7.28
			3.0	cm	Penth.		R2	CR=NIL RQD=NIL
						Refusal	DS-6	
		50					*SPT-8	8.00-8.02
			2.0	cm	Penth.		R3	CR=NIL RQD=NIL
						Refusal	DS-7	
		50					*SPT-9	8.75-8.78
			3.0	cm	Penth.		R4	CR=NIL RQD=NIL
						Refusal	DS-8	
		50					*SPT-10	9.50-9.53
			3.0	cm	Penth.		R5	CR=16% RQD=NIL
						Refusal	*SPT-11	10.25-10.27
10.50m		50	2.0	cm	Penth.			

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-36** Co-ordinates E=(-)13800.149 N=16937.321

Field Test	Nos	Samples	Nos	Commencement Date : 06/09/17
Penetrometer (SPT)	17	Undisturbed (UDS)	2	Completion Date : 09/09/17
Cone (Pc)		Penetrometer (SPT)	17	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	12	Level Of Ground : 81.278 M.
		Water Sample (WS)	0	Water Struck At : Standing Water Level : 2.10 m.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
10.50m Completely weathered, deep grey, fine grained, disintegrated & decomposed rock.		50	Refusal				R6 DS-9 *SPT-12	CR=NIL RQD=NIL 11.00-11.0211.00
		2.0	cm	Penth.			R7 DS-10 *SPT-13	CR=NIL RQD=NIL 11.75-11.7711.75
11.75m		50	Refusal				R8	CR=20% RQD=NIL 12.50
		2.0	cm	Penth.			R9 DS-11 *SPT-14	CR=NIL RQD=NIL 13.25-13.2713.25
		50	Refusal				R10	CR=13% RQD=NIL 14.00-14.0314.00
Completely to highly weathered, yellowish grey to brownish grey, medium grained, fractured hornblend gneiss.		50	Refusal				*SPT-15	CR=NIL RQD=NIL 14.75-14.7714.75
		2.0	cm	Penth.			R11	CR=12% RQD=NIL 15.50-15.5215.50
		50	Refusal				*SPT-16	CR=22% RQD=NIL 16.25
		2.0	cm	Penth.			R12	CR=21% RQD=NIL 17.00
17.00m							R13	CR=23% RQD=NIL 17.75
Highly weathered, whitish grey, fine grained, fractured hornblend gneiss.							R14	CR=22% RQD=NIL 18.50
18.50m							R15	CR=31% RQD=20% 19.25
Highly weathered, whitish grey, fine grained, fractured hornblend gneiss.							R16	CR=32% RQD=19% 20.00
20.00m							R17	
N.B. - '*' means sample could not be recovered.							R18	

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-49** Co-ordinates E=(-)13757.447 N=16949.047

Field Test	Nos	Samples	Nos	Commencement Date : 25/09/17
Penetrometer (SPT)	22	Undisturbed (UDS)	2	Completion Date : 01/10/17
Cone (Pc)		Penetrometer (SPT)	22	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	19	Level Of Ground : 74.312 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.10 m. above EGL.

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
0.00m								
Stiff, brownish grey to light grey, clayey silty sand / clayey silt with sand mixture. (CI)							DS-1	0.50
					12		*UDS-1	1.00-1.45
		4	6	6			SPT-1	1.50-1.95
2.50m		NX, drilling from 4.00m to 25.00m					DS-2	2.50
Very dense, light grey, silty sand with decomposed rock. (SM)							*UDS-2	3.00-3.10
		28	44	28	>100		SPT-2	3.10-3.46
4.00m							DS-3	3.80
		100			3.0 cm	Penth. Refusal	*SPT-3	3.90-3.93
		100			3.0 cm	Penth. Refusal	*SPT-4	4.00-4.03
					3.0 cm	Penth. Refusal	R1	CR=10% RQD=NIL
		50					*SPT-5	4.75-4.78
					3.0 cm	Penth. Refusal	R2	CR=NIL RQD=NIL
		50					DS-4	
					2.0 cm	Penth. Refusal	*SPT-6	5.50-5.52
							R3	CR=NIL RQD=NIL
		50			2.0 cm	Penth. Refusal	DS-5	
							*SPT-7	6.25-6.27
					2.0 cm	Penth. Refusal	R4	CR=NIL RQD=NIL
Completely weathered, light grey, fine to medium grained, fully decomposed & disintegrated rock.					3.0 cm	Penth. Refusal	DS-6	
							*SPT-8	7.00-7.03
							R5	CR=NIL RQD=NIL
		50			2.0 cm	Penth. Refusal	DS-7	
							*SPT-9	7.75-7.77
							R6	CR=NIL RQD=NIL
		50			3.0 cm	Penth. Refusal	DS-8	
							*SPT-10	8.50-8.53
					2.0 cm	Penth. Refusal	R7	CR=NIL RQD=NIL
		50					DS-9	
					2.0 cm	Penth. Refusal	*SPT-11	9.25-9.27
							R8	CR=14% RQD=NIL
13.00m					3.0 cm	Penth. Refusal	*SPT-12	10.00-10.03
							R9	CR=NIL RQD=NIL
		50			2.0 cm	Penth. Refusal	DS-10	
							*SPT-13	10.75-10.77
							R10	CR=NIL RQD=NIL
		50			2.0 cm	Penth. Refusal	DS-11	
							*SPT-14	11.50-11.52
					2.0 cm	Penth. Refusal	R11	CR=NIL RQD=NIL
		50					DS-12	
					2.0 cm	Penth.	*SPT-15	12.25-12.27
							R12	CR=NIL RQD=NIL

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-49** Co-ordinates E=(-)13757.447 N=16949.047

Field Test	Nos	Samples	Nos	Commencement Date : 25/09/17
Penetrometer (SPT)	22	Undisturbed (UDS)	2	Completion Date : 01/10/17
Cone (Pc)		Penetrometer (SPT)	22	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	19	Level Of Ground : 74.312 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.10 m above EGL

DESCRIPTION	SYMBOL	N-VALUE				SAMPLES	
		EACH DIVN. = 15cm.				Ref. No	Depth (m)
13.00m Completely weathered, light grey, fine to medium grained, fully decomposed & disintegrated rock.		50	Refusal			DS-13	13.00-13.03
		3.0	cm Penth.			*SPT-16	13.00
		50	Refusal			R13	CR=NIL RQD=NIL
		3.0	cm Penth.			DS-14	13.75-13.78
		50	Refusal			*SPT-17	13.75
		50	Refusal			R14	CR=NIL RQD=NIL
		2.0	cm Penth.			DS-15	14.50-14.52
		50	Refusal			*SPT-18	14.50
		3.0	cm Penth.			R15	CR=NIL RQD=NIL
		50	Refusal			DS-16	15.25-15.28
17.50m Highly weathered, light grey, medium grained, moderately fractured hornblend gneiss.		50	Refusal			*SPT-19	15.25
		3.0	cm Penth.			R16	CR=NIL RQD=NIL
		50	Refusal			DS-17	16.00-16.03
		50	Refusal			*SPT-20	16.00
		3.0	cm Penth.			R17	CR=NIL RQD=NIL
		50	Refusal			DS-18	16.75-16.77
		2.0	cm Penth.			*SPT-21	16.75
		50	Refusal			R18	CR=NIL RQD=NIL
		3.0	cm Penth.			DS-19	17.50-17.53
		50	Refusal			*SPT-22	17.50
18.25m Highly weathered, light grey, medium grained, moderately fractured hornblend gneiss.						R19	CR=24% RQD=NIL
							18.25
						R20	CR=28% RQD=NIL
							19.00
						R21	CR=30% RQD=NIL
							19.75
						R22	CR=26% RQD=NIL
							20.50
						R23	CR=24% RQD=NIL
							21.25
25.00m N.B. - '*' means sample could not be recovered.						R24	CR=28% RQD=NIL
							22.00
						R25	CR=33% RQD=NIL
							22.75
						R26	CR=36% RQD=NIL
							23.50
						R27	CR=34% RQD=NIL
							24.25
						R28	CR=37% RQD=NIL
							25.00

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-50** Co-ordinates E=(-)13719.966 N=16995.310

Field Test	Nos	Samples	Nos	Commencement Date : 01/10/17
Penetrometer (SPT)	14	Undisturbed (UDS)	2	Completion Date : 03/10/17
Cone (Pc)		Penetrometer (SPT)	14	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	8	Level Of Ground : 75.012 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.40 m above EGL

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Medium to stiff, brownish grey to deep grey, silty clay. Obs. sand mixture & kankars. (CI)								DS-1	0.50
								*UDS-1	1.00-1.45
								SPT-1	1.55-2.00
								DS-2	2.50
								SPT-2	3.00-3.45
								DS-3	3.80
5.50m								*UDS-2	4.00-4.45
								SPT-3	4.55-5.00
								DS-4	5.50
								SPT-4	6.00-6.36
								*SPT-5	6.50-6.54
								*SPT-6	6.60-6.63 6.60
								R1	CR=12% RQD=NIL
6.60m								*SPT-7	7.35-7.38 7.35
								R2	CR=NIL RQD=NIL
								DS-5	
								*SPT-8	8.10-8.13 8.10
								R3	CR=NIL RQD=NIL
								DS-6	
								*SPT-9	8.85-8.87 8.85
								R4	CR=NIL RQD=NIL
								DS-7	
								*SPT-10	9.60-9.63 9.60
10.35m								R5	CR=NIL RQD=NIL
								DS-8	
								*SPT-11	10.35-10.37 10.35
10.50m									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. MWBH-50

Co-ordinates E=(-)13719.966
N=16995.310

Field Test	Nos	Samples	Nos	Commencement Date : 01/10/17
Penetrometer (SPT)	14	Undisturbed (UDS)	2	Completion Date : 03/10/17
Cone (Pc)		Penetrometer (SPT)	14	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	8	Level Of Ground : 75.012 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.40 m above EGL

DESCRIPTION	SYMBOL	N-VALUE					SAMPLES	
		EACH DIVN. = 15cm.					Ref. No	Depth (m)
10.50m Completely to highly weathered, light grey, medium grained, fractured hornblend gneiss.		50	2.0	cm	Penth.	Refusal	R6	CR=08% RQD=NIL
							*SPT-12	11.10-11.1211.10
							R7	CR=16% RQD=NIL
							*SPT-13	11.85-11.8811.85
							R8	CR=17% RQD=NIL
							*SPT-14	12.60-12.6212.60
							R9	CR=24% RQD=NIL
								13.35
							R10	CR=23% RQD=NIL
								14.10
14.10m Highly to moderately weathered, light grey, medium grained, fractured hornblend gneiss.		50	2.0	cm	Penth.	Refusal	R11	CR=29% RQD=16%
								14.85
							R12	CR=27% RQD=NIL
								15.60
							R13	CR=32% RQD=NIL
								16.35
							R14	CR=36% RQD=NIL
								17.10
							R15	CR=34% RQD=NIL
								17.85
20.00m		50	2.0	cm	Penth.	Refusal	R16	CR=39% RQD=NIL
								18.60
							R17	CR=42% RQD=NIL
								19.35
N.B. — '*' means sample could not be recovered.		50	2.0	cm	Penth.	Refusal	R18	CR=45% RQD=NIL
								20.00

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-51** Co-ordinates E=(-)13546.798 N=17121.548

Field Test	Nos	Samples	Nos	Commencement Date : 04/10/17
Penetrometer (SPT)	13	Undisturbed (UDS)	2	Completion Date : 06/10/17
Cone (Pc)		Penetrometer (SPT)	13	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	8	Level Of Ground : 76.212 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.20 m above EGL.

DESCRIPTION	SYMBOL	N-VALUE							SAMPLES	
		EACH DIVN. = 15cm.							Ref. No	Depth (m)
0.00m Stiff, reddish brown, silty clay. (CI)									DS-1	0.50
									*UDS-1	1.00-1.45
		2	4	6		10			SPT-1	1.55-2.00
									DS-2	2.50
		4	5	9		14			SPT-2	3.00-3.45
4.00m									*UDS-2	4.00-4.10
Very dense, light grey, silty sand with decomposed rock. (SM)		18	36	46		>100		SPT-3	4.15-4.51	
						6.0 cm Penth. Refusal		DS-3	4.80	
5.10m		100	4.0	cm Penth. Refusal				*SPT-4	5.00-5.04	
Completely weathered, brownish grey to light grey, medium grained fractured hornblend gneiss.		100	4.0	cm Penth. Refusal				*SPT-5	5.10-5.14	5.10
						R1	CR=12% RQD=NIL			
		50	2.0	cm Penth. Refusal				*SPT-6	5.85-5.87	5.85
						R2	CR=NIL RQD=NIL			
		50	3.0	cm Penth. Refusal				DS-4	6.60-6.63	6.60
						*SPT-7	CR=NIL RQD=NIL			
						R3	CR=NIL RQD=NIL			
		50	3.0	cm Penth. Refusal				DS-5	7.35-7.38	7.35
						*SPT-8	CR=NIL RQD=NIL			
						R4	CR=NIL RQD=NIL			
		50	2.0	cm Penth. Refusal				DS-6	8.10-8.12	8.10
						*SPT-9	CR=NIL RQD=NIL			
						R5	CR=NIL RQD=NIL			
		50	3.0	cm Penth. Refusal				DS-7	8.85-8.88	8.85
						*SPT-10	CR=NIL RQD=NIL			
				R6	CR=NIL RQD=NIL					
50	2.0	cm Penth. Refusal				DS-8	9.60-9.62	9.60		
				*SPT-11	CR=12% RQD=NIL					
				R7	CR=12% RQD=NIL					
50	2.0	cm Penth. Refusal				*SPT-12	10.35-10.37	10.35		
				R8	CR=13% RQD=NIL					
11.10m		50	3.0	cm Penth.			*SPT-13	11.10-11.13	11.10	
Highly weathered, light grey, medium grained, fractured hornblend gneiss.								R9	CR=21% RQD=NIL	
										11.85
Highly to moderately weathered, light grey, medium grained, fractured hornblend gneiss.								R10	CR=22% RQD=NIL	
										12.60
12.60m										
13.00m										

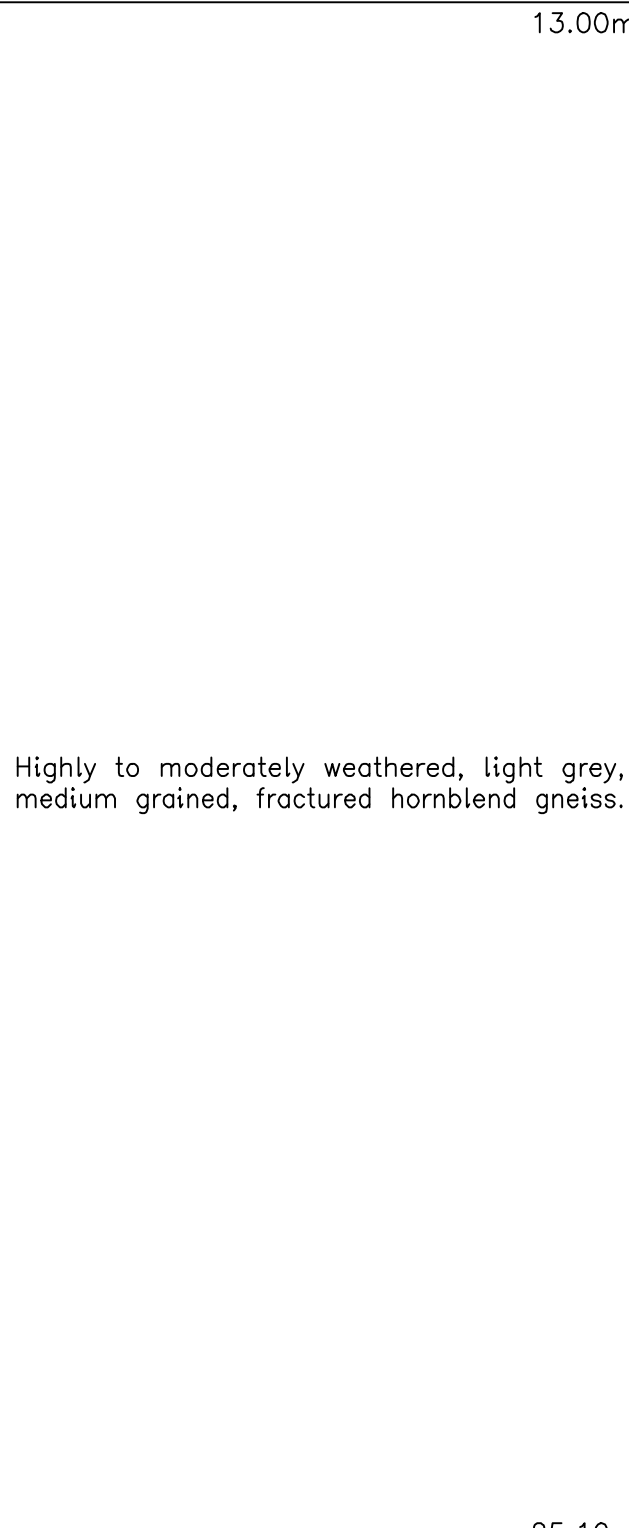
NXL drilling from 5.10m to 25.10m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-51** Co-ordinates E=(-)13546.798 N=17121.548

Field Test	Nos	Samples	Nos	Commencement Date : 04/10/17
Penetrometer (SPT)	13	Undisturbed (UDS)	2	Completion Date : 06/10/17
Cone (Pc)		Penetrometer (SPT)	13	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	8	Level Of Ground : 76.212 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.20 m above EGL.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
13.00m  Highly to moderately weathered, light grey, medium grained, fractured hornblend gneiss. 25.10m N.B. - '*' means sample could not be recovered.								R11	CR=28% RQD=16% 13.35
								R12	CR=30% RQD=NIL 14.10
								R13	CR=32% RQD=NIL 14.85
								R14	CR=30% RQD=NIL 15.60
								R15	CR=34% RQD=NIL 16.35
								R16	CR=28% RQD=NIL 17.10
								R17	CR=36% RQD=NIL 17.85
								R18	CR=32% RQD=NIL 18.60
								R19	CR=29% RQD=NIL 19.35
								R20	CR=39% RQD=NIL 20.10
								R21	CR=31% RQD=NIL 20.85
								R22	CR=39% RQD=18% 21.60
								R23	CR=36% RQD=16% 22.35
								R24	CR=42% RQD=NIL 23.10
								R25	CR=48% RQD=NIL 23.85
								R26	CR=39% RQD=NIL 24.60
								R27	CR=36% RQD=NIL 25.10

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

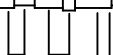
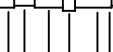
Job No : 3975 Created by : Chandrani Created on : 16/10/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. MWBH-52** Co-ordinates E=(-)13533.259 N=17153.087

Field Test	Nos	Samples	Nos	Commencement Date : 07/10/17
Penetrometer (SPT)	10	Undisturbed (UDS)	1	Completion Date : 09/10/17
Cone (Pc)		Penetrometer (SPT)	10	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	6	Level Of Ground : 76.412 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.00 m above EGL.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Hard, brownish grey, silty clay / clayey silt with rock pieces & sand mixture. (CI)		100	12.0	cm	Penth.	≥ 100		DS-1	0.50
								*UDS-1	1.00-1.15
								SPT-1	1.20-1.32
		100	10.0	cm	Penth.	≥ 100		DS-2	2.50
								SPT-2	3.00-3.10
		42	58	10.0	cm	≥ 100		DS-3	4.00
								SPT-3	4.50-4.75
4.80m		100	4.0	cm	Penth.	Refusal		*SPT-4	4.90-4.94
5.00m		100	4.0	cm	Penth.	Refusal		*SPT-5	5.00-5.04 5.00
								R1	CR=10% RQD=NIL
								*SPT-6	5.75-5.77 5.75
								R2	CR=NIL RQD=NIL
		50	2.0	cm	Penth.	Refusal		DS-4	
								*SPT-7	6.50-6.53 6.50
								R3	CR=NIL RQD=NIL
								*SPT-8	7.25-7.27 7.25
		50	2.0	cm	Penth.	Refusal		DS-5	
								*SPT-9	8.00-8.03 8.00
								R4	CR=NIL RQD=NIL
		50	3.0	cm	Penth.	Refusal		R5	CR=16% RQD=NIL
								*SPT-10	8.75-8.77 8.75
								R6	CR=25% RQD=NIL
8.75m		50	2.0	cm	Penth.				9.50
		50	2.0	cm	Penth.				
10.25m		50	2.0	cm	Penth.				
10.50m		50	2.0	cm	Penth.				
									10.25

Field Test	Nos	Samples	Nos	Commencement Date :	07/10/17
Penetrometer (SPT)	10	Undisturbed (UDS)	1	Completion Date :	09/10/17
Cone (Pc)		Penetrometer (SPT)	10	Bore Hole Diameter :	150 mm. / N.X.
		Disturbed (DS)	6	Level Of Ground :	76.412 M.
Vane (V)		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.00 m above EGL.

DESCRIPTION	SYMBOL	N—VALUE								SAMPLES			
		EACH DIVN. = 15cm.								Ref. No	Depth (m)		
Highly weathered, light grey, medium grained, fractured hornblend gneiss.	10.50m										R8	CR=34% RQD=22%	
											R9	CR=36% RQD=NIL	11.00
													11.75
											R10	CR=28% RQD=NIL	12.50
													13.25
											R11	CR=42% RQD=19%	14.00
													14.75
											R12	CR=38% RQD=17%	15.50
													16.25
											R13	CR=32% RQD=13%	17.00
													17.75
											R14	CR=40% RQD=NIL	18.50
													19.25
											R15	CR=39% RQD=NIL	20.00
													
											R16	CR=42% RQD=NIL	
													
											R17	CR=45% RQD=NIL	
													
											R18	CR=42% RQD=NIL	
													
										R19	CR=37% RQD=NIL		
													
										R20	CR=48% RQD=NIL		
													
													
													
													
													
	20.00m												
N.B. — ‘*’ means sample could not be recovered.													

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-1** Co-ordinates E=689 N=4561

Field Test	Nos	Samples	Nos	Commencement Date : 06/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	2	Completion Date : 06/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 71.662 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.40 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of deep grey to brownish grey, silty sand with boulders & ash.								DS-1	0.50
								*UDS-1	0.70-1.15
1.20m									
Stiff, grey, silty clay. Obs. calcareous nodules & kankars. (CI)		4	5	5	10			SPT-1	1.30-1.75
								DS-2	2.50
3.00m								UDS-2	3.00-3.45
Very stiff, grey, silty clay. Obs. calcareous nodules & kankars. (CI)		5	6	12	18			SPT-2	3.45-3.90
								DS-3	4.50
5.50m								SPT-3	5.00-5.45
Very dense, brownish grey, silty sand. Obs. decomposed rock. (SM)		6	8	12	20			SPT-4	5.90-6.15
		46	54		>100				
6.50m		100	4.0	cm	Penth.			*SPT-5	6.30-6.34
Highly weathered, brownish grey, medium grained, fractured sandstone.		100	4.0	cm	Refusal			*SPT-6	6.50-6.54
			4.0	cm	Penth.			R1	CR=36% RQD=25%
7.25m									
Moderately weathered, brownish grey, medium grained, fractured sandstone.								R2	CR=56% RQD=36%
8.00m									
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 6.50m to 8.00m

7.25
8.00

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-2** Co-ordinates E=636 N=4148

Field Test	Nos	Samples	Nos	Commencement Date : 03/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	0	Completion Date : 05/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 75.856 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.50 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of deep grey to brownish grey, moorum with boulders.								DS-1	0.50
0.80m Very dense, brownish grey, silty sand with decomposed rock. (SM)		59	41	≥100				SPT-1	1.00-1.22
		100	7.0	cm Pentn.				*SPT-2	1.50-1.54
1.70m		100	4.0	cm Pentn.				*SPT-3	1.70-1.74 1.70
Completely weathered, brownish grey, decomposed & disintegrated sandstone.			4.0	cm Pentn.				R1	CR=NIL RQD=NIL
2.50m		100		Refusal				DS-2	
			3.0	cm Pentn.				*SPT-4	2.50-2.53 2.50
				NX rotary drilling from 1.70m to 8.00m				R2	CR=51% RQD=NIL
								R3	CR=66% RQD=NIL
									3.25
								R4	CR=69% RQD=NIL
									4.00
								R5	CR=68% RQD=NIL
									4.75
								R6	CR=72% RQD=NIL
									5.50
								R7	CR=76% RQD=NIL
									6.25
								R8	CR=87% RQD=40%
									7.00
									8.00
8.00m Slightly weathered / fresh, grey, fine grained, fractured sandstone.									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. ABH-4 Co-ordinates E=(<-)292 N=4069

Field Test	Nos	Samples	Nos	Commencement Date : 09/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date : 10/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 72.325 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.80 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Stiff, brownish grey, silty clay. Obs. kankars. (CI)								DS-1	0.50
								UDS-1	1.00-1.45
						14		SPT-1	1.45-1.90
		6	6	8					
Very dense, brownish yellow, silty sand with decomposed rock. (SM)								DS-2	2.50
								SPT-2	3.00-3.45
						15		SPT-3	3.50-3.62
		6	7	8				*SPT-4	3.70-3.72 3.70
Moderately weathered, brownish yellow, medium grained, fractured sandstone.									
								R1	CR=47% RQD=17%
								R2	CR=37% RQD=NIL
								R3	CR=34% RQD=NIL
Highly weathered, light grey, medium grained, fractured sandstone.									
								R4	CR=38% RQD=NIL
								R5	CR=31% RQD=NIL
								R6	CR=35% RQD=NIL
8.00m									

N.B. - '*' means sample could not be recovered.

NX rotary drilling from 3.70m to 8.00m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-5** Co-ordinates E=(<-)811 N=4081

Field Test	Nos	Samples	Nos	Commencement Date : 11/08/17
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Completion Date : 12/08/17
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 79.600 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.60 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Medium dense, clayey silty sand. (SM)								DS-1	0.50
								*UDS-1	1.00-1.45
								SPT-1	1.55-2.00
								DS-2	2.50
2.60m									
Hard, brownish grey, clayey silt with decomposed rock. (CI)								SPT-2	3.00-3.10
								*SPT-3	3.20-3.23 3.20
3.20m									
								R1	CR=27% RQD=NIL
								R2	CR=32% RQD=NIL
								R3	CR=35% RQD=NIL
								R4	CR=41% RQD=NIL
								R5	CR=43% RQD=23%
								R6	CR=45% RQD=NIL
								R7	CR=48% RQD=44%
8.00m									

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-7** Co-ordinates E=(-)1751
N=4239

Field Test	Nos	Samples	Nos	Commencement Date : 08/08/17
Penetrometer (SPT)	9	Undisturbed (UDS)	2	Completion Date : 09/08/17
Cone (Pc)		Penetrometer (SPT)	9	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 81.200 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.80 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Blackish grey, silty clay with coal dust.									
0.60m								DS-1	0.50
Very dense, whitish brown, clayey silty sand. Obs. moorum, boulders. (SM)								UDS-1	1.00-1.45
		14	28	24		52		SPT-1	1.45-1.90
2.30m								DS-2	2.50
Hard, brownish grey, silty clay. Obs. moorum. (CI)								SPT-2	3.00-3.45
		12	12	14		26			
3.70m								*UDS-2	4.00-4.08
Hard, brownish grey, clayey silt. Obs. decomposed rock. (CI)								SPT-3	4.20-4.65
		12	30	39		69		SPT-4	4.75-4.88
5.00m		100				>100		*SPT-5	5.00-5.03 5.00
		100				13.0 cm Pentn.		R1	CR=NIL RQD=NIL
						3.0 cm Pentn.		*SPT-6	5.75-5.79 5.75
						Refusal		R2	CR=NIL RQD=NIL
		100				Refusal		*SPT-7	6.50-6.53 6.50
						4.0 cm Pentn.		R2	CR=NIL RQD=NIL
						Refusal		*SPT-8	7.25-7.27 7.25
		100				3.0 cm Pentn.		R2	CR=NIL RQD=NIL
						Refusal		*SPT-9	8.00-8.02 8.00
		100				2.0 cm Pentn.			
8.00m									
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 5.00m to 8.00m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-8** Co-ordinates E=(-)2275 N=4316

Field Test	Nos	Samples	Nos	Commencement Date : 07/08/17
Penetrometer (SPT)	7	Undisturbed (UDS)	2	Completion Date : 07/08/17
Cone (Pc)		Penetrometer (SPT)	7	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	5	Level Of Ground : 87.150 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.40 m.

DESCRIPTION	SYMBOL	N-VALUE				SAMPLES	
		EACH DIVN. = 15cm.				Ref. No	Depth (m)
0.00m Deep grey, clayey silty sand. (SM)						DS-1	0.50
1.40m Very dense, whitish brown, clayey silty sand with boulders. (SM)		17	39	44	>100 10.0 cm Pentn.	UDS-1 SPT-1	1.00-1.45 1.45-1.85
2.70m Stiff, yellowish brown, silty clay with sand mixture. Obs. steel grey spots. (CI)		4	7	7	14	DS-2 SPT-2	2.50 3.00-3.45
4.50m Very stiff, yellowish brown, silty clay with sand mixture. Obs. steel grey spots. (CI)		6	12	18	30	UDS-2 SPT-3	4.00-4.45 4.45-4.90
5.80m Hard, reddish brown, clayey silt with decomposed rock. (CI)		42	58		>100 10.0 cm Pentn.	DS-3 SPT-4	5.50 6.00-6.25
6.50m Completely weathered, reddish brown, fully decomposed sand stone collected as sludge.		100			Refusal 3.0 cm Pentn.	*SPT-5 R1	6.50-6.53 6.50 CR=NIL RQD=NIL
8.02m N.B. - '*' means sample could not be recovered.		100			Refusal 3.0 cm Pentn.	DS-4 *SPT-6	7.25-7.28 7.25
		100			Refusal 2.0 cm Pentn.	R2 DS-5 *SPT-7	8.00-8.02 8.00 CR=NIL RQD=NIL

NX rotary drilling from 6.50m to 8.00m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-9** Co-ordinates E=(-)2549
N=4359

Field Test	Nos	Samples	Nos	Commencement Date : 05/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	2	Completion Date : 06/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	4	Level Of Ground : 98.400 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of blackish grey, coal dust.									
0.55m								DS-1	0.50
Very dense, whitish brown, silty sand with small pieces of boulders, moourm & calcareous nodules. (SM)								UDS-1	1.00-1.45
		19	31	50				SPT-1	1.45-1.85
					10.0 cm	Penth.			
2.10m								DS-2	2.50
Medium dense, yellowish brown, clayey silty sand. Obs. steel grey patches. (SM)		5	7	10				SPT-2	3.00-3.45
						17			
								UDS-2	4.00-4.45
4.90m		7	9	12				SPT-3	4.45-4.90
						21			
								DS-3	5.50
Very dense, yellowish brown, clayey silty sand. Obs. steel grey patches. (SM)		13	30	48				SPT-4	6.00-6.45
						78			
								DS-4	7.00
		20	37	43				SPT-5	7.50-7.93
						≥100			
					13.0 cm	Penth.			
		32	56	12				SPT-6	8.00-8.33
						≥100			
8.33m					3.0 cm	Penth.			

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-11** Co-ordinates E=(-)3567 E=4510

Field Test	Nos	Samples	Nos	Commencement Date : 04/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	2	Completion Date : 05/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	4	Level Of Ground : 104.200 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Blackish grey, silty clay with sand mixture. (CI)								DS-1	0.50
0.70m								UDS-1	1.00-1.45
Stiff, brownish grey, clayey sandy silt with moorum. (CI)		6	7	8	15			SPT-1	1.45-1.90
2.70m								DS-2	2.50
		8	11	14	25			SPT-2	3.00-3.45
Very stiff, reddish brown, silty clay with sand mixture. Obs. steel grey patches. (CI)								UDS-2	4.00-4.45
5.60m		11	13	15	28			SPT-3	4.45-4.90
								DS-3	5.50
Very dense, brownish grey, clayey silty sand. Obs. steel grey patches. (SM)		30	45	25	>100			SPT-4	6.00-6.35
8.13m					5.0 cm Pentn.			DS-4	7.00
		40	60		>100			SPT-5	7.50-7.75
					10.0 cm Pentn.			SPT-6	8.00-8.13
		100			>100				
					13.0 cm Pentn.				

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-12** Co-ordinates E=(-)3845 N=4554

Field Test	Nos	Samples	Nos	Commencement Date : 03/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	1	Completion Date : 03/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	5	Level Of Ground : 115.120 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.80 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of blackish grey, coal dust.								DS-1	0.50
0.60m								UDS-1	1.00-1.45
		14	18	21		39		SPT-1	1.45-1.90
Hard, reddish brown to brownish grey, silty clay / clayey silt with moorum. Obs. sand mixture. (CI)								DS-2	2.50
		28	39	47		86		SPT-2	3.00-3.45
4.30m								DS-3	4.00
		11	15	17		32		SPT-3	4.50-4.95
Hard, brownish grey, silty clay with sand mixture. Obs. steel grey patches. (CI)								DS-4	5.50
		13	16	20		36		SPT-4	6.00-6.45
6.50m								DS-5	6.80
		17	25	37		62		SPT-5	7.00-7.45
Very dense, brownish grey, silty sand. Obs. traces of clay binders. (SM)									
		21	30	43		73		SPT-6	8.00-8.45
8.45m									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-13** Co-ordinates E=(-)4292 N=4385

Field Test	Nos	Samples	Nos	Commencement Date : 02/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	1	Completion Date : 02/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	5	Level Of Ground : 108.125 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.50 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of blackish grey, coal dust.								DS-1	0.50
0.60m								*UDS-1	1.00-1.45
Medium dense, reddish brown, silty sand. Obs. clay mixture. (SM)		10	9	10	19			SPT-1	1.55-2.00
								DS-2	2.50
3.00m		17	35	48	83			SPT-2	3.00-3.45
								DS-3	4.00
		29	42	25	≥100			SPT-3	4.50-4.85
Very dense, yellowish brown, silty sand with decomposed rock. Obs. clay mixture. (SM)					5.0 cm Pentn.			DS-4	5.50
		45	55		≥100			SPT-4	6.00-6.27
					12.0 cm Pentn.			DS-5	6.75
		67	33		≥100			SPT-5	7.00-7.21
					6.0 cm Pentn.				
8.13m		100			≥100			SPT-6	8.00-8.13
N.B. - '*' means sample could not be recovered.					13.0 cm Pentn.				

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 02/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-14** Co-ordinates E=(-)4582 N=4677

Field Test	Nos	Samples	Nos	Commencement Date : 27/07/17
Penetrometer (SPT)	6	Undisturbed (UDS)	2	Completion Date : 27/07/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	4	Level Of Ground : 110.742 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.45 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Reddish brown, silty clay. Obs. moorum & boulders. (CI)								DS-1	0.50
1.50m								*UDS-1	1.00-1.45
		11	13	15		28		SPT-1	1.55-2.00
								DS-2	2.50
4.40m Very stiff, reddish brown, silty clay. Obs. moorum, sand mixture & stone pieces. (CI)		14	13	10		23		SPT-2	3.00-3.45
								UDS-2	4.00-4.45
		17	32	40		72		SPT-3	4.45-4.90
								DS-3	5.50
		19	35	38		73		SPT-4	6.00-6.45
								DS-4	7.00
		21	40	42		82		SPT-5	7.20-7.65
		25	43	47		90		SPT-6	8.00-8.45
8.45m N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-15** Co-ordinates E=(-)4804 N=4900

Field Test	Nos	Samples	Nos	Commencement Date : 30/07/17
Penetrometer (SPT)	8	Undisturbed (UDS)	1	Completion Date : 31/07/17
Cone (Pc)		Penetrometer (SPT)	8	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	6	Level Of Ground : 110.200 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.70 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Blackish grey to brownish grey, silty clay. Obs. moorum, small of boulders & sand mixture. (CI)								DS-1	0.50
								UDS-1	1.00-1.45
1.50m		13	15	17		32		SPT-1	1.45-1.90
Dense, greyish brown, silty sand with gravels, kankars & moorum. (SM)								DS-2	2.50
		14	18	20		38		SPT-2	3.00-3.45
3.80m								DS-3	4.00
Very dense, yellowish brown, silty sand with decomposed rock. (SM)		26	33	45		78		SPT-3	4.50-4.95
		59	41			≥100		DS-4	5.10
		100	10.0 cm	Penth.		≥100		SPT-4	5.30-5.55
5.80m		100	3.0 cm	Penth.		Refusal		*SPT-5	5.65-5.68
		100	2.0 cm	Penth.		Refusal		*SPT-6	5.80-5.82 5.80
Completely weathered, yellowish brown, medium grained, completely decomposed & disintegrated sandstone collected as sludge.								R1	CR=NIL RQD=NIL
		100	2.0 cm	Penth.		Refusal		DS-5	
								*SPT-7	6.50-6.52 6.50
		100	3.0 cm	Penth.		Refusal		R2	CR=NIL RQD=NIL
								DS-6	
								*SPT-8	7.25-7.28 7.25
								R3	CR=20% RQD=NIL
8.00m									
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 5.80m to 8.00m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 18/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-16** Co-ordinates E=(-)5170 N=4999

Field Test	Nos	Samples	Nos	Commencement Date : 29/07/17
Penetrometer (SPT)	9	Undisturbed (UDS)	2	Completion Date : 30/07/17
Cone (Pc)		Penetrometer (SPT)	9	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	7	Level Of Ground : 108.220 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.20 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Filled up soil consists of blackish grey to brownish grey, clayey silt. Obs. coal dust & small pieces of boulders.								DS-1	0.50
								*UDS-1	1.00-1.10
								SPT-1	1.15-1.60
								DS-2	2.00
								SPT-2	2.50-2.95
								DS-3	3.50
								*UDS-2	4.00-4.07
Very dense, yellowish brown, silty sand with decomposed rock. (SM)									
								SPT-3	4.20-4.65
								DS-4	5.10
								SPT-4	5.50-5.70
								*SPT-5	5.80-5.83
								*SPT-6	6.00-6.02 6.00
								R1	CR=NIL RQD=NIL
Completely weathered, yellowish brown, medium grained, completely decomposed sandstone collected as sludge.								DS-5	
								*SPT-7	6.75-6.78 6.75
								R2	CR=NIL RQD=NIL
								DS-6	
								*SPT-8	7.50-7.52 7.50
								R3	CR=NIL RQD=NIL
								DS-7	
								*SPT-9	8.00-8.02 8.00
8.02m									
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 6.00m to 8.02m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 02/08/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-17** Co-ordinates E=(-)5653 N=5130

Field Test	Nos	Samples	Nos	Commencement Date : 28/07/17
Penetrometer (SPT)	6	Undisturbed (UDS)	1	Completion Date : 28/07/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	5	Level Of Ground : 112.25 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.90 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Reddish brown, clayey sandy silt with moourm & small size stone pieces. (SM)								DS-1	0.50
1.10m								*UDS-1	1.00-1.04
		13	22	25		47		SPT-1	1.15-1.60
								DS-2	2.50
		15	24	28		52		SPT-2	3.00-3.45
								DS-3	4.00
Dense to very dense, reddish brown, clayey silty sand / sandy silt. Obs. moourm & boulders. (SM)		18	26	30		56		SPT-3	4.50-4.95
								DS-4	5.50
		20	29	33		62		SPT-4	6.00-6.45
								DS-5	7.00
		17	35	39		74		SPT-5	7.30-7.75
		21	39	48		87		SPT-6	8.00-8.45
8.45m									

N.B. - '*' means sample could not be recovered.

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/09/2017 Sheet No:

BORE LOG DATA SHEET BORE HOLE NO. ABH-21 Co-ordinates E=(-)7010 N=5640

Field Test	Nos	Samples	Nos	Commencement Date : 26/08/17
Penetrometer (SPT)	4	Undisturbed (UDS)	2	Completion Date : 26/08/17
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150 mm.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 121.50 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 4.20 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Hard, brownish grey, silty clay with moorum. (CI)								DS-1	0.50
								*UDS-1	1.00-1.10
		33	67					SPT-1	1.50-1.79
			14.0	cm	Penth.				
								DS-2	2.50
2.70m									
Very stiff, brownish grey, silty clay. Obs. steel grey patches & traces of moorum. (CI)		8	10	13				SPT-2	3.00-3.45
						23			
								UDS-2	4.00-4.45
4.50m		12	15	19				SPT-3	4.45-4.90
						34			
Hard, whitish brown, silty clay. (CI)		14	18	22				SPT-4	5.00-5.45
						40			
5.45m									
N.B. - '*' means sample could not be recovered.									

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-24** Co-ordinates E=(-)7010 N=5390

Field Test	Nos	Samples	Nos	Commencement Date : 28/08/17
Penetrometer (SPT)	5	Undisturbed (UDS)	1	Completion Date : 29/08/17
Cone (Pc)		Penetrometer (SPT)	5	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 98.50 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 1.10 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m Filled up soil consists of blackish grey, coal dust.									
0.60m								DS-1	0.50
								*UDS-1	1.00-1.45
		17	38	55	≥ 100			SPT-1	1.55-1.90
				5.0	cm Pentn.			DS-2	2.50
0.60m Filled up soil consists of blackish grey, clayey silt with boulders. Obs. coal dust.									
		42	58		≥ 100			SPT-2	3.00-3.27
				12.0	cm Pentn.			DS-3	4.00
		63	37		≥ 100			SPT-3	4.50-4.72
				7.0	cm Pentn.				
5.20m					≥ 100			SPT-4	5.50-5.64
Very dense, silty sand with decomposed rock. (SM)		100			14.0	cm Pentn.			
6.50m								*SPT-5	6.50-6.52 6.50
Highly weathered, whitish grey, medium grained, fractured sandstone.		100						R1	CR=27% RQD=NIL
7.25m					2.0	cm Pentn.		R2	CR=22% RQD=NIL
								R3	CR=21% RQD=NIL
Highly weathered, whitish grey, medium grained, fractured sandstone.								R4	CR=23% RQD=NIL
9.50m								R5	CR=34% RQD=20%
Highly weathered, whitish grey, medium grained, fractured sandstone.									10.00
10.00m									
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 6.50m to 10.00m

Project : Preliminary G. I. Work for Talcher Thermal Power Project-III (2x660 MW). **CETEST**

Job No : 3975 Created by : Chandrani Created on : 11/09/2017 Sheet No:

BORE LOG DATA SHEET **BORE HOLE NO. ABH-25** Co-ordinates E=(-)7080 N=5490

Field Test	Nos	Samples	Nos	Commencement Date : 29/08/17
Penetrometer (SPT)	6	Undisturbed (UDS)	1	Completion Date : 30/08/17
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm. / N.X.
Vane (V)		Disturbed (DS)	4	Level Of Ground : 95.40 m.
		Water Sample (WS)	0	Water Struck At : Standing Water Level : 3.30 m.

DESCRIPTION	SYMBOL	N-VALUE						SAMPLES	
		EACH DIVN. = 15cm.						Ref. No	Depth (m)
0.00m									
Hard, brownish grey, silty clay with moorum. (CI)								DS-1	0.50
								*UDS-1	1.00-1.10
		27	30	42		72		SPT-1	1.50-1.95
2.30m									
Hard, whitish grey, clayey silt / silty clay. (CI)								DS-2	2.50
		17	36	48		84		SPT-2	3.00-3.45
		22	38	40		>100		DS-3	4.00
5.20m									
Very dense, whitish grey, sandy silt / silty sand. Obs. clay binders. (SM)								SPT-3	4.50-4.92
						12.0 cm Pentn.		DS-4	5.50
6.50m									
Very dense, yellowish brown, silty sand with decomposed rock. (SM)								SPT-4	6.00-6.35
						5.0 cm Pentn.		DS-5	7.00-7.13
7.30m									
Highly weathered, yellowish brown to whitish grey, medium grained, fractured sandstone.								SPT-5	7.00-7.13
								*SPT-6	7.30-7.32 7.30
						Refusal		R1	CR=24% RQD=NIL
								R2	CR=29% RQD=15%
								R3	CR=26% RQD=17%
10.00m								R4	CR=40% RQD=20%
N.B. - '*' means sample could not be recovered.									

NX rotary drilling from 7.30m to 10.00m

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS				Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Classi %	ficati %	Grav %	Sand %	Silt %	Clay %			
MWBH01	UDS01	1.00	Brownish grey, silty clay with traces of kankars.	1.86	1.60		15 S 16 T 14 C	0.548	TRSH-UU	0.77	0		33	16		CL		29	50	21	**See the Notes below			
									3.0	0.796														
									2.0	0.766														
									1.0	0.745														
									UNCONFD	0.66	0													
									0.0	0.673														
									0.0	0.658														
									0.0	0.640														
									REMOULD	0.48	0													
									0.0	0.499														
									0.0	0.502														
									0.0	0.431														
MWBH01	UDS02	4.00	Brownish grey, silty clay with traces of kankars.	1.93	1.65	2.61	17 S 17 T 15 C	0.471	TRSH-UU	0.93	5		12	CI*				41	45	14	Do			
									3.0	1.294														
									2.0	1.176														
									1.0	1.148														
									UNCONFD	0.88	0													
									0.0	0.921														
									0.0	0.853														
									0.0	0.867														
									REMOULD	0.62	0													
									0.0	0.606														
									0.0	0.634														
									0.0	0.618														
MWBH02	SPT01	1.55	Deep grey, silty clay / clayey silt with kankars.													CI*		39	44	17	Do			
MWBH02	SPT03	5.00	Deep grey, clayey silt.										37	17		CI					Do			
MWBH03	SPT02	2.80	Light grey, clayey silt with traces of sand mixture.										34	14		CL					Do			
MWBH03	SPT03	4.20	Light grey, clayey silt with traces of sand mixture.													CI*		19	58	23	Do			

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
MWBH04	SPT02	3.00	Brownish grey, clayey silt with sand mixture and kankars.													CI*	59	23	18		Do
MWBH04	SPT03	5.10	Yellowish grey, silty clay / clayey silt with sand mixture & decomposed rock.										35	12		CI					Do
MWBH05	UDS02	4.60	Brownish grey, silty clay / clayey silt with traces of kankars.	1.92	1.66	2.61	17 S 16 T 17 C	0.497	TRSH-UU 3.0 2.0 1.0 UNCONFD 0.0 0.0 0.0 REMOULD 0.0 0.0 0.0	1.09 1.116 1.093 1.055 0.88 0.907 0.861 0.864 0.61 0.596 0.638 0.601	1.09	0	36	14	11	CI	32	44	24		Do
MWBH06	SPT02	3.00	Brownish grey, clayey silt with sand mixture / clayey silty sand and mica.										31	14		CL					Do
MWBH06	SPT03	4.20	Brownish grey, clayey silt with sand mixture / clayey silty sand and mica.													SM	60	27	13		Do
MWBH07	SPT02	3.40	Brownish grey, silty clay / clayey silt with sand mixture.										35	14		CI					Do
MWBH07	SPT04	5.00	Yellowish grey, silty sand with traces of clay binders and kankars.													SM-SP	89	5	6		Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
MWBH08	SPT01	1.50	Brownish grey, silty clay / clayey silt with sand mixture.													CI*	40	36	24		Do
MWBH08	SPT02	3.00	Yellowish grey, silty clay / clayey silt with traces of sand mixture.										34	14		CL					Do
MWBH08	SPT04	5.10	Yellowish brown, silty clay / clayey silt with traces of sand mixture.										34	16		CL					Do
MWBH09	SPT01	1.40	Brownish grey, clayey silt with traces of sand mixture.										39	16		CI					Do
MWBH10	SPT01	1.55	Brownish grey, clayey silt with traces of sand mixture.			2.61										CI*	14	53	33		Do
MWBH10	SPT02	3.00	Brownish grey, clayey silt with sand mixture.										38	24		CI					Do
MWBH11	SPT01	1.60	Deep grey, silty clay / clayey silt.										36	19		CI					Do
MWBH11	SPT02	3.00	Light grey, clayey silt with traces of sand mixture.													CI*	11	58	31		Do
MWBH11	SPT03	4.50	Brownish grey clayey silt with sand mixture.										36	17		CI					Do
MWBH12	SPT01	1.35	Brownish grey, clayey silt with sand mixture.													CI*	39	52	9		Do

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS		Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Classi	% f	% c	% s	Grav	Sand	
MWBI12	SPT03	4.50	Brownish grey, silty clay / clayey silt with sand mixture.										37	15		CI					Do	
MWBI13	SPT02	3.00	Brownish grey, clayey silt with sand mixture.										45	19		CI					Do	
MWBI14	UDS01	1.00	Brownish grey, clayey silt with traces of sand mixture.	1.96	1.67	2.58	17 S 17 T 14 C	0.476	TRSH-UU 3.0 2.0 1.0 UNCONFD 0.0 0.977 0.0 0.986 0.0 1.002	0.73	0.99	0	35	17		CI	38	50	12		Do	
									REMOULD 0.0 0.713 0.0 0.658 0.0 0.821	0.73		0										
MWBI14	SPT03	4.50	Brownish grey, silty clay with traces of sand mixture.										46	19		CI					Do	
MWBI15	UDS01	1.00	Reddish brown clayey silt with sand mixture and rock pieces.	2.04	1.79	2.58	13 S 14 T 12 C	0.424	TRSH-UU 3.0 2.0 1.0 UNCONFD 0.0 0.956 0.0 0.917 0.0 0.880	0.93	0.92	0	33	14	11	SC	66	26	8		Do	
									REMOULD 0.0 0.671 0.0 0.689 0.0 0.644	0.67		0										
MWBI15	SPT02	3.00	Brownish grey, silty sand with traces of rock pieces.													SM	12	67	21(Silt+Clay)		Do	

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS		Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Classifi	Gravli %	Sand %	Silt %	Clay %		
MWBH17	SPT01	1.60	Brownish grey, clayey silt with sand mixture and rock pieces.													CI*	4	32	64(Silt+Clay)	Do		
MWBH17	SPT02	3.20	Brownish grey, clayey silt with sand mixture and rock pieces.													CL				Do		
MWBH17	SPT04	5.05	Brownish grey, clayey silt with traces of sand mixture.													CI*		12	69	19	Do	
MWBH18	UDS01	1.00	Greyish yellow, silty clay with sand mixture.	2.06	1.81	2.65	14 S 13 T 14 C	0.464		TRSH-UU	0.74	0				9 CL-SC		61	25	14	Do	
										3.0	0.765											
										2.0	0.761											
										1.0	0.686											
										UNCONFD	0.63	0										
										0.0	0.637											
										0.0	0.643											
										0.0	0.622											
										REMOULD	0.46	0										
										0.0	0.452											
										0.0	0.429											
										0.0	0.488											
MWBH18	SPT03	4.50	Yellowish grey, clayey silt with traces of rock pieces.												36	14	CI				Do	
MWBH18	SPT05	7.50	Reddish brown, clayey silt with sand mixture.							DRSH-CQ	0.48	25				CI*					Do	
										0.5	0.748											
										1.0	0.867											
										2.0	1.412											
MWBH19	SPT02	2.60	Yellowish grey, clayey silt with sand mixture.													SM	51	31	18		Do	

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
MWBH19	SPT04	5.80	Brownish grey, clayey silt with traces of calcareous nodules & kankars.										34	15		CL					Do
MWBH20	SPT03	4.00	Reddish brown with clayey silty sand with kankars & rock pieces.						DRSH-CQ 0.5 1.0 2.0	0.72 0.891 1.188 1.530		22				SM*					Do
MWBH21	SPT01	1.00	Reddish brown, clayey silty sand.										Non Plastic			SM*					Do
MWBH21	UDS01	2.00	Brownish grey, silty sand with clay binder / clayey silty sand.	1.81	1.56		16 S 16 T 26 C	0.620	TRSH-UU 3.0 2.0 1.0 UNCONFD	1.255 1.027 0.833	0.52	10	32	16	12	CL	49	38	13		Do
									REMOULD 0.0 0.0 0.0 0.0	0.416 0.434 0.422	0.32	0									
MWBH21	SPT03	4.00	Brownish grey, silty sand with clay binder and calcareous nodules.													SM	63	21	16		Do
MWBH22	SPT01	1.60	Reddish brown clayey silt with sand mixture / clayey silty sand.													SM	63	37(Silt+Clay)			Do
MWBH22	SPT02	3.05	Reddish brown, clayey silty sand with moorum & kankar.						DRSH-CQ 0.5 1.0 2.0	0.74 0.891 1.094 1.387		18				SM*					Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS SL Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	% ficati		Gravl %	Sand %	Silt %	Clay %	
MWBH23	SPT01	1.00	Greyish brown clayey silty sand.										36	14		CI					Do
MWBH23	SPT02	2.50	Greyish brown clayey silty sand / clayey silt with sand mixture, kankar and moorum.													SM	68	18	14		Do
MWBH23	SPT04	5.00	Brownish grey, silty sand with traces of kankars.													SM	4	83	13(Silt+Clay)		Do
MWBH24	SPT02	2.55	Greyish brown clayey silt with sand mixture.													SM	58	30	12		Do
MWBH24	SPT04	5.05	Brownish grey, silty clay with traces of sand mixture.										37	14		CI					Do
MWBH25	SPT01	1.60	Brownish grey, clayey silt with traces of sand mixture and kankars.			2.72										CI*	42	39	19		Do
MWBH25	SPT02	3.05	Brownish grey, silty clay with traces of sand mixture.										38	14		10 CI					Do
MWBH25	SPT03	5.00	Brownish grey, clayey silt with traces of sand mixture.													CI*	48	34	18		Do
MWBH26	SPT02	2.80	Reddish brown, silty sand.	1.81	1.55		16 S 17 DR		DRSH-CQ	0.09		32				SM					Do
									0.5	0.406											
									1.0	0.709											
									2.0	1.342											
MWBH27	SPT01	1.00	Greyish brown, silty sand with clay binder / clayey silty sand.			2.70										SM	68	19	13		Do

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS		Grain Size					Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	% ficati	Gravl %	Sand %	Silt %	Clay %				
MWBH27	SPT03	4.00	Reddish brown, clayey silty sand with moorum, kankar and rock pieces.	1.80	1.60		13 S 13DR		DRSH-CQ	0.58	0.58	25					SM					Do		
									0.5	0.799														
									1.0	1.019														
									2.0	1.551														
MWBH28	SPT01	1.40	Brownish grey clayey silt with sand mixture			2.64											CI*	40	37	23		Do		
MWBH28	SPT02	3.00	Brownish grey, silty clay with sand mixture.										49	15		CI						Do		
MWBH29	SPT01	1.25	Greyish brown, clayey silt with decomposed rock.										48	15		CI						Do		
MWBH29	SPT02	3.00	Brownish grey, clayey silt with sand mixture														CI*	49	32	19		Do		
MWBH30	UDS01	1.00	Reddish brown, clayey silt with traces of sand mixture.	2.12	1.81		15 S 17 T 17 C	0.475	TRSH-UU	0.43	0.43	9	38	16	12	CI		38	40	22		Do		
									3.0	1.099														
									2.0	0.866														
									1.0	0.707														
									UNCONFD	0.61	0.61	0												
									0.0	0.607														
									0.0	0.588														
									0.0	0.635														
									REMOULD	0.42	0.42	0												
									0.0	0.404														
									0.0	0.431														
									0.0	0.439														
MWBH30	SPT02	3.00	Brownish grey, silty clay with traces of sand mixture.										37	14		CI						Do		

Bore Hole	Sample Number	Sample Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		% f	% c	% s	% c	
MWBH31	UDS01	1.00	Reddish brown, clayey silt with traces of sand mixture.						TRSH-UU 3.0	1.295	1.28	0	39	15	10	CI					Do
									2.0	1.286											
									1.0	1.275											
									UNCONFD		1.08	0									
									0.0	1.151											
									0.0	1.094											
									0.0	0.996											
									REMOULD		0.73	0									
									0.0	0.702											
									0.0	0.733											
									0.0	0.758											
MWBH31	SPT02	3.00	Brownish grey, silty clay / clayey silt with traces of sand mixture.										30	13		CL					Do
MWBH31	UDS02	4.00	Light grey, silty clay.					0.437	TRSH-UU 3.0	0.674	0.64	0				CI*		31	45	24	Do
									2.0	0.651											
									1.0	0.595											
									UNCONFD		0.43	0									
									0.0	0.411											
									0.0	0.456											
									0.0	0.423											
									REMOULD		0.36	0									
									0.0	0.345											
									0.0	0.399											
									0.0	0.352											
MWBH32	SPT01	1.30	Brownish grey, silty clay / clayey silt with sand mixture.										44	18		CI					Do
MWBH32	SPT03	4.00	Brownish grey, clayey silt with sand mixture.													CI*		47	46	7	Do
MWBH33	SPT02	2.60	Brownish grey, clayey silt / silty clay with traces of rock pieces.										46	15		CI					Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
MWBH33	SPT04	5.00	Brownish grey, clayey silt / silty clay with traces of rock pieces.													CI*	42	43	15		Do
MWBH34	SPT01	1.20	Reddish grey, silty clay / clayey silt with moorum, gravels & traces of sand mixture.													SM	55	25	20 (Silt+Clay)		Do
MWBH34	SPT02	2.50	Reddish grey, silty clay / clayey silt with moorum, gravels & traces of sand mixture.													SM	57	25	18 (Silt+Clay)		Do
MWBH35	SPT02	2.70	Reddish brown, silty clay / clayey silt with sand mixture & rock pieces.			2.61										SM	16	37	47 (Silt+Clay)		Do
MWBH35	SPT03	4.00	Brownish grey, silty sand.										Non Plastic			SM*					Do
MWBH35	SPT05	7.00	Brownish grey, silty sand with rock pieces.													SM-SP	28	61	11 (Silt+Clay)		Do
MWBH36	SPT04	4.80	Greyish brown, clayey silt with sand mixture.			2.62										CI*	32	68	(Silt+Clay)		Do
MWBH37	DS01	0.60	Brownish grey silty clay with sand mixture & kankars.										44	17		CI					Do
MWBH37	SPT01	1.55	Brownish grey, silty sand with traces of mica.													SM	72	28	(Silt+Clay)		Do
MWBH38	UDS01	1.00	Brownish grey clayey silt with rock pieces, sand mixture & calcareous nodules.										34	18	10	CL-SC	65	31	4		Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classi	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
MWBH48	SPT07	11.30	Reddish brown, silty sand with clay binder.													SM	61	39	(Silt+Clay)		Do
MWBH49	SPT01	1.50	Brownish grey, clayey silty sand / clayey silt with sand mixture.													SM	59	30	11		Do
MWBH49	SPT02	3.10	Brownish grey, silty sand with rock pieces.													SM	19	54	27	(Silt+Clay)	Do
MWBH50	SPT01	1.55	Greyish brown, silty clay with sand mixture and decomposed rock.									46	16			CI	2	22	76	(Silt+Clay)	Do
MWBH51	SPT01	1.55	Reddish brown, clayey silt with traces of sand mixture.													CI*	25	53	22		Do
MWBH52	SPT03	4.50	Greyish brown, clayey silt with sand mixture and rock pieces.													SM	28	29	43	(Silt+Clay)	Do

* - Classification in this case is based on average layer properties.

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr's Scale)	Soundness (% Loss)	E (g/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-Situ	Saturated								
MWBH-27	2	8.25-9.00	Highly weathered, brownish grey, medium grained, fractured sandstone.	2.470	2.439	1.285	5.6044	2.584	--	--	--	8.00	--	--	--	--	--	**See the notes
MWBH-27	4	9.50-10.00	Highly weathered, brownish grey, medium grained, fractured sandstone.	2.362	2.301	2.651	10.3982	2.568	--	--	--	--	--	Medium Soft	--	--	--	Do
MWBH-34	14	16.00-16.75	Highly weathered, light grey, fine grained, fractured hornblend gneiss.	2.586	2.579	0.290	1.3154	2.531	--	--	--	9.11	--	--	--	--	--	Do
MWBH-34	23	22.75-23.50	Highly weathered, light grey, fine grained, fractured hornblend gneiss.	2.611	2.604	0.271	1.3484	2.648	--	85	--	--	--	--	--	--	--	Do
MWBH-35	15	17.75-18.50	Highly weathered, light grey to greyish black, medium to coarse grained, highly fractured hornblend gneiss.	2.557	2.553	0.143	0.5183	2.568	--	--	--	5.47	--	--	--	--	--	Do
MWBH-35	22	23.00-23.75	Highly weathered, light grey to greyish black, medium to coarse grained, highly fractured hornblend gneiss.	2.500	2.497	0.111	0.5012	2.612	--	--	--	32.99	--	--	--	--	--	Do
MWBH-36	13	15.50-16.25	Highly weathered, yellowish grey to brownish grey, medium grained, fractured hornblend gneiss.	2.376	2.317	2.558	1.2898	2.557	--	--	--	1.92	--	--	--	--	--	Do
MWBH-36	17	18.50-19.25	Highly weathered, whitish grey, fine grained, fractured hornblend gneiss.	2.419	2.418	0.038	0.2160	2.624	--	277	--	--	--	--	--	--	--	Do
MWBH-37	2	3.00-3.75	Moderately weathered, brownish grey, medium to fine grained, fractured sandstone.	2.330	2.263	2.947	11.4284	--	--	--	--	1.64	--	--	--	--	--	Do
MWBH-37	3	3.75-4.50	Moderately weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	2.608	--	--	--	--	91.56	--	--	--	--	Do
MWBH-37	4	4.50-5.00	Moderately weathered, brownish grey, medium to fine grained, fractured sandstone.	2.409	2.341	2.911	9.8052	--	154	--	--	--	--	--	--	--	--	Do
MWBH-38	2	2.50-3.25	Highly weathered, brownish grey, medium to fine grained, fractured sandstone.	2.400	2.332	2.922	10.0412	2.592	--	--	--	1.64	--	--	--	--	--	Do
MWBH-38	3	3.25-4.00	Highly weathered, brownish grey, medium to fine grained, fractured sandstone.	2.375	2.280	4.154	13.5077	2.637	--	--	--	0.83	--	--	--	--	--	Do
MWBH-38	4	4.00-5.00	Highly weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	--	--	--	--	77.49	--	--	--	--	Do
MWBH-39	1	2.80-3.50	Highly weathered, yellowish grey, medium grained, fractured sandstone.	2.346	2.287	2.588	10.3620	2.552	--	--	--	1.63	--	--	--	--	--	Do
MWBH-39	3	4.25-5.00	Highly weathered, yellowish grey, medium grained, fractured sandstone.	2.407	2.343	2.734	8.8189	2.569	--	--	--	--	--	Medium Soft	--	--	--	Do
MWBH-49	19	17.50-18.25	Highly weathered, light grey, medium grained, moderately fractured hornblend gneiss.	2.679	2.606	2.801	1.2786	2.618	--	--	--	--	--	--	--	--	--	Do
MWBH-50	11	14.10-14.85	Highly weathered, light grey, medium grained, fractured hornblend gneiss.	2.601	2.595	0.232	0.8414	2.618	--	--	--	49.63	--	Hard	16.34	--	32.76	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr's Scale)	Soundness (% Loss)	E (g/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-Situ	Saturated								
MWBH-51	11	12.60-13.35	Highly weathered, light grey, medium grained, fractured hornblend gneiss.	2.379	2.302	3.333	1.2693	2.636	--	--	--	--	77.17	--	--	--	--	Do
MWBH-52	8	10.25-11.00	Highly weathered, light grey, medium grained, fractured hornblend gneiss.	2.738	2.634	3.952	1.0954	2.532	--	--	--	3.82	--	Medium Soft	21.45	7164	--	Do

Table G-4 (iv)
PHYSICAL AND GEOTECHNICAL PROPERTIES OF SOIL
Geo - technical Investigation for NTPC, Tacher Thermal Stage-III (2 X 660 MW)

WORK REFERENCE:

BORE HOLE NO	LOCATION	TYPE OF SAMPLE	DEPTH(M)	BULK DENSITY (γ) in gm/cc.	NATURAL MOISTURE CONTENT (%)	PARTICLE SIZE (%)							CONSISTENCY PROPERTIES				CLASSIFICATION	DIFFERENTIAL FREE SWELL INDEX IN %	SPECIFIC GRAVITY	VOID RATIO	STRENGTH TEST (Triaxial shear test)			CHEMICAL TEST OF SOIL			CHEMICAL TEST OF WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
						FINE GRAVEL IN % (20MM TO 4.75MM)	COARSE SAND IN % (4.75MM TO 2.00MM)	MEDIUM SAND IN % (2.00MM TO 0.425MM)	FINE SAND IN % (0.425MM TO 0.075MM)	SILT & CLAY IN % (0.075MM)	SILT SIZE IN % (0.075MM TO 0.002MM)	CLAY SIZE IN % (0.002MM)	LIQUID LIMIT IN % (LL)	PLASTIC LIMIT IN % (PL)	PLASTICITY INDEX IN % (PI)	SHRINKAGE LIMIT IN %					APPARENT COHESION "C" IN Kg/cm ²	ANGLE OF INTERNAL RESISTANCE "φ" IN DEGREE	UNCONFINED COMPRESSIVE STRENGTH IN Kg/cm ²	COMPRESSION INDEX (C _c)	pH Value	Sulphates in PPM	Chloride in PPM	pH Value	Sulphates in mg/ltr	Chloride in mg/ltr																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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Table G-5 (iv)
PHYSICAL AND GEOTECHNICAL PROPERTIES OF SOIL

Geo - technical investigation for NTPC, Tatchar Thermal Stage-III (2 X 560 MW)

WORK REFERENCE:

BORE HOLE NO	LOCATION	TYPE OF SAMPLE	DEPTH(M)	BULK DENSITY (k) in gm/cc	NATURAL MOISTURE CONTENT (%)	PARTICLE SIZE (%)							CONSISTENCY PROPERTIES				CLASSIFICATION	DIFFERENTIAL FREE SWELL INDEX IN %	SPECIFIC GRAVITY	VOID RATIO	STRENGTH TEST (Triaxial shear test)			COMPRESSION INDEX (Cc)	CHEMICAL TEST OF SOIL			CHEMICAL TEST OF WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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Table (iv) G-2

PHYSICAL AND GEOTECHNICAL PROPERTIES OF SOIL

Geo - technical Investigation for NTPC, Talcher Thermal Stage-III (2 X 660 MW)

WORK REFERENCE:-

BORE HOLE NO	LOCATION	TYPE OF SAMPLE	DEPTH(M)	BULK DENSITY (k) in gm/cc	NATURAL MOISTURE CONTENT (%)	PARTICLE SIZE (%)								CONSISTENCY PROPERTIES				CLASSIFICATION	DIFFERENTIAL FREE SWELL INDEX IN %	SPECIFIC GRAVITY	VOID RATIO	STRENGTH TEST (Triaxial shear test)				COMPRESSION INDEX (C _c)	CHEMICAL TEST OF SOIL			CHEMICAL TEST OF WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
						FINE GRAVEL IN % (20MM TO 4.75MM)	COARSE SAND IN % (4.75MM TO 2.00MM)	MEDIUM SAND IN% (2.00MM TO 0.425MM)	FINE SAND IN % (0.425MM TO 0.075MM)	SILT & CLAY IN % (<0.075MM)	SILT SIZE IN % (0.075MM TO 0.002MM)	CLAY SIZE IN % (<0.002MM)	LIQUID LIMIT IN % (LL)	PLASTIC LIMIT IN % (PL)	PLASTICITY INDEX IN % (PI)	SHRINKAGE LIMIT IN %	APPARENT COHESION "C" IN Kg/cm ²					ANGLE OF INTERNAL RESISTANCE "Ø" IN DEGREE	UNCONFINED COMPRESSIVE STRENGTH IN Kg/cm ²	pH Value	Sulphates in PPM		Chloride in PPM	pH Value	Sulphates in mg/ltr	Chloride in mg/ltr																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Table G-3 (iv)
PHYSICAL AND GEOTECHNICAL PROPERTIES OF SOIL

Geo - technical Investigation for NTPC, Talcher Thermal Stage-III (2 X 660 MW)

WORK REFERENCE:

BORE HOLE NO	LOCATION	TYPE OF SAMPLE	DEPTH(M)	BULK DENSITY (K) in gm/cc.	NATURAL MOISTURE CONTENT (%)	PARTICLE SIZE (%)							CONSISTENCY PROPERTIES				CLASSIFICATION	DIFFERENTIAL FREE SWELL INDEX IN %	SPECIFIC GRAVITY	VOID RATIO	STRENGTH TEST (Triaxial shear test)				CHEMICAL TEST OF SOIL			CHEMICAL TEST OF WATER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
						FINE GRAVEL IN % (20MM TO 4.75MM)	COARSE SAND IN % (4.75MM TO 2.00MM)	MEDIUM SAND IN % (2.00MM TO 0.425MM)	FINE SAND IN % (0.425MM TO 0.075MM)	SILT & CLAY IN % (0.075MM)	SILT SIZE IN % (0.075MM TO 0.002MM)	CLAY SIZE IN % (0.002MM)	LIQUID LIMIT IN % (LL)	PLASTIC LIMIT IN % (PL)	PLASTICITY INDEX IN % (PI)	SHRINKAGE LIMIT IN %					APPARENT COHESION "C" IN Kg/cm2	ANGLE OF INTERNAL RESISTANCE "Ø" IN DEGREE	UNCONFINED COMPRESSIVE STRENGTH IN Kg/cm2	COMPRESSION INDEX (C _c)	pH Value	Sulphates in PPM	Chloride in PPM	pH Value	Sulphates in mg/ltr.	Chloride in mg/ltr.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
18	E 1549.06 & N 4231.53 E 1413.04 & N 4115.92	UDS	1.50-1.95	1.985	14.38	5.82	10.65	15.32	30.56	37.65	24.15	13.50	29	18	11	-	SC	-	-	-	0.25	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-</

[illegible]

Bore Hole	Sample Number	Depth M	Sample Description	Bulk		Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method
				Dens. gms/cc	Dens. gms/cc					Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH01	DS01	0.50	Yellowish grey, silty sand with traces of boulders and kankars.														SM	26	55	19	(Silt+Clay)	**See the Note
BH02	UDS01	1.00	Brownish grey, clayey silty sand / sandy silt.							DRSH-CU	0.09	0.385	30				SM*					Do
										0.5	0.385											
										1.0	0.663											
										2.0	1.245											
BH02	SPT02	3.00	Yellowish grey, clayey silt with sand mixture and calcareous nodules.											35	24	14	CI					Do
BH02	SPT03	5.45	Brownish grey, clayey sandy silt.														CI*		43	57	(Silt+Clay)	Do
BH03	SPT01	1.55	Brownish grey silty clay with sand mixture.											45	21		CI					Do
BH03	SPT02	2.10	Brownish grey, clayey silt with sand mixture				2.67										CI*		23	60	17	Do
BH03	DS02	2.50	Brownish grey, silty sand with traces of decomposed rockdust.														SM		77	23	(Silt+Clay)	Do
BH04	UDS01	1.00	Brownish grey, clayey silty sand / sandy silt.	1.76	1.44			22 S		DRSH-CU	0.07	0.388	33				SM*					Do
								22DR		0.5	0.388											
										1.0	0.729											
										2.0	1.356											
BH04	SPT02	3.00	Yellowish grey, clayey silty sand.														SM		60	40	(Silt+Clay)	Do
BH06	SPT01	2.30	Light grey, clayey silt with decomposed rock & sand mixture														CI*		38	46	16	Do
BH06	DS03	3.00	Light grey, clayey silt with sand mixture & decomposed rockdust.											38	24		CI					Do

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BBH07	SPT01	1.60	Brownish grey, silty clay / clayey silt with traces of sand mixture.												CI*		15	61	24	Do		
BBH07	SPT02	3.00	Brownish grey, silty clay with traces of sand mixture.										46	20	CI					Do		
BBH07	SPT03	4.00	Brownish grey, silty sand.	1.78	1.52		17DR			DRSH-CU	0.03	39			SM*					Do		
						0.5	0.439															
						1.0	0.829															
						2.0	1.658															
BBH08	SPT01	1.45	Brownish grey, silty sand. Observed clay binders.	1.76	1.53		15 S								SM*					Do		
BBH09	UDS01	0.70	Brownish grey, clayey silt with brick bats, sand mixture and kankars.	1.78	1.42		23 S 25 T 26 C	0.802		UNCONFD	0.38	0			CI*	2	38	53	7	Do		
							0.0	0.395														
							0.0	0.364														
							0.0	0.378			REMOULD	0.30	0									
BBH09										0.0	0.307											
							0.0	0.303														
							0.0	0.302														
BBH09	DS02	2.00	Brownish grey, silty sand.										N.P.		SM*					Do		
BBH09	SPT02	2.50	Brownish grey, silty sand.												SM-SP		90	10(Silt+Clay)		Do		
BBH10	SPT01	1.50	Brownish grey, silty sand.												SM		70	30(Silt+Clay)		Do		
BBH11	DS01	0.50	Deep grey, clayey silt with sand mixture.										36	23	CI					Do		
BBH11	SPT01	1.60	Deep grey, silty clay / clayey silt with sand mixture.			2.63									CI*					Do		

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classifi cation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BH12	UDS01	1.00	Light grey, silty clay with traces of sand mixture.	1.84	1.44		28 S 28 T 27 C	0.836	TRSH-UU	0.58	0				Cl*						Do	
					3.0	0.604																
					2.0	0.578																
					1.0	0.562																
BH12	UDS02	4.00	Brownish grey, silty clay with traces of kankars.												Cl*						Do	
					UNCONFD	0.46		0														
					0.0	0.442																
					0.0	0.441																
					0.0	0.507																
					REMOULD	0.33		0														
					0.0	0.308																
					0.0	0.313																
					0.0	0.368																
BH12	SPT03	4.45	Brownish grey, silty sand. Observed decomposed rockdust.												SM		78	22(Silt+Clay)			Do	
BH13	UDS01	1.00	Reddish brown, clayey sandy silt with brick bats and kankars.	1.87	1.52	2.59	23 S 23 T 24 C	0.668	UNCONFD	0.51	0	28	19	15	SC	3	48	44	5		Do	
									0.0	0.524												
									0.0	0.503												
									0.0	0.509												
									REMOULD	0.39	0											
									0.0	0.398												
									0.0	0.394												
									0.0	0.380												
BH13	DS02	2.50	Brownish grey, clayey silt with sand mixture.												Cl*		23	59	18		Do	
BH14	UDS01	1.00	Brownish grey, clayey silt with sand mixture & brick bats.	1.78	1.39	2.64	29 S 28 T 30 C	0.824	UNCONFD	0.34	0	44	23		CI		35	53	12		Do	
									0.0	0.337												
									0.0	0.355												
									0.0	0.332												
									REMOULD	0.28	0											
									0.0	0.287												
									0.0	0.270												
									0.0	0.285												
BH14	SPT02	3.00	Yellowish grey, clayey silt with fine sand mixture.												Cl*		30	52	18		Do	

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH15	UDS01	1.00	Brownish grey, silty clay with sand mix & calcareous nodules.	1.82	1.50		23 S 20 T 23 C	0.705	TRSH-UU 3.0 2.0 1.0	0.31	3	45	20	13	CI	46	37	17	Do		
BH15	SPT01	1.45	Brownish grey, silty clay with sand mixture.									42	19		CI				Do		
BH15	SPT02	3.00	Brownish grey, silty clay with sand mixture.												CI*	39	47	14	Do		
BH16	UDS01	1.00	Brownish grey, silty clay with sand mixture & traces of kankars.						TRSH-UU 3.0 2.0 1.0 UNCONF 0.0 0.0 0.0	1.08	3	51	21		CH	22	50	28	Do		
									REMOULD 0.0 0.0 0.0	0.56	0										
BH16	UDS02	4.10	Brownish grey, silty clay with sand mixture, kankars and rusty spots.	1.92	1.63		17 S 18 T 19 C	0.571	TRSH-UU 3.0 2.0 1.0	0.97	9	39	24		CI	41	38	21	Do		
									UNCONF 0.0 0.0 0.0	0.86	0										
									REMOULD 0.0 0.0 0.0	0.64	0										
BH16	SPT04	5.80	Brownish grey, clayey silt with sand mixture and rockdust.												CI*	23	77(Silt+Clay)		Do		

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Sheet No.

Bore Hole	Sample Number	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classifi cation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BH17	UDS01	1.00	Brownish grey, silty clay with traces of calcareous nodules and kankars.	1.88	1.53		26 S						52	17		CH		20	68	12	Do	
BH17	UDS02	4.00	Brownish grey, silty clay with traces of kankars and sand mixture.			2.66				TRSH-UU	3.0	0.93	3	49	20		CI	19	50	31	Do	
										3.0	1.146											
										2.0	1.091											
										1.0	1.027											
										UNCONF		0.70	0									
										0.0	0.719											
										0.0	0.679											
										0.0	0.703											
										REMOULD		0.51	0									
										0.0	0.504											
										0.0	0.517											
										0.0	0.507											
BH17	SPT05	6.80	Brownish grey, clayey silt stone with sand mixture.														SM	9	50	41(Silt+Clay)	Do	
BH18	UDS01	1.00	Greyish brown, silty clay with traces of kankars & sand mixture.	1.98	1.58	2.67	24 S 25 T			TRSH-UU	3.0	0.67	5	48	18		CI	19	49	32	Do	
										3.0	1.010											
										2.0	0.950											
										1.0	0.820											
BH18	UDS02	4.20	Brownish grey, silty clay with calcareous nodules and sand mixture.					0.531		TRSH-UU		1.09	6	51	18	14	CH				Do	
										3.0	1.561											
										2.0	1.444											
										1.0	1.327											
										UNCONF		0.82	0									
										0.0	0.827											
										0.0	0.819											
										0.0	0.806											
										REMOULD		0.65	0									
										0.0	0.632											
										0.0	0.652											
										0.0	0.650											
BH18	SPT05	7.20	Brownish grey, silty sand. Observed decomposed rockdust.														SM		73	27(Silt+Clay)	Do	

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk		Dry Dens.	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classifi cation	Grain Size			Test Method
										Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %
BH19	UDS02	4.00	Brownish grey silty clay with sand mixture.	2.03	1.66	1.66	2.62	23 S	0.656	TRSH-UU	3.0	1.049	0.56	7	43	25	16Cl	46	45	9	Do
								21 T													
								22 C													
										UNCONF		0.65	0								
										0.0	0.653										
										0.0	0.681										
										0.0	0.614										
										REMOULD		0.52	0								
										0.0	0.531										
										0.0	0.514										
										0.0	0.527										
BH19	SPT04	6.00	Brownish grey, silty sand with traces of mica and kankars.														SM	67	33(Silt+Clay)		Do
BH20	UDS01	1.00	Brownish grey, clayey sandy silt / clayey silt with sand mixture.	1.91	1.57			22 S		DRSH-CU		0.15	27				SM	54	46(Silt+Clay)		Do
								21DR		0.5	0.399										
										1.0	0.663										
										2.0	1.156										
BH20	UDS02	4.10	Greyish brown, silty clay with high percentage of sand mixture.						0.792	TRSH-UU		0.56	6	40	23		CI	41	38	21	Do
										3.0	0.975										
										2.0	0.882										
										1.0	0.734										
										UNCONF		0.62	0								
										0.0	0.631										
										0.0	0.669										
										0.0	0.562										
										REMOULD		0.49	0								
										0.0	0.495										
										0.0	0.530										
										0.0	0.447										
BH21	SPT01	1.60	Dark grey, silty sand with ash.														SM	73	27(Silt+Clay)		Do

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Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method		
									Pc/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %			
BH21	UDS02	3.00	Light grey, silty clay with traces of sand mixture and kankars.	1.83	1.49		22 S	0.524	TRSH-UU	0.63	6				43	24		SC		52	35	13	Do
					3.0	1.057																	
					2.0	0.925																	
					1.0	0.818																	
					UNCONF	0.44	0																
					0.0	0.457																	
					0.0	0.420																	
					0.0	0.446																	
					REMOULD	0.37	0																
					0.0	0.380																	
BH22																							
BH23	UDS01	1.00	Deep grey, silty clay. Obs. kankars & sand mixture.	1.82	1.41		30 S	0.756	TRSH-UU	0.65	0							CI*		9	58	33	Do
						3.0	0.659																
						2.0	0.651																
						1.0	0.643																
						UNCONF	0.53	0															
						0.0	0.546																
						0.0	0.521																
						0.0	0.524																
						REMOULD	0.45	0															
						0.0	0.470																

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens.		Dry Dens.	Spec. Grav.	Nat. Mois.	Void Ratio	Strength Test Results				Atter. Limits				IS Classifi	Grain Size				Test Method
				Dens. gms/cc	Dens. gms/cc			%		Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	CL %		Gravl %	Sand %	Silt %	Clay %	
BH23	UDS02	4.00	Deep grey, silty clay. Obs. kankars & sand mixture.	1.85	1.46	2.65	27 S	27 T	0.685	TRSH-UU	0.79	0	0					CI*		12	69	19	Do
								26 C		3.0	0.798												
										2.0	0.794												
										1.0	0.779												
										UNCONF	0.59	0											
										0.0	0.604												
										0.0	0.577												
										0.0	0.587												
										REMOULD	0.48	0											
										0.0	0.477												
										0.0	0.504												
										0.0	0.457												
BH24	UDS02	4.00	Light grey, silty clay with traces of sand mixture. Obs. kankars.	1.86	1.46	2.64	27 S	28 T	0.690	TRSH-UU	0.68	0	0	51	21	16	CH			13	62	25	Do
								27 C		3.0	0.702												
										2.0	0.676												
										1.0	0.664												
										UNCONF	0.51	0											
										0.0	0.517												
										0.0	0.509												
										0.0	0.507												
										REMOULD	0.43	0											
										0.0	0.455												
										0.0	0.424												
										0.0	0.409												
BH25	UDS01	1.00	Grey silty clay. Obs. sand mixture.	1.83	1.43		29 S	27 T	0.708	TRSH-UU	0.69	0	0	54	20	17	CH			8	68	24	Do
								30 C		3.0	0.714												
										2.0	0.689												
										1.0	0.675												
										UNCONF	0.57	0											
										0.0	0.601												
										0.0	0.553												
										0.0	0.567												
										REMOULD	0.48	0											
										0.0	0.485												
										0.0	0.491												
										0.0	0.458												
BH25	SPT02	3.00	Brownish grey, silty clay with traces of sand mixture.											52	19		CH						Do

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Sheet No.

Bore Hole	Sample Number	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits				IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BH25	SPT03	4.10	Brownish grey, silty sand with traces of decomposed rockdust.													SM		73	27(Silt+Clay)		Do	
BH26	UDS01	1.00	Deep grey, silty clay. Obs. kankars & sand mixture.	1.80	1.40		28 S 30 T 30 C	0.801	TRSH-UU		0.61	0				CI*		9	69	22	Do	
									3.0	0.634												
									2.0	0.608												
									1.0	0.601												
									UNCONFD		0.44	0										
									0.0	0.464												
									0.0	0.425												
									0.0	0.439												
									REMOULD		0.38	0										
									0.0	0.377												
									0.0	0.377												
									0.0	0.386												
BH26	UDS02	4.00	Light grey, silty clay with traces of sand mixture. Obs. kankars.	1.88	1.49		27 S 26 T 26 C	0.593	TRSH-UU		0.94	0	47	22	16	CI		15	64	21	Do	
									3.0	0.976												
									2.0	0.938												
									1.0	0.911												
									UNCONFD		0.67	0										
									0.0	0.675												
									0.0	0.693												
									0.0	0.650												
									REMOULD		0.56	0										
									0.0	0.565												
									0.0	0.544												
									0.0	0.569												
BH27	UDS01	1.00	Deep grey, silty clay with traces of sand mixture. Obs. kankars.	1.89	1.48		28 S 27 T 27 C	0.649	TRSH-UU		0.83	0	50	19	14	CH		12	63	25	Do	
									3.0	0.839												
									2.0	0.831												
									1.0	0.813												
									UNCONFD		0.64	0										
									0.0	0.639												
									0.0	0.646												
									0.0	0.635												
									REMOULD		0.55	0										
									0.0	0.570												
									0.0	0.535												
									0.0	0.554												

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH27	UDS02	4.00	Deep grey, silty clay with traces of sand mixture. Obs. kankars.	1.91	1.52		26 S	0.607	TRSH-UU	1.02	1.02	0	48	20	CI	15	65	20	Do		
					3.0	1.047															
					2.0	1.033															
					1.0	0.985															
					UNCONF	0.76	0														
					0.0	0.754															
					0.0	0.771															
					0.0	0.758															
					REMOULD	0.63	0														
					0.0	0.654															
BH28																					
BH28	UDS01	1.00	Brownish grey silty clay with sand mixture. Obs. kankars.	1.94	1.54	2.65	26 S	0.592	TRSH-UU	0.81	0	53	21	15	CH	24	59	17	Do		
					3.0	0.821															
					2.0	0.808															
					1.0	0.803															
					UNCONF	0.59	0														
					0.0	0.614															
					0.0	0.593															
					0.0	0.572															
					REMOULD	0.48	0														
					0.0	0.502															
BH28																					
BH28	SPT02	3.00	Brownish grey, silty clay with traces of sand mixture.										58	19	CH				Do		
BH28	SPT03	4.60	Brownish grey, silty sand with traces of decomposed rockdust.												SM	64	36(Silt+Clay)	Do			

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Sheet No.

Bore Hole	Sample Number	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BBH29	UDS01	1.00	Brownish grey silty clay with traces of calcareous nodules	1.95	1.56	2.63	24 S 25 T 23 C	0.559	TRSH-UU	0.75	0					16	CI*	14	68	18	Do	
				3.0	0.768																	
				2.0	0.745																	
				1.0	0.744																	
				UNCONFD	0.70	0																
BBH29									0.0	0.718												
									0.0	0.700												
									0.0	0.679												
									REMOULD	0.55	0											
									0.0	0.559												
BBH29									0.0	0.544												
									0.0	0.543												
BBH29	SPT02	3.00	Brownish grey silty clay with traces of sand mixture.										54	17		CH				Do		
BBH29																						
BBH29	SPT03	4.00	Brownish grey, silty sand with traces of decomposed rockdust.													SM	7	67	26(Silt+Clay)	Do		
BBH30																						
BBH30	UDS02	4.00	Reddish brown clayey silt with sand mixture	1.88	1.53	2.64	23 S 22 T 23 C	0.572	TRSH-UU	0.66	8					12	CI*	44	50	6	Do	
BBH30									3.0	1.244												
									2.0	1.083												
									1.0	0.921												
									UNCONFD	0.50	0											
									0.0	0.515												
BBH30									0.0	0.491												
									0.0	0.497												
									REMOULD	0.37	0											
									0.0	0.379												
									0.0	0.364												
BBH30	SPT03	4.45	Brownish grey, silty clay with sand mixture.										54	16		CH				Do		
BBH30																						
BBH30	SPT04	5.30	Grey, silty sand with traces of decomposed rockdust.													SM	70	30(Silt+Clay)		Do		
BBH31																						
BBH31	SPT02	3.00	Brownish grey, silty clay with sand mixture.										42	23		CI				Do		
BBH31																						

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BH31	SPT03	4.55	Brownish grey, silty sand with traces of mica.												SM-SP		91	9	(Silt+Clay)	Do		
BH32	UDS01	1.00	Brownish grey silty clay with traces of sand mixture.	1.90	1.50		27 S	0.617	TRSH-UU		0.91	0	47	20		CI		27	56	17	Do	
							27 T		3.0	0.920												
							26 C		2.0	0.918												
									1.0	0.892												
									UNCONF		0.68	0										
									0.0	0.718												
									0.0	0.700												
									0.0	0.679												
									REMOULD		0.60	0										
									0.0	0.559												
									0.0	0.544												
									0.0	0.543												
BH32	SPT02	2.50	Brownish grey, clayey silt with sand mixture & calcareous nodules.												SM	5	45	50	(Silt+Clay)	Do		
BH33	UDS01	1.00	Brownish grey silty clay with traces of kankars & calcareous nodules	1.81	1.40		27 S	0.689	TRSH-UU		0.75	0	48	17	14	CI		16	68	16	Do	
							29 T		3.0	0.784												
							27 C		2.0	0.739												
									1.0	0.731												
									UNCONF		0.56	0										
									0.0	0.581												
									0.0	0.553												
									0.0	0.559												
									REMOULD		0.41	0										
									0.0	0.429												
									0.0	0.414												
									0.0	0.381												
BH33	SPT03	3.80	Brownish grey, silty sand with traces of decomposed rockdust.												SM	8	65	27	(Silt+Clay)	Do		
BH34	UDS01	1.00	Brownish grey, clayey sandy silt.	1.79	1.48		20 S		DRSH-CU		0.12	28			CI*					Do		
							21DR		0.5	0.396												
									1.0	0.641												
									2.0	1.192												
BH34	SPT02	3.00	Brownish grey, silty sand with traces of clay binders and mica.												SM		67	33	(Silt+Clay)	Do		

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Sheet No.

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
BH35	UDS01	1.00	Brownish grey silty clay with calcareous nodules & sand mixture	1.84	1.48		24 S	0.706	TRSH-UU	0.47	0		47	24	17	CI		38	46	16	Do	
							23 T		3.0	0.873												
							23 C		2.0	0.754												
									1.0	0.637												
									UNCONFD	0.52	0											
									0.0	0.532												
									0.0	0.512												
									0.0	0.517												
									REMOULD	0.46	0											
									0.0	0.456												
									0.0	0.472												
									0.0	0.455												
BH36	SPT02	3.10	Light grey, clayey silt with sand mixture.													CI*		25	65	10	Do	
BH37	SPT02	2.80	Brownish grey, silty clay with traces of sand mixture.										44	22		CI					Do	
BH37	SPT03	3.40	Brownish grey, clayey silt with sand, traces of calcareous nodules.													CI*		41	46	13	Do	

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Sheet No.

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-01	1	1.10-1.85	Moderately weathered, yellowish grey, fine grained, highly fractured sand stone.	2.385	2.336	2.09	4.8928	2.456	--	--	--	1.64	--	--	--	--	--	** See the Note
BH-01	9	7.10-7.85	Slightly weathered, greyish, moderately fractured sandstone.	--	--	--	--	--	115	82	0.71	--	--	--	--	6592	--	Do
BH-01	16	12.35-13.10	Slightly weathered, greyish, moderately fractured sandstone.	--	--	--	--	--	--	--	--	--	96.05	Hard	15.62	--	--	Do
BH-02	7	9.30-10.05	Highly weathered, greyish yellow, fine to medium grained fractured sand stone.	--	--	--	--	--	--	--	--	--	76.46	--	--	--	--	Do
BH-02	10	11.50-12.25	Slightly weathered, deep grey, fine to medium grained, moderately fractured sand stone with inter-bedded shale.	2.396	2.348	2.054	4.822	--	--	183	--	--	--	--	--	3748	--	Do
BH-02	13	13.75-14.50	Slightly weathered, deep grey, fine to medium grained, moderately fractured sand stone with inter-bedded shale.	--	--	--	--	--	--	--	--	6.47	--	Hard	22.35	--	--	Do
BH-02	22	22.75-24.25	Fresh, deep grey, fine to medium grained, moderately fractured sand stone with inter bedded shale in layer.	--	--	--	--	2.476	--	--	--	--	--	--	--	--	--	Do
BH-03	2	3.25-4.00	Highly weathered, yellowish brown, fine to medium grained, highly fractured sandstone.	2.440	2.395	1.86	4.4459	2.507	--	--	--	--	--	--	--	--	--	Do
BH-03	6	6.25-7.00	Moderately weathered, yellowish brown, fine to medium grained, highly fractured sandstone.	--	--	--	--	--	251	--	--	--	--	--	--	5178	--	Do
BH-03	9	8.50-9.25	Moderately weathered, yellowish brown, fine to medium grained, highly fractured sandstone.	--	--	--	--	--	--	87	--	--	--	Medium Soft	--	--	--	Do
BH-03	15	13.00-13.75	Moderately weathered, yellowish brown, fine to medium grained, highly fractured sandstone.	2.409	2.365	1.90	4.4907	--	--	--	--	1.83	--	--	--	--	--	Do
BH-03	20	16.75-17.50	Slightly weathered, brownish grey, medium grained, moderately fractured sandstone.	--	--	--	--	2.375	131	95	0.73	--	--	--	--	--	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-03	22	18.25-19.00	Slightly weathered, brownish grey, medium grained, moderately fractured sandstone.	2.340	2.289	2.21	5.0689	--	--	--	--	--	--	--	--	--	37.62	Do
BH-04	1	4.00-4.75	Slightly weathered, greyish yellow, fine to medium grained, fractured sand stone.	--	--	--	--	2.400	--	116	--	--	--	--	--	--	--	Do
BH-04	5	7.00-7.75	Slightly weathered, greyish yellow, fine to medium grained, fractured sand stone.	2.351	2.306	1.952	4.502	--	300	--	--	--	--	Hard	--	--	--	Do
BH-04	10	10.75-11.50	Fresh, deep grey, fine to medium grained, fractured sand stone.	--	--	--	--	--	--	251	--	--	--	--	--	--	36.23	Do
BH-04	14	16.00-17.50	Fresh, deep grey, fine to medium grained, fractured sand stone.	--	--	--	--	--	295	--	--	--	97.03	--	--	--	--	Do
BH-05	1	2.50-3.25	Moderately weathered, brownish grey, fine grained, fractured sandstone.	2.400	2.357	1.81	4.2552	2.462	--	150	--	--	--	--	--	--	--	Do
BH-05	6	7.00-8.50	Fresh, brownish grey, fine grained, fractured sandstone.	--	--	--	--	--	221	176	0.80	--	--	--	--	--	39.14	Do
BH-06	6	7.40-8.15	Slightly weathered, grey, medium grained, fractured sand stone.	--	--	--	--	--	--	--	--	1.62	--	--	--	--	--	Do
BH-06	19	17.15-17.90	Slightly weathered, grey, medium grained, fractured sand stone.	2.340	2.302	1.67	3.8366	2.394	263	179	0.68	--	--	--	--	--	--	Do
BH-07	4	6.75-7.50	Slightly weathered, brownish grey, medium to fine grained, fractured sand stone.	--	--	--	--	--	145	--	--	--	--	--	--	--	--	Do
BH-07	7	9.00-9.75	Fresh, deep grey, fine grained, fractured sandstone.	--	--	--	--	--	324	246	0.76	--	91.72	Hard	--	--	--	Do
BH-08	2	4.50-5.25	Moderately weathered, yellowish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	--	--	--	2.13	--	--	--	--	--	Do
BH-08	7	8.25-9.00	Fresh, deep grey, fine grained, fractured sandstone.	2.440	2.395	1.88	4.5110	2.508	--	--	--	--	--	--	--	--	--	Do

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Sheet No.

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content		Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry		(%)			In-situ	Saturated								
BH-09	2	3.40 - 4.15	Highly weathered, yellowish grey, medium grained, highly fractured sand stone.	2.396	2.342	2.305	5.399	--	--	--	--	--	0.93	--	--	--	--	--	Do
BH-09	4	4.90 - 5.65	Highly weathered, yellowish grey to grey, medium grained, highly fractured sand stone.	--	--	--	--	--	--	--	29	--	--	--	Medium Soft	--	--	--	Do
BH-09	13	12.20 - 13.70	Fresh, deep grey, medium grained, fractured sand stone.	--	--	--	--	--	--	178	--	--	--	--	--	--	2652	--	Do
BH-10	2	3.50 - 4.25	Moderately weathered, yellowish grey, medium grained, fractured sand stone.	2.368	2.316	2.213	5.125	--	--	--	126	--	--	54.15	--	--	--	--	Do
BH-10	5	5.75 - 6.50	Slightly weathered, grey, fine to medium grained, fractured sand stone.	--	--	--	--	--	2.404	396	--	--	--	--	Hard	17.52	--	--	Do
BH-10	8	8.00 - 9.50	Fresh, grey, fine to medium grained, slightly fractured sand stone.	--	--	--	--	--	--	--	346	--	--	--	--	--	--	--	Do
BH-11	1	2.40 - 3.00	Slightly weathered, yellowish grey, medium grained, fractured sand stone.	2.465	2.421	1.815	4.393	--	--	167	98	0.59	9.29	--	--	--	--	--	Do
BH-11	4	4.50 - 5.25	Slightly weathered, light grey, medium grained, fractured sand stone.	--	--	--	--	--	--	254	191	0.75	--	76.82	--	--	5078	--	Do
BH-11	9	8.25 - 9.75	Fresh, light grey, medium grained, fractured sand stone.	--	--	--	--	--	2.863	514	473	0.92	--	--	--	--	--	--	Do
BH-12	3	6.50 - 7.25	Fresh, light grey, fine grained, fractured sand stone.	2.422	2.381	1.701	4.052	--	--	--	187	--	--	--	--	--	--	39.58	Do
BH-12	7	9.50 - 10.25	Fresh, light grey, fine grained, fractured sand stone.	--	--	--	--	--	--	296	--	--	--	--	Hard	--	--	--	Do
BH-12	16	18.50 - 20.00	Fresh, light grey, fine grained, fractured sand stone.	--	--	--	--	--	--	361	322	0.89	--	88.62	--	--	5234	--	Do
BH-13	5	7.75 - 8.50	Fresh, grey, fine grained, fractured sandstone.	--	--	--	--	--	--	225	168	0.75	--	--	--	18.52	--	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-14	3	6.50 - 7.25	Slightly weathered, grey, medium grained, fractured sand stone.	2.378	2.328	2.160	5.028	--	--	166	--	--	--	Hard	--	--	--	Do
BH-14	4	7.25 - 8.00	Slightly weathered, grey, medium grained, fractured sand stone.	--	--	--	--	2.459	--	--	--	6.47	--	--	19.59	--	--	Do
BH-14	7	9.50 - 11.00	Fresh, grey, medium grained, fractured sand stone.	2.356	2.312	1.926	4.453	--	263	--	--	--	94.95	--	--	--	--	Do
BH-15	2	5.00 - 5.75	Slightly weathered, greyish yellow, medium grained, fractured sand stone.	--	--	--	--	--	226	--	--	--	91.77	Hard	--	2448	--	Do
BH-15	4	6.50 - 7.25	Fresh, yellowish grey, medium grained, fractured sand stone.	--	--	--	--	2.416	--	320	--	--	--	--	--	--	--	Do
BH-15	6	8.00 - 9.50	Fresh, yellowish grey, medium grained, fractured sand stone.	2.343	2.303	1.716	3.954	--	--	307	--	1.79	--	--	--	--	--	Do
BH-16	1	6.50 - 7.00	Moderately weathered, yellowish brown, medium grained, fractured sand stone.	2.369	2.321	2.090	4.850	--	--	--	--	2.02	--	--	--	--	--	Do
BH-16	3	7.75 - 8.50	Slightly weathered, yellowish brown, medium grained, fractured sand stone.	--	--	--	--	2.379	166	--	--	--	--	Medium Soft	--	--	--	Do
BH-16	11	13.75 - 14.50	Slightly weathered, grey, medium to fine grained, fractured sand stone.	--	--	--	--	--	139	84	0.60	--	89.63	--	--	--	--	Do
BH-16	17	18.25 - 19.00	Slightly weathered, grey, medium to fine grained, fractured sand stone.	--	--	--	--	2.439	--	--	--	--	--	--	--	--	--	Do
BH-17	1	7.40 - 8.00	Moderately weathered, brownish grey, fine to medium grained, highly fractured sand stone.	--	--	--	--	2.293	--	89	--	--	--	--	26.32	--	--	Do
BH-17	4	9.50 - 10.25	Slightly weathered, brownish grey to deep grey, fine to medium grained, highly fractured sand stone.	2.336	2.304	1.360	3.135	--	--	--	--	0.99	--	--	--	--	38.65	Do
BH-17	6	11.00 - 11.75	Slightly weathered, deep grey, fine to medium grained, highly fractured sand stone.	--	--	--	--	--	222	--	--	--	71.29	--	--	--	--	Do

Job No. : 3975

Sheet No.

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-17	10	14.00 - 15.50	Fresh, deep / light grey, fine to medium grained, fractured sand stone.	--	--	--	--	2.471	371	321	0.87	--	--	Hard	--	--	--	Do
BH-18	1	7.50 - 8.25	Slightly weathered, yellowish grey, medium grained, fractured sand stone.	2.352	2.294	2.529	5.803	--	--	93	--	4.26	--	--	--	--	--	Do
BH-18	4	9.75 - 10.50	Slightly weathered, yellowish grey, medium grained, fractured sand stone.	--	--	--	--	2.436	166	--	--	--	--	--	23.22	--	--	Do
BH-18	10	14.25 - 15.00	Fresh, grey, medium to fine grained, fractured sand stone.	--	--	--	--	2.434	297	245	0.83	--	--	--	--	--	--	Do
BH-19	1	6.20 - 7.00	Highly weathered, yellowish brown, fine to medium grained, fractured sandstone.	--	--	--	--	--	--	112	--	--	--	--	--	--	--	Do
BH-19	10	13.00 - 13.75	Fresh, light grey, medium to fine grained, moderately fractured sandstone.	--	--	--	--	--	251	214	0.85	--	90.27	Hard	--	--	--	Do
BH-20	2	8.00 - 8.75	Moderately weathered, grey, medium grained, fractured sand stone.	2.371	2.326	1.958	4.555	--	175	--	--	0.99	--	--	--	--	--	Do
BH-20	9	13.25 - 14.00	Highly weathered, grey, medium grained, fractured sand stone.	--	--	--	--	--	--	--	--	7.65	--	Medium Soft	--	--	--	Do
BH-21	2	6.50 - 7.25	Moderately weathered, yellowish grey, fine grained, fractured sand stone.	2.350	2.296	2.337	5.366	2.426	227	130	0.57	--	--	--	--	--	--	Do
BH-21	3	7.25 - 8.00	Moderately weathered, yellowish grey to grey, fine grained, fractured sand stone.	--	--	--	--	--	--	132	--	2.46	--	--	--	--	--	Do
BH-21	6	9.50 - 10.00	Highly weathered, grey, fine grained, fractured sand stone.	--	--	--	--	--	--	--	--	0.97	--	--	--	--	--	Do
BH-22	1	8.10 - 8.75	Moderately weathered, deep grey, fine grained, fractured sandstone.	--	--	--	--	--	187	--	--	--	--	--	--	--	--	Do
BH-22	3	9.50 - 10.00	Slightly weathered, deep grey, fine grained, fractured sandstone.	2.381	2.330	2.18	5.0849	2.455	277	197	0.71	--	--	--	--	--	--	Do

Job No. : 3975

Sheet No.

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-23	5	10.25-11.00	Slightly weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	341	210	0.62	--	--	--	--	--	--	Do
BH-24	3	7.75-8.50	Moderately weathered, brownish grey, fine grained, fractured sandstone.	--	--	--	--	--	--	215	--	--	84.36	Medium Soft	--	4894	--	Do
BH-24	10	13.00-13.75	Fresh, grey, fine grained, fractured sandstone.	2.386	2.335	2.15	5.0245	2.459	102	78	0.76	--	--	--	--	--	--	Do
BH-25	5	7.75-8.50	Moderately weathered, yellowish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	134	--	--	--	--	--	--	--	--	Do
BH-25	7	9.25-10.00	Slightly weathered, yellowish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	318	261	0.82	--	--	--	--	--	--	Do
BH-26	2	6.25-7.00	Slightly weathered, yellowish grey, fine grained, fractured sandstone.	2.322	2.283	1.68	3.8248	2.374	--	--	--	1.14	78.41	Medium Soft	--	--	--	Do
BH-26	6	9.25-10.00	Slightly weathered, yellowish grey, fine grained, fractured sandstone.	--	--	--	--	--	167	117	0.70	--	--	--	--	--	--	Do
BH-27	2	7.00-7.75	Moderately weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	--	71	--	--	67.5	--	--	--	--	Do
BH-27	4	8.50-9.25	Moderately weathered, brownish grey, medium to fine grained, fractured sandstone.	2.355	2.300	2.39	5.5039	--	149	89	0.60	--	--	--	--	6135	--	Do
BH-27	7	10.75-11.50	Slightly weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	2.429	--	--	--	5.21	--	--	22.14	--	--	Do
BH-27	9	12.25-13.00	Slightly weathered, brownish grey, medium to fine grained, fractured sandstone.	2.421	2.369	2.18	5.1648	--	--	--	--	--	--	--	--	--	--	Do
BH-27	10	13.00-13.75	Fresh, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	2.498	355	--	--	8.74	--	Hard	--	--	--	Do
BH-28	7	10.75-11.50	Slightly weathered, brownish grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	131	87	0.66	--	82.61	--	--	--	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
BH-28	10	13.00-13.75	Slightly weathered, deep grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	--	--	--	2.47	--	--	26.47	--	--	Do
BH-29	1	4.50-5.25	Moderately weathered, light grey, medium grained, fractured sand stone.	2.334	2.290	1.93	4.4266	2.396	--	84	--	--	--	--	--	--	--	Do
BH-29	7	9.00-9.75	Moderately weathered, light grey, medium grained, fractured sand stone.	--	--	--	--	--	321	283	0.88	--	--	--	--	--	--	Do
BH-30	3	7.25-8.00	Slightly weathered, yellowish grey, fine grained, fractured sandstone.	--	--	--	--	--	234	--	--	--	94.35	Medium Soft	--	--	--	Do
BH-30	5	8.75-9.50	Slightly weathered, yellowish grey, fine grained, fractured sandstone.	2.371	2.320	2.21	5.1219	2.445	314	149	0.48	--	--	--	--	--	--	Do
BH-31	5	8.50-9.25	Moderately weathered, brownish grey, medium to fine grained, fractured sand stone.	--	--	--	--	--	--	--	--	3.54	--	--	--	--	--	Do
BH-31	8	10.75-11.50	Slightly weathered, grey, medium to fine grained, fractured sandstone.	--	--	--	--	--	349	271	0.78	--	--	--	16.47	7.148	--	Do
BH-32	3	4.75-5.50	Slightly weathered, brownish grey, fine grained, fractured sandstone.	2.309	2.255	2.40	5.4139	2.384	201	112	0.56	--	--	--	--	--	41.63	Do
BH-33	4	6.50-7.25	Moderately weathered, yellowish brown, medium grained, fractured sand stone.	--	--	--	--	--	211	--	--	--	87.62	Medium Soft	--	--	--	Do
BH-33	10	11.00-11.75	Slightly weathered, light grey, medium grained, fractured sandstone.	--	--	--	--	--	--	184	--	--	--	--	--	--	--	Do
BH-34	1	4.00-4.75	Highly weathered, yellowish brown, medium grained, fractured sandstone.	--	--	--	--	--	134	--	--	--	--	--	--	--	--	Do
BH-34	6	7.75-8.50	Slightly weathered, whitish grey, medium grained, moderately fractured sandstone.	2.283	2.213	3.15	6.9780	2.379	98	39	0.40	--	--	--	--	--	--	Do
BH-35	4	6.50-7.25	Highly weathered, yellowish brown, medium grained, fractured sandstone.	--	--	--	--	--	--	--	--	0.97	--	--	--	--	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content		Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness s* (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry		(%)			In-situ	Saturated								
BH-35	8	9.50-10.00	Slightly weathered, brownish grey, medium grained, moderately fractured sandstone.	--	--	--	--	--	--	145	91	0.63	--	83.76	Medium Soft	--	--	--	Do
BH-36	5	7.50-8.25	Highly weathered, yellowish brown, fine grained, highly fractured sandstone.	--	--	--	--	--	--	--	--	--	2.64	--	--	19.24	--	--	Do
BH-36	7	9.00-10.00	Moderately weathered, yellowish brown, fine grained, highly fractured sandstone.	2.447	2.408	1.62	--	3.8899	2.505	--	179	--	--	--	--	--	13466	--	Do
BH-37	2	4.25-5.00	Moderately weathered, yellowish brown, medium grained, highly fractured sandstone.	--	--	--	--	--	--	88	--	--	--	--	--	--	--	--	Do
BH-37	8	8.75-9.50	Slightly weathered, grey, fine grained, moderately fractured sandstone.	--	--	--	--	--	--	--	38	--	--	--	--	--	--	--	Do

TEST RESULTS OF ROCK CORES

Name of Work : Geotechnical Investigation for N.T.P.C Talcher Thermal Stage -III (2x660) MW.

Sr. No.	Bore Hole No.	Core No.	Depth, m		Diameter, cm	Height, cm	H : D (1:H/D)	Correction Factor	Condition of Test	Failure Load	Uniaxial Compressive Strength	Modulus of Elasticity	Point Load Index	Slake Durability Index *	Porosity	Water Absorption	Dry Density	Specific Gravity		Soundness	Hardness by Schmidt Hammer value	Remarks
			From	To	cm	cm				kN	kg/cm ²	kg/cm ²	kg/cm ²	%	%	%	gm/cm ³			%		

Table G-5 (v)

1		28	4.10	5.10	5.20	10.30	1.98	0.998	Soaked	45.8	219.00				8.50	3.7	2.311	2.69					
2	1	45	7.10	8.10	5.15	10.30	2.00	1.000	Soaked	26.00	127.00												
3	2	22	6.20	7.20	5.30	10.45	1.97	0.997	Soaked	32.70	151.00												
4		11	4.20	5.20	5.10	5.40	1.06	0.835	Soaked	28.30	118.00				4.80	2.10	2.317	2.62					
5		108	13.20	14.20	5.30	5.40	1.02	0.824	Soaked	36.0	137.00												
6	3	178	17.20	18.20	5.35	10.30	1.93	0.991	Soaked	38.10	171.0									7.93			
7		252	23.20	24.20																	29.00		
8		331	28.20	29.20	5.46	8.37	1.53		Soaked				0.22							29.00			
9		31	7.10	8.10	5.40	7.94	1.47	0.926	Soaked	37.10	153.00												
10		86	12.10	13.10	5.40	5.60	1.04	0.829	Soaked	59.0	218.00												
11	4	166	17.10	18.10	5.40	10.60															30.00		
12		169	17.10	18.10	5.40	10.70						1.28 x 10 ⁵											
13		188	19.10	20.00	5.30	7.14	1.35		Soaked	0.50			0.37										
14		11	2.40	3.40	5.20	10.30	1.98	0.998	Soaked	28.50	137.00				6.70	2.90	2.314						
15		123	13.40	14.40											7.50	3.2	2.328						
16	5	111	13.40	14.40	5.30	5.50	1.04	0.829	Soaked	39.10	150.0										8.73		
17		188	72.40	18.40																			

TEST RESULTS OF ROCK CORES

Name of Work : Geotechnical Investigation for N.T.P.C Talcher Thermal Stage -III (2x660) MW.

Sr. No.	Bore Hole No.	Core No.	Depth, m		Diameter, cm	Height, cm	H : D (1:H/D)	Correction Factor	Condition of Test	Failure Load	Uniaxial Compressive Strength	Modulus of Elasticity	Point Load Index	Stake Durability Index *	Porosity	Water Absorption	Dry Density	Specific Gravity		Soundness	Hardness by Schmidt Hammer value	Remarks
			From	To																		

Table G-4 (v)

1		18	3.15	4.50											10.30	4.60	2.243	2.64					
2	4	44	6.50	7.50	5.30	10.25	1.93	0.992	Soaked	36.3	167.00								8.15				
3		118	11.50	12.50	5.38	7.05	1.31		Soaked	0.30			0.22										
4	9	13	4.70	5.70	4.90	5.20	1.06	0.836	Soaked	33.40	151.00												
5		67	11.70	12.70	5.00	5.30	1.06	0.836	Soaked	43.8	190.00												
6		208	18.70	19.70	5.30	7.80	1.47		Soaked	0.40			0.29										
7	13	184	16.90	17.90	5.40	10.62	1.97	0.996	Soaked	20.70	92.00												
8		207	18.90	20.00	5.40	8.00	1.48		Soaked	0.30			0.22										
9	25	15	6.20	7.20	5.40	10.30	1.91	0.989	Soaked	41.00	180.60												
10		35	10.20	11.20	5.39	10.32	1.91	0.990	Soaked	81.0	358.40									6.54			
11		86	18.20	19.20	5.42	8.02	1.48	0.928	Soaked	30.00	123.00												

TEST RESULTS OF ROCK CORES

Name of Work : Geotechnical Investigation for N.T.P.C Talcher Thermal Stage -III (2x660) MW.

Sr. No.	Bore Hole No.	Core No.	Depth, m		Diameter, cm	Height, cm	H : D (1:H/D)	Correction Factor	Condition of Test	Failure Load		Uniaxial Compressive Strength	Modulus of Elasticity	Point Load Index	Slake Durability Index *	Porosity	Water Absorption	Dry Density	Specific Gravity		Soundness	Hardness by Schmidt Hammer value	Remarks
			From	To						kN	kg/cm ²	kg/cm ²	kg/cm ²	kg/cm ²	%	%	%	gm/cm ³			%		
18		233	19.40	20.00	5.23	6.83	1.31		Soaked	0.90				0.67									
19		15	4.00	5.00					Soaked							6.10	2.70	2.315	2.61		9.03		
20		22	5.00	6.00																			
21		167	15.00	16.00	5.37	7.91	1.47		Soaked	0.60				0.44									
22	10	232	19.00	20.00	5.20	5.40	1.04	0.829	Soaked	46.90	187.00												
23		367	25.00	26.00	5.20	5.20	1.00	0.982	Soaked	45.90	180.0												
24		385	26.00	27.00	5.20	10.40	2.00	1.000	Soaked	20.20	97.0												
25		403	27.00	28.00																		22.00	
26		2	3.20	4.20	5.30	5.50	1.04	0.829	Soaked	29.60	113.0					9.30	4.1	2.29					
27	11	21	6.20	7.20	5.30	10.30	1.94	0.994	Soaked	29.70	136.0												
28		106	13.20	14.20																	9.12		
29		131	16.20	17.20	5.40	5.50	1.02	0.824	Soaked	21.20	78.0												
30		25	5.00	6.00	5.10	9.75	1.91	0.990	Soaked	44.10	218.0												
31	14	34	6.00	7.00	4.30	6.70	1.56		Soaked	0.00				0.00									
32		159	19.10	20.00	5.24	10.27	1.97	0.995	Soaked	38.10	179.00												
33		47	11.00	12.00																			
34	15	50	11.00	12.00	5.40	5.46	1.01	0.822	Soaked	32.60	119.0							2.34					
35		101	16.00	17.00																		24.00	
36	73	4	2.20	3.20	5.09	9.62	1.89	0.987	Soaked	43.00	212.7												
37		178	14.20	15.20	5.24	9.57	1.83	0.979	Soaked	36.00	166.70												

TEST RESULTS OF ROCK CORES

Name of Work : Geotechnical Investigation for N.T.P.C Talcher Thermal Stage -III (2x660) MW.

Sr. No.	Bore Hole No.	Core No.	Depth, m		Diameter, cm	Height, cm	H : D (1:H/D)	Correction Factor	Condition of Test	Failure Load	Uniaxial Compressive Strength	Modulus of Elasticity	Point Load Index	Slake Durability Index *	Porosity	Water Absorption	Dry Density	Specific Gravity	Soundness	Hardness by Schmidt Hammer value	Remarks
			From	To																	

Table G-2 (v)

1	16	10	3.70	4.70	5.20	10.40	2.00	1.000	Soaked	45.0	216.04										
2	17	29	3.75	4.75										11.30	5.1	2.197					
3		21	3.45	4.45	5.37	7.00				0.20			0.27								
4		59	3.75	8.75	5.35	10.50	1.96	0.996	Soaked	56.70	256.08								6.96		
5		98	14.75	15.75	5.40	10.70	1.98	0.998	Soaked	54.50	242.18										
6	20	85	11.75	12.75	5.40	10.00						2.97 E + 05							30.00		
7		23	3.80	4.80	5.40	10.00	1.85	0.983	Soaked	37.0	161.84										
8		42	9.80	10.80	5.40	10.40				63.5	280.4										
9		43	9.80	10.80	5.40	10.00						2.62 E + 05									
10	21	9	2.10	3.10											9.63	4.29	2.244				
11		169	15.10	16.10	5.40	10.00						1.15 E + 05							20.00		
12	24	5	2.00	3.00	5.35	10.45	1.95	0.995	Soaked	45.6	205.73										
13	25	20	3.65	4.65																	
14		40	4.65	6.65	5.10	9.70	1.90	0.989	Soaked	29.2	144.00				11.27	5.10	2.210				
15		123	11.65	12.65	5.13	10.10				0.6			0.45								
16		138	12.65	13.65	5.30	10.40	2.00	0.996	Soaked	63.00	289.92										

TEST RESULTS OF ROCK CORES

TEST RESULTS OF ROCK CORES																								
Name of Work :										Geotechnical Investigation for N.T.P.C Talcher Thermal Stage -III (2x660) MW.														
Sr. No.	Bore Hole No.	Core No.	Depth, m		Diameter, cm	Height, cm	H : D (1:H/D)	Correction Factor	Condition of Test	Failure Load	Uniaxial Compressive Strength	Modulus of Elasticity	Point Load Index	Stake Durability Index *	Porosity	Water Absorption	Dry Density	Specific Gravity		Soundness	Hardness by Schmidt Hammer value	Remarks		
																		From	To					

Table G-3 (v)

1	19	20	5.15	6.15	5.30	10.50	2.00	0.998	Soaked	40.00	184.47														
2		48	9.15	10.15	5.25	5.50	1.05	0.832	Soaked	20.20	79.16														
3		15	3.20	4.20											8.75	3.85	2.275								
4	23	51	5.20	6.20	5.50	5.70	1.04	0.829	Soaked	43.3	154.02														
5		100	8.20	9.20	5.60	7.40				0.20				0.14											
6		147	11.20	12.20																			21.00		
7	26	72	9.00	10.00	5.40	10.67	1.98	0.997	Soaked	8.70	38.63														
8		108	12.00	13.00	4.91	9.50				0.20				0.16											
9		3	2.25	3.25	5.30	10.60	2.00	1.000	Soaked	31.80	147.00														
10	27	30	5.25	6.25	5.24	5.46	1.04	0.830	Soaked	17.0	67.00										9.42				
11		127	13.25	14.25	5.16	9.14	1.77	0.972	Soaked	25.00	118.0														
12		108	9.00	10.00															2.62						
13		117	9.00	10.00	4.73	5.05				0.4				0.32											
14	28	157	12.00	13.00															2.53						
15		162	12.00	13.00	5.02	9.79	1.95	0.994	Soaked	36.20	185.00														
16		188	14.00	15.00															2.54						
17		249	17.00	18.00															2.59						

5.9. CHEMICAL TESTS:

Chemical tests were performed on few soil and water samples for determining the pH value, Sulphate, Chloride, organic matter content etc. The results are given in a tabular form below:

CHEMICAL TEST RESULTS ON SOIL SAMPLES:-

BH/Sample No.	Depth (m)	pH value	Sulphate as SO ₃ (%)	Chloride as Cl (%)	Organic Matter (%)
BH-20 / UDS01	1.00-1.45	8.06	B.D.L.*	0.0070	0.196
BH-25 / UDS01	1.00-1.45	7.41	B.D.L.*	0.0080	0.208
BH-27 / UDS01	1.00-1.45	7.84	B.D.L.*	0.0080	0.226
BH-35 / UDS01	1.00-1.45	6.20	B.D.L.*	0.0080	0.225

*B.D.L. = Below Detection Limit (i.e. below 0.050%)

CHEMICAL TEST RESULTS ON WATER SAMPLES:-

BH/Sample No.	Depth (m)	pH value	Sulphate as SO ₃ (mg/Ltr.)	Chloride as Cl (mg/Ltr.)	Organic Matter (mg/Ltr.)
BH-02 / WS01	1.20	6.38	60	10	21.82
BH-21 / WS01	2.45	6.65	60	16	16.36
BH-33 / WS01	1.10	6.82	60	24	19.09

ERT No. 01

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	22.929	22.944	22.913	22.928	22.93
2	1.0	11.183	11.246	11.309	11.152	11.22
3	2.0	7.979	8.104	8.042	8.167	8.07
4	3.0	7.916	7.539	7.822	7.916	7.80
5	4.0	9.424	9.424	9.298	9.047	9.30
6	5.0	9.581	9.267	9.424	9.738	9.50
7	6.0	10.555	11.497	11.309	10.932	11.07
8	7.0	10.995	11.874	12.314	11.655	11.71
9	8.0	11.057	12.063	11.058	11.058	11.31
10	10.0	12.251	12.880	11.623	13.058	12.45

Mean Resistivity at ERT-01 is 11.54 Ohm - m.

ERT No. 02

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	35.022	34.865	34.708	35.179	34.94
2	1.0	23.529	23.592	23.529	23.498	23.54
3	2.0	13.256	13.445	13.382	13.445	13.38
4	3.0	15.833	15.833	16.304	16.115	16.02
5	4.0	17.592	18.220	17.969	17.717	17.87
6	5.0	17.906	18.377	18.849	18.377	18.38
7	6.0	17.341	18.849	18.472	17.718	18.10
8	7.0	17.592	15.613	15.833	16.053	16.27
9	8.0	17.592	17.341	16.838	17.592	17.34
10	10.0	19.163	18.848	18.534	19.791	19.08

Mean Resistivity at ERT-02 is 19.49 Ohm - m.

ERT No. 03

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	28.488	28.410	28.457	28.457	28.45
2	1.0	33.016	33.111	33.079	33.111	33.08
3	2.0	38.702	39.079	38.828	39.080	38.92
4	3.0	39.771	40.336	40.242	40.242	40.15
5	4.0	37.195	37.195	37.321	37.823	37.38
6	5.0	36.127	36.284	35.812	36.598	36.21
7	6.0	34.117	33.740	34.683	34.117	34.16
8	7.0	32.106	31.447	33.206	32.106	32.22
9	8.0	30.649	30.410	30.159	30.912	30.53
10	10.0	32.357	32.986	32.357	31.415	32.28

Mean Resistivity at ERT-03 is 34.34 Ohm - m.

ERT No. 04

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	43.345	43.345	43.345	43.345	43.35
2	1.0	42.724	43.038	44.295	43.352	43.35
3	2.0	28.964	29.090	29.152	29.153	29.09
4	3.0	25.634	25.634	26.011	25.728	25.75
5	4.0	21.990	22.492	22.115	22.367	22.24
6	5.0	21.048	21.519	21.833	21.519	21.48
7	6.0	19.037	19.226	19.226	19.603	19.27
8	7.0	18.692	19.571	19.132	18.692	19.02
9	8.0	20.608	21.111	20.106	20.357	20.55
10	10.0	23.561	22.933	23.875	23.875	23.56

Mean Resistivity at ERT-04 is 26.77 Ohm - m.

ERT No. 05

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	19.442	19.426	19.474	19.458	19.45
2	1.0	6.376	6.345	6.314	6.220	6.31
3	2.0	4.963	5.152	5.340	5.277	5.18
4	3.0	5.560	5.748	6.031	5.937	5.82
5	4.0	7.036	7.288	7.664	7.664	7.41
6	5.0	8.324	9.267	9.895	8.481	8.99
7	6.0	9.424	9.989	10.555	9.989	9.99
8	7.0	10.115	10.555	11.215	9.895	10.45
9	8.0	11.058	10.555	10.304	10.304	10.56
10	10.0	12.880	12.251	19.937	12.565	14.41

Mean Resistivity at ERT-05 is 9.86 Ohm - m.

ERT No. 06

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	34.865	34.865	35.022	35.179	34.98
2	1.0	28.022	28.053	28.022	27.990	28.02
3	2.0	30.283	30.095	30.284	30.346	30.25
4	3.0	30.157	29.969	30.063	30.252	30.11
5	4.0	34.933	35.561	35.310	35.058	35.22
6	5.0	37.383	37.540	37.697	37.855	37.62
7	6.0	39.583	40.337	40.337	40.337	40.15
8	7.0	41.782	42.442	42.222	41.122	41.89
9	8.0	42.976	42.222	43.227	42.724	42.79
10	10.0	47.122	46.494	47.123	46.180	46.73

Mean Resistivity at ERT-06 is 36.78 Ohm - m.

ERT No. 07

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	52.140	52.140	52.925	52.140	52.34
2	1.0	45.896	45.803	45.896	45.834	45.86
3	2.0	36.441	36.504	36.818	36.626	36.60
4	3.0	37.792	38.074	38.168	38.074	38.03
5	4.0	48.253	48.630	48.755	48.504	48.54
6	5.0	50.578	50.106	50.253	49.949	50.22
7	6.0	45.803	46.557	46.557	46.369	46.32
8	7.0	52.778	52.778	52.778	52.118	52.61
9	8.0	55.793	55.794	56.799	55.542	55.98
10	10.0	46.180	47.437	47.122	46.808	46.89

Mean Resistivity at ERT-07 is 47.34 Ohm - m.

ERT No. 08

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	44.131	44.445	44.602	44.288	44.37
2	1.0	36.692	36.535	36.598	36.692	36.63
3	2.0	36.880	36.566	36.944	36.944	36.83
4	3.0	45.049	45.520	45.331	45.802	45.43
5	4.0	52.902	53.530	53.028	53.028	53.12
6	5.0	57.960	57.332	56.861	57.018	57.29
7	6.0	67.669	68.046	67.858	67.481	67.76
8	7.0	76.748	76.968	77.188	76.968	76.97
9	8.0	81.429	80.926	80.675	79.921	80.74
10	10.0	93.617	94.874	93.618	93.932	94.01

Mean Resistivity at ERT-08 is 59.31 Ohm - m.

ERT No. 09

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	119.672	119.829	119.358	119.672	119.63
2	1.0	42.158	42.096	42.252	42.189	42.17
3	2.0	40.022	40.399	40.399	40.211	40.26
4	3.0	56.358	56.641	56.075	56.452	56.38
5	4.0	65.091	65.468	65.594	65.719	65.47
6	5.0	62.830	63.144	62.358	62.201	62.63
7	6.0	69.743	70.120	70.308	70.120	70.07
8	7.0	78.947	79.167	78.947	79.387	79.11
9	8.0	75.899	78.664	75.899	77.156	76.90
10	10.0	94.560	96.131	96.445	94.560	95.42

Mean Resistivity at ERT-09 is 70.81 Ohm - m.

ERT No. 10

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	113.233	113.076	113.390	113.547	113.31
2	1.0	46.180	46.085	46.117	46.180	46.14
3	2.0	17.278	17.529	17.529	17.780	17.53
4	3.0	17.152	16.681	17.246	17.152	17.06
5	4.0	12.188	12.942	12.314	12.691	12.53
6	5.0	13.508	14.136	12.880	13.037	13.39
7	6.0	14.325	14.702	14.702	15.267	14.75
8	7.0	13.194	14.074	14.074	14.294	13.91
9	8.0	13.068	13.822	14.325	14.827	14.01
10	10.0	13.822	12.251	12.880	13.194	13.04

Mean Resistivity at ERT-10 is 27.57 Ohm - m.

ERT No. 11

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	49.156	49.313	48.685	48.528	48.92
2	1.0	75.710	76.338	76.024	76.338	76.10
3	2.0	63.269	63.269	63.269	63.080	63.22
4	3.0	54.473	54.756	54.756	54.285	54.57
5	4.0	45.739	45.991	45.865	46.242	45.96
6	5.0	41.153	40.996	40.525	42.095	41.19
7	6.0	39.583	40.148	40.525	39.583	39.96
8	7.0	35.625	36.065	36.065	36.065	35.96
9	8.0	30.661	31.163	30.159	30.158	30.54
10	10.0	35.185	35.813	35.813	34.871	35.42

Mean Resistivity at ERT-11 is 47.18 Ohm - m.

ERT No. 12

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	73.342	73.499	73.499	73.813	73.54
2	1.0	43.729	43.760	43.697	43.760	43.74
3	2.0	20.859	20.984	20.733	20.922	20.87
4	3.0	14.607	14.984	14.701	14.796	14.77
5	4.0	15.832	16.084	16.084	16.084	16.02
6	5.0	12.251	12.880	12.723	12.565	12.60
7	6.0	11.120	11.309	11.120	11.874	11.36
8	7.0	9.895	10.335	11.215	11.655	10.78
9	8.0	8.042	8.042	8.796	9.801	8.67
10	10.0	8.482	9.110	9.738	10.052	9.35

Mean Resistivity at ERT-12 is 22.17 Ohm - m.

ERT No. 13

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	47.429	47.272	46.957	47.115	47.19
2	1.0	36.535	36.441	36.598	36.441	36.50
3	2.0	13.822	14.010	13.822	14.136	13.95
4	3.0	8.576	9.047	9.518	8.953	9.02
5	4.0	7.664	7.413	8.167	8.041	7.82
6	5.0	8.167	8.953	8.796	8.482	8.60
7	6.0	9.047	9.801	9.801	9.801	9.61
8	7.0	9.016	8.576	7.696	8.796	8.52
9	8.0	8.544	9.299	9.801	8.796	9.11
10	10.0	12.251	13.508	13.508	13.822	13.27

Mean Resistivity at ERT-13 is 16.36 Ohm - m.

ERT No. 14

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	37.377	36.592	36.435	36.592	36.75
2	1.0	32.765	32.702	32.734	32.639	32.71
3	2.0	22.744	22.869	22.744	22.870	22.81
4	3.0	14.513	14.796	14.890	14.984	14.80
5	4.0	13.947	13.571	13.947	13.947	13.85
6	5.0	15.078	15.079	15.550	15.393	15.28
7	6.0	16.587	17.152	17.341	16.964	17.01
8	7.0	18.032	18.252	18.032	18.472	18.20
9	8.0	18.597	19.100	18.849	18.346	18.72
10	10.0	21.676	22.304	21.362	20.734	21.52

Mean Resistivity at ERT-14 is 21.16 Ohm - m.

ERT No. 15

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	9.972	9.988	10.003	10.051	10.00
2	1.0	6.314	6.251	6.314	6.220	6.27
3	2.0	6.220	6.345	6.534	6.471	6.39
4	3.0	5.937	6.031	5.842	5.937	5.94
5	4.0	6.534	6.282	6.408	6.408	6.41
6	5.0	7.382	7.539	7.696	7.068	7.42
7	6.0	7.916	8.104	8.670	7.916	8.15
8	7.0	8.576	8.356	8.356	8.576	8.47
9	8.0	9.801	9.550	10.304	9.047	9.68
10	10.0	10.995	10.680	10.995	11.309	10.99

Mean Resistivity at ERT-15 is 7.97 Ohm - m.

ERT No. 16

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	12.359	12.375	12.375	12.375	12.37
2	1.0	5.968	6.062	5.999	5.937	5.99
3	2.0	6.157	6.220	6.157	6.345	6.22
4	3.0	7.256	7.350	7.256	7.445	7.33
5	4.0	8.544	8.419	8.795	8.670	8.61
6	5.0	10.995	11.152	10.995	10.995	11.03
7	6.0	12.251	11.497	12.063	12.063	11.97
8	7.0	13.634	14.074	14.284	14.733	14.18
9	8.0	14.827	15.079	15.330	16.335	15.39
10	10.0	20.105	20.419	20.419	21.047	20.50

Mean Resistivity at ERT-16 is 11.36 Ohm - m.

ERT No. 17

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	47.586	47.272	47.743	47.429	47.51
2	1.0	45.551	45.645	45.645	45.677	45.63
3	2.0	25.822	25.885	25.885	25.697	25.82
4	3.0	18.189	18.566	18.471	18.660	18.47
5	4.0	17.340	17.340	17.717	17.717	17.53
6	5.0	16.335	16.335	16.021	16.492	16.30
7	6.0	17.152	17.341	17.906	17.906	17.58
8	7.0	15.833	16.053	16.492	16.053	16.11
9	8.0	17.592	16.838	17.341	17.341	17.28
10	10.0	20.733	20.105	20.734	20.734	20.58

Mean Resistivity at ERT-17 is 24.28 Ohm - m.

ERT No. 18

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	18.092	18.107	18.060	18.092	18.09
2	1.0	14.984	15.016	15.016	15.047	15.02
3	2.0	10.052	10.115	10.052	10.052	10.07
4	3.0	10.272	10.366	10.555	10.460	10.41
5	4.0	12.566	12.314	13.193	12.188	12.57
6	5.0	14.450	14.450	14.607	14.136	14.41
7	6.0	16.964	16.210	16.398	16.210	16.45
8	7.0	18.692	18.692	18.032	18.692	18.53
9	8.0	19.854	20.859	20.105	19.603	20.11
10	10.0	23.561	25.446	23.561	22.304	23.72

Mean Resistivity at ERT-18 is 15.94 Ohm - m.

ERT No. 19

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	23.321	23.290	23.260	23.227	23.27
2	1.0	27.770	27.676	27.739	27.582	27.69
3	2.0	26.136	26.137	26.325	26.576	26.29
4	3.0	21.298	21.581	21.958	22.241	21.77
5	4.0	16.712	17.089	17.340	17.843	17.25
6	5.0	13.351	14.136	14.607	14.922	14.25
7	6.0	12.251	13.005	13.382	13.571	13.05
8	7.0	13.414	15.173	16.493	14.294	14.84
9	8.0	12.566	13.319	14.074	14.074	13.51
10	10.0	15.079	15.079	16.021	15.393	15.39

Mean Resistivity at ERT-19 is 18.73 Ohm - m.

ERT No. 20

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	30.310	30.467	30.153	30.624	30.39
2	1.0	24.440	24.471	24.534	24.471	24.48
3	2.0	12.314	12.566	12.314	12.503	12.42
4	3.0	8.104	8.293	8.010	8.199	8.15
5	4.0	8.293	7.916	7.664	7.539	7.85
6	5.0	9.581	9.424	9.581	9.581	9.54
7	6.0	10.555	10.932	10.932	11.120	10.88
8	7.0	12.534	13.414	14.294	13.634	13.47
9	8.0	13.068	13.068	13.822	13.068	13.26
10	10.0	14.765	16.021	15.707	15.393	15.47

Mean Resistivity at ERT-20 is 14.59 Ohm - m.

ERT No. 21

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	10.962	11.008	10.993	11.040	11.00
2	1.0	14.984	15.047	15.047	15.110	15.05
3	2.0	22.932	22.932	22.681	22.870	22.85
4	3.0	19.602	19.885	19.791	19.696	19.74
5	4.0	19.225	19.351	20.230	19.100	19.48
6	5.0	22.932	22.461	23.561	23.718	23.17
7	6.0	33.240	33.929	34.683	35.814	34.42
8	7.0	31.667	31.227	33.206	34.085	32.55
9	8.0	32.923	32.923	33.928	35.436	33.80
10	10.0	32.043	31.729	32.357	34.242	32.59

Mean Resistivity at ERT-21 is 24.46 Ohm - m.

ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)

Test No. : ERT 1

Location : Near BH 1

Co ordinate : E= 1413.20; N = 3923.08

Date : 20.08.09

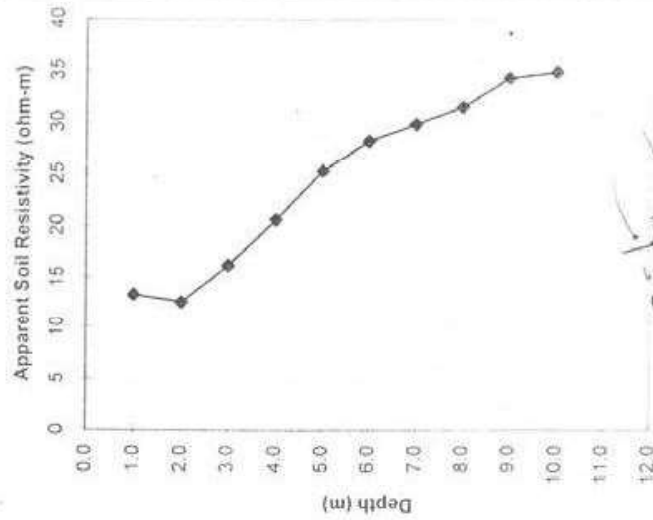
Current : 7Amp

Voltage : 50 V

Reduced Level :

Survey Method :

Sr. No	Electrode Spacing, a m	Direction - N - S		Direction - NE - SW		Direction - E - W		Direction - SE - NW		Average Apparent Soil Resistivity $\rho = 2\pi a R$ ohm - m
		Apparent resistivity ohm-m	ohm-m	Apparent resistivity ohm-m	ohm-m	Apparent resistivity ohm-m	ohm-m	Apparent resistivity ohm-m	ohm-m	
1	1.0	13.58	--	--	--	13.00	--	--	--	13.29
2	2.0	12.76	--	--	--	12.37	--	--	--	12.57
3	3.0	15.87	--	--	--	16.35	--	--	--	16.11
4	4.0	20.00	--	--	--	21.20	--	--	--	20.60
5	5.0	23.40	--	--	--	27.20	--	--	--	25.30
6	6.0	25.20	--	--	--	31.10	--	--	--	28.15
7	7.0	29.10	--	--	--	30.50	--	--	--	29.80
8	8.0	25.40	--	--	--	37.50	--	--	--	31.45
9	9.0	30.50	--	--	--	38.00	--	--	--	34.25
10	10.0	33.80	--	--	--	35.80	--	--	--	34.80



ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)

Test No. : ERT 2

Location : Near BH 3

Co ordinate : E= 1806.11; N = 3967.14

Date : 08.10.2009

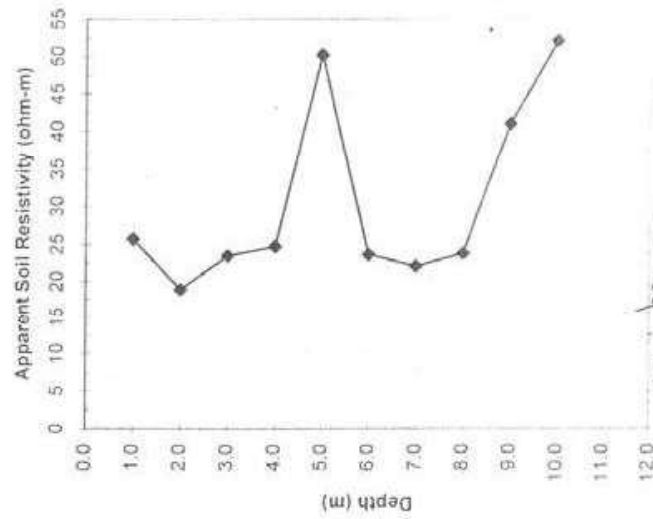
Current : 7Amp

Voltage : 50 V

Reduced Level :

Survey Method :

Sr. No	Electrode spacing, m	Direction				Average Apparent Soil Resistivity $\rho = 2\pi a R$
		Direction - N - S	Direction - NE - SW	Direction - E - W	Direction - SE - NW	
		Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	ohm - m
1	1.0	16.85	--	34.60	--	25.73
2	2.0	24.20	--	13.61	--	18.91
3	3.0	32.40	--	14.51	--	23.46
4	4.0	36.20	--	13.18	--	24.69
5	5.0	38.10	--	62.20	--	50.15
6	6.0	22.80	--	24.30	--	23.55
7	7.0	20.50	--	23.40	--	21.95
8	8.0	33.70	--	13.60	--	23.65
9	9.0	65.80	--	15.84	--	40.82
10	10.0	67.50	--	36.40	--	51.95



ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)

Test No. : ERT 3

Location : Near BH 5

Co ordinate : E= 1415.33; N = 3966.91

Date : 20.08.09

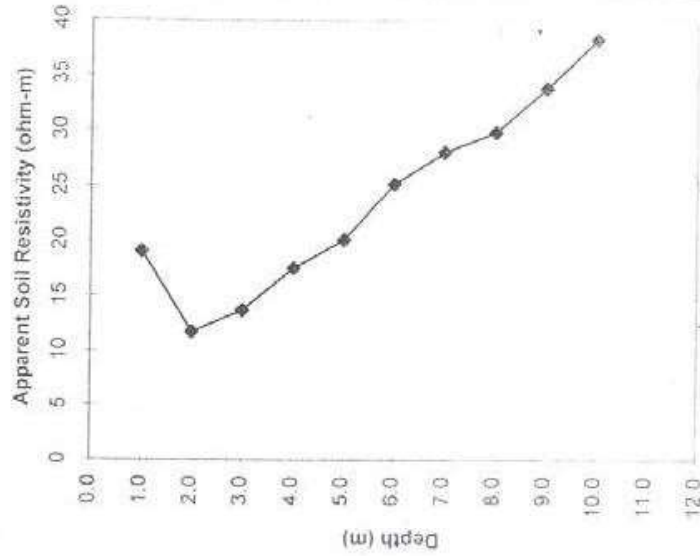
Current : 7Amp

Voltage : 50 V

Reduced Level :

Survey Method :

Sr. No	Electrode Spacing, m	Direction - N - S	Direction - NE - SW	Direction - E - W	Direction - SE-NW	Average Apparent Soil Resistivity $\rho = 2\pi aR$
		Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	
1	1.0	18.43	--	19.63	--	19.03
2	2.0	11.40	--	12.09	--	11.75
3	3.0	13.70	--	13.71	--	13.71
4	4.0	16.74	--	18.30	--	17.52
5	5.0	20.30	--	19.92	--	20.11
6	6.0	24.30	--	26.10	--	25.20
7	7.0	26.50	--	29.60	--	28.05
8	8.0	30.40	--	29.10	--	29.75
9	9.0	32.90	--	34.50	--	33.70
10	10.0	37.40	--	38.80	--	38.10



ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)
 Test No. : ERT 4

Location : Near BH 13

Co ordinate : E= 1363.83; N = 4078.14

Date : 08.10.2009

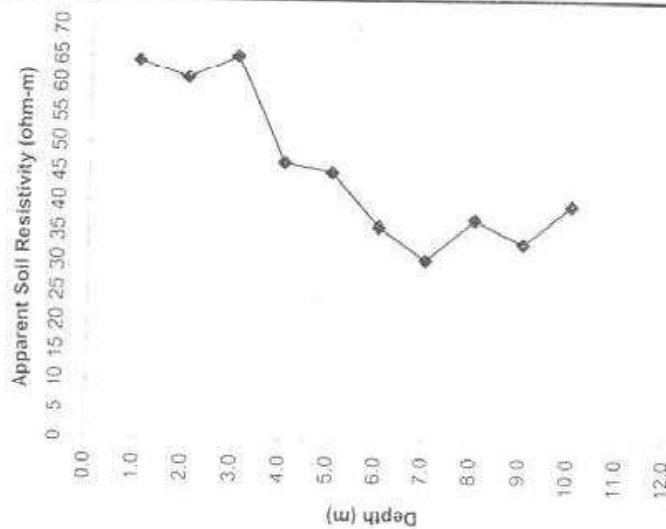
Current : 7Amp

Voltage : 50 V

Reduced Level :

Survey Method :

Sr. No	Electrode spacing, m	Direction				Average Apparent Soil Resistivity $P = \frac{2\pi a R}{\ln 4}$
		Direction - N - S	Direction - NE - SW	Direction - E - W	Direction - SE - NW	
		Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	ohm - m
1	1.0	43.90	--	84.60	--	64.25
2	2.0	52.00	--	70.50	--	61.25
3	3.0	53.80	--	76.70	--	65.25
4	4.0	43.40	--	50.60	--	47.00
5	5.0	44.20	--	46.60	--	45.40
6	6.0	37.50	--	35.10	--	36.30
7	7.0	29.20	--	32.40	--	30.80
8	8.0	36.40	--	38.70	--	37.55
9	9.0	31.30	--	35.80	--	33.55
10	10.0	33.40	--	46.40	--	39.90

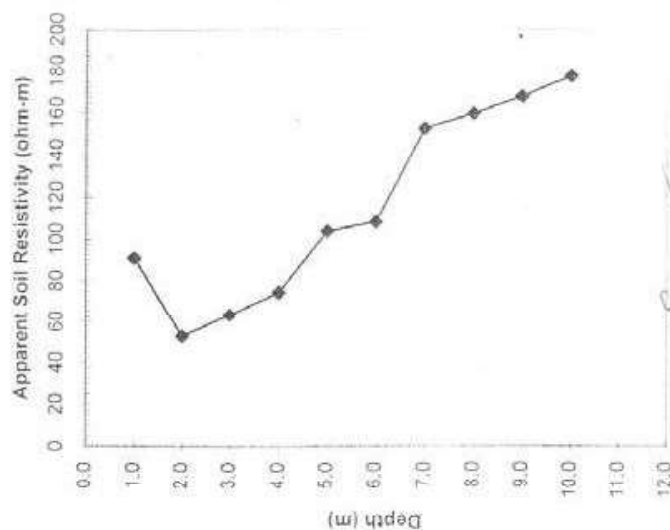


ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)
 Test No. : ERT 5
 Location : Near BH 21
 Co ordinate : E= 1374.24; N = 4180.08
 Date : 08.10.2009
 Current : 7Amp
 Voltage : 50 V

Reduced Level :
 Survey Method :

Sr. No	m electrode spacing	Direction - N - S	Direction - NE - SW	Direction - E - W	Direction - SE-NW	Average Apparent Soil Resistivity $\rho = \frac{2\pi a R}{\ln 4}$
		Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	
1	1.0	84.30	--	97.40	--	90.85
2	2.0	50.60	--	54.50	--	52.55
3	3.0	66.00	--	60.60	--	63.30
4	4.0	74.70	--	74.30	--	74.50
5	5.0	82.40	--	125.70	--	104.05
6	6.0	71.10	--	145.20	--	108.15
7	7.0	117.90	--	186.30	--	152.10
8	8.0	134.10	--	184.20	--	159.15
9	9.0	149.30	--	185.60	--	167.45
10	10.0	164.40	--	190.50	--	177.45



ELECTRICAL RESISTIVITY TEST

Project : Geotechnical Investigation for NTPC Talcher Thermal Stage 3rd (2 x 660 MW)

Test No. : ERT 6

Location : Near BH 25

Co ordinate : E= 1386.16; N = 4247.92

Date : 08.10.2009

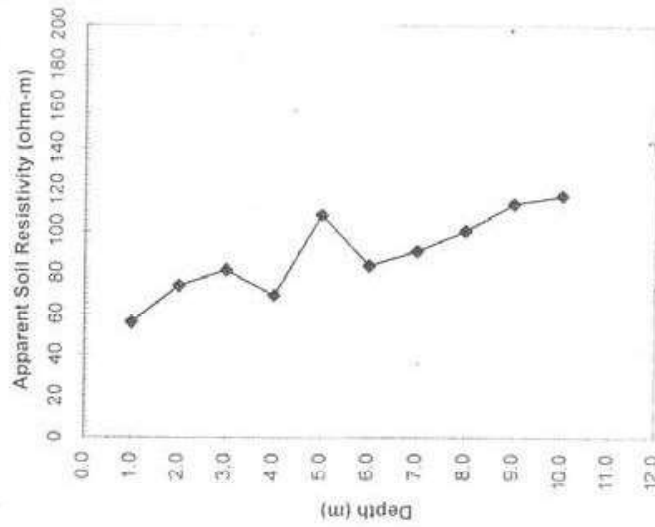
Current : 7Amp

Voltage : 50 V

Reduced Level :

Survey Method :

Sr. No	Electrode spacing, m	Direction				Average Apparent Soil Resistivity $\rho = 2\pi a R$
		Direction - N - S	Direction - NE - SW	Direction - E - W	Direction - SE - NW	
		Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	Apparent resistivity ohm-m	ohm - m
1	1.0	39.60	--	71.90	--	55.75
2	2.0	62.60	--	85.50	--	74.05
3	3.0	86.10	--	77.10	--	81.60
4	4.0	66.00	--	72.60	--	69.30
5	5.0	141.90	--	74.70	--	108.30
6	6.0	77.30	--	90.10	--	83.70
7	7.0	88.90	--	92.60	--	90.75
8	8.0	103.30	--	97.60	--	100.45
9	9.0	116.20	--	111.00	--	113.60
10	10.0	112.00	--	122.90	--	117.45



5.9. CHEMICAL TESTS:

Chemical tests were performed on few soil and water samples for determining the pH value, Sulphate, Chloride, organic matter content etc. The results are given in a tabular form below:

CHEMICAL TEST RESULTS ON SOIL SAMPLES:-

BH/Sample No.	Depth (m)	pH value	Sulphate as SO ₃ (%)	Chloride as Cl (%)	Organic Matter (%)
BH-20 / UDS01	1.00-1.45	8.06	B.D.L.*	0.0070	0.196
BH-25 / UDS01	1.00-1.45	7.41	B.D.L.*	0.0080	0.208
BH-27 / UDS01	1.00-1.45	7.84	B.D.L.*	0.0080	0.226
BH-35 / UDS01	1.00-1.45	6.20	B.D.L.*	0.0080	0.225

*B.D.L. = Below Detection Limit (i.e. below 0.050%)

CHEMICAL TEST RESULTS ON WATER SAMPLES:-

BH/Sample No.	Depth (m)	pH value	Sulphate as SO ₃ (mg/Ltr.)	Chloride as Cl (mg/Ltr.)	Organic Matter (mg/Ltr.)
BH-02 / WS01	1.20	6.38	60	10	21.82
BH-21 / WS01	2.45	6.65	60	16	16.36
BH-33 / WS01	1.10	6.82	60	24	19.09

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits				IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %		
ABH01	SPT01	1.30	Brownish grey, silty clay.										51	24		CH				**See the Note		
ABH01	UDS02	3.00	Brownish grey, silty clay with calcareous nodules and sand mixture.	1.95	1.52	2.68	29 S 27 T 28 C	0.738	TRSH-UU	0.82	0	45	22	16	CI		20	54	26	Do		
									3.0	0.841												
									2.0	0.815												
									1.0	0.808												
									UNCONFD	0.54	0											
									0.0	0.541												
									0.0	0.530												
									0.0	0.547												
									REMOULD	0.41	0											
									0.0	0.450												
									0.0	0.392												
									0.0	0.395												
ABH01	SPT02	3.45	Brownish grey, silty clay with traces of calcareous nodules.									54	21		CH					Do		
ABH02	SPT01	1.00	Brownish grey, clayey silty sand with gravels & decomposed rock.												SM	4	50	46(Silt+Clay)		Do		
ABH04	DS01	0.50	Brownish grey, silty clay / clayey silt with sand mixture.												CI*		25	47	28	Do		
ABH04	UDS01	1.00	Brownish grey, silty clay with calcareous nodules and sand mixture.	1.94	1.50		28 S 29 T		TRSH-UU	0.76	0	43	23	18	CI					Do		
									3.0	0.770												
									2.0	0.767												
									1.0	0.749												
									UNCONFD	0.62	0											
									0.0	0.621												
									0.0	0.653												
									0.0	0.597												
									REMOULD	0.50	0											
									0.0	0.498												
									0.0	0.508												
									0.0	0.505												
ABH04	SPT01	1.45	Brownish grey, silty clay with traces of kankars.									45	21		CI					Do		

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method		
									Pc/sqcm kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %			
ABH04	SPT02	3.00	Brownish grey, silty clay / clayey silt with traces of sand mixture.												CI*					Do			
ABH05	SPT01	1.55	Brownish grey, clayey silty sand.												SM					Do			
ABH05	SPT02	3.00	Brownish grey, clayey silt with sand mixture.												CI					Do			
ABH06	UDS01	1.00	Brownish grey, silty clay with traces of kankars & calcareous nodules.	2.04	1.62		27 S	0.849	TRSH-UU		0.65	5			CI*					Do			
ABH06	SPT02	3.00	Brownish grey, silty clay / clayey silt.												CI					Do			
ABH06	SPT04	5.00	Light grey, clayey silt.												CI*					Do			
ABH07	UDS01	1.00	Brownish grey, clayey silty sand.	1.91	1.66		14 S		DRSH-CU		0.07	35			SM*					Do			
ABH07	SPT02	3.00	Brownish grey, silty clay with sand mixture. Obs moorum.			2.65									CI*					Do			
ABH07	SPT04	4.75	Brownish grey, silty clay / clayey silt with sand mixture.												CI					Do			

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
ABH08	UDS01	1.00	Yellowish grey, clayey silty sand.	1.98	1.69		18 S		DRSH-CU		0.13	31			SM		64	36	(Silt+Clay)	Do	
							17DR		0.5	0.440											
									1.0	0.711											
									2.0	1.341											
ABH08	UDS02	4.00	Brownish grey, silty clay with sand mixture.	1.89	1.49		28 S	0.723	UNCONFD		0.79	0	41	24	19	CI				Do	
							26 T		0.0	0.805											
							25 C		0.0	0.792											
									0.0	0.783											
									REMOULD		0.65	0									
									0.0	0.649											
									0.0	0.673											
									0.0	0.621											
ABH08	SPT04	6.00	Brownish grey, clayey silt with sand mixture.			2.65									CI*		25	61	14	Do	
ABH09	UDS01	1.00	Light grey, silty sand with gravel, boulder & calcareous nodules.												SM	33	53	14	(Silt+Clay)	Do	
ABH09	UDS02	4.00	Yellowish grey, clayey silty sand.						DRSH-CU		0.14	29			SM*					Do	
									0.5	0.425											
									1.0	0.692											
									2.0	1.247											
ABH09	SPT06	8.00	Brownish grey, silty sand.			2.64									SM*					Do	
ABH10	SPT02	2.50	Brownish grey, silty sand with gravels.												SM	5	63	32	(Silt+Clay)	Do	
ABH10	SPT05	7.40	Yellowish grey, clayey silt with decomposed rock dust and sand mixture.	1.71	1.51		14DR		DRSH-CU		0.05	34			SM*					Do	
									0.5	0.379											
									1.0	0.729											
									2.0	1.384											
ABH11	UDS01	1.00	Brownish grey, clayey silty sand.												SM		69	20	11	Do	

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size			Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	
ABH11	UDS02	4.00	Reddish brown, clayey silt with sand mixture.	1.98	1.58		24 S	0.731	UNCONFD	0.78	0				CI*				Do	
				0.0	0.806															
				0.0	0.733															
				0.0	0.798															
				REMOULD	0.69	0														
				0.0	0.715															
				0.0	0.680															
				0.0	0.684															
ABH11	SPT04	6.00	Brownish grey, silty sand with treaes of kankars.												SM	81	19(Silt+Clay)	Do		
ABH12	UDS01	1.00	Reddish brown, silty clay with sand mixture and kankars.					0.543	TRSH-UU	1.16	6	31	22	19	CL			Do		
				3.0	1.631															
				2.0	1.528															
				1.0	1.405															
				UNCONFD	0.82	0														
				0.0	0.867															
				0.0	0.810															
				0.0	0.799															
				REMOULD	0.75	0														
ABH12	SPT03	4.50	Yellowish grey, clayey silty sand / sandy silt with kankars.												SM	5	60	24	11	Do
ABH13	SPT01	1.55	Reddish Brown, clayey silt with sand mixture / clayey silty sand.	1.72	1.50		14DR		DRSH-CU	0.05	33				SM*					Do
					0.5	0.379														
					1.0	0.689														
					2.0	1.347														
ABH13	SPT05	7.00	Brownish grey, silty sand.												SM	80	20(Silt+Clay)		Do	
ABH14	UDS02	4.00	Reddish brown, clayey sandy silt with gravel and boulders.	.	.				TRSH-UU	0.74	7	26	15	13	CL					Do
				3.0	1.258															
				2.0	1.114															
				1.0	0.972															
				UNCONFD	0.53	0														
									0.0	0.514										
									0.0	0.530										
									0.0	0.547										

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size			Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	
									REMOULD		0.46	0								
									0.0	0.450										
									0.0	0.458										
									0.0	0.463										
ABH14	SPT03	4.45	Brownish grey, silty sand with rock pieces and clay binders.												SM	18	49	33(Silt+Clay)		Do
ABH14	SPT06	8.00	Brownish grey, silty sand/decomposed rock dust with clay binders.						DRSH-CU		0.03	37			SM*					Do
									0.5	0.415										
									1.0	0.776										
									1.5	1.541										
ABH15	UDS01	1.00	Blackish clayey silt with sand. Obs. rock pieces, gravel, coal dust etc.	1.96	1.69		16 S	0.522	TRSH-UU		0.80	12	32	18		CL				Do
							17 T		3.0	1.772										
							18 C		2.0	1.519										
									1.0	1.252										
ABH15	SPT01	1.45	Greyish brown, silty sand with gravels.										N.P.							
ABH15	SPT02	3.00	Greyish brown, silty sand with kankars and moorum.			2.66									SM	11	60	25	4	Do
ABH16	SPT01	1.15	Dark grey, clayey silty sand with kankars and coal pieces.												SM	13	57	22	8	Do
ABH16	SPT02	2.50	Greyish brown, clayey silt with sand mixture and rock pieces.										24	14	12		CL			Do
ABH17	DS01	0.50	Brownish grey, silty sand with gravels.			2.63									SM	42	40	15	3	Do
ABH17	SPT02	3.00	Reddish brown, clayey moorum with decomposed rock dust and rock pieces.	1.77	1.53		16DR		DRSH-CU		0.02	36			SM*					Do
									0.5	0.378										
									1.0	0.753										
									1.5	1.466										

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results					After. Limits			IS Classification	Grain Size					Test Method
									Pc/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Gravl %		Sand %	Silt %	Clay %			
ABH18	SPT01	1.60	Blackish grey, clayey sandy silt with rock fragments.													SM	23	37	30	10	Do		
ABH19	SPT02	2.50	Yellowish grey silty clay with sand. Obs. gravels.										32	22		CL					Do		
ABH18	SPT03	4.50	Blackish grey, silty sand with coal dust, coal pieces and rock fragments.										NP								Do		
ABH20	SPT01	1.10	Yellowish grey, clayey silt with sand mixture													CI*		38	52	10	Do		
ABH20	SPT03	4.00	Yellowish grey silty clay with sand.										39	18		CI					Do		
ABH21	SPT01	1.50	Reddish brown, clayey moorum.													CI*	34	29	20	17	Do		
ABH21	UDS02	4.00	Brownish grey silty clay with sand mixture. Obs. traces of moorum.	1.95	1.57		25 S 24 T 23 C	0.857	TRSH-UU 3.00 2.00 1.00	1.422 1.319 1.234	1.04	5			18	CI*					Do		
ABH21	SPT04	5.00	Whitish brown silty clay,										38	19		CI					Do		
ABH22	SPT01	1.05	Brownish grey, clayey silt with sand mixture and kankars.													CI*		39	38	23	Do		

Bore Hole	Sample Number	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classification	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
ABH23	SPT01	1.08	Brownish grey, silty clay with traces of sand mixture.									42	15		CI				Do		
ABH24	SPT01	1.55	Blackish grey, clayey silty sand. Obs. traces of coal pieces.									35	23						Do		
ABH25	SPT01	1.50	Yellowish grey, clayey silt with rock fragments.									46	21		CI				Do		
ABH25	SPT02	3.00	Whitish grey, clayey silt with sand mixture.			2.63									CI*				Do		

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness * (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
ABH-01	1	6.50 - 7.25	Highly weathered, brownish grey, medium grained fractured sandstone.	--	--	--	--	--	204	--	--	--	--	--	--	--	--	* See the Note
ABH-01	2	7.25 - 8.00	Moderately weathered, brownish grey, medium grained fractured sandstone.	2.3335	2.2726	2.68	6.090	2.420	282	165	0.59	--	--	--	--	--	--	Do
ABH-02	2	2.50 - 3.25	Moderately weathered, brownish grey, fine grained fractured sandstone.	--	--	--	--	--	--	--	--	0.93	--	--	23.14	--	--	Do
ABH-02	4	4.00 - 4.75	Moderately weathered, brownish grey, fine grained fractured sandstone.	--	--	--	--	--	--	--	--	1.91	--	--	--	--	--	Do
ABH-02	5	4.75 - 5.50	Moderately weathered, brownish grey, fine grained fractured sandstone.	--	--	--	--	--	--	--	--	1.89	--	--	--	--	--	Do
ABH-02	7	6.25 - 7.00	Slightly weathered, grey, fine grained, fractured sandstone.	--	--	--	--	--	--	--	--	1.83	94.72	Hard	--	--	--	Do
ABH-02	8	7.00 - 8.00	Fresh, grey, fine grained, fractured sandstone.	--	--	--	--	--	311	190	0.61	--	--	--	--	--	--	Do
ABH-03	1	2.80 - 3.50	Highly weathered, yellowish brown, medium grained fractured sandstone.	2.3365	2.2927	1.91	4.384	2.398	--	--	--	0.99	--	--	--	--	--	Do
ABH-03	3	4.25 - 5.00	Moderately weathered, light grey, medium grained fractured sandstone.	--	--	--	--	--	--	204	--	--	--	--	--	--	--	Do
ABH-03	6	6.50 - 7.25	Moderately weathered, light grey, medium grained fractured sandstone.	--	--	--	--	--	--	--	--	--	--	--	17.61	--	--	Do
ABH-04	1	3.70 - 4.50	Moderately weathered, brownish yellow, medium grained, fractured sand stone.	--	--	--	--	--	--	--	--	0.98	--	--	29.69	--	--	Do
ABH-04	2	4.50 - 5.25	Highly weathered, light grey, medium grained, fractured sand stone.	--	--	--	--	--	--	--	--	--	--	Hard	--	--	--	Do
ABH-05	2	4.00 - 4.75	Highly weathered, brownish yellow, fine grained, fractured sand stone.	--	--	--	--	2.455	--	--	--	0.95	78.52	--	--	--	--	Do
ABH-05	5	6.25 - 7.00	Moderately weathered, brownish yellow to light grey, fine grained, fractured sand stone.	2.749	2.736	0.451	1.235	--	465	--	--	--	--	--	--	--	--	Do
ABH-05	7	7.50 - 8.00	Moderately weathered, light grey, fine grained, fractured sand stone.	--	--	--	--	--	238	176	0.74	--	--	--	--	--	--	Do

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content (%)	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness # (% Loss)	E (Kg/sqcm)	Impact Value	Test Method
				Bulk	Dry				In-situ	Saturated								
ABH-06	1	5.70 - 6.25	Moderately weathered, grey, fine grained, highly fractured sand stone.	--	--	--	--	--	--	--	--	--	71.62	Very Soft	--	--	--	Do
ABH-15	3	7.25 - 8.00	Completely weathered, yellowish brown, medium grained, fractured sand stone.	--	--	--	--	2.713	--	--	--	--	--	--	15.84	--	--	Do
ABH-24	2	7.25 - 8.00	Highly weathered, whitish grey, medium grained, fractured sandstone.	--	--	--	--	--	--	--	--	0.91	--	--	--	--	37.34	Do
ABH-24	5	9.50 - 10.00	Highly weathered, whitish grey, medium grained, fractured sandstone.	2.3107	2.2535	2.54	5.719	2.390	--	--	--	--	--	--	--	--	--	Do
ABH-25	2	8.00 - 8.75	Highly weathered, yellowish brown medium grained, fractured sandstone.	--	--	--	--	--	--	--	--	--	--	--	--	3415	--	Do

SWELLING TEST RESULTS

Bore Hole No.	Sample No.	Depth (M)	Description	Free Swell Index, (%)	Swelling Pressure, (kg/sqcm)	Water Content (%)	PI (%)	Test Method
ABH01	UDS-02	3.00	Brownish grey, silty clay with calcareous nodules.	13.26	0.11	28	23	**See the Note
ABH04	UDS-01	1.00	Brownish grey, clayey silt with sand mixture.	47.50	0.32	29	20	Do
ABH08	UDS-02	4.00	Brownish grey, clayey silt with sand mixture.	9.09	0.01	26	17	Do
ABH11	UDS-01	1.00	Brownish grey, silty clay with calcareous nodules.	5.25	0.05	22	--	Do
ABH14	UDS-02	4.00	Brownish grey, clayey silt with sand mixture.	0.00	0.00	24	11	Do

***Note: Test Methods**

Bulk Density & Dry Density: Ref. CET/SOP/01, Issue No. 01-(Page 27 & 39 of 40)

Natural Moisture Content: IS 2720 (Part 2)

Specific Gravity: IS 2720 (Part 3).

Grain size analysis: IS 2720 (Part 4)

Liquid Limit & Plastic Limit: IS 2720 (Part 5)

Shrinkage Limit: IS 2720 (Part 6)

Standard Proctor Compaction Test (Light Compaction): IS 2720 (Part 7)

Unconfined Compressive Strength Test: IS 2720 (Part 10)

Triaxial Test (TRSH-UU): IS 2720 (Part 11)

Direct Shear Test (DRSH-CQ): IS 2720 (Part 13)

Consolidation Properties (Void Ratio): IS 2720 (Part 15)

Free Swell Index: IS 2720 (Part 40)

Swelling Pressure: IS 2720 (Part 41)

Point Load Index: IS 8764.

Water Content, Bulk & Dry Density and Porosity: IS 13030

Slake Durability Index : IS 10050.

Unconfined Compressive Strength: IS 9143.

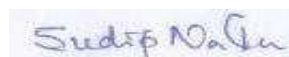
C.E. Testing Company Pvt. Ltd.

Prepared By



(I. Chowdhury)
Sr. Geotechnical Engineer

Checked & Approved By



Sudip Nath
Technical Manager

****End of Report****

2.6. ROTARY CORE DRILLING:

This drilling technique is regarded as the most satisfactory method of assessing the characteristics of rock formations, which lie at a depth below the ground surface. Specimens of rock in the form of cylindrical cores are recovered from the drill holes by means of a core barrel. Double barrel technique is adopted according to field condition. The core barrel is provided at its lower end with a detachable shoe or core bit, which is of diamond. All rotary core bits were of NX size.

2.7. ELECTRICAL RESISTIVITY TEST:

Four (04) nos. Electrical Resistivity Tests were carried out at the following locations. The test procedure and results are presented under Section-8.

ERT No.	Co-ordinates (M)		Reduced Level (M)
	Easting	Northing	
ERT-22	(-)3488	4487	103.352
ERT-23	(-)5366	5054	106.942
ERT-24	(-)6980	5390	98.640
ERT-25	(-)7040	5470	96.750

ERT No. 22

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	29.069	29.022	29.101	29.085	29.07
2	1.0	22.963	22.932	22.744	22.995	22.91
3	2.0	16.775	16.649	16.838	16.775	16.76
4	3.0	21.110	21.487	21.487	21.581	21.42
5	4.0	27.016	27.519	27.393	27.896	27.46
6	5.0	30.786	30.629	30.943	31.100	30.86
7	6.0	32.044	32.232	32.609	32.609	32.37
8	7.0	31.886	31.667	32.766	31.667	32.00
9	8.0	31.415	32.169	32.169	31.666	31.85
10	10.0	33.928	34.871	34.871	34.871	34.64

Mean Resistivity at ERT-22 is 27.93 Ohm-m.

ERT No. 23

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	65.332	65.961	65.646	65.646	65.65
2	1.0	94.873	94.873	96.129	95.815	95.42
3	2.0	100.967	100.528	101.281	101.532	101.08
4	3.0	95.375	94.715	95.940	95.469	95.37
5	4.0	99.271	99.522	98.517	99.648	99.24
6	5.0	89.375	88.433	87.490	88.119	88.35
7	6.0	78.036	78.601	79.167	79.167	78.74
8	7.0	64.213	66.192	65.313	67.072	65.70
9	8.0	57.301	59.815	58.558	60.820	59.12
10	10.0	49.007	50.578	49.322	50.264	49.79

Mean Resistivity at ERT-23 is 79.85 Ohm-m.

ERT No. 24

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	117.159	117.473	116.845	116.688	117.04
2	1.0	94.873	95.187	94.244	95.501	94.95
3	2.0	87.836	88.150	87.961	87.962	87.98
4	3.0	95.186	95.092	94.904	94.998	95.05
5	4.0	107.941	108.067	107.941	108.318	108.07
6	5.0	117.649	118.434	116.706	116.706	117.37
7	6.0	100.467	99.336	101.787	101.221	100.70
8	7.0	88.623	88.183	87.084	88.183	88.02
9	8.0	74.391	75.899	75.899	74.392	75.15
10	10.0	68.171	70.056	68.799	67.857	68.72

Mean Resistivity at ERT-24 is 95.30 Ohm-m.

ERT No. 25

SI No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				Mean
		(N - S)	(E - W)	(NE - SW)	(NW - SE)	
1	0.50	179.979	180.293	180.450	179.979	180.18
2	1.0	196.029	196.971	197.286	196.971	196.81
3	2.0	167.756	164.614	165.242	162.101	164.93
4	3.0	141.555	141.555	141.838	141.461	141.60
5	4.0	124.026	124.152	123.900	124.403	124.12
6	5.0	101.784	102.569	102.412	103.041	102.45
7	6.0	107.630	108.761	108.007	109.704	108.53
8	7.0	91.702	90.822	90.822	91.922	91.32
9	8.0	75.397	76.151	75.899	76.151	75.90
10	10.0	74.140	75.082	75.082	75.397	74.93

Mean Resistivity at ERT-25 is 126.08 Ohm-m.