

9. CROSS HOLE TEST RESULTS

REPORT ON
CROSS HOLE SHEAR TEST FOR
PROPOSED FGD STAGE-I & II (3X200MW + 3X500MW),
RAMAGUNDAM TPS, RAMAGUNDAM,
TELANGANA

1. INTRODUCTIONM/s.

C E Testing Company (P) Limited carried out the work of Geotechnical Investigation Work for the proposed FGD Stage I & II (3x200MW + 3x500MW), Ramagundam Thermal Power Station at Ramagundam, Telengana. As a part of the investigation, cross hole shear test was carried out to determine the dynamic properties of the subsoil at the proposed area. Present report deals with the findings of Cross Hole Shear Tests.

2. SCOPE OF WORK

The Cross Hole Tests were conducted at five (05) locations down to a depth of 10 meters. One source hole and two Receiver holes at a distance of 3 meter were used.

3. PURPOSE OF INVESTIGATIONS

The aim of the investigation was to determine the soil parameters. The Cross Hole Shear Tests were conducted to determine dynamic soil properties.

4. GENERAL SITE DESCRIPTION

The test was conducted between one Source and two Receiver holes. The holes were drilled down to a depth of maximum 11 meter.

5. CROSS HOLE SHEAR TEST

5.1. LOCATION

Five nos. cross hole shear tests were conducted. The test locations are given below.

CHST No.	Co-ordinates		Reduced Level (M)
	Easting	Northing	
CST-2	817	1400	155.464
CST-3	916	1400	153.937
CST-4	1074	1400	154.523
CST-5	1206	1479	155.621
CST-6	1347	338	158.871

5.2. EQUIPMENT AND ACCESSORIES

Following equipment and accessories were used:

1. Seismograph : PASI model GEA24
Signal enhancement type fully digital 24 channel seismograph,
2. Geophones : Moving-coil type digital grade vertical & Horizontal geophones, natural frequency 10 Hertz.
3. Cable : Geophone spread cables, water proof joints, made in Italy

5.2.1. Energy Source:

Cross hole tests, Shear Wave Hammer was used for generating waves in the Source borehole. The hammer generates waves in both the directions i.e. Up and Down, resulting in polarized energy.



Mod. CHE-50

5.2.2. Down Hole Sensors:

Orthogonal down hole sensors were used to receive the waves in two Receiver holes. The sensors have two Horizontal components and one Vertical component Geophones, encased in a steel tube and having water tight arrangement. The sensors were lowered at the same depth as the Hammer in the Source hole, and tube attached to them was inflated so as to make them fixed with the borehole wall.



5.2.3. Seismograph:

PASI GEA24 Seismograph was used to record field data. The seismograph has the signal enhancement or stacking capability. The seismograph records the arrival of seismic waves through 24 channels. The seismic waves detected by each geophone are displayed simultaneously on the screen.

**5.3 SEISMIC CROSS HOLE TEST**

The Seismic Cross Hole Test consists of generation of horizontally traveling P and S waves at a particular level in one borehole (Source hole) and recording their arrivals at same level in one or two nearby boreholes (Receiver holes).

5.4 CROSS HOLE SEISMIC SURVEY DATA INTERPRETATION**5.4.1. DATA PROCESSING**

The data is stored in the hard disk of the Seismograph at the time of data acquisition. The data was transferred to the computer for further processing.

The processing involves picking the first arrivals. In case of noisy data there are intermediate steps of data processing using filtering, amplitude corrections etc.

5.4.2. PICKING OF FIRST ARRIVALS

The picking was done manually to see arrival of P and S waves on the respective Geophones. The time of travel from Source to Receiver hole is used to determine the velocities of P & Shear waves, as distance between the boreholes is known.

5.4.3. VELOCITY CALCULATION

Velocity calculation was done using the time derives as above and the distance between the two Receiver holes from the Source hole.

5.5. CALCULATION OF SOIL PARAMETERS:

The dynamic soil parameters are calculated from seismic wave and the bulk density of the corresponding of the subsurface strata. The calculations are based on IS Code 13372 (Part-2).

The Poisson's Ratio is determined directly from the compressional (P) wave and shear (S) wave data. It is expressed by the ratio of transverse strain to longitudinal strain. Its dynamic determination is expressed as:

$$\dagger = (m^2 - 2) / [2 * (m^2 - 1)] \text{ where } m = V_p / V_s$$

Young's Modulus E is the uni-axial stress-strain ratio. Its dynamic value is expressed by the following equation:

$$E = \dots V_p^2 (1 + \dagger)(1 - 2\dagger) / (1 - \dagger)$$

The shear Modulus G is the stress-strain ratio for simple shear. Its dynamic value is obtained by the following:

$$G = E/2 (1 + \dagger) = \dots V_s^2$$

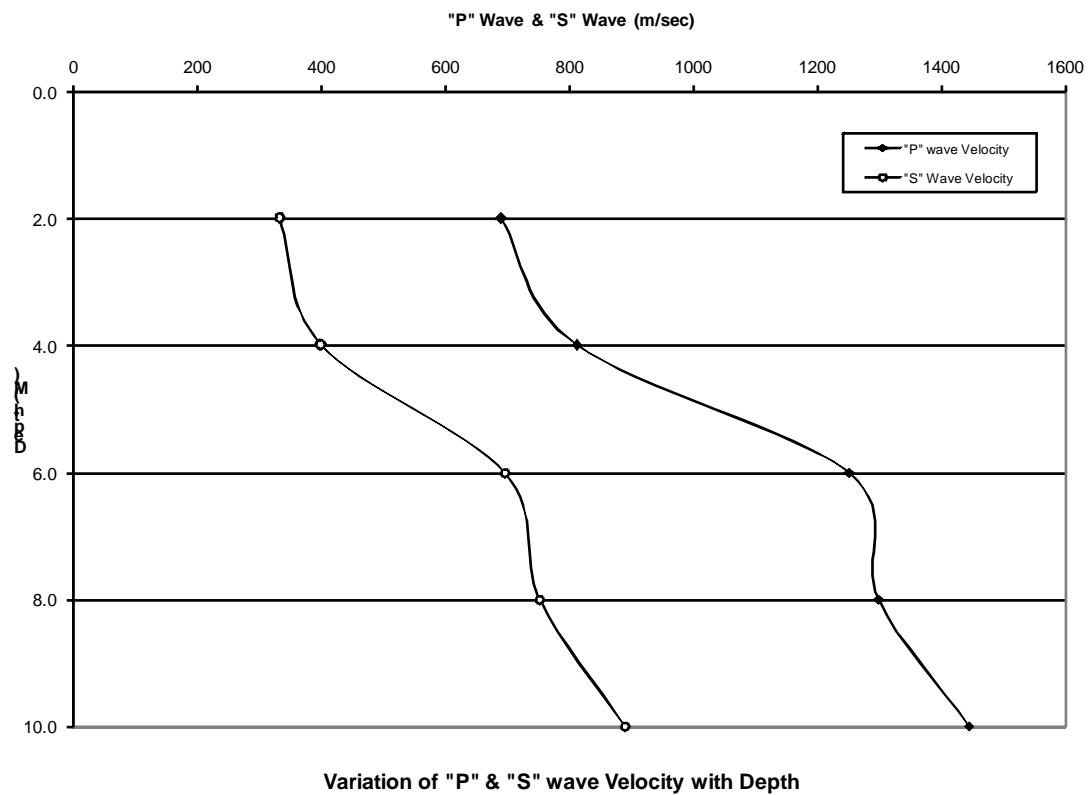
Where ... is mass density in $\text{kN.s}^2/\text{m}^4$, \dagger is Poisson's ratio and V_p is P-wave velocity in m/sec, E & G are in kN/m^2 .

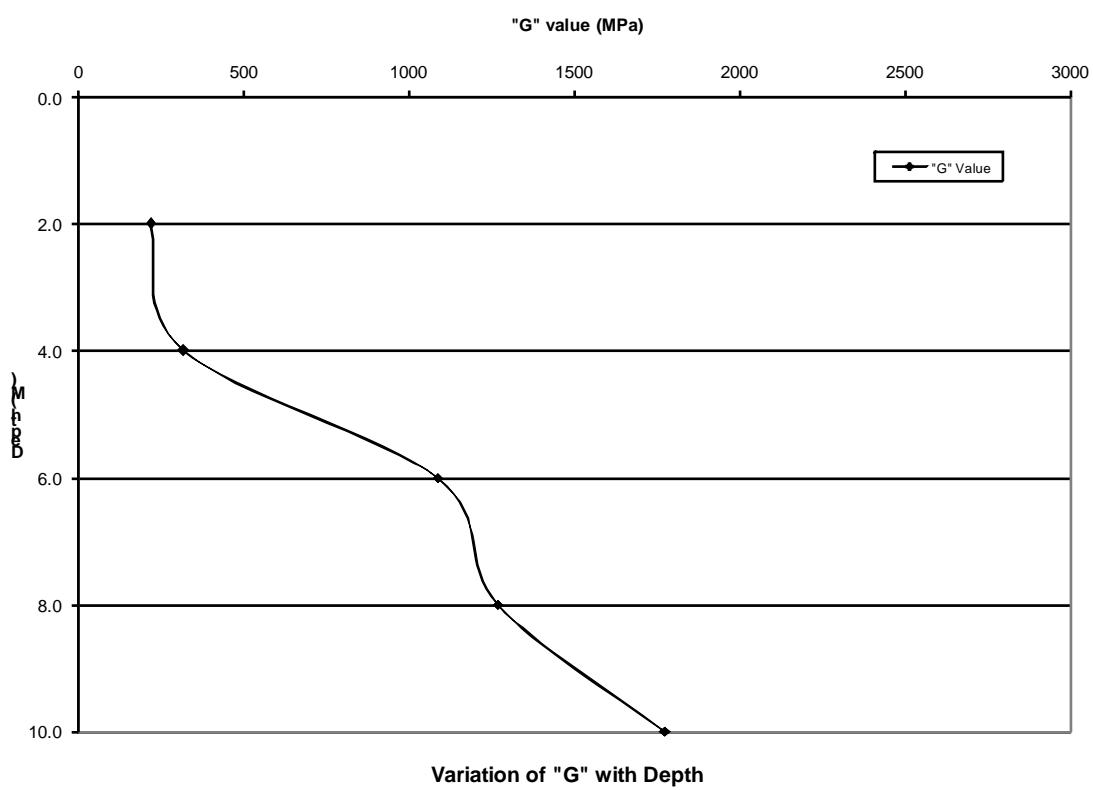
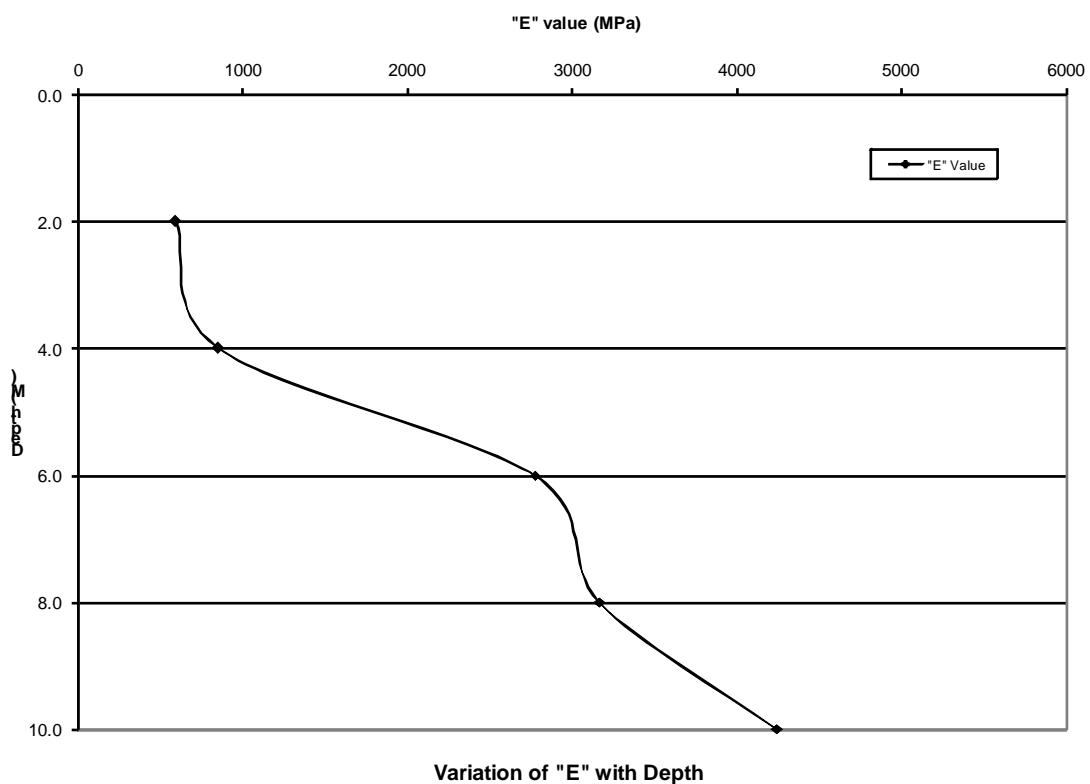
The test results are presented afterwards in a tabular form.

TEST RESULTS

Cross Hole Shear Test: CHST-2
Calculated Values of Dynamic Parameters

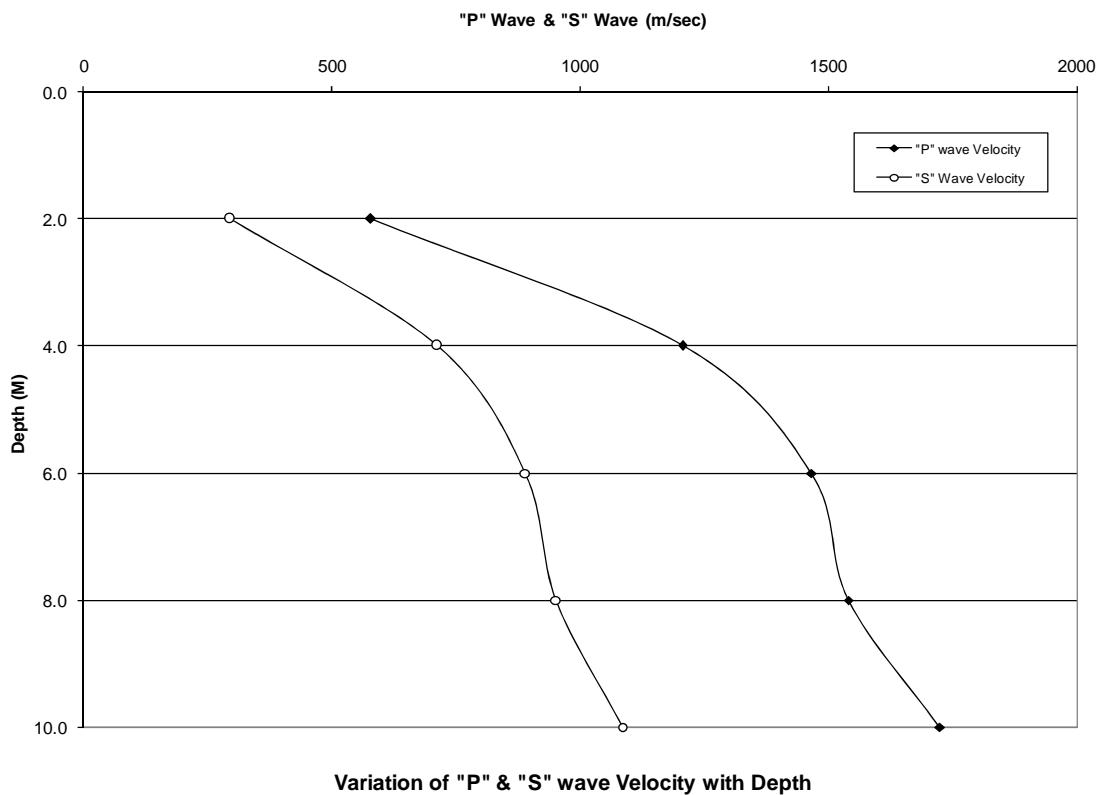
Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($\text{kN} \cdot \text{s}^2/\text{m}^4$)	m $= V_p/V_s$	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	690	332	1.99	2.0783	0.349	591293	591.3	219100	219.1
4.0	812	400	1.99	2.0300	0.340	852221	852.2	318043	318.0
6.0	1252	696	2.24	1.7989	0.276	2773190	2773.2	1086356	1086.4
8.0	1300	752	2.24	1.7287	0.249	3166840	3166.8	1268205	1268.2
10.0	1445	890	2.24	1.6236	0.194	4243353	4243.4	1776371	1776.4

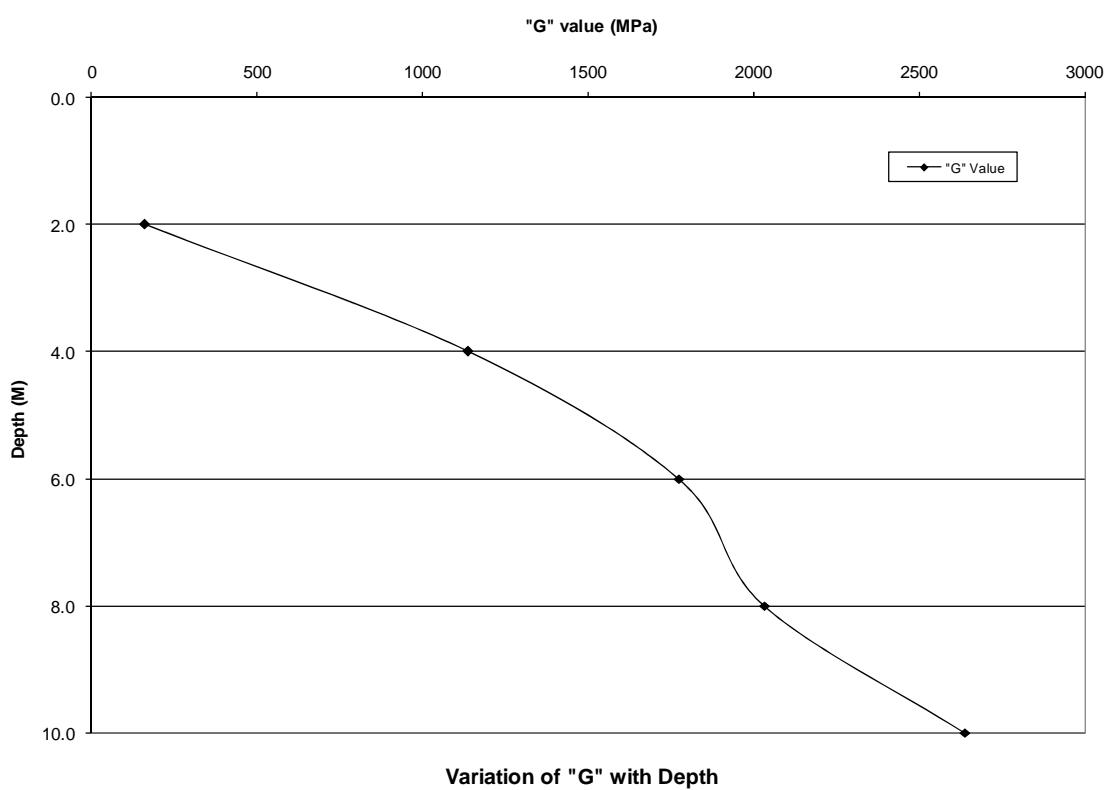
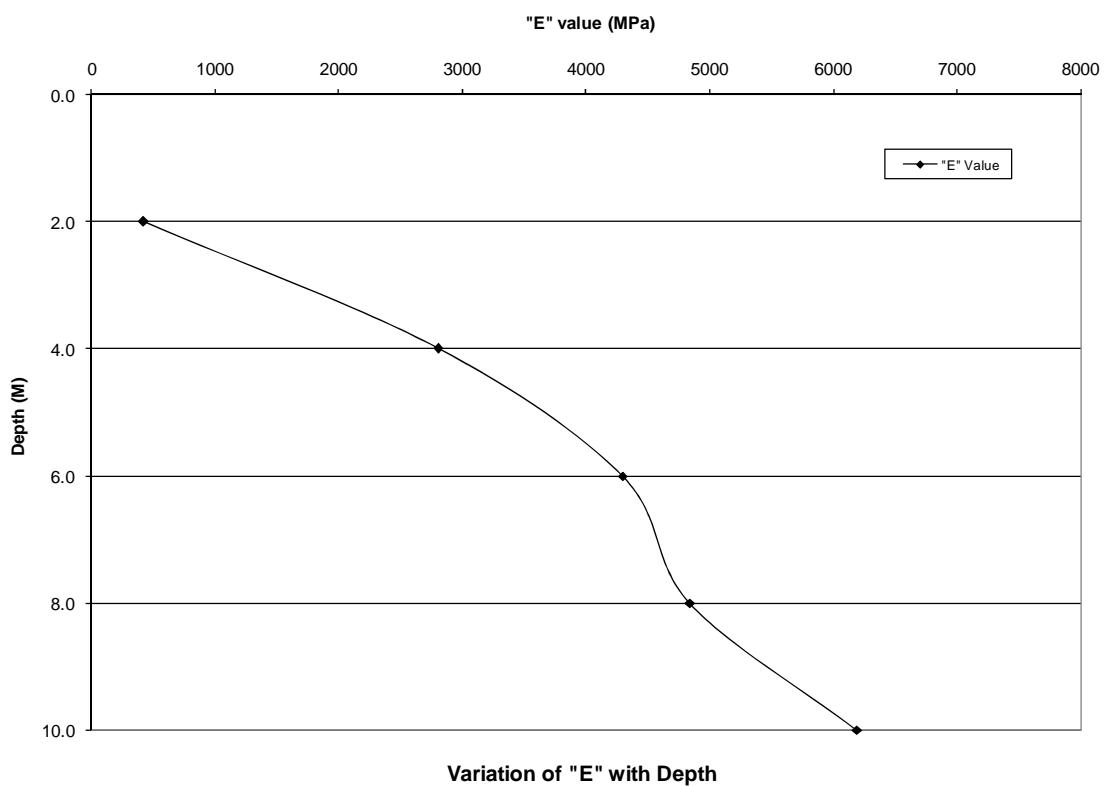




Cross Hole Shear Test: CHST-3
Calculated Values of Dynamic Parameters

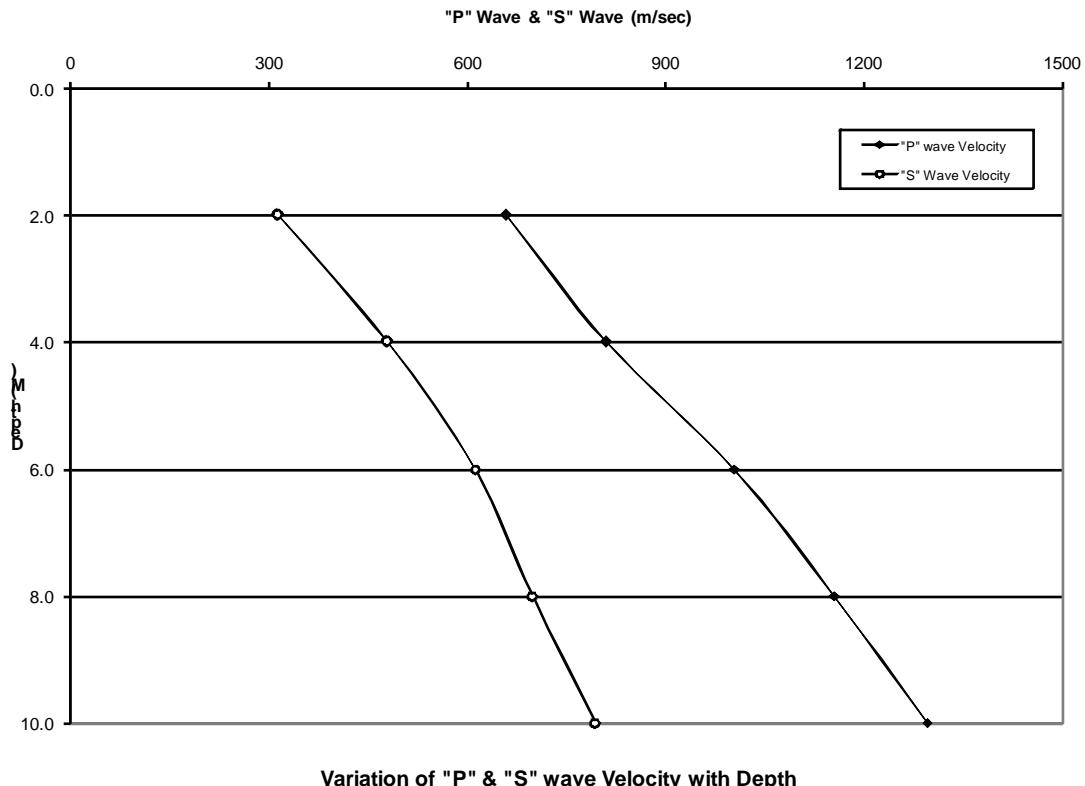
Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($\text{kN} \cdot \text{s}^2/\text{m}^4$)	m $= V_p/V_s$	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	578	295	1.83	1.9593	0.324	422791	422.8	159679	159.7
4.0	1206	712	2.24	1.6938	0.232	2802360	2802.4	1136877	1136.9
6.0	1466	890	2.24	1.6472	0.208	4292263	4292.3	1776371	1776.4
8.0	1540	952	2.24	1.6176	0.191	4840340	4840.3	2032486	2032.5
10.0	1725	1085	2.24	1.5899	0.173	6191999	6192.0	2640056	2640.1

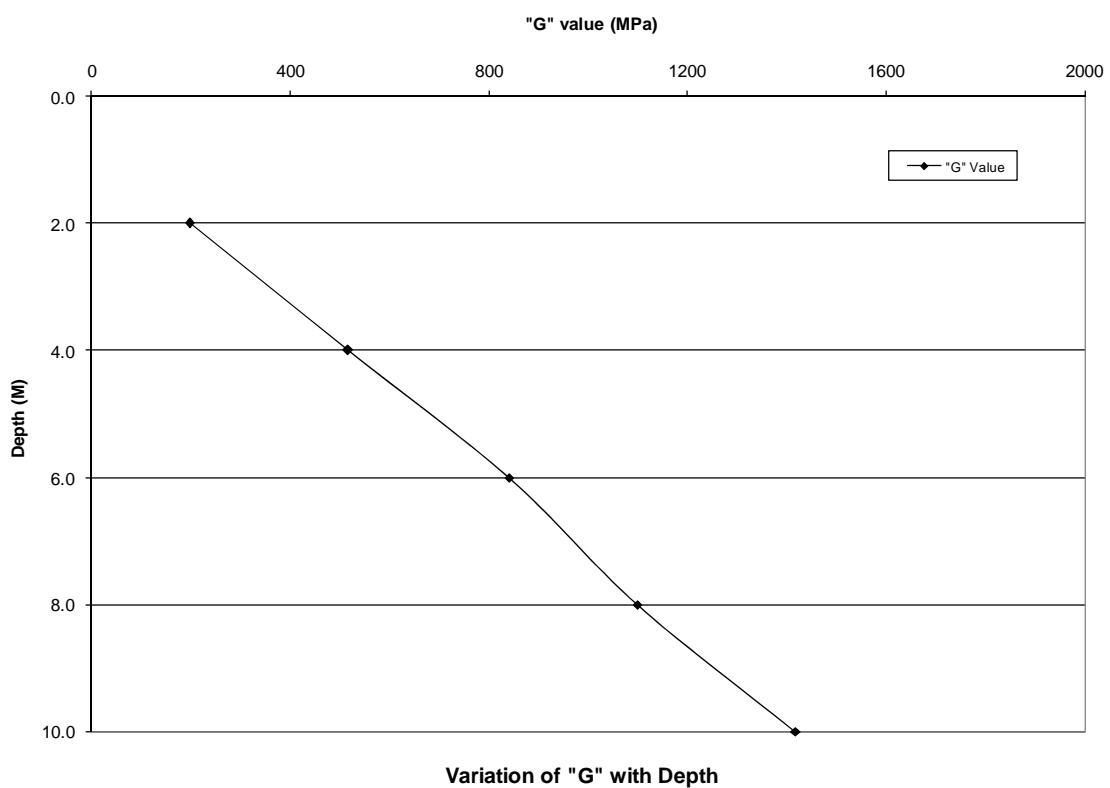
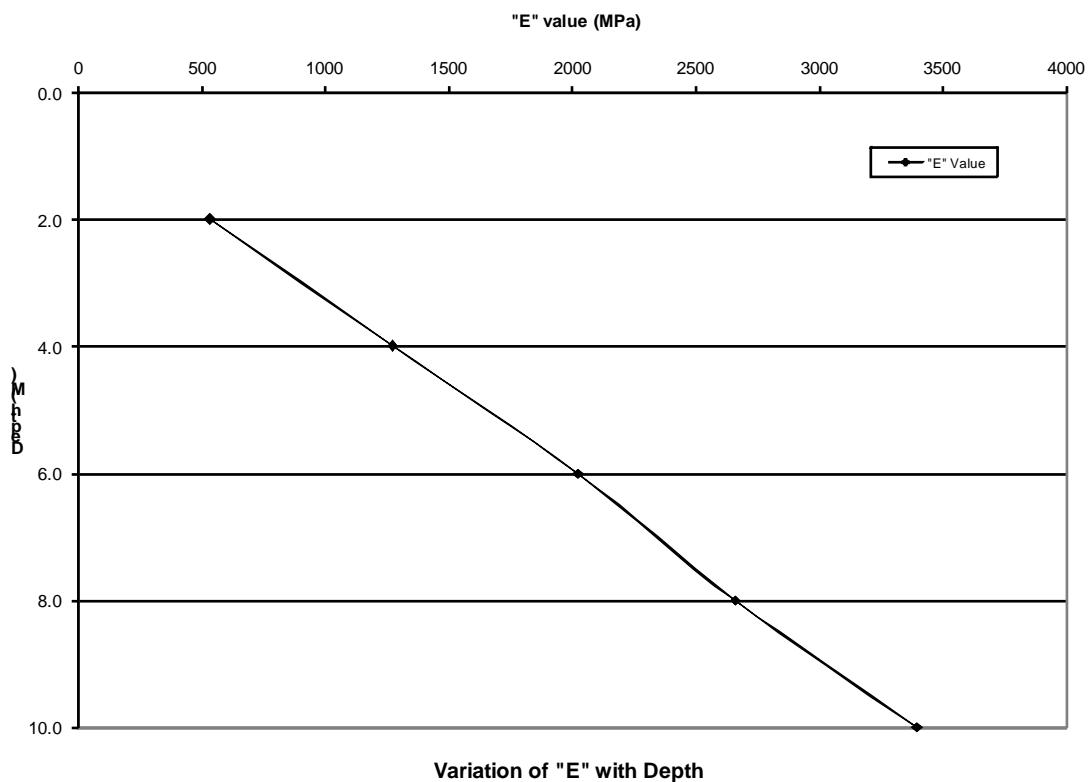




Cross Hole Shear Test: CHST-4
Calculated Values of Dynamic Parameters

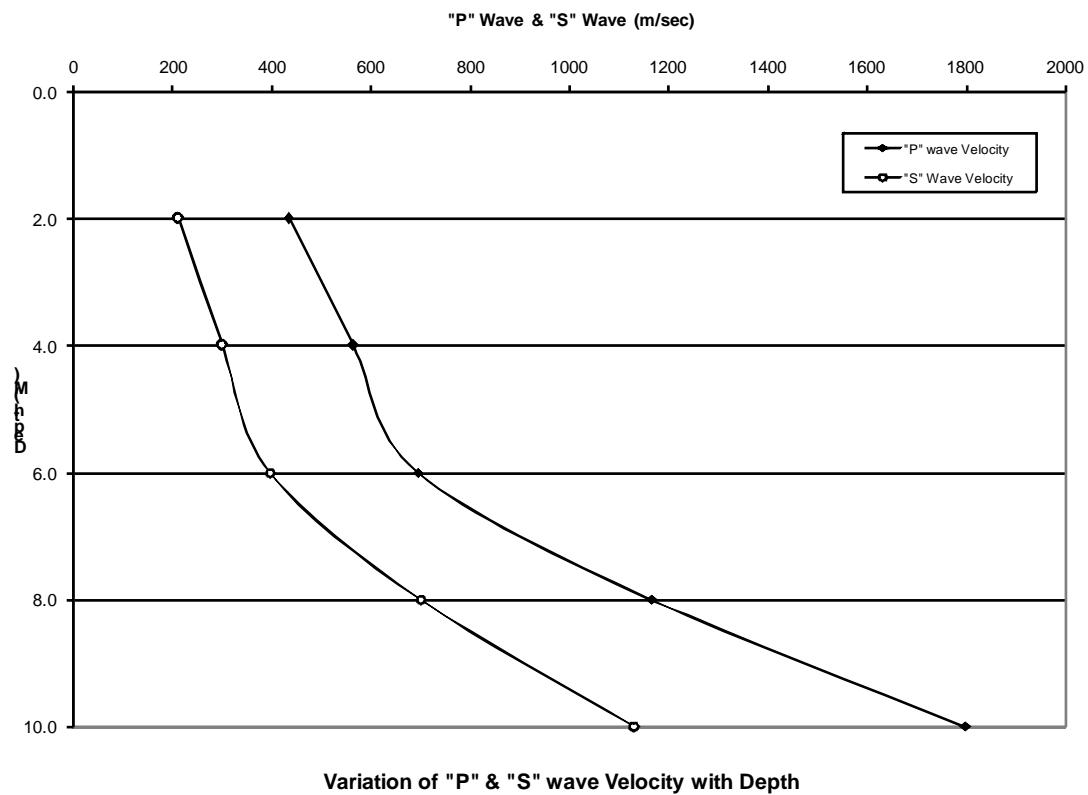
Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($\text{kN} \cdot \text{s}^2/\text{m}^4$)	m $= V_p/V_s$	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	660	315	1.99	2.0952	0.353	533527	533.5	197236	197.2
4.0	811	480	2.24	1.6896	0.230	1271502	1271.5	516697	516.7
6.0	1005	612	2.24	1.6422	0.205	2024809	2024.8	839956	840.0
8.0	1156	700	2.24	1.6514	0.211	2660422	2660.4	1098879	1098.9
10.0	1296	795	2.24	1.6302	0.198	3397029	3397.0	1417385	1417.4

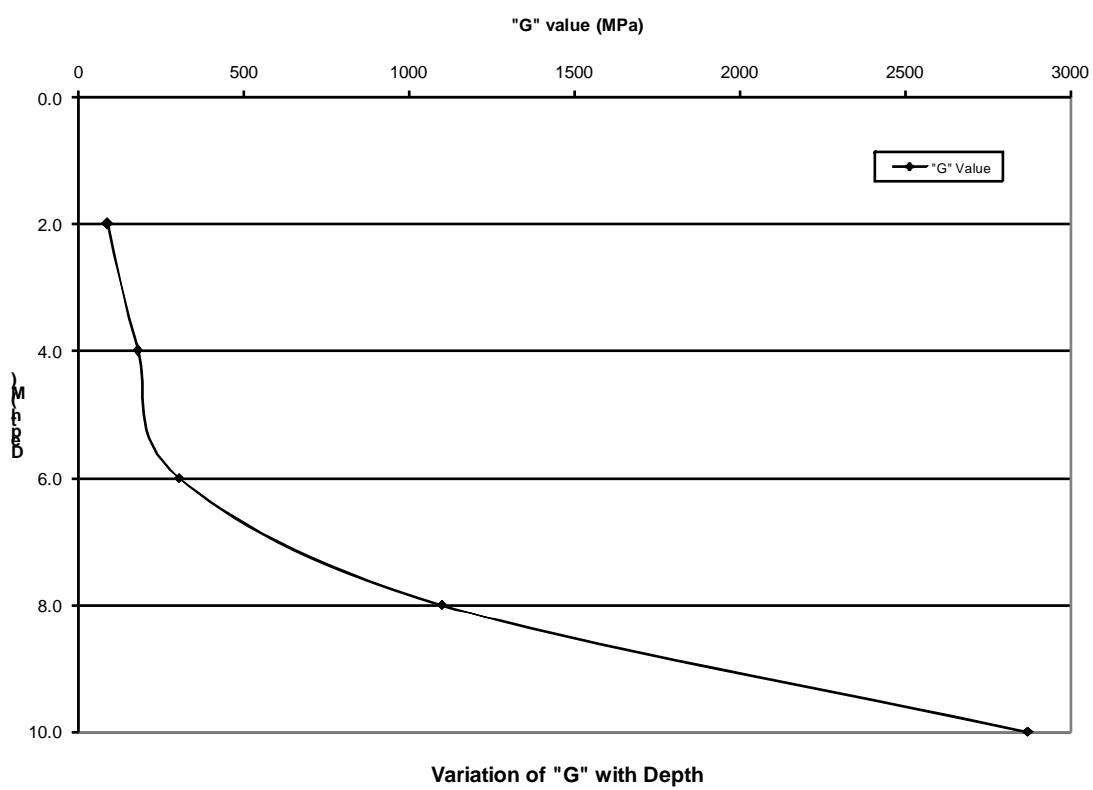
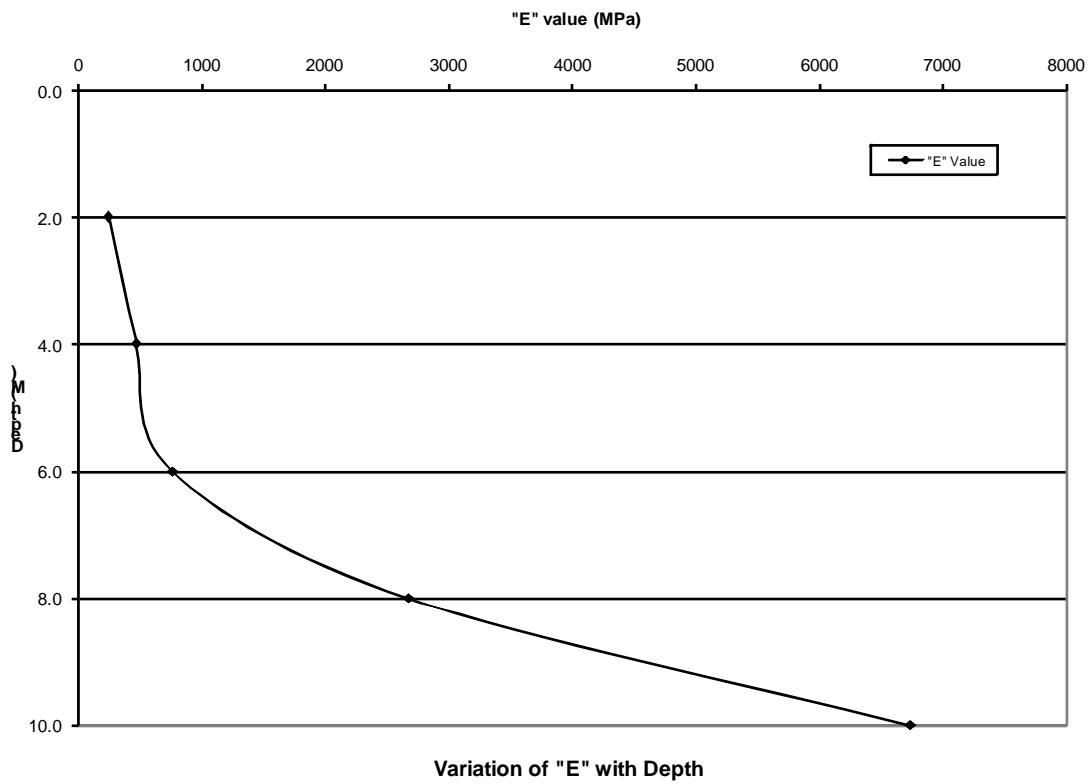




Cross Hole Shear Test: CHST-5
Calculated Values of Dynamic Parameters

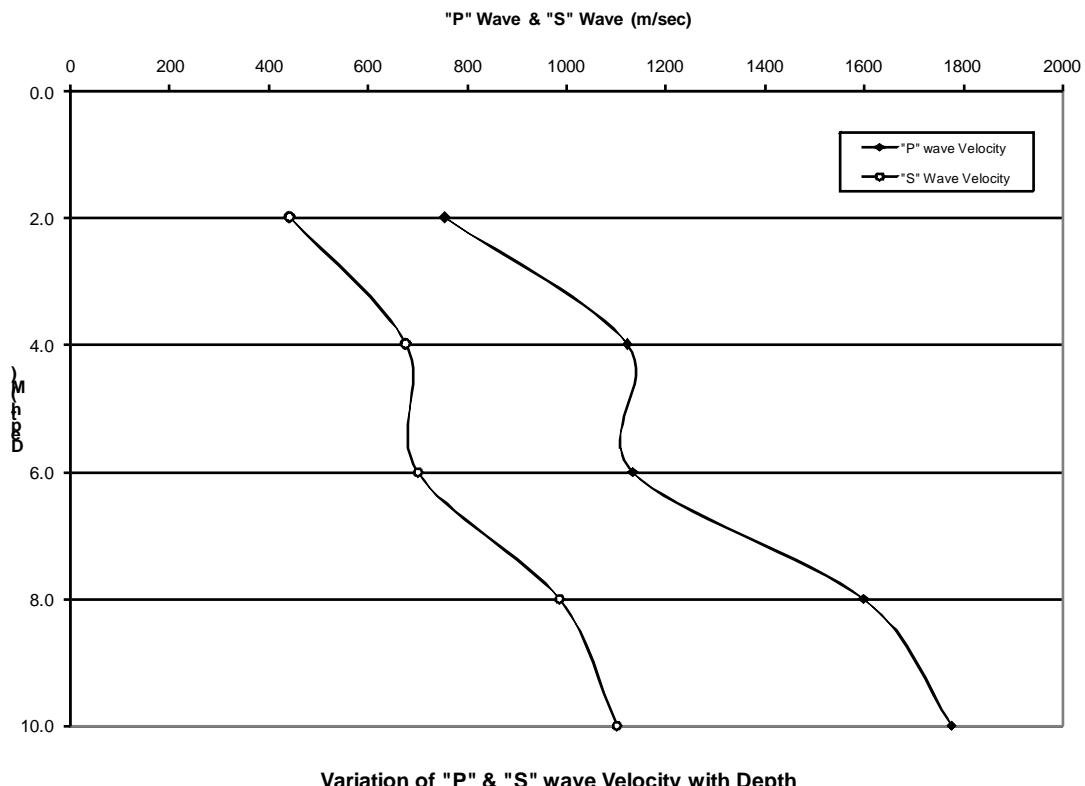
Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($\text{kN} \cdot \text{s}^2/\text{m}^4$)	m $= V_p/V_s$	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	434	212	1.99	2.0472	0.343	240017	240.0	89338	89.3
4.0	565	300	1.99	1.8833	0.304	466457	466.5	178899	178.9
6.0	695	396	1.94	1.7551	0.260	765158	765.2	303721	303.7
8.0	1167	700	2.24	1.6671	0.219	2679068	2679.1	1098879	1098.9
10.0	1800	1132	2.24	1.5901	0.173	6741023	6741.0	2873734	2873.7

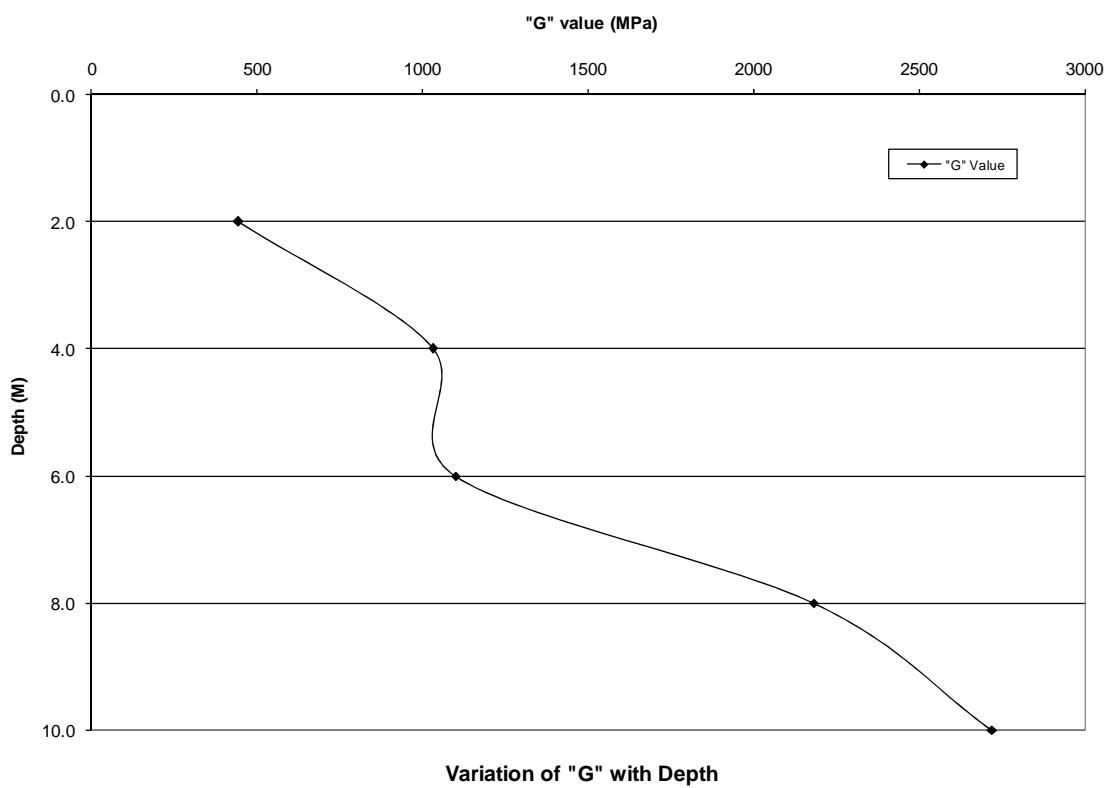
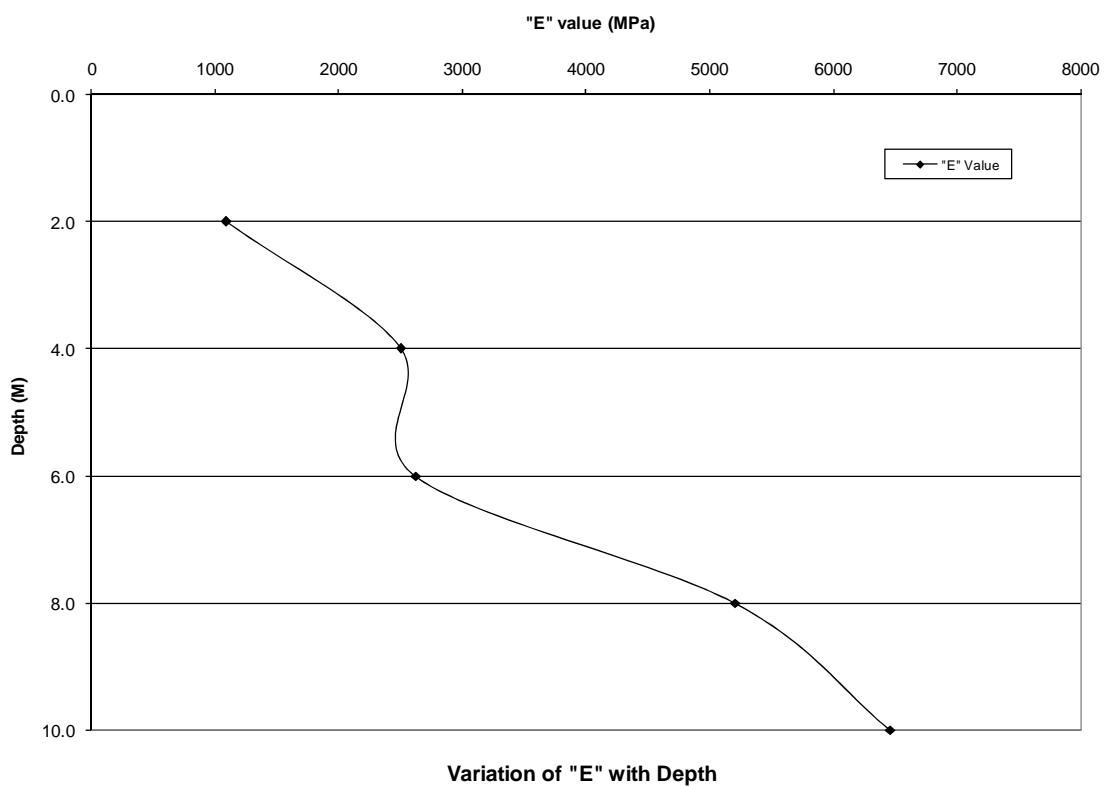




Cross Hole Shear Test: CHST-6
Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($\text{kN} \cdot \text{s}^2/\text{m}^4$)	m $= V_p/V_s$	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	755	444	2.24	1.7005	0.236	1092572	1092.6	442099	442.1
4.0	1123	678	2.24	1.6563	0.213	2501388	2501.4	1030892	1030.9
6.0	1135	700	2.24	1.6214	0.193	2622076	2622.1	1098879	1098.9
8.0	1600	986	2.24	1.6227	0.194	5205820	5205.8	2180256	2180.3
10.0	1777	1101	2.24	1.6140	0.188	6461668	6461.7	2718494	2718.5





LIST OF CONTENTS

<u>SUBJECT</u>	<u>SHEET NUMBER</u>
PART I: FIELD TEST RESULTS	A1
Bore Log Data Sheet	A2 – A115
Pit Log of PLT, CPLT & TP	A117 – A121
Penetration Tests	A122 – A124
Field Density Test Results	A125
Field Permeability Test Results	A126
PART II: LABORATORY TEST RESULTS	A127
Laboratory Soil Test Results	A129 – A137
Laboratory Rock Test Results	A138 – A144
Swelling Test Results	A145
Summarised Laboratory CBR & Compaction Test Results	A146
PART III: CHARTS & GRAPHS	A147
Strength Curves	A148 – A151
e – Logp Curves	A152 – A155
Grain Size Distribution Curves	A156 – A177
Laboratory CBR & Compaction Curves	A178 – A182
PART IV: SAMPLE CALCULATION	A183
Field Permeability Test	A184 – A185
PART V: PHOTOGRAPHS	A186

PART I: FIELD TEST RESULTS

Job No : 4371

Created by : SKD

Created on : 10/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.1**Co-ordinates E=950
N=1900

Field Test	Nos	Samples	Nos	Commencement Date :	19/01/2020
Penetrometer (SPT)	5	Undisturbed (UDS)	2	Completion Date :	21/01/2020
Cone (Pc)		Penetrometer (SPT)	5	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	158.330 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	7.10 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN.	= 15cm	Ref. No
0.00m			1	1	DS-1 0.50
			1	1	DS-2 1.00
			1	1	SPT-1 1.50–1.95
Filled up with dark grey fly ash.			1	1	UDS-1 2.50–2.95
			1	1	SPT-2 2.95–3.40
			1	1	DS-3 4.00
			1	1	SPT-3 4.50–4.95
			1	1	*UDS-2 5.50–5.95
Reddish brown, sandy silt with clay binder.		I	3	3	SPT-4 6.20–6.65
7.10m			3	3	*SPT-5 7.10–7.15
6.50m			50	5.0 cm	R1 CR=27%/RQD=NII
			50	5.0 cm	R2 CR=25%/RQD=NII
			50	5.0 cm	R3 CR=38%/RQD=Nil
			50	5.0 cm	R4 CR=48%/RQD=14%
			50	5.0 cm	R5 CR=40%/RQD=Nil
			50	5.0 cm	R6 CR=50%/RQD=18%
			50	5.0 cm	R7 CR=38%/RQD=NII
			50	5.0 cm	R8 CR=32%/RQD=NII
			50	5.0 cm	R9 CR=48%/RQD=13%
			50	5.0 cm	R10 CR=39%/RQD=30%
			50	5.0 cm	R11 CR=52%/RQD=14%
			50	5.0 cm	R12 CR=53%/RQD=26%
			50	5.0 cm	R13 CR=54%/RQD=18%
			50	5.0 cm	R14 CR=42%/RQD=Nil
			50	5.0 cm	R15 CR=45%/RQD=22%
			50	5.0 cm	R16 CR=52%/RQD=Nil
			50	5.0 cm	R17 CR=68%/RQD=13%
Highly to moderately weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.		V			19.25
14.75m					
Moderately weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.		VI			
19.25m		VI			
Slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.20.00m N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET

BORE HOLE NO.2

Co-ordinates E=978
N=1900

Field Test	Nos	Samples	Nos	Commencement Date :	21/01/2020
				Completion Date :	23/01/2020
				Bore Hole Diameter :	150mm / NX.
Penetrometer (SPT)	5	Undisturbed (UDS)	2	Level Of Ground :	155.843 m.
Cone (Pc)		Penetrometer (SPT)	5	Water Struck At :	
Vane (V)		Disturbed (DS)	3	Standing Water Level :	7.40 m
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN.	= 15cm	Ref. No Depth (m)
0.00m					DS-1 0.50
Filled up with deep grey, fly ash.			1	1 2	DS-2 1.00
2.00m			4	7 12	SPT-1 1.50–1.95
Very stiff, deep to reddish grey, silty clay / clayey silt. Observed decomposed rock & fine sand mixture.		III	6	5 14	UDS-1 2.50–2.95
5.00m			29	38 48	SPT-2 2.95–3.40
Very dense, reddish brown silty sand with traces of clay binder.		II	54	7.0 cm Refusal	DS-3 4.00
7.00m					SPT-3 4.50–4.95
Highly to moderately weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone		V			*UDS-2 5.50–5.95
13.75m					SPT-4 6.20–6.65
Moderately to slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		VI			*SPT-5 7.00–7.07 7.00
19.00m					R1 CR=29%/RQD=NII 7.75
Slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone. N.B. – '*' means sample could not be recovered.		VI			R2 CR=34%/RQD=NII 8.50
20.70m					R3 CR=38%/RQD=NII 9.25
					R4 CR=44%/RQD=NII 10.00
					R5 CR=33%/RQD=NII 10.75
					R6 CR=41%/RQD=18% 11.50
					R7 CR=50%/RQD=19% 12.25
					R8 CR=41%/RQD=13% 13.00
					R9 CR=47%/RQD=26% 13.75
					R10 CR=66%/RQD=16% 14.50
					R11 CR=77%/RQD=17% 15.25
					R12 CR=61%/RQD=41% 16.00
					R13 CR=53%/RQD=25% 16.75
					R14 CR=58%/RQD=13% 17.50
					R15 CR=59%/RQD=52% 18.25
					R16 CR=48%/RQD=NII 19.00
					R17 CR=72%/RQD=41% 20.00
					R18 CR=68%/RQD=43% 20.70

BORE LOG DATA SHEET

BORE HOLE NO.3

Co-ordinates E=945
N=1870

Field Test	Nos	Samples	Nos	Commencement Date : 07/02/2020		
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Completion Date : 09/02/2020		
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	4	Level Of Ground : 158.410 m.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level : 7.00 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m Filled up with deep grey, fly ash.		1	2	2	DS-1 DS-2 SPT-1 DS-3 UDS-1 SPT-2	0.50 1.00 1.50–1.95 2.50 3.00–3.45 3.45–3.90
4.20m Reddish brown, silty sand with decomposed rock pcs.	II	2	2	3	DS-4 *SPT-3 R1	4.50 5.00–5.10 CR=24%/RQD=Nil
5.00m Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	IV	54	10.0	cm Pentn.	Refusal R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20	5.00 CR=38%/RQD=NII CR=34%/RQD=NII CR=51%/RQD=Nil CR=40%/RQD=NII CR=49%/RQD=17% CR=53%/RQD=15% CR=57%/RQD=32% CR=39%/RQD=19% CR=41%/RQD=15% CR=48%/RQD=31% CR=53%/RQD=44% CR=45%/RQD=14% CR=61%/RQD=36% CR=56%/RQD=29% CR=64%/RQD=53% CR=55%/RQD=24% CR=67%/RQD=27% CR=61%/RQD=31% CR=73%/RQD=41%
5.75m Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V					5.00 5.75 6.50 7.25 8.00 8.75 9.50 10.25 11.00 11.75 12.50 13.25 14.00 14.75 15.50 16.25 17.00 17.75 18.50 19.25 20.00
14.75m Moderately to slightly weathered, reddish grey, fine to medium grained, fractured sandstone.	VI					
N.B. — '*' means sample could not be recovered.		20.00m				

BORE LOG DATA SHEET

BORE HOLE NO.4

Co-ordinates E=978
N=1870

Field Test	Nos	Samples	Nos	Commencement Date : 09/02/2020
				Completion Date : 11/02/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 156.078 m.
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	4	Standing Water Level : 5.30 m.
Vane (V)		Disturbed (DS)	4	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m				Ref. No Depth (m)
Filled up with deep grey, fly ash.				DS-1 0.50
			1 1 2 3	DS-2 1.00
			1 2 2 4	SPT-1 1.50-1.95
Medium dense, reddish brown, sandy silt / silty sand with decomposed rock. Observed clay binder.		I	3 8 17 25	DS-3 2.50
4.30m			52 8.0 cm Pentn.	UDS-1 2.80-3.25
5.00m			>Refusal	SPT-2 3.25-3.70
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone		IV	NX rotary drilling from 5.00m to 20.00m	DS-4 4.00
8.00m				SPT-3 4.40-4.85
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		V		*SPT-4 5.00-5.08 5.00
16.25m				CR=21%/RQD=Nil 5.75
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		VI		R1 CR=22%/RQD=NII 6.50
17.00m				R2 CR=27%/RQD=NII 7.25
Moderately to slightly weathered, reddish brown, fine to medium grained, moderately fractured sandstone.		VI		R3 CR=24%/RQD=Nil 8.00
N.B. - '*' means sample could not be recovered.				R4 CR=33%/RQD=NII 8.75
20.00m				R5 CR=48%/RQD=15% 9.50
				R6 CR=24%/RQD=NII 10.25
				R7 CR=37%/RQD=28% 11.00
				R8 CR=39%/RQD=NII 11.75
				R9 CR=40%/RQD=NII 12.50
				R10 CR=44%/RQD=33% 13.25
				R11 CR=48%/RQD=23% 14.00
				R12 CR=49%/RQD=40% 14.75
				R13 CR=49%/RQD=24% 15.50
				R14 CR=55%/RQD=25% 16.25
				R15 CR=55%/RQD=29% 17.00
				R16 CR=61%/RQD=33% 17.75
				R17 CR=59%/RQD=16% 18.50
				R18 CR=57%/RQD=19% 19.25
				R19 CR=71%/RQD=39% 20.00
				R20

BORE LOG DATA SHEET

BORE HOLE NO.5

Co-ordinates E=1092
N=824

Field Test	Nos	Samples	Nos	Commencement Date : 08/02/2020
				Completion Date : 10/02/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Level Of Ground : 151.993 m.
Cone (Pc)		Penetrometer (SPT)	2	Water Struck At :
Vane (V)		Disturbed (DS)	3	Standing Water Level : 1.75 m.
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
				Ref. No Depth (m)
0.00m		I		DS-1 0.50
Reddish brown, fine grained, sandy silt with kankar & calcareous nodules.		I		DS-2 1.00
Medium dense, brownish grey, sandy silt with kankar & calcareous nodules.		I	6 8 10 18	SPT-1 1.50–1.95
2.00m		I	50 4.0 cm Pentn.	DS-3 2.30
Brownish grey to reddish brown, silty sand with calcareous nodules & decomposed rock fragments.			NX rotary drilling from 2.50m to 15.15m	*SPT-2 2.50–2.54 2.50 R1 CR=76%/RQD=66%↓ 3.25
2.50m				R2 CR=93%/RQD=57%↓ 4.00
3.25m				R3 CR=64%/RQD=60%↓ 4.75
4.00m				R4 CR=80%/RQD=78%↓ 5.50
4.75m				R5 CR=66%/RQD=58%↓ 6.25
5.50m				R6 CR=57%/RQD=44%↓ 7.00
6.25m				R7 CR=66%/RQD=60%↓ 7.75
7.00m				R8 CR=64%/RQD=22%↓ 8.50
7.75m				R9 CR=70%/RQD=54%↓ 9.25
8.50m				R10 CR=94%/RQD=20%↓ 10.00
9.25m				R11 CR=96%/RQD=77%↓ 10.75
10.00m				R12 CR=98%/RQD=92%↓ 11.50
10.75m				R13 CR=93%/RQD=78%↓ 12.50
11.50m				R14 CR=80%/RQD=52%↓ 13.00
12.50m				R15 CR=97%/RQD=84%↓ 13.75
13.00m				R16 CR=98%/RQD=74%↓ 14.50
13.75m				R17 CR=98%/RQD=66%↓ 15.15
14.50m				
15.15m				
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET

BORE HOLE NO.6

Co-ordinates E=953
N=1823

Field Test	Nos	Samples	Nos	Commencement Date :	11/02/2020
Penetrometer (SPT)	5	Undisturbed (UDS)	1	Completion Date :	13/02/2020
Cone (Pc)		Penetrometer (SPT)	5	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	5	Level Of Ground :	158.449 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	6.70 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN.	= 15cm	Ref. No Depth (m)
0.00m			1	2	DS-1 0.50
			1	2	DS-2 1.00
Filled up with deep grey, fly ash.			1	2	SPT-1 1.50–1.95
			1	2	DS-3 2.50
			1	2	UDS-1 3.00–3.45
			1	2	SPT-2 3.45–3.90
			1	2	DS-4 4.50
5.50m		II	21	4152	SPT-3 5.00–5.45
Very dense, reddish brown to yellowish grey, silty sand / sandy silt with decomposed rock & clay binder.			1	2	DS-5 5.70
			1	2	SPT-4 6.00–6.45
7.00m			53	10.0 cm Penth.	*SPT-5 7.00–7.10 7.00
			21	4152	R1 CR=36%/RQD=25% 7.75
			1	2	R2 CR=26%/RQD=16% 8.50
			1	2	R3 CR=28%/RQD=Nil 9.25
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		V	53	10.0 cm Penth.	R4 CR=29%/RQD=15% 10.00
			21	4152	R5 CR=34%/RQD=13% 10.75
			1	2	R6 CR=27%/RQD=16% 11.50
13.00m			53	10.0 cm Penth.	R7 CR=29%/RQD=Nil 12.25
			21	4152	R8 CR=49%/RQD=38% 13.00
NX rotary drilling from 7.00m to 13.00m					
N.B. – '*' means sample could not be recovered.					

BORE LOG DATA SHEET

BORE HOLE NO.7

Co-ordinates E=908
N=1823

Field Test	Nos	Samples	Nos	Commencement Date :	25/01/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Completion Date :	27/01/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	158.621 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	7.10 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN. = 15cm		Ref. No Depth (m)
0.00m			1 2 3	5	DS-1 0.50
Filled up with dark grey, fly ash.			1 2 2	4	DS-2 1.00
					SPT-1 1.50–1.95
4.50m		52	5.0 cm Penth.	Refusal	DS-3 2.50
Highly to moderately weathered, reddish grey, fine to medium grained, highly to moderately fractured sandstone.		V	NX rotary drilling from 4.50m to 15.80m		
9.75m					*SPT-3 4.50–4.55 4.50
Moderately weathered, reddish grey, fine to medium grained, highly to moderately fractured sandstone.		VI			R1 CR=34%/RQD=Nil 5.25
15.80m					R2 CR=35%/RQD=Nil 6.00
N.B. – '*' means sample could not be recovered.					R3 CR=32%/RQD=16% 6.75
					R4 CR=45%/RQD=Nil 7.50
					R5 CR=52%/RQD=41% 8.25
					R6 CR=47%/RQD=16% 9.00
					R7 CR=44%/RQD=Nil 9.75
					R8 CR=60%/RQD=53% 10.50
					R9 CR=56%/RQD=26% 11.25
					R10 CR=56%/RQD=22% 12.00
					R11 CR=60%/RQD=33% 12.75
					R12 CR=49%/RQD=16% 13.50
					R13 CR=60%/RQD=Nil 14.25
					R14 CR=49%/RQD=43% 15.00
					R15 CR=54%/RQD=13% 15.80

BORE LOG DATA SHEET

BORE HOLE NO.8

Co-ordinates E=933
N=1803

Field Test	Nos	Samples	Nos	Commencement Date :	24/01/2020
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date :	25/01/2020
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	158.761 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	7.10 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN. = 15cm		Ref. No Depth (m)
0.00m					DS-1 0.50
Filled up with deep grey, fly ash.			1 2 2	4	DS-2 1.00
3.50m			11 21 23	44	SPT-1 1.50–1.95
Very dense, brownish grey to reddish brown, silty sand with decomposed rock pieces.		II	27 38 59	97	UDS-1 2.50–2.95
5.00m			58	Refusal	SPT-2 2.95–3.40
Highly to moderately weathered, light grey to reddish brown, fine grained, highly to moderately fractured sandstone.		V	5.0 cm Penth.	NX rotary drilling from 5.00m to 15.50m	DS-3 4.00
11.75m					SPT-3 4.50–4.95
Moderately weathered, light grey to reddish brown, fine grained, highly to moderately fractured sandstone.		VI			*SPT-4 5.00–5.05 5.00
13.25m					R1 CR=30%/RQD=Nil 5.75
Slightly weathered to fresh, reddish brown, fine to medium grained, fractured sandstone		VI			R2 CR=29%/RQD=NII 6.50
15.50m					R3 CR=33%/RQD=NII 7.25
N.B. – '*' means sample could not be recovered.					R4 CR=46%/RQD=20% 8.00
					R5 CR=40%/RQD=NII 8.75
					R6 CR=31%/RQD=13% 9.50
					R7 CR=37%/RQD=22% 10.25
					R8 CR=44%/RQD=21% 11.00
					R9 CR=42%/RQD=22% 11.75
					R10 CR=60%/RQD=45% 12.50
					R11 CR=60%/RQD=24% 13.25
					R12 CR=72%/RQD=17% 14.00
					R13 CR=84%/RQD=60% 14.75
					R14 CR=74%/RQD=34% 15.50

BORE LOG DATA SHEET

BORE HOLE NO.10

Co-ordinates E=972
N=1761

Field Test	Nos	Samples	Nos	Commencement Date :	23/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	25/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground :	154.628 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.60 m.
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
0.00m					
Dense, brownish grey, silty sand with decomposed rock dust & rock pieces.	II	9	15 27	42 >100	DS-1 0.50 DS-2 1.00 SPT-1 1.50–1.95
2.50m		54	10.0 cm	Pentn.	*SPT-2 2.50–2.60 R1 CR=33%/RQD=NII 3.25
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V	NX	rotary drilling from 2.50m to 15.25m		R2 CR=37%/RQD=NII 4.00 R3 CR=50%/RQD=16% 4.75 R4 CR=25%/RQD=NII 5.50 R5 CR=45%/RQD=21% 6.25 R6 CR=54%/RQD=34% 7.00 R7 CR=60%/RQD=NII 7.75 R8 CR=72%/RQD=33% 8.50 R9 CR=60%/RQD=34% 9.25 R10 CR=69%/RQD=25% 10.00 R11 CR=73%/RQD=60% 10.75 R12 CR=71%/RQD=18% 11.50 R13 CR=73%/RQD=36% 12.25 R14 CR=85%/RQD=56% 13.00 R15 CR=91%/RQD=70% 13.75 R16 CR=71%/RQD=44% 14.50 R17 CR=76%/RQD=68% 15.25
6.25m					
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	VI				
7.75m					
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.	VI				
15.25m					
N.B. — '*' means sample could not be recovered.					

BORE LOG DATA SHEET

BORE HOLE NO.11

Co-ordinates E=1012
N=1614

Field Test	Nos	Samples	Nos	Commencement Date :	21/01/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date :	22/01/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	4	Level Of Ground :	158.123 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	7.70 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN. = 15cm		Ref. No Depth (m)
0.00m		I	9	13 17	DS-1 0.50
Medium dense, yellowish grey, silty sand with clay binder.			30		DS-2 1.00
2.50m		III	6	11 13	SPT-1 1.50-1.95
Very stiff, yellowish grey, silty clay with sand mixture.			24		DS-3 2.50
4.50m		IV	50	Refusal	SPT-2 3.00-3.45
Highly weathered, whitish grey to reddish brown, fine to medium grained, moderately fractured sandstone			7.0 cm Penth.		DS-4 4.00
5.25m					*SPT-3 4.50-4.57 4.50
Highly to moderately weathered, whitish grey to reddish brown, fine to medium grained, moderately fractured sandstone.		V	NX	rotary drilling from 4.50m to 15.00m	R1 CR=24%/RQD=Nil 5.25
7.50m		VI			R2 CR=45%/RQD=Nil 6.00
Moderately weathered, whitish grey to reddish brown, fine to medium grained, moderately fractured sandstone.					R3 CR=57%/RQD=13% 6.75
9.00m		VI			R4 CR=40%/RQD=Nil 7.50
Slightly weathered to fresh, whitish grey to reddish brown, fine to medium grained, fractured sandstone.					R5 CR=58%/RQD=28% 8.25
15.00m					R6 CR=56%/RQD=Nil 9.00
N.B. - '*' means sample could not be recovered.					R7 CR=69%/RQD=Nil 9.75
					R8 CR=73%/RQD=36% 10.50
					R9 CR=80%/RQD=49% 11.25
					R10 CR=77%/RQD=24% 12.00
					R11 CR=89%/RQD=65% 12.75
					R12 CR=74%/RQD=42% 13.50
					R13 CR=85%/RQD=60% 14.25
					R14 CR=96%/RQD=63% 15.00

BORE LOG DATA SHEET			BORE HOLE NO.12			Co-ordinates E=1241.000 N=1568.000	
Field Test	Nos	Samples	Nos	Commencement Date : 27/12/2019 Completion Date : 30/12/2019 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.104 M. Water Struck At : Standing Water Level : 4.00 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	4				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Top soil consist of yellowish brown, silty sand / sandy silt mixed with gravel, boulder. Obs. light clay			(I)	6 9 17 26		DS-1	0.50
1.50m				8 11 11 22		DS-2	1.00
Medium dense, yellowish brown to reddish brown clayey silty sand with decomposed rock pieces.						SPT-1	1.50–1.95
4.30m			(II)	10 21 32 53		*UDS-1	2.50–2.95
Very dense, whitish grey, silty sand with brown spot.						SPT-2	3.00–3.45
5.70m			(V)	55	Refusal 4.0 cm Pentn. NX. drilling from 5.70m to 16.00m	DS-3	4.00
Highly weathered, whitish grey to light yellowish brown, fine to medium grained, moderately fractured sandstone.						SPT-3	4.50–4.95
7.25m			(VI)			DS-4	5.50
Moderately weathered, whitish grey to light yellowish brown, fine to medium grained, moderately fractured sandstone.						*SPT-4	5.70–5.74 5.70
8.50m						R1	CR=31% RQD=NIL
						R2	CR=37% RQD=NIL
						R3	CR=53% RQD=47%
						R4	CR=59% RQD=37%

BORE LOG DATA SHEET **BORE HOLE NO.12** Co-ordinates E=1241.000
N=1568.000

Field Test	Nos	Samples	Nos	Commencement Date : 27/12/2019 Completion Date : 30/12/2019 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.104 M. Water Struck At : Standing Water Level : 4.00 m.		
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES	
			EACH DIVN. = 15cm	Ref. No	Depth (m)	
Moderately weathered, whitish grey to light yellowish brown, fine to medium grained, moderately fractured sandstone.	(VI)			R5	8.75	CR=60% RQD=20%
				R6	9.50	CR=64% RQD=28%
				R7	10.25	CR=37% RQD=NIL
				R8	11.00	CR=96% RQD=79%
				R9	11.75	CR=92% RQD=77%
				R10	12.50	CR=82% RQD=80%
Slightly weathered to fresh, fine to medium grained, moderately fractured sandstone.	(VI)			R11	14.00	CR=76% RQD=50%
				R12	15.00	CR=77% RQD=76%
					16.00	
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO.13			Co-ordinates E=1229.000 N=1551.000	
Field Test	Nos	Samples	Nos	Commencement Date : 27/12/2019 Completion Date : 31/12/2019 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.218 M. Water Struck At : Standing Water Level : 4.65 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	5				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m			(I)	10 14 15	29	Ref. No	Depth (m)
Top soil consist of brownish grey, silty sand with light clay. Obs. kankars & gravel.						DS-1	0.50
1.20m						DS-2	1.00
Medium dense, reddish brown / yellowish brown, silty sand / sandy silt. Obs. kankars, whitish spots & decomposed rock dust.						SPT-1	1.50-1.95
3.00m			(II)	11 21 50 5.0 cm Pentn.	>100	DS-3	2.50
Very dense, reddish brown / yellowish brown, silty sand / sandy silt. Obs. kankars, whitish spots & decomposed rock dust.						SPT-2	3.00-3.35
6.00m			(V)	28 53 NX. drilling from 6.00m to 6.50m	80 >100 5.0 cm Pentn.	DS-4	4.00
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone. Obs. whitish spots.						SPT-3	4.50-4.95
7.50m			(VI)			DS-5	5.50
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone. Obs. whitish spots.						SPT-4	6.00-6.20
8.50m						R1	6.00
						R2	CR=39% RQD=16%
						R3	CR=47% RQD=NIL
							7.50
							8.25

BORE LOG DATA SHEET

BORE HOLE NO.13

Co-ordinates E=1229.000
N=1551.000

Field Test

Nos

Samples

Nos

Commencement Date :

27/12/2019

Completion Date :

31/12/2019

Bore Hole Diameter :

150 mm./N.X

Penetrometer (SPT)

4

Undisturbed (UDS)

0

Level Of Ground :

155.218 M.

Cone (Pc)

4

Penetrometer (SPT)

5

Water Struck At :

4.65 m.

Disturbed (DS)

5

Water Sample (WS)

0

Standing Water Level :

4.65 m.

DESCRIPTION

SYMBOL

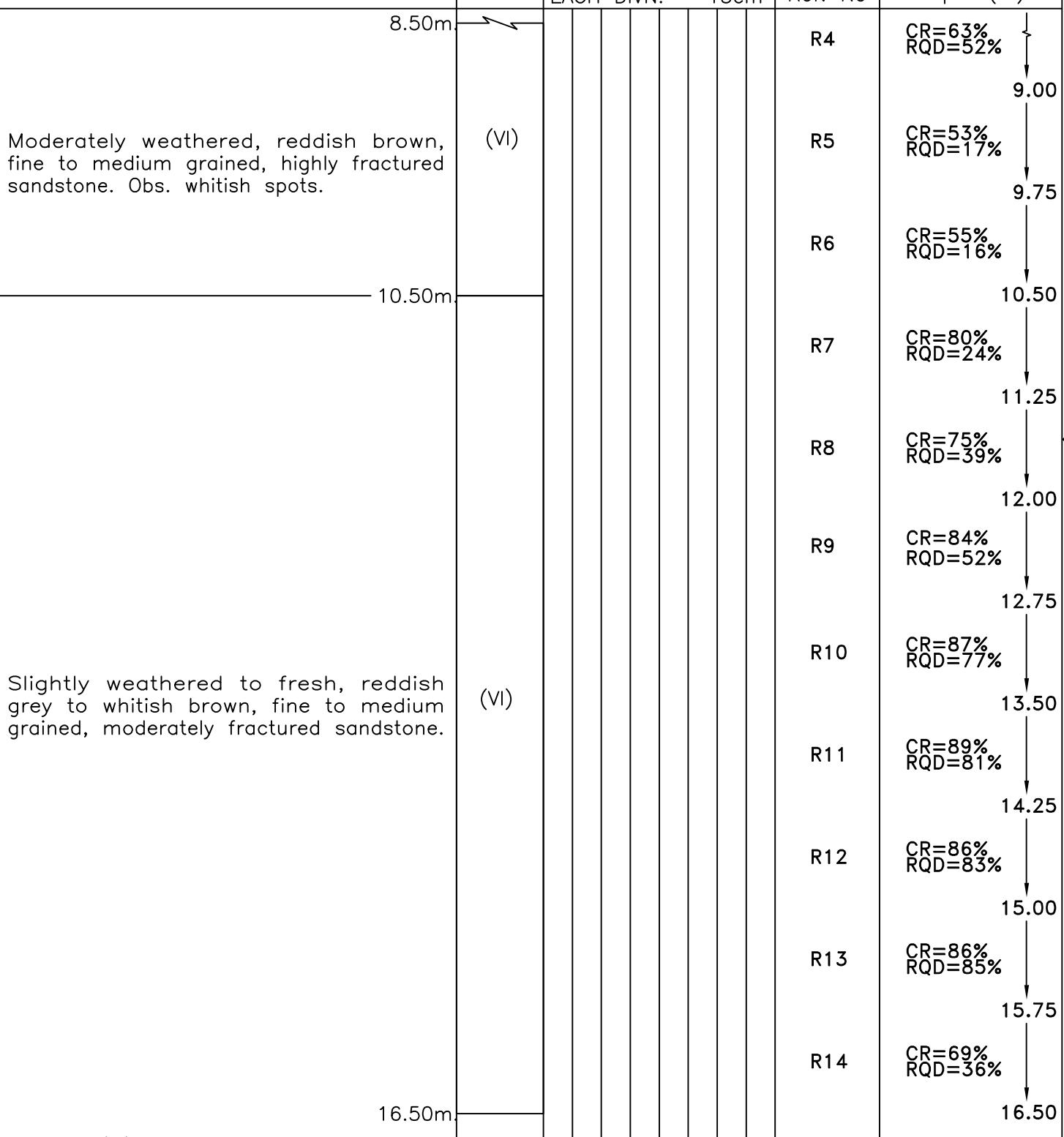
N-VALUE

EACH DIVN. = 15cm

SAMPLES

Ref. No

Depth (m)



BORE LOG DATA SHEET**BORE HOLE NO.14**Co-ordinates E=1235.000
N=1520.000

Field Test	Nos	Samples	Nos	Commencement Date : 31/12/2019 Completion Date : 02/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.722 M. Water Struck At : Standing Water Level : 4.65 m.				
BORE LOG DATA SHEET		BORE HOLE NO.14			Co-ordinates E=1235.000 N=1520.000			
Penetrometer (SPT)	4	Undisturbed (UDS)	0					
Cone (Pc)		Penetrometer (SPT)	4					
Vane (V)		Disturbed (DS)	4					
		Water Sample (WS)	0					
DESCRIPTION		SYMBOL	N-VALUE			SAMPLES		
			EACH DIVN. = 15cm			Ref. No	Depth (m)	
0.00m								
Top soil consist of brownish grey, silty sand. Obs. kankars, gravel & light clay						DS-1	0.50	
						DS-2	1.00	
1.20m			3	5	5	10		
Loose to medium dense, reddish brown, silty sand. Obs. kankars.		(I)	5	9	17	26	SPT-1 1.50–1.95	
4.00m							DS-3 2.50	
Very dense, blackish grey, clayey silty sand. Obs. kankars & sand.		(II)	12	25	38	63	SPT-2 3.00–3.45	
5.30m			52	Refusal 4.0 cm Pentn. NX. drilling from 5.00m to 17.00m			*SPT-4 5.30–5.34	5.30
Highly to moderately weathered, light yellowish brown to reddish grey, fine grained to medium grained, highly fractured sandstone.		(V)				R1 CR=35% RQD=NIL	6.00	
10.50m						R2 CR=33% RQD=NIL	6.75	
						R3 CR=28% RQD=NIL	7.50	
						R4 CR=44% RQD=17%	8.25	
						R5 CR=41% RQD=NIL	9.00	
						R6 CR=64% RQD=24%	9.75	
						R7 CR=44% RQD=33%	10.50	

Job No : 4371

Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET		BORE HOLE NO.14		Co-ordinates E=1235.000 N=1520.000
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Field Test	Nos	Samples	Nos	Commencement Date : 31/12/2019 Completion Date : 02/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.722 M. Water Struck At : Standing Water Level : 4.65 m.		
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
Moderately weathered, light yellowish brown to reddish grey, fine grained to medium grained, highly fractured sandstone.	(V)		R8	CR=73% RQD=20%		
Slightly weathered to fresh, reddish grey, fine to medium grained, moderately fractured sandstone.	(VI)		R9	CR=81% RQD=15%		
			R10	CR=73% RQD=53%		
			R11	CR=77% RQD=48%		
			R12	CR=87% RQD=45%		
			R13	CR=85% RQD=80%		
			R14	CR=86% RQD=71%		
			R15	CR=94% RQD=84%		
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO.15			Co-ordinates E=1217.000 N=1523.000	
Field Test	Nos	Samples	Nos	Commencement Date : 01/01/2020 Completion Date : 04/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.940 M. Water Struck At : Standing Water Level : 4.80 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
Top soil consist of blackish grey, silty sand with coal dust. Obs. kankars, brick bats.	0.00m		(I)	9 9 10 19		DS-1	0.50
	0.70m			22 12 14	26	DS-2	1.00
Medium dense, whitish grey, clayey sandy silt / clayey silty sand with traces of kankars. Obs. rusty spots.	4.00m					SPT-1	1.50–1.95
Very dense, whitish grey, silty sand with decomposed rock.	5.50m		(II)	32 52 4.0 cm Pentn.	>100	UDS-1	2.50–2.95
Highly weathered, reddish brown / whitish grey, fine to medium grained, highly fractured sandstone.	6.25m		(IV)	53 4.0 cm Pentn.	Refusal	SPT-2	2.95–3.40
Highly weathered, reddish brown / whitsih grey, fine to medium grained, highly fractured sandstone.	7.75m		(V)	NX. drilling from 5.50m to 17.50m		*SPT-4 R1	5.50–5.54 CR=24% RQD=NIL
Moderately weathered, reddish brown / whitsih grey, fine to medium grained, highly fractured sandstone.	10.50m		(VI)			R2	5.50 6.25 CR=28% RQD=NIL
						R3	6.25 7.00 CR=32% RQD=NIL
						R4	7.00 7.75 CR=56% RQD=16%
						R5	7.75 8.50 CR=72% RQD=52%
						R6	8.50 9.25 CR=64% RQD=16%
						R7	9.25 10.00 CR=60% RQD=32%

BORE LOG DATA SHEET

BORE HOLE NO.15

Co-ordinates E=1217.000
N=1523.000

Field Test	Nos	Samples	Nos	Commencement Date : 01/01/2020
				Completion Date : 04/01/2020
				Bore Hole Diameter : 150 mm./N.X
				Level Of Ground : 155.940 M.
				Water Struck At :
				Standing Water Level : 4.80 m.
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	
Moderately weathered, reddish brown / whitsih grey, fine to medium grained, highly fractured sandstone.		(VI)	Ref. No	
10.50m			Depth (m)	
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.		(VI)		
12.25m				
17.50m				
10.75				
11.50				
12.25				
13.00				
13.75				
14.50				
15.50				
16.50				
17.50				
R8				
R9				
R10				
R11				
R12				
R13				
R14				
R15				
CR=78% RQD=54%				
CR=54% RQD=20%				
CR=72% RQD=32%				
CR=77% RQD=56%				
CR=91% RQD=80%				
CR=89% RQD=79%				
CR=91% RQD=56%				
CR=92% RQD=73%				

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

BORE LOG DATA SHEET			BORE HOLE NO.16			Co-ordinates E=1221.000 N=1489.000	
Field Test	Nos	Samples	Nos	Commencement Date : 03/01/2020 Completion Date : 06/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.966 M. Water Struck At : Standing Water Level : 4.70 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Top soil consist of reddish grey, silty sand / sandy silt. Obs. kankars.						DS-1	0.50
1.50m				2 2 3	5	DS-2	1.00
Loose to medium dense, brownish grey, clayey sandy silt / clayey silty sand.	(I)			3 5 6	11	SPT-1	1.50–1.95
4.50m						UDS-1	2.50–2.95
Very dense, whitish grey, silty sand with decomposed rock.	(II)					SPT-2	2.95–3.40
5.80m				52 50	>100 cm Pentn.	DS-3	4.00
Highly to moderately weathered, grey to reddish grey, fine to medium grained, highly fractured sandstone.	(V)			55	5.0 cm Pentn.	SPT-3	4.50–4.70
Moderately weathered, grey to reddish grey, fine to medium grained, highly fractured sandstone.	(VI)				Refusal NX. drilling from 5.80m to 20.00m	*SPT-4 R1	5.80–5.85 CR=31% RQD=NIL
Medium to slightly weathered, reddish grey, fine to medium grained, fractured sandstone.	(VI)					R2	6.50 CR=30% RQD=NIL
10.50m						R3	7.25 CR=28% RQD=NIL
						R4	8.00 CR=42% RQD=NIL
						R5	8.75 CR=56% RQD=15%
						R6	9.50 CR=80% RQD=24%
							10.25

Job No : 4371

Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET			BORE HOLE NO.16			Co-ordinates E=1221.000 N=1489.000	
Field Test	Nos	Samples	Nos	Commencement Date : 03/01/2020 Completion Date : 06/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.966 M. Water Struck At : Standing Water Level : 4.70 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES Ref. No Depth (m)	
10.50m			(VI)	R7	CR=65% RQD=15%	11.00	
Medium to slightly weathered, reddish grey, fine to medium grained, fractured sandstone.				R8	CR=87% RQD=18%	11.75	
13.25m				R9	CR=84% RQD=44%	12.50	
Slightly weathered to fresh, whitish grey / reddish grey, fine to medium grained, highly fractured sandstone.			(VI)	R10	CR=56% RQD=NIL	13.25	
20.00m				R11	CR=75% RQD=31%	14.00	
				R12	CR=88% RQD=56%	14.75	
				R13	CR=92% RQD=19%	15.50	
				R14	CR=66% RQD=64%	16.25	
				R15	CR=85% RQD=64%	17.00	
				R16	CR=91% RQD=80%	18.00	
				R17	CR=88% RQD=39%	19.00	
				R18	CR=86% RQD=79%	20.00	
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET

BORE HOLE NO.17

Co-ordinates E=1221.000
N=1468.000

Field Test	Nos	Samples	Nos	Commencement Date : 08/01/2020
Penetrometer (SPT)	6	Undisturbed (UDS)	0	Completion Date : 11/01/2020
Cone (Pc)		Penetrometer (SPT)	6	Bore Hole Diameter : 150 mm./N.X
Vane (V)		Disturbed (DS)	6	Level Of Ground : 157.195 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 6.35 m.
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
0.00m			Ref. No	Depth (m)
Filled up soil consist of coal dust, gravel & brick bats etc.			DS-1	0.50
		3 3 4	DS-2	1.00
			7	
			SPT-1	1.50–1.95
3.50m		2 3 4	DS-3	2.50
			7	
			SPT-2	3.00–3.45
			DS-4	4.00
		14 35 44		
			SPT-3	4.50–4.95
Hard, reddish grey to reddish brown, silty clay / clayey silt with sand mixture & kankars. Obs. decomposed rock.		(III)	DS-5	5.50
		15 21 23		
			SPT-4	6.00–6.45
		44	DS-6	7.00
			SPT-5	7.50–7.75
8.00m		22 57		
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		53	*SPT-6	8.00–8.07 8.00
			R1	CR=44% RQD=NIL
				↓
8.75m			R2	CR=64% RQD=NIL
				↓
Slightly weathered to fresh, reddish grey, fine to medium grained, highly fractured sandstone.		(VI)	R3	CR=74% RQD=NIL
				↓
10.50m				10.25

BORE LOG DATA SHEET

BORE HOLE NO.17

Co-ordinates E=1221.000
N=1468.000

Field Test	Nos	Samples	Nos	Commencement Date : 08/01/2020
				Completion Date : 11/01/2020
				Bore Hole Diameter : 150 mm./N.X
Penetrometer (SPT)	6	Undisturbed (UDS)	0	Level Of Ground : 157.195 M.
Cone (Pc)		Penetrometer (SPT)	6	Water Struck At :
Vane (V)		Disturbed (DS)	6	Standing Water Level : 6.35 m.
Water Sample (WS)			0	
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	
10.50m		(VI)	Ref. No	
Slightly weathered to fresh, reddish grey, fine to medium grained, highly fractured sandstone.			Depth (m)	
			R4	CR=55% RQD=NIL ↓ 11.00
			R5	CR=64% RQD=15% ↓ 11.75
			R6	CR=56% RQD=43% ↓ 12.50
			R7	CR=76% RQD=16% ↓ 13.25
			R8	CR=60% RQD=20% ↓ 14.00
			R9	CR=88% RQD=65% ↓ 14.75
			R10	CR=94% RQD=69% ↓ 15.50
			R11	CR=92% RQD=34% ↓ 16.25
			R12	CR=90% RQD=42% ↓ 17.00
			R13	CR=94% RQD=37% ↓ 18.50
			R14	CR=91% RQD=32% ↓ 19.25
			R15	CR=96% RQD=78% ↓ 20.00
20.00m				
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET

BORE HOLE NO.18

Co-ordinates E=1196
N=1400

Field Test	Nos	Samples	Nos	Commencement Date :	08/01/2020
				Completion Date :	10/01/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Bore Hole Diameter :	150mm / NX.
Cone (Pc)		Penetrometer (SPT)	3	Level Of Ground :	154.110 m.
Vane (V)		Disturbed (DS)	3	Water Struck At :	
		Water Sample (WS)	0	Standing Water Level :	3.2 m.

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
Top soil consists of deep grey, silty clay with brick soling. Observed kankar.					DS-1	0.50
					DS-2	1.00
Very stiff to hard, deep to whitish grey, silty clay / clayey silt with fine sand mixture. Observed decomposed rock.	III	12	12	15	27	SPT-1 1.50–1.95
		6	15	18	33	DS-3 2.50
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V	56	5.0 cm	Pentn.	Refusal	SPT-2 3.00–3.45
		NX rotary drilling from 4.30m to 15.00m			*SPT-3 R1	4.30–4.35 4.30
Moderately to slightly weathered / fresh, reddish grey, fine to medium grained, highly fractured sandstone.	VI				R2	CR=33%/RQD=NII 5.05
					R3	CR=49%/RQD=NII 5.80
					R4	CR=86%/RQD=16% 6.55
					R5	CR=74%/RQD=NII 7.30
					R6	CR=84%/RQD=15% 8.05
					R7	CR=52%/RQD=20% 8.80
					R8	CR=63%/RQD=28% 9.55
					R9	CR=88%/RQD=42% 10.30
					R10	CR=76%/RQD=51% 11.00
					R11	CR=81%/RQD=72% 11.75
					R12	CR=83%/RQD=NII 12.50
					R13	CR=95%/RQD=31% 13.25
					R14	CR=80%/RQD=22% 14.00
						15.00

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

BORE LOG DATA SHEET

BORE HOLE NO.19

Co-ordinates E=1286
N=1209

Field Test	Nos	Samples	Nos	Commencement Date :	30/01/2020		
Penetrometer (SPT)	5	Undisturbed (UDS)	1	Completion Date :	01/02/2020		
Cone (Pc)		Penetrometer (SPT)	5	Bore Hole Diameter :	150mm / NX.		
Vane (V)		Disturbed (DS)	5	Level Of Ground :	151.983 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 Top soil consists of reddish brown, silty sand with brick bats & calcareous nodules.						DS-1 DS-2	0.50 1.00
1.20m		4	10	15	25	SPT-1	1.50–1.95
Medium dense reddish brown, silty sand with decomposed rock pieces.	I	5	6	7	13	DS-3 *UDS-1	2.50 3.00–3.45
4.00m Very dense, dark grey, silty sand with decomposed rock pieces.	II	35	52		>100	SPT-2 DS-4 SPT-3	3.60–4.05 4.50 5.00–5.30
6.50m Very dense, whitish grey, silty sand with rock fragments.	II	30	51	10.0 cm	>100	SPT-4 *SPT-5	6.50–6.75 7.00–7.08
7.00m		52	8.0 cm	Pentn.	>100	R1	7.00 CR=21%/RQD=NII
9.25m Highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	IV	NX	rotary	drilling	from 7.00m to 15.25m	R2 R3 R4 R5 R6 R7 R8 R9 R10 R11	7.75 8.50 9.25 10.00 10.75 11.50 12.25 13.00 13.75 14.50 15.25
13.00m Moderately to slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V						
15.25m	VI						
N.B. – '*' means sample could not be recovered.							

BORE LOG DATA SHEET

BORE HOLE NO.20

Co-ordinates E=1038
N=1252

Field Test	Nos	Samples	Nos	Commencement Date :	03/02/2020	
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Completion Date :	10/02/2020	
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150mm / NX.	
Vane (V)		Disturbed (DS)	3	Level Of Ground :	151.370 m.	
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level :	1.65 m.	
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m						
stiff, brownish grey, silty clay / clayey silt with sand mixture & decomposed rock pieces.	IIIA	3	5	7	12	DS-1 0.50
		4	6	9	15	DS-2 1.00
		54	8.0	cm	>100	SPT-1 1.50-1.95
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	IV					*UDS-1 3.00-3.45
4.50m						SPT-2 3.60-4.05
5.25m						*SPT-3 4.50-4.58 4.50
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone	VI					R1 CR=21%/RQD=Nil 5.25
7.50m						R2 CR=52%/RQD=15% 6.00
						R3 CR=55%/RQD=20% 6.75
						R4 CR=44%/RQD=Nil 7.50
						R5 CR=64%/RQD=19% 8.25
						R6 CR=76%/RQD=49% 9.00
						R7 CR=73%/RQD=16% 9.75
						R8 CR=76%/RQD=50% 10.50
						R9 CR=82%/RQD=13% 11.25
						R10 CR=70%/RQD=63% 12.00
						R11 CR=83%/RQD=60% 12.75
						R12 CR=68%/RQD=60% 13.50
						R13 CR=67%/RQD=44% 14.25
						R14 CR=72%/RQD=32% 15.20
15.20m						
N.B. - '*' means sample could not be recovered.						

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

BORE LOG DATA SHEET

BORE HOLE NO.21

Co-ordinates
E=1056
N=1391

Field Test	Nos	Samples	Nos	Commencement Date : 18/01/2020
				Completion Date : 25/01/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	7	Undisturbed (UDS)	0	Level Of Ground : 154.359 m.
Cone (Pc)		Penetrometer (SPT)	7	Water Struck At :
Vane (V)		Disturbed (DS)	3	Standing Water Level : 2.05 m.
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
Top soil consists of brownish grey, silty clay. Observed sand mixture & kankar.				Ref. No Depth (m)
0.00m				DS-1 0.50
1.00m				DS-2 1.00
Very stiff, reddish grey, silty clay with decomposed rock. Observed kankar.		III	7 9 17 26	SPT-1 1.50–1.95
3.00m			53 8.0 cm Pentn.	DS-3 2.50
			NX rotary drilling from 3.00m to 20.25m	
				*SPT-2 3.00–3.08 3.00
				R1 CR=24%/RQD=NII
				R2 CR=29%/RQD=NII
				R3 CR=22%/RQD=NII
				R4 CR=24%/RQD=NII
				R5 CR=26%/RQD=NII
				R6 CR=11%/RQD=NII
				*SPT-3 7.50–7.55 7.50
				R7 CR=21%/RQD=NII
				R8 CR=18%/RQD=NII
				*SPT-4 9.00–9.06 9.00
				R9 CR=16%/RQD=NII
				*SPT-5 9.75–9.80 9.75
				R10 CR=19%/RQD=NII
				*SPT-6 10.50–10.57 10.50
				R11 CR=18%/RQD=NII
				*SPT-7 11.25–11.30 11.25
				R12 CR=40%/RQD=19%
				R13 CR=25%/RQD=NII
				R14 CR=24%/RQD=NII
				R15 CR=83%/RQD=20%
				R16 CR=62%/RQD=18%
				R17 CR=54%/RQD=NII
				R18 CR=69%/RQD=NII
				R19 CR=66%/RQD=17%
				R20 CR=70%/RQD=24%
				R21 CR=68%/RQD=61%
				R22 CR=81%/RQD=56%
				R23 CR=78%/RQD=73%
N.B. – '*' means sample could not be recovered.				
20.25m				

BORE LOG DATA SHEET			BORE HOLE NO.22			Co-ordinates E=1056.000 N=1410.000	
Field Test	Nos	Samples	Nos	Commencement Date : 14/01/2020 Completion Date : 17/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.308 M. Water Struck At : Standing Water Level : 2.80 m.			
Penetrometer (SPT)	2	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	2				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Top soil consist of brownish grey, silty clay / clayey silt. Obs. sand mixture & kankars.						DS-1	0.50
Very stiff, brownish grey to reddish grey silty clay with kankars.	(III)		6	7 12 19		DS-2	1.10
Very dense, reddish grey, silty sand with kankars. Obs. decomposed rock.	(II)		3850	>100		SPT-1	1.60–2.05
Highly weathered, reddish grey / whitish grey, fine to medium grained, highly fractured sandstone.	(IV)			5.0 cm Pentn. NX. drilling from 3.00m to 19.50m		DS-3	2.50
Highly weathered, reddish grey / whitish grey, fine to medium grained, highly fractured sandstone.	(V)					SPT-2	3.00–3.20 3.00
Moderately weathered, reddish grey / whitish grey, fine to medium grained, highly fractured sandstone.	(VI)					R1	CR=21% RQD=NIL
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.	(VI)					R2	CR=21% RQD=14%
						R3	CR=33% RQD=NIL
						R4	CR=37% RQD=NIL
						R5	CR=33% RQD=NIL
						R6	CR=58% RQD=21%
						R7	CR=63% RQD=35%
						R8	CR=73% RQD=55%
						R9	CR=61% RQD=21%
						R10	CR=76% RQD=43%
10.50m							

BORE LOG DATA SHEET			BORE HOLE NO.22			Co-ordinates E=1056.000 N=1410.000
Field Test	Nos	Samples	Nos	Commencement Date : 14/01/2020 Completion Date : 17/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.308 M. Water Struck At : Standing Water Level : 2.80 m.		
Penetrometer (SPT)	2	Undisturbed (UDS)	0			
Cone (Pc)		Penetrometer (SPT)	2			
Vane (V)		Disturbed (DS)	3			
		Water Sample (WS)	0			
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES
10.50m			(VI)	Ref. No	Depth (m)	
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.				R11	10.50 CR=72% RQD=19%	
				R12	11.25 CR=65% RQD=25%	
				R13	12.00 CR=68% RQD=NIL	
				R14	12.75 CR=64% RQD=35%	
				R15	13.50 CR=78% RQD=28%	
				R16	14.25 CR=73% RQD=16%	
				R17	15.00 CR=79% RQD=13%	
				R18	15.75 CR=75% RQD=52%	
				R19	16.50 CR=96% RQD=43%	
				R20	17.25 CR=87% RQD=57%	
				R21	18.00 CR=83% RQD=59%	
				R22	18.75 CR=87% RQD=73%	
19.50m					19.50	
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO.23			Co-ordinates E=1065.000 N=1433.000	
Field Test	Nos	Samples	Nos	Commencement Date : 10/01/2020 Completion Date : 13/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.799 M. Water Struck At : Standing Water Level : 3.15 m.			
Penetrometer (SPT)	3	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	3				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Top soil consists of deep grey, silty clay. Obs. brick bats & roots.						DS-1	0.50
						DS-2	1.00
1.70m			9 12 13	25		SPT-1	1.50–1.95
Medium dense, reddish brown, sandy silt / silty sand with kankars & decomposed rock.	(I)					DS-3	2.50
3.00m		22 25 36		61		SPT-2	3.00–3.45
Very dense, reddish brown, sandy silt / silty sand with kankars & decomposed rock.	(II)						
4.50m		53		Refusal		*SPT-3	4.50–4.55
Completely to highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	(IV)		NX. drilling from 4.50m to 20.25m	5.0 cm Pentn.		R1	CR=17% RQD=NIL
6.00m						R2	CR=22% RQD=NIL
Highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	(V)					R3	CR=35% RQD=NIL
6.75m						R4	CR=54% RQD=NIL
Moderately to slightly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	(VI)					R5	CR=45% RQD=NIL
10.50m						R6	CR=61% RQD=NIL
						R7	CR=65% RQD=NIL
						R8	CR=64% RQD=NIL

BORE LOG DATA SHEET			BORE HOLE NO.23			Co-ordinates E=1065.000 N=1433.000				
Field Test	Nos	Samples	Nos	Commencement Date : 10/01/2020 Completion Date : 13/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.799 M. Water Struck At : Standing Water Level : 3.15 m.						
Penetrometer (SPT)	3	Undisturbed (UDS)	0							
Cone (Pc)		Penetrometer (SPT)	3							
Vane (V)		Disturbed (DS)	3							
		Water Sample (WS)	0							
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES Ref. No Depth (m)				
10.50m			(VI)			R9	CR=56% RQD=NIL			
						R10	CR=69% RQD=22%			
						R11	CR=53% RQD=24%			
						R12	CR=65% RQD=17%			
						R13	CR=54% RQD=15%			
						R14	CR=74% RQD=29%			
						R15	CR=68% RQD=15%			
						R16	CR=63% RQD=14%			
						R17	CR=76% RQD=29%			
						R18	CR=81% RQD=35%			
			(VI)			R19	CR=86% RQD=48%			
						R20	CR=77% RQD=51%			
						R21	CR=92% RQD=43%			
N.B. - '*' means sample could not be recovered.										

BORE LOG DATA SHEET			BORE HOLE NO.24			Co-ordinates E=1044.000 N=1434.000	
Field Test	Nos	Samples	Nos	Commencement Date : 05/01/2020 Completion Date : 09/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.749 M. Water Struck At : Standing Water Level : 3.05 m.			
Penetrometer (SPT)	5	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	5				
Vane (V)		Disturbed (DS)	5				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m				Ref. No		Depth (m)	
Top soil consist of reddish brown, silty sand with brick bats. Obs. kankars.				DS-1		0.50	
1.00m			(I)	DS-2		1.00	
Medium dense, whitish grey, silty sand with decomposed rock.				SPT-1		1.50–1.95	
3.00m				DS-3		2.50	
Very dense, whitish grey, silty sand with decomposed rock.			(II)	SPT-2		3.00–3.45	
7.00m				DS-4		4.00	
Highly to moderately weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.			(V)	SPT-3		4.50–4.95	
10.50m				DS-5		5.50	
				SPT-4		6.00–6.29	
				Refusal		7.00–7.05 CR=38% RQD=NIL	
				5.0 cm Penth. NX. drilling from 7.00m to 20.00m		7.25	
				R1		CR=53% RQD=NIL	
				R2		8.50	
				R3		CR=49% RQD=NIL	
				R4		9.25	
				R5		CR=42% RQD=NIL	
				10.00		CR=52% RQD=NIL	

BORE LOG DATA SHEET			BORE HOLE NO.24			Co-ordinates E=1044.000 N=1434.000	
Field Test	Nos	Samples	Nos	Commencement Date : 05/01/2020 Completion Date : 09/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.749 M. Water Struck At : Standing Water Level : 3.05 m.			
Penetrometer (SPT)	5	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	5				
Vane (V)		Disturbed (DS)	5				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES Ref. No Depth (m)	
Highly to moderately weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.			(V)			R6	10.75 CR=44% RQD=13%
Moderately to slightly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.			(VI)			R7	11.50 CR=58% RQD=16%
						R8	12.25 CR=62% RQD=13%
						R9	13.00 CR=76% RQD=16%
						R10	13.75 CR=70% RQD=86%
						R11	14.50 CR=89% RQD=20%
						R12	15.25 CR=78% RQD=36%
						R13	16.00 CR=68% RQD=28%
						R14	16.75 CR=81% RQD=20%
						R15	17.50 CR=67% RQD=62%
						R16	18.25 CR=92% RQD=28%
						R17	19.00 CR=87% RQD=48%
Slightly weathered to fresh, medium grained fractured sandstone.			(VI)				20.00
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET

BORE HOLE NO.25

Co-ordinates E=1058
N=1462

Field Test	Nos	Samples	Nos	Commencement Date : 09/01/2020		
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date : 12/01/2020		
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	3	Level Of Ground : 156.754 m.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level : 3.50 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m		4	7	8	15	DS-1 0.50
Top soil consists of brownish grey, sandy silt with clay. Observed kankar & gravel.						DS-2 1.00
2.50m		10	22	50	>100	DS-3 2.50
Very dense, whitish grey / brownish grey, silty sand with decomposed rock.	II	5.0	5.0	cm Pentrn.	cm Refusal	SPT-2 3.00–3.35
3.50m		52	4.0	cm Pentrn.		*SPT-3 3.50–3.54
Highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	IV	NX	rotary drilling from	3.50m to 25.00m		R1 CR=21%/RQD=NII 4.25
5.75m						R2 CR=23%/RQD=NII 5.00
Highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	V					R3 CR=22%/RQD=NII 5.75
11.75m						R4 CR=36%/RQD=NII 6.50
Slightly weathered to fresh, whitish grey, medium to fine grained, fractured sandstone	VI					R5 CR=48%/RQD=NII 7.25
20.30m						R6 CR=23%/RQD=NII 8.00
						R7 CR=28%/RQD=NII 8.75
						R8 CR=26%/RQD=NII 9.50
						R9 CR=25%/RQD=NII 10.25
						R10 CR=27%/RQD=NII 11.00
						R11 CR=28%/RQD=NII 11.75
						R12 CR=62%/RQD=NII 12.50
						R13 CR=68%/RQD=34% 13.25
						R14 CR=83%/RQD=49% 14.00
						R15 CR=74%/RQD=29% 14.75
						R16 CR=81%/RQD=13% 15.50
						R17 CR=77%/RQD=38% 16.25
						R18 CR=72%/RQD=49% 17.00
						R19 CR=84%/RQD=77% 17.75
						R20 CR=68%/RQD=22% 18.50
						R21 CR=77%/RQD=15% 19.25
						R22 CR=65%/RQD=47% 20.00

BORE LOG DATA SHEET

BORE HOLE NO.25

Co-ordinates E=1058
N=1462

Field Test	Nos	Samples	Nos	Commencement Date :	09/01/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date :	12/01/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	156.754 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.5 m.

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
20.30m Slightly weathered to fresh, whitish grey, medium to fine grained, fractured sandstone.	VI				R23	CR=64%/RQD=36% 20.75
22.25m Fresh, reddish grey, medium to fine grained, fractured sandstone.	VI				R24	CR=76%/RQD=Nill 21.50
					R25	CR=68%/RQD=32% 22.25
					R26	CR=82%/RQD=44% 23.00
					R27	CR=80%/RQD=65% 24.00
					R28	CR=86%/RQD=75% 25.00
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET

BORE HOLE NO.26

Co-ordinates E=1072
N=1476

Field Test	Nos	Samples	Nos	Commencement Date :	05/01/2020
Penetrometer (SPT)	4	Undisturbed (UDS)	0	Completion Date :	07/01/2020
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	156.774 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.55 m.
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
0.00m					
Top soil consists of brownish grey, silty sand. Observed kankar.				DS-1 DS-2	0.50 1.00
1.50m				SPT-1	1.50–1.95
Very stiff to hard, brownish grey, silty clay / clayey silt with traces of fine sand.	III	5 8 9	17	DS-3	2.50
Very dense, whitish grey, silty sand with decomposed rock.	II	8 15 21	36 >100	SPT-2	3.00–3.45
3.40m 4.00m Completely to highly weathered, reddish grey, fine to medium grained, highly fractured sandstone	IV	27 52 5.0 cm	Pentn. Refusal	*SPT-3 R1	4.00–4.20 CR=21%/RQD=Nil 4.75
5.50m		55 7.0 cm	Pentn.	R2 SPT-4 R3	CR=13%/RQD=NII 5.50–5.57 CR=62%/RQD=Nil 6.25
Moderately to slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	VI		NX rotary drilling from 4.00m to 18.00m	R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18	CR=60%/RQD=NII 7.00 CR=62%/RQD=20% 7.75 CR=68%/RQD=33% 8.50 CR=62%/RQD=20% 9.25 CR=52%/RQD=33% 10.00 CR=76%/RQD=32% 10.75 CR=64%/RQD=36% 11.50 CR=64%/RQD=28% 12.25 CR=56%/RQD=20% 13.00 CR=65%/RQD=44% 13.75 CR=66%/RQD=56% 14.50 CR=84%/RQD=68% 15.25 CR=96%/RQD=80% 16.00 CR=85%/RQD=35% 17.00 CR=90%/RQD=36% 18.00
13.75m					
Slightly weathered to fresh, reddish grey, fine to medium grained, highly fractured sandstone.	VI				
18.00m					
N.B. – '*' means sample could not be recovered.					

BORE LOG DATA SHEET

BORE HOLE NO.27

Co-ordinates E=1002
N=1432

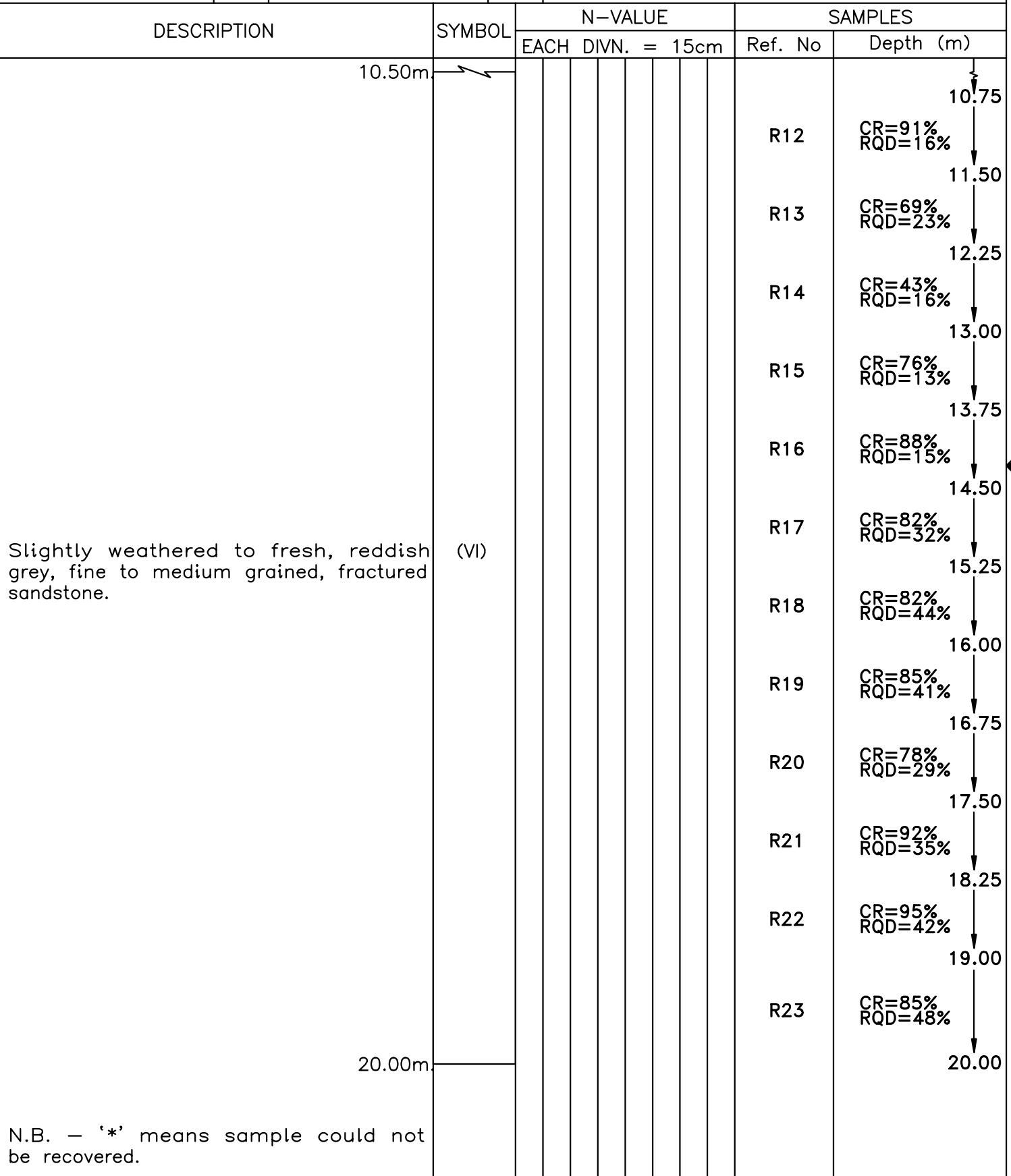
Field Test	Nos	Samples	Nos	Commencement Date : 17/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 19/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	3	Level Of Ground : 155.359 m.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level : 3.05 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
Top soil consists of deep grey, silty clay with brick bats, kankar etc.				DS-1	0.50	
0.00m				DS-2	1.00	
Dense, reddish grey, silty sand with decomposed rock. Observed clay binder.	II	15	15	SPT-1	1.50–1.95	
1.00m		35		DS-3	2.50	
			50	SPT-2	3.00–3.07	
3.00m		55		R1	3.00 CR=12%/RQD=NII	
Completely to highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	IV		7.0 cm	Pentr.	3.75	
			NX rotary drilling from 3.00m to 20.25m	R2	4.50 CR=23%/RQD=NII	
6.75m				R3	5.25 CR=29%/RQD=Nil	
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone	V			R4	6.00 CR=20%/RQD=Nil	
9.00m				R5	6.75 CR=17%/RQD=Nil	
				R6	7.50 CR=37%/RQD=Nil	
				R7	8.25 CR=34%/RQD=Nil	
				R8	9.00 CR=44%/RQD=Nil	
				R9	9.75 CR=60%/RQD=19%	
				R10	10.50 CR=62%/RQD=15%	
				R11	11.25 CR=60%/RQD=24%	
				R12	12.00 CR=60%/RQD=15%	
				R13	12.75 CR=61%/RQD=Nil	
				R14	13.50 CR=76%/RQD=39%	
				R15	14.25 CR=71%/RQD=33%	
				R16	15.00 CR=72%/RQD=Nil	
				R17	15.75 CR=81%/RQD=46%	
				R18	16.50 CR=67%/RQD=Nil	
				R19	17.25 CR=65%/RQD=25%	
				R20	18.00 CR=72%/RQD=30%	
				R21	18.75 CR=78%/RQD=41%	
				R22	19.50 CR=76%/RQD=46%	
Moderately to slightly weathered, reddish grey, fine to medium grained, fractured sandstone.	VI			R23	20.25 CR=79%/RQD=33%	
20.25m						

BORE LOG DATA SHEET**BORE HOLE NO.28**Co-ordinates E=966.000
N=1447.000

Field Test	Nos	Samples	Nos	Commencement Date : 12/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 16/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150 mm./N.X		
Vane (V)		Disturbed (DS)	2	Level Of Ground : 155.497 M.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level : 3.50 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m					DS-1	0.50
Very dense, reddish brown, silty sand with kankars & decomposed rock.	(II)	9	14	39	DS-2	1.00
				53	SPT-1	1.50–1.95
2.50m		55		Refusal	*SPT-2	2.50–2.55
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	(V)		5.0 cm	Pentr.	R1	CR=28% RQD=NIL
			NX.	drilling from 2.50m to 20.00m	R2	CR=26% RQD=NIL
4.75m					R3	CR=44% RQD=NIL
					R4	CR=68% RQD=26%
					R5	CR=61% RQD=24%
					R6	CR=66% RQD=NIL
					R7	CR=70% RQD=NIL
					R8	CR=73% RQD=15%
					R9	CR=65% RQD=NIL
					R10	CR=81% RQD=21%
					R11	CR=77% RQD=13%
10.50m						

BORE LOG DATA SHEET**BORE HOLE NO.28**Co-ordinates E=966.000
N=1447.000

Field Test	Nos	Samples	Nos	Commencement Date : 12/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 16/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150 mm./N.X
Vane (V)		Disturbed (DS)	2	Level Of Ground : 155.497 M.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.50 m.



Job No : 4371

Created by : SKD

Created on : 07/05/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.29

Co-ordinates E=917
N=1476

Field Test	Nos	Samples	Nos	Commencement Date : 11/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 15/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground : 155.242 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 3.10 m.
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
Top soil consists of deep grey, silty clay with brick bats, rock etc.				Ref. No Depth (m)
0.00m				DS-1 0.50
0.70m				DS-2 1.00
Hard, light reddish grey, clayey silt / silty clay with sand mixture & decomposed rock.		III	10 19 31 50 Refusal	SPT-1 1.50–1.95
3.00m				DS-3 2.50
Highly weathered, light reddish grey, fine to medium grained, highly fractured sandstone		IV	56 50 cm Pentn.	*SPT-2 3.00–3.05 3.00 R1 CR=24%/RQD=NII 3.75
3.75m				R2 CR=36%/RQD=NII 4.50
Highly to moderately weathered, light reddish grey, fine to medium grained, highly fractured sandstone.		V	NX rotary drilling from 3.00m to 25.00m	R3 CR=49%/RQD=Nil 5.25
5.25m				R4 CR=78%/RQD=28% 6.00
Slightly weathered to fresh, light reddish grey, fine to medium grained, highly fractured sandstone.		VI		R5 CR=81%/RQD=16% 6.75
20.30m				R6 CR=92%/RQD=48% 7.50
				R7 CR=90%/RQD=Nil 8.25
				R8 CR=69%/RQD=14% 9.00
				R9 CR=70%/RQD=29% 9.75
				R10 CR=73%/RQD=21% 10.50
				R11 CR=81%/RQD=52% 11.25
				R12 CR=89%/RQD=23% 12.00
				R13 CR=85%/RQD=33% 12.75
				R14 CR=43%/RQD=16% 13.50
				R15 CR=53%/RQD=15% 14.25
				R16 CR=55%/RQD=24% 15.00
				R17 CR=59%/RQD=19% 15.75
				R18 CR=68%/RQD=13% 16.50
				R19 CR=60%/RQD=26% 17.25
				R20 CR=57%/RQD=19% 18.00
				R21 CR=49%/RQD=24% 18.75
				R22 CR=48%/RQD=23% 19.50
				R23 CR=58%/RQD=36% 20.25

BORE LOG DATA SHEET

BORE HOLE NO.29

Co-ordinates E=917
N=1476

Field Test	Nos	Samples	Nos	Commencement Date :	11/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	15/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	155.242 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.10 m.

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
20.30m Slightly weathered to fresh, light reddish grey, fine to medium grained, highly fractured sandstone.	VI				R24	CR=68%/RQD=56%↓ 21.00
23.25m Fresh, reddish grey, fine to medium grained, fractured sandstone.	VI				R25	CR=79%/RQD=32%↓ 21.75
25.00m					R26	CR=65%/RQD=32%↓ 22.50
					R27	CR=72%/RQD=40%↓ 23.25
					R28	CR=84%/RQD=28%↓ 24.00
					R29	CR=92%/RQD=88%↓ 25.00

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

BORE LOG DATA SHEET

BORE HOLE NO.30

Co-ordinates E=903
N=1462

Field Test	Nos	Samples	Nos	Commencement Date :	16/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	23/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	155.231 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.00 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN.	= 15cm	Ref. No Depth (m)
0.00m					DS-1 0.50
Very stiff, reddish grey, silty clay. Observed kankar & sand mixture.		III	7	8 12 20	DS-2 1.00
Highly weathered, reddish grey, fine to medium grained, fractured sandstone		IV	52	>100	SPT-1 1.50-1.95
Highly to moderately weathered, reddish grey, fine to medium grained, fractured sandstone.		V	8.0 cm	Pertn.	DS-3 2.50
3.75m			NX rotary drilling from 3.00m to 19.50m		*SPT-2 3.00-3.08 3.00
5.25m					R1 CR=25%/RQD=NII 3.75
Moderately to slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone		VI			R2 CR=37%/RQD=NII 4.50
19.50m					R3 CR=45%/RQD=29% 5.25
N.B. - '*' means sample could not be recovered.					R4 CR=64%/RQD=15% 6.00
					R5 CR=73%/RQD=24% 6.75
					R6 CR=68%/RQD=19% 7.50
					R7 CR=70%/RQD=29% 8.25
					R8 CR=73%/RQD=17% 9.00
					R9 CR=55%/RQD=40% 9.75
					R10 CR=60%/RQD=60% 10.50
					R11 CR=61%/RQD=47% 11.25
					R12 CR=56%/RQD=29% 12.00
					R13 CR=49%/RQD=16% 12.75
					R14 CR=63%/RQD=24% 13.50
					R15 CR=66%/RQD=20% 14.25
					R16 CR=48%/RQD=42% 15.00
					R17 CR=52%/RQD=36% 15.75
					R18 CR=70%/RQD=53% 16.50
					R19 CR=56%/RQD=37% 17.25
					R20 CR=60%/RQD=45% 18.00
					R21 CR=52%/RQD=34% 18.75
					R22 CR=61%/RQD=33% 19.50

BORE LOG DATA SHEET			BORE HOLE NO.31			Co-ordinates E=889.000 N=1434.000	
Field Test	Nos	Samples	Nos	Commencement Date : 29/01/2020 Completion Date : 31/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 154.628 M. Water Struck At : Standing Water Level : 2.85 m.			
Penetrometer (SPT)	2	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	2				
Vane (V)		Disturbed (DS)	2				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m			(I)			Ref. No	Depth (m)
Loose, reddish brown, silty sand. Obs. decomposed rock & kankars.				10 5 3 8		DS-1	0.50
2.50m			52	5.0 cm Refusal NX. drilling from 2.50m to 20.30m		*SPT-2 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12	2.50 CR=55% RQD=46% 3.25 CR=69% RQD=56% 4.00 CR=68% RQD=63% 4.75 CR=86% RQD=70% 5.50 CR=76% RQD=70% 6.25 CR=66% RQD=24% 7.00 CR=68% RQD=18% 7.75 CR=92% RQD=81% 8.50 CR=94% RQD=84% 9.25 CR=68% RQD=27% 10.00 CR=74% RQD=20% 10.75 CR=85% RQD=43%
Moderately to slightly weathered, reddish brown / reddish grey, fine to medium grained, moderately fractured sandstone.			(VI)				11.50
10.75m			(VI)				
Fresh, reddish grey, fine to medium grained, fractured sandstone.							
11.50m							

Job No : 4371

Created by : T.SAHA

Created on : 15/02/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.31**Co-ordinates E=889.000
N=1434.000

Field Test	Nos	Samples	Nos	Commencement Date :	29/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	31/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	2	Level Of Ground :	154.628 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.85 m.

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
11.50m					R13	CR=86% RQD=65%
					R14	CR=89% RQD=49%
					R15	CR=72% RQD=60%
					R16	CR=76% RQD=26%
					R17	CR=86% RQD=58%
					R18	CR=75% RQD=64%
					R19	CR=80% RQD=59%
					R20	CR=80% RQD=67%
					R21	CR=88% RQD=67%
					R22	CR=76% RQD=42%
					R23	CR=87% RQD=78%
20.30m	(VI)					

Fresh, reddish grey, fine to medium grained, fractured sandstone.

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

BORE LOG DATA SHEET			BORE HOLE NO.32			Co-ordinates E=910.000 N=1434.000			
Field Test	Nos	Samples	Nos	Commencement Date : 24/01/2020 Completion Date : 28/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.388 M. Water Struck At : Standing Water Level : 3.10 m.					
Penetrometer (SPT)	3	Undisturbed (UDS)	0						
Cone (Pc)		Penetrometer (SPT)	3						
Vane (V)		Disturbed (DS)	3						
		Water Sample (WS)	0						
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES			
0.00m						Ref. No	Depth (m)		
Dense to very dense, reddish brown, silty sand. Obs. grey spots & clay binder.			(II)	13 17 25	42	DS-1	0.50		
3.50m				18 22 38	60	DS-2	1.00		
Highly to moderately weathered, reddish grey / reddish brown, fine to medium grained, moderately fractured sandstone.				53	Refusal 8.0 cm Penetr. NX. drilling from 3.50m to 20.00m	SPT-1	1.50–1.95		
5.75m			(V)			SPT-2	3.00–3.45		
Moderately weathered, reddish grey / reddish brown, fine to medium grained, moderately fractured sandstone.						*SPT-3	3.50–3.58 3.50		
7.25m			(VI)			R1	CR=36% RQD=NIL		
Slightly weathered to fresh, reddish brown / reddish grey, fine to medium grained, moderately fractured sandstone.						R2	CR=41% RQD=16%		
10.50m			(VI)			R3	CR=49% RQD=17%		
						R4	CR=60% RQD=28%		
						R5	CR=60% RQD=36%		
						R6	CR=91% RQD=59%		
						R7	CR=92% RQD=43%		
						R8	CR=74% RQD=16%		
						R9	CR=77% RQD=33%		
							10.25		

Job No : 4371

Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.32**Co-ordinates E=910.000
N=1434.000

Field Test	Nos	Samples	Nos	Commencement Date :	24/01/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date :	28/01/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	155.388 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.10 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH	DIVN. = 15cm	Ref. No Depth (m)
10.50m		(VI)	R10	CR=74% RQD=44%	11.00
			R11	CR=76% RQD=49%	11.75
			R12	CR=70% RQD=20%	12.50
			R13	CR=78% RQD=26%	13.25
			R14	CR=80% RQD=62%	14.00
			R15	CR=87% RQD=60%	14.75
			R16	CR=66% RQD=57%	15.50
			R17	CR=90% RQD=24%	16.25
			R18	CR=90% RQD=60%	17.00
			R19	CR=88% RQD=58%	17.75
			R20	CR=94% RQD=68%	18.50
			R21	CR=91% RQD=76%	19.25
Slightly weathered to fresh, reddish brown / reddish grey, fine to medium grained, moderately fractured sandstone.			R22	CR=84% RQD=64%	20.00
20.00m					
N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET**BORE HOLE NO.33**Co-ordinates E=910.000
N=1410.000

Field Test	Nos	Samples	Nos	Commencement Date :	02/02/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	04/02/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.125 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.60 m.
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
0.00m					
Top soil consist of deep grey, silty sand with brick bats.				DS-1	0.50
1.00m				DS-2	1.00
Medium dense, reddish brown, silty sand. Obs. decomposed rock & kankars.	(I)	7	12	SPT-1	1.50–1.95
		14		DS-3	2.50
3.00m		52		*SPT-2	3.00–3.07
Moderately weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	(V)		26	R1	CR=42% RQD=13%
			Refusal		3.00
			7.0 cm Pentr.		
			NX. drilling from 3.00m to 18.56m		
3.75m				R2	CR=53% RQD=13%
				R3	4.50
				R4	CR=57% RQD=21%
				R5	5.25
				R6	CR=65% RQD=15%
				R7	6.00
				R8	CR=69% RQD=38%
				R9	6.75
				R10	CR=69% RQD=17%
7.50m					7.50
					8.25
					9.00
					9.75
Slightly weathered to fresh, reddish grey, fine to medium grained, moderately fractured sandstone.	(VI)				10.50
10.50m					

Job No : 4371

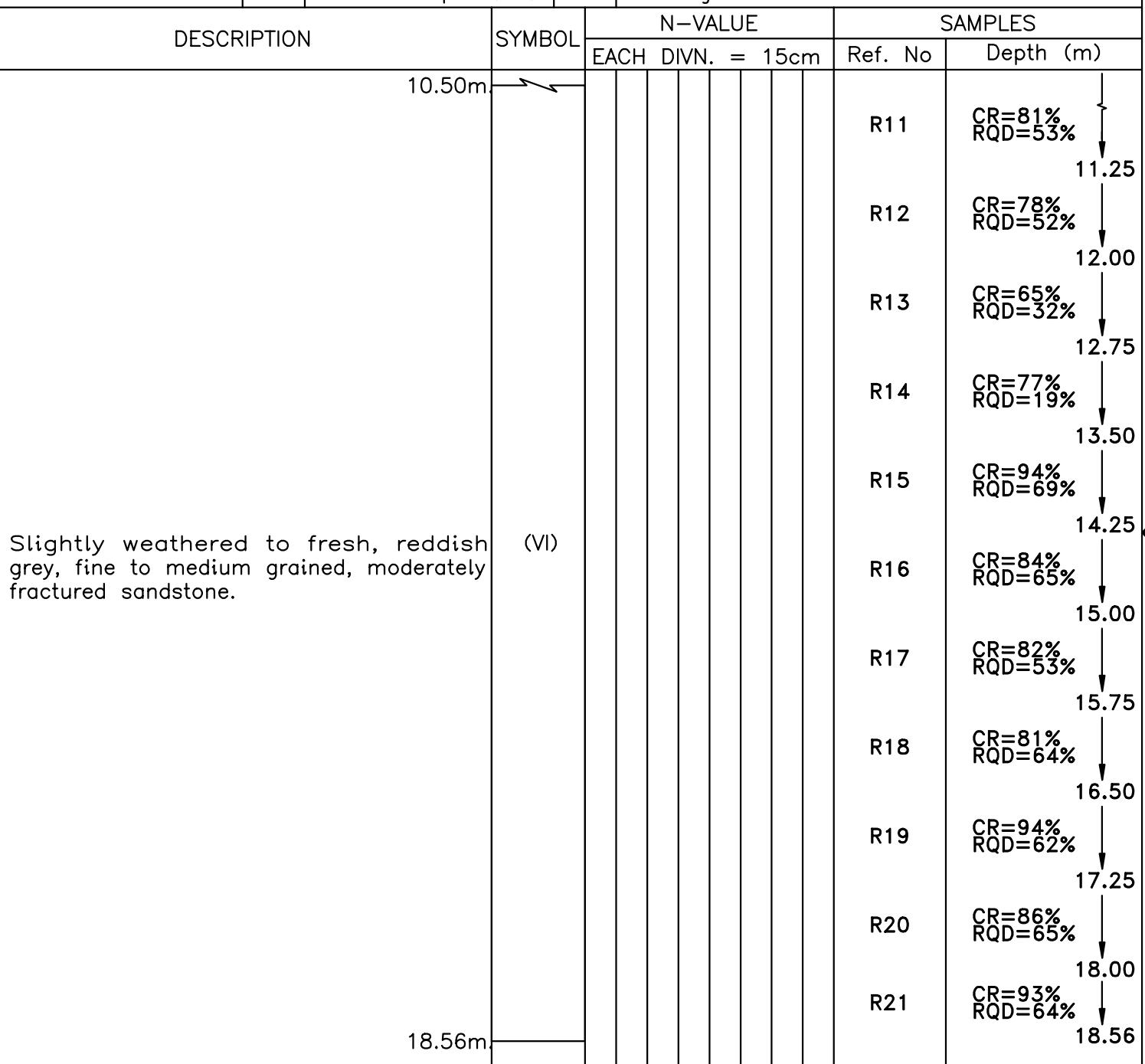
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Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.33**Co-ordinates E=910.000
N=1410.000

Field Test	Nos	Samples	Nos	Commencement Date :	02/02/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	04/02/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.125 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.60 m.



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

BORE LOG DATA SHEET			BORE HOLE NO.34			Co-ordinates E=901.000 N=1391.000	
Field Test	Nos	Samples	Nos	Commencement Date : 28/01/2020 Completion Date : 31/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 153.576 M. Water Struck At : Standing Water Level : 2.35 m.			
Penetrometer (SPT)	2	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	2				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m			(I)	4 7 11 18		Ref. No	Depth (m)
Medium dense, reddish grey, silty sand with decomposed rock. Obs. clay binder & kankars.						DS-1	0.50
						DS-2	1.00
						SPT-1	1.50–1.95
						DS-3	2.50
3.00m			52	7.0 cm Refusal NX. drilling from 3.00m to 20.15m	Pentr.	*SPT-2	3.00–3.07 3.00
Highly to moderately weathered, reddish grey, fine to medium grained, fractured sandstone.			(V)			R1	CR=34% RQD=NIL
4.50m						R2	CR=49% RQD=20%
Moderately to slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.			(VI)			R3	CR=65% RQD=48%
9.00m						R4	CR=74% RQD=53%
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.			(VI)			R5	CR=86% RQD=56%
10.50m						R6	CR=77% RQD=52%
						R7	CR=68% RQD=20%
						R8	CR=66% RQD=32%
						R9	CR=82% RQD=72%
						R10	CR=82% RQD=38%

Job No : 4371

Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET			BORE HOLE NO.34			Co-ordinates E=901.000 N=1391.000	
Field Test	Nos	Samples	Nos	Commencement Date :	28/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	31/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X		
Vane (V)		Disturbed (DS)	3	Level Of Ground :	153.576 M.		
		Water Sample (WS)	0	Water Struck At :			
				Standing Water Level :	2.35 m.		
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
10.50m			(VI)	Ref. No	Depth (m)		
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone.				R11	11.25	CR=83% RQD=58%	
				R12	12.00	CR=78% RQD=18%	
				R13	12.75	CR=80% RQD=28%	
				R14	13.50	CR=78% RQD=45%	
				R15	14.25	CR=77% RQD=66%	
				R16	15.00	CR=72% RQD=18%	
				R17	15.75	CR=86% RQD=80%	
				R18	16.50	CR=76% RQD=41%	
				R19	17.25	CR=77% RQD=42%	
				R20	18.00	CR=86% RQD=76%	
				R21	18.75	CR=98% RQD=74%	
				R22	19.50	CR=78% RQD=41%	
				R23	20.15	CR=89% RQD=62%	
20.15m							
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET

BORE HOLE NO.35

Co-ordinates E=884
N=1299

Field Test	Nos	Samples	Nos	Commencement Date : 13/02/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 14/02/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	2	Level Of Ground : 152.396 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 with brick bats, gravel, stone etc. Observed pockets of boulder.				DS-1	0.50	
1.00m Dense, brownish grey, sandy silt with clay binder.	II	8	14	19	DS-2	1.00
2.00m		52	6.0	cm Pentn. NX rotary drilling from 2.00m to 15.26m	SPT-1	1.40-1.85
				*SPT-2	2.00-2.06 2.00 CR=68%/RQD=32%	
				R1	2.75	
				R2	CR=78%/RQD=65% 3.50	
				R3	CR=69%/RQD=36% 4.25	
				R4	CR=80%/RQD=69% 5.00	
				R5	CR=72%/RQD=58% 5.75	
				R6	CR=67%/RQD=22% 6.50	
				R7	CR=68%/RQD=NII 7.25	
				R8	CR=67%/RQD=40% 8.00	
				R9	CR=76%/RQD=44% 8.75	
				R10	CR=84%/RQD=63% 9.50	
				R11	CR=71%/RQD=15% 10.25	
				R12	CR=84%/RQD=68% 11.00	
				R13	CR=73%/RQD=54% 11.75	
				R14	CR=76%/RQD=16% 12.50	
				R15	CR=82%/RQD=77% 13.25	
				R16	CR=98%/RQD=46% 14.00	
				R17	CR=68%/RQD=45% 15.26	
15.26m						
N.B. - '*' means sample could not be recovered.						

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

BORE LOG DATA SHEET

BORE HOLE NO.36

Co-ordinates E=799
N=1207

Field Test	Nos	Samples	Nos	Commencement Date : 09/02/2020
				Completion Date : 11/02/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 151.888 m.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	2	Standing Water Level : 2.30 m.
Vane (V)		Disturbed (DS)	3	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
Filling with RCC floor, brick bats, gravel, stone etc.	0.00m			
Brownish grey, silty clay / clayey silt with calcareous nodules.	0.70m	IIIA		
Medium dense, brownish grey, sandy silt with decomposed rock.	1.30m	I	5 5 6	DS-1 DS-2 SPT-1 DS-3 SPT-2 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17
Reddish brown, fine grained, sandy silt with decomposed rock fragments.	2.20m	I	55 5.0 cm	11 Refusal Penth. CR=61%/RQD=30% 2.50-2.55 2.50 3.25 4.00 4.75 5.50 6.25 7.00 7.75 8.50 9.25 10.00 10.75 11.50 12.25 13.00 13.75 14.50 15.22
Slightly weathered to fresh, reddish brown, fine to medium grained, fractured sandstone	2.50m			
	15.22m	VI		
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET

BORE HOLE NO.37

Co-ordinates E=851
N=1320

Field Test	Nos	Samples	Nos	Commencement Date : 12/02/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 14/02/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 151.837 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 2.35 m.
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
				Ref. No
				Depth (m)
0.00m Brownish grey, fine grained, sandy silt with calcareous nodules. Observed clay binder.		II	31 55 4.0 cm Pentn. Refusal	DS-1 DS-2 SPT-1 *SPT-2 R1
1.00m Very dense, reddish brown, fine grained, silty sand with decomposed rock fragments.		II	54 4.0 cm Pentn. NX rotary drilling from 1.50m to 15.25m	CR=36%/RQD=NII R2 CR=57%/RQD=17% R3 CR=51%/RQD=16% R4 CR=39%/RQD=13% R5 CR=41%/RQD=Nil R6 CR=80%/RQD=20% R7 CR=81%/RQD=72% R8 CR=80%/RQD=16% R9 CR=85%/RQD=73% R10 CR=73%/RQD=26% R11 CR=92%/RQD=84% R12 CR=89%/RQD=72% R13 CR=97%/RQD=44% R14 CR=68%/RQD=18% R15 CR=95%/RQD=72% R16 CR=84%/RQD=39% R17 CR=85%/RQD=78% R18 CR=92%/RQD=77%
5.25m Highly to moderately weathered, reddish brown, fine to medium grained, fractured sandstone		V		0.50 1.00 1.20-1.39 1.50-1.54 1.50 2.25 3.00 3.75 4.50 5.25 6.00 6.75 7.50 8.25 9.00 9.75 10.50 11.25 12.00 12.75 13.50 14.25 15.25
15.25m Slightly weathered to fresh, reddish brown, fine to medium grained sandstone		VI		
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET

BORE HOLE NO.38

Co-ordinates E=837.000
N=1391.000

Field Test	Nos	Samples	Nos	Commencement Date :	01/02/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date :	03/02/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.492 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.40 m.
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
Top soil consist of deep grey, silty sand with brick bats.					DS-1 0.50
					DS-2 1.00
Medium dense, whitish grey, silty sand / silty sand with kankars & clay binder.	(I)	5	7	9	SPT-1 1.50–1.95
		4	10	17	DS-3 2.50
				27	SPT-2 3.00–3.45
				Refusal	*SPT-3 4.00–4.07
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	(V)	52	7.0 cm Pentr.	NX. drilling from 4.00m to 20.00m	R1 CR=28% RQD=NIL
					R2 CR=35% RQD=NIL
					R3 CR=45% RQD=NIL
					R4 CR=33% RQD=NIL
					R5 CR=84% RQD=61%
					R6 CR=73% RQD=13%
					R7 CR=76% RQD=NIL
					R8 CR=74% RQD=13%
Slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	(VI)				R9 CR=77% RQD=NIL
10.50m					

Job No : 4371

Created by : T.SAHA

Created on : 19/02/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.38**Co-ordinates E=837.000
N=1391.000

Field Test	Nos	Samples	Nos	Commencement Date :	01/02/2020
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Completion Date :	03/02/2020
Cone (Pc)		Penetrometer (SPT)	3	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.492 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)
Slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		(VI)			R10 10.75
					R11 11.50
					R12 12.25
					R13 13.00
					R14 13.75
					R15 14.50
					R16 15.25
Fresh, reddish grey, fine to medium grained, moderately fractured sandstone.		(VI)			R17 16.00
					R18 16.75
					R19 17.50
					R20 18.25
					R21 19.00
20.00m					
N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET**BORE HOLE NO.39**Co-ordinates E=837.000
N=1410.000

Field Test	Nos	Samples	Nos	Commencement Date :	05/02/2020			
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	07/02/2020			
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X			
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.863 M.			
		Water Sample (WS)	0	Water Struck At :				
				Standing Water Level :	2.55 m.			
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES			
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)		
0.00m								
Top soil consist of brownish grey, silty sand with brick bats & kankars.				DS-1	0.50			
1.50m				DS-2	1.00			
Medium dense, reddish brown, silty sand with decomposed rock.	(I)	7	9	12	21	SPT-1	1.50–1.95	
3.00m		53				DS-3	2.50	
Moderately to slightly weathered, reddish grey / reddish brown, fine to medium grained, moderately fractured sandstone.	(VI)					*SPT-2	3.00–3.05	
						R1	CR=68% RQD=24%	
						R2	3.75	CR=69% RQD=38%
						R3	4.80	CR=58% RQD=24%
						R4	5.25	CR=69% RQD=61%
						R5	6.00	CR=87% RQD=25%
						R6	6.75	CR=61% RQD=15%
						R7	7.50	CR=64% RQD=27%
						R8	8.25	CR=69% RQD=49%
						R9	9.00	CR=68% RQD=40%
						R10	9.75	CR=77% RQD=21%
10.50m							10.50	

Job No : 4371

Created by : T.SAHA

Created on : 19/02/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.39

Co-ordinates E=837.000
N=1410.000

Field Test	Nos	Samples	Nos	Commencement Date :	05/02/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	07/02/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	3	Level Of Ground :	154.863 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.55 m.

DESCRIPTION	SYMBOL	N-VALUE		SAMPLES	
		EACH	DIVN. = 15cm	Ref. No	Depth (m)
Moderately to slightly weathered, reddish grey / reddish brown, fine to medium grained, moderately fractured sandstone.	(VI)			R11	CR=51% RQD=NIL 11.25
				R12	CR=71% RQD=28% 12.00
				R13	CR=68% RQD=57% 12.75
				R14	CR=77% RQD=17% 13.50
				R15	CR=85% RQD=56% 14.25
				R16	CR=65% RQD=55% 15.00
				R17	CR=21% RQD=20% 15.75
				R18	CR=60% RQD=29% 16.50
				R19	CR=76% RQD=60% 17.25
				R20	CR=69% RQD=65% 18.00
				R21	CR=54% RQD=53% 18.75
				R22	CR=76% RQD=64% 19.50
				R23	CR=46% RQD=46% 20.00
N.B. - '*' means sample could not be recovered.					

Job No : 4371

Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.40

Co-ordinates E=824.000
N=1433.000

Field Test	Nos	Samples	Nos	Commencement Date : 30/01/2020 Completion Date : 02/02/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 155.221 M. Water Struck At : Standing Water Level : 2.70 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH DIVN. = 15cm			Ref. No	Depth (m)
Top soil consist of silty sand with brick bats.					DS-1	0.50
Medium dense, reddish brown, silty sand with decomposed rock.	(I)	13 12 11	23	Refusal	DS-2	1.00
Slightly weathered to fresh, reddish brown / reddish grey, fine to medium grained, moderately fractured sandstone.	(VI)	57	5.0 cm Pentn. NX. drilling from 2.50m to 20.00m	*SPT-2 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11	2.50–2.55 CR=63% RQD=NIL 2.50–2.55 CR=80% RQD=64% 2.50–2.55 CR=77% RQD=44% 2.50–2.55 CR=65% RQD=36% 2.50–2.55 CR=82% RQD=56% 2.50–2.55 CR=96% RQD=88% 2.50–2.55 CR=75% RQD=23% 2.50–2.55 CR=85% RQD=72% 2.50–2.55 CR=71% RQD=54% 2.50–2.55 CR=69% RQD=20% 2.50–2.55 CR=66% RQD=33%	2.50 3.25 4.00 4.75 5.50 6.25 7.00 7.75 8.50 9.25 10.00

Job No : 4371

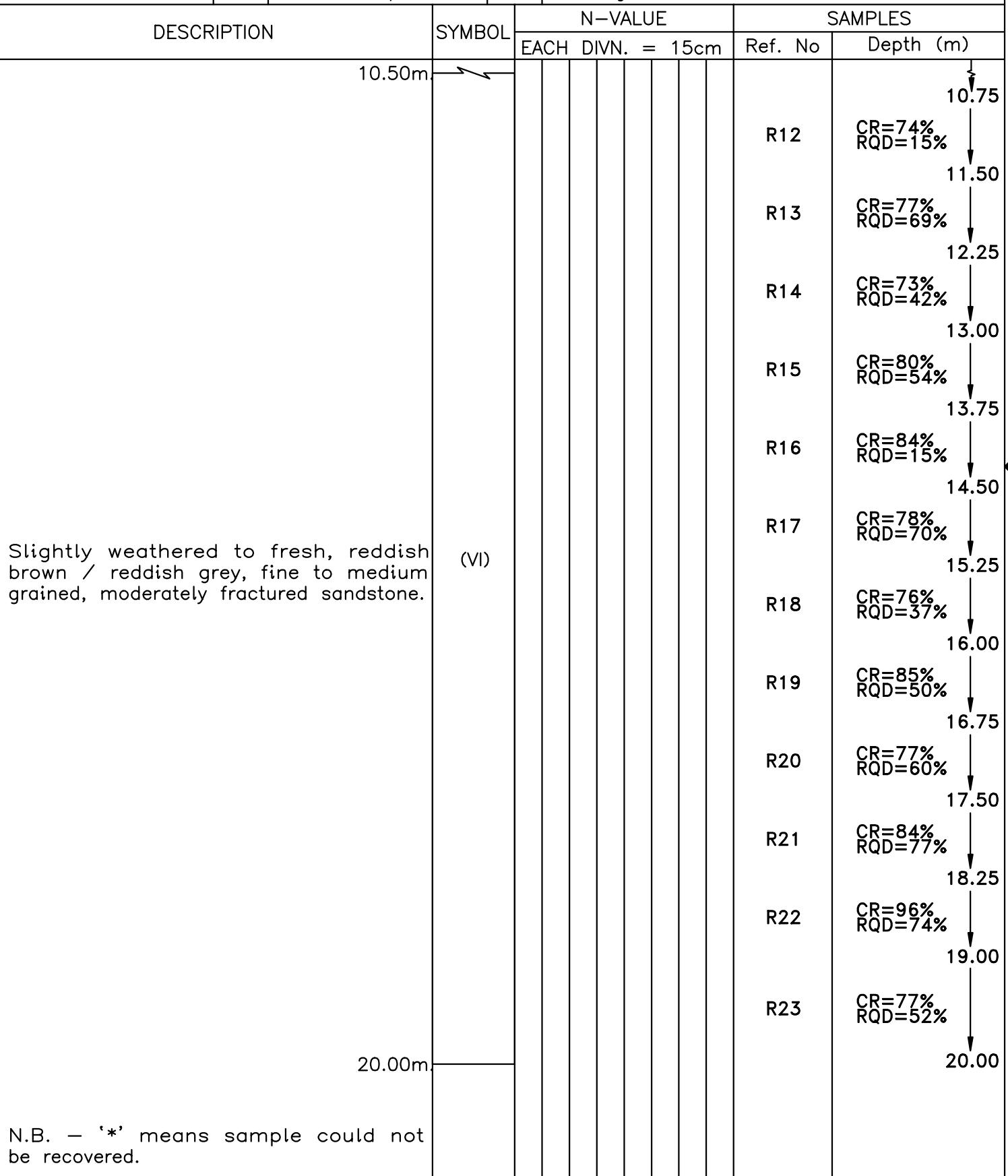
Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.40**Co-ordinates E=824.000
N=1433.000

Field Test	Nos	Samples	Nos	Commencement Date :	30/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	02/02/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	2	Level Of Ground :	155.221 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.70 m.



BORE LOG DATA SHEET			BORE HOLE NO.41			Co-ordinates E=840.000 N=1438.000	
Field Test	Nos	Samples	Nos	Commencement Date : 21/01/2020 Completion Date : 23/01/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 154.866 M. Water Struck At : Standing Water Level : 2.60 m.			
Penetrometer (SPT)	2	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	2				
Vane (V)		Disturbed (DS)	2				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Stiff, reddish grey, silty clay		(IIIA)		11 6 7 13	Refusal	DS-1	0.50
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		(V)	52	5.0 cm NX. drilling from 2.50m to 20.50m	Pentr.	SPT-1	1.50–1.95
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		(VI)				*SPT-2 R1	2.50–2.55 CR=42% RQD=13%
Slightly weathered to fresh, reddish brown / reddish grey, fine to medium grained, moderately fractured sandstone.		(VI)				R2	2.50–3.25 CR=49% RQD=NIL
						R3	3.25–4.00 CR=64% RQD=22%
						R4	4.00–4.75 CR=58% RQD=28%
						R5	4.75–5.50 CR=70% RQD=12%
						R6	5.50–6.25 CR=72% RQD=29%
						R7	6.25–7.00 CR=76% RQD=24%
						R8	7.00–7.75 CR=69% RQD=16%
						R9	7.75–8.50 CR=73% RQD=45%
						R10	8.50–9.25 CR=80% RQD=51%
						R11	9.25–10.00 CR=66% RQD=13%
10.50m							

Job No : 4371

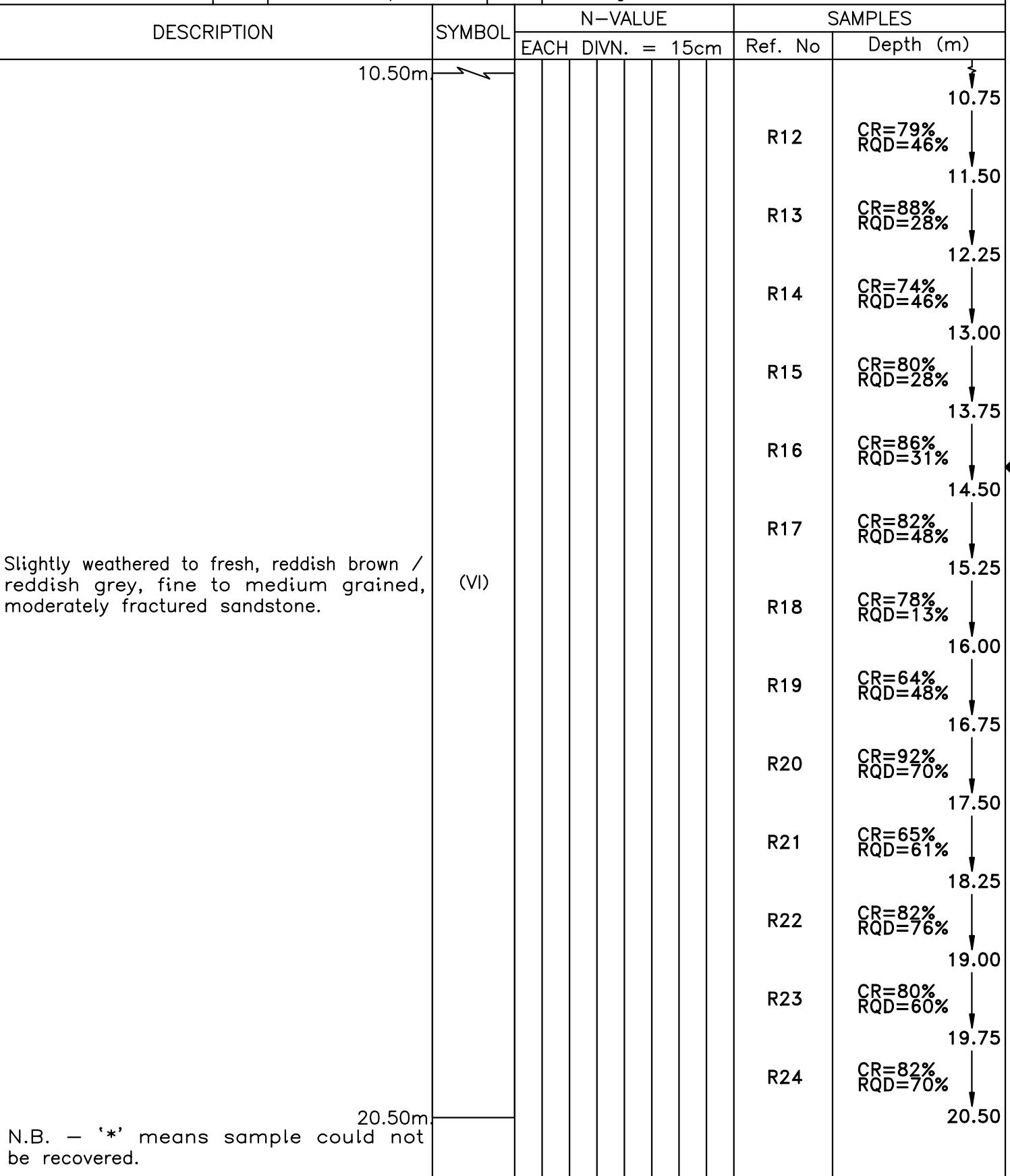
Created by : T.SAHA

Created on : 13/02/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.41**Co-ordinates E=840.000
N=1438.000

Field Test	Nos	Samples	Nos	Commencement Date :	21/01/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	23/01/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	2	Level Of Ground :	154.866 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.60 m.



BORE LOG DATA SHEET

BORE HOLE NO.42

Co-ordinates E=831
N=1462

Field Test	Nos	Samples	Nos	Commencement Date : 17/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 20/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	2	Level Of Ground : 155.502 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	I	4	6	7	13	DS-1 0.50
						DS-2 1.00
Medium dense, reddish brown, silty sand / sandy silt. Observed clay binder & kankar.						SPT-1 1.50-1.95
2.50m	V	51	5.0 cm	Pentn.	Refusal	*SPT-2 2.50-2.552.50
						R1 CR=37%/RQD=NII 3.25
Highly to moderately weathered, reddish grey, fine to medium grained, fractured sandstone						R2 CR=40%/RQD=13% 4.00
6.25m						R3 CR=45%/RQD=26% 4.75
						R4 CR=52%/RQD=44% 5.50
Slightly weathered to fresh, reddish grey, fine to medium grained, fractured sandstone	VI					R5 CR=50%/RQD=17% 6.25
						R6 CR=72%/RQD=33% 7.00
						R7 CR=73%/RQD=51% 7.75
						R8 CR=76%/RQD=64% 8.50
						R9 CR=81%/RQD=41% 9.25
						R10 CR=82%/RQD=20% 10.00
						R11 CR=83%/RQD=49% 10.75
						R12 CR=81%/RQD=64% 11.50
						R13 CR=80%/RQD=32% 12.25
						R14 CR=82%/RQD=21% 13.00
						R15 CR=89%/RQD=41% 13.75
						R16 CR=84%/RQD=77% 14.50
						R17 CR=66%/RQD=23% 15.25
						R18 CR=75%/RQD=40% 16.00
						R19 CR=82%/RQD=65% 16.75
						R20 CR=94%/RQD=80% 17.50
						R21 CR=90%/RQD=80% 18.25
						R22 CR=90%/RQD=65% 19.00
						R23 CR=74%/RQD=69% 19.75
						R24 CR=90%/RQD=65% 20.50
N.B. - '*' means sample could not be recovered.						
20.50m						

BORE LOG DATA SHEET

BORE HOLE NO.43

Co-ordinates E=817
N=1476

Field Test	Nos	Samples	Nos	Commencement Date : 14/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date : 16/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	2	Level Of Ground : 155.742 m.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level : 3.65 m.		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m						
Very dense, reddish brown, silty sand with kankar. Observed clay binder.	II	21	39	52	DS-1 0.50	
		5.0	5.0	≥100 cm Pentn.	DS-2 1.00	
Highly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	IV	50	7.0	cm Refusal Pentn.	SPT-1 1.50–1.85	
2.00m					*SPT-2 2.00–2.072.00	
2.75m					R1 CR=36%/RQD=NII 2.75	
Moderately to slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	VI	NX	rotary drilling from 2.00m to 18.50m		R2 CR=51%/RQD=NII 3.50	
5.00m					R3 CR=76%/RQD=37% 4.25	
					R4 CR=56%/RQD=15% 5.00	
					R5 CR=78%/RQD=15% 5.75	
					R6 CR=73%/RQD=NII 6.50	
					R7 CR=65%/RQD=15% 7.25	
					R8 CR=69%/RQD=36% 8.00	
					R9 CR=77%/RQD=21% 8.75	
					R10 CR=81%/RQD=33% 9.50	
					R11 CR=91%/RQD=29% 10.25	
					R12 CR=69%/RQD=21% 11.00	
					R13 CR=75%/RQD=28% 11.75	
					R14 CR=80%/RQD=35% 12.50	
					R15 CR=81%/RQD=27% 13.25	
					R16 CR=84%/RQD=73% 14.00	
					R17 CR=86%/RQD=45% 14.75	
					R18 CR=77%/RQD=69% 15.50	
					R19 CR=74%/RQD=43% 16.25	
					R20 CR=81%/RQD=39% 17.00	
					R21 CR=89%/RQD=55% 17.75	
					R22 CR=94%/RQD=76% 18.50	
18.50m						
N.B. — '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO.44			Co-ordinates E=966.000 N=1400.000	
Field Test	Nos	Samples	Nos	Commencement Date :	23/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	27/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X		
Vane (V)		Disturbed (DS)	2	Level Of Ground :	154.413 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			(I)			DS-1	0.50
Medium dense, brownish grey, silty fine sand. Obs. kankars.				5	7	DS-2	1.00
				9	16	SPT-1	1.40–1.85
					Refusal	*SPT-2	2.00–2.07
2.00m			52	7.0 cm	Pentr.	R1	2.00
NX. drilling from 2.00m to 24.25m						R2	CR=53% RQD=27%
Moderately weathered, reddish grey, fine to medium grained, moderately fractured sandstone.			(VI)			R3	3.50
						R4	CR=54% RQD=22%
5.00m						R5	CR=58% RQD=53%
						R6	4.25
						R7	CR=57% RQD=15%
						R8	5.00
						R9	CR=62% RQD=16%
						R10	5.75
						R11	CR=66% RQD=30%
						R12	6.50
						R13	CR=84% RQD=58%
						R14	7.25
						R15	CR=85% RQD=73%
Slightly weathered to fresh, reddish grey, medium grained, moderately fractured sandstone.			(VI)				8.00
							8.75
							9.50
							10.25
							11.00
							11.75
							12.50
13.00m							

BORE LOG DATA SHEET			BORE HOLE NO.44			Co-ordinates E=966.000 N=1400.000	
Field Test	Nos	Samples	Nos	Commencement Date :	23/01/2020		
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	27/01/2020		
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X		
Vane (V)		Disturbed (DS)	2	Level Of Ground :	154.413 M.		
		Water Sample (WS)	0	Water Struck At :			
				Standing Water Level :	2.50 m.		
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
13.00m			(VI)	Ref. No	Depth (m)		
Slightly weathered to fresh, reddish grey, medium grained, moderately fractured sandstone.				R16	13.25 CR=76% RQD=20%		
				R17	14.00 CR=80% RQD=48%		
				R18	14.75 CR=74% RQD=65%		
				R19	15.50 CR=82% RQD=42%		
				R20	16.25 CR=69% RQD=50%		
				R21	17.00 CR=61% RQD=50%		
				R22	17.75 CR=80% RQD=55%		
				R23	18.50 CR=77% RQD=22%		
				R24	19.00 CR=75% RQD=59%		
				R25	19.75 CR=74% RQD=46%		
20.50m			(VI)	R26	20.50 CR=84% RQD=58%		
Slightly weathered to fresh, reddish grey, medium to fine grained, moderately fractured sandstone.				R27	21.25 CR=81% RQD=29%		
				R28	22.00 CR=85% RQD=10%		
				R29	22.75 CR=89% RQD=61%		
24.25m				R30	23.50 CR=96% RQD=53%		
					24.25		
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET**BORE HOLE NO.45**Co-ordinates E=916
N=1200

Field Test	Nos	Samples	Nos	Commencement Date : 15/02/2020
				Completion Date : 18/02/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 151.830 m.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	2	Standing Water Level : 1.90 m.
Vane (V)		Disturbed (DS)	2	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	
Filled up with brick bats, stone chips, brick bats.	0.00m 0.70m	I	2 5 6 11 Refusal	DS-1 0.50 DS-2 1.00 SPT-1 1.50-1.95 *SPT-2 2.00-2.05 2.00
Medium dense, brownish grey, sandy silt with calcareous nodules. Observed clay binder, decomposed rock.	2.00m	IV	5.0 cm NX rotary drilling from 2.00m to 20.09m	R1 CR=21%/RQD=NII 2.75 R2 CR=22%/RQD=NII 3.50 R3 CR=30%/RQD=NII 4.25 R4 CR=60%/RQD=22% 5.00 R5 CR=52%/RQD=NII 5.75 R6 CR=80%/RQD=61% 6.50 R7 CR=61%/RQD=45% 7.25 R8 CR=72%/RQD=69% 8.00 R9 CR=65%/RQD=40% 8.75 R10 CR=80%/RQD=13% 9.50 R11 CR=94%/RQD=81% 10.25 R12 CR=85%/RQD=56% 11.00 R13 CR=81%/RQD=74% 11.75 R14 CR=77%/RQD=54% 12.50 R15 CR=72%/RQD=NII 13.25 R16 CR=68%/RQD=13% 14.00 R17 CR=82%/RQD=40% 14.75 R18 CR=87%/RQD=48% 15.50 R19 CR=85%/RQD=56% 16.25 R20 CR=84%/RQD=46% 17.00 R21 CR=80%/RQD=43% 17.75 R22 CR=81%/RQD=64% 18.50 R23 CR=76%/RQD=45% 19.25 R24 CR=98%/RQD=58% 20.09
Moderately weathered, reddish grey to reddish brown, fine to medium grained, fractured sandstone.	3.50m 4.25m 5.75m	VI		
Slightly weathered to fresh, reddish brown, fine to medium grained sandstone.		VI		
N.B. - '*' means sample could not be recovered.	20.09m			

BORE LOG DATA SHEET

BORE HOLE NO.46

Co-ordinates E=1011
N=1209

Field Test	Nos	Samples	Nos	Commencement Date :	09/02/2020
				Completion Date :	14/02/2020
				Bore Hole Diameter :	150mm / NX.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Level Of Ground :	151.926 m.
Cone (Pc)		Penetrometer (SPT)	2	Water Struck At :	
Vane (V)		Disturbed (DS)	3	Standing Water Level :	2.00 m.
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN. = 15cm		Ref. No Depth (m)
Filled up with stone chips, moorum, kankar & gravel.					DS-1 0.50
0.00m					DS-2 1.00
0.60m					
Medium dense, yellowish grey, silty fine sand with calcareous nodules & decomposed rock fragments.		I	3 8 14	22 Refusal	SPT-1 1.50–1.95
3.00m			5.0 cm	Penth.	DS-3 2.50
Highly weathered, reddish brown, fine to medium grained, moderately fractured sandstone		V			*SPT-2 3.00–3.05 3.00
3.75m					R1 CR=33%/RQD=NII 3.75
Moderately to slightly weathered, reddish brown, fine to medium grained, moderately fractured sandstone.		VI	NX rotary drilling from 3.00m to 12.79m		R2 CR=54%/RQD=28% 4.50
7.50m					R3 CR=73%/RQD=44% 5.25
Fresh, reddish brown, fine to medium grained sandstone		VI			R4 CR=75%/RQD=14% 6.00
12.79m					R5 CR=60%/RQD=Nil 6.75
N.B. – '*' means sample could not be recovered.					R6 CR=54%/RQD=Nil 7.50
					R7 CR=85%/RQD=60% 8.25
					R8 CR=93%/RQD=66% 9.00
					R9 CR=88%/RQD=80% 9.75
					R10 CR=98%/RQD=89% 10.50
					R11 CR=88%/RQD=76% 11.25
					R12 CR=81%/RQD=59% 12.00
					R13 CR=96%/RQD=76% 12.79

BORE LOG DATA SHEET

BORE HOLE NO.47

Co-ordinates
E=1320
N=1140

Field Test	Nos	Samples	Nos	Commencement Date : 03/02/2020		
Penetrometer (SPT)	5	Undisturbed (UDS)	0	Completion Date : 06/02/2020		
Cone (Pc)		Penetrometer (SPT)	5	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	23	Level Of Ground : 152.086 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)
Filled up with RCC floor.					DS-1 0.50	
					DS-2 1.00	
Filled up soil consists of reddish brown, sandy silt with moorum & calcareous nodules. Observed boulders.		13	17	22	SPT-1 1.50–1.95	
		3	3	5	DS-3 2.50	
		3	3	8	SPT-2 3.00–3.45	
Loose to medium dense, dark grey / brownish grey, silty sand. Observed moorum & kankar.	I	3	3	11	DS-4 4.00	
		42	53	5.0 cm Penth.	SPT-3 4.50–4.95	
		52	5.0 cm Penth.	>100 cm Refusal	DS-5 5.50	
Completely to highly weathered, whitish grey to reddish grey, fine to medium grained, highly fractured sandstone.	IV	NX rotary drilling from 6.50m to 20.00m			SPT-4 6.00–6.20	
					*SPT-5 6.50–6.55	
					R1 CR=20%/RQD=NII 6.50	
					R2 CR=25%/RQD=NII 7.25	
					R3 CR=68%/RQD=NII 8.00	
					R4 CR=62%/RQD=25% 8.75	
					R5 CR=64%/RQD=37% 9.50	
					R6 CR=90%/RQD=81% 10.25	
					R7 CR=89%/RQD=49% 11.00	
					R8 CR=85%/RQD=46% 11.75	
					R9 CR=73%/RQD=16% 12.50	
					R10 CR=91%/RQD=48% 13.25	
					R11 CR=78%/RQD=64% 14.00	
					R12 CR=69%/RQD=15% 14.75	
					R13 CR=83%/RQD=72% 15.50	
					R14 CR=93%/RQD=89% 16.25	
					R15 CR=93%/RQD=88% 17.00	
					R16 CR=90%/RQD=76% 17.75	
					R17 CR=92%/RQD=76% 18.50	
					R18 CR=92%/RQD=88% 19.25	
N.B. — '*' means sample could not be recovered.		20.00m			20.00	

BORE LOG DATA SHEET

BORE HOLE NO.48

Co-ordinates E=345
N=1387

Field Test	Nos	Samples	Nos	Commencement Date :	26/02/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	29/02/2020
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground :	158.737 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.65 m.
DESCRIPTION		SYMBOL	N-VALUE		SAMPLES
			EACH DIVN. = 15cm		Ref. No Depth (m)
Filled up with stone chips, kankar & gravel.	0.00m 0.40m	I		Refusal	DS-1 0.50
Brownish grey, sandy silt with calcareous nodules & decomposed rock fragments.	1.50m		51	Pentn.	DS-2 1.00
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone	3.00m	V	7.0 cm	NX rotary drilling from 1.50m to 20.25m	*SPT-1 1.50-1.57 1.50 R1 CR=31%/RQD=NII 2.25
Moderately to slightly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	4.50m	VI			R2 CR=34%/RQD=NII 3.00 R3 CR=51%/RQD=NII 3.75 R4 CR=80%/RQD=25% 4.50 R5 CR=81%/RQD=13% 5.25 R6 CR=88%/RQD=66% 6.00 R7 CR=86%/RQD=33% 6.75 R8 CR=89%/RQD=22% 7.50 R9 CR=81%/RQD=NII 8.25 R10 CR=65%/RQD=NII 9.00 R11 CR=64%/RQD=40% 9.75 R12 CR=71%/RQD=15% 10.50 R13 CR=62%/RQD=28% 11.25 R14 CR=70%/RQD=49% 12.00 R15 CR=78%/RQD=31% 12.75 R16 CR=68%/RQD=16% 13.50 R17 CR=81%/RQD=77% 14.25 R18 CR=85%/RQD=39% 15.00 R19 CR=81%/RQD=16% 15.75 R20 CR=91%/RQD=56% 16.50 R21 CR=81%/RQD=48% 17.25 R22 CR=65%/RQD=39% 18.00 R23 CR=88%/RQD=63% 18.75 R24 CR=94%/RQD=46% 19.50 R25 CR=96%/RQD=80% 20.25
Slightly weathered to fresh, reddish grey, fine to medium grained, moderately fractured sandstone.	20.25m	VI			
N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET

BORE HOLE NO.49

Co-ordinates E=353
N=1357

Field Test	Nos	Samples	Nos	Commencement Date :	02/03/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	05/03/2020
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground :	158.226 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.40 m.
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
Filled up with stone chips, brick bats & gravel.	I				DS-1 0.50
Reddish grey, sandy silt with decomposed rock. Observed clay binder & calcareous nodules.	IV	52	6.0 cm	Refusal Pentn.	DS-2 1.00
Completely weathered, reddish brown / reddish grey, fine to medium grained, highly fractured sandstone.	V	NX rotary drilling from 1.80m to 20.00m			*SPT-1 1.80–1.86 1.80
Highly to moderately weathered, reddish brown / reddish grey, fine to medium grained, highly fractured sandstone.	VI				R1 CR=20%/RQD=NII 2.50
Moderately weathered, reddish brown / reddish grey, fine to medium grained, highly fractured sandstone.					R2 CR=32%/RQD=NII 3.25
Slightly weathered to fresh, reddish brown to reddish grey, fine to medium grained sandstone	III				R3 CR=28%/RQD=NII 4.00
N.B. — '*' means sample could not be recovered.					R4 CR=52%/RQD=19% 4.75
					R5 CR=45%/RQD=25% 5.50
					R6 CR=56%/RQD=41% 6.25
					R7 CR=53%/RQD=NII 7.00
					R8 CR=60%/RQD=25% 7.75
					R9 CR=74%/RQD=61% 8.50
					R10 CR=85%/RQD=36% 9.25
					R11 CR=80%/RQD=73% 10.00
					R12 CR=75%/RQD=21% 10.75
					R13 CR=66%/RQD=37% 11.50
					R14 CR=76%/RQD=44% 12.25
					R15 CR=75%/RQD=58% 13.00
					R16 CR=79%/RQD=44% 13.75
					R17 CR=68%/RQD=23% 14.50
					R18 CR=84%/RQD=77% 15.25
					R19 CR=73%/RQD=35% 16.00
					R20 CR=78%/RQD=35% 16.75
					R21 CR=68%/RQD=44% 17.50
					R22 CR=62%/RQD=36% 18.25
					R23 CR=73%/RQD=48% 19.00
					R24 CR=85%/RQD=37% 20.00

Job No : 4371

Created by : SKD

Created on : 28/05/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.50

Co-ordinates E=530
N=1625

Field Test	Nos	Samples	Nos	Commencement Date :	07/05/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	09/05/2020
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground :	157.111 M
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	3.70 m
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN.	= 15cm	Ref. No
0.00m Yellowish grey, sandy silt with calcareous nodules. Observed clay binder.	I				DS-1 0.50 DS-2 1.00
1.50m Highly weathered, reddish grey, fine to medium grained, highly fractured rock.	IV	52	5.0 cm	Refusal Pentn.	*SPT-1 1.50–1.55 R1 CR=22%/RQD=NII 2.25
3.00m Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V	NX	rotary drilling from 1.50m to 15.00m		R2 CR=25%/RQD=NII 3.00 R3 CR=31%/RQD=NII 3.75 R4 CR=33%/RQD=NII 4.50 R5 CR=44%/RQD=NII 5.25 R6 CR=37%/RQD=NII 6.00 R7 CR=36%/RQD=NII 6.75 R8 CR=41%/RQD=15% 7.50 R9 CR=58%/RQD=46% 8.25 R10 CR=59%/RQD=31% 9.00 R11 CR=34%/RQD=NII 9.75 R12 CR=39%/RQD=NII 10.50 R13 CR=43%/RQD=16% 11.25 R14 CR=44%/RQD=NII 12.00 R15 CR=48%/RQD=13% 12.75 R16 CR=53%/RQD=39% 13.50 R17 CR=66%/RQD=48% 14.25 R18 CR=72%/RQD=67% 15.00
12.75m Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	VI				
13.50m Slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	VI				
15.00m N.B. – '*' means sample could not be recovered.					

Job No : 4371

Created by : SKD

Created on : 01/06/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.51**Co-ordinates E=473
N=1572

Field Test	Nos	Samples	Nos	Commencement Date : 11/05/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date : 14/05/2020
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter : 150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground : 159.272 m.
		Water Sample (WS)	0	Water Struck At :
				Standing Water Level : 5.35 m
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	
0.00m Light brownish grey to reddish brown, silty sand with traces of decomposed rock.		I	Refusal	
1.30m Highly weathered, reddish brown, medium to fine grained sandstone.		IV	50 4.0 cm Pentn.	
2.00m Highly weathered, reddish brown, medium to fine grained sandstone.		V	NX rotary drilling from 1.30m to 15.00m	
3.50m Moderately weathered, reddish brown / light brownish grey, medium to fine grained sandstone.		V		
5.00m Moderately to slightly weathered, reddish brown / light brownish grey, medium to fine grained sandstone.		VI		
15.00m				
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET

BORE HOLE NO.52

Co-ordinates E=477
N=1544

Field Test	Nos	Samples	Nos	Commencement Date : 14/03/2020
				Completion Date : 17/03/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground : 159.391 M
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :
Vane (V)		Disturbed (DS)	2	Standing Water Level : 4.20 m
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m		I		Refusal
Brownish grey, sandy silt. Observed clay binder.				DS-1 0.50
1.50m			52 5.0 cm	DS-2 1.00
Completely to highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		IV	NX rotary drilling from 1.50m to 15.00m	*SPT-1 1.50–1.551.50 R1 CR=19%/RQD=NII 2.25
4.50m				R2 CR=22%/RQD=NII 3.00
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		V		R3 CR=26%/RQD=NII 3.75
12.00m				R4 CR=24%/RQD=NII 4.50
Slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.		VI		R5 CR=29%/RQD=NII 5.25
15.00m				R6 CR=49%/RQD=NII 6.00
N.B. — '*' means sample could not be recovered.				R7 CR=25%/RQD=NII 6.75
				R8 CR=30%/RQD=16% 7.50
				R9 CR=48%/RQD=NII 8.25
				R10 CR=43%/RQD=NII 9.00
				R11 CR=35%/RQD=NII 9.75
				R12 CR=47%/RQD=NII 10.50
				R13 CR=52%/RQD=NII 11.25
				R14 CR=40%/RQD=10% 12.00
				R15 CR=74%/RQD=15% 12.75
				R16 CR=64%/RQD=16% 13.50
				R17 CR=80%/RQD=24% 14.25
				R18 CR=75%/RQD=35% 15.00

Job No : 4371

Created by : SKD

Created on : 01/06/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.53

Co-ordinates E=508
N=1544

Field Test	Nos	Samples	Nos	Commencement Date : 17/03/2020		
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date : 20/03/2020		
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	2	Level Of Ground : 157.538 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 Yellowish grey, sandy silt with clay binder. Observed calcareous nodules & kankar.	I			DS-1 DS-2	0.50 1.00	
1.50m Highly weathered, reddish brown, fine grained, fractured sandstone.	IV	52 2.0 cm	Refusal Penth.	*SPT-1 R1	1.50–1.521.50 CR=21%/RQD=NII	
2.25m Highly to moderately weathered, reddish brown, fine to medium grained, fractured sandstone.	V		NX rotary drilling from 1.50m to 15.00m	R2	2.25 CR=37%/RQD=Nil	
3.75m Moderately weathered, reddish brown, fine to medium grained, fractured sandstone.	VI			R3 R4 R5	3.00 3.75 4.50	
5.25m				R6	5.25 CR=72%/RQD=16%	
				R7	6.00 CR=63%/RQD=20%	
				R8	6.75 CR=76%/RQD=19%	
				R9	7.50 CR=69%/RQD=65%	
				R10	8.25 CR=68%/RQD=42%	
				R11	9.00 CR=75%/RQD=23%	
				R12	9.75 CR=75%/RQD=48%	
				R13	10.50 CR=77%/RQD=56%	
				R14	11.25 CR=67%/RQD=27%	
				R15	12.00 CR=68%/RQD=44%	
				R16	12.75 CR=65%/RQD=28%	
				R17	13.50 CR=62%/RQD=29%	
				R18	14.25 CR=64%/RQD=45%	
15.00m Slightly weathered, reddish brown, fine to medium grained sandstone.	VI				15.00	
N.B. - '*' means sample could not be recovered.						

Job No : 4371

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Created on : 19/05/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.54

Co-ordinates E=793
N=1449

Field Test	Nos	Samples	Nos	Commencement Date : 08/03/2020
				Completion Date : 11/03/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 157.782 m.
Penetrometer (SPT)	4	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	4	Standing Water Level : 2.25 m
Vane (V)		Disturbed (DS)	4	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m				Ref. No Depth (m)
Filled up soil consists of brownish grey, sandy silt with brick bats, scrap etc.			4 10 22 32	DS-1 0.50
Very dense, brwnish grey, silty sand / sandy silt. Observed decomposed rock & clay binder.		II	8 15 31 46	DS-2 1.00
Highly weathered, reddish brown, fine grained, fractured sandstone.		IV	36 52 >100 Refusal	SPT-1 1.50-1.95
Highly to moderately weathered, reddish brown, fine to medium grained, fractured sandstone.		V	51 6.0 cm Pentrn. NX rotary drilling from 5.00m to 17.75m	DS-3 2.50
Moderately weathered, reddish brown, fine to medium grained, fractured sandstone.		VI		SPT-2 3.00-3.45
Slightly weathered, reddish brown / reddish grey, fine to medium grained sandstone.		VI		DS-4 4.00
N.B. - '*' means sample could not be recovered.				SPT-3 4.50-4.80
				*SPT-4 5.00-5.06 5.00
				R1 CR=24%/RQD=NiI 5.75
				R2 CR=34%/RQD=NII 6.50
				R3 CR=41%/RQD=21% 7.25
				R4 CR=56%/RQD=42% 8.00
				R5 CR=57%/RQD=48% 8.75
				R6 CR=54%/RQD=16% 9.50
				R7 CR=58%/RQD=37% 10.25
				R8 CR=53%/RQD=NiI 11.00
				R9 CR=56%/RQD=18% 11.75
				R10 CR=65%/RQD=34% 12.50
				R11 CR=80%/RQD=64% 13.25
				R12 CR=68%/RQD=49% 14.00
				R13 CR=65%/RQD=46% 14.75
				R14 CR=72%/RQD=29% 15.50
				R15 CR=66%/RQD=29% 16.25
				R16 CR=73%/RQD=37% 17.00
				R17 CR=78%/RQD=35% 17.75

Job No : 4371

Created by : SKD

Created on : 19/05/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.55

Co-ordinates E=781
N=1413

Field Test	Nos	Samples	Nos	Commencement Date : 07/05/2020
				Completion Date : 08/05/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 155.242 m.
				Water Struck At :
				Standing Water Level : 2.20 m
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m		I		Ref. No Depth (m)
Medium dense, greyish brown, silty sand with clay binder. Observed decomposed rock pcs.		I	4 7 10 17	DS-1 0.50 DS-2 1.00
1.95m		II	7 12 21 33 Refusal	SPT-1 1.50-1.95 DS-3 2.50 SPT-2 2.80-3.25
Dense, greyish brown, silty sand with clay binder. Observed decomposed rock pcs.		IV	52 4.0 cm Pentn. NX rotary drilling from 3.50m to 16.25m	*SPT-3 3.50-3.54 3.50 R1 CR=22%/RQD=Nii 4.25 R2 CR=25%/RQD=Nii 5.00
3.50m		V		R3 CR=44%/RQD=Nii 5.75 R4 CR=57%/RQD=28% 6.50 R5 CR=65%/RQD=32% 7.25
Highly weathered, reddish brown, medium to fine grained, fractured sandstone.		VI		R6 CR=63%/RQD=21% 8.00 R7 CR=57%/RQD=17% 8.75 R8 CR=60%/RQD=32% 9.50 R9 CR=57%/RQD=18% 10.25 R10 CR=63%/RQD=17% 11.00 R11 CR=69%/RQD=51% 11.75 R12 CR=64%/RQD=44% 12.50 R13 CR=73%/RQD=60% 13.25 R14 CR=71%/RQD=48% 14.00 R15 CR=65%/RQD=43% 14.75 R16 CR=76%/RQD=52% 15.50 R17 CR=80%/RQD=45% 16.25
Moderately weathered, reddish brown, medium to fine grained sandstone with grey patches.				
5.00m				
5.75m				
16.25m				
N.B. - '*' means sample could not be recovered.				

Job No : 4371

Created by : SKD

Created on : 19/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.56**Co-ordinates
E=1109
N=1459

Field Test	Nos	Samples	Nos	Commencement Date : 16/03/2020		
Penetrometer (SPT)		Undisturbed (UDS)	0	Completion Date : 18/03/2020		
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	4	Level Of Ground : 155.208 m.		
Water Sample (WS)		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)
Top soil consists of deep grey, silty clay.		I	3 4 7 11 19	DS-1 DS-2 SPT-1 DS-3 DS-4	0.50 1.00 1.50–1.95 2.50 3.00–3.45 4.00	
Medium dense, yellowish grey, silty sand with decomposed rock & clay binder.		II	6 8 11 36 Refusal	SPT-3	4.50–4.95	
Dense, yellowish grey, silty sand with decomposed rock & clay binder.		V	52 7.0 cm Pentn. NX rotary drilling from 5.50m to 19.50m	*SPT-4 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19	5.50–5.57 5.50 CR=37%/RQD=NII 6.25 CR=41%/RQD=15% 7.00 CR=27%/RQD=NII 7.75 CR=38%/RQD=NII 8.50 CR=54%/RQD=15% 9.25 CR=48%/RQD=NII 10.00 CR=37%/RQD=14% 10.75 CR=62%/RQD=17% 11.50 CR=50%/RQD=13% 12.25 CR=52%/RQD=16% 13.00 CR=56%/RQD=20% 13.75 CR=67%/RQD=15% 14.50 CR=62%/RQD=33% 15.25 CR=65%/RQD=31% 16.00 CR=74%/RQD=68% 16.75 CR=66%/RQD=55% 17.50 CR=89%/RQD=68% 18.25 CR=84%/RQD=39% 19.00 CR=83%/RQD=41% 19.50	
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		VI				
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		VI				
Slightly weathered to fresh, reddish grey / reddish brown, fine to medium grained sandstone.		VI				
N.B. - '*' means sample could not be recovered.		19.50m				

Job No : 4371

Created by : SKD

Created on : 19/05/2020

Sheet No:

BORE LOG DATA SHEET

BORE HOLE NO.57

Co-ordinates
E=1109
N=1423

Field Test	Nos	Samples	Nos	Commencement Date : 13/03/2020
				Completion Date : 15/03/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 154.427 m.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	2	Standing Water Level : 2.15 m
Vane (V)		Disturbed (DS)	2	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
Filled up with stone chips, gravel & boulders.		I	7 9 13	DS-1 0.50 DS-2 1.00
Medium dense, brownish grey, silty sand / sandy silt with decomposed rock & clay binder.		I	22	SPT-1 1.50-1.95
Highly weathered, reddish brown, fine to medium grained, highly fractured sandstone.		IV	53 6.0 cm Penth. NX rotary drilling from 2.80m to 19.50m	*SPT-2 2.80-2.86 2.80 R1 CR=22%/RQD=NII 3.75 R2 CR=27%/RQD=NII 4.50 R3 CR=24%/RQD=NII 5.25 R4 CR=29%/RQD=NII 6.00 R5 CR=44%/RQD=NII 6.75 R6 CR=51%/RQD=NII 7.50 R7 CR=45%/RQD=29% 8.25 R8 CR=47%/RQD=31% 9.00 R9 CR=47%/RQD=21% 9.75 R10 CR=49%/RQD=NII 10.50 R11 CR=51%/RQD=24% 11.25 R12 CR=42%/RQD=NII 12.00 R13 CR=53%/RQD=20% 12.75 R14 CR=51%/RQD=NII 13.50 R15 CR=62%/RQD=13% 14.25 R16 CR=64%/RQD=33% 15.00 R17 CR=65%/RQD=39% 15.75 R18 CR=68%/RQD=44% 16.50 R19 CR=61%/RQD=31% 17.25 R20 CR=63%/RQD=41% 18.00 R21 CR=69%/RQD=35% 18.75 R22 CR=77%/RQD=51% 19.50
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		VI		
Slightly weathered, reddish brown, fine to medium grained, fractured sandstone.		VI		
N.B. - '*' means sample could not be recovered.			19.50m	

BORE LOG DATA SHEET

BORE HOLE NO.58

Co-ordinates E=1233
N=1125

Field Test	Nos	Samples	Nos	Commencement Date : 19/03/2020
				Completion Date : 21/03/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 152.163 m.
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	3	Standing Water Level : 2.45 m.
Vane (V)		Disturbed (DS)	3	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
Filled up with stone chips, gravel & kankar.				
0.00m				
Medium dense, brownish grey, silty sand with kankar & clay binder.		I	5 8 17 25	DS-1 0.50 DS-2 1.00
3.00m				SPT-1 1.50-1.95
Dense, brownish grey, silty sand with kankar & clay binder.		II	9 12 27 39 Refusal	DS-3 2.50 SPT-2 3.00-3.45
4.30m				
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone		V	52 5.0 cm Fentn. NX rotary drilling from 4.30m to 15.00m	*SPT-3 4.30-4.35 4.30 R1 CR=34%/RQD=Nil 5.00 R2 CR=36%/RQD=Nil 5.75 R3 CR=52%/RQD=NII 6.50 R4 CR=48%/RQD=NII 7.25
7.25m				R5 CR=51%/RQD=27% 8.00 R6 CR=52%/RQD=44% 8.75 R7 CR=42%/RQD=13% 9.50 R8 CR=47%/RQD=NII 10.25 R9 CR=73%/RQD=46% 11.00 R10 CR=68%/RQD=42% 11.75 R11 CR=65%/RQD=27% 12.50 R12 CR=67%/RQD=NII 13.25 R13 CR=61%/RQD=44% 14.00 R14 CR=78%/RQD=60% 15.00
10.25m				
Slightly weathered, reddish brown, fine to medium grained, fractured sandstone.		VI		
15.00m				
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET			BORE HOLE NO.59			Co-ordinates E=500.000 N=1364.000	
Field Test	Nos	Samples	Nos	Commencement Date : 03/03/2020 Completion Date : 05/03/2020 Bore Hole Diameter : 150 mm./N.X Level Of Ground : 156.882 M. Water Struck At : Standing Water Level : 2.60 m.			
Penetrometer (SPT)	2	Undisturbed (UDS)	0				
Cone (Pc)		Penetrometer (SPT)	2				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
Top soil consist of brownish grey, silty sand with brick bats.	0.00m					Ref. No	Depth (m)
Dense, reddish brown, silty sand with decomposed rock.	0.60m		II	11 14 25 39	Refusal	DS-1	0.50
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.	2.00m		IV	51	5.0 cm Penetr. NX. drilling from 2.00m to 15.00m	SPT-1 *SPT-2 R1	1.30–1.75 2.00–2.05 2.00 CR=25% RQD=NIL
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	2.75m		V			R2	2.75 CR=28% RQD=NIL
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	5.75m		VI			R3 R4 R5 R6 R7 R8 R9 R10 R11	3.50 4.25 5.00 5.75 6.50 7.25 8.00 8.75 9.50 10.25
Slightly weathered, reddish grey, fine to medium grained sandstone.	8.75m		VI				
	10.50m						

Job No : 4371

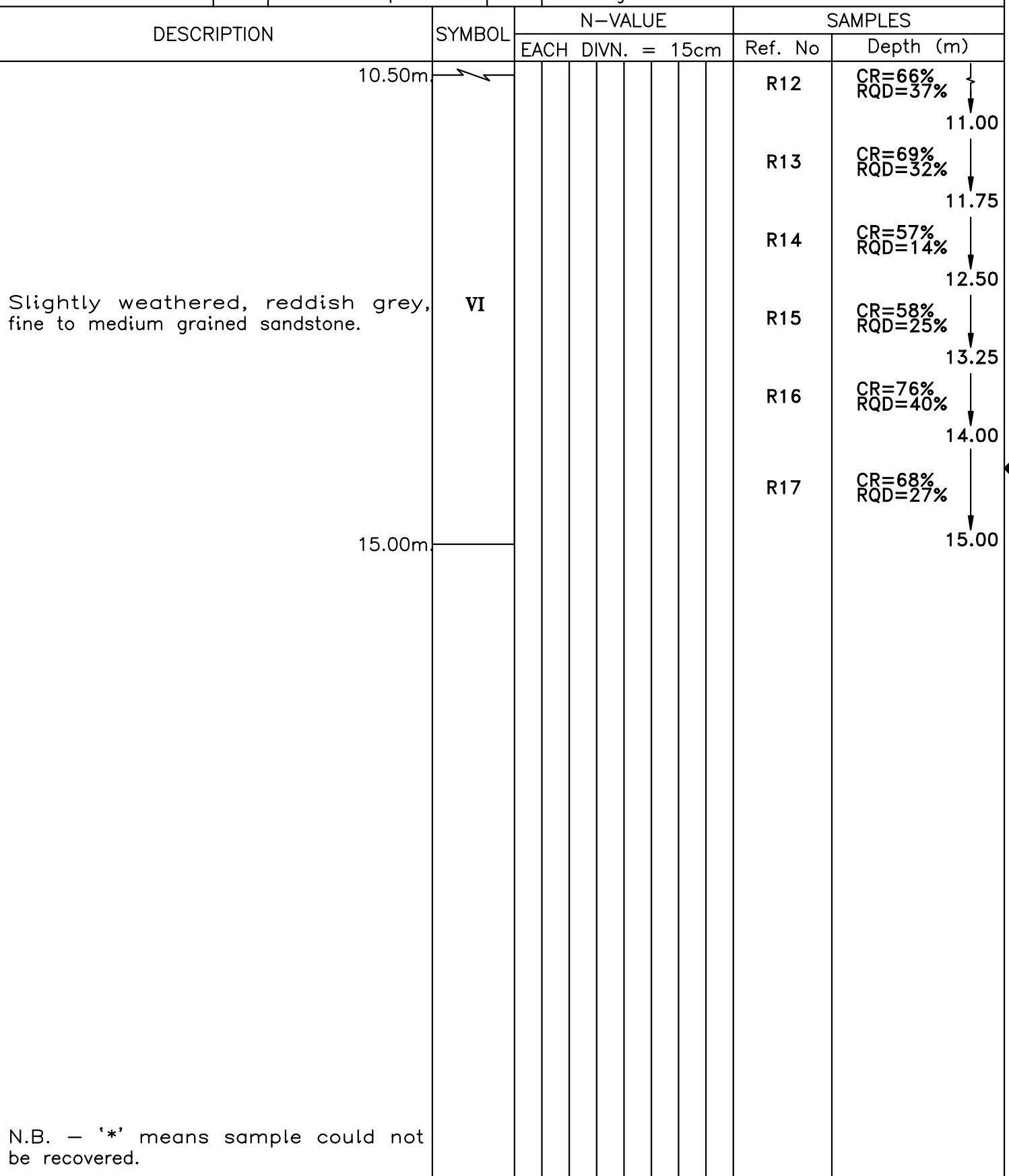
Created by : T.SAHA

Created on : 06/03/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO.59**Co-ordinates E=500.000
N=1364.000

Field Test	Nos	Samples	Nos	Commencement Date :	03/03/2020
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Completion Date :	05/03/2020
Cone (Pc)		Penetrometer (SPT)	2	Bore Hole Diameter :	150 mm./N.X
Vane (V)		Disturbed (DS)	2	Level Of Ground :	156.882 M.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.60 m.



BORE LOG DATA SHEET

BORE HOLE NO.60

Co-ordinates E=700
N=1560

Field Test	Nos	Samples	Nos	Commencement Date :	05/03/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	07/03/2020
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	2	Level Of Ground :	155.70 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	2.10 m
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES
		EACH	DIVN. = 15cm		Ref. No
0.00m Brownish grey, sandy silt. Obs. clay binder.	I		Refusal	DS-1	0.50
1.30m Highly weathered, reddish brown, fine to medium grained, highly fractured sandstone	V	50 5.0 cm	Pentn.	DS-2 *SPT-1 R1	1.00 1.30-1.35 CR=28%/RQD=NII
2.75m Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.	VI		NX rotary drilling from 1.30m to 14.75m	R2	2.00 2.75 3.50 4.25
4.25m Moderately to slightly weathered / fresh, reddish brown, fine to medium grained, moderately fractured sandstone.	VI			R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18	CR=52%/RQD=26% CR=53%/RQD=15% CR=72%/RQD=33% CR=67%/RQD=52% CR=60%/RQD=26% CR=69%/RQD=33% CR=57%/RQD=18% CR=65%/RQD=29% CR=56%/RQD=13% CR=62%/RQD=24% CR=64%/RQD=53% CR=60%/RQD=29% CR=64%/RQD=NII CR=66%/RQD=42% CR=70%/RQD=44% CR=84%/RQD=65%
14.75m					5.00 5.75 6.50 7.25 8.00 8.75 9.50 10.25 11.00 11.75 12.50 13.25 14.00 14.75
N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET **BORE HOLE NO.61** Co-ordinates E=575.000
N=1500.000

Field Test	Nos	Samples	Nos	Commencement Date : 01/03/2020
				Completion Date : 03/03/2020
				Bore Hole Diameter : 150 mm./N.X
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Level Of Ground : 157.178 M.
Cone (Pc)		Penetrometer (SPT)	2	Water Struck At :
Vane (V)		Disturbed (DS)	2	Standing Water Level : 2.95 m.
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
				Ref. No Depth (m)
0.00m Filled up soil consist of brownish grey, silty sand. Obs. brick bats & kankars.				DS-1 0.50
0.70m				DS-2 1.00
Very dense, reddish brown, silty sand with decomposded rock.		II	26 52 >100	SPT-1 1.50-1.80
2.00m Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		V	53 Refusal	*SPT-2 2.00-2.05
2.75m			5.0 cm Pentn.	CR=28% 2.00
2.75m Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		VI	NX. drilling from 2.00m to 15.00m	R1 CR=60% RQD=NIL
3.50m				R2 2.75
3.50m				R3 CR=60% RQD=17%
4.25m				R4 3.50
4.25m				R5 CR=70% RQD=23%
5.00m				R6 4.25
5.00m				R7 CR=76% RQD=50%
5.75m				R8 5.00
5.75m				R9 CR=65% RQD=34%
6.50m				R10 5.75
6.50m				R11 CR=69% RQD=60%
7.25m				R12 6.50
7.25m				R13 CR=68% RQD=24%
8.00m				R14 7.25
8.00m				R15 CR=78% RQD=57%
8.75m				R16 8.00
8.75m				R17 CR=88% RQD=49%
9.50m				CR=76% RQD=49%
9.50m				R11 8.75
10.25m				R12 CR=61% RQD=36%
10.25m				R13 9.50
11.00m				R14 CR=65% RQD=18%
11.00m				R15 10.25
11.75m				R16 CR=86% RQD=55%
11.75m				R17 11.00
12.50m				CR=85% RQD=46%
12.50m				R11 11.75
13.25m				R12 CR=80% RQD=40%
13.25m				R13 12.50
14.00m				R14 CR=92% RQD=32%
14.00m				R15 13.25
14.00m				R16 CR=86% RQD=84%
15.00m				R17 14.00
15.00m N.B. - '*' means sample could not be recovered.				CR=86% RQD=84%
				15.00

BORE LOG DATA SHEET		BORE HOLE NO.PLT-04/BH		Co-ordinates E=851.000 N=1253.000	
Field Test	Nos	Samples	Nos	Commencement Date : 20/05/2020 Completion Date : 22/05/2020 Bore Hole Diameter : 150 mm. / N.X. Level Of Ground : 151.979 M. Water Struck At : Standing Water Level : 3.50 m.	
Penetrometer (SPT)	3	Undisturbed (UDS)	0		
Cone (Pc)		Penetrometer (SPT)	3		
Vane (V)		Disturbed (DS)	3		
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN=15CM		SAMPLES
0.00m Filled up soil consists of RCC floor, 0.30m stone chips, gravels & kankars.			Ref. No		Depth (m)
Medium dense, yellowish grey, silty sand / sandy silt. Obs. clay binder.		(I)	DS-1 0.50 DS-2 1.00 SPT-1 1.50-1.95 DS-3 2.30 SPT-2 2.70-3.15		
3.50m Completely to highly weathered, reddish grey to whitish grey, fine to medium grained, highly fractured sandstone.		(IV)	*SPT-3 3.50-3.56 R1 CR=21% Penth. RQD=NIL DS-4 4.25 R2 CR=24% RQD=NIL R3 CR=28% RQD=NIL		3.50 4.25 5.00 5.75
5.00m Highly to moderately weathered, reddish brown, fine to medium grained, moderately fractured rock.		(V)	R4 CR=31% RQD=16% R5 CR=40% RQD=17% R6 CR=47% RQD=31% R7 CR=52% RQD=2730% R8 CR=49% RQD=40% R9 CR=51% RQD=17% R10 CR=63% RQD=45% R11 CR=61% RQD=41% R12 CR=64% RQD=37% R13 CR=65% RQD=51% R14 CR=63% RQD=57% R15 CR=71% RQD=39%		6.50 7.25 8.00 8.75 9.50 10.25 11.00 11.75 12.50 13.25 14.00 15.00
8.00m Slightly weathered, reddish brown, fine to medium grained, fractured rock.		(VI)			
15.00m N.B. - '*' means sample could not be recovered.					

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-6** | Co-ordinates E=712
N=1898

Field Test	Nos	Samples	Nos	Commencement Date :	12/02/2020	
				Completion Date :	13/02/2020	
				Bore Hole Diameter :	150 mm.	
Penetrometer (SPT)	3	Undisturbed (UDS)	1	Level Of Ground :	159.071 m.	
Cone (Pc)		Penetrometer (SPT)	3	Water Struck At :		
Vane (V)		Disturbed (DS)	3	Standing Water Level :	Not Available	
		Water Sample (WS)	0			
DESCRIPTION		SYMBOL	N-VALUE			
			EACH	DIVN. = 15cm	Ref. No	
0.00m			1	1	DS-1	
Filled up with deep grey, fly ash.			2	3	DS-2	
Medium to stiff, brownish grey to reddish brown, clayey silt with kankar, calcareous nodules & decomposed rock. Observed fine sand mixture.		IIIA	2	4	SPT-1	
3.50m			4	7	1.50–1.95	
5.05m			6	10	DS-3	
					*UDS-1	
					SPT-2	
					3.00–3.45	
					SPT-3	
					3.60–4.05	
					4.60–5.05	
N.B. – '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO. IBH-8			Co-ordinates E=837 N=1887	
Field Test	Nos	Samples	Nos	Commencement Date :	30/01/2020		
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date :	01/02/2020		
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter :	150mm / NX.		
Vane (V)		Disturbed (DS)	3	Level Of Ground :	158.836 m.		
		Water Sample (WS)	0	Water Struck At :			
				Standing Water Level :	5.50 m.		
DESCRIPTION			SYMBOL	N-VALUE		SAMPLES	
				EACH DIVN. = 15cm		Ref. No	Depth (m)
0.00m						DS-1	0.50
Filled up with dark grey, fly ash.				1	2	1	1.00
Very dense, reddish brown, silty sand with decomposed rock pcs.			II	17	22	42	1.30–1.75
3.90m				54	5	64	2.00
4.50m				5.0	cm	Pentn.	2.50–2.95
Highly weathered, reddish brown, fine to medium grained, highly fractured sandstone			II	NX rotary drilling from 4.50m to 25.00m		SPT-3 *SPT-4	2.95–3.40
6.75m						R1	4.00–4.45 4.50–4.55 4.50
Moderately weathered, reddish brown, fine to medium grained, moderately fractured sandstone.			II			R2	CR=26%/RQD=Nil 5.25
9.00m						R3	CR=31%/RQD=Nil 6.00
Moderately to slightly weathered, reddish brown, fine to medium grained, fractured sandstone.			VI			R4	CR=36%/RQD=Nil 6.75
20.30m						R5	CR=42%/RQD=13% 7.50
						R6	CR=45%/RQD=17% 8.25
						R7	CR=48%/RQD=21% 9.00
						R8	CR=56%/RQD=37% 9.75
						R9	CR=52%/RQD=24% 10.50
						R10	CR=52%/RQD=21% 11.25
						R11	CR=41%/RQD=17% 12.00
						R12	CR=49%/RQD=33% 12.75
						R13	CR=45%/RQD=Nil 13.50
						R14	CR=54%/RQD=37% 14.25
						R15	CR=57%/RQD=42% 15.00
						R16	CR=47%/RQD=15% 15.75
						R17	CR=48%/RQD=Nil 16.50
						R18	CR=47%/RQD=28% 17.25
						R19	CR=59%/RQD=19% 18.00
						R20	CR=68%/RQD=44% 18.75
						R21	CR=76%/RQD=41% 19.50
							CR=72%/RQD=17% 20.25

BORE LOG DATA SHEET			BORE HOLE NO. IBH-8			Co-ordinates E=837 N=1887		
Field Test	Nos	Samples	Nos	Commencement Date : 30/01/2020 Completion Date : 01/02/2020 Bore Hole Diameter : 150mm / NX. Level Of Ground : 158.836 m. Water Struck At : Standing Water Level : 5.50 m.				
Penetrometer (SPT)	4	Undisturbed (UDS)	1					
Cone (Pc)		Penetrometer (SPT)	4					
Vane (V)		Disturbed (DS)	3					
		Water Sample (WS)	0					
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm			SAMPLES	
20.30m			VI	R22	CR=59%/RQD=34% 21.00			
Moderately to slightly weathered, reddish brown, fine to medium grained, moderately fractured sandstone.				R23	CR=56%/RQD=32% 21.75			
24.00m				R24	CR=48%/RQD=21% 22.50			
Fresh, reddish brown, fine to medium grained sandstone.				R25	CR=61%/RQD=21% 23.25			
25.00m				R26	CR=60%/RQD=20% 24.00			
				R27	CR=89%/RQD=46% 25.00			
<p>N.B. - '*' means sample could not be recovered.</p>								

BORE LOG DATA SHEET			BORE HOLE NO. IBH-9			Co-ordinates E=861 N=1905	
Field Test	Nos	Samples	Nos	Commencement Date : 27/01/2020 Completion Date : 30/01/2020 Bore Hole Diameter : 150mm / NX. Level Of Ground : 158.813 m. Water Struck At : Standing Water Level : 5.45 m			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Filled up with dark grey, fly ash.				1 2 2	4	DS-1 DS-2 SPT-1	0.50 1.00 1.50–1.95
3.50m			IIIA	2 3 4	7	DS-3 UDS-1 SPT-2	2.50 3.00–3.45 3.45–3.90
Medium, whitish grey, clayey silt / silty clay with kankar & decomposed rock pcs. Observed sand mixture.				41 52 10.0 cm	>100 Pentr. Refusal	SPT-3 *SPT-4 R1	4.50–4.75 5.00–5.04 5.00 CR=29%/RQD=Nil ↓ 5.75
5.00m				55 4.0 cm	Pentr.	R2	CR=27%/RQD=17% ↓ 6.50
					NX rotary drilling from 5.00m to 25.25m	R3	CR=53%/RQD=23% ↓ 7.25
Highly to moderately weathered, reddish grey, fine to medium grained, moderately fractured sandstone.			V			R4	CR=33%/RQD=Nil ↓ 8.00
14.75m						R5	CR=37%/RQD=Nil ↓ 8.75
Moderately weathered, reddish grey, fine to medium grained, moderately fractured sandstone.			VI			R6	CR=26%/RQD=Nil ↓ 9.50
20.30m						R7	CR=46%/RQD=Nil ↓ 10.25
						R8	CR=44%/RQD=Nil ↓ 11.00
						R9	CR=40%/RQD=Nil ↓ 11.75
						R10	CR=50%/RQD=NII ↓ 12.50
						R11	CR=36%/RQD=NII ↓ 13.25
						R12	CR=60%/RQD=28% ↓ 14.00
						R13	CR=50%/RQD=NII ↓ 14.75
						R14	CR=60%/RQD=32% ↓ 15.50
						R15	CR=54%/RQD=16% ↓ 16.25
						R16	CR=50%/RQD=16% ↓ 17.00
						R17	CR=44%/RQD=NII ↓ 17.75
						R18	CR=50%/RQD=25% ↓ 18.50
						R19	CR=56%/RQD=21% ↓ 19.25
						R20	CR=50%/RQD=20% ↓ 20.00

BORE LOG DATA SHEET			BORE HOLE NO. IBH-9			Co-ordinates E=861 N=1905	
Field Test	Nos	Samples	Nos	Commencement Date : 27/01/2020 Completion Date : 30/01/2020 Bore Hole Diameter : 150mm / NX. Level Of Ground : 158.813 m. Water Struck At : Standing Water Level : 5.45 m			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm			SAMPLES
Moderately weathered, reddish grey medium grained, moderately fractured sandstone	20.30m 20.75m		VI	R21	CR=57%/RQD=33% 20.75		
Slightly weathered to fresh, reddish grey / reddish brown, fine to medium grained, fractured sandstone	25.25m		VI	R22	CR=61%/RQD=46% 21.50		
				R23	CR=68%/RQD=38% 22.25		
				R24	CR=74%/RQD=53% 23.00		
				R25	CR=61%/RQD=44% 23.75		
				R26	CR=76%/RQD=33% 24.50		
				R27	CR=84%/RQD=80% 25.25		
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-10** | Co-ordinates E=886
N=1898

Field Test	Nos	Samples	Nos	Commencement Date : 02/02/2020
				Completion Date : 04/02/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 158.739 m.
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	4	Standing Water Level : 5.40 m.
Vane (V)		Disturbed (DS)	4	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
0.00m				
Filled up with dark grey, fly ash.			1 2 2 4	DS-1 0.50 DS-2 1.00 SPT-1 1.30-1.75 DS-3 2.00
Very dense, reddish brown, silty sand with decomposed rock.		II	2 2 3 5 89 Refusal	*UDS-1 2.50-2.95 SPT-2 2.95-3.40 DS-4 4.00 SPT-3 4.50-4.95 SPT-4 5.00-5.03 5.00 R1 CR=30%/RQD=NII 5.75 R2 CR=32%/RQD=NII 6.50 R3 CR=28%/RQD=NII 7.25 R4 CR=53%/RQD=36% 8.00 R5 CR=50%/RQD=33% 8.75 R6 CR=49%/RQD=16% 9.50 R7 CR=44%/RQD=13% 10.25 R8 CR=46%/RQD=NII 11.00 R9 CR=40%/RQD=NII 11.75 R10 CR=41%/RQD=NII 12.50 R11 CR=53%/RQD=36% 13.25 R12 CR=56%/RQD=NII 14.00 R13 CR=53%/RQD=22% 14.75 R14 CR=61%/RQD=28% 15.50 R15 CR=54%/RQD=36% 16.25 R16 CR=66%/RQD=NII 17.00 R17 CR=60%/RQD=44% 17.75 R18 CR=69%/RQD=NII 18.50 R19 CR=60%/RQD=24% 19.25 R20 CR=60%/RQD=16% 20.00
5.00m			20 39 50 3.0 cm Pentn.	NX rotary drilling from 5.00m to 25.10m
12.50m		V		
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		VI		
14.75m		VI		
Moderately to slightly weathered, reddish grey, fine grained, moderately fractured sandstone		VI		
20.30m				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-10** | Co-ordinates E=886
N=1898

Field Test	Nos	Samples	Nos	Commencement Date :	02/02/2020
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date :	04/02/2020
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	4	Level Of Ground :	158.739 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	5.40 m.

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
Moderately to slightly weathered, reddish grey, fine grained, moderately fractured sandstone.	VI				R21	CR=62%/RQD=56% 20.75
					R22	CR=53%/RQD=42% 21.50
					R23	CR=56%/RQD=36% 22.25
					R24	CR=66%/RQD=58% 23.00
					R25	CR=72%/RQD=56% 23.75
					R26	CR=76%/RQD=48% 24.50
					R27	CR=78%/RQD=78% 25.10
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET			BORE HOLE NO. IBH-11			Co-ordinates E=922 N=1898	
Field Test	Nos	Samples	Nos	Commencement Date : 05/02/2020 Completion Date : 07/02/2020 Bore Hole Diameter : 150mm / NX. Level Of Ground : 158.599 m. Water Struck At : Standing Water Level : 5.25 m.			
Penetrometer (SPT)	4	Undisturbed (UDS)	1				
Cone (Pc)		Penetrometer (SPT)	4				
Vane (V)		Disturbed (DS)	3				
		Water Sample (WS)	0				
DESCRIPTION			SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
0.00m						Ref. No	Depth (m)
Filled up with deep grey, fly ash.				2 2 4	6	DS-1 DS-2	0.50 1.00
Very dense, reddish brown, silty sand with calcareous nodules, decomposed rock pcs.	3.80m	II	47 55 10.0 cm	2 4 6	10 >100 Pentr.	SPT-1 SPT-2 SPT-3 *SPT-4 R1	1.50-1.95 3.45-3.90 4.50-4.75 5.00-5.05 5.00 CR=25%/RQD=Nil
Highly weathered, reddish brown, fine grained, highly fractured sandstone.	5.00m	IV	54 5.0 cm		Refusal Pentr.	R2	5.75
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.	5.75m	V			NX rotary drilling from 5.00m to 25.05m	R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20	6.50 7.25 8.00 8.75 9.50 10.25 11.00 11.75 12.50 13.25 14.00 14.75 15.50 16.25 17.00 17.75 18.50 19.25 20.00
Moderately to slightly weathered, reddish brown, fine to medium grained, highly fractured sandstone.	17.75m	VI					
	20.30m						

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-11** | Co-ordinates E=922
N=1898

Field Test	Nos	Samples	Nos	Commencement Date :	05/02/2020
Penetrometer (SPT)	4	Undisturbed (UDS)	1	Completion Date :	07/02/2020
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter :	150mm / NX.
Vane (V)		Disturbed (DS)	3	Level Of Ground :	158.599 m.
		Water Sample (WS)	0	Water Struck At :	
				Standing Water Level :	5.25 m

DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN. = 15cm		Ref. No	Depth (m)
Moderately to slightly weathered, reddish brown, fine to medium grained, highly fractured sandstone. 20.30m 21.50m	VI				R21	CR=62%/RQD=57% 20.75
Moderately to slightly weathered, reddish grey, fine to medium grained, fractured sandstone. 25.05m	VI				R22	CR=57%/RQD=33% 21.50
					R23	CR=72%/RQD=69% 22.25
					R24	CR=78%/RQD=40% 23.00
					R25	CR=63%/RQD=57% 23.75
					R26	CR=56%/RQD=29% 24.50
					R27	CR=48%/RQD=44% 25.05

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

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-12** | Co-ordinates E=520
N=1516

Field Test	Nos	Samples	Nos	Commencement Date : 15/05/2020
				Completion Date : 17/05/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 158.199 M
Penetrometer (SPT)	3	Undisturbed (UDS) Penetrometer (SPT) 8.25m	0 3	Water Struck At :
Cone (Pc)		Disturbed (DS)	3	Standing Water Level : 5.40 m
Vane (V)		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	SAMPLES
0.00m		I		Ref. No Depth (m)
Yellowish grey, sandy silt. Observed clay binder.				DS-1 0.50
1.30m				DS-2 1.00
Medium dense, reddish brown, sandy silt with clay binder. Observed decomposed rock.		I	4 8 14 22	SPT-1 1.50–1.95
			7 10 17 27	DS-3 2.50
				SPT-2 3.00–3.45
3.80m		IV	52 5.0 cm Pentn.	*SPT-3 3.80–3.85 3.80
Highly weathered, reddish grey to reddish brown, fine to medium grained, highly fractured sandstone.				R1 CR=21%/RQD=Nill 4.50
5.25m				R2 CR=24%/RQD=Nill 5.25
				R3 CR=28%/RQD=Nill 6.00
				R4 CR=27%/RQD=Nill 6.75
				R5 CR=29%/RQD=Nill 7.50
				R6 CR=27%/RQD=Nill 8.25
				R7 CR=25%/RQD=Nill 9.00
				R8 CR=27%/RQD=Nill 9.75
				R9 CR=31%/RQD=Nill 10.50
				R10 CR=29%/RQD=Nill 11.25
				R11 CR=40%/RQD=13% 12.00
				R12 CR=47%/RQD=36% 12.75
				R13 CR=49%/RQD=53% 13.50
				R14 CR=52%/RQD=37% 14.25
13.50m		VI		R15 CR=60%/RQD=29% 15.00
Moderately weathered, reddish grey to reddish brown, fine to medium grained, highly fractured sandstone.				R16 CR=61%/RQD=39% 15.75
15.00m				R17 CR=79%/RQD=57% 16.50
Slightly weathered, reddish brown, fine to medium grained, fractured sandstone.		VI		R18 CR=76%/RQD=52% 17.25
17.25m				
N.B. – '*' means sample could not be recovered.				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH- 13** | Co-ordinates E=520
N=1699

Field Test	Nos	Samples	Nos	Commencement Date : 12/05/2020
				Completion Date : 14/05/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	3	Undisturbed (UDS)	0	Level Of Ground : 161.054 M
Cone (Pc)		Penetrometer (SPT)	3	Water Struck At :
Vane (V)		Disturbed (DS)	3	Standing Water Level : 6.15 m
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	SAMPLES
0.00m		I	3 8 12 20 9 11 17 28 Refusal	DS-1 0.50 DS-2 1.00 SPT-1 1.50-1.95 DS-3 2.30 SPT-2 2.50-2.95
Medium dense, reddish brown, sandy silt with clay binder.		IV	52 5.0 cm Pentn.	*SPT-3 3.50-3.55 3.50 R1 CR=20%/RQD=NII 4.25
3.50m				R2 CR=27%/RQD=NII 5.00
Completely weathered, reddish grey, fine grained, highly fractured sandstone.	4.25m			R3 CR=29%/RQD=13% 5.75
		V	NX rotary drilling from 3.50m to 20.00m	R4 CR=28%/RQD=NII 6.50
Highly to moderately weathered, reddish grey, medium grained, highly fractured sandstone.				R5 CR=41%/RQD=NII 7.25
		VI		R6 CR=48%/RQD=NII 8.00
				R7 CR=57%/RQD=15% 8.75
11.00m				R8 CR=49%/RQD=Nil 9.50
Moderately to slightly weathered, reddish grey / reddish brown, fine to medium grained, fractured sandstone.				R9 CR=47%/RQD=43% 10.25
				R10 CR=49%/RQD=27% 11.00
				R11 CR=59%/RQD=18% 11.75
				R12 CR=67%/RQD=28% 12.50
				R13 CR=68%/RQD=39% 13.25
				R14 CR=63%/RQD=43% 14.00
				R15 CR=65%/RQD=20% 14.75
				R16 CR=63%/RQD=40% 15.50
				R17 CR=68%/RQD=39% 16.25
				R18 CR=73%/RQD=44% 17.00
				R19 CR=71%/RQD=51% 17.75
				R20 CR=76%/RQD=36% 18.50
				R21 CR=73%/RQD=53% 19.25
				R22 CR=77%/RQD=57% 20.00
N.B. - '*' means sample could not be recovered.		20.00m		

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-14** | Co-ordinates E=590
N=1434

Field Test	Nos	Samples	Nos	Commencement Date : 11/05/2020
				Completion Date : 13/05/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground : 156.185 m.
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :
Vane (V)		Disturbed (DS)	2	Standing Water Level : 1.80 m
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm	
Yellowish brown to reddish brown, silty sand with traces of decomposed rock.	0.00m	I		
Highly weathered, light yellowish brown to reddish brown, medium to fine grained sandstone.	1.50m	IV	50 NX rotary drilling from 1.50m to 17.25m	DS-1 DS-2 *SPT-1 R1 Refusal Pentn. R2 CR=23%/RQD=17% R3 CR=21%/RQD=NII R4 CR=23%/RQD=NII R5 CR=21%/RQD=Nil R6 CR=24%/RQD=Nil R7 CR=25%/RQD=20% R8 CR=31%/RQD=24% R9 CR=43%/RQD=Nil R10 CR=45%/RQD=Nil R11 CR=48%/RQD=15% R12 CR=56%/RQD=21% R13 CR=49%/RQD=19% R14 CR=63%/RQD=23% R15 CR=69%/RQD=44% R16 CR=63%/RQD=39% R17 CR=61%/RQD=47% R18 CR=64%/RQD=39% R19 CR=71%/RQD=49% R20 CR=73%/RQD=45% R21 CR=75%/RQD=47%
Highly weathered, reddish brown, fine grained sandstone.	6.75m	V	7.50m	
Moderately weathered, reddish brown, medium to fine grained sandstone with grey patches.	11.25m	V		
Slightly weathered, reddish brown, medium to fine grained sandstone with grey patches.	17.25m	VI		
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH- 15** | Co-ordinates E=437
N=1358

Field Test	Nos	Samples	Nos	Commencement Date : 09/03/2020
				Completion Date : 11/03/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Level Of Ground : 157.218 m.
Cone (Pc)		Penetrometer (SPT)	2	Water Struck At :
Vane (V)		Disturbed (DS)	2	Standing Water Level : 1.90 m
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m		I	10 14 19	DS-1 0.50
Medium dense, brownish grey, sandy silt / silty sand with clay binder & decomposed rock.			33 Refusal	DS-2 1.00
2.00m			52 5.0 cm Pentn.	SPT-1 1.30–1.75
			NX rotary drilling from 2.00m to 20.75m	
				*SPT-2 2.00–2.05 2.00
				R1 CR=30%/RQD=NII 2.75
				R2 CR=38%/RQD=13% 3.50
				R3 CR=36%/RQD=17% 4.25
				R4 CR=38%/RQD=14% 5.00
				R5 CR=44%/RQD=32% 5.75
				R6 CR=44%/RQD=13% 6.50
				R7 CR=42%/RQD=NII 7.25
				R8 CR=44%/RQD=NII 8.00
				R9 CR=33%/RQD=18% 8.75
				R10 CR=36%/RQD=NII 9.50
				R11 CR=33%/RQD=13% 10.25
				R12 CR=49%/RQD=27% 11.00
				R13 CR=42%/RQD=31% 11.75
				R14 CR=43%/RQD=23% 12.50
				R15 CR=46%/RQD=NII 13.25
				R16 CR=42%/RQD=14% 14.00
				R17 CR=44%/RQD=16% 14.75
				R18 CR=45%/RQD=14% 15.50
15.50m		VI		R19 CR=52%/RQD=32% 16.25
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.				R20 CR=56%/RQD=29% 17.00
17.00m		VI		R21 CR=70%/RQD=26% 17.75
Slightly weathered to fresh, reddish brown / reddish grey, fine to medium grained sandstone.				R22 CR=66%/RQD=27% 18.50
N.B. – '*' means sample could not be recovered.				R23 CR=78%/RQD=49% 19.25
20.75m				R24 CR=65%/RQD=29% 20.00
				R25 CR=88%/RQD=54% 20.75

BORE LOG DATA SHEET		BORE HOLE NO. IBH-16		Co-ordinates E=417.000 N=1367.000	
Field Test	Nos	Samples	Nos	Commencement Date : 06/03/20 Completion Date : 08/03/20 Bore Hole Diameter : 150 mm. / NX.	
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground : 158.106 m.	
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :	
Vane (V)		Disturbed (DS)	0	Standing Water Level : 3.60 m.	
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES
			Ref. No	Depth (m)	
0.00m					DS-1 0.50
Filled up soil deep grey, sandy silt with organics.c matter & scrub, garbage					DS-2 1.00
3.60m					DS-3 1.50
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.					DS-4 2.00
8.00m					DS-5 2.50
Slightly weathered to fresh, reddish grey / reddish brown, fine to medium grained, fractured sandstone					DS-6 3.00
10.50m					
NX. rotary drilling from 3.60m to 25.25m					
Refusal					
50 cm Penth.					
V					
VI					
R1					*SPT-1 3.60-3.67 CR=33% RQD=NIL
R2					
R3					
R4					
R5					
R6					
R7					
R8					
R9					
3.60					
4.25					
5.00					
5.75					
6.50					
7.25					
8.00					
8.75					
9.50					
10.25					

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-16** | Co-ordinates E=417.000
N=1367.000

Field Test	Nos	Samples	Nos	Commencement Date :	06/03/20
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	08/03/20
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150 mm. / NX.
Vane (V)		Disturbed (DS)	0	Level Of Ground :	158.106 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)
10.50m.					R10	CR=67% RQD=29%
					R11	11.00 CR=65% RQD=37%
					R12	11.25 CR=61% RQD=53%
					R13	12.50 CR=62% RQD=NIL
					R14	12.25 CR=63% RQD21%
					R15	14.00 CR=62% RQD=13%
					R16	14.75 CR=65% RQD=19%
					R17	15.50 CR=71% RQD=48%
					R18	16.25 CR=69% RQD=32%
					R19	17.00 CR=62% RQD=NIL
					R20	17.75 CR=67% RQD=NIL
					R21	18.50 CR=70% RQD=NIL
					R22	19.25 CR=61% RQD=NIL
					R23	20.00 CR=68% RQD=28%
21.00m.						20.75

Slightly weathered to fresh, reddish grey / reddish brown, fine to medium grained, fractured sandstone VI

BORE LOG DATA SHEET		BORE HOLE NO. IBH-16		Co-ordinates E=417.000 N=1367.000				
Field Test	Nos	Samples	Nos	Commencement Date : 06/03/20 Completion Date : 08/03/20 Bore Hole Diameter : 150 mm. / NX. Level Of Ground : 158.106 m. Water Struck At : Standing Water Level : 3.60 m.				
Penetrometer (SPT)	1	Undisturbed (UDS)	0					
Cone (Pc)		Penetrometer (SPT)	1					
Vane (V)		Disturbed (DS)	0					
		Water Sample (WS)	0					
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES			
21.00m.		VI			R24			
					CR=63% RQD=27%			
					21.50			
					R25			
					CR=71% RQD=28%			
					22.25			
					R26			
					CR=68% RQD=37%			
					23.00			
Slightly weathered to fresh, reddish grey / reddish brown, fine to medium grained, fractured sandstone					R27			
					CR=82% RQD=31%			
					23.75			
					R28			
					CR=85% RQD=42%			
					24.50			
					R29			
					CR=91% RQD=55%			
25.25m.					25.25			
N.B. - '*' means sample could not be recovered.								

BORE LOG DATA SHEET		BORE HOLE NO. IBH-17		Co-ordinates E=388.000 N=1348.000		
Field Test	Nos	Samples	Nos	Commencement Date :	12/03/2020	
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Completion Date :	14/03/2020	
Cone (Pc)		Penetrometer (SPT)	1	Bore Hole Diameter :	150 mm. / NX.	
Vane (V)		Disturbed (DS)	2	Level Of Ground :	158.121 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 brownish grey, sandy silt with scrub, garbage etc.				DS-1	0.50	
1.50m				DS-2	1.00	
Highly weathered, reddish brown, fine to medium grained, highly fractured sandstone.		IV	50 6.0 cm	Refusal Pentn.	SPT-1 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12	1.50–1.56 CR=21% RQD=NIL 2.25 CR=22% RQD=NIL 3.00 CR=25% RQD=NIL 3.75 CR=42% RQD=22% 4.50 CR=46% RQD=37% 5.25 CR=36% RQD=NIL 6.00 CR=39% RQD=NIL 6.75 CR=35% RQD=NIL 7.50 CR=43% RQD=17% 8.25 CR=41% RQD=NIL 9.00 CR=44% RQD=29% 9.75 CR=62% RQD=36% 10.50
3.75m						
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		V				
9.75m						
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone.		VI				
10.50m						

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-17** | Co-ordinates E=388.000
N=1348.000

Field Test	Nos	Samples	Nos	Commencement Date : 12/03/2020	
				Completion Date : 14/03/2020	
				Bore Hole Diameter : 150 mm. / NX.	
				Level Of Ground : 158.121 m.	
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Water Struck At :	
Cone (Pc)		Penetrometer (SPT)	1	Standing Water Level : 1.50 m.	
Vane (V)		Disturbed (DS)	2		
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL	N-VALUE		
			EACH	DIVN. = 15cm	
10.50m.		VI	R13	CR=56% RQD=16%	
			R14	CR=48% RQD=29%	
			R15	CR=51% RQD=16%	
			R16	CR=53% RQD=20%	
13.50m.			R17	CR=64% RQD=31%	
			R18	CR=67% RQD=28%	
			R19	CR=71% RQD=56%	
Slightly weathered to fresh, reddish brown, fine to medium grained, fractured sandstone.			R20	CR=75% RQD=33%	
			R21	CR=79% RQD=37%	
18.00m.			R22	CR=83% RQD=41%	

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-18** | Co-ordinates E=312.000
N=1311.000

Field Test	Nos	Samples	Nos	Commencement Date : 15/03/2020 Completion Date : 18/03/2020 Bore Hole Diameter : 150 mm. / NX. Level Of Ground : 158.663 M. Water Struck At : Standing Water Level : 1.30 m.			
DESCRIPTION		SYMBOL	N-VALUE			SAMPLES	
			EACH	DIVN. = 15cm		Ref. No	Depth (m)
			0.00m				
Brownish grey, sandy silt with decomposed rock.		I				DS-1	0.50
Highly weathered, reddish brown, fine to medium grained, highly fractured rock.	1.30m.	IV	50 5.0 cm	Refusal Pentn. NX. rotary drilling from 1.30m to 20.00m		*SPT-1 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12	1.00 1.30 CR=24% RQD=NIL 2.00 CR=23% RQD=NIL 2.75 CR=35% RQD=13% 3.50 CR=42% RQD=27% 4.25 CR=39% RQD=15% 5.00 CR=33% RQD=NIL 5.75 CR=36% RQD=NIL 6.50 CR=40% RQD=15% 7.25 CR=43% RQD=13% 8.00 CR=35% RQD=NIL 8.25 CR=41% RQD=NIL 9.50 CR=51% RQD=29% 10.25
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone	2.75m.	V					
	10.50m.						

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-18** | Co-ordinates E=312.000
N=1311.000

Field Test	Nos	Samples	Nos	Commencement Date : 15/03/2020 Completion Date : 18/03/2020 Bore Hole Diameter : 150 mm. / NX. Level Of Ground : 158.663 M. Water Struck At : Standing Water Level : 1.30 m.			
DESCRIPTION		SYMBOL	N-VALUE			SAMPLES	
			EACH	DIVN. = 15cm		Ref. No	Depth (m)
Penetrometer (SPT)	1	Undisturbed (UDS)	0			R13	CR=48% RQD=NIL 11.00
Cone (Pc)		Penetrometer (SPT)	1			R14	CR=43% RQD=21% 11.75
Vane (V)		Disturbed (DS)	1			R15	CR=56% RQD=40% 12.50
		Water Sample (WS)	0			R16	CR=64% RQD=20% 13.25
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone		V				R17	CR=68% RQD=13% 14.00
						R18	CR=66% RQD=21% 14.75
						R19	CR=69% RQD=27% 15.50
						R20	CR=71% RQD=51% 16.25
Slightly weathered to fresh, reddish brown to reddish grey, fine to medium grained, fractured sandstone		VI				R21	CR=63% RQD=34% 17.00
						R22	CR=65% RQD=28% 17.75
						R23	CR=72% RQD=37% 18.50
						R24	CR=67% RQD=29% 19.25
						R25	CR=81% RQD=32% 20.00
N.B. - '*' means sample could not be recovered.							

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-19** | Co-ordinates E=276.000
N=1280.000

Field Test	Nos	Samples	Nos	Commencement Date : 18/03/2020
				Completion Date : 20/03/2020
				Bore Hole Diameter : 150 mm. / NX.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground : 158.069 m.
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :
Vane (V)		Disturbed (DS)	20	Standing Water Level : 0.80 m.
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m. Reddish grey, clayey silt with sand mixtrue.		III	Refusal	Ref. No Depth (m)
0.80m.		51	5.0 cm Penth.	DS-1 0.50 *SPT-1 0.80-0.85 0.80 R1 CR=30% RQD=NIL 1.25 R2 CR=45% RQD=NIL 2.00 R3 CR=34% RQD=NIL 2.75 R4 CR=41% RQD=27% 3.50 R5 CR=39% RQD=13% 4.25 R6 CR=51% RQD=16% 5.00 R7 CR=44% RQD=13% 5.75 R8 CR=37% RQD=NIL 6.50 R9 CR=35% RQD=NIL 7.25 R10 CR=40% RQD=NIL 8.00 R11 CR=43% RQD=19% 8.75 R12 CR=54% RQD=21% 9.50 R13 CR=56% RQD=34% 10.25 R14 CR=65% RQD=43% 11.00 R15 CR=61% RQD=57% 11.75 R16 CR=68% RQD=45% 12.50 R17 CR=85% RQD=69% 13.25 R18 CR=81% RQD=64% 14.00 R19 CR=92% RQD=84% 14.50
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone		V	NX. rotary drilling from 0.80m to 14.50m	
8.75m.				
Moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.		VI		
10.00m.				
Slightly weathered to fresh, reddish brown, fine to medium grained sandstone		VI		
14.50m.				
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-20** | Co-ordinates E=252.000
N=1296.000

Field Test	Nos	Samples	Nos	Commencement Date : 07/05/2020
				Completion Date : 08/05/2020
				Bore Hole Diameter : 150 mm. / NX.
				Level Of Ground : 159.277 m.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	1	Standing Water Level : 1.00 m.
Vane (V)		Disturbed (DS)	1	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH	DIVN. = 15cm
0.00m		I		
Brownish grey, sandy silt with clay binders.				
1.00m.				
Highly weathered, reddish brown, fine to medium grained, fractured sandstone		IV	50	cm Pentn. Refusal
3.25m.			50	
Highly to moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone		V		
6.25m.				
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone		V		
7.75m.				
Moderately weathered, reddish brown, fine to medium grained, highly fractured sandstone		VI		
10.50m.				
SAMPLES				
			Ref. No	Depth (m)
			DS-1	0.50
			*SPT-1	1.00-1.05 1.00
			R1	CR=21% RQD=NIL
			R2	1.75
			R3	CR=23% RQD=NIL
			R4	2.50
			R5	CR=24% RQD=NIL
			R6	3.25
			R7	4.00
			R8	4.75
			R9	5.50
			R10	6.25
			R11	7.00
			R12	7.75
			R13	8.50
				CR=51% RQD=44%
				9.25
				CR=53% RQD=48%
				10.00
				CR=59% RQD=NIL

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-20** | Co-ordinates E=252.000
N=1296.000

Field Test	Nos	Samples	Nos	Commencement Date : 07/05/2020
				Completion Date : 08/05/2020
				Bore Hole Diameter : 150 mm. / NX.
				Level Of Ground : 159.277 m.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	1	Standing Water Level : 1.00 m.
Vane (V)		Disturbed (DS)	1	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH	DIVN. = 15cm
Moderately weathered, reddish brown, fine to medium grained, highly fractured rock		VI	R14	10.75
				CR=52% RQD=43%
			R15	11.50
				CR=64% RQD=19%
			R16	12.25
				CR=71% RQD=60%
			R17	13.00
				CR=73% RQD=52%
			R18	13.75
				CR=61% RQD=53%
			R19	14.50
				CR=67% RQD=56%
			R20	15.25
				CR=88% RQD=83%
			R21	16.00
				CR=80% RQD=75%
			R22	16.75
				CR=93% RQD=85%
Slightly wathered to fresh, reddish brown, fine to medium grained, fractured sandstone		VI		17.50
N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-21** | Co-ordinates E=260.000
N=1317.000

Field Test	Nos	Samples	Nos	Commencement Date : 09/05/2020
				Completion Date : 10/05/2020
				Bore Hole Diameter : 150 mm. / NX.
				Level Of Ground : 159.298 M.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Water Struck At :
Cone (Pc)		Penetrometer (SPT)	1	Standing Water Level : 0.80 m.
Vane (V)		Disturbed (DS)	1	
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	
0.00m Brownish grey, silty sand with decomposed rock.		I	Refusal	DS-1
0.80m Highly weathered, reddish brown, medium to fine grained, highly fractured sandstone		V	50 cm Penth. NX. rotary drilling from 0.80m to 15.75m	*SPT-1 R1 R2 R3 R4 R5 R6 R7 R8 R9 R10 R11 R12 R13 R14 R15 R16 R17 R18 R19 R20
5.25m Moderately to slightly watered, reddish browns, medium to fine grained, fractured sandstone		VI		0.50 0.80-0.83 0.80 CR=31% RQD=13% ↓ 1.50 CR=37% RQD=NIL ↓ 2.25 CR=39% RQD=NIL ↓ 3.00 CR=37% RQD=27% ↓ 3.75 CR=40% RQD=13% ↓ 4.50 CR=41% RQD=23% ↓ 5.25 CR=56% RQD=43% ↓ 6.00 CR=53% RQD=36% ↓ 6.75 CR=54% RQD=21% ↓ 7.50 CR=57% RQD=21% ↓ 8.25 CR=59% RQD=32% ↓ 9.00 CR=57% RQD=45% ↓ 9.75 CR=64% RQD=23% ↓ 10.50 CR=68% RQD=55% ↓ 11.25 CR=71% RQD=56% ↓ 12.00 CR=64% RQD=47% ↓ 12.75 CR=72% RQD=52% ↓ 13.50 CR=73% RQD=51% ↓ 14.25 CR=77% RQD=65% ↓ 15.00 CR=79% RQD=64% ↓ 15.50
15.50m N.B. - '*' means sample could not be recovered.				

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-22** | Co-ordinates E=294.000
N=1333.000

Field Test	Nos	Samples	Nos	Commencement Date :	06/03/2020
				Completion Date :	09/03/2020
				Bore Hole Diameter :	150 mm. / NX.
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground :	158.956 m.
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :	
Vane (V)		Disturbed (DS)	2	Standing Water Level :	1.20 m.
		Water Sample (WS)	0		
DESCRIPTION		SYMBOL		N-VALUE EACH DIVN. = 15cm	
0.00m					
Top soil consists of yellowish grey, sandy silt with brick bats.					
1.20m					
		50	5.0 cm	Refusal	DS-1 0.50
				Pentn.	DS-2 1.00
					*SPT-1 1.20-1.25 1.20
					R1 CR=22% RQD=NIL
					R2 CR=35% RQD=NIL
					R3 CR=26% RQD=NIL
					R4 CR=48% RQD=NIL
					R5 CR=46% RQD=NIL
					R6 CR=54% RQD=13%
					R7 CR=70% RQD=13%
					R8 CR=82% RQD=30%
					R9 CR=76% RQD=56%
					R10 CR=67% RQD=17%
					R11 CR=66% RQD=33%
					R12 CR=64% RQD=40%
5.00m					
Highly to moderately weathered, reddish brown, fine to medium grained, fractured sandstone		V			
5.75m					
6.50m					
7.25m					
8.00m					
8.75m					
9.50m					
10.25m					
10.50m		VI			

BORE LOG DATA SHEET | **BORE HOLE NO. IBH-22** | Co-ordinates E=294.000
N=1333.000

Field Test	Nos	Samples	Nos	Commencement Date :	06/03/2020
				Completion Date :	09/03/2020
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Bore Hole Diameter :	150 mm. / NX.
Cone (Pc)		Penetrometer (SPT)	1	Level Of Ground :	158.956 m.
Vane (V)		Disturbed (DS)	2	Water Struck At :	
		Water Sample (WS)	0	Standing Water Level :	1.20 m.
DESCRIPTION		SYMBOL		N-VALUE EACH DIVN. = 15cm	
10.50m.		VI		Ref. No	
Slightly weathered to fresh, reddish brown to reddish grey, fine to medium grained, moderately fractured sandstone		R13		CR=65% RQD=34%	
		R14		11.00 CR=69% RQD=54%	
		R15		11.75 CR=62% RQD=21%	
		R16		12.50 CR=76% RQD=47%	
		R17		13.25 CR=79% RQD=64%	
		R18		14.00 CR=79% RQD=45%	
		R19		14.75 CR=61% RQD=23%	
		R20		15.50 CR=72% RQD=27%	
		R21		16.25 CR=69% RQD=34%	
		R22		17.00 CR=77% RQD=55%	
		R23		17.75 CR=73% RQD=32%	
		R24		18.50 CR=72% RQD=29%	
		R25		19.25 CR=84% RQD=47%	
		R26		20.00 CR=81% RQD=56%	
N.B. — '*' means sample could not be recovered.		20.75m.		20.75	

Job No : 4371

Created by : SKD

Created on : 11/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO. CHST2**Co-ordinates E=817
N=1400

Field Test	Nos	Samples	Nos	Commencement Date : 13/02/2020		
Penetrometer (SPT)	4	Undisturbed (UDS)	0	Completion Date : 14/02/2020		
Cone (Pc)		Penetrometer (SPT)	4	Bore Hole Diameter : 150mm / NX.		
Vane (V)		Disturbed (DS)	4	Level Of Ground : 155.464 m.		
		Water Sample (WS)	0	Water Struck At :		
				Standing Water Level :		
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m Reddish brown, fine grained, silty sand with kankar.					DS-1 0.50	
1.00m					DS-2 1.00	
Stiff, brownish grey, clayey silt with kankar & calcareous nodules. Observed sand mixture & decomposed rock fragments.	IIIA	5 5 6 11			SPT-1 1.50–1.95	
Very stiff, brownish grey, clayey silt with kankar & calcareous nodules. Observed sand mixture & decomposed rock fragments.	III	5 5 8 9 14 17 Refusal			DS-3 2.50	
Moderately/slightly weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	VI	54 5.0 cm NX rotary drilling from 5.50m to 11.00m Penth.			SPT-2 3.00–3.45	
7.75m Highly to moderately weathered, reddish grey, fine to medium grained, moderately fractured sandstone.	V				DS-4 4.00	
11.00m					SPT-3 4.50–4.95	
					*SPT-4 5.50–5.55 R1 CR=53%/RQD=NII 6.25	
					R2 CR=64%/RQD=NII 7.00	
					R3 CR=54%/RQD=NII 7.75	
					R4 CR=39%/RQD=NII 8.50	
					R5 CR=49%/RQD=24% 9.25	
					R6 CR=35%/RQD=15% 10.00	
					R7 CR=46%/RQD=11% 11.00	
N.B. - '*' means sample could not be recovered.						

Job No : 4371

Created by : SKD

Created on : 11/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO. CHST3**Co-ordinates E=916
N=1400

Field Test	Nos	Samples	Nos	Commencement Date : 16/02/2020
				Completion Date : 17/02/2020
				Bore Hole Diameter : 150mm / NX.
Penetrometer (SPT)	2	Undisturbed (UDS)	0	Level Of Ground :
Cone (Pc)		Penetrometer (SPT)	2	Water Struck At :
Vane (V)		Disturbed (DS)	3	Standing Water Level :
		Water Sample (WS)	0	
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m		I		Ref. No Depth (m)
Medium dense, reddish grey, silty sand / sandy silt. Observed decomposed rock & kankar.			3 6 8 14	DS-1 0.50
Highly weathered, reddish brown, fine to medium grained, highly fractured sandstone.		V	52 7.0 cm PENTN.	DS-2 1.00
Moderately weathered, reddish brown fine to medium grained, highly fractured sandstone.		VI	NX rotary drilling from 3.00m to 11.00m	*SPT-1 1.50-1.95
Moderately to slightly weathered / fresh, reddish brown, fine to medium grained sandstone.		VI		DS-3 2.50
11.00m				R1 CR=28%/RQD=NII 3.00
				R2 CR=60%/RQD=35% 3.75
				R3 CR=89%/RQD=82% 4.50
				R4 CR=62%/RQD=48% 5.25
				R5 CR=61%/RQD=41% 6.00
				R6 CR=66%/RQD=15% 6.75
				R7 CR=53%/RQD=33% 7.50
				R8 CR=75%/RQD=52% 8.25
				R9 CR=58%/RQD=NII 9.00
				R10 CR=86%/RQD=56% 9.75
				R11 CR=90%/RQD=42% 10.50
				CR=90%/RQD=42% 11.00
N.B. - '*' means sample could not be recovered.				

Job No : 4371

Created by : SKD

Created on : 11/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO. CHST4**Co-ordinates
E=1074
N=1400

Field Test	Nos	Samples	Nos	Commencement Date : 15/02/2020
				Completion Date : 16/02/2020
				Bore Hole Diameter : 150mm / NX.
				Level Of Ground : 154.523 m.
				Water Struck At :
				Standing Water Level :
DESCRIPTION		SYMBOL	N-VALUE	
			EACH DIVN. = 15cm	SAMPLES
0.00m		IIIA		Ref. No Depth (m)
Stiff, reddish grey, clayey silt / silty clay with sand mixture & decomposed rock pcs. Observed kankar.		3 4 8	12	DS-1 0.50
			Refusal	DS-2 1.00
3.00m		55	7.0 cm Pentn.	SPT-1 1.50-1.95
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.		V	NX rotary drilling from 3.00m to 11.00m	DS-3 2.50
8.25m		IV		*SPT-2 3.00-3.07 3.00
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.				R1 CR=28%/RQD=NII 3.75
9.75m		V		R2 CR=36%/RQD=NII 4.50
Highly weathered, reddish grey, fine to medium grained, highly fractured sandstone.				R3 CR=33%/RQD=Nil 5.25
11.00m				R4 CR=29%/RQD=Nil 6.00
				R5 CR=23%/RQD=Nil 6.75
				R6 CR=27%/RQD=Nil 7.50
				R7 CR=29%/RQD=Nil 8.25
				R8 CR=25%/RQD=Nil 9.00
				R9 CR=25%/RQD=24% 9.75
				R10 CR=30%/RQD=16% 10.50
				R11 CR=35%/RQD=20% 11.00
N.B. - '*' means sample could not be recovered.				

Job No : 4371

Created by : SKD

Created on : 11/05/2020

Sheet No:

BORE LOG DATA SHEET**BORE HOLE NO. CHST5**Co-ordinates
E=1206
N=1479

Field Test	Nos	Samples	Nos	Commencement Date : 16/02/2020 Completion Date : 17/02/2020 Bore Hole Diameter : 150mm / NX. Level Of Ground : 155.621 m. Water Struck At : Standing Water Level :		
Penetrometer (SPT)	5	Undisturbed (UDS)	0			
Cone (Pc)		Penetrometer (SPT)	5			
Vane (V)		Disturbed (DS)	5			
		Water Sample (WS)	0			
DESCRIPTION	SYMBOL	N-VALUE			SAMPLES	
		EACH	DIVN.	= 15cm	Ref. No	Depth (m)
0.00m Top soil consists of reddish grey, silty sand / sandy silt. Observed kankar.					DS-1 0.50 DS-2 1.00	
1.20m		2 2 3	5	SPT-1 1.50–1.95		
Medium to stiff, brownish grey, clayey silt / silty clay.	IIIA	2 4 9	13	DS-3 2.50 SPT-2 3.00–3.45		
4.00m		12 28 37	65	DS-4 4.00 SPT-3 4.50–4.95		
Very dense, whitish grey, silty sand with decomposed rock fragments.	II	24 41 55	96 Refusal	DS-5 5.20 SPT-4 5.80–6.25		
6.50m		52	5.0 cm Pentn.	*SPT-5 6.50–6.55 R1 CR=31%/RQD=NII 7.25		
Highly to moderately weathered, reddish grey, fine to medium grained, highly fractured sandstone.	V		NX rotary drilling from 6.50m to 11.00m	R2 CR=32%/RQD=15% 8.00 R3 CR=31%/RQD=NII 8.75 R4 CR=45%/RQD=29% 9.50 R5 CR=78%/RQD=56% 10.25 R6 CR=62%/RQD=44% 11.00		
9.50m Slightly weathered, reddish brown, fine to medium grained, fractured sandstone.	VI					
11.00m						
N.B. - '*' means sample could not be recovered.						

BORE LOG DATA SHEET

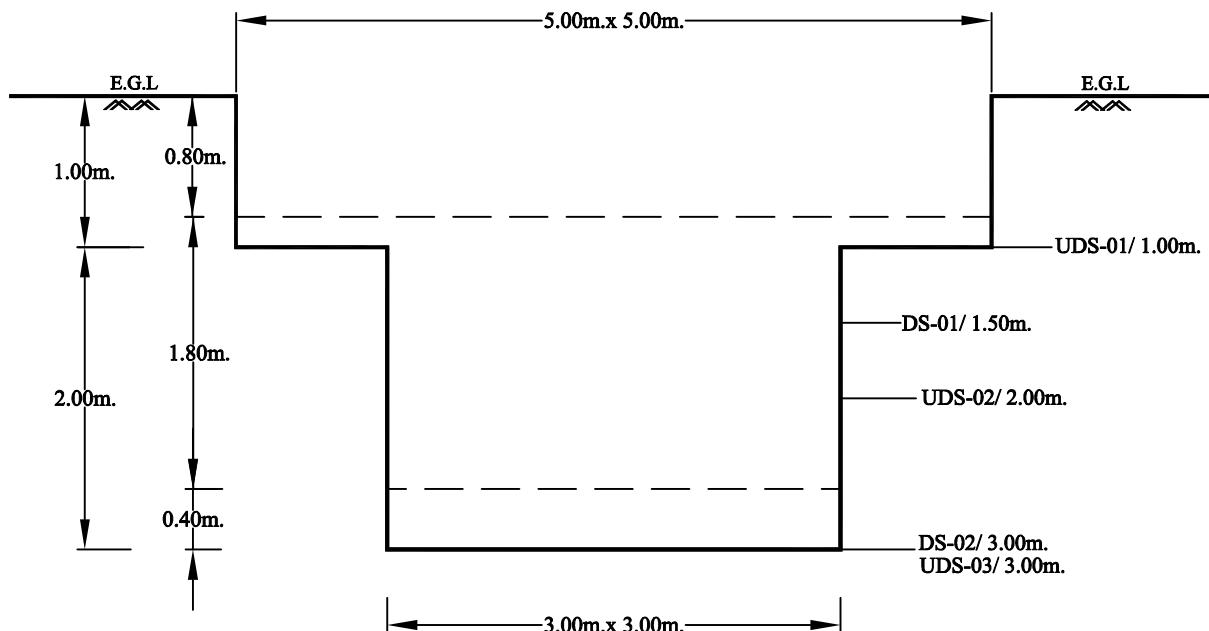
BORE HOLE NO. CHST6

Co-ordinates E=1347
N=338

Field Test	Nos	Samples	Nos	Commencement Date :	26/02/2020	
				Completion Date :	27/02/2020	
				Bore Hole Diameter :	150mm / NX.	
Penetrometer (SPT)	1	Undisturbed (UDS)	0	Level Of Ground :	158.871 m.	
Cone (Pc)		Penetrometer (SPT)	1	Water Struck At :		
Vane (V)		Disturbed (DS)	2	Standing Water Level :		
		Water Sample (WS)	0			
DESCRIPTION		SYMBOL	N-VALUE EACH DIVN. = 15cm		SAMPLES	
Top soil consists of sandy silt with 0.00m kankar, gravel. Observed clay binder.					Refusal	
Reddish grey, sandy silt / silty sand with decomposed rock fragments. Observed clay binder.		I	53 5.0 cm Pentn.		DS-1 0.50 DS-2 1.00 *SPT-1 1.50-1.55 1.50 R1 CR=23%/RQD=NII 2.25	
Highly weathered, reddish grey to whitish grey, fine to medium grained, highly fractured sandstone.		IV	NX rotary drilling from 1.50m to 11.00m		R2 CR=21%/RQD=NII 3.00 R3 CR=32%/RQD=13% 3.75 R4 CR=60%/RQD=13% 4.50 R5 CR=57%/RQD=15% 5.25 R6 CR=41%/RQD=Nil 6.00 R7 CR=60%/RQD=53% 6.75 R8 CR=64%/RQD=13% 7.50 R9 CR=76%/RQD=40% 8.25 R10 CR=53%/RQD=20% 9.00 R11 CR=64%/RQD=21% 9.75 R12 CR=66%/RQD=22% 10.50 R13 CR=94%/RQD=24% 11.00	
Moderately weathered, reddish grey to whitish grey, fine to medium grained, highly fractured sandstone.		VI				
Moderately weathered, whitish grey, medium grained, highly fractured sandstone		VI				
Moderately to slightly weathered / fresh, reddish grey, fine to medium grained, fractured sandstone.		VI				
11.00m						
N.B. - '*' means sample could not be recovered.						

Co-ordinates(M):
E =1196.000
N =1353.000
RL =153.655 M

SWL = 2.50 m.



EGL-0.80m:- Brownish grey, sandy silt. Obs. clay binder & organic matter.

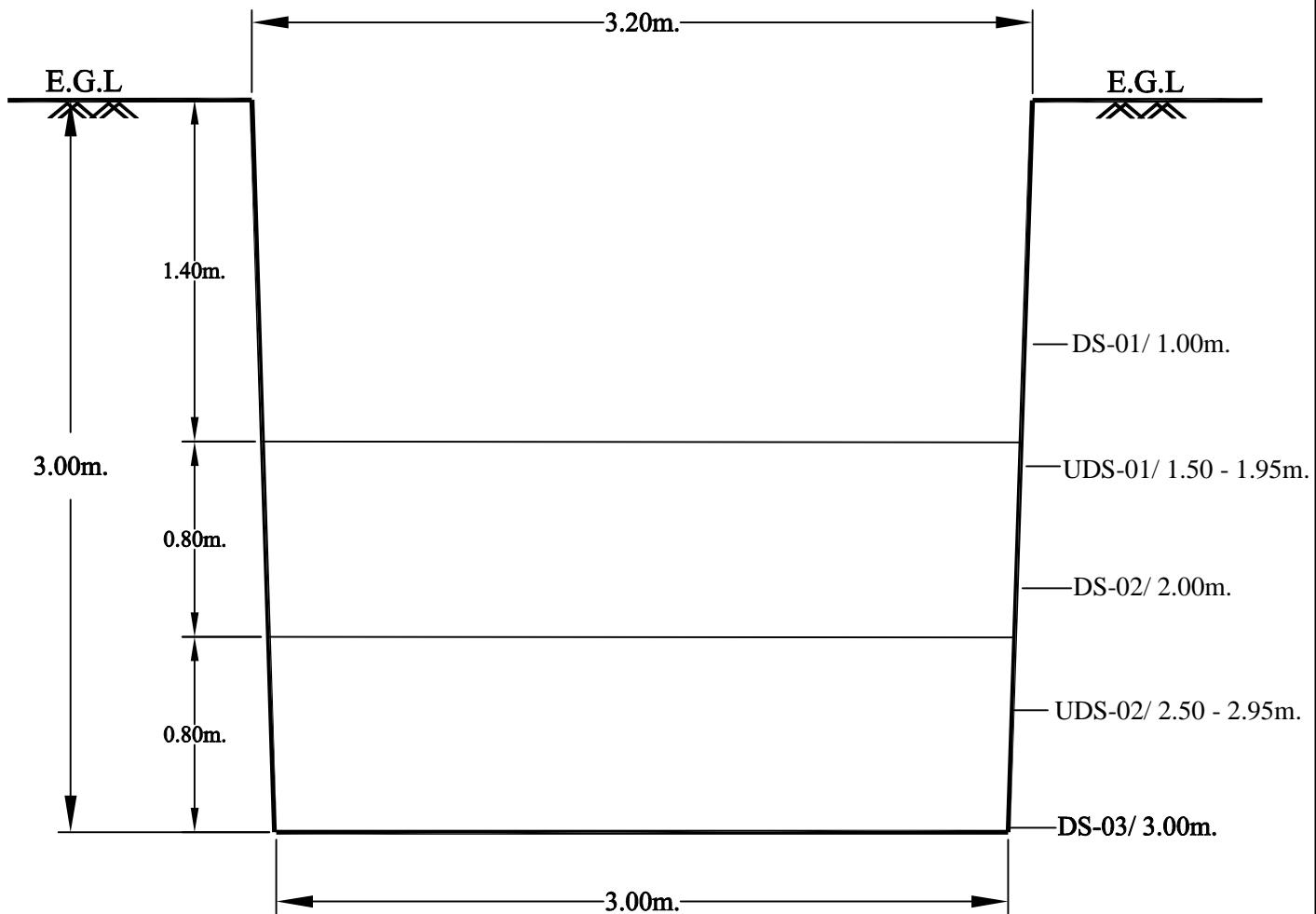
0.80-2.60m:- Whitish grey, clayey silt with calcareous nodules & kankar.

2.60-3.00m:- Reddish grey, sandy silt with decomposed rock fragments.

PIT LOG FOR PLT-02

Co-ordinates (M):
 E = 858.000
 N = 1410.000
 RL = 155.444 M

SWL = Not Found



EGL - 1.40m:- Reddish brown to brownish grey clayey silt with sand & calcareous nodules.

1.40m - 2.20m:- Yellowish brown / brownish grey silty sand.

2.20m - 3.30m:- Brownish grey to reddish brown silty sand with decomposed rock.

PIT LOG FOR PLT-04

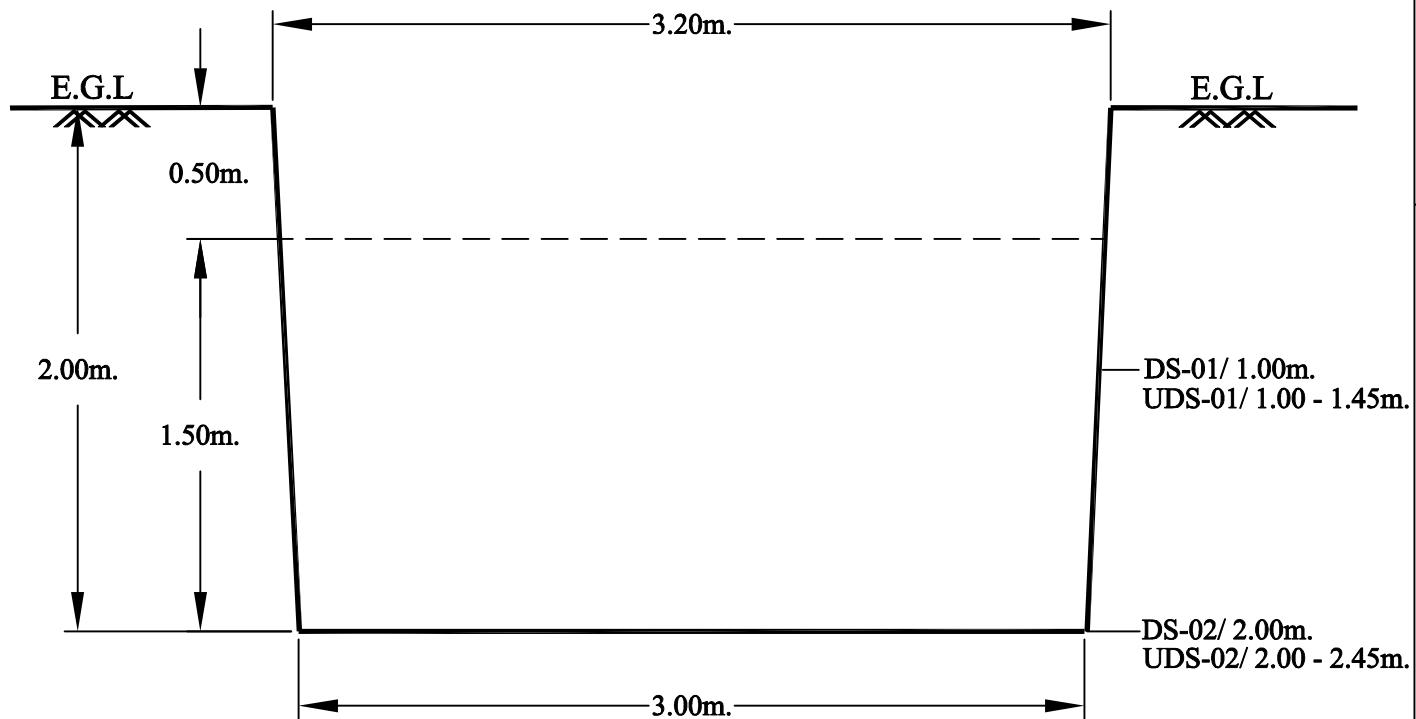
Co-ordinates (M):

E = 851.000

N = 1405.000

RL = 154.672 M

SWL = Not Found



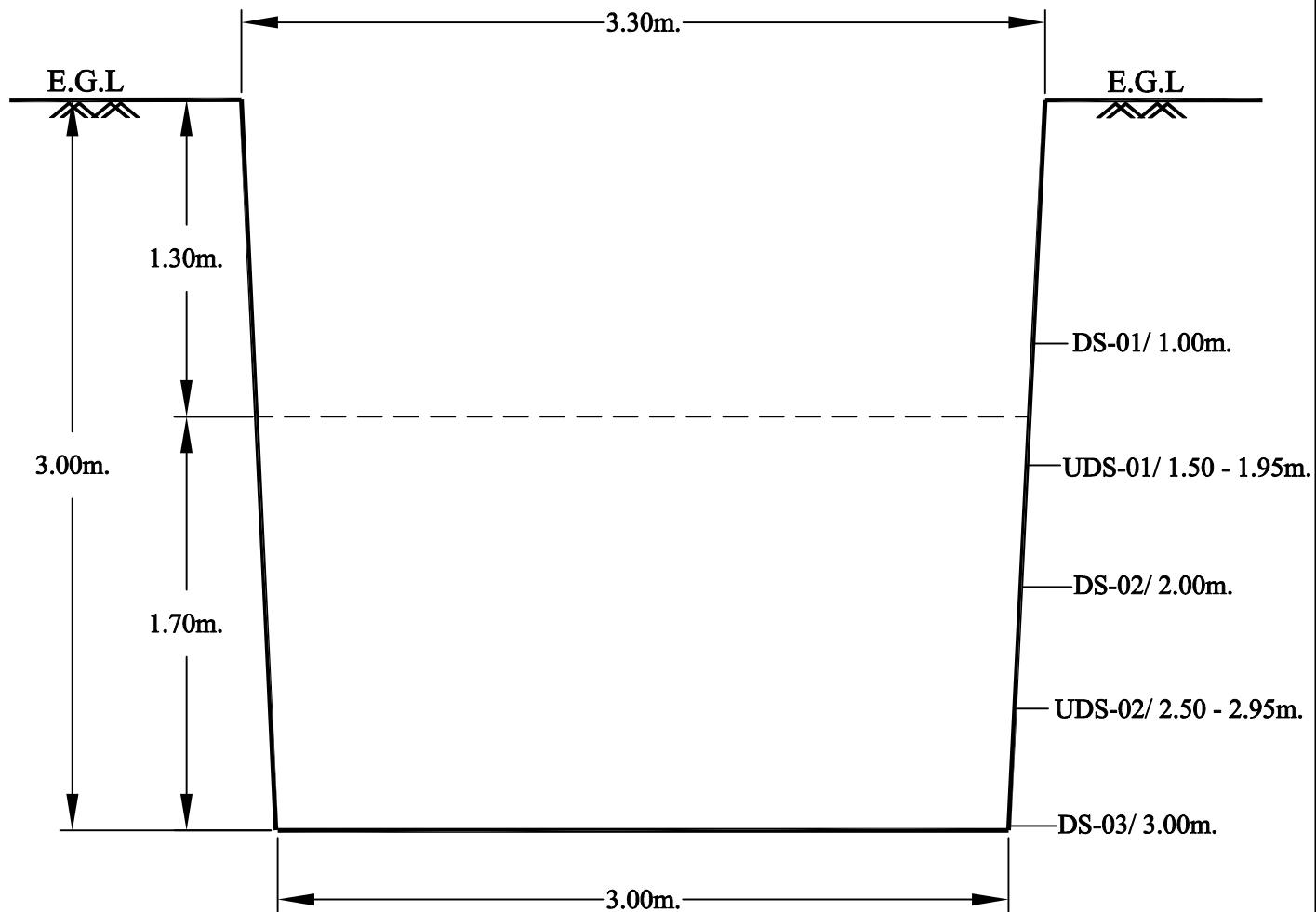
EGL - 0.50m:- Brownish grey clayey silty sand mixed with kankar & gravel.

0.50m - 2.00m:- Reddish brown clayey silt with traces of sand. Obs. pieces of gravel.

PIT LOG FOR CPLT-01

Co-ordinates (M):
 E = 1041.000
 N = 1400.000
 RL = 154.267 M

SWL = Not Found



EGL - 1.30m:- Brownish grey clayey silt with traces of sand. Obs. kankar.

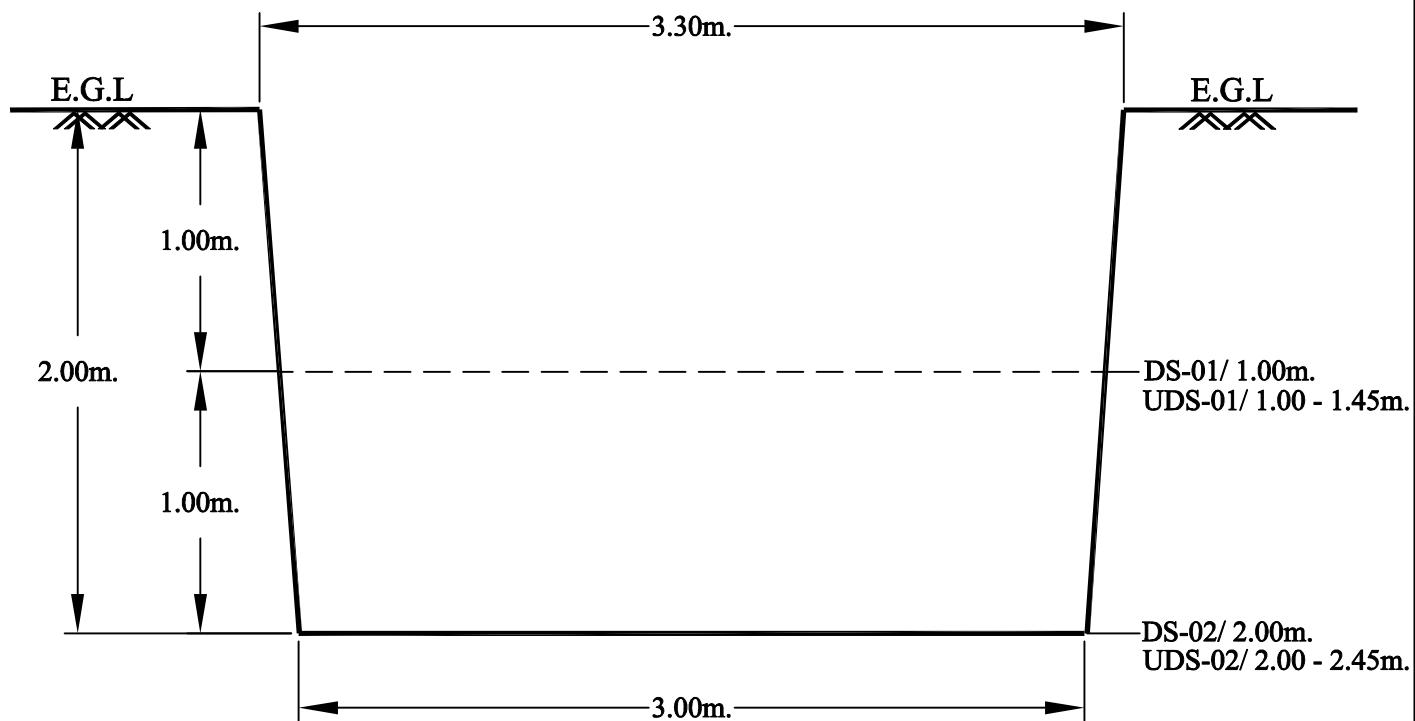
1.30m - 3.00m:- Light yellowish brown silty fine sand / sandy silt.

Obs. decomposed rock.

PIT LOG FOR CPLT-02

Co-ordinates (M):
 E = 1234.000
 N = 1478.000
 RL = 155.681 M

SWL = Not Found



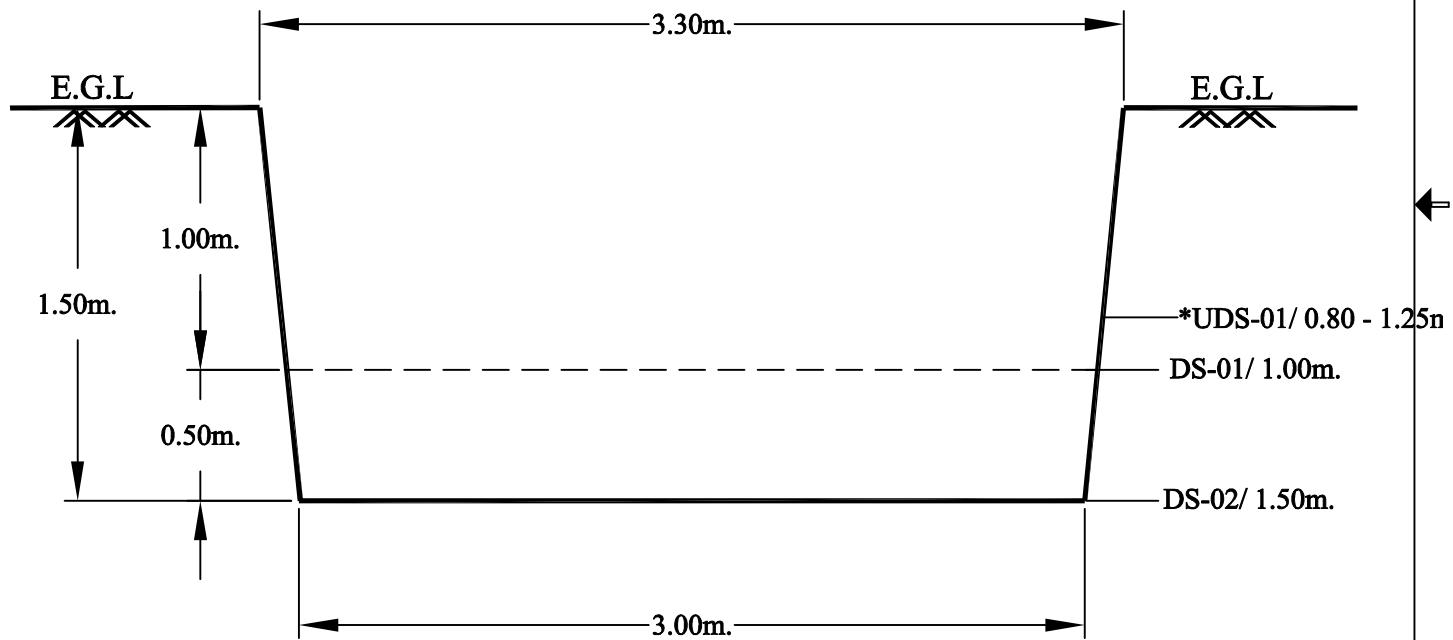
EGL - 1.00m:- Brownish grey silty sand with clay. Obs. kankar & gravel.

1.00m - 2.00m:- Reddish brown sandy silt. Obs. kankar & gravel.

PIT LOG FOR CPLT-03

Co-ordinates (M):
 E = 263.000
 N = 1274.000
 RL = 159.196 M

SWL = Not Found



EGL - 1.00m:- Reddish brown sandy silt with clay. Obs. kankar & gravel etc.
 1.00m - 1.50m:- Whitish grey / brownish grey highly weathered rock fragments.

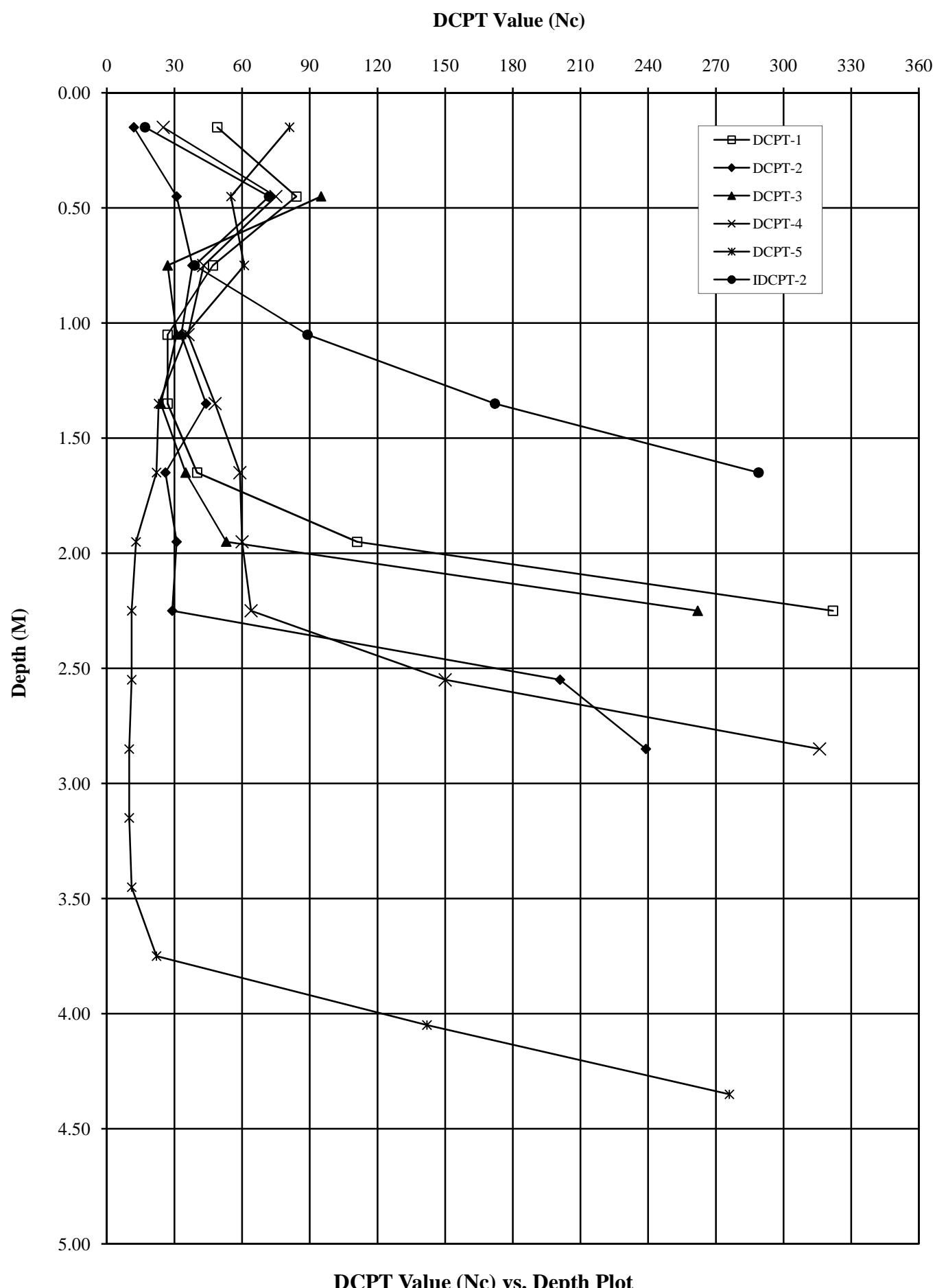
PIT LOG FOR ITP-02

DYNAMIC CONE PENETRATION TEST RESULTS

DCPT No.	Co-ordinates		R.L. of Ground (M)	Starting Depth (M)	Ending Depth (M)	Average Depth (M)	Nc	Value
	Easting	Northinng						
DCPT-1	972.000	1716.000	155.305	0.00	0.30	0.15	49	
				0.30	0.60	0.45	84	
				0.60	0.90	0.75	47	
				0.90	1.20	1.05	27	
				1.20	1.50	1.35	27	
				1.50	1.80	1.65	40	
				1.80	2.10	1.95	111	
				2.10	2.40	2.25	322	
DCPT-2	1012.000	1561.000	156.418	0.00	0.30	0.15	12	
				0.30	0.60	0.45	31	
				0.60	0.90	0.75	38	
				0.90	1.20	1.05	33	
				1.20	1.50	1.35	44	
				1.50	1.80	1.65	26	
				1.80	2.10	1.95	31	
				2.10	2.40	2.25	29	
				2.40	2.70	2.55	201	
				2.70	3.00	2.85	239	
DCPT-3	851.000	1366.000	154.055	0.00	0.30	0.15		
				0.30	0.60	0.45	95	
				0.60	0.90	0.75	27	
				0.90	1.20	1.05	31	
				1.20	1.50	1.35	24	
				1.50	1.80	1.65	35	
				1.80	2.10	1.95	53	
				2.10	2.40	2.25	262	
DCPT-4	996.000	1215.000	151.907	0.00	0.30	0.15	25	
				0.30	0.60	0.45	75	
				0.60	0.90	0.75	43	
				0.90	1.20	1.05	36	
				1.20	1.50	1.35	48	
				1.50	1.80	1.65	59	
				1.80	2.10	1.95	60	
				2.10	2.40	2.25	64	
				2.40	2.70	2.55	150	
				2.70	3.00	2.85	316	
DCPT-5	1196.000	1286.000	152.151	0.00	0.30	0.15	81	
				0.30	0.60	0.45	55	
				0.60	0.90	0.75	61	
				0.90	1.20	1.05	35	
				1.20	1.50	1.35	23	
				1.50	1.80	1.65	22	
				1.80	2.10	1.95	13	
				2.10	2.40	2.25	11	
				2.40	2.70	2.55	11	
				2.70	3.00	2.85	10	
				3.00	3.30	3.15	10	

DYNAMIC CONE PENETRATION TEST RESULTS

DCPT No.	Co-ordinates		R.L. of Ground (M)	Starting Depth (M)	Ending Depth (M)	Average Depth (M)	Nc	Value
	Easting	Northinng						
DCPT-5	1196.000	1286.000	152.151	3.30	3.60	3.45	11	
				3.60	3.90	3.75	22	
				3.90	4.20	4.05	142	
				4.20	4.50	4.35	276	
IDCPT-2	349.000	1330.000	158.324	0.00	0.30	0.15	17	
				0.30	0.60	0.45	72	
				0.60	0.90	0.75	39	
				0.90	1.20	1.05	89	
				1.20	1.50	1.35	172	
				1.50	1.80	1.65	289	



Summarised Field Density Test Results

Test Location	Depth of Test (M)	Avg. Field Bulk Density (gm/cc)	Avg. Field Dry Density (gm/cc)	Moisture Content (%)
ITP-02	1.00	1.511	1.399	8

FIELD PERMEABILITY TEST RESULTS:

Field permeability test was conducted at different depths by falling head and double packer method and the test results are presented below.

Test Locations	Type of Test	Depth of Test (M)	Permeability (cm/sec)
BH-01	Falling Head	0.80 – 1.50	3.269×10^{-5}
	Falling Head	2.70 – 3.50	2.650×10^{-5}
	Falling Head	4.80 – 5.60	1.951×10^{-5}
	Double Packer	7.50 – 9.00	1.138×10^{-4}
	Double Packer	11.70 – 12.50	1.299×10^{-4}
BH-16	Falling Head	0.80 – 1.30	1.587×10^{-6}
	Falling Head	2.70 - 3.40	2.665×10^{-6}
	Falling Head	4.80 – 5.50	2.968×10^{-6}
	Double Packer	7.50 – 9.00	7.790×10^{-5}
	Double Packer	11.50 – 13.00	6.164×10^{-5}
BH-28	Falling Head	0.80 – 1.50	1.857×10^{-5}
	Falling Head	2.80 – 3.60	1.547×10^{-5}
	Double Packer	4.50 – 6.00	1.600×10^{-4}
	Double Packer	7.50 – 9.00	1.052×10^{-4}
	Double Packer	11.00 – 12.50	7.000×10^{-5}
BH-38	Falling Head	0.50 – 1.20	2.647×10^{-5}
	Falling Head	2.50 – 3.30	2.626×10^{-5}
	Double Packer	4.50 – 6.00	1.748×10^{-4}
	Double Packer	7.50 – 9.00	1.480×10^{-4}
	Double Packer	11.50 – 13.00	6.116×10^{-5}
IBH-06	Falling Head	0.80 – 1.50	3.065×10^{-5}
	Falling Head	2.70 – 3.40	6.817×10^{-5}
	Falling Head	4.30 – 5.00	3.394×10^{-5}

PART II: LABORATORY TEST RESULTS



Certificate No : TC-6840

Format No: CET/ FM/42**TEST REPORT**

TEST REPORT NO : 4371 DATE: 15/06/2020
ULR :
Name and Address of Customer : M/s.Bharat Heavy Electricals Ltd,
Power Sector - Western Region,
Shreemohini Complex, 345 Kingsway, Nagpur - 440 001

Customer Reference No : 4371

Customer Reference Date : 22/01/2020

Date of Sample Received at Lab : 13/02/2020

Date of Starting of Test : 15/02/2020

Date of Completion of Test : 06/06/2020

Sample ID Nos : 4371/BH-01/UDS-01 to 4371/CPLT-03/DS-01

Please refer the page no. A130 of A191 to A146 of A191 of the Report for the following:

1. Sample Description
2. Test methods used
3. Test results

Further to note that the test parameters are mentioned at the header of test result table.

- * The report related to the particular sample(s) tested under stated condition.
- * All tests are based as per IS specifications and/or SOPs.
- * Any discrepancy in this report should be brought to the notice within 15 (fifteen) days from the date of certificate
- * Full/Partial use of this test results should not be done without the written permission of authorized signatory and are to be considered as confidential.
- * This laboratory is not responsible for the sampling processes.

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens.	Dry Dens.	Spec. Grav.	Nat. Mois.	Void Ratio	Strength Test Results			Atter. Limits			IS Classification		Grain Size	Test Method	
				gms/cc	gms/cc	%	%	Pc/Pn kg/sqcm	Shear Frcntn kg/sqcm	Cohesn kg/sqcm	Frcntn Deg.	LL %	PL %	SL %	Classific. %	Gravl %	Sand %	Silt %	Clay %
BH01	UDS01	2.50	Deep grey fly ash.	1.46	0.95	2.69	40 S	TRSH-UU 0.07	24							32	66	2 * See the Note	
							54 T	3.0 2.0 1.0	2.029 1.601 0.715										
BH02	UDS01	2.50	Reddish grey clayey silt / silty clay with high Percentage of decomposed rock fragments.	1.98	1.74	2.66	16 S	0.451	TRSH-UU 0.75	12	34	13	CL-SC	10	64	20	6	Do	
							14 T 15 C	3.0 2.0 1.0	1.714 1.451 1.189										
BH02	SPT04	6.20	Reddish brown silty sand with traces of clay binder.										SM	87 13 (Silt+Clay)	Do				
BH03	UDS01	3.00	Light grey fly ash.					2.27	25 S	DRSH-CU 0.03	30	51				9	90	1 Do	
								26DR		0.5 1.0 2.0	0.308 0.617 1.184								
BH04	UDS01	2.80	Deep grey fly ash.					1.02	2.28	41 S	DRSH-CU 0.05	29	46						
									42DR	0.5 1.0 2.0	0.337 0.597 1.158								
BH04	SPT03	4.40	Reddish brown silty sand with traces of clay binder.										SM	78 22 (Silt+Clay)	Do				
BH05	SPT01	1.50	Brownish grey silty sand / sandy silt with traces of clay binder.										SM	87 13 (Silt+Clay)	Do				
BH06	UDS01	3.00	Deep grey fly ash.					1.21	2.64	13 S	DRSH-CU 0.02	29	46						
									15 T 11 C	0.5 1.0 2.0	0.307 0.564 1.128								
BH06	SPT04	6.00	Reddish brown silty sand / sandy silt with traces of clay binder & decomposed rock fragments.										SM	4 83 13 (Silt+Clay)	Do				
BH07	UDS01	3.00	Deep grey fly ash.					1.39								58	32	10 Do	

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens.	Dry Dens.	Spec. Grav.	Nat. Mois.	Void Ratio	Strength Test Results			Atter. Limits			IS Classification			Grain Size			Test Method
				gms/cc	gms/cc	%	%	Pc/Pn kg/sqcm	Shear Strength kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Classificn	Gravl %	Sand %	Silt %	Clay %	%	
BH08	UDS01	2.50	Light grey fly ash.	1.41	1.26	2.65	10 S	12DR	0.5	0.314	0.01	31	56	38	6	Do					
BH08	SPT03	4.50	Brownish grey silty sand with decomposed rock fragments.										SM-SP	11	82 7 (Silt+Clay)	Do					
BH10	SPT01	1.50	Brownish grey silty sand with decomposed rock fragments.										SM-SP	20	71 9 (Silt+Clay)	Do					
BH11	SPT01	1.50	Brownish grey silty sand with clay binder.										SM	81 19 (Silt+Clay)	Do						
BH11	SPT02	3.00	Brownish grey silty clay with decomposed rock fragments.				2.68					CL*	5	25	39	31	Do				
BH12	SPT02	3.00	Brownish grey silty sand with decomposed rock fragments & clay binders.									SM	4	58 38 (Silt+Clay)	Do						
BH12	SPT03	4.50	Brownish grey silty sand with gravel, traces of clay binder & mica.									SM	22	46 32 (Silt+Clay)	Do						
BH13	SPT03	4.50	Brownish grey silty sand with decomposed rock fragments.									SM	6	54 40 (Silt+Clay)	Do						
BH13	SPT04	6.00	Brownish grey silty sand with decomposed rock fragments & clay binders.									SM	56 44 (Silt+Clay)	Do							
BH14	SPT02	3.00	Brownish grey silty sand with decomposed rock fragments & clay binders.									SM	7	53 40 (Silt+Clay)	Do						
BH14	SPT03	4.50	Brownish grey silty sand with decomposed rock fragments & clay binders.									SM	13	50 37 (Silt+Clay)	Do						
BH15	UDS01	2.50	Greyish brown clayey silty sand with decomposed rock fragments.	1.82	1.63	2.67	13 S	12 DR	0.403	0.13	32	21	14	SM-SC	18	51	26	5	Do		

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens. gms/cc			Spec. Grav. %			Void Ratio			Strength Test Results			IS			Test Method	
				Dry Dens. gms/cc	Dry Dens. gms/cc	Moist. %	Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Fricin Deg.	LL %	PL %	SL %	Classificatn	Gravl %	Sand %	Silt %	Clay %		
BH15	SPT02	2.95	Brownish grey silty sand with decomposed rock fragments & clay binders.												SM	12	55 33 (Silt+Clay)	Do		
BH15	SPT03	4.50	Brownish grey silty sand with decomposed rock fragments & traces of kankar.												SM	22	64 14 (Silt+Clay)	Do		
BH16	UDS01	2.50	Greyish brown clayey silty sand with decomposed rock fragments.	1.78	1.62	2.66	12 S 10 DR 12 C	0.425	DRSH-CU 0.5 1.0 2.0	0.11 0.360 0.762 1.264	0.5 1.0 2.0	30	28	14	CL-SC	23	47	26	4	Do
BH16	SPT02	2.95	Brownish grey silty sand with traces of clay binders & mica.												SM	68 32 (Silt+Clay)	Do			
BH17	SPT03	4.50	Brownish grey silty clay with sand mixture.												42	22	18	CI	Do	
BH17	SPT04	6.00	Reddish brown silty clay / clayey silt with sand mixture.				2.70								CI*	23	53	24	Do	
BH18	SPT01	1.50	Brownish grey clayey silt with traces of sand mixture.												43	19	14	CI	Do	
BH18	SPT02	3.00	Reddish brown silty clay / clayey silt with sand mixture.				2.66								CI*	28	46	26	Do	
BH19	SPT01	1.50	Light grey silty sand with decomposed rock fragments.												SM-SP	7	88 5 (Silt+Clay)	Do		
BH19	SPT03	5.00	Brownish grey silty sand with decomposed rock fragments.												SM-SP	15	80 5 (Silt+Clay)	Do		
BH20	SPT01	1.50	Brownish grey silty clay / clayey silt with sand mixture.												38	19	14	CI	Do	

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens.	Dry Dens.	Spec. Grav.	Nat. Mois.	Void Ratio	Strength Test Results			Atter. Limits			IS Classification		Grain Size			Test Method
				gms/cc	gms/cc	%	%		Pc/Pn kg/sqcm	Shear Strength kg/sqcm	Cohesn kg/sqcm	Fricin Deg.	LL %	PL %	SL %	Classificatn	Gravl %	Sand %	Silt %	Clay %
BH20	SPT02	3.60	Brownish grey silty clay / clayey silt with sand mixture & rock fragments.		2.69										CI*	3	32	40	25	Do
BH21	SPT01	1.50	Reddish grey silty clay with decomposed rock fragments & gravel pieces.			2.71									SM	15	51	19	15	Do
BH22	SPT01	1.60	Brownish grey silty clay with sand mixture					38							CI					Do
BH23	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments & clay binders.												SM	10	58 32 (Silt+Clay)			Do
BH23	SPT02	3.00	Reddish brown silty sand with decomposed rock fragments & clay binders.												SM	8	65 27 (Silt+Clay)			Do
BH24	SPT01	1.50	Whitish grey silty sand / sandy silt with decomposed rock fragments & clay binders.												SM	5	69 26 (Silt+Clay)			Do
BH24	SPT03	4.50	Whitish grey silty sand / sandy silt with decomposed rock fragments & clay binders.												SM	11	54 35 (Silt+Clay)			Do
BH25	SPT02	3.00	Whitish grey silty sand with decomposed rock fragments.												SM-SP	11	80 9 (Silt+Clay)			Do
BH26	SPT01	1.50	Brownish grey silty clay / clayey silt with traces of fine sand.			2.65									CI*					Do
BH26	SPT02	3.00	Brownish grey silty clay with sand mixture												41	19	14	CI		Do
BH27	SPT01	1.50	Reddish grey silty sand with clay binder & decomposed rock fragments.												SM	8	73 19 (Silt+Clay)			Do

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens. gms/cc			Spec. Grav. %			Void Ratio			Strength Test Results			Atter. Limits			IS			Grain Size			Test Method		
				Dens. gms/cc	Dry Dens. gms/cc	Moist. gms/cc	Cohesn kg/sqcm	Shear kg/sqcm	Fricin kg/sqcm	LL Deg.	PL %	SL %	Classificatn	Gravl %	Sand %	Silt %	Clay %	3	73	24 (Silt+Clay)	3	73	24 (Silt+Clay)	Do			
BH28	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments & clay binders.																								
BH29	SPT01	1.50	Reddish grey clayey silt with sand mixture & decomposed rock fragments.			2.69																					
BH30	SPT01	1.50	Reddish grey clayey silt / silty clay with sand mixture & kankar.			2.67																					
BH31	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments.																								
BH32	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments & clay binder.																								
BH33	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments & clay binder.																								
BH34	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments & clay binders.																								
BH35	SPT01	1.40	Brownish grey silty sand with clay binders.																								
BH36	DS02	1.00	Deep brownish grey clayey silt with sand mixture.																								
BH36	SPT01	1.50	Brownish grey silty sand with decomposed rock fragments.																								
BH38	SPT02	3.00	Whitish grey silty sand with decomposed rock fragments & clay binders.																								
BH39	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments.																								

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results			IS	Grain Size			Test Method	
									Pc/Pn kg/sqcm	Shear Strength kg/sqcm	Cohesn kg/sqcm	Fricin Deg.	LL %	PL %	SL %	Classificatn	Gravl %
BH40	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments.	2.68	2.68	2.68	2.68	2.68	CI*	41	18	14	CI	23	49	28	Do
BH41	DS01	0.50	Reddish grey silty clay.														Do
BH42	SPT01	1.50	Reddish grey silty clay with sand mixture.						SM-SP	10	78	12	(Silt+Clay)	Do			
BH43	SPT01	1.50	Reddish brown silty sand with clay binder & kankar.						SM	5	73	22	(Silt+Clay)	Do			
BH44	SPT01	1.40	Brownish grey silty fine sand.						SP	96	4	4	(Silt+Clay)	Do			
BH45	SPT01	1.50	Brownish grey silty sand with clay binder & decomposed rock fragments.						SM	9	76	15	(Silt+Clay)	Do			
BH46	SPT01	1.50	Brownish grey silty sand with traces of decomposed rock fragments.						SM-SP	4	88	8	(Silt+Clay)	Do			
BH47	SPT03	4.50	Brownish grey silty sand.						SM-SP	95	5	5	(Silt+Clay)	Do			
BH49	DS02	1.00	Reddish grey silty sand with clay binder & decomposed rock fragments.						SM-SP	4	85	11	(Silt+Clay)	Do			
BH51	DS02	1.00	Brownish grey silty sand with decomposed rock fragments.						SM-SP	6	86	8	(Silt+Clay)	Do			

Bore Hole Number	Sample M	Depth	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results			IS			Grain Size			Test Method	
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %	Classificatn	Gravl %	Sand %	Silt %
BH53	DS02	1.00	Yellowish grey silty sand with clay binder & decomposed rock fragments.													SM-SP	4	84 12 (Silt+Clay)	Do
BH54	SPT03	4.50	Brownish grey silty sand with clay binder & decomposed rock fragments.													SM	5	80 15 (Silt+Clay)	Do
BH55	SPT01	1.50	Greyish brown silty sand with clay binder & decomposed rock fragments.													SM-SP	3	86 11 (Silt+Clay)	Do
BH56	SPT03	4.50	Yellowish grey silty sand with clay binder & decomposed rock fragments.													SM	6	81 13 (Silt+Clay)	Do
BH57	SPT01	1.50	Greyish brown silty sand with clay binder & decomposed rock fragments.													SM-SP	4	83 13 (Silt+Clay)	Do
BH58	SPT01	1.50	Brownish grey silty sand with clay binder.													SM	89 11 (Silt+Clay)	Do	
BH58	SPT02	3.00	Brownish grey silty sand with clay binder.													SM	87 13 (Silt+Clay)	Do	
BH59	SPT01	1.30	Reddish brown silty sand with decomposed rock fragments.													SM-SP	7	80 13 (Silt+Clay)	Do
BH61	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments.													SM-SP	6	85 9 (Silt+Clay)	Do
PLT04/SPT02		2.70	Yellowish grey silty sand with clay binder.													SM-SP		88 12 (Silt+Clay)	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			Test Method			
									Pc/Pn kg/sqcm	Shear Strength kg/sqcm	Cohesn kg/sqcm	Fictn Deg.	LL %	PL %	SL %	Classificatn	Gravl %	Sand %	Silt %	Clay %	
BH05 SPT02	3.60	Brownish grey clayey silt with sand mixture & calcareous nodules.											38	20	16	CI			Do		
BH05 SPT03	4.80	Brownish grey silty sand with gravel pieces.														SP	7	89 4 (Silt+Clay)	Do		
BH06 SPT02	3.60	Brownish grey clayey silt with sand mixture & traces of calcareous nodules.														CI*	3	8	62	27	Do
BH08 UDS01	2.50	Deep grey fly ash.		1.35	1.01	2.30	34 S 34DR		DRSH-CU 0.5	0.385	0.13	28	51			20	79	1	Do		
BH08 SPT03	4.00	Reddish brown silty sand with decomposed rock fragments.								1.0	0.671										
BH09 UDS01	3.00	Deep grey fly ash.		1.43	1.07	2.28	34 S 34DR		DRSH-CU 0.5	0.297	0.01	29	46								
BH09 SPT02	3.45	Whitish grey clayey silt / silty clay with sand mixture & decomposed rock fragments.								1.0	0.554										
BH10 SPT03	4.50	Reddish brown silty sand with decomposed rock fragments.								2.0	1.120					CI*	3	8	67	22	Do
BH11 UDS01	3.00	Light grey fly ash.																			
BH11 SPT03	4.50	Reddish brown silty sand with decomposed rock fragments.														SM-SP	6	84 10 (Silt+Clay)	Do		

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens.	Dry Dens.	Spec. Grav.	Nat. Mois.	Void Ratio	Strength Test Results			Atter. Limits			IS Classification			Grain Size			Test Method
				gms/cc	gms/cc	kg/sqcm	kg/sqcm	kg/sqcm	Pc/Pn	Shear Cohesn	Frictn Deg.	LL %	PL %	SL %	Classific	Gravl %	Sand %	Silt %	Clay %		
IBH12	SPT02	3.00	Reddish brown silty sand with clay binder & decomposed rock fragments.												SM	1	84 15 (Silt+Clay)	Do			
IBH13	SPT01	1.50	Reddish brown silty sand with clay binder & traces of decomposed rock fragments.												SM	2	81 17 (Silt+Clay)	Do			
IBH15	SPT01	1.30	Brownish grey silty sand with clay binder & decomposed rock fragments.												SM-SP	6	83 11 (Silt+Clay)	Do			
IBH18	DS02	1.00	Brownish grey silty sand with decomposed rock fragments.												SM-SP	5	87 8 (Silt+Clay)	Do			

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

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)	Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	E (Kg/sqcm)		Test Method
			Bulk	Dry									In-situ	Saturated	
1	4	9.50 -	--	--	1.007	13.023	2.440	--	--	1.84	--	--	--	--	* See the Note Do
1	12	10.25 -	2.143	2.122	--	--	--	178	--	--	--	--	--	--	16049
2	6	15.50 -	--	--	--	--	--	--	--	1.86	--	--	--	--	Do
2	12	16.25 -	2.307	2.261	2.030	12.748	2.591	--	--	0.92	--	--	--	--	Do
2	17	10.75 -	--	--	--	--	--	--	--	--	87.31	--	--	--	Do
2	17	19.00 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
2	17	20.00 -	--	--	--	--	--	--	--	1.24	--	--	--	--	Do
3	2	5.75 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
4	18	6.50 -	2.224	2.173	2.322	13.437	2.510	--	--	0.89	--	--	--	--	Do
4	20	17.75 -	--	--	--	--	--	--	--	--	75.76	--	--	--	Do
4	20	18.50 -	--	--	--	--	--	--	--	--	84.33	--	--	--	Do
5	1	2.50 -	2.366	2.312	2.336	13.584	2.521	--	--	--	--	--	--	--	Do
5	1	3.25 -	--	--	--	--	--	--	--	--	86.56	--	--	--	Do
6	2	7.75 -	--	--	--	--	--	--	--	--	8.36	--	--	--	Do
6	4	8.50 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
6	4	9.25 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
6	8	10.00 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
6	8	12.25 -	2.265	2.219	2.077	12.957	2.549	--	59	--	--	--	--	--	4369
7	1	13.00 -	--	--	--	--	--	--	--	--	11.00	--	--	--	Do
7	1	4.25 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
7	14	5.25 -	2.219	2.177	1.922	14.256	2.539	--	46	--	--	--	--	--	3630
8	2	15.00 -	--	--	--	--	--	--	--	--	1.83	--	--	--	Do
8	2	5.75 -	2.055	2.019	1.795	15.613	2.392	--	--	--	--	--	--	--	Do
11	3	6.00 -	2.053	2.011	2.077	15.541	2.381	--	--	0.89	--	Moderately Hard	--	--	Do
12	3	7.25 -	2.119	2.115	0.218	12.168	2.407	--	91	--	--	--	89.55	--	Do
12	9	11.75 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
12	12	12.50 -	--	--	--	--	--	--	--	--	1.82	--	--	--	Do
12	12	15.00 -	2.412	2.372	1.701	6.987	2.550	--	--	--	--	--	--	--	Do
13	1	6.00 -	--	--	--	--	--	--	156	--	--	--	--	--	8633
13	12	6.75 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
13	12	14.25 -	2.174	2.151	1.080	11.684	2.436	--	--	5.41	89.83	--	--	15.45	Do
14	4	15.00 -	--	--	--	--	--	--	--	--	--	--	--	--	8633
14	4	7.50 -	2.270	2.233	1.676	8.762	2.447	--	99	--	--	--	--	--	Do
		8.25													

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)	E (Kg/sqcm)	In-situ Saturated	Test Method
			Bulk	Dry				In-Situ	Saturated								
14	12	13.50 -	--	--	--	--	--	200	--	--	--	--	--	--	11088	--	Do
	15	14.25 -	--	--	--	--	--	--	--	--	3.61	--	--	--	--	--	Do
15	5	8.5 -	--	--	--	--	--	--	--	0.89	--	--	--	--	--	--	Do
15	13	9.25 -	2.134	2.116	0.853	13.289	2.440	--	--	--	--	--	--	--	--	--	Do
15	15	14.50 -	15.50	--	--	--	--	--	--	--	88.00	--	--	--	--	--	Do
15	16	16.50 -	17.25	2.220	2.192	1.306	9.603	2.425	--	--	1.85	--	--	--	--	--	Do
16	9	11.75 -	12.50	--	--	--	--	--	183	--	--	--	--	--	10178	--	Do
16	18	19.00 -	20.00	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
17	4	10.25 -	11.00	--	--	--	--	--	--	--	0.91	--	--	--	--	--	Do
17	12	16.25 -	17.00	2.126	2.107	0.889	12.122	2.398	--	--	0.90	84.48	--	--	--	--	Do
18	8	9.55 -	10.30	2.161	2.141	0.938	13.192	2.466	--	--	0.90	--	--	--	--	--	Do
18	11	11.75 -	12.50	--	--	--	--	--	--	--	11.31	--	--	--	--	--	Do
19	5	10.00 -	10.75	2.084	2.048	1.778	16.429	2.451	--	--	3.67	--	--	--	--	--	Do
20	2	5.25 -	6.00	--	--	--	--	--	--	--	1.86	--	Moderately Hard	--	--	--	Do
20	11	12.00 -	12.75	2.244	2.205	1.775	14.038	2.565	--	36	--	--	--	--	3675	Do	
20	14	14.25 -	15.00	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
21	12	11.25 -	12.00	2.186	2.158	1.318	13.473	2.494	--	--	0.93	--	--	--	--	--	Do
21	23	19.50 -	20.25	2.214	2.195	0.843	9.244	2.419	249	154	0.62	--	--	--	13817	11857	Do
22	2	3.75 -	4.50	--	--	--	--	--	--	--	1.94	--	--	--	--	--	Do
22	7	7.50 -	8.25	2.179	2.153	1.173	12.600	2.464	--	82	--	--	--	--	5874	Do	Do
22	21	18.00 -	18.75	2.158	2.132	1.233	9.654	2.360	--	1.86	92.29	--	--	--	--	--	Do
23	10	11.25 -	12.00	--	--	--	--	--	--	--	11.00	--	--	--	--	--	Do
23	19	18.00 -	18.75	2.452	2.420	1.306	5.367	2.558	--	241	--	Moderately Hard	16.32	--	10946	--	Do
24	10	13.75 -	14.50	2.072	2.051	1.023	12.388	2.342	--	71	--	--	--	--	12207	--	Do

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)	E (Kg/sqcm)		Test Method
			Bulk	Dry				In-Situ	Saturated						In-situ	Saturated	
24	14	16.00 -	--	--	5.951	2.504	--	--	--	1.81	--	--	--	--	--	--	Do
24	16	16.75 -	2.399	2.355	1.864	--	--	--	--	--	--	--	--	--	--	--	Do
25	13	18.25 -	2.379	2.335	1.860	17.895	2.844	--	--	--	--	--	--	--	--	--	Do
25	23	19.00 -	2.187	2.162	1.116	9.261	2.383	--	128	--	5.42	88.96	--	--	--	11635	Do
26	8	12.50 -	--	--	--	--	--	--	--	--	0.92	--	--	--	--	--	Do
26	15	13.25 -	10.00 -	2.121	2.102	0.898	14.041	2.445	--	--	--	--	--	--	--	11922	Do
27	9	14.50 -	15.25 -	--	--	--	--	--	100	--	--	--	--	--	--	--	Do
27	19	9.00 -	9.75 -	16.50 -	2.091	2.067	1.202	13.356	2.385	--	84	--	--	Moderately Hard	--	8737	Do
28	10	17.25 -	9.25 -	17.75 -	2.284	2.258	1.163	7.921	2.452	--	--	--	7.33	--	--	--	Do
28	17	10.00 -	14.50 -	15.25 -	--	--	--	--	229	--	--	--	--	--	--	16603	Do
28	20	16.75 -	16.75 -	17.50 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
28	23	19.00 -	19.00 -	19.75 -	2.174	2.154	0.899	8.258	2.348	--	174	--	--	--	--	13585	Do
29	2	20.00 -	3.75 -	4.50 -	2.350	2.317	1.431	8.479	2.531	--	--	1.89	--	--	--	--	Do
29	6	6.75 -	6.75 -	7.50 -	2.314	2.297	0.753	8.079	2.499	--	--	1.81	--	--	--	--	Do
29	11	10.50 -	10.50 -	11.25 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
29	23	19.50 -	19.50 -	20.25 -	--	--	--	--	260	--	--	--	--	--	--	17547	Do
29	28	23.25 -	24.00 -	24.00 -	2.207	2.182	1.151	7.502	2.359	--	238	--	--	--	--	--	Do
30	1	3.00 -	3.75 -	3.75 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
30	17	15.00 -	15.75 -	15.75 -	2.215	2.174	1.901	11.914	2.468	--	91	--	--	--	--	7963	Do
30	22	18.75 -	19.50 -	19.50 -	--	--	--	--	--	--	--	--	--	--	--	--	Do
31	2	3.25 -	4.00 -	4.00 -	--	--	--	--	--	--	--	--	--	Moderately Hard	--	--	Do
31	13	11.50 -	11.50 -	12.25 -	2.155	2.126	1.377	13.926	2.470	--	135	--	--	19.1	--	14056	Do

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)	E (Kg/sqcm)		Test Method		
			Bulk	Dry				In-Situ	Saturated						In-situ	Saturated			
31	17	14.50 -	--	--	--	--	--	--	--	--	10.84	--	--	--	--	--	Do		
32	2	15.25 -	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Do		
33	1	5.00 -	2.154	2.121	1.578	14.463	2.479	--	90	--	--	--	--	--	--	--	7013	Do	
33	7	3.00 -	3.75	--	--	--	--	--	--	--	--	93.30	--	--	--	--	--	Do	
33	12	8.25 -	11.25 -	--	--	--	--	--	--	--	19.24	--	--	--	--	--	--	Do	
33	21	12.00 -	18.00 -	2.088	2.049	1.947	15.829	2.434	--	94	--	--	--	--	--	--	9078	Do	
34	5	6.00 -	18.56	--	--	--	--	--	97	--	--	--	--	--	--	--	--	Do	
34	12	6.75 -	11.25 -	--	--	--	--	--	--	--	--	--	--	--	--	--	--	Do	
34	17	12.00 -	15.00 -	2.161	2.115	2.186	14.921	2.486	--	67	--	--	--	--	--	--	7934	Do	
35	1	2.00 -	2.75	2.153	2.118	1.667	15.367	2.502	--	--	--	92.63	--	--	--	--	--	6360	Do
35	14	11.75 -	12.50	2.080	2.080	1.956	16.517	2.492	--	--	--	--	--	--	--	--	--	Do	
36	1	2.50 -	3.25	2.245	2.174	3.240	13.790	2.522	--	85	--	--	--	--	--	--	8904	Do	
36	13	11.50 -	12.25	--	--	--	--	--	--	201	--	--	--	--	--	--	9842	Do	
37	11	9.00 -	9.75	2.245	2.215	1.353	11.868	2.513	--	66	--	--	--	--	--	--	6490	Do	
38	5	7.00 -	7.75	2.206	2.167	1.806	13.436	2.503	--	67	--	--	--	--	--	--	5339	Do	
38	8	9.25 -	10.00 -	--	--	--	--	--	--	148	--	--	--	--	--	--	10138	Do	
39	1	3.00 -	3.75	--	--	--	--	--	--	169	--	--	--	--	--	--	12587	Do	
39	23	19.50 -	20.00 -	2.212	2.173	1.772	12.910	2.495	--	57	--	--	--	--	--	--	3915	Do	
40	1	2.50 -	3.25	--	--	--	--	--	--	--	--	14.87	--	--	--	--	--	Do	
40	11	10.00 -	10.75	2.282	2.232	2.206	13.691	2.587	--	56	--	--	--	--	--	--	3776	Do	
40	18	15.25 -	16.00	--	--	--	--	--	--	90.43	--	--	--	--	--	--	--	Do	
41	24	19.75 -	20.50	2.296	2.252	1.966	12.613	2.577	139	130	0.933	--	Moderately Hard	--	--	--	9523	Do	

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)	Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)	E (Kg/sqcm)	In-situ Saturated	Test Method
			Bulk	Dry												
42	2	3.25 - 4.00	2.129	2.108	1.002	10.841	2.364	--	--	0.92	--	--	--	--	--	Do
42	3	19.75 - 20.50	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
42	8	7.75 - 8.50	2.195	2.173	1.009	8.446	2.373	--	189	--	--	--	--	--	--	18348
42	20	16.75 - 17.50	--	--	--	--	--	--	--	--	14.66	--	--	--	--	Do
43	2	2.75 - 3.50	2.176	2.146	1.394	13.375	2.478	--	--	0.97	--	--	--	--	--	Do
43	10	8.75 - 9.50	2.209	2.187	1.004	8.791	2.398	--	166	--	--	--	17.65	--	18348	Do
43	16	13.25 - 14.00	--	--	--	--	--	--	323	--	--	--	--	--	20689	--
43	22	17.75 - 18.50	--	--	--	--	--	--	--	--	93.71	--	--	--	--	Do
44	1	2.00 - 2.75	--	--	--	--	--	--	--	--	0.89	--	--	--	--	Do
44	8	7.25 - 8.00	--	--	--	--	--	--	--	--	90.32	--	--	--	--	Do
45	4	4.25 - 5.00	2.255	2.218	1.668	13.051	--	--	78	--	--	--	--	--	4167	Do
46	2	3.75 - 4.50	2.164	2.119	2.124	15.740	2.515	--	56	--	--	--	--	--	4390	Do
47	7	11.00 - 11.75	2.192	2.161	1.448	12.148	2.460	--	101	--	--	--	--	--	8540	Do
48	8	6.75 - 7.50	--	--	--	--	--	--	--	--	78.44	--	--	--	--	Do
49	4	4.00 - 4.75	--	--	--	--	--	--	--	--	--	--	--	--	7240	Do
50	8	6.75 - 7.50	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
51	4	3.50 - 4.25	--	--	--	--	--	--	65	--	--	--	--	--	--	5436
52	8	6.75 - 7.50	--	--	--	--	--	--	--	1.24	--	--	--	--	--	Do
53	3	3.00 - 3.75	--	--	--	--	--	--	71	--	--	--	--	--	--	Do
54	6	8.75 - 9.50	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
55	4	5.75 - 6.50	2.541	2.537	0.158	2.887	2.675	--	226	68	0.301	--	Moderately Hard	--	9117	8944
56	11	13.00 - 13.75	--	--	--	--	--	--	--	--	--	--	91.05	--	--	Do

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)		Test Method
			Bulk	Dry				In-Situ	Saturated					In-situ	Saturated	
57	7	7.50 - 8.25	--	--	6.087	2.554	164	76	0.463	--	--	--	Moderately Hard	--	--	Do
58	6	8.00 - 8.75	2.453	2.441	0.492	--	--	--	--	--	--	--	--	9555	8395	Do
59	3	3.50 - 4.25	--	--	--	--	--	--	--	--	--	--	--	--	--	Do
60	3	2.75 - 3.50	--	--	--	--	--	--	--	--	80.32	--	--	--	--	Do
61	8	7.25 - 8.00	2.602	2.554	1.879	12.453	2.642	169	121	0.716	--	--	--	10325	8508	Do
PLT-04/BH08	4	5.75 - 6.50	--	--	--	--	--	--	--	--	3.55	--	--	--	--	Do
BH08	13	13.50 - 14.25	--	--	--	--	--	--	--	--	Moderately Hard	--	--	10847	--	Do
BH08	19	18.00 - 18.75	2.141	2.101	1.925	14.690	2.463	--	47	--	--	--	--	--	4967	Do
BH09	20	19.25 - 20.00	2.290	2.248	1.896	12.596	2.572	--	101	--	--	--	--	--	4536	Do
BH09	26	23.75 - 24.25	2.177	2.138	1.818	13.721	2.478	--	--	--	10.08	--	--	--	--	Do
BH10	4	7.25 - 8.00	2.444	2.413	1.285	10.364	2.571	178	67	0.376	--	--	--	--	8925	4876
BH11	4	7.25 - 8.00	2.420	2.403	0.708	5.710	2.549	--	292	--	--	--	--	--	26061	Do
BH11	10	11.50 - 12.50	--	--	--	--	--	132	--	--	--	--	--	--	7006	--
BH12	14	13.50 - 14.25	2.505	2.478	1.090	8.886	2.661	228	119	0.522	--	--	--	--	13568	7961
BH13	3	5.00 - 5.75	--	--	--	--	--	--	--	--	2.06	--	--	--	--	Do
BH14	2	2.25 - 3.00	--	--	--	--	--	--	--	--	82.25	--	--	--	--	Do
BH15	6	5.75 - 6.50	--	--	--	--	--	--	--	--	Moderately Hard	--	--	--	--	Do
BH16	8	8.75 - 9.50	--	--	--	--	--	--	--	--	--	--	17.63	--	--	Do
BH17	4	3.75 - 4.50	2.223	2.109	5.405	9.076	2.435	--	91	--	--	--	--	--	4787	Do
BH18	8	6.50 - 7.25	--	--	--	--	--	--	--	--	87.30	--	--	--	--	Do
BH19	4	2.75 - 3.50	2.342	2.262	3.537	7.776	2.564	--	--	--	3.13	--	--	--	--	Do
BH20	9	7.00 - 7.75	--	--	--	--	--	--	--	--	--	--	--	--	18.44	--

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Density (gm/cc)		Water Content %	Porosity %	Specific Gravity	Unconfined Compressive Strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Stake Durability Index (%)	Hardness (based on Mohs' Scale)	Soundness* (% Loss)	E (Kg/sqcm)	Test Method
			Bulk	Dry				In-Situ	Saturated							
BH21	11	8.25 - 9.00	--	--	--	--	--	--	--	--	--	--	Moderately Hard	--	--	Do
BH22	6	5.00 - 5.75	--	--	--	--	--	152	--	--	--	--	--	11169	--	Do

SWELLING TEST RESULTS

Bore Hole No.	Sample No.	Depth (M)	Description	Free Swell Index, (%)	Swelling Pressure, (kg/sqcm)	Moisture Content (%)	Plasticity Index (%)	Test Methods
BH-02	UDS-01	2.50	Brownish grey clayey silt / silty clay with high percentage of decomposed rock fragments.	25.00	0.025	15	21	*See the note
BH-05	SPT01	1.50	Brownish grey silty sand / sandy silt with traces of clay binder.	2.32	--	--	--	Do
BH-08	UDS-01	3.00	Light grey fly ash.	2.56	--	11	--	Do
BH-15	UDS-01	2.50	Greyish brown clayey silty sand with decomposed rock fragments.	15.79	0.06	11	7	Do
BH-16	UDS-01	2.50	Greyish brown clayey silty sand with decomposed rock fragments.	23.68	0.07	12	14	Do
BH-27	SPT01	1.50	Reddish grey silty sand with clay binder & decomposed rock fragments.	5.05	--	--	--	Do
BH-36	SPT01	1.50	Brownish grey silty sand with decomposed rock fragments.	4.30	--	--	--	Do
BH-61	SPT01	1.50	Reddish brown silty sand with decomposed rock fragments.	1.86	--	--	--	Do
IBH-08	UDS-01	2.50	Deep grey Fly ash.	3.42	--	34	--	Do
IBH-11	SPT-03	4.50	Reddish brown silty sand with decomposed rock fragments.	6.34	--	--	--	Do

SUMMERISED LABORATORY COMPACTION & CBR TEST RESULTS

SL No	Test No.	Sample No	Depth (M)	Description	Standard Proctor Compaction Test			Soaked CBR 5.00mm Pentn	Recommended Soaked CBR (%)	Test Method
					OMC (%)	MDD (gm/cc)	2.50mm Pentn			
1	PLT-02	DS01	1.50	Whitish grey clayey silt with calcareous nodules.	13.45	1.843	7.07	6.87	7	*See the Note
2	PLT-04	DS03	3.00	Brownish grey to reddish brown silty sand with decomposed rock.	13.10	1.805	9.12	7.60	9	Do
3	CPLT-01	DS01	1.00	Reddish brown clayey silt with traces of sand.	14.50	1.755	6.33	6.02	6	Do
4	CPLT-02	DS02	2.00	Light yellowish brown silty fine sand with decomposed rock.	12.50	1.866	12.23	10.21	12	Do
5	CPLT-03	DS01	1.00	Brownish grey silty sand with clay.	12.87	1.838	10.72	10.21	10	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)

California Bearing Ratio (CBR) Test: IS 2720 (Part 16)

Free Swell Index: IS 2720 (Part 40)
 Point Load Index: IS 3764.
 Water Content, Bulk & Dry Density and Porosity: IS 13030
 Shale Durability Index : IS 10050.
 Unconfined Compressive Strength: IS 9143.

C.E. Testing Company Pvt. Ltd.

Prepared By

I. Chowdhury
 (I. Chowdhury)

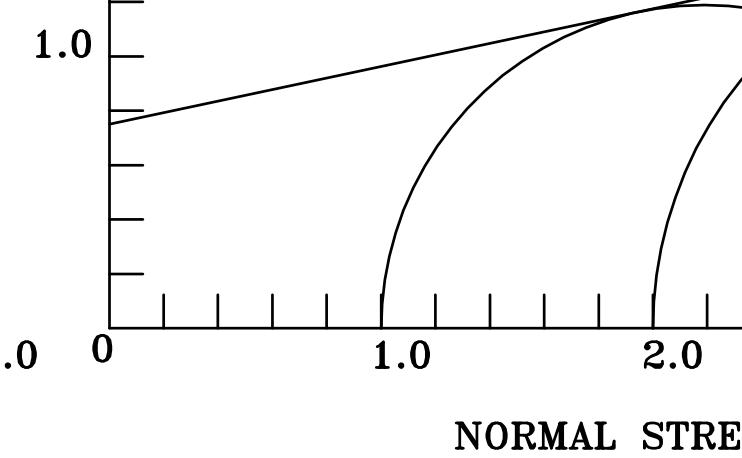
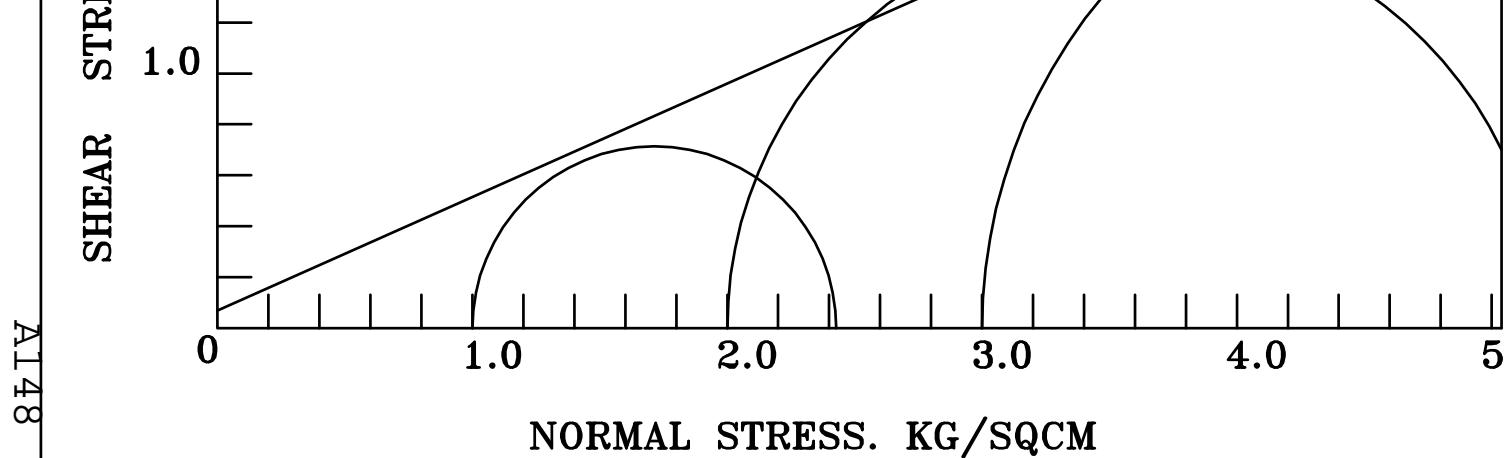
Deputy Technical Manager

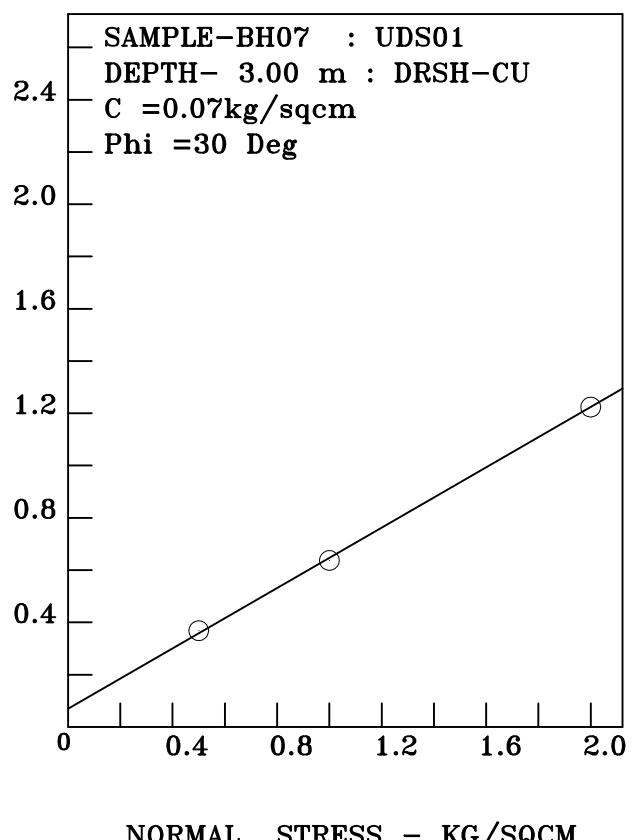
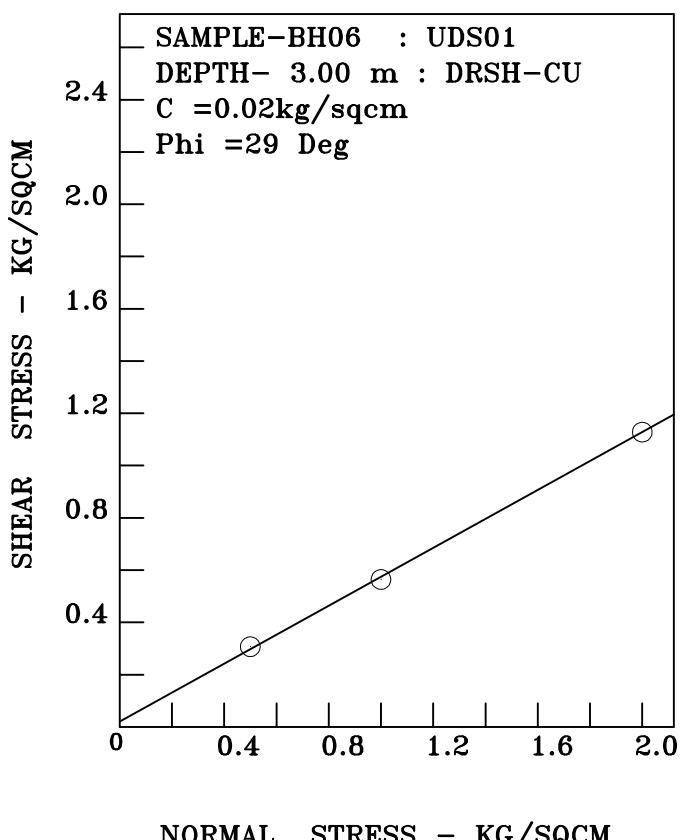
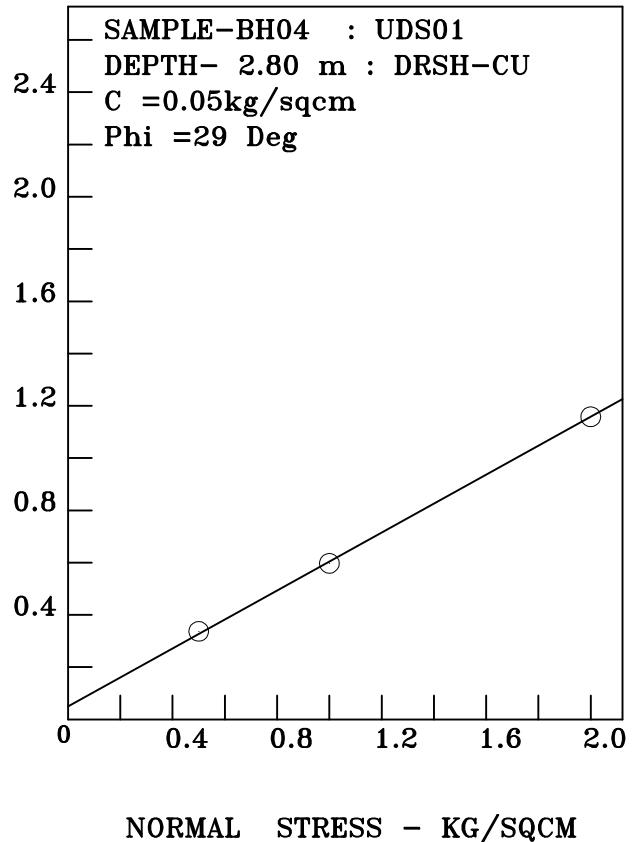
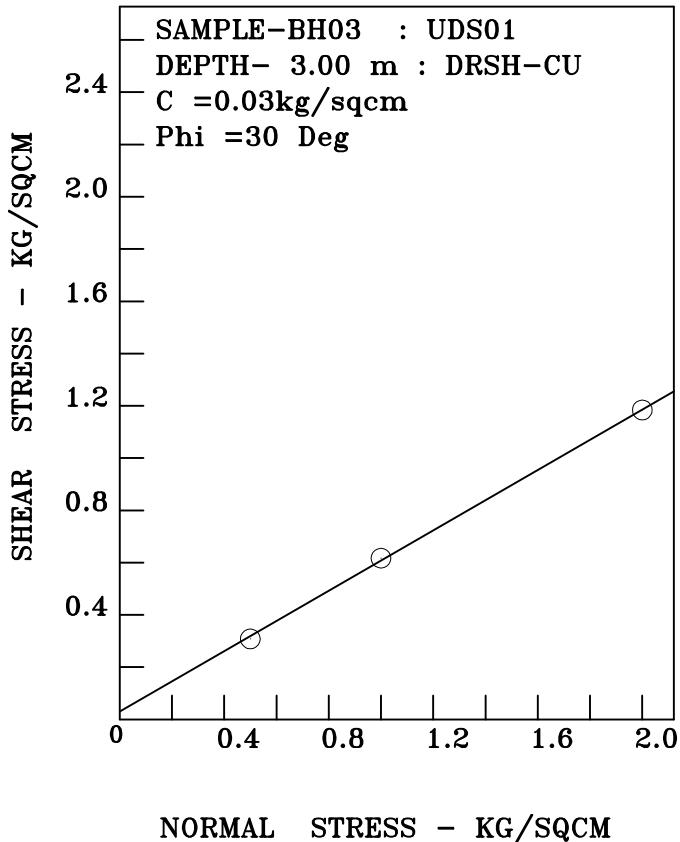
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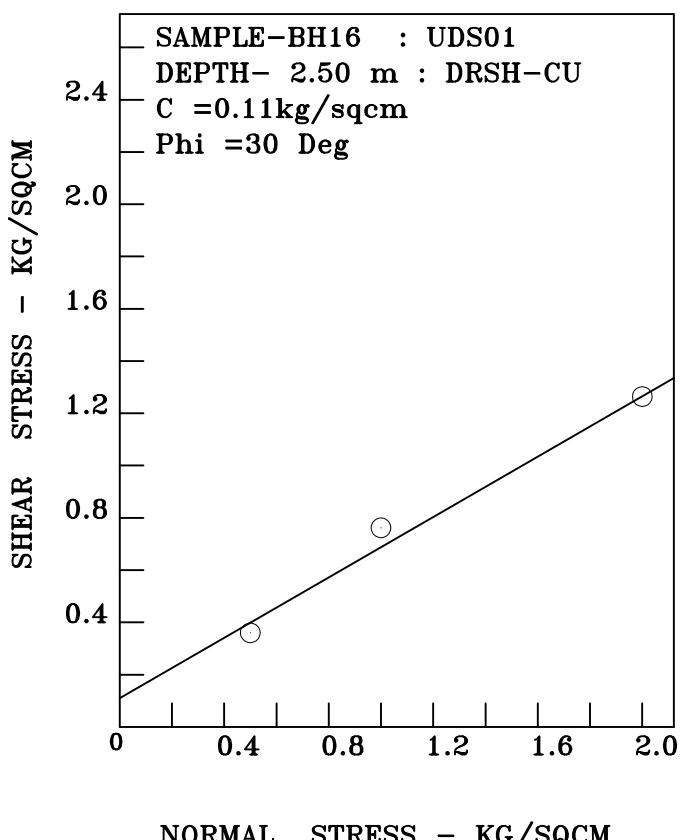
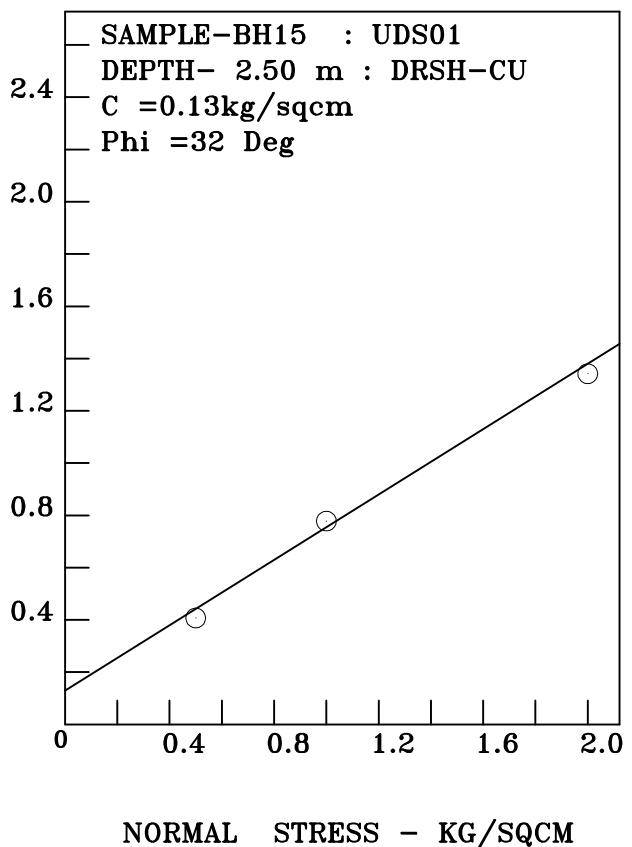
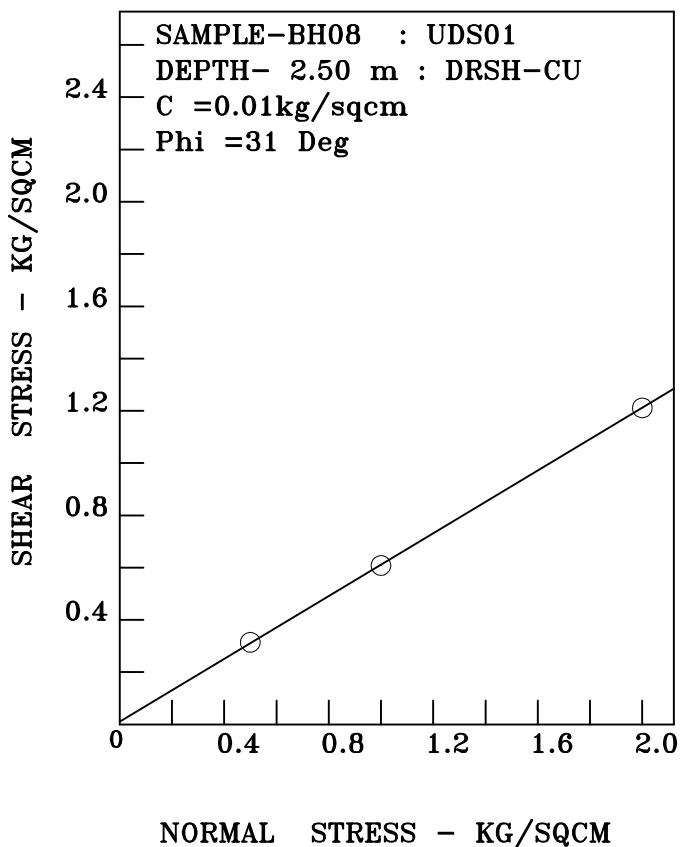
Sudip Nath
 (Sudip Nath)
 Technical Manager

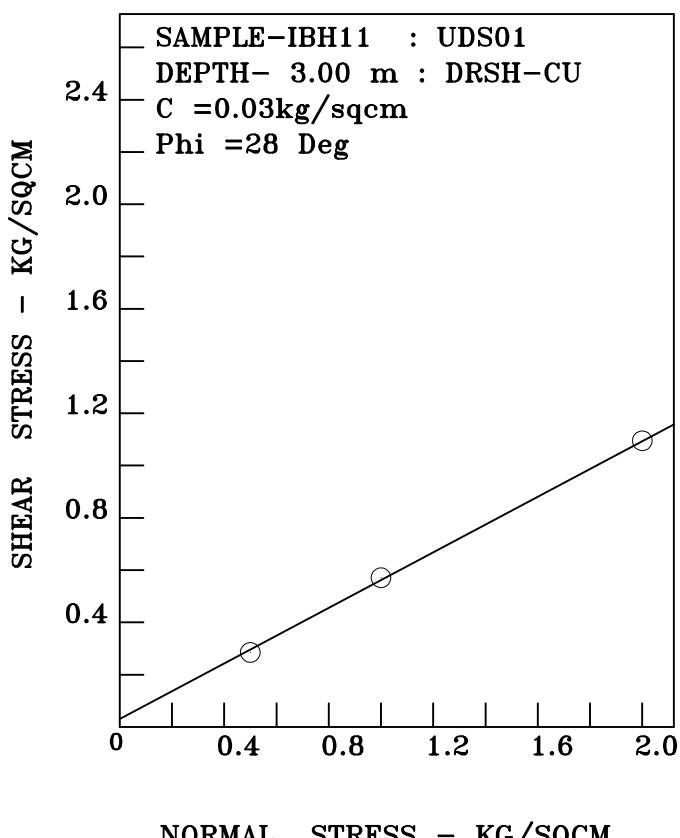
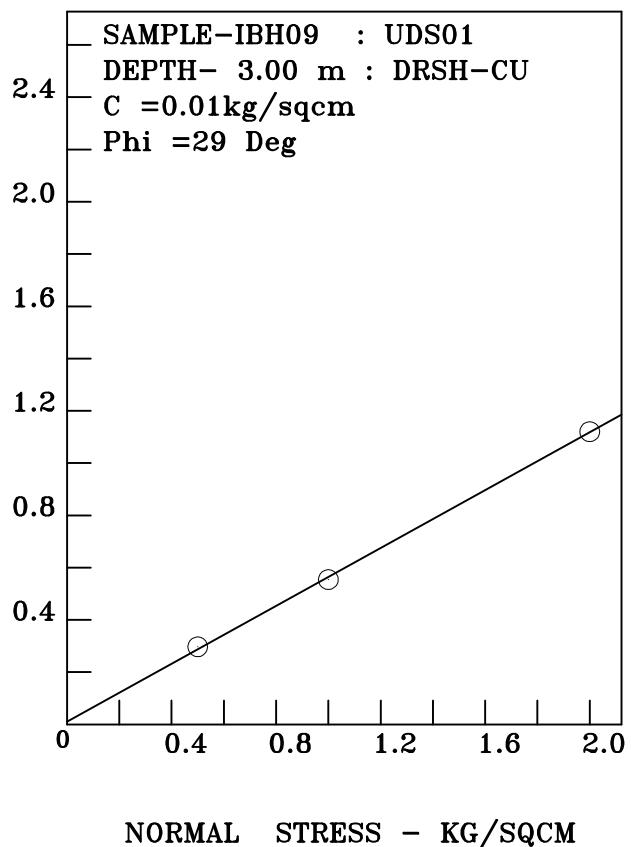
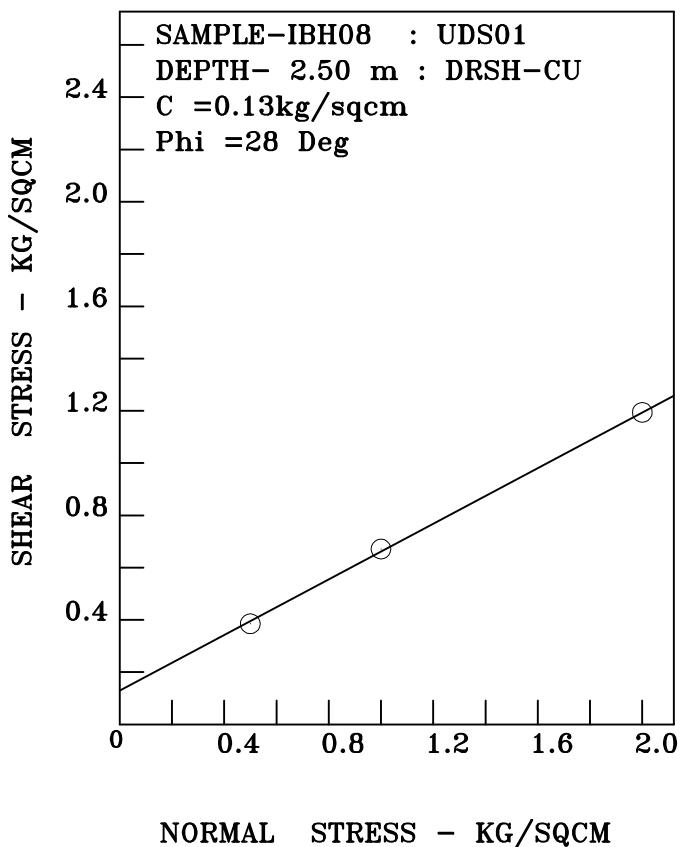
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PART III: CHARTS & GRAPHS









CONSOLIDATION TEST RESULTS

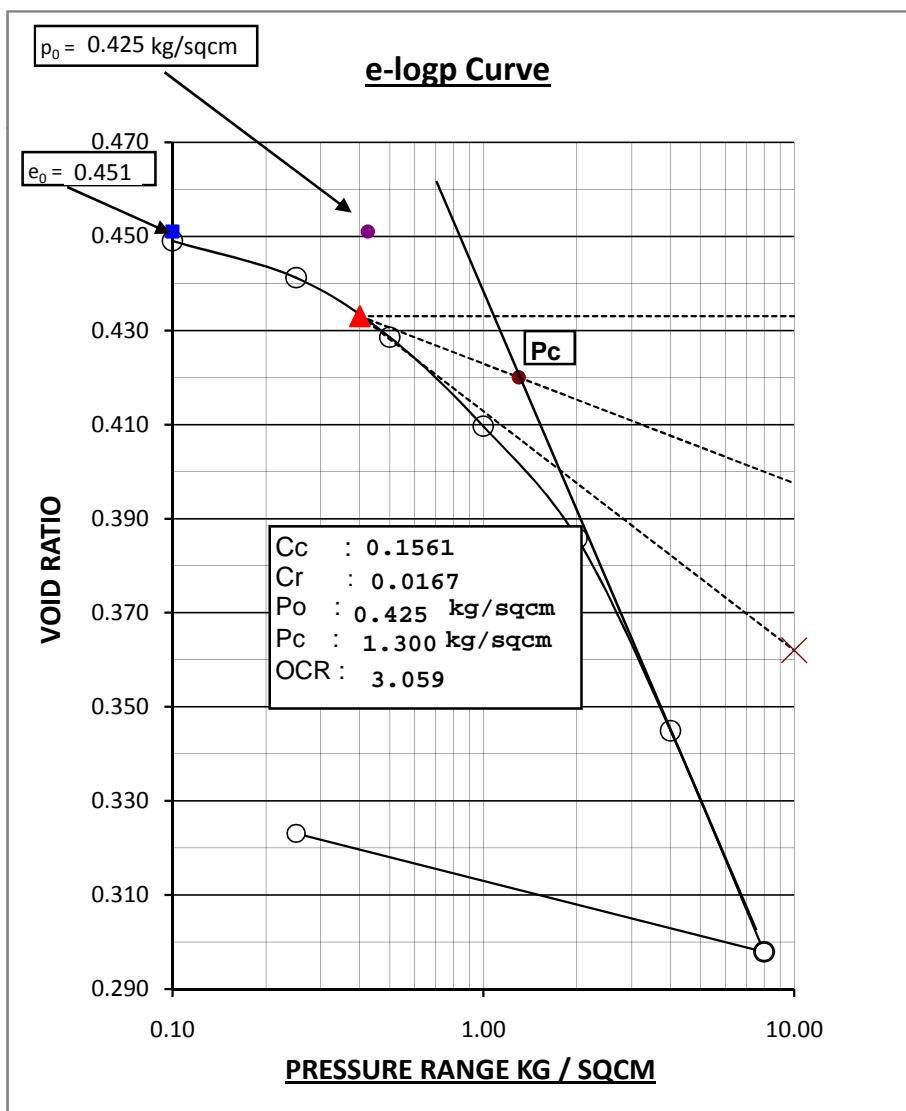
Sample Number:BH-02/UDS-01

Depth :2.5-2.95 meters

Description :Brownish grey clayey silt with decomposed rock dust.

Water content:Initial=15% Final =12.4% Initial Void Ratio =0.451

P1-P2 Kg/Sqcm	Dial Change	Void Ratio	MV Sqcm/kg	Comprn %	Mvc sqcm/kg	T90 Sec	1000.Cv sqcm/sec
0.00 - 0.10	13	0.449	0.0130				
0.10 - 0.25	54	0.441	0.0361	31.48	0.0248	257.1	3.229
0.25 - 0.50	87	0.429	0.0351	29.89	0.0246	287.8	2.803
0.50 - 1.00	130	0.410	0.0265	44.62	0.0147	274.8	2.806
1.00 - 2.00	164	0.386	0.0169	32.32	0.0115	119.3	6.072
2.00 - 4.00	281	0.345	0.0147	48.75	0.0076	277.4	2.366
4.00 - 8.00	323	0.298	0.0087	47.37	0.0046	264.6	2.151
8.00 - 0.25	173	0.323	0.0025				



CONSOLIDATION TEST RESULTS

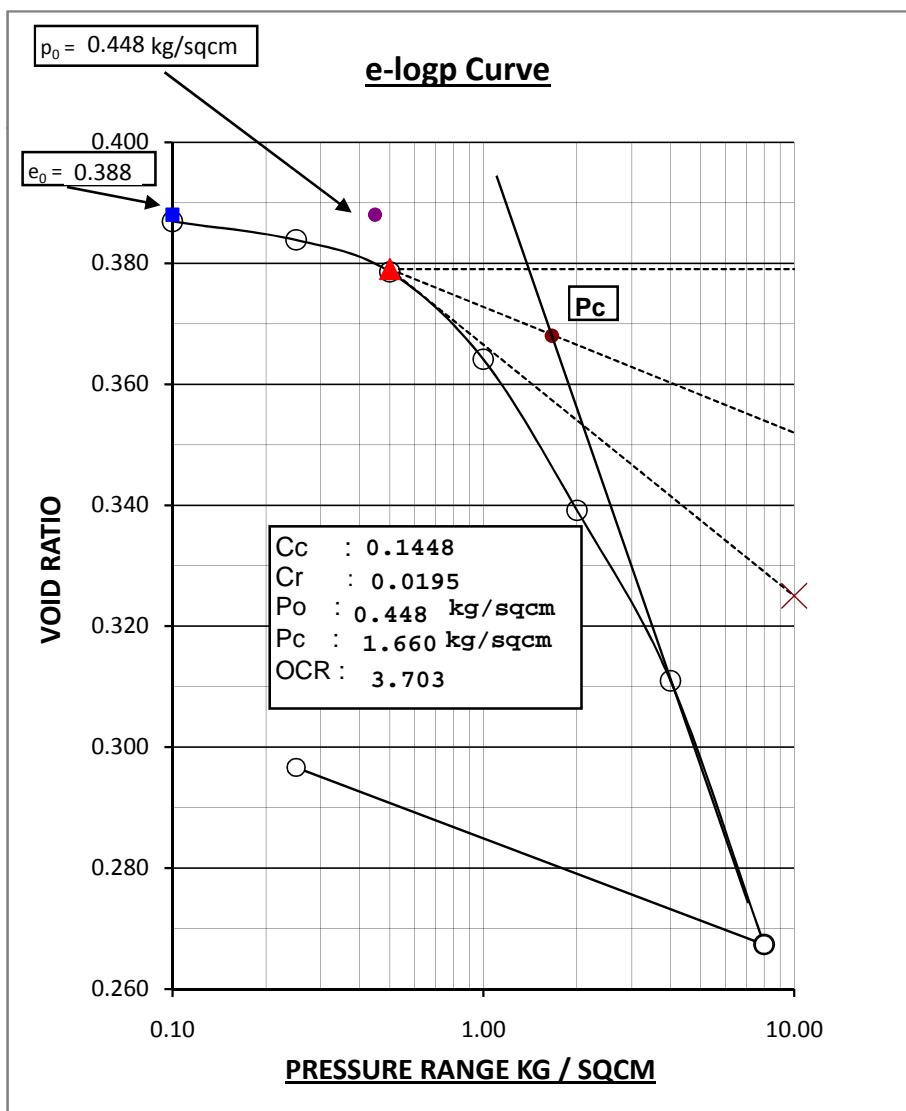
Sample Number:BH-06/UDS-01

Depth :3-3.45 meters

Description :Brownish grey silty clay with calcareous nodules.

Water content:Initial=11.4% Final =12% Initial Void Ratio =0.388

P1-P2 Kg/Sqcm	Dial Change	Void Ratio	MV Sqcm/kg	Comprn %	Mvc sqcm/kg	T90 Sec	1000.Cv sqcm/sec
0.00 - 0.10	5	0.387	0.0050				
0.10 - 0.25	22	0.384	0.0147	45.45	0.0080	133.4	6.309
0.25 - 0.50	38	0.379	0.0153	26.32	0.0112	135.0	6.159
0.50 - 1.00	104	0.364	0.0209	30.40	0.0146	181.7	4.447
1.00 - 2.00	180	0.339	0.0183	24.74	0.0138	127.9	5.954
2.00 - 4.00	203	0.311	0.0105	45.32	0.0058	95.3	7.361
4.00 - 8.00	314	0.267	0.0083	50.32	0.0041	214.3	2.910
8.00 - 0.25	211	0.297	0.0030				



CONSOLIDATION TEST RESULTS

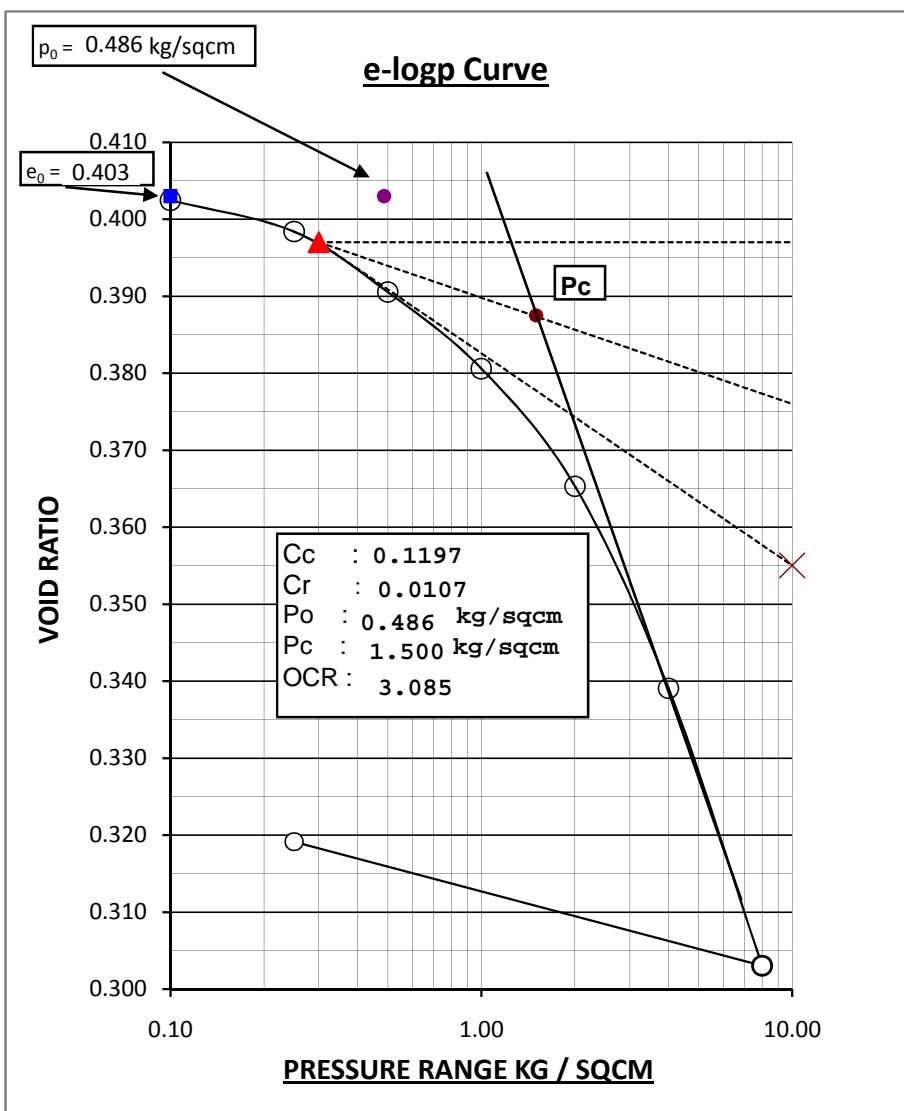
Sample Number:BH-15/UDS-01

Depth :2.5-2.95 meters

Description :Brownish grey clayey silty sand with decomposed rock dust.

Water content:Initial=11% Final =10.7% Initial Void Ratio =0.403

P1-P2 Kg/Sqcm	Dial Change	Void Ratio	MV Sqcm/kg	Comprn %	Mvc sqcm/kg	T90 Sec	1000.Cv sqcm/sec
0.00 - 0.10	5	0.402	0.0050				
0.10 - 0.25	29	0.398	0.0193	17.24	0.0160	279.9	3.009
0.25 - 0.50	56	0.391	0.0225	25.00	0.0168	231.9	3.571
0.50 - 1.00	71	0.381	0.0143	32.39	0.0097	115.9	6.960
1.00 - 2.00	109	0.365	0.0111	42.20	0.0064	135.0	5.758
2.00 - 4.00	187	0.339	0.0096	58.82	0.0040	135.0	5.407
4.00 - 8.00	257	0.303	0.0067	62.26	0.0025	159.4	4.151
8.00 - 0.25	115	0.319	0.0016				



CONSOLIDATION TEST RESULTS

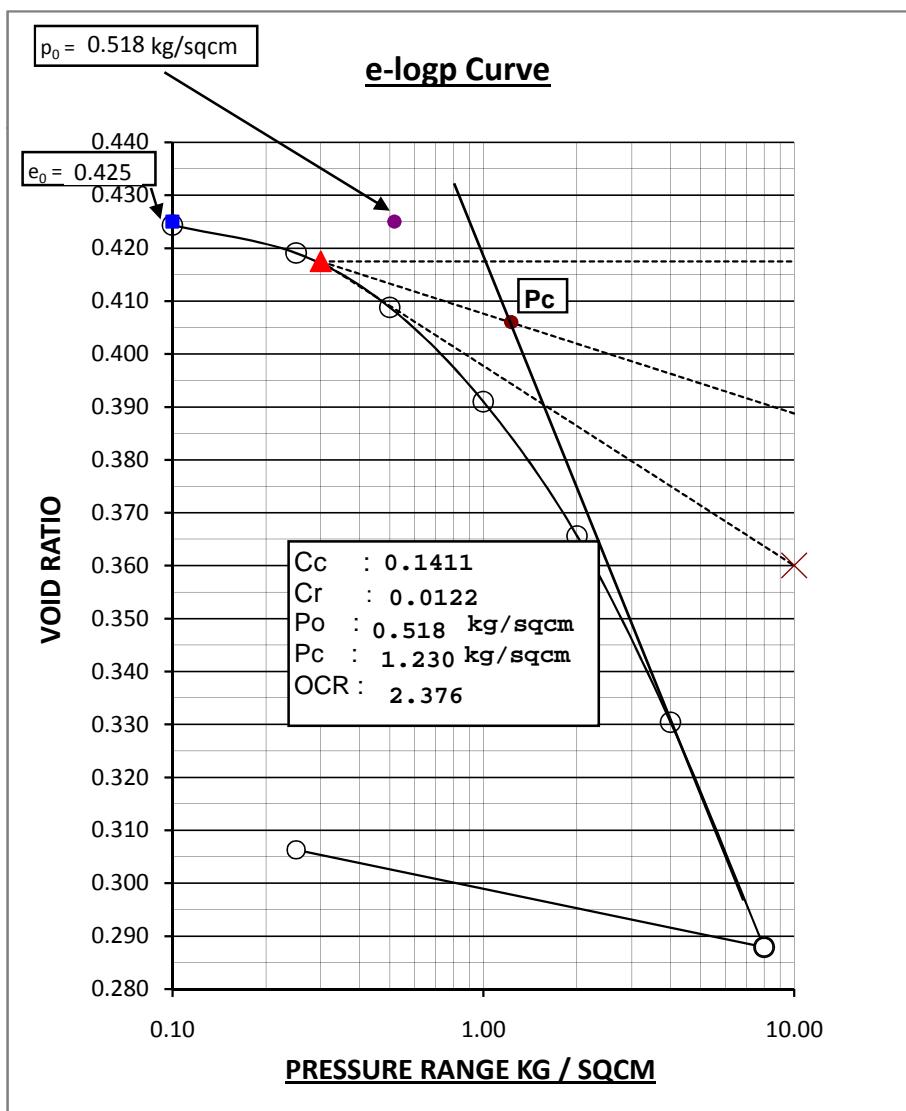
Sample Number:BH-16/UDS-01

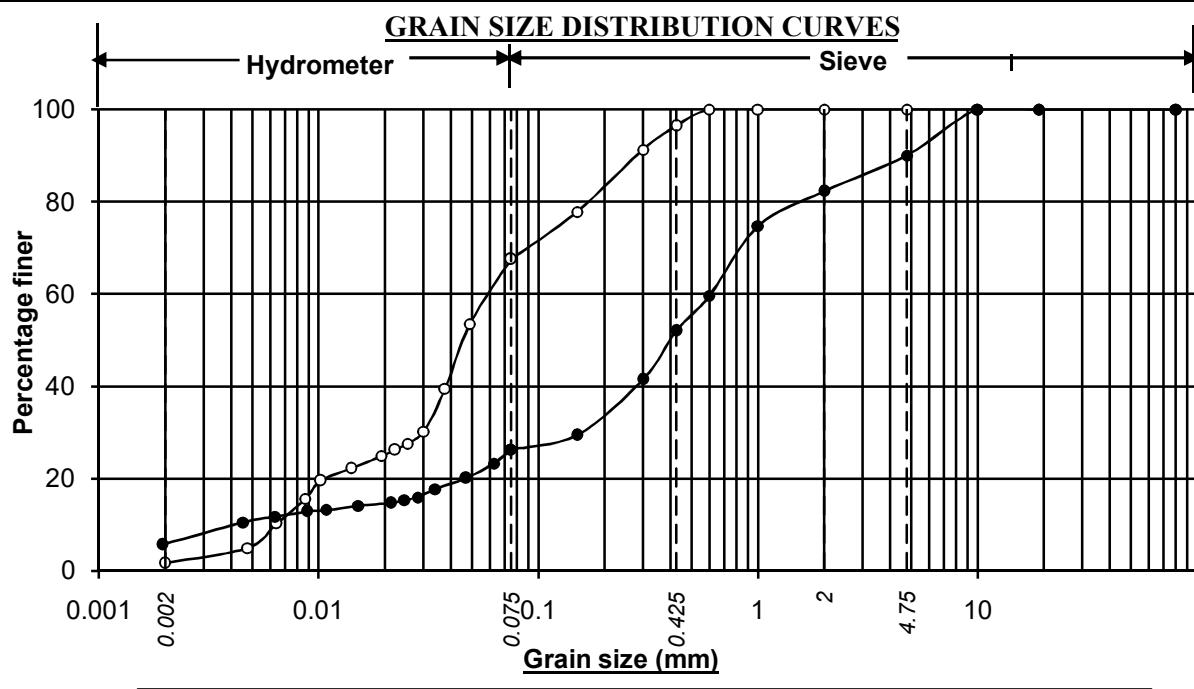
Depth :2.5-2.95 meters

Description :Brownish grey clayey silty sand with decomposed rock dust.

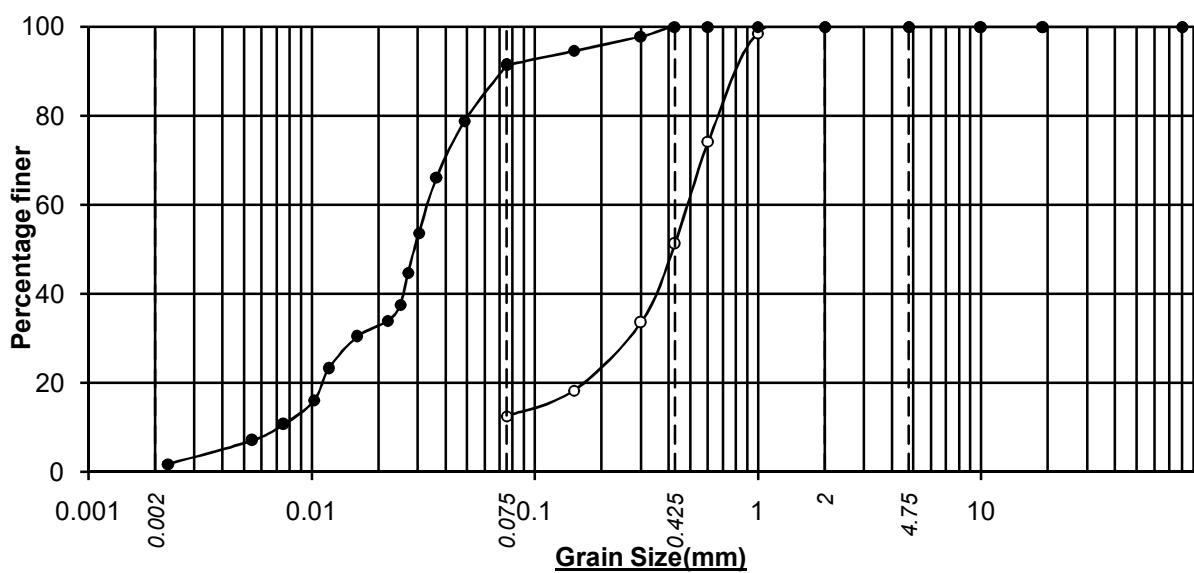
Water content:Initial=12.3% Final =10.8% Initial Void Ratio =0.425

P1-P2 Kg/Sqcm	Dial Change	Void Ratio	MV Sqcm/kg	Comprn %	Mvc sqcm/kg	T90 Sec	1000.Cv sqcm/sec
0.00 - 0.10	6	0.424	0.0060				
0.10 - 0.25	37	0.419	0.0247	43.24	0.0140	114.3	7.345
0.25 - 0.50	72	0.409	0.0289	23.61	0.0221	266.4	3.082
0.50 - 1.00	125	0.391	0.0253	44.00	0.0142	155.5	5.070
1.00 - 2.00	178	0.366	0.0182	44.38	0.0101	133.2	5.553
2.00 - 4.00	247	0.330	0.0129	58.30	0.0054	129.7	5.198
4.00 - 8.00	298	0.288	0.0080	60.74	0.0031	129.7	4.582
8.00 - 0.25	129	0.306	0.0018				





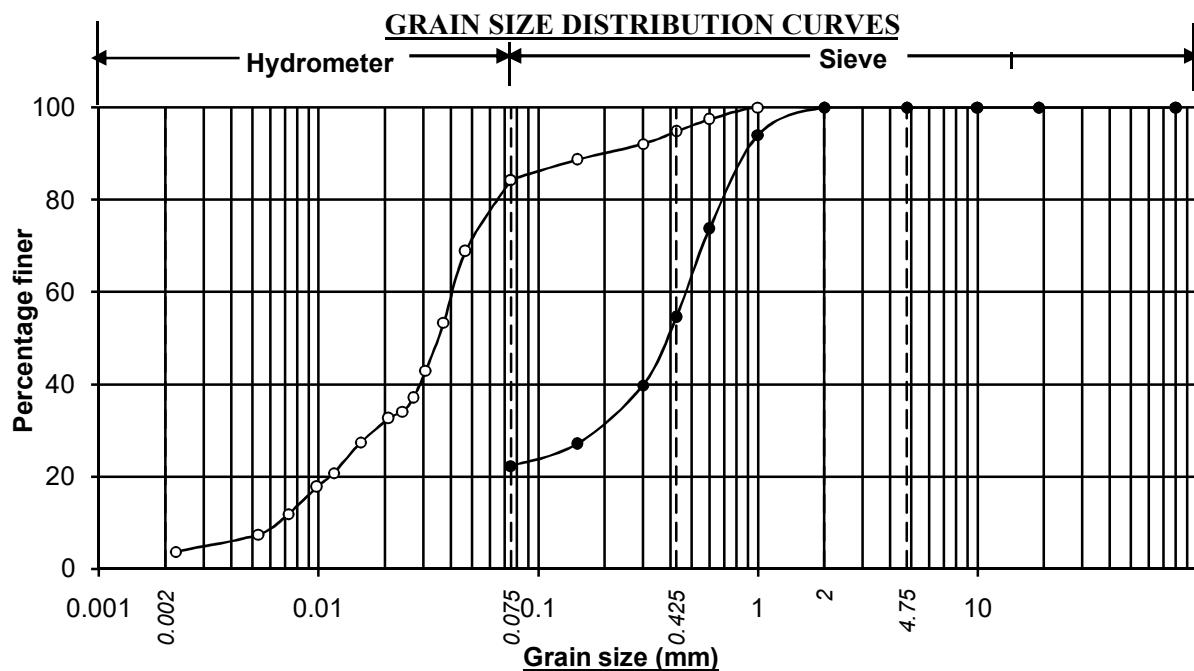
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-01, UDS-01, 2.50M	1.7	65.9	28.8	3.6	0.0	32.4		0.0
BH-02, UDS-01, 2.50M	5.9	20.4	25.8	30.2	7.7	63.7		10.0



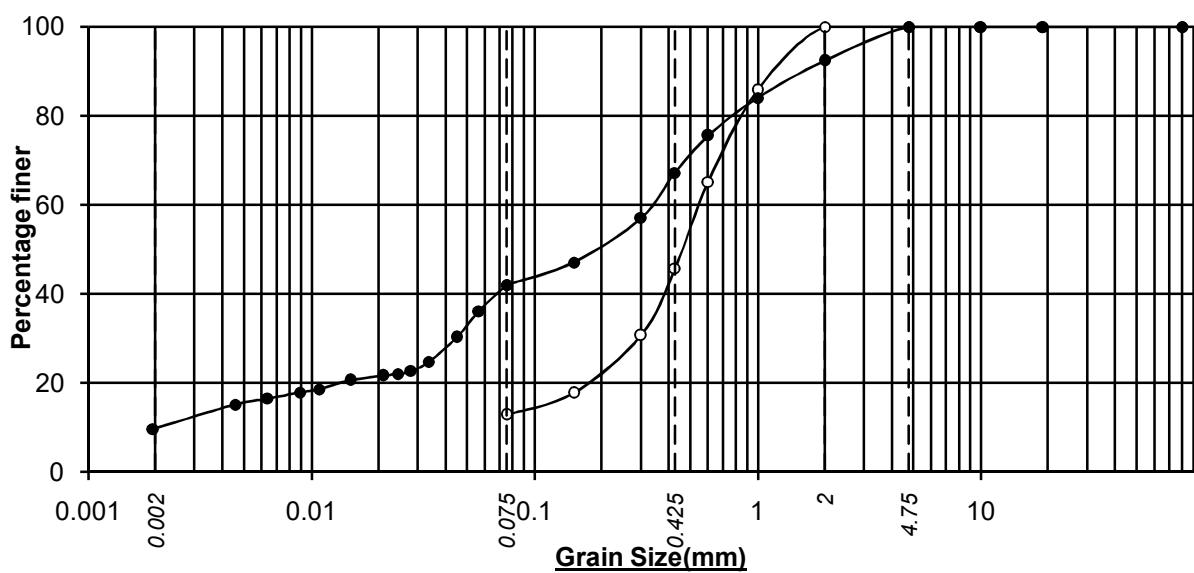
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-02, SPT-04, 06.20M		12.6	38.7	48.7	0.0	87.4		0.0
BH-03, UDS-01, 3.00M	1.0	90.4	8.6	0.0	0.0	8.6		0.0

Project:- Geotech. Inv. Work at NTPC Ramagundam TPS Stage-I & II FGD Package

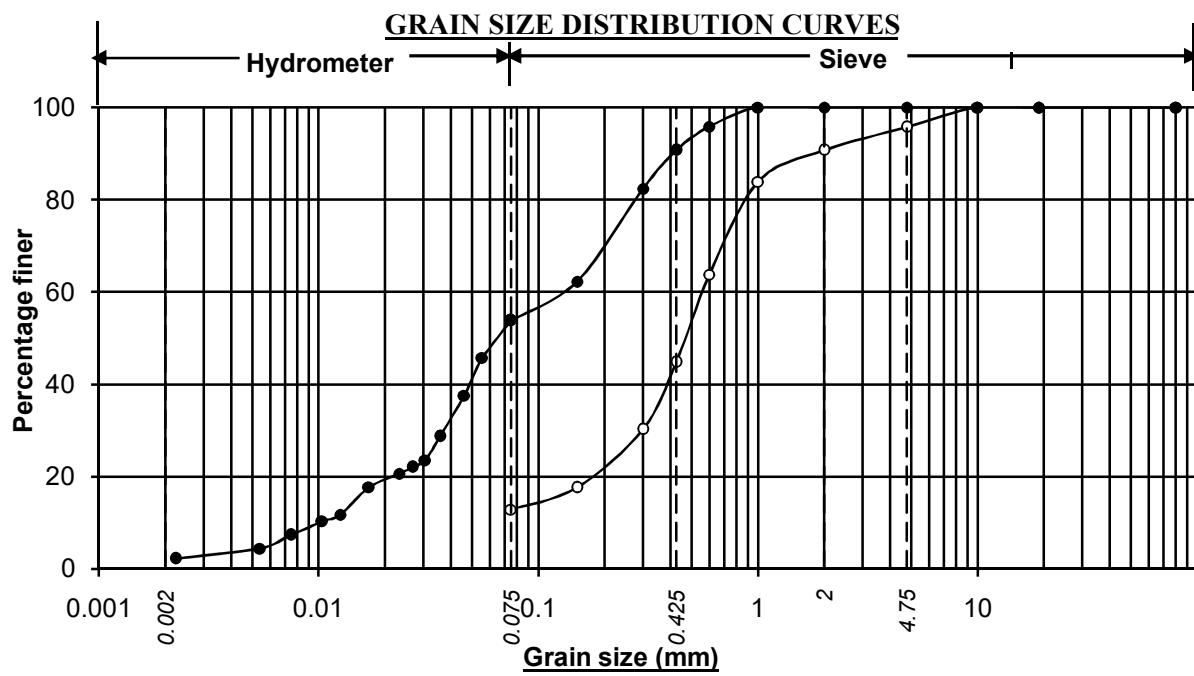
Job No.
4371



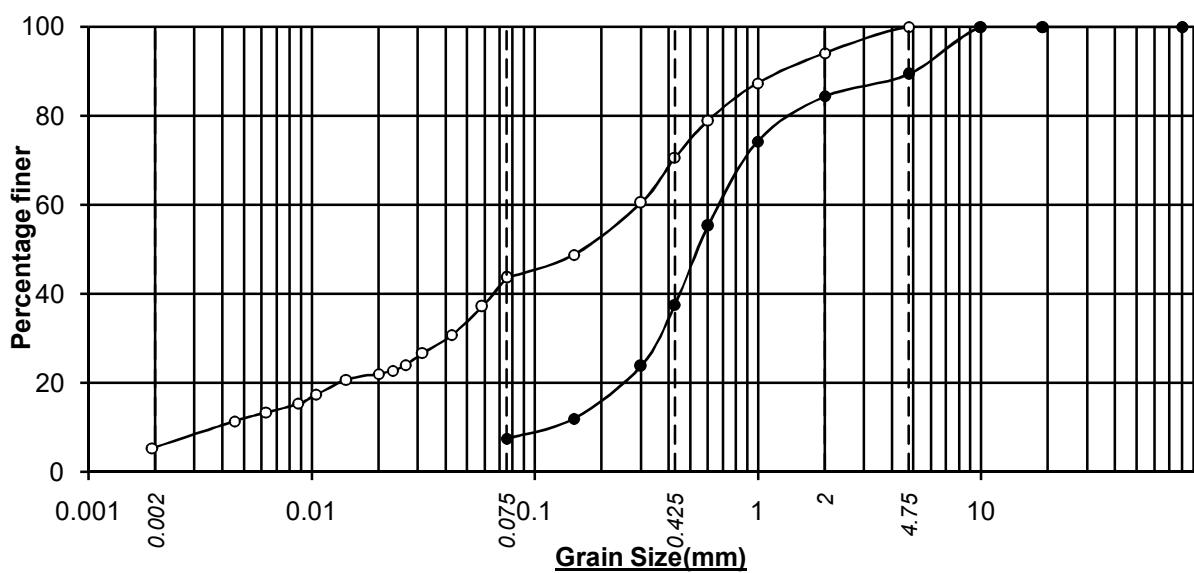
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-04, UDS-01, 2.80M	3.2	81.1	10.5	5.2	0.0	15.7		0.0
BH-04, SPT-03, 04.40M		22.3	32.3	45.4	0.0	77.7		0.0



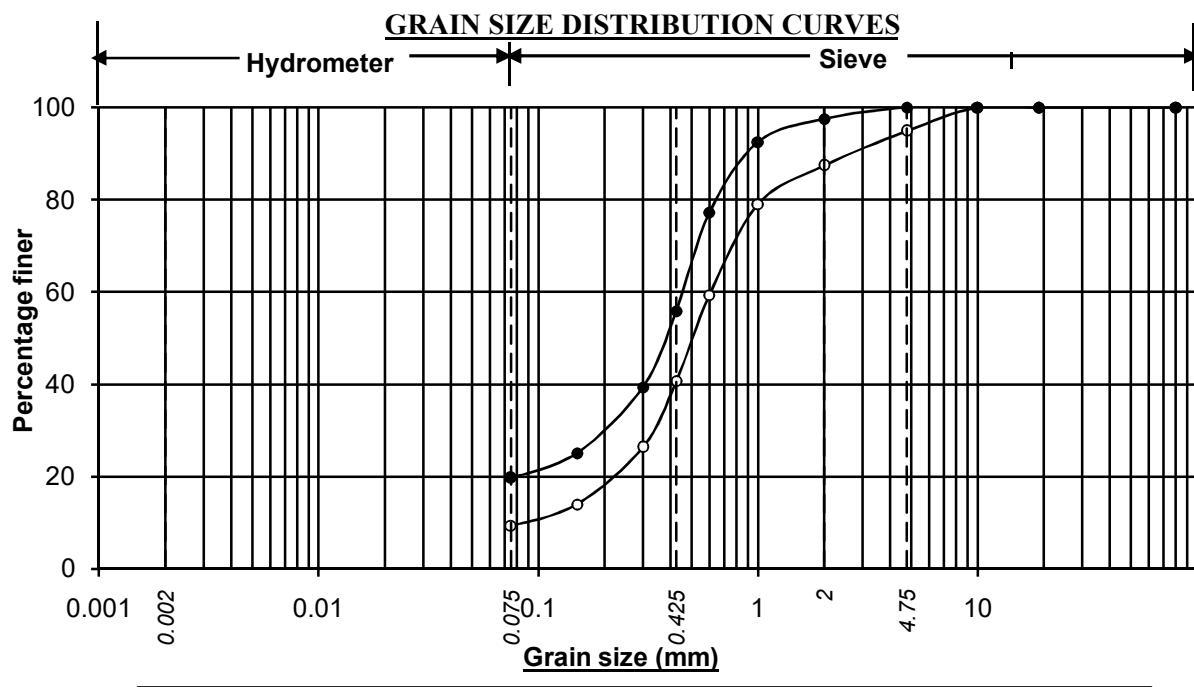
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-05, SPT-01, 01.50M		12.9	32.8	54.3	0.0	87.1		0.0
BH-06, UDS-01, 3.00M	9.8	32.2	25.2	25.2	7.6	58.0		0.0



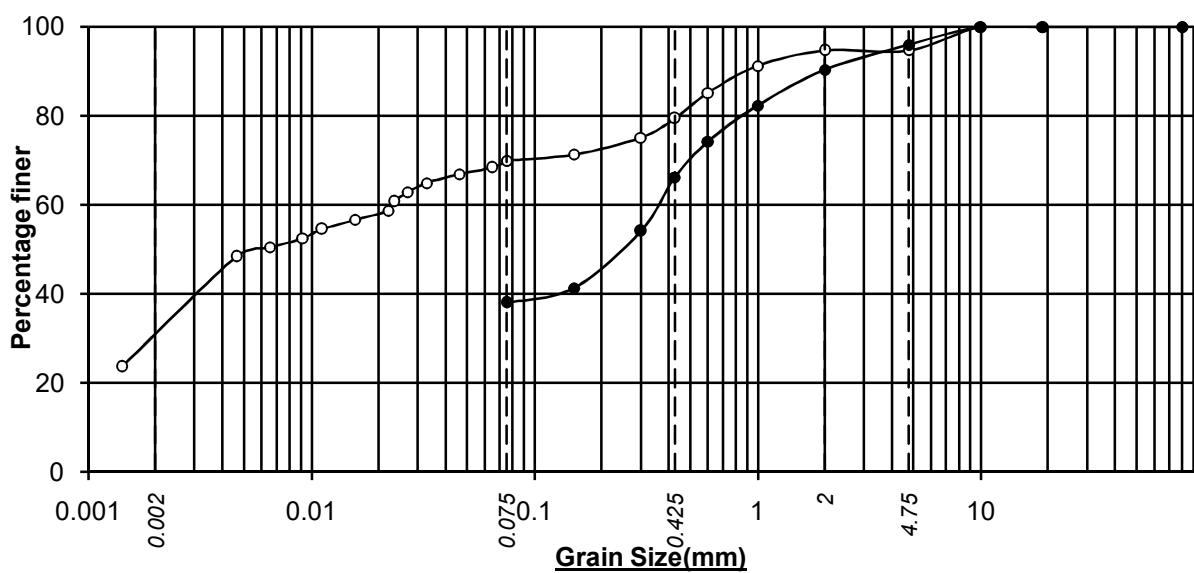
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-06,SPT-04, 06.00M		12.9	31.9	45.9	5.0	82.8		4.3
BH-07,UDS-01, 3.00M	1.9	51.9	37.0	9.2	0.0	46.2		0.0



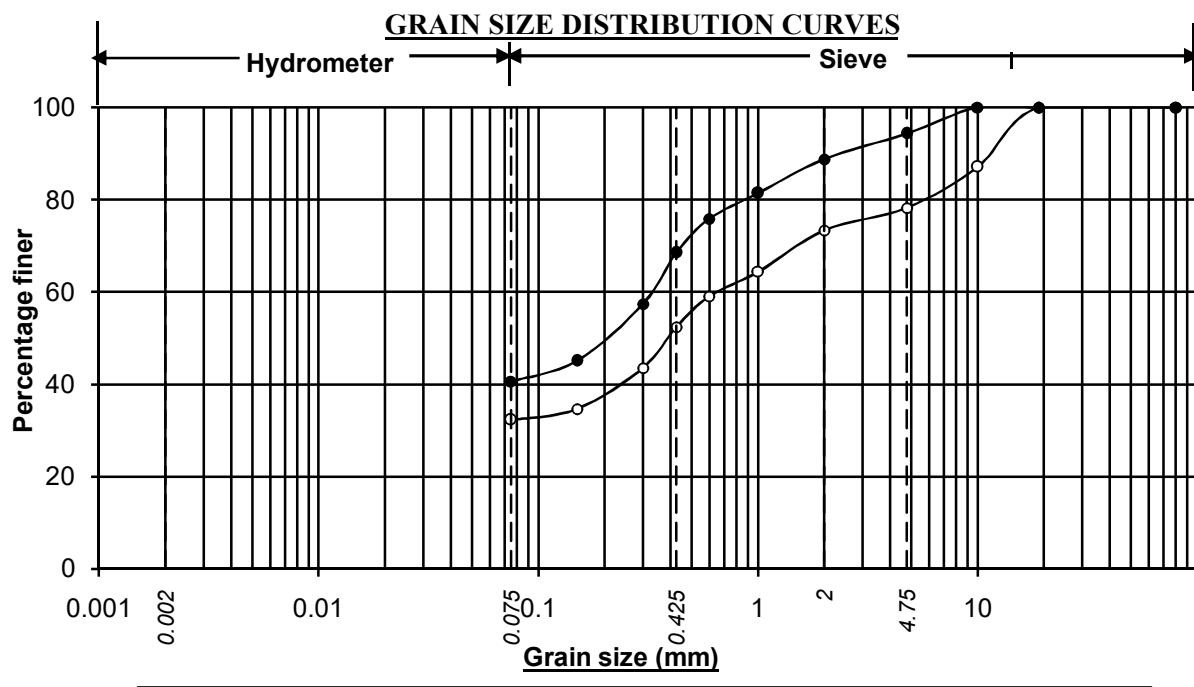
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-08,UDS-01, 3.00M	5.6	38.1	26.9	23.5	5.9	56.3		0.0
BH-08,SPT-03, 04.50M		7.5	30.0	46.9	5.0	81.9		10.6



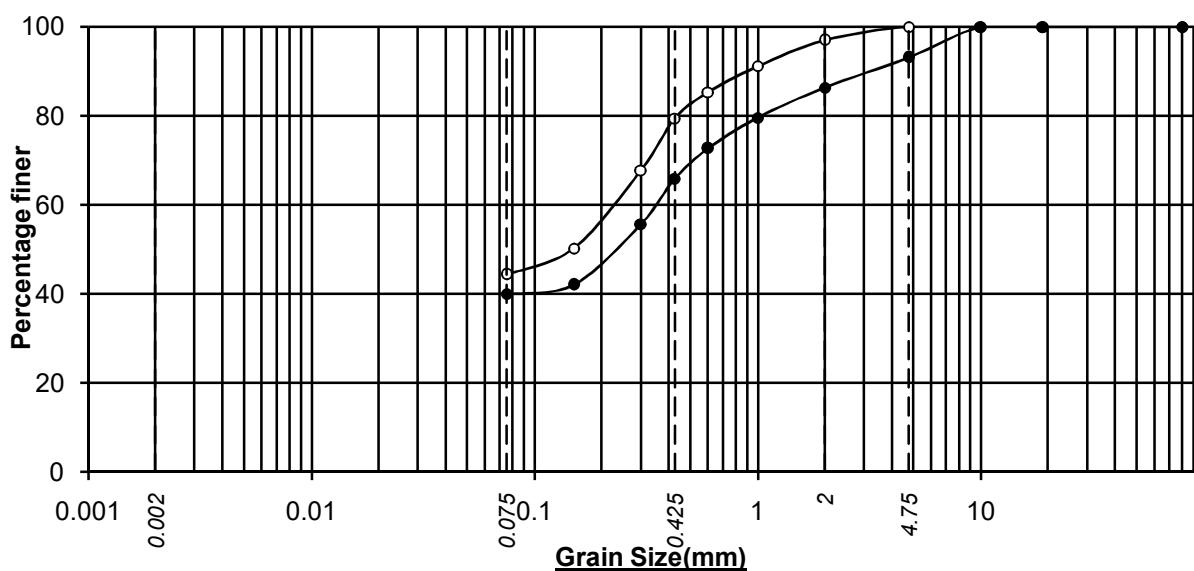
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-10,SPT-01, 01.50M		9.3	31.4	46.7	7.5	85.6		5.1
BH-11,SPT-01, 01.50M	19.7		36.1	41.7	2.5	80.3		0.0



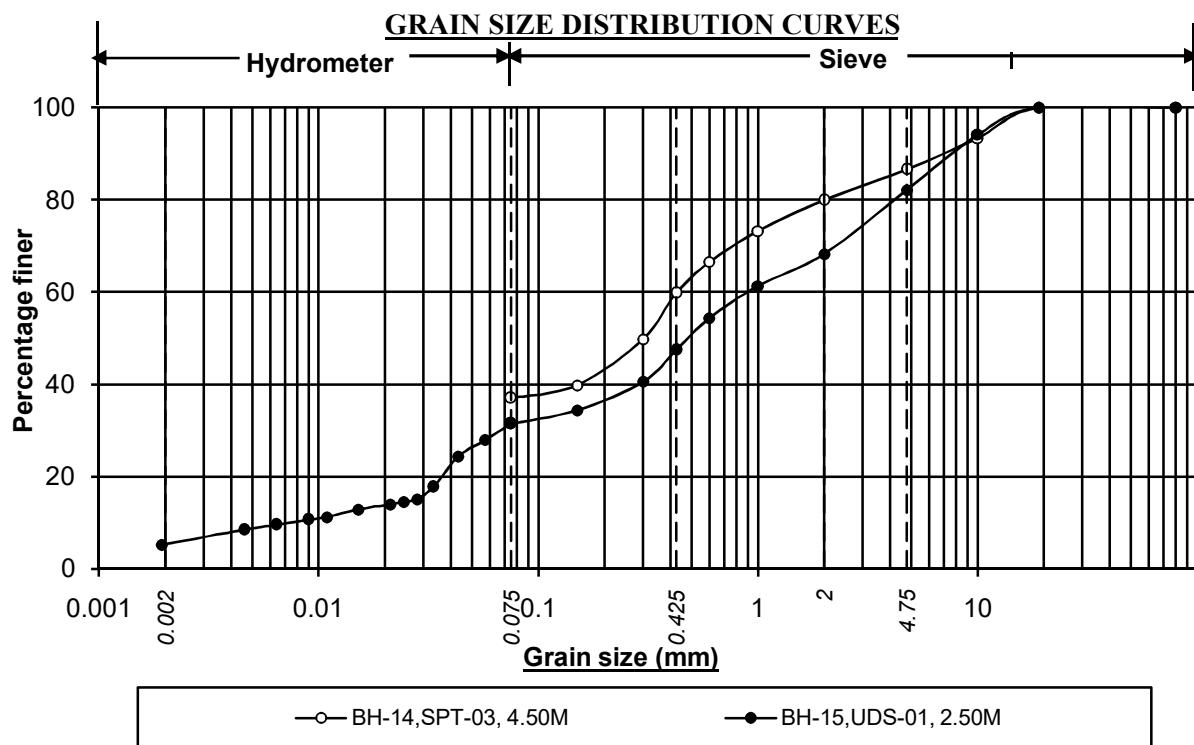
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-11,SPT-02, 03.00M	30.9	39.0	9.5	15.3	0.0	24.8		5.3
BH-12,SPT-02, 3.00M		38.1	28.2	24.1	5.6	57.9		4.0



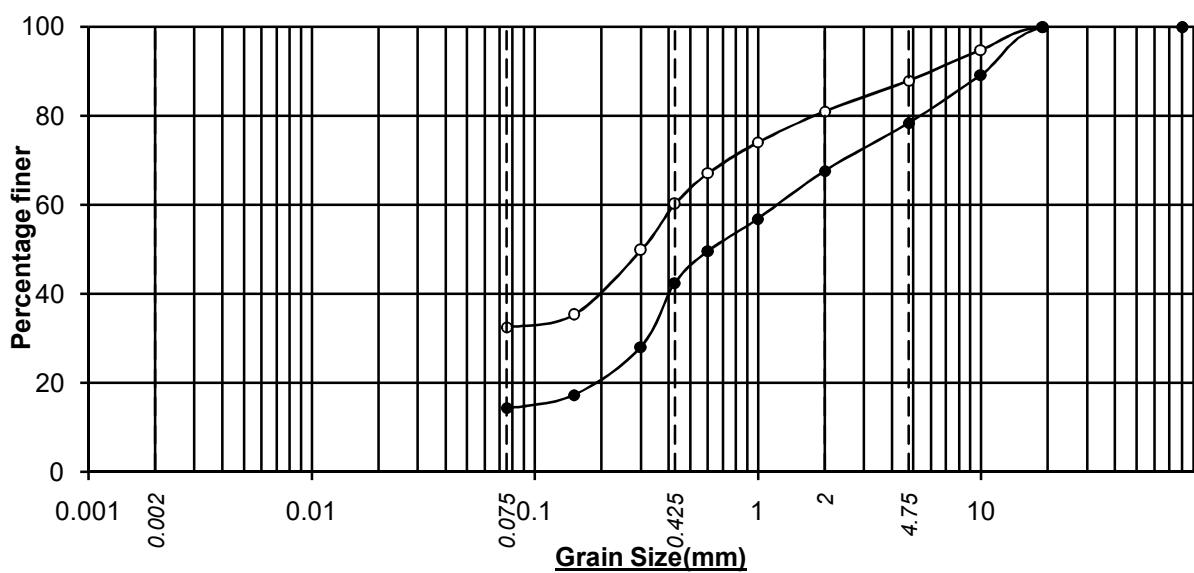
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-12,SPT-03, 4.50M		32.3	20.1	20.9	4.9	45.9		21.8
BH-13,SPT-03, 4.50M	40.6		27.9	20.2	5.6	53.7		5.7



Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-13,SPT-04, 6.00M		44.4	35.0	17.6	3.0	55.6		0.0
BH-14,SPT-02, 3.00M	40.0		26.0	20.4	6.8	53.2		6.8



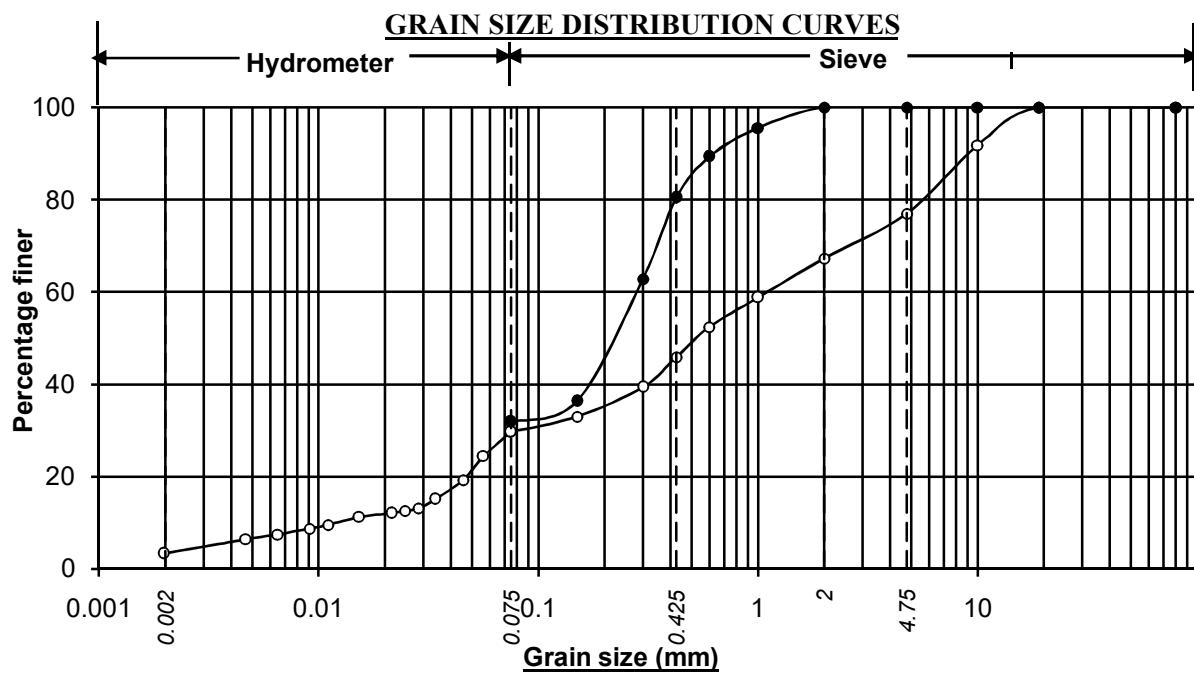
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-14,SPT-03, 4.50M		37.0	22.8	20.1	6.7	49.6		13.4
BH-15,UDS-01, 2.50M	5.3	26.2	16.0	20.8	13.8	50.6		17.9



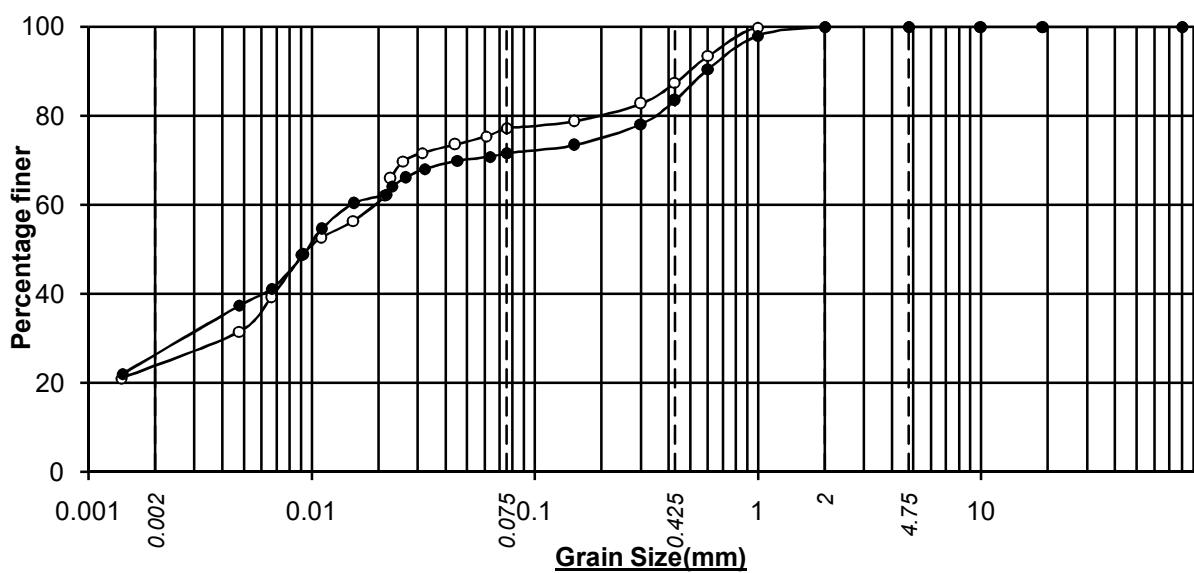
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-15,SPT-02, 2.95M		32.5	27.7	20.8	6.9	55.4		12.1
BH-15,SPT-03, 4.50M	14.4	28.0	25.2	10.8	64.0			21.6

Project:- Geotech. Inv. Work at NTPC Ramagundam TPS Stage-I & II FGD Package

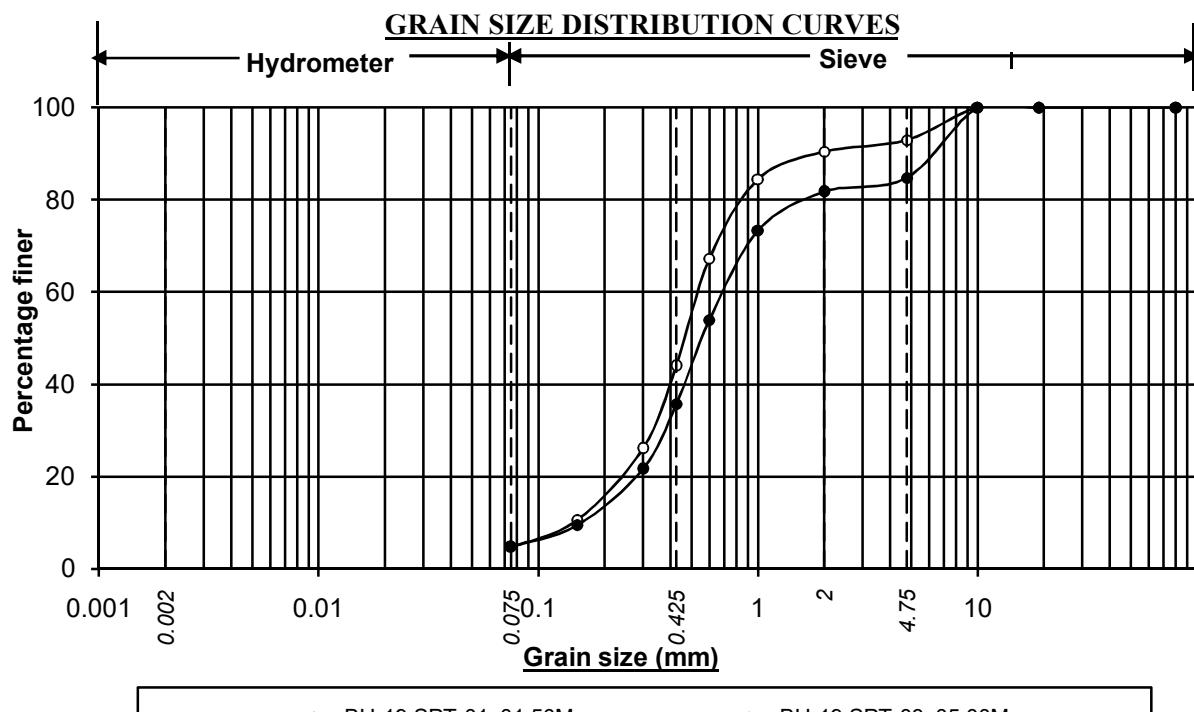
Job No.
4371



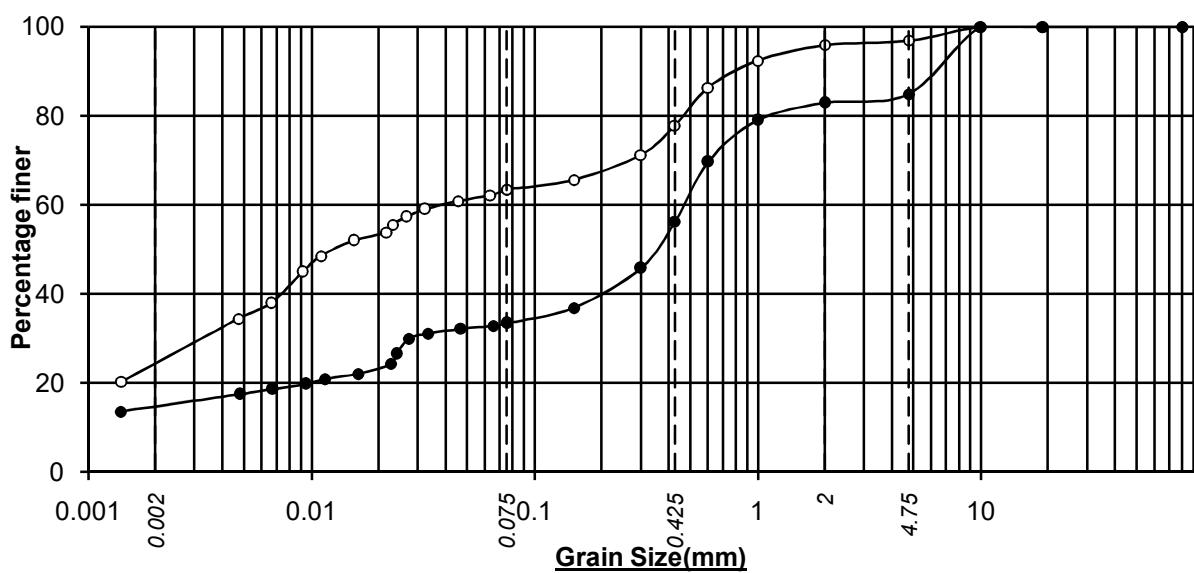
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-16, UDS-01, 2.50M	3.4	26.3	16.2	21.3	9.7	47.2		23.1
BH-16, SPT-02, 2.95M		31.9	48.6	19.5	0.0	68.1		0.0



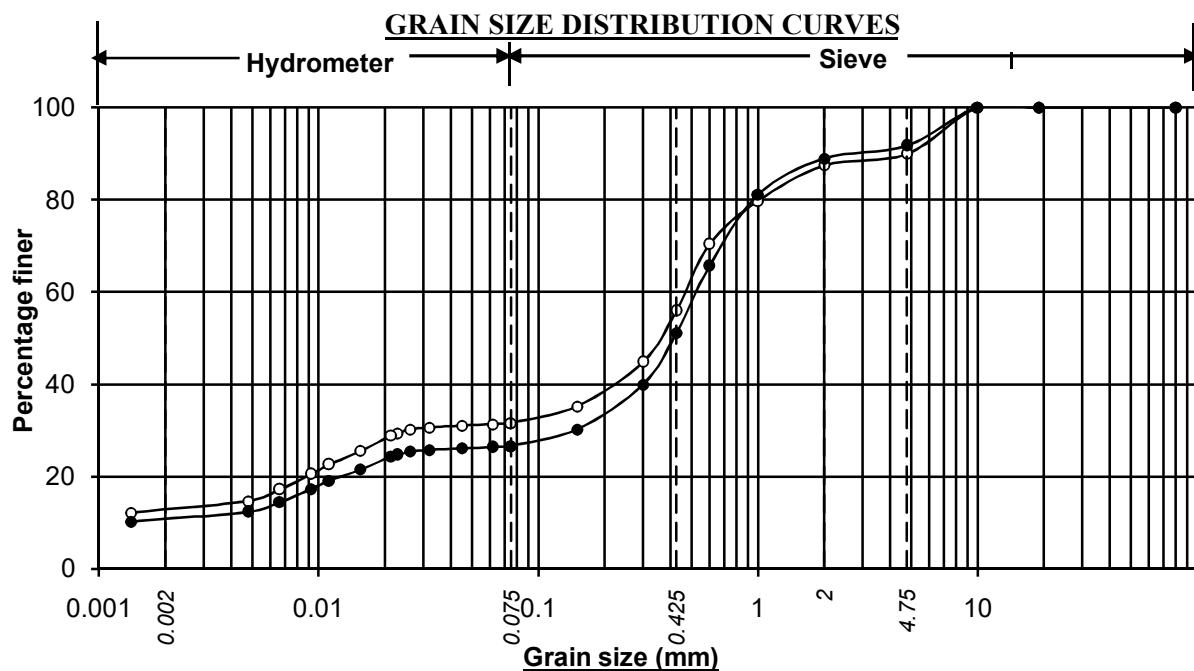
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-17, SPT-04, 06.00M	24.0	53.2	10.2	12.6	0.0	22.8		0.0
BH-18, SPT-02, 03.00M	26.4	45.3	11.8	16.5	0.0	28.3		0.0



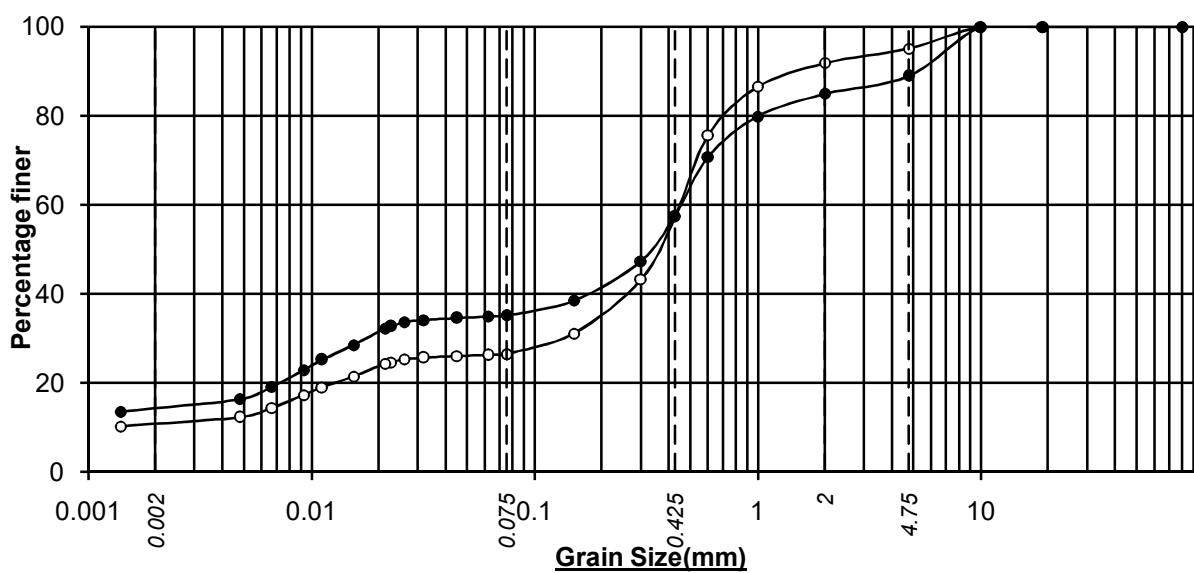
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-19,SPT-01, 01.50M		4.8	39.2	46.4	2.5	88.1		7.1
BH-19,SPT-03, 05.00M		4.9	30.8	46.0	3.0	79.8		15.3



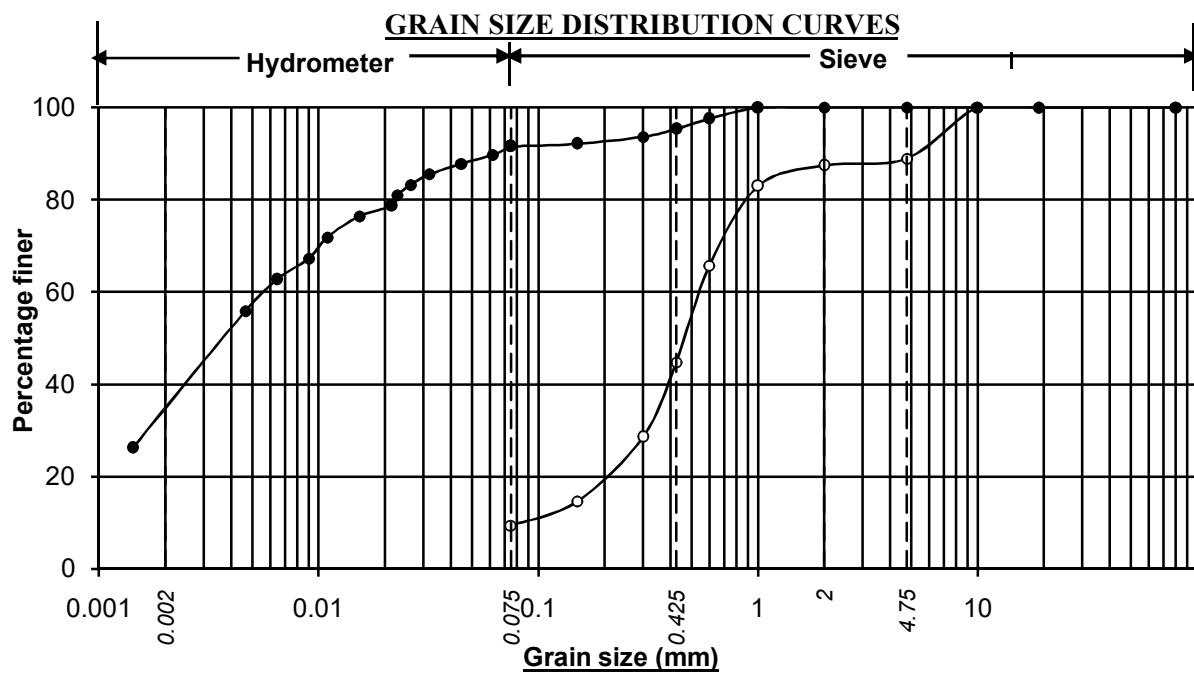
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-20,SPT-02, 03.60M	24.4	39.1	14.3	18.1	1.0	33.4		3.1
BH-21,SPT-01, 01.50M	14.7	18.7	22.8	26.7	2.0	51.5		15.1



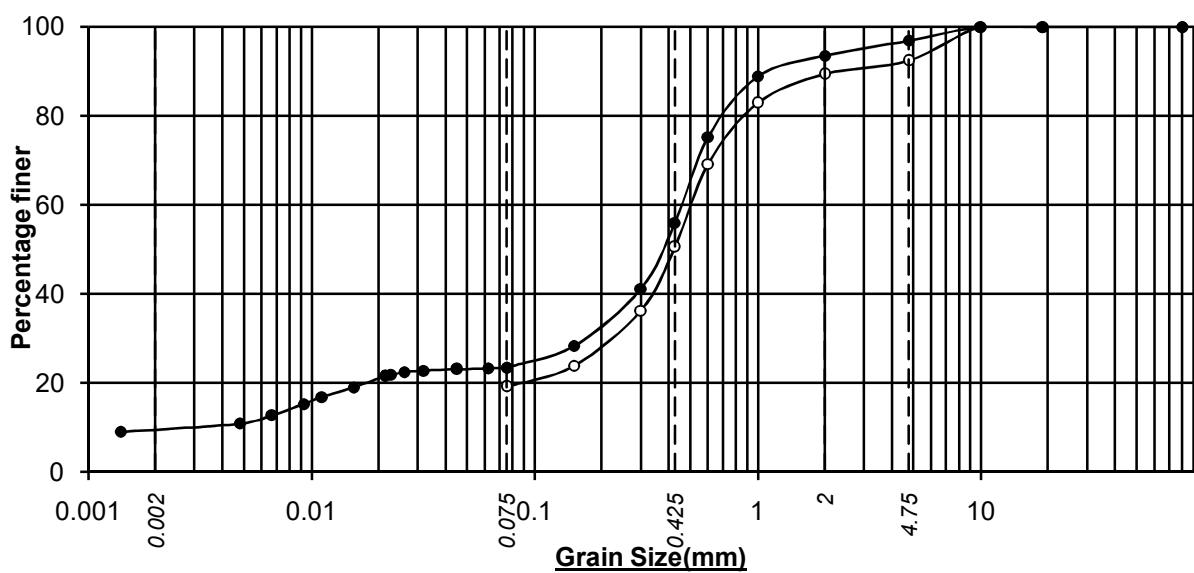
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-23,SPT-01, 01.50M	12.9	18.7	24.3	31.5	2.5	58.3		10.1
BH-23,SPT-02, 03.00M	10.9	15.7	24.5	37.8	2.8	65.1		8.3



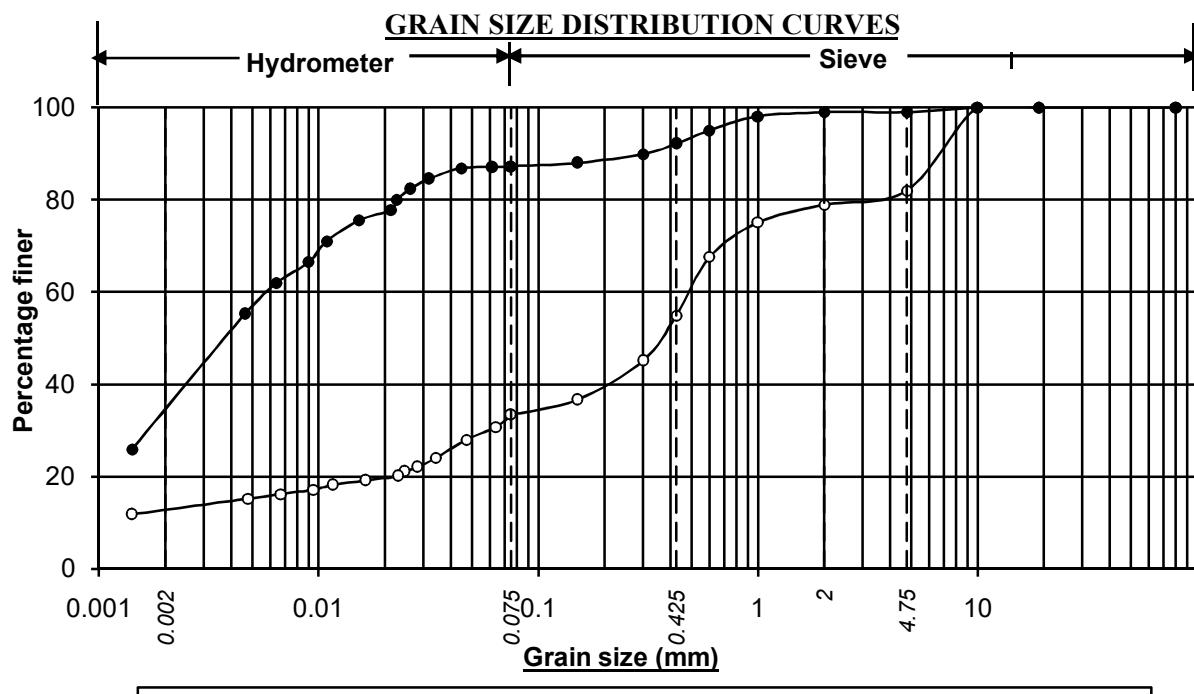
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-24,SPT-01, 01.50M	10.8	15.7	30.9	34.5	3.2	68.6		4.9
BH-24,SPT-03, 04.50M	14.4	20.8	22.4	27.4	4.0	53.8		11.0



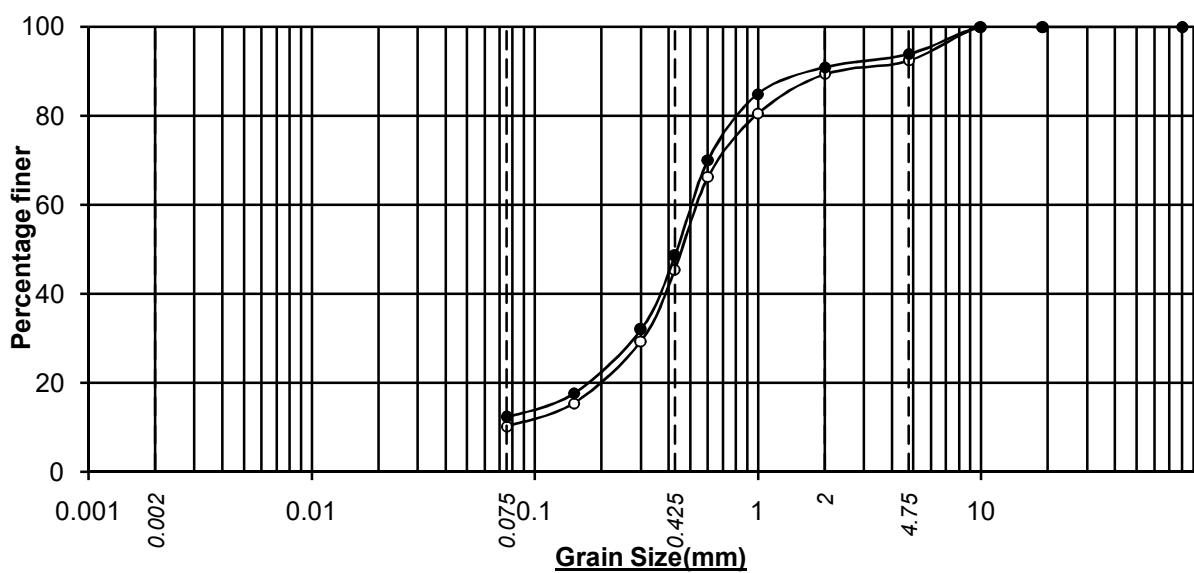
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-25,SPT-02, 03.00M		9.4	35.3	42.7	1.5	79.5		11.1
BH-26,SPT-01, 01.50M	34.7	56.9	3.7	4.7	0.0	8.4		0.0



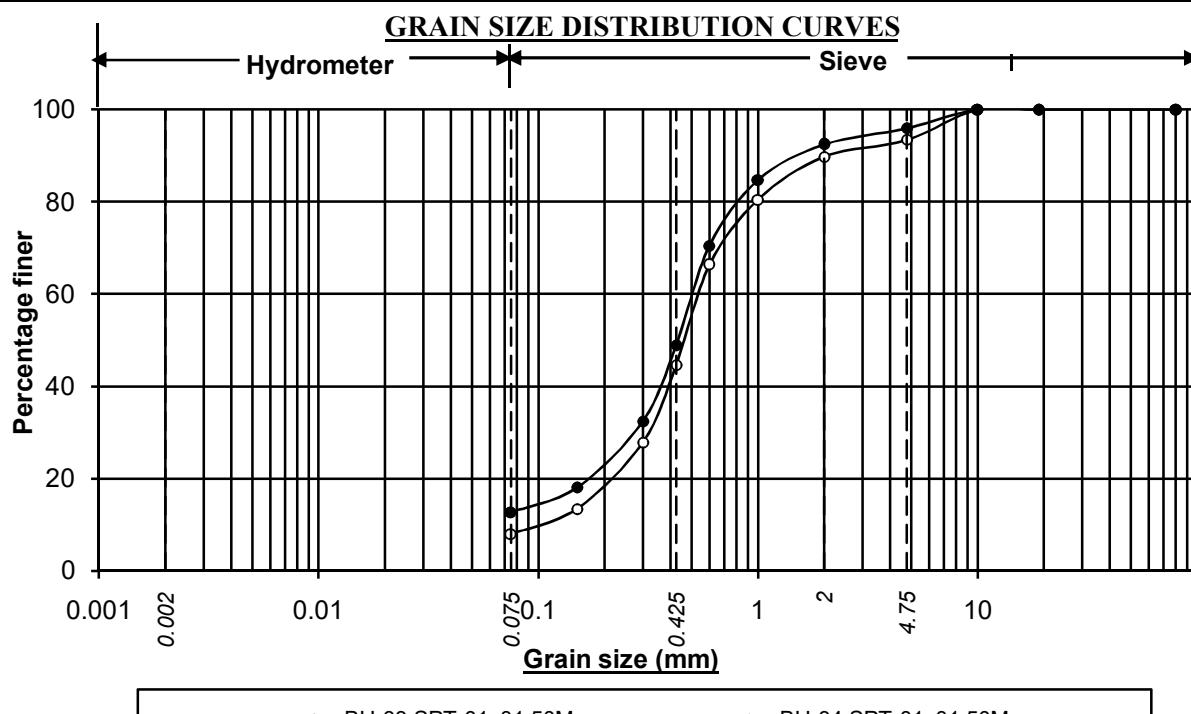
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-27,SPT-01, 01.50M		19.2	31.4	38.8	3.0	73.2		7.6
BH-28,SPT-01, 01.50M	9.6	13.9	32.5	37.5	3.4	73.4		3.1



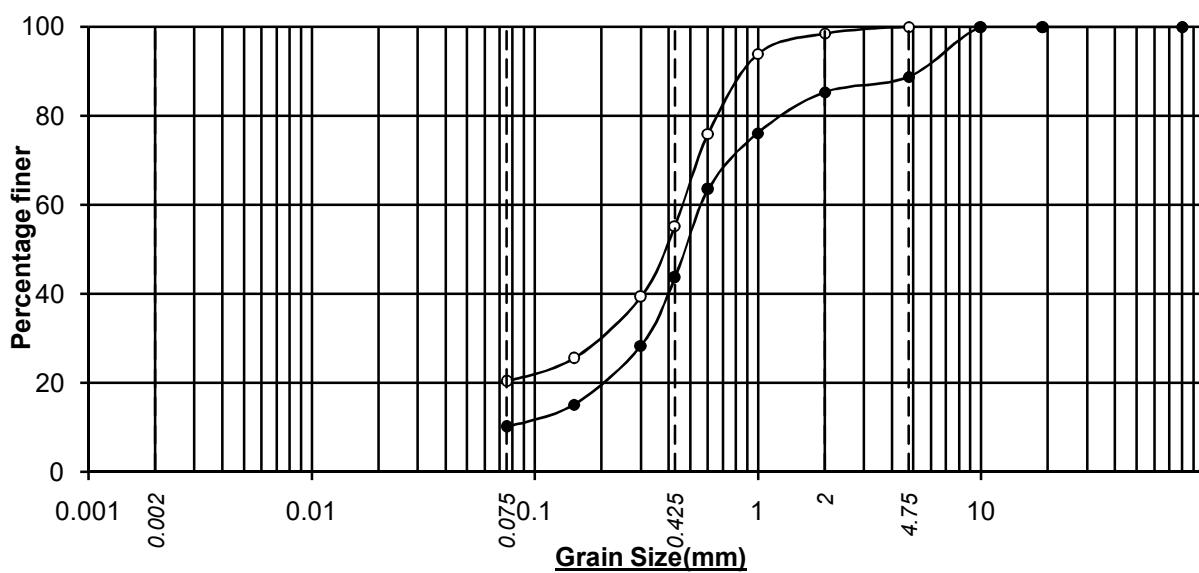
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-29,SPT-01, 01.50M	12.8	20.7	21.4	24.0	3.0	48.4		18.1
BH-30,SPT-01, 01.50M	34.4	52.8	4.9	6.9	0.0	11.8		1.0



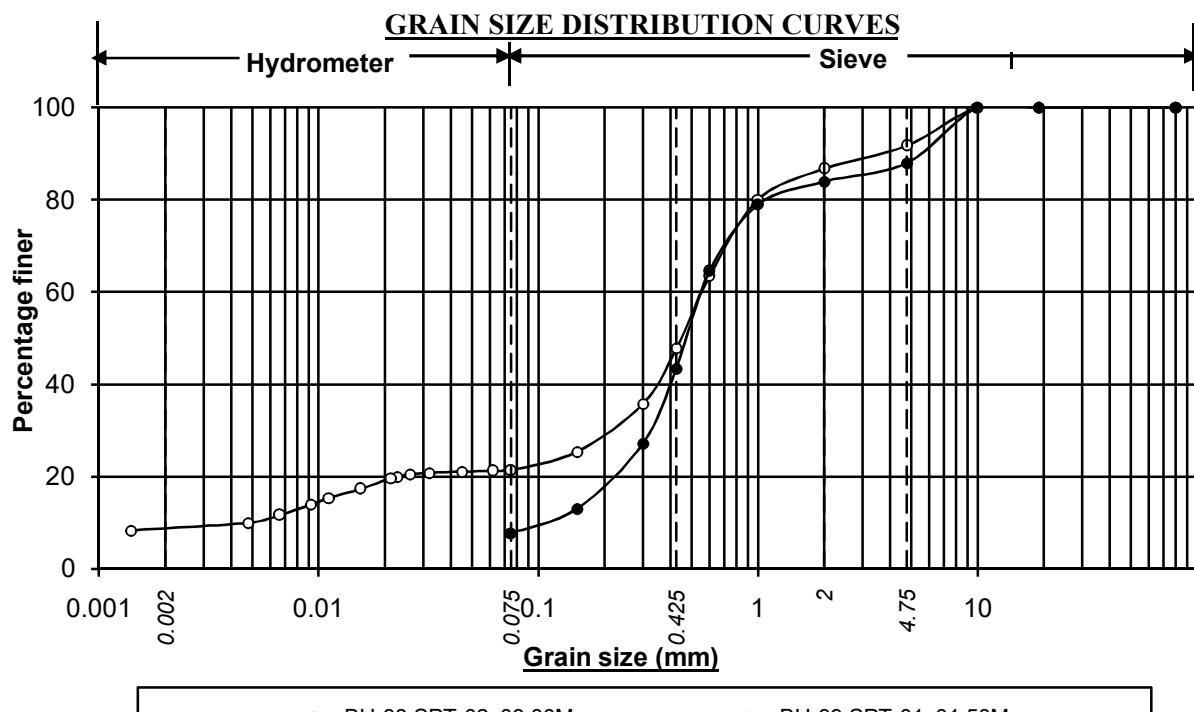
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-31,SPT-01, 01.50M		10.2	35.2	44.0	3.0	82.2		7.6
BH-32,SPT-01, 01.50M		12.3	36.3	42.3	3.0	81.6		6.1



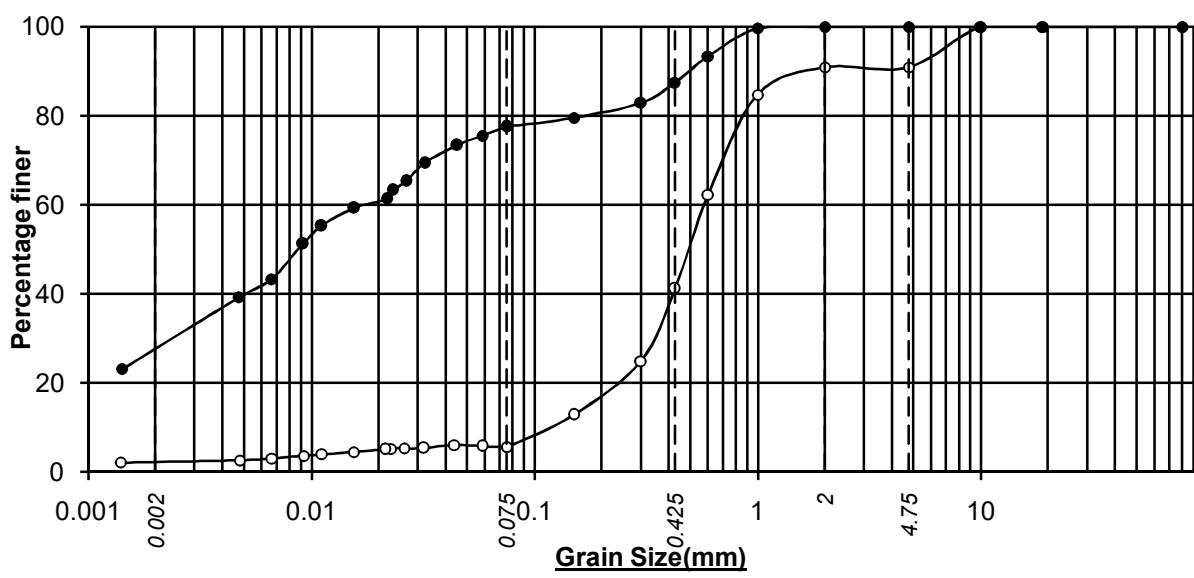
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-33,SPT-01, 01.50M		8.0	36.6	45.1	3.7	85.4		6.6
BH-34,SPT-01, 01.50M	12.7		36.2	43.5	3.5	83.2		4.1



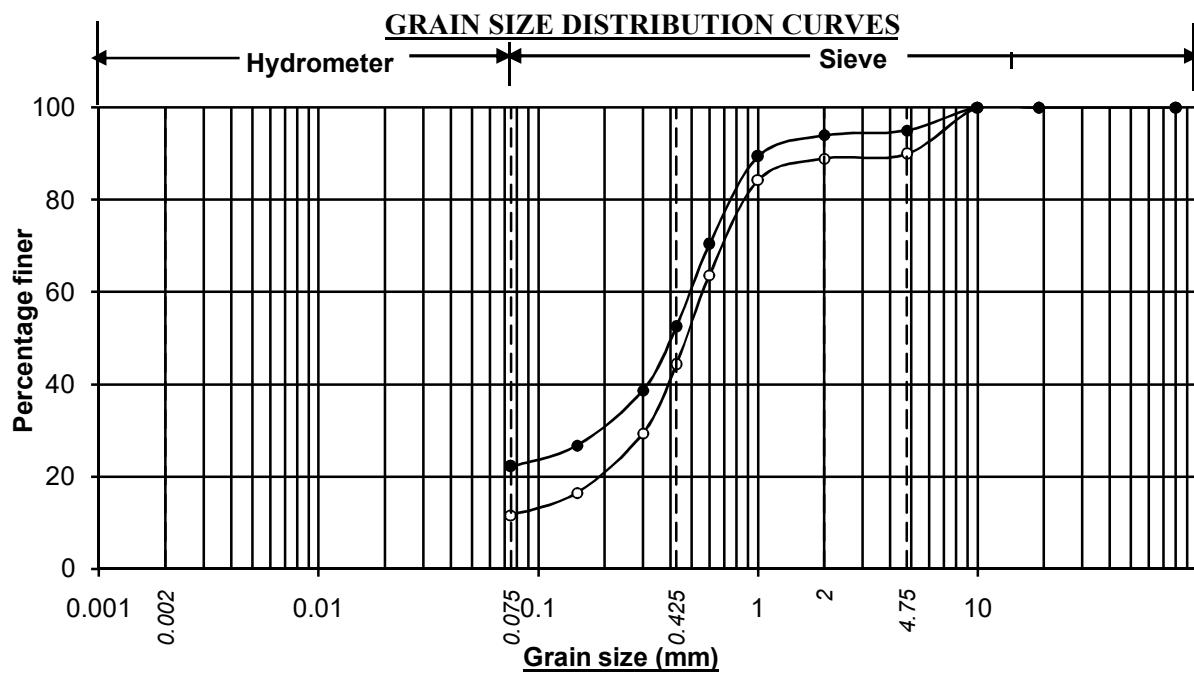
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-35,SPT-01, 01.40M		20.4	34.9	43.2	1.5	79.6		0.0
BH-36,SPT-01, 01.50M	10.1		33.6	41.6	3.5	78.7		11.2



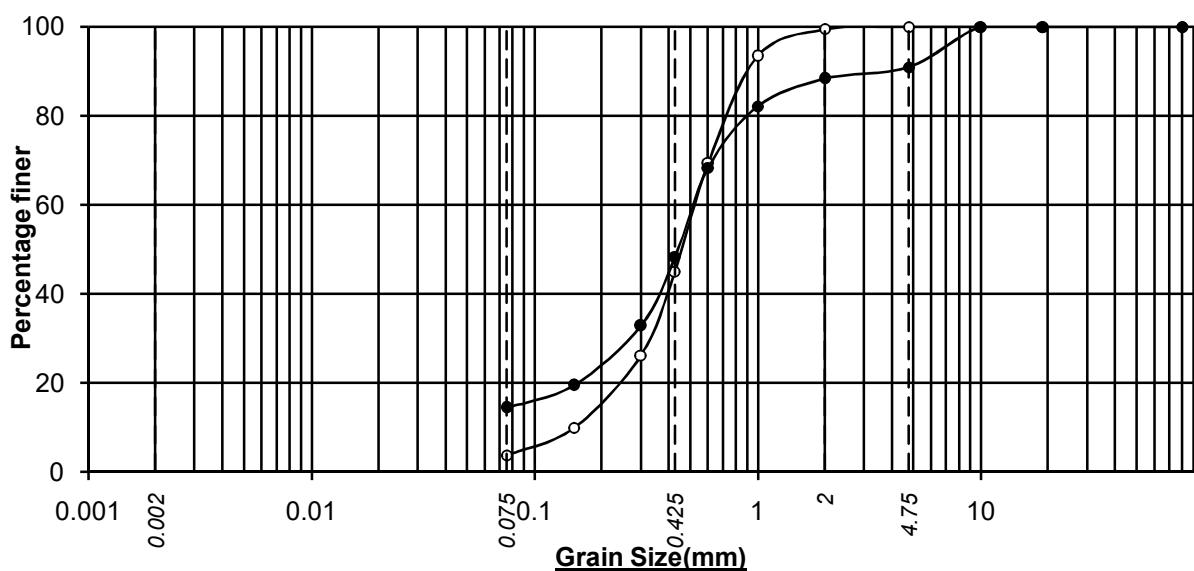
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-38,SPT-02, 03.00M	8.7	12.7	26.3	39.0	5.0	70.3		8.3
BH-39,SPT-01, 01.50M		7.7	35.7	40.5	4.0	80.2		12.1



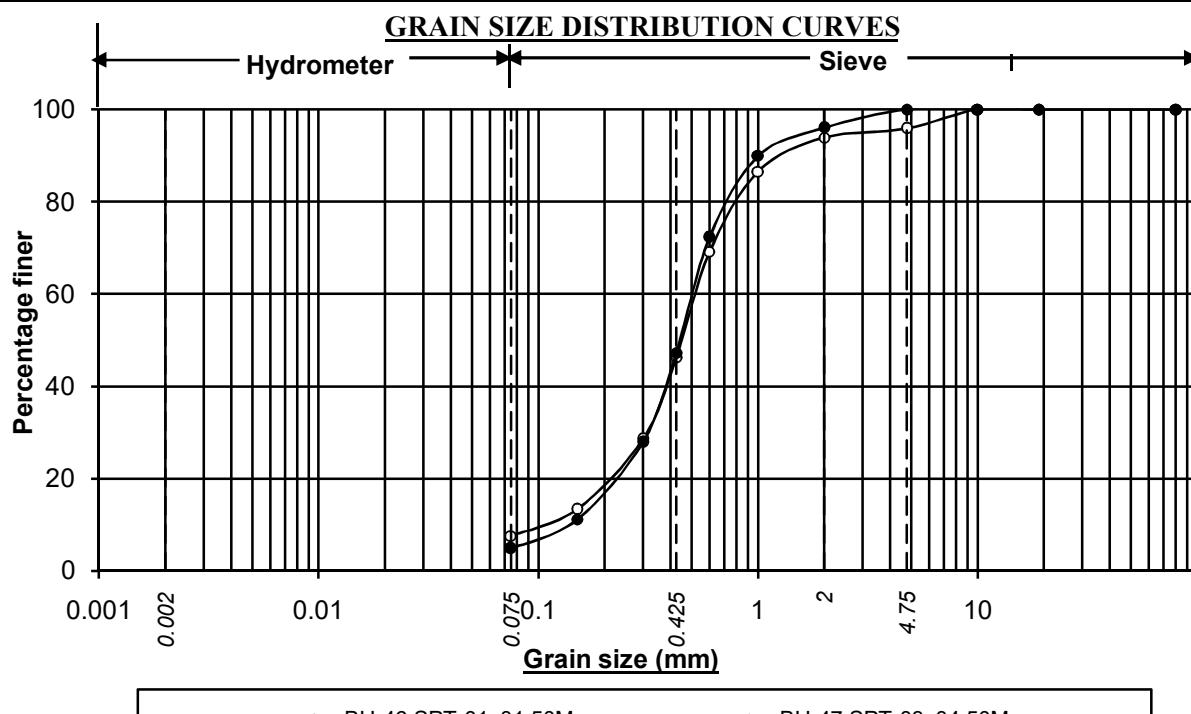
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-40,SPT-01, 01.50M	2.3	3.3	35.6	49.7	0.0	85.3		9.1
BH-41,SPT-01, 01.50M	27.8	49.9	9.8	12.5	0.0	22.3		0.0



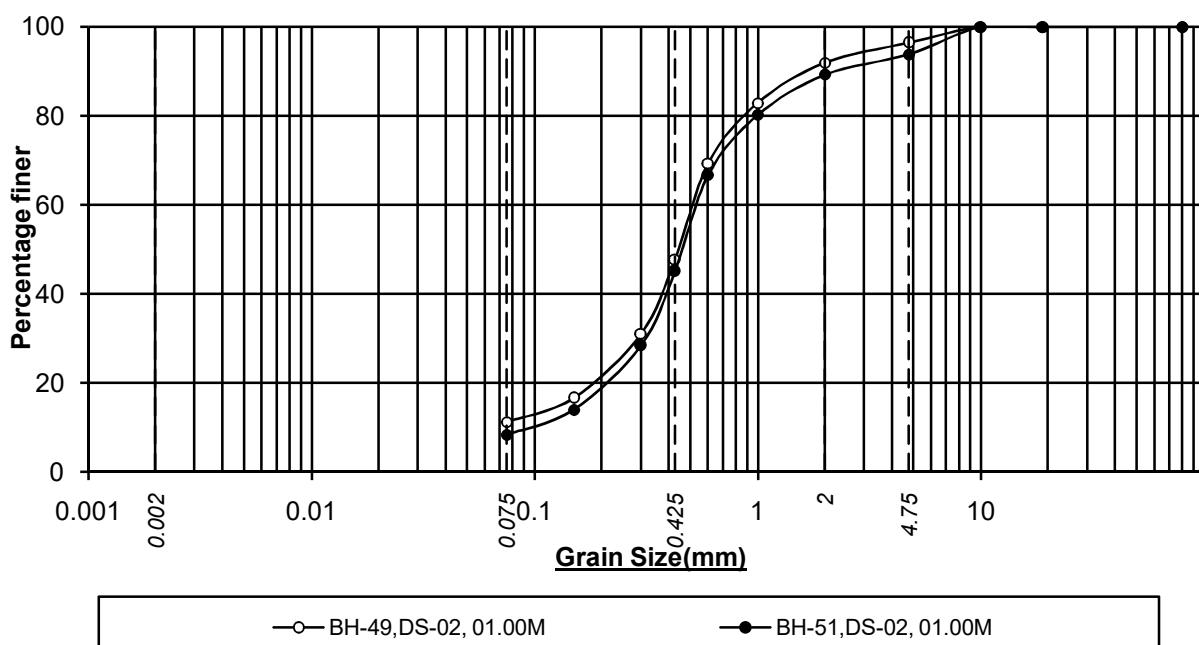
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-42,SPT-01, 01.50M		11.6	32.7	44.6	1.0	78.3		10.1
BH-43,SPT-01, 01.50M	22.2		30.3	41.5	1.0	72.8		5.0



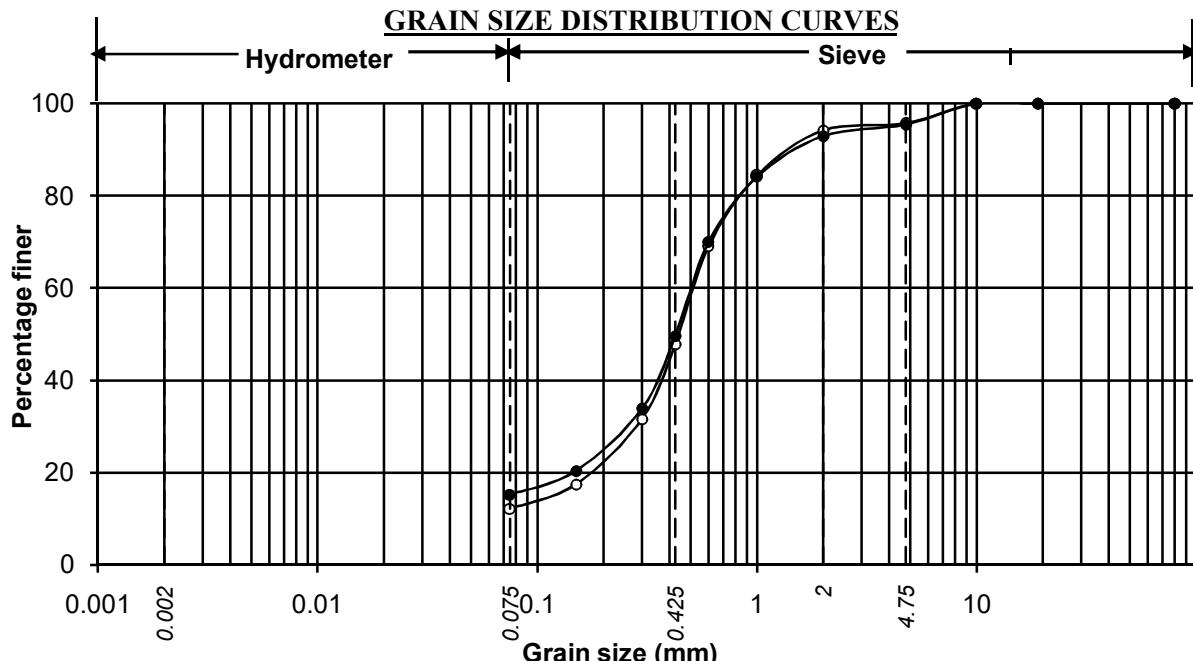
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-44,SPT-01, 01.40M		3.8	41.2	54.5	0.5	96.2		0.0
BH-45,SPT-01, 01.50M	14.5		33.8	40.1	2.5	76.4		9.1



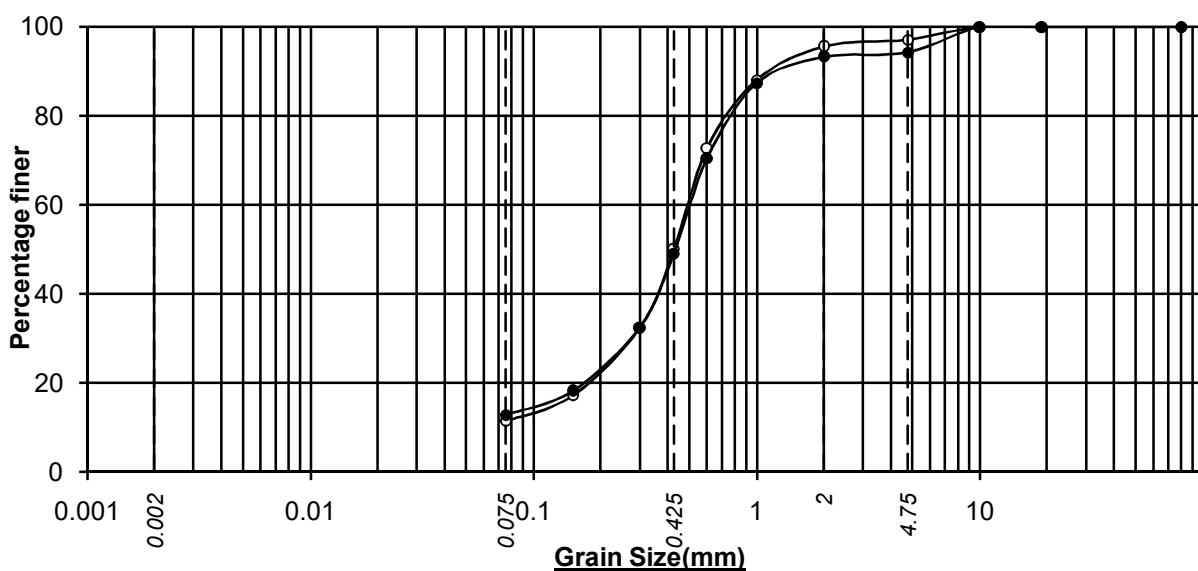
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-46,SPT-01, 01.50M		7.6	38.7	47.6	2.0	88.3		4.1
BH-47,SPT-03, 04.50M		4.9	42.3	48.8	4.0	95.1		0.0



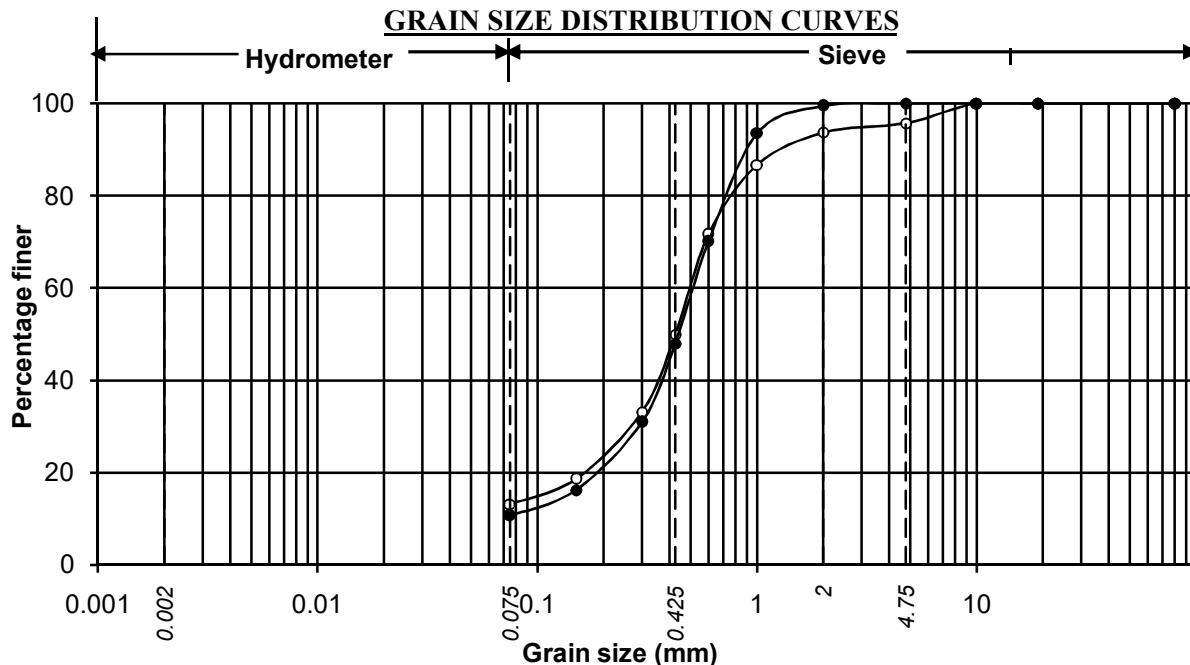
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-49,DS-02, 01.00M		11.2	36.5	44.2	4.5	85.2		3.6
BH-51,DS-02, 01.00M		8.4	36.7	44.2	4.5	85.4		6.2

GRAIN SIZE DISTRIBUTION CURVES

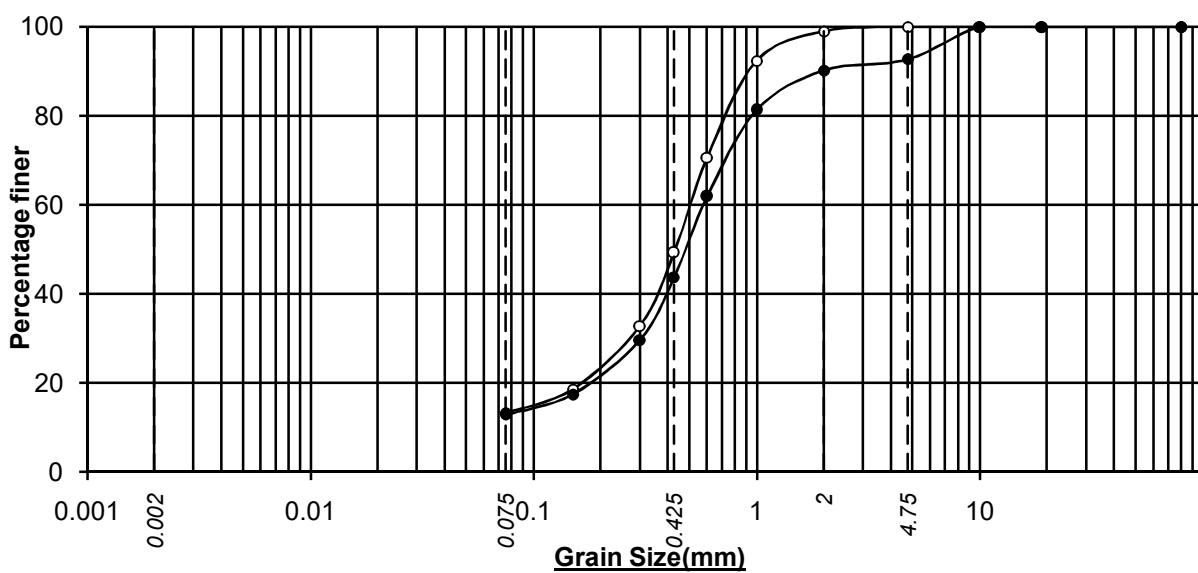
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-53,DS-02, 01.00M		12.2	35.7	46.3	1.6	83.6		4.2
BH-54,SPT-03, 04.50M		15.2	34.4	43.3	2.5	80.2		4.6



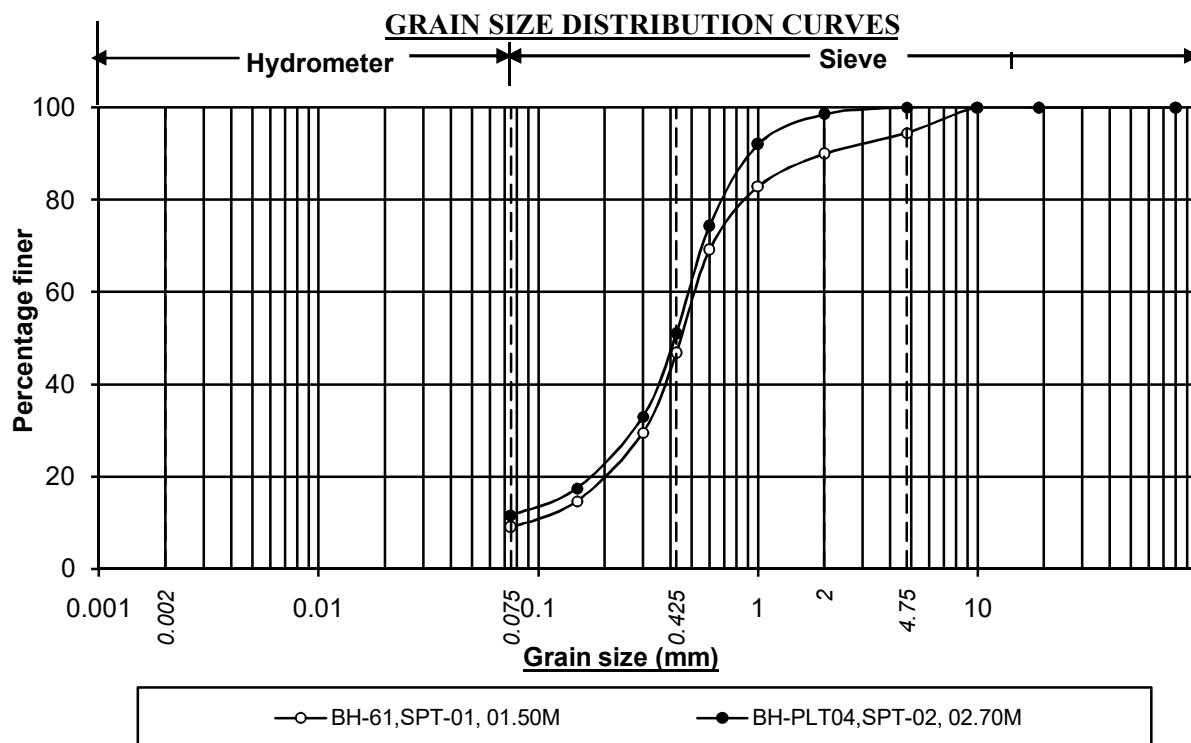
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-55,SPT-01, 01.50M		11.5	38.5	45.6	1.5	85.6		2.9
BH-56,SPT-03, 04.50M		12.8	36.3	44.2	1.0	81.5		5.7

GRAIN SIZE DISTRIBUTION CURVES

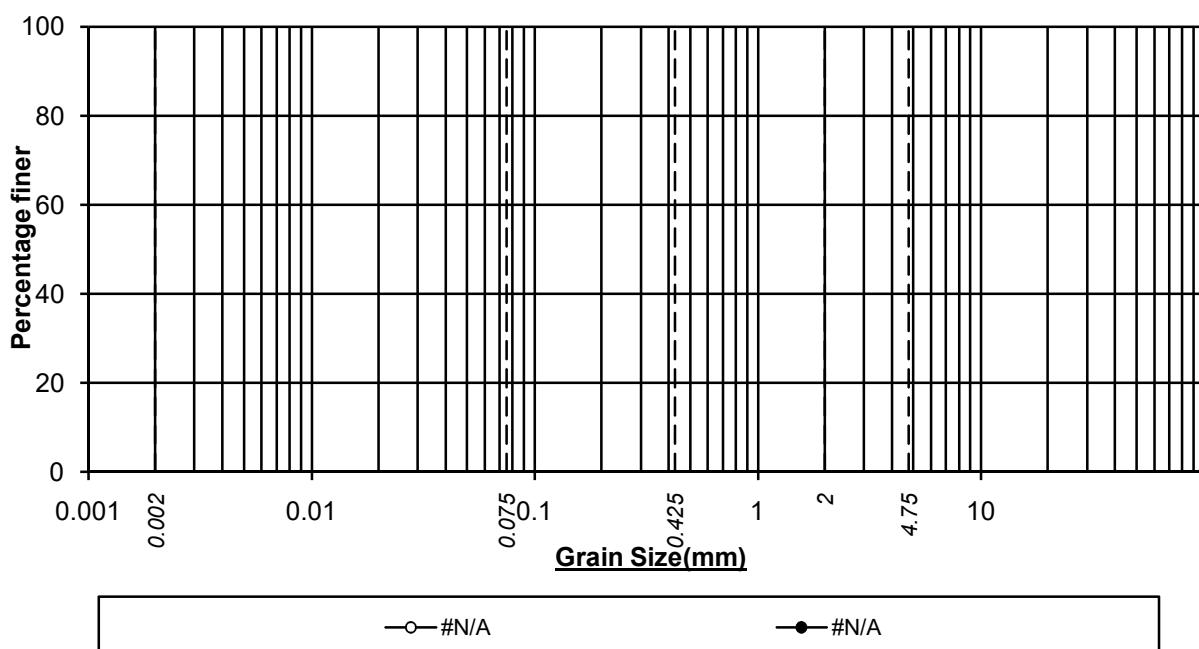
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-57,SPT-01, 01.50M		13.2	36.7	43.8	2.0	82.5		4.3
BH-58,SPT-01, 01.50M		10.7	37.3	51.5	0.5	89.3		0.0



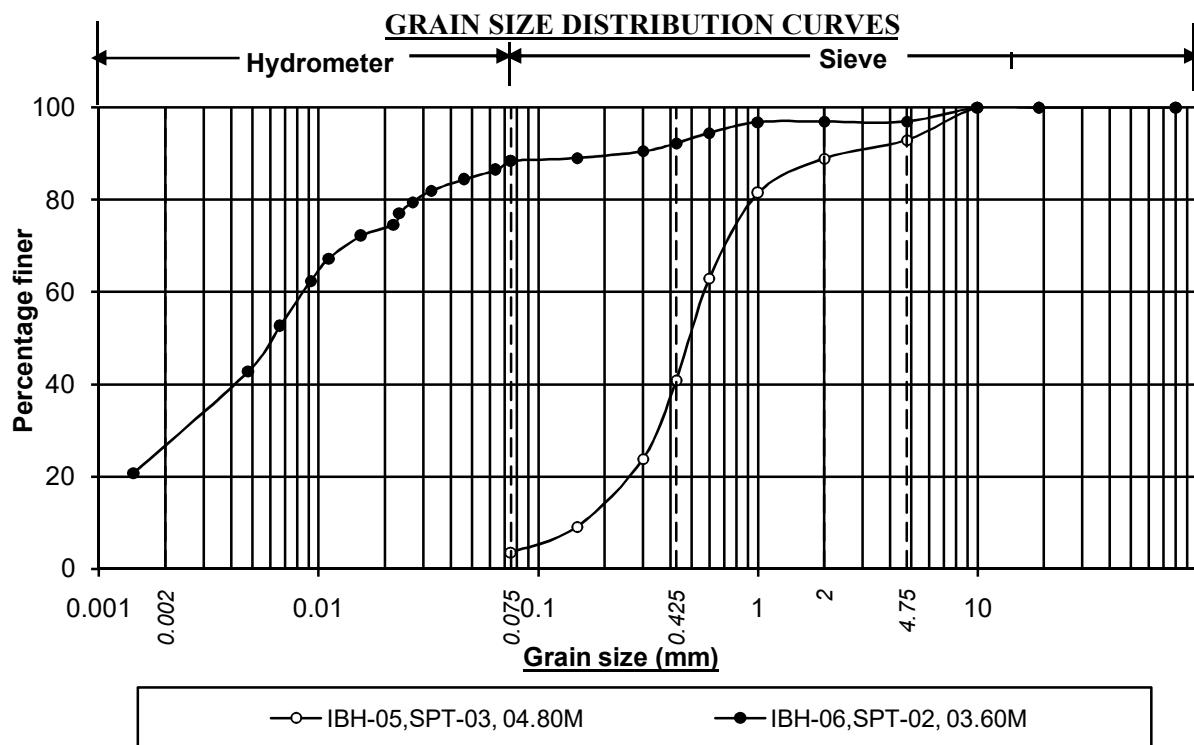
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-58,SPT-02, 03.00M		13.2	36.1	49.7	1.0	86.8		0.0
BH-59,SPT-01, 01.30M		12.9	30.8	46.5	2.5	79.8		7.3



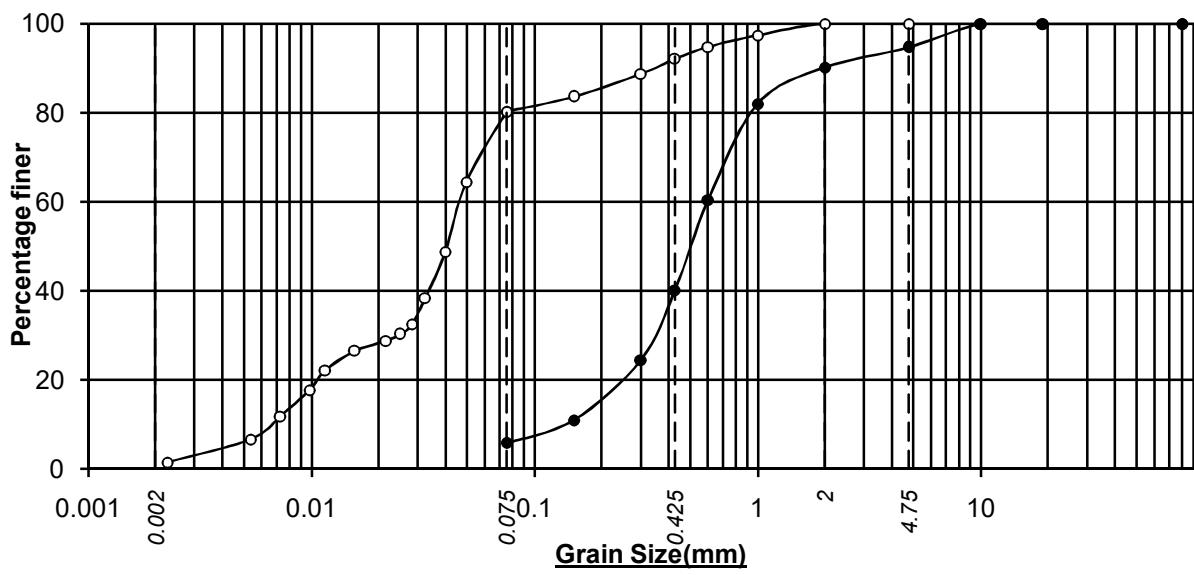
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
BH-61,SPT-01, 01.50M		9.0	37.7	43.2	4.5	85.4		5.6
BH-PLT04,SPT-02, 02.70M		11.6	39.3	47.6	1.5	88.4		0.0



Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)



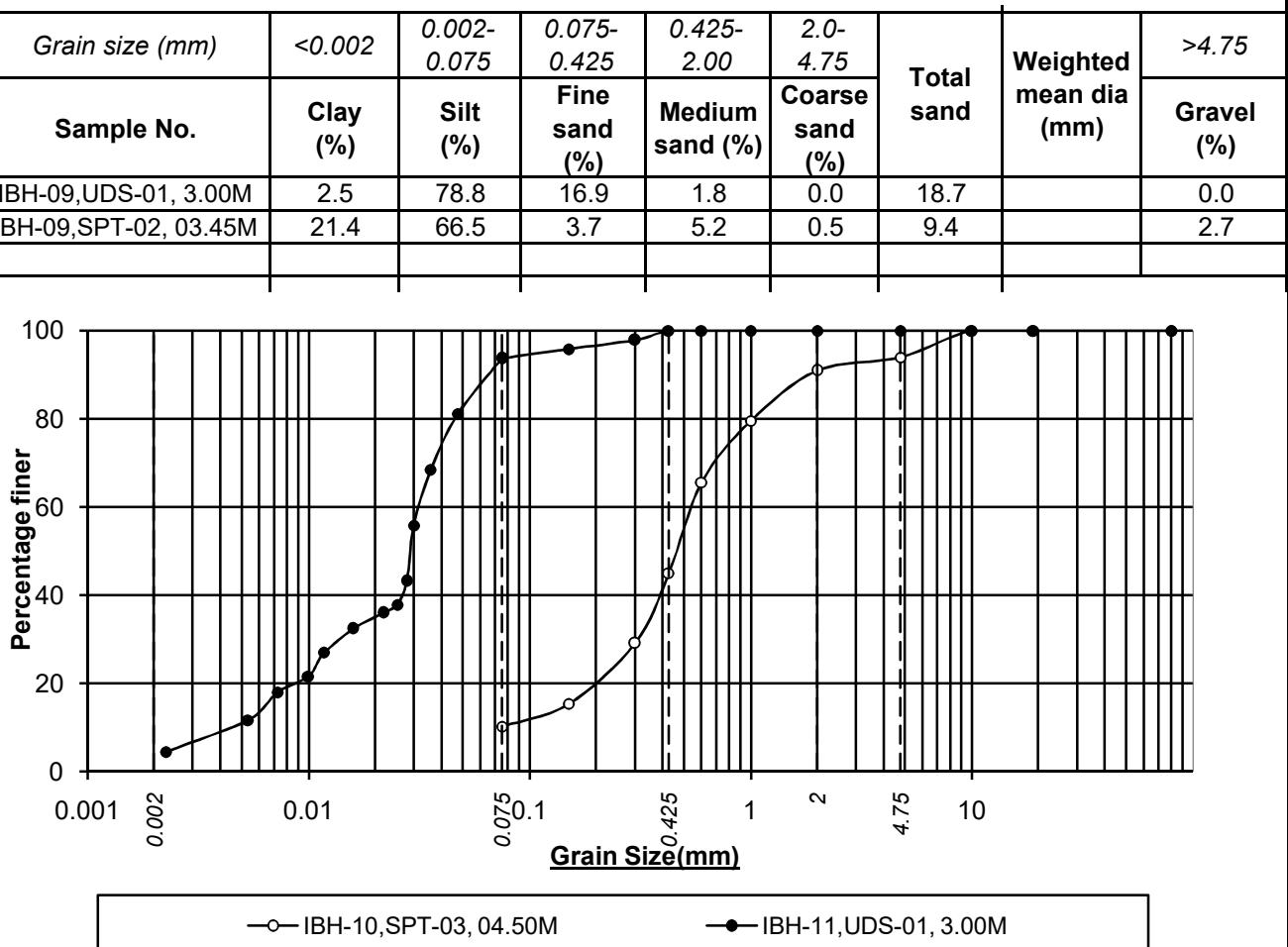
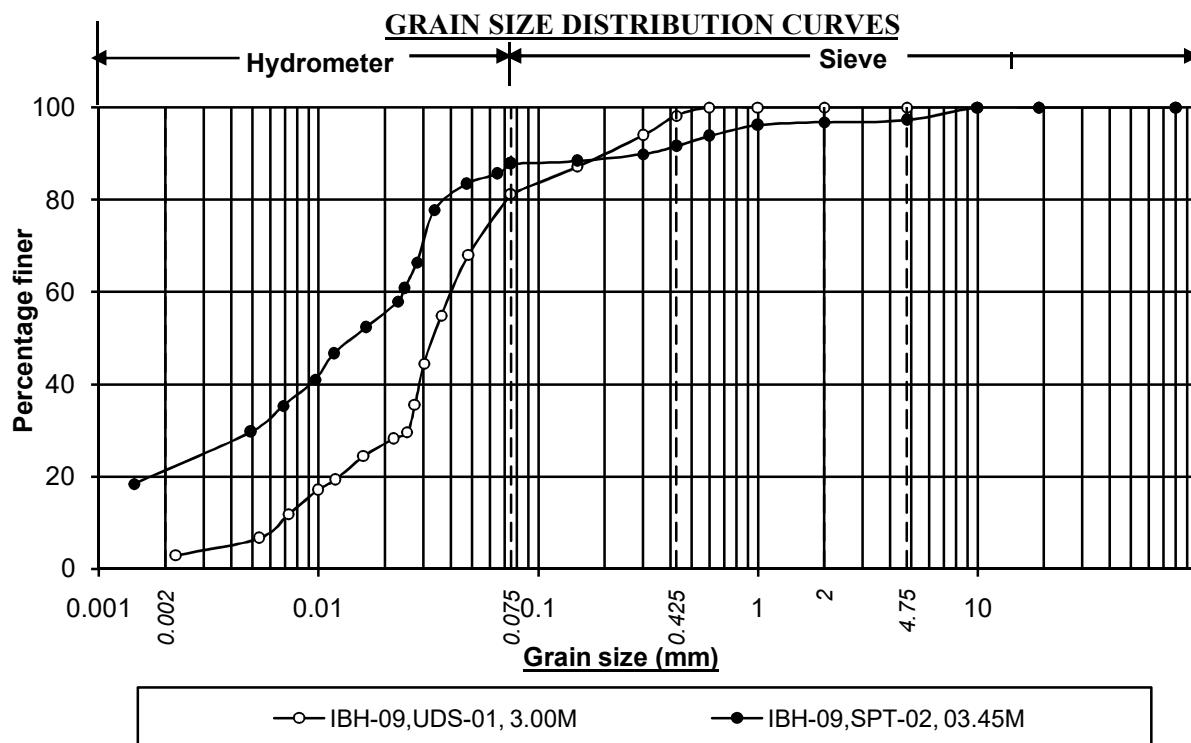
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
IBH-05,SPT-03, 04.80M		3.6	37.3	48.0	4.0	89.3		7.1
IBH-06,SPT-02, 03.60M	26.8	61.7	3.7	4.7	0.0	8.4		3.1

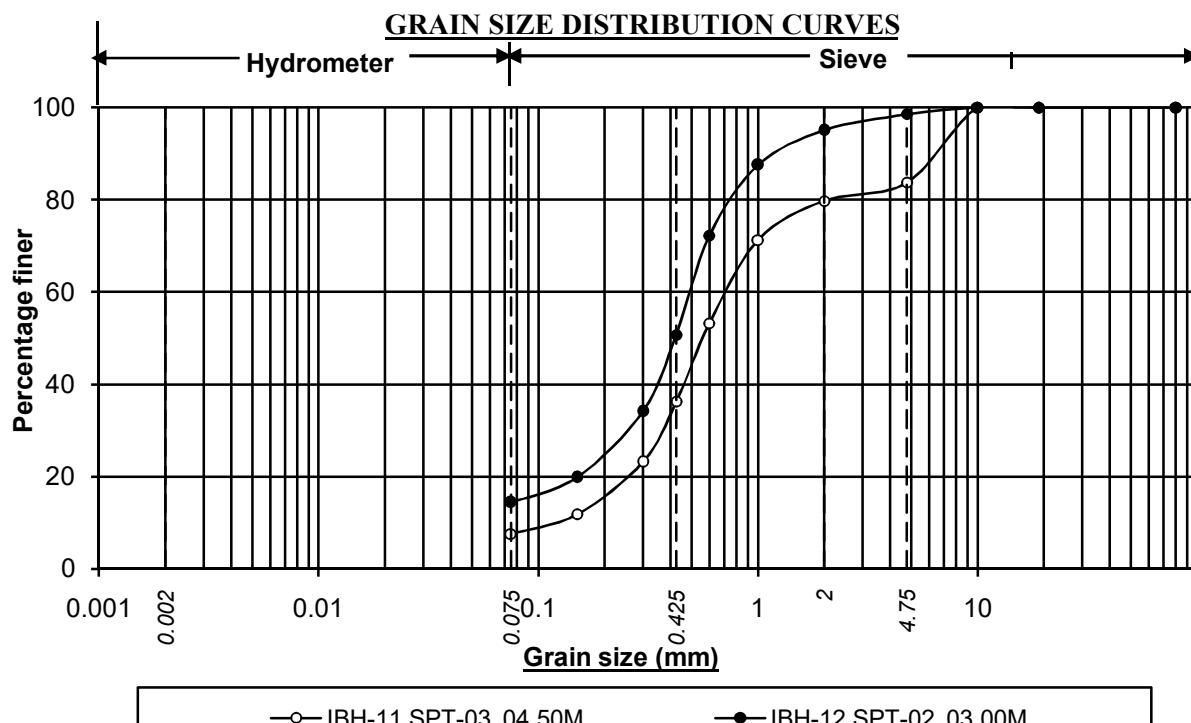


Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
IBH-08,UDS-01, 2.50M	0.7	79.5	12.0	7.8	0.0	19.8		0.0
IBH-08,SPT-03, 04.00M		5.9	34.2	50.1	4.5	88.8		5.3

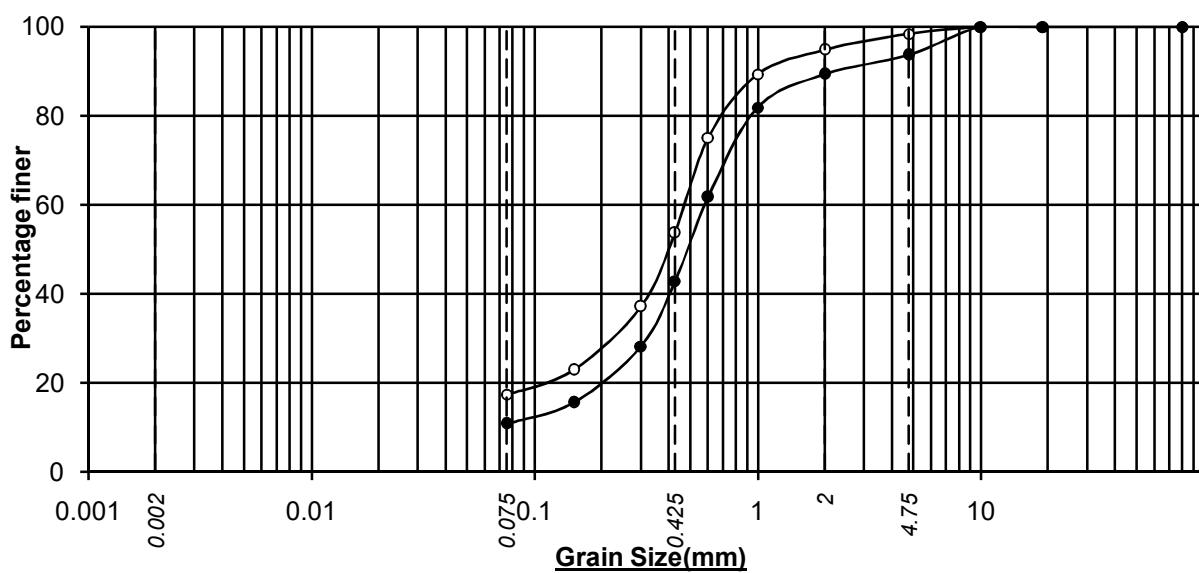
Project:- Geotech. Inv. Work at NTPC Ramagundam TPS Stage-I & II FGD Package.

Job No.
4371





Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
IBH-11,SPT-03, 04.50M		7.6	28.7	43.4	4.0	76.1		16.3
IBH-12,SPT-02, 03.00M	14.5		36.3	44.3	3.5	84.1		1.4

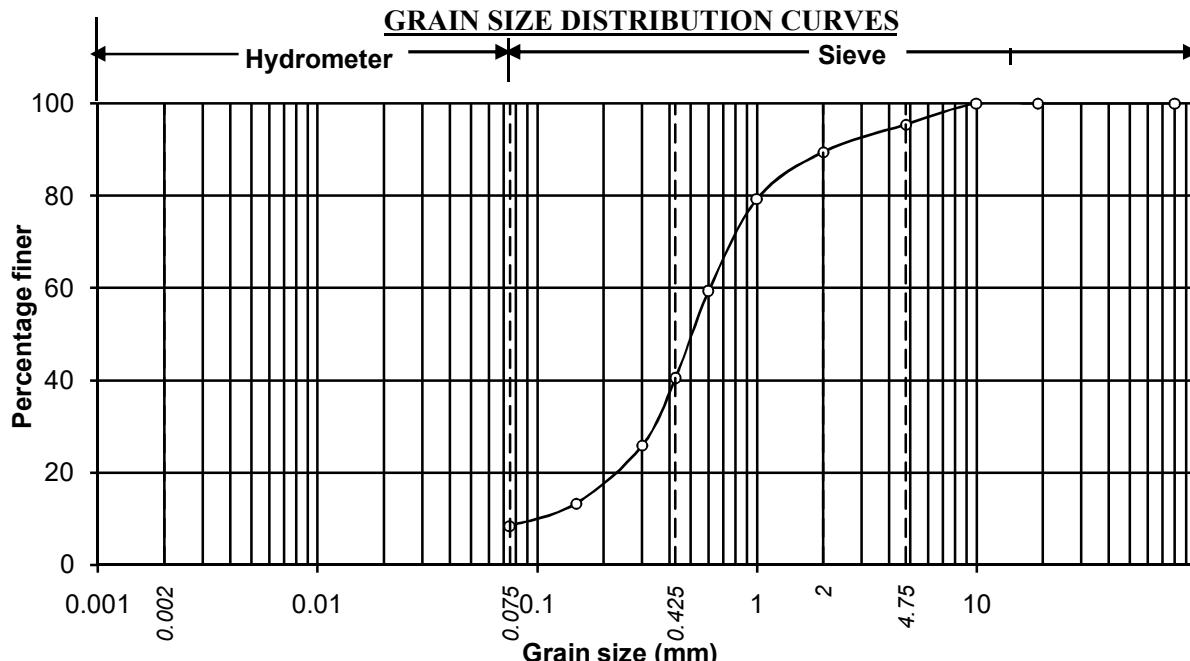


Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
IBH-13,SPT-01, 01.50M		17.4	36.3	41.2	3.5	81.0		1.6
IBH-15,SPT-01, 01.30M	10.9		31.9	46.5	4.4	82.8		6.3

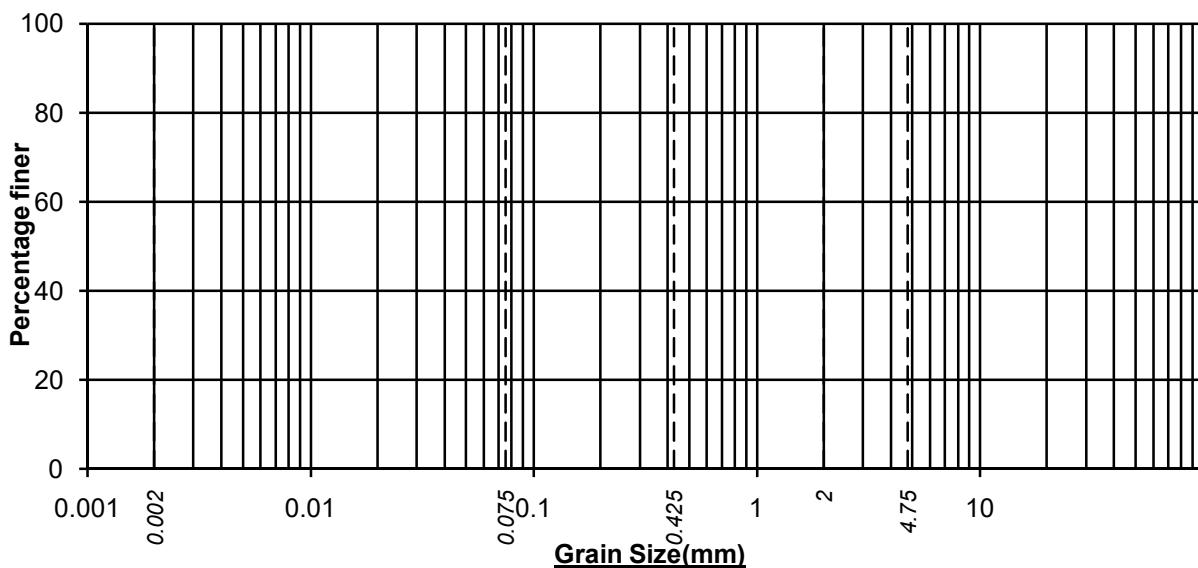
Project:- Geotech. Inv. Work at NTPC Ramagundam TPS Stage-I & II FGD Package.

Job No.
4371

GRAIN SIZE DISTRIBUTION CURVES



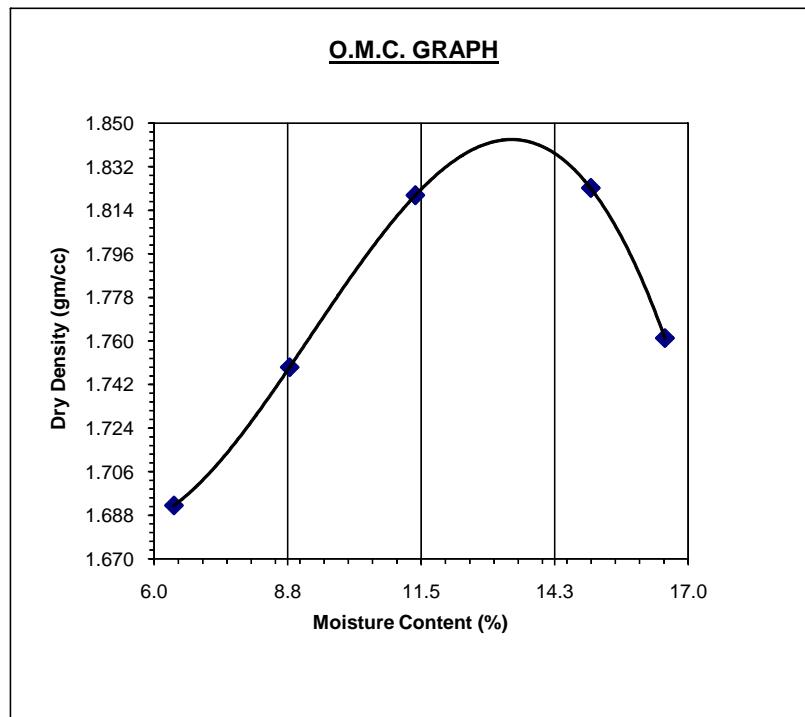
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)
IBH-18, DS-02, 01.00M		8.4	32.0	49.0	6.0	87.0		4.6



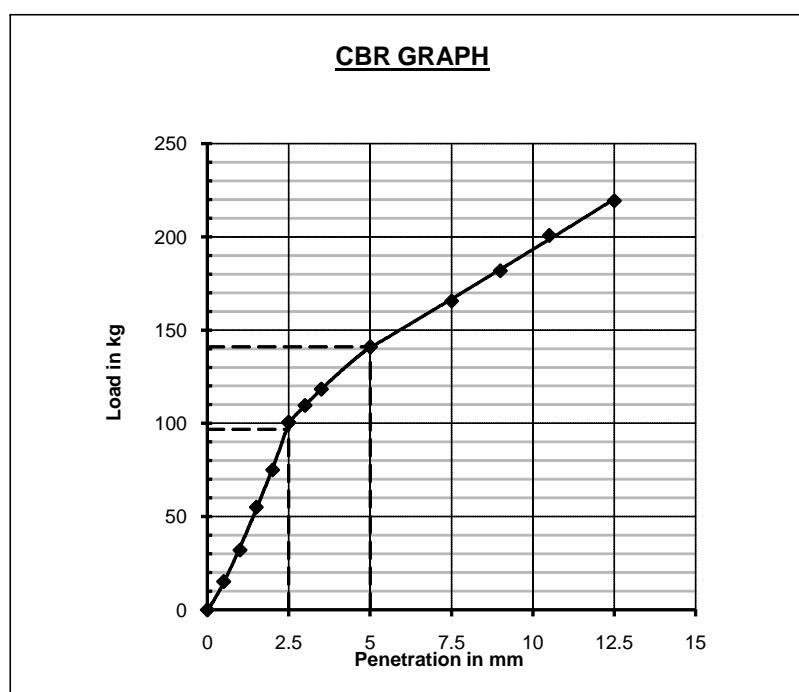
Grain size (mm)	<0.002	0.002-0.075	0.075-0.425	0.425-2.00	2.0-4.75	Total sand	Weighted mean dia (mm)	>4.75
Sample No.	Clay (%)	Silt (%)	Fine sand (%)	Medium sand (%)	Coarse sand (%)			Gravel (%)

STANDARD C.B.R. & PROCTOR TEST RESULTS.**PLT-02 / DS01**

Maximum Dry Density : 1.843 gm/cc
Optimum Moisture Content: 13.45 %

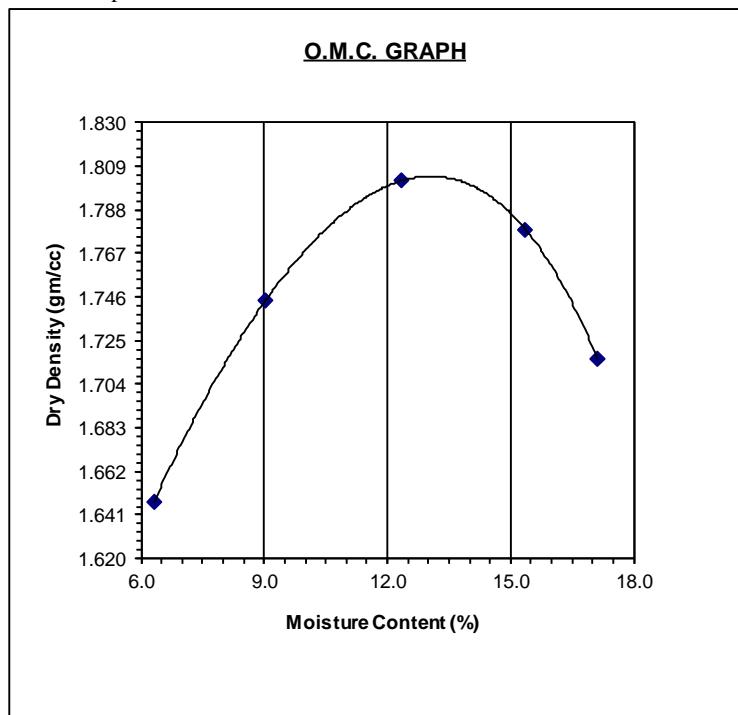
**TYPE :- SOAKED**

Penetration (mm)	CBR (%)
2.5	7.07
5.0	6.87

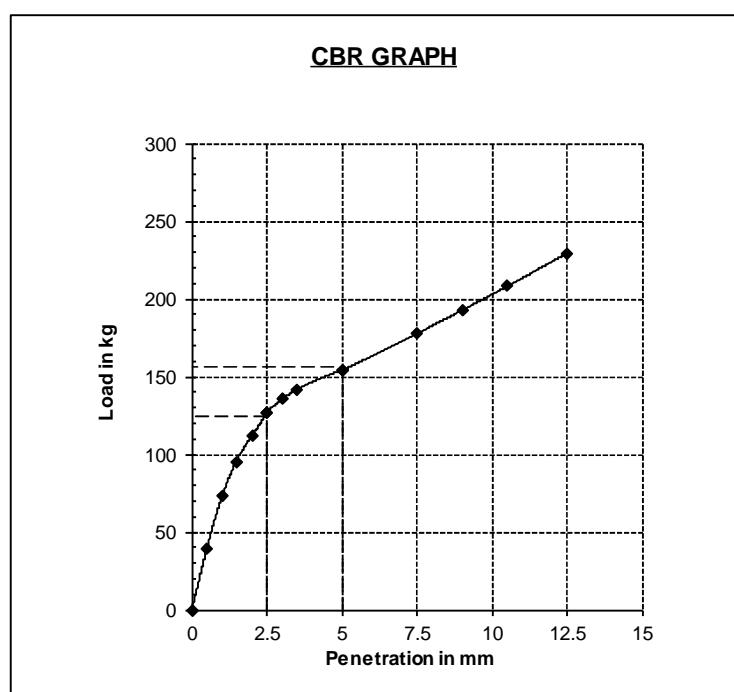


STANDARD C.B.R. & PROCTOR TEST RESULTS.**PLT-04 / DS03**

Maximum Dry Density : 1.805 gm/cc
Optimum Moisture Content: 13.10 %

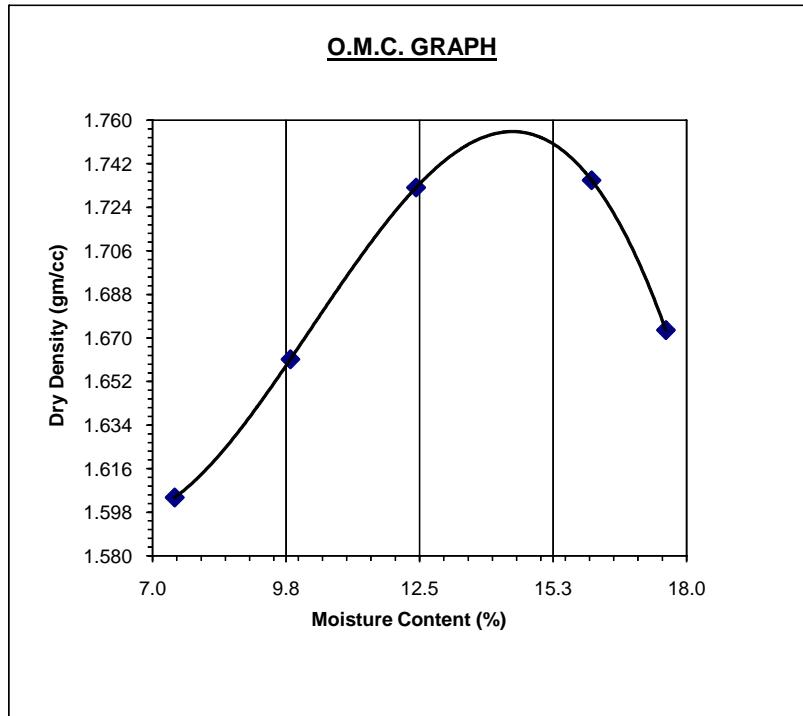
**TYPE:- SOAKED**

Penetration (mm)	CBR (%)
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5.0	7.60



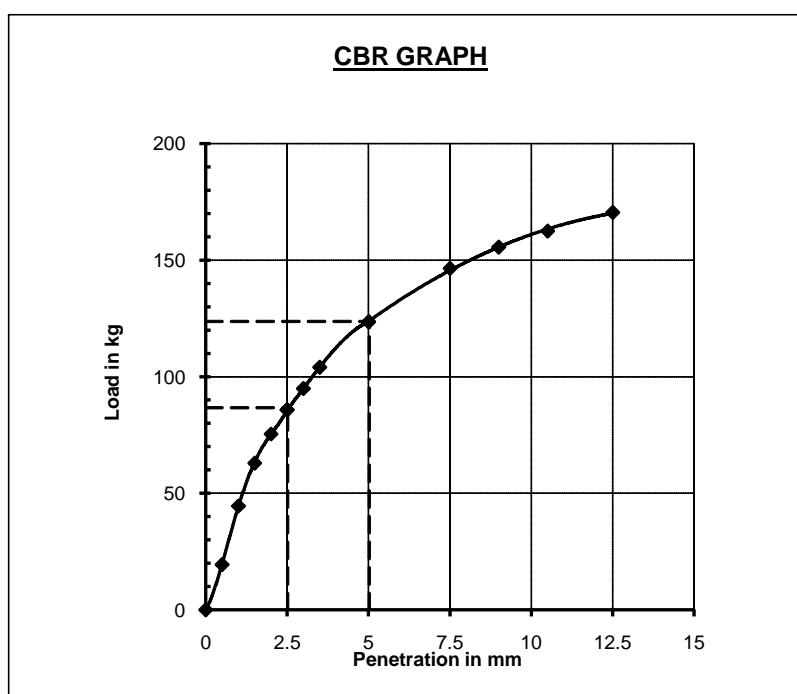
STANDARD C.B.R. & PROCTOR TEST RESULTS.**CPLT-01 / DS01**

Maximum Dry Density : 1.755 gm/cc
 Optimum Moisture Content: 14.50 %



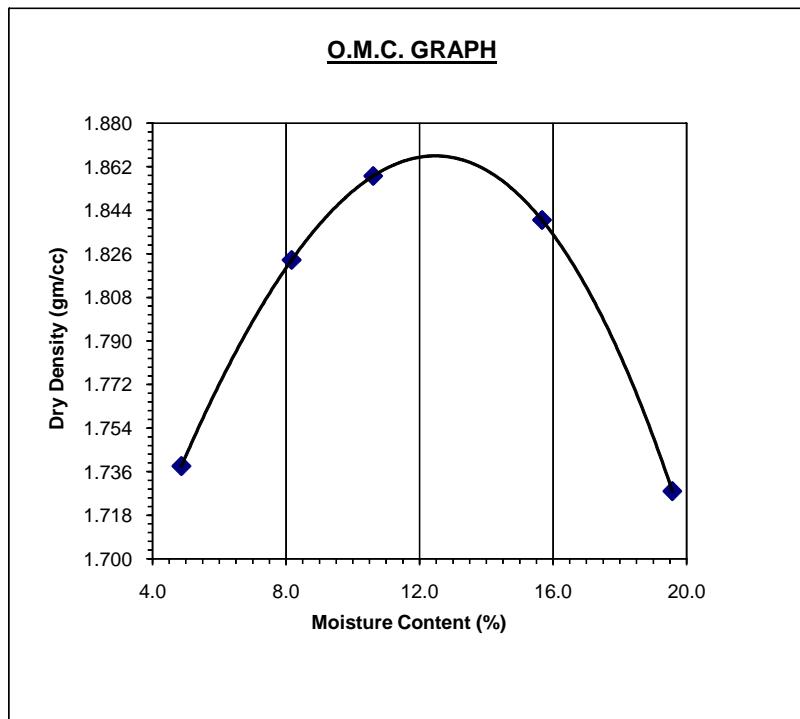
TYPE :- SOAKED

Penetration (mm)	CBR (%)
2.5	6.33
5.0	6.02

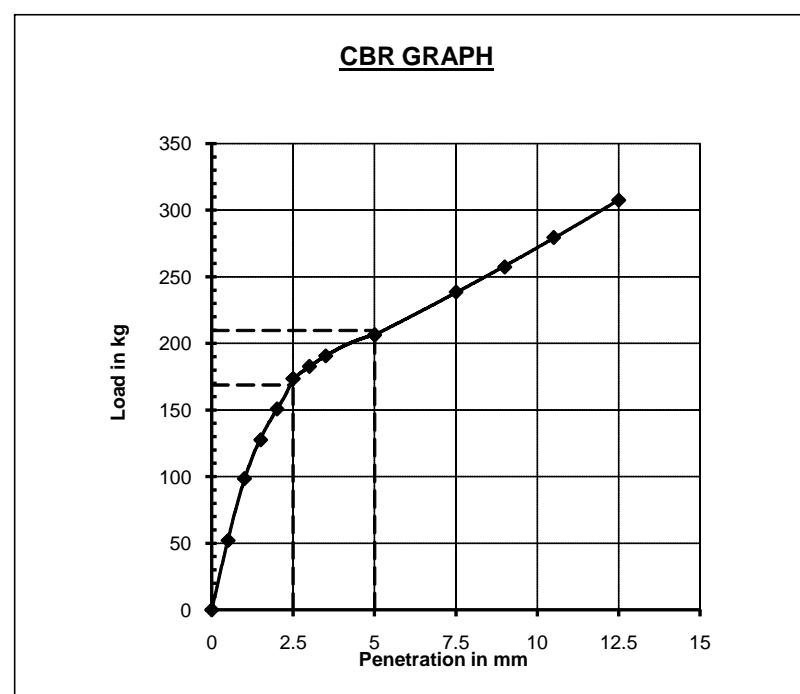


STANDARD C.B.R. & PROCTOR TEST RESULTS.**CPLT-02 / DS02**

Maximum Dry Density : 1.866 gm/cc
 Optimum Moisture Content: 12.50 %

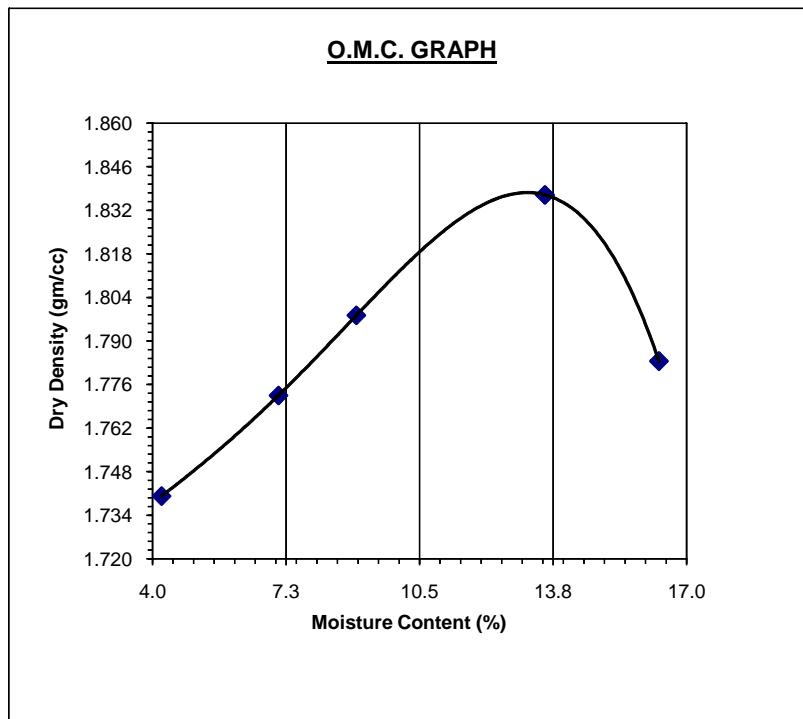


TYPE :- SOAKED	
Penetration (mm)	CBR (%)
2.5	12.33
5.0	10.21

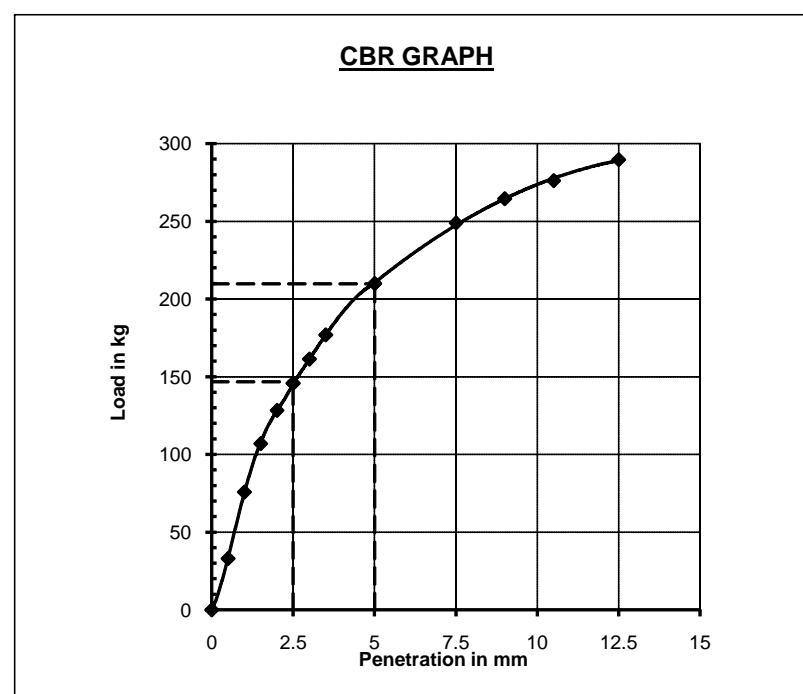


STANDARD C.B.R. & PROCTOR TEST RESULTS.**CPLT-03 / DS01**

Maximum Dry Density : 1.838 gm/cc
 Optimum Moisture Content: 12.87 %

**TYPE :- SOAKED**

Penetration (mm)	CBR (%)
2.5	10.72
5.0	10.21

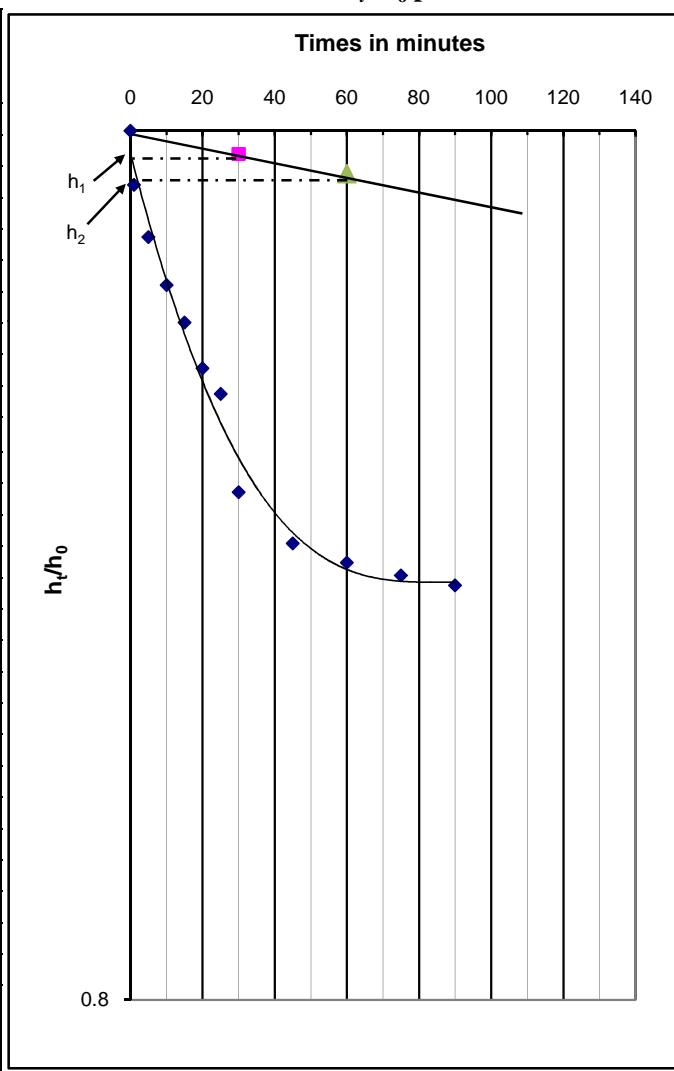
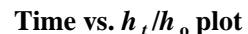


PART IV: SAMPLE CALCULATION

IN-SITU PERMEABILITY TEST IN OVERBURDEN (FALLING HEAD METHOD)

Test location	BH-16		
Ground elevation	155.966M	Static water level	4.70m below G.L.
Diameter of hole (2R)	150.0mm	Ht. of casing from GL	0.50m
Inner diameter of casing/intake pipe (d)	76.2mm		
Depth tested	4.80m to 5.50m		
Length of test section (L)	0.70m		

Data sheet



Legend: h_1 = head of water in the intake pipe at time t_1 above static water level,
 h_2 = head of water in the intake pipe at time t_2 above static water level;
 h_0 = depth of static water level at time t_0 ,
 h_t = head of water in the intake pipe at any time t

IN-SITU PERMEABILITY TEST IN BEDROCK (DOUBLE PACKER)

(As per IS: 5529, Part 2)

Loaction: BH-38

Test Section : 4.50m to 6.00m

Applied Pressure =	0.50 kg/sqcm
Steady Flow, Q =	4.31 litr/min = 71.8 cc/sec
Radius of Test Hole, r =	38.1 mm
Top Depth of Test Section =	4.50 m
Bottom Depth of Test Section =	6.00 m
Hence, Length of test section, A=	1.50 m
Depth of Water Table =	2.40 m below GL
Height of water swivel above collar of the hole =	0.70 m
Collar elevation =	0.30 m
Since the test is above Water Table,	
Hence h1 =	6.25 m
Now, Applied Pressure =	0.50
Hence Equivalent height of water, h2 =	5 m
L = Head Loss =	0.0 m
U = Thickness of unsaturated material =	2.40 m
D = Distance form EGL to Bottom of hole =	7 m
Effective Head, H = h1 + h2 - L =	11.25 m
Tu = U - D + H =	6.65 m
A / r =	39.37
Hence, Cs =	60 from Fig. 6

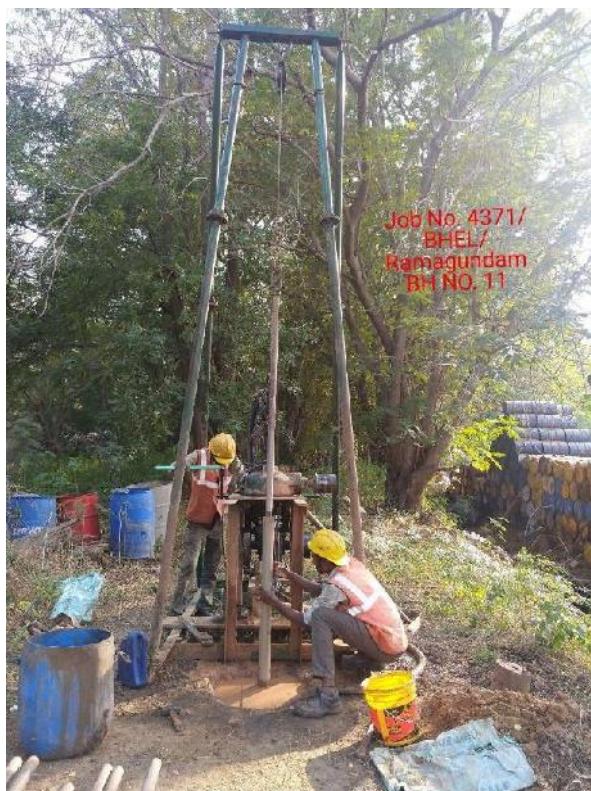
Hence, K for Double Packer = 2.793E-04 cm/sec (Zone-III)

Similarly for Applied pressure of **1.00kg/sqcm** and water Intake of 2.65 litr/min,**K = 1.189E-04 cm/sec**And for Applied pressure of **1.50kg/sqcm** and water Intake of 3.68 litr/min,**K = 1.2631E-04 cm/sec****Hence Average K = 1.748E-04 cm/sec i.e. 1.748E-06 m/sec**

PART V: PHOTOGRAPHS



Borehole



Borehole



Rock Core



Rock Core



Cross Hole Test



Field Density Test



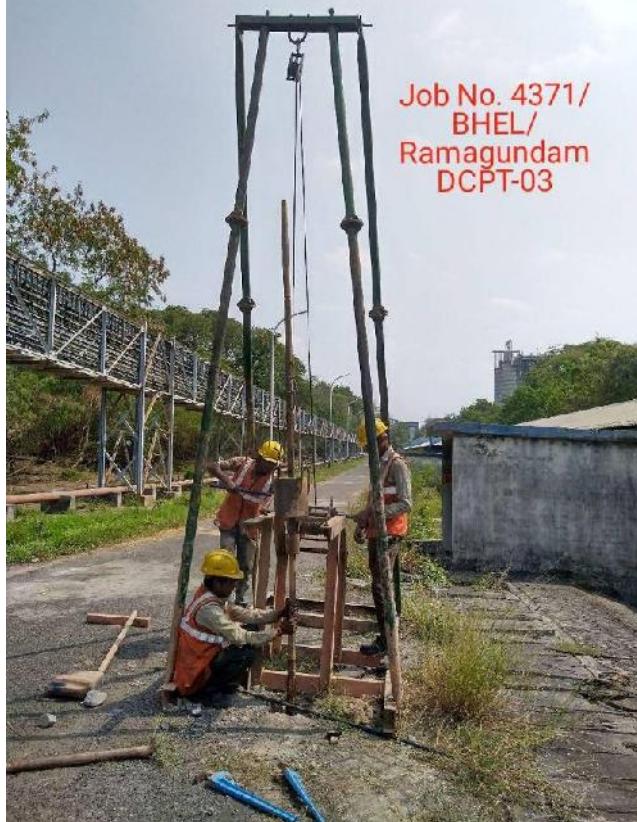
ERT



CPLT



FPT



DCPT