



**URBAN DEVELOPMENT DIRECTORATE (UDD)**

Government of the People's Republic of Bangladesh

**Geological Study and Seismic Hazard Assessment  
Under  
Preparation of Development Plan for Mirsharai Upazila, Chittagong  
District: Risk Sensitive Landuse Plan (MUDP)**

**Package No. 2 (Two)**

**Geotechnical Investigation and Lab Report**

**July, 2018**

Submitted by



**Environmental & Geospatial Solutions (EGS)**

Suite No.-6 ,12th Floor, 218, Sahera Tropical Center, Elephant Road, Dhaka-1205

## CONTENTS

<b>1. INTRODUCTION</b> .....	<b>3</b>
1.1. Background.....	3
1.2. Location and Accessibility.....	4
1.3. Aims and Objectives.....	5
<b>2. METHODOLOGY</b> .....	<b>5</b>
<b>2.1. Strategic Methodology</b> .....	<b>5</b>
<b>2.2. Detail Procedures of Tests</b> .....	<b>8</b>
2.2.1. Standard Penetration Test (SPT) Method.....	8
2.2.2. Grain Size Analysis (Sieve And Hydrometer Analysis).....	9
2.2.3. Specific Gravity Determination.....	11
2.2.4. Atterberg Limits Determination.....	12
2.2.5. Direct Shear Determination.....	13
2.2.6. Unconfined Compression Test.....	13
2.2.7. Triaxial (Unconsolidated – Undrained) Test.....	15
<b>2.3. Summary Result</b> .....	<b>16</b>
<b>3. APPENDICES</b> .....	<b>23</b>

**LIST OF FIGURES**

FIGURE 1.1 LOCATION MAP OF THE PROJECT AREA ..... 4

FIGURE 2.1 THE SPT SAMPLER IN PLACE IN THE BORING WITH HAMMER, ROPE AND CATHEAD  
(ADAPTED FROM KOVACS, ET AL., 1981)..... 8

FIGURE 2.2 SPT SAMPLER AND DONUT HAMMER ..... 9

## 1. INTRODUCTION

### 1.1. Background

Bangladesh can earn money in local and also in foreign exchange by opening a tourist resort at Mirsharai. The spot, if properly developed will become an excellent holiday resort and tourist center. The rowing facility can be arranged easily; fishing and hunting facilities are already there. The success of developing Mirsharai as a tourist center and Special Economic Zone depends much on good communication facilities and availability of modern amenities. Moreover, the proposed Special Economic Zone would generate many industries related new activities including huge vehicular traffic such as air, rail, road and water. This phenomenon would have both positive and negative impacts on the socioeconomic condition and existing land use pattern of the region. The proposed planning package would guide such probable changes in the socio-economic condition and land use pattern of the region, and would also address the adverse impact of such changes.

Landuse planning is an impotent component for a modern urban development. But practicing urban development using a proper landuse plan is not developed in Bangladesh. Prior to landuse planning it is very essential to access surface and subsurface geological conditions and the relevant geological hazard and risk in and around the site of future urban development. Therefore a rigorous geological and geotechnical site characterization, including a potential risk analysis need to carry out for a risk resilient urban development.

Urban development is being increasing very fast in Bangladesh. The government has planned to develop Mirsharai as a tourist center and Special Economic Zone. However, risk sensitive urban planning is very important in such a disaster prone country like Bangladesh for a risk resilient urban development in these cities and surrounding area. In those cities Mirsharai is most disaster prone area because of this city is located near one of the most seismo-tectonically active zones of the earth. So this area covers the assessment and management of earthquake, landslide, and hydrometeorological hazards in pre-dominantly urban context. Considering the earthquake threat of the populated urban and rural areas of the project, UDD will have to be taken many initiatives for earthquake preparedness of the 16 (Sixteen) unions, including Ichhakhali, Wahedpur, Osmanpur, Karerhat, Katachhara, Khaiyachhara, Zorwarganj, Durgapur, Dhum, Maghadia, Mayani, Mithanala, Mirsharai, Saherkhali, Haitkandi and Hinguli Under Mirshari Upazila Development Plan (MUDP).

Slope stability assessment is very important for any development plan. While the study area is located near and/or in the hilly area, this assessment should be performed before any development plan. In this project our study area is along with hill track, slope stability assessment need to be conducted to protect slope failure and landslide. Geological, Geotechnical and DEM data should be compiled to accomplish this assessment.

Therefore the geological and geotechnical site characterization of the areas including potential seismic hazard and risk analysis is an important component for risk sensitive landuse planning of the populated urban and rural area. In here, Environmental & Geospatial Solutions (EGS) has been entrusted to conduct this project work.

## 1.2. Location and Accessibility

Mirsharai Upazila (CHITTAGONG DISTRICT) area 482.88 sqkm(BBS)/509.80sqkm, located in between 22°39' and 22°59' north latitudes and in between 91°27' and 91°39' east longitudes. It is bounded by TRIPURA state of India, CHHAGALNAIYA and FENI SADAR upazilas on the north, SITAKUNDA upazila and BAY OF BENGAL on the south, FATIKCHHARI upazila on the east, SONAGAZI and COMPANIGANJ (NOAKHALI) upazilas on the west. Mirsharai Thana was formed in 1901 and it was turned into an upazila in 1983. Mirsharai Upazila consists of 2 Municipality, 16 Union and 103 Mouza (Location of Project Area Figure 1.1).

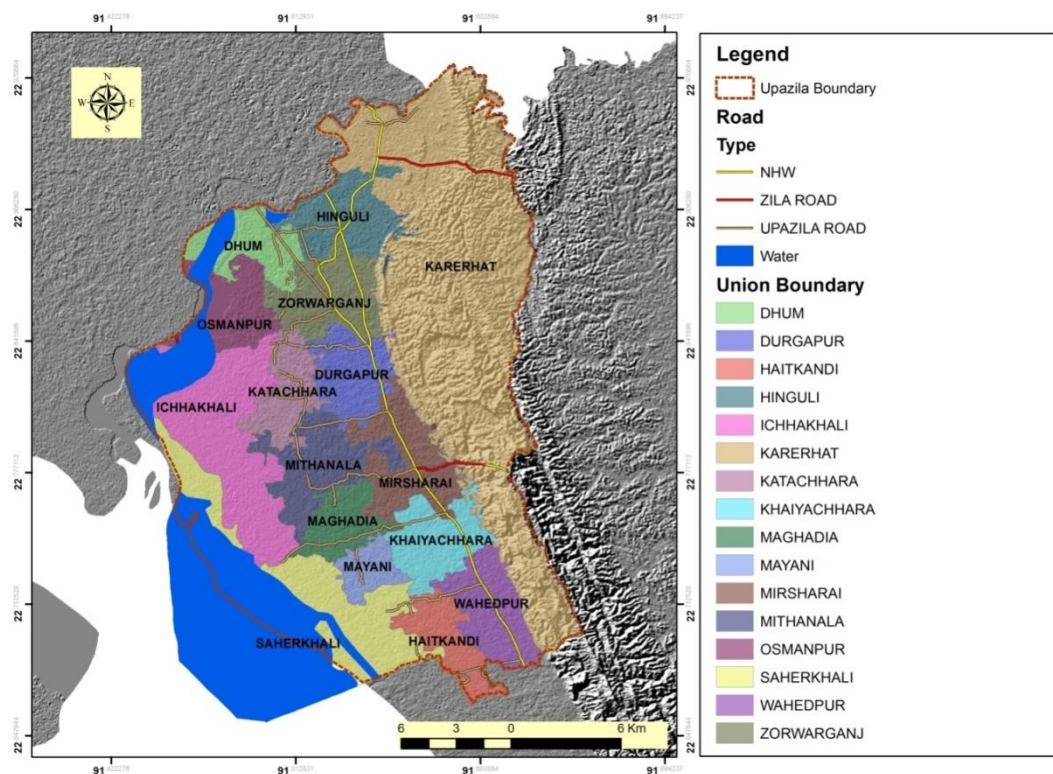


Figure 1.1 Location map of the project area

### 1.3. Aims and Objectives

The main objective of the research is to carry out a seismic hazard analysis of the 16 (Sixteen) unions, including Ichhakhali, Wahedpur, Osmanpur, Karerhat, Katachhara, Khaiyachhara, Zorwarganj, Durgapur, Dhum, Maghadia, Mayani, Mithanala, Mirsharai, Saherkhali, Haitkandi and Hinguli Under Mirshari Upazila Development Plan (MUDP). The main objective is achieved through accomplishment of the following sub-objectives:

- i. Geological and geomorphologic map of the study area
- ii. Sub-surface lithological 3D model development
- iii. Soil classification map using geophysical and geotechnical investigations
- iv. Engineering geological map development based on AVS30
- v. Foundation layers delineation and developing engineering properties of the sub-soil
- vi. PGA, Sa (T) Maps of 0.2 and 1.0 second periods values of 10% exceedance probability during next 50 years for local site condition.
- vii. Risk Sensitive Building Height
- viii. Landslide vulnerable zones will be identified from the study.
- ix. Liquefaction potential index (LPI) map will be constructed from study data.
- x. Formulation of Policies and plans for mitigation of different types of hazards, minimizing the adverse impacts of climate change and recommend possible adaptation strategies for the region.

## 2. METHODOLOGY

### 2.1. Strategic Methodology

The methodology consists of both field and laboratory investigations. To conduct this project work, geomorphological, geotechnical and geophysical data of soil will be collected, analysed and interpreted. Geomorphological data will be collected from image of the study area to prepare a geomorphological map. Geotechnical data will be collected from field investigations *i.e.*, boring, standard penetration test (SPT), and laboratory investigations *i.e.*, soil physical properties test, consolidation test, direct shear test and triaxial test of undisturbed soil sample. Geophysical data will be collected from down-hole seismic test (PS

logging) and Multi-channel analysis of surface wave (MASW) and Singles Microtremor survey. The total works will be conducted by the following methodology-

### **2.1.1. Geophysical Investigation**

Field geophysical investigation is conducted to achieve the purpose of seismic risk and damage assessment. Seismic site characterization by analyzing seismic wave propagation velocity from acquired shallow seismic wave form data is the main objective. P-S logging, Multi Channel Analysis of Surface Wave (MASW) and Microtremor tools are involved in geophysical investigation.

General purposes of the geophysical survey:

- To estimate shear wave velocity and measure soil/rock properties (i.e. shear modulus, bulk modulus, compressibility, and Poisson's ratio)
- Engineering geological map development based on AVS30
- To Seismic site response study
- Risk Sensitive Building Height
- Characterization of strong motion sites
- Utilize this information for seismic hazard analysis

### **2.1.2. Geotechnical Investigation**

Geotechnical investigations have become an essential component of every construction to ensure safety of human beings and materials. It includes a detailed investigation of the soil to determine the soil strength, composition, water content, and other important soil characteristics.

Geotechnical investigations are executed to acquire information regarding the physical characteristics of soil and rocks. The purpose of geotechnical investigations is to design earthworks and foundations for structures, and to execute earthwork repairs necessitated due to changes in the subsurface environment. A geotechnical examination includes surface and subsurface exploration, soil sampling, and laboratory analysis. Geotechnical investigations are also known as foundation analysis, soil analysis, soil testing, soil mechanics, and subsurface investigation. The samples are examined prior to the development of the location. Geotechnical investigations have acquired substantial importance in preventing human and material damage due to the earthquakes, foundation cracks, and other catastrophes.

Geotechnical investigations can be as simple as conducting only a visual assessment of the site or as detailed as a computer-aided study of the soil using laboratory tests.

General purposes of the geotechnical survey:

- Sub-surface lithological 3D model development
- Foundation layers delineation and developing engineering properties of the sub-soil
- Landslide vulnerable zones will be identified from the study
- Liquefaction susceptibility or Liquefaction potential index (LPI) map will be constructed from study data

Following investigations given in Table that have been conducted for the preparation of engineering geological maps for rural part of MUDP Project area:

Name of Union	Name of investigations			
	Borelog with SPT ( upto 30m)	PS logging (30m depth)	MASW (30m depth)	Single Microtremor (Vs>100m depth)
Ichhakhali, Wahedpur, Osmanpur, Karerhat, Katachhara, Khaiyachhara, Zorwarganj, Durgapur, Dhum, Maghadia, Mayani, Mithanala, Mirsharai, Saherkhali, Haitkandi and Hinguli	85	15	20	30

The number of tests and specification have been followed in this study are given in the following table

SL No	Test Name	Numbers of tests in per borehole/ units	Quantity	Specifications to be followed
<i>In Laboratory</i>				
1	Particle/Grain Size Analysis	Two specimens of each borehole	170	According to ASTM D 422
2	Atterberg Limits Determination	Two specimens of each borehole	170	According to ASTM D 4318
3	Direct Shear Test	Sixty sample from total number of boreholes	60	According to ASTM D 3080
4	Unconfined Compression strength Determination	Sixty sample from total number of boreholes	60	According to ASTM D 2166
5	Triaxialtest(Undrained Unconsolidated)	Thirty sample from total number of boreholes	30	According to ASTM D2850-70.



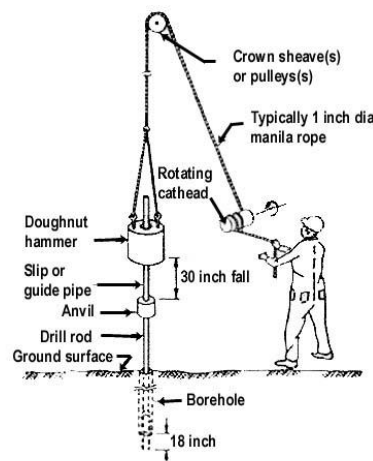
## 2.2. Detail Procedures of Tests

The methodology consists of laboratory investigations. To conduct this project work Geotechnical data have been collected from field investigations i.e., boring, standard penetration test (SPT), and laboratory investigations i.e., soil physical properties test, consolidation test, direct shear test and triaxial test of undisturbed soil sample. The total works have been conducted by the following methodology-

The method of testing of Geotechnical investigation and Laboratory tests are given below-

### 2.2.1. Standard Penetration Test (SPT) Method

The Standard Penetration test (SPT) is a common in situ testing method used to determine the geotechnical engineering properties of subsurface soils. The test procedure is described in the British Standard BS EN ISO 22476-3, ASTM D1586. A short procedure of SPT N-value test is described in the following paragraph.



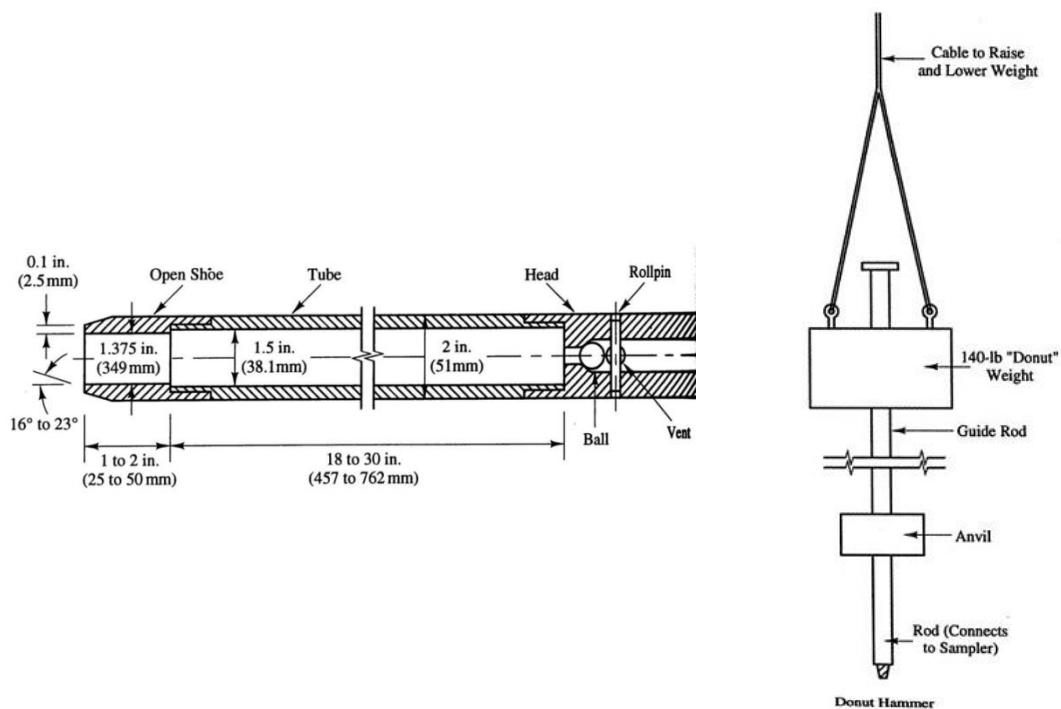
**Figure 2.1 The SPT sampler in place in the boring with hammer, rope and cathead (Adapted from Kovacs, et al., 1981)**

The test in our field uses a thick-walled sample tube, with an outside diameter of 50 mm and an inside diameter of 35 mm, and a length of around 650 mm. This is driven into the ground at the bottom of a borehole by blows from a slide hammer with a weight of 63.5 kg (140 lb) falling through a distance of 760 mm (30 in). The sample tube is driven 150 mm into the ground and then the number of blows needed for the tube to penetrate each 150 mm (6 in) up to a depth of 450 mm (18 in) is recorded. The sum of the number of blows required for the second and third 6 in. of penetration is termed the "standard penetration resistance" or the "N-value". In cases where 50 blows are insufficient to advance it through a 150 mm (6 in)

interval the penetration after 50 blows is recorded. The blow count provides an indication of the density of the ground, and it is used in many empirical geotechnical engineering formulae.

The main objective of SPT is as follows:

- a) Boring and recording of soil stratification.
- b) Sampling (both disturbed and undisturbed).
- c) Recording of SPT N-value
- d) Recording of ground water table.



**Figure 2.2 SPT Sampler and Donut Hammer**

### 2.2.2. Grain Size Analysis (Sieve And Hydrometer Analysis)

#### **Purpose:**

This test is performed to determine the percentage of different grain sizes contained within a soil. The mechanical or sieve analysis is performed to determine the distribution of the coarser, larger-sized particles, and the hydrometer method is used to determine the distribution of the finer particles.

#### **Standard Reference:**

ASTM D 422 - Standard Test Method for Particle-Size Analysis of Soils

#### **Significance:**

The distribution of different grain sizes affects the engineering properties of soil. Grain size analysis provides the grain size distribution, and it is required in classifying the soil.

**Equipment:**

Balance, Set of sieves, Cleaning brush, Sieve shaker, Mixer (blender), 152 Hydrometer, Sedimentation cylinder, Control cylinder, Thermometer, Beaker, Timing device.

**Sieve Analysis:**

- (1) Write down the weight of each sieve as well as the bottom pan to be used in the analysis.
- (2) Record the weight of the given dry soil sample.
- (3) Make sure that all the sieves are clean, and assemble them in the ascending order of sieve numbers (#4 sieves at top and #200 sieve at bottom). Place the pan below #200 sieve. Carefully pour the soil sample into the top sieve and place the cap over it.
- (4) Place the sieve stack in the mechanical shaker and shake for 10 minutes.
- 5) Remove the stack from the shaker and carefully weigh and record the weight of each sieve with its retained soil. In addition, remember to weigh and record the weight of the bottom pan with its retained fine soil.

**Hydrometer Analysis Test-**

For hydrometer analysis, 50gms of the oven dry sample is taken and 125 mL of the dispersing agent (sodium hexametaphosphate (40 g/L)) solution is added and the mixture is stirred until the soil is thoroughly wet. The soil is left to soak for at least ten minutes. While the soil is soaking, 125mL of dispersing agent into the control cylinder is added and the cylinder is filled by distilled water to the mark of 1000 cc. the reading at the top of the meniscus formed by the hydrometer stem is taken. A reading less than zero is recorded as a negative (-) correction and a reading between zero and sixty is recorded as a positive (+) correction. This reading is called the zero correction. The meniscus correction is the difference between the top of the meniscus and the level of the solution in the control jar (Usually about +1). The control cylinder is shaken in such a way that the contents are mixed thoroughly. The hydrometer and thermometer are inserted into the control cylinder and the zero correction and temperature are noted respectively. the soil slurry into a mixer by adding more distilled water are transferred, if necessary, until mixing cup is at least half full. Then

the solution for a period of two minutes is mixed. Immediately the soil slurry into the empty sedimentation cylinder is transferred. Distilled water up to the mark is added. After an elapsed time of one minute and forty seconds, very slowly and carefully the hydrometer is inserted for the first reading. The reading is taken by observing the top of the meniscus formed by the suspension and the hydrometer stem. Hydrometer readings after elapsed time of 2 and 5, 8, 15, 30, 60 minutes and 24 hours are recorded. For hydrometer analysis, meniscus correction to the actual hydrometer reading is applied and corrected hydrometer reading is calculated. From those corrected hydrometer reading percent finer is calculated and the grain size curve diameter versus the adjusted percent finer are plotted on the semi-logarithmic sheet.

### **2.2.3. Specific Gravity Determination**

#### **Purpose:**

This lab is performed to determine the specific gravity of soil by using a pycnometer. Specific gravity is the ratio of the mass of unit volume of soil at a stated temperature to the mass of the same volume of gas-free distilled water at a stated temperature.

#### **Standard Reference:**

ASTM D 854-00 – Standard Test for Specific Gravity of Soil Solids by Water Pycnometer.

#### **Significance:**

The specific gravity of a soil is used in the phase relationship of air, water, and solids in a given volume of the soil.

#### **Equipment:**

Pycnometer, Balance, Vacuum pump, Funnel, Spoon.

Specific gravity of soil particles ( $G_s$ ) is defined as the ratio of the mass of given volume of soil particles to the mass of an equal volume of water at 40°C. The specific gravity for most natural soils falls in general range of 2.60 to 2.80. To determine the specific gravity of soil sample, 25gm of oven dried soil sample is thoroughly pulverized and is placed in a calibrated pycnometer. Water is poured inside the pycnometer until its top is slightly below the calibrated mark. The mixture is then boiled thoroughly in order to eliminate all the air bubbles. More water is then added to the mixture till it over-nights. The temperature is then recorded and the bottle is weighed.

The specific gravity  $G_s$  is given by:

$$G_s = \frac{G_s \times W_s}{W_s - W_1 + W_2}$$

Where

$G_t$  = Specific gravity of water

$W_s$  = The weight of oven dry soil (25 gnis)

$W_1$  Weight of flask + soil + water

$W_2$  = Weight of flask + water

#### 2.2.4. Atterberg Limits Determination

##### **Purpose:**

This lab is performed to determine the plastic and liquid limits of a fine grained soil. The liquid limit (LL) is arbitrarily defined as the water content, in percent, at which a pat of soil in a standard cup and cut by a groove of standard dimensions will flow together at the base of the groove for a distance of 13 mm (1/2in.) when subjected to 25 shocks from the cup being dropped 10 mm in a standard liquid limit apparatus operated at a rate of two shocks per second. The plastic limit (PL) is the water content, in percent, at which a soil can no longer be deformed by rolling into 3.2 mm (1/8 in.) diameter threads without crumbling.

##### **Standard Reference:**

ASTM D 4318 - Standard Test Method for Liquid Limit, Plastic Limit, and

Plasticity Index of Soils

##### **Significance:**

The Swedish soil scientist Albert Atterberg originally defined seven “limits of consistency” to classify fine-grained soils, but in current engineering practice only two of the limits, the liquid and plastic limits, are commonly used. (A third limit, called the shrinkage limit, is used occasionally.) The Atterberg limits are based on the moisture content of the soil. The plastic limit is the moisture content that defines where the soil changes from a semi-solid to a plastic (flexible) state. The liquid limit is the moisture content that defines where the soil changes from a plastic to a viscous fluid state. The shrinkage limit is the moisture content that defines where the soil volume will not reduce further if the moisture content is reduced. A wide variety of soil engineering properties have been correlated to the liquid and plastic limits, and

these Atterberg limits are also used to classify a fine-grained soil according to the Unified Soil Classification system or AASHTO system.

**Equipment:**

Liquid limit device, Porcelain (evaporating) dish, Flat grooving tool with gage, Eight moisture cans, Balance, Glass plate, Spatula, Wash bottle filled with distilled water, Drying oven set at 105°C.

**2.2.5. Direct Shear Determination**

**Purpose:**

To determine the shearing strength of the soil using the direct shear apparatus.

**Standard Reference:**

ASTM D 3080- to measure the shear strength properties of soil.

**Significance:**

In many engineering problems such as design of foundation, retaining walls, slab bridges, pipes, sheet piling, the value of the angle of internal friction and cohesion of the soil involved are required for the design. Direct shear test is used to predict these parameters quickly. The laboratory report cover the laboratory procedures for determining these values for cohesion less soils.

**Equipment:**

Direct shear box apparatus, Loading frame (motor attached), Dial gauge, Proving ring, Tamper, Straight edge, Balance to weigh upto 200 mg, Aluminum container and Spatula.

Shear strength equation,

$$\tau_f = c + \sigma_f \tan \phi$$

Where  $\tau_f$  = shearing resistance of soil at failure

$c$  = apparent cohesion of soil

$\sigma_f$  = total normal stress on failure plane

$\phi$  = angle of shearing resistance of soil (angle of internal friction)

**2.2.6. Unconfined Compression Test**

**Purpose:**

To determine shear parameters of cohesive soil.

**Standard Reference:**

ASTM D2166- To determine shear parameters of cohesive soil.

**Significance:**

It is not always possible to conduct the bearing capacity test in the field. Some times it is cheaper to take the undisturbed soil sample and test its strength in the laboratory. Also to choose the best material for the embankment, one has to conduct strength tests on the samples selected. Under these conditions it is easy to perform the unconfined compression test on undisturbed and remoulded soil sample. Now we will investigate experimentally the strength of a given soil sample.

**Equipment:**

Loading frame of capacity of 2 t, with constant rate of movement. Proving ring of 0.01 kg sensitivity for soft soils; 0.05 kg for stiff soils. Soil trimmer, Frictionless end plates of 75 mm diameter (Perspex plate with silicon grease coating), Evaporating dish (Aluminum container).

Soil sample of 75 mm length, Dial gauge (0.01 mm accuracy), Balance of capacity 200 g and sensitivity to weigh 0.01 g, Oven, Sample extractor and split sampler, Dial gauge (sensitivity 0.01mm), Vernier calipers.

For soils, the undrained shear strength ( $s_u$ ) is necessary for the determination of the bearing capacity of foundations, dams, etc. The undrained shear strength ( $s_u$ ) of clays is commonly determined from an unconfined compression strength test. The undrained shear strength ( $s_u$ ) of a cohesive soil is equal to one-half the unconfined compressive strength ( $q_u$ ) when the soil is under the  $\phi = 0$  condition ( $f =$  the angle of internal friction). The most critical condition for the soil usually occurs immediately after construction, which represents undrained conditions, when the undrained shear strength is basically equal to the cohesion( $c$ ).

This is expressed as:

$$s_u = c = q_u/2$$

Then, as time passes, the pore water in the soil slowly dissipates, and the inter-granular stress increases, so that the drained shear strength ( $s$ ), given by  $s = c + \sigma \tan \phi$ , must be used. Where  $\sigma'$  = inter-granular pressure acting perpendicular to the shear plane; and  $\sigma' = (s - u)$ ,  $\sigma$  = total pressure, and  $u$  = pore water pressure;  $\phi$  and  $c$  are drained shear strength parameters

### 2.2.7. Triaxial (Unconsolidated – Undrained) Test

#### **Purpose:**

To find the shear of the soil by Undrained Triaxial Test.

#### **Standard Reference:**

ASTM D2850-70- To find the shear of the soil by Undrained Triaxial Test.

#### **Significance:**

The standard consolidated undrained test is compression test, in which the soil specimen is first consolidated under all round pressure in the triaxial cell before failure is brought about by increasing the major principal stress. It may be performed with or without measurement of pore pressure although for most applications the measurement of pore pressure is desirable.

#### **Equipment:**

3.8 cm (1.5 inch) internal diameter 12.5 cm (5 inches) long sample tubes, Rubber ring, An open ended cylindrical section former, 3.8 cm inside dia, fitted with a small rubber tube in its side, Stop clock, Moisture content test apparatus, A balance of 250 gm capacity and accurate to 0.01 gm.

$$U_c = B \cdot \sigma_3 \text{ and } U_d = A \cdot \sigma_d$$

$$\text{Total } u = B \cdot \sigma_3 + A \cdot \sigma_d$$

$$u = B \cdot \sigma_3 + A \cdot (\sigma_1 - \sigma_3)$$

Calculate axial strain.  $\epsilon = L/\Delta L$

$\Delta L$  = Vertical deformation of the specimen.

™ Calculate vertical load on the specimen.

You will get it directly from the force transducers.

™ Calculate corrected area of the specimen ( $A_c$ ) –  $\epsilon = 1$

$$A_0 = A_c$$

$A_0$  = Initial cross-sectional area i.e.  $\pi \times D^2/4$

Calculate the stress  $\sigma$  on the specimen.  $\sigma = A_c/\text{Load}$



### 2.3. Summary Result

Following number of tests have been conducted in this study-

SL No	Test Name	Numbers of tests in per borehole/ units	Quantity	Specifications to be followed
<i>In Laboratory</i>				
1	Particle/Grain Size Analysis	Two specimens of each borehole	170	According to ASTM D 422
2	Atterberg Limits Determination	Two specimens of each borehole	170	According to ASTM D 4318
3	Direct Shear Test	Sixty sample from total number of boreholes	60	According to ASTM D 3080
4	Unconfined Compression strength Determination	Sixty sample from total number of boreholes	60	According to ASTM D 2166
5	Triaxial test(Undrained Unconsolidated)	Thirty sample from total number of boreholes	30	According to ASTM D2850-70.

Summary results are shown in the following table-

**SUMMARY OF THE TEST RESULTS**

**Client : Urban Development Directorate (UDD)**

**Project: Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

Bore hole No	Sample No	Depth in meter	Location	Latitude	Longitude	Liquid Limit %	Plastic Limit %	Plasticity Index %	Unconfined Compressional strength kg/cm <sup>2</sup>			Triaxial Test		Direct Shear Test		Clay %	Silt %	Sand %	Specific Gravity			
									qu (Kpa)	Cohesion kg/cm <sup>2</sup>	Strain %	Cohesion kg/cm <sup>2</sup>	σ <sub>v</sub>	Cohesion kg/cm <sup>2</sup>	σ <sub>v</sub>							
BH-M01	UD1	2.55	West Joar Rashidia Govt. Primary School	22.94282	91.54206							48	0									
	D4	6	West Joar Rashidia Govt. Primary School	22.94282	91.54206	32	28	4									18	81	1	2.51		
	D5	7.5	West Joar Rashidia Govt. Primary School	22.94282	91.54206																	
	D6	9	West Joar Rashidia Govt. Primary School	22.94282	91.54206	32	24	8											7.6	92.4		
	D9	13.5	West Joar Rashidia Govt. Primary School	22.94282	91.54206																	
	D12	18	West Joar Rashidia Govt. Primary School	22.94282	91.54206										32							
	D16	24	West Joar Rashidia Govt. Primary School	22.94282	91.54206	29	19	10														
D18	27	West Joar Rashidia Govt. Primary School	22.94282	91.54206										32								
BH-M02	UD1	2.55	Choturua, Ward-1, Korerhat	22.93579	91.55832							73	0									
	UD2	4.05	Choturua, Ward-1, Korerhat	22.93579	91.55832				167.5	83.75	12											
	D3	4.5	Choturua, Ward-1, Korerhat	22.93579	91.55832												35	61	14	2.68		
	D4	6	Choturua, Ward-1, Korerhat	22.93579	91.55832	34	21	13														
	D10	15	Choturua, Ward-1, Korerhat	22.93579	91.55832																	
	D12	18	Choturua, Ward-1, Korerhat	22.93579	91.55832	32	26	6											7.8	92.2		
	D15	22.5	Choturua, Ward-1, Korerhat	22.93579	91.55832	37	26	11														
D19	28.5	Choturua, Ward-1, Korerhat	22.93579	91.55832																		
BH-M03	UD1	2.55	Giamara gram, Bagan road, Korerhat	22.92456	91.57372							93	0									
	UD2	4.05	Giamara gram, Bagan road, Korerhat	22.92456	91.57372					152.78	76.39	14										
	D2	3	Giamara gram, Bagan road, Korerhat	22.92456	91.57372	45	36	9														
	D4	6	Giamara gram, Bagan road, Korerhat	22.92456	91.57372	36	27	8														
	D5	7.5	Giamara gram, Bagan road, Korerhat	22.92456	91.57372													20	70	10	2.51	
	D6	9	Giamara gram, Bagan road, Korerhat	22.92456	91.57372	32	25	8														
	D8	12	Giamara gram, Bagan road, Korerhat	22.92456	91.57372																	
D9	13.5	Giamara gram, Bagan road, Korerhat	22.92456	91.57372														9.9	91.1			
D13	19.5	Giamara gram, Bagan road, Korerhat	22.92456	91.57372																		
BH-M04	UD1	2.55	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258							167.5	83.75	12								
	D1	1.5	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258	29	27	3														
	D3	4.5	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258														2.9	97.1		
	D7	10.5	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258																	
	D10	15	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258	29	28	2														
	D11	16.5	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258																	
	D12	18	Bishowitzia Jame mosque, Olinogor, Korerhat	22.96260	91.58258	44	31	12														
BH-M05	UD1	2.55	Poshchim olinogor, Korerhat	22.94435	91.57590							112	0									
	D1	1.5	Poshchim olinogor, Korerhat	22.94435	91.57590	30	27	3														
	D2	3	Poshchim olinogor, Korerhat	22.94435	91.57590																	
	D3	4.5	Poshchim olinogor, Korerhat	22.94435	91.57590	33	30	3											28	57	15	2.65
	D7	10.5	Poshchim olinogor, Korerhat	22.94435	91.57590																	
BH-M06	UD1	2.55	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119							46.5	0									
	D2	3	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119																	
	D3	4.5	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119	28	17	11														
	D4	6	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119	35	18	17														
	D5	7.5	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119																	
	D10	15	Ajomnogor Community Clinic, Hinguli	22.91506	91.54119	32	27	5														
BH-M07	UD1	2.55	Khil hinguli Govt. Primary School	22.89774	91.54640							128.8	64.4	13								
	D5	7.5	Khil hinguli Govt. Primary School	22.89774	91.54640	36	24	12														
	D8	12	Khil hinguli Govt. Primary School	22.89774	91.54640	35	28	8														
	D10	15	Khil hinguli Govt. Primary School	22.89774	91.54640																	
	D14	21	Khil hinguli Govt. Primary School	22.89774	91.54640	31	28	4														
BH-M08	UD1	2.55	Jamalpur, Baraiahat Pourashava	22.89317	91.52970							86.15	43.08	9								
	D2	3	Jamalpur, Baraiahat Pourashava	22.89317	91.52970	46	29	17														
	D3	4.5	Jamalpur, Baraiahat Pourashava	22.89317	91.52970																	
	D8	12	Jamalpur, Baraiahat Pourashava	22.89317	91.52970																	
	D10	15	Jamalpur, Baraiahat Pourashava	22.89317	91.52970	28	21	7														
	D11	16.5	Jamalpur, Baraiahat Pourashava	22.89317	91.52970	32	30	2														
BH-M09	UD1	2.55	East Mehedi Nagar (Forrest Office)	22.88751	91.55489							88	0									
	D1	1.5	East Mehedi Nagar (Forrest Office)	22.88751	91.55489	30	26	3														
	D2	3	East Mehedi Nagar (Forrest Office)	22.88751	91.55489																	
	UD2	4.05	East Mehedi Nagar (Forrest Office)	22.88751	91.55489							105.47	52.73	12								
	D3	4.5	East Mehedi Nagar (Forrest Office)	22.88751	91.55489	37	20	17														
BH-M10	UD1	2.55	West Hinguli, Gonokchora	22.90032	91.52085							158.82	79.41	12								
	D3	4.5	West Hinguli, Gonokchora	22.90032	91.52085																	
	D4	6	West Hinguli, Gonokchora	22.90032	91.52085	56	42	14														
	D7	10.5	West Hinguli, Gonokchora	22.90032	91.52085																	
	D9	13.5	West Hinguli, Gonokchora	22.90032	91.52085	45	31	14														
	D10	15	West Hinguli, Gonokchora	22.90032	91.52085																	
BH-M11	UD1	2.55	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175							46	0									
	D2	3	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175																	
	UD2	4.05	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175							121.72	60.86	11								
	D3	4.5	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175	33	14	19														
	D4	6	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175																	
	D6	9	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175																	
	D8	12	Imampur Titabot tola Furkania Madrasha	22.87949	91.53175	32	29	3														





	D13	19.5	Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali	22.82661	91.48335	31	26	5													
BH-36	D1	1.5	Chunumijer tek,Ichakhali	22.79189	91.46427	34	31	3													
	UD1	2.55	Chunumijer tek,Ichakhali	22.79189	91.46427				128.8	64.4	13										
	D2	3	Chunumijer tek,Ichakhali	22.79189	91.46427												20	79	1	2.62	
	D4	6	Chunumijer tek,Ichakhali	22.79189	91.46427	26	25	1										26	74		
	D8	12	Chunumijer tek,Ichakhali	22.79189	91.46427													10	90		
	D12	18	Chunumijer tek,Ichakhali	22.79189	91.46427											34					
	UD1	2.55	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743						66	0									
BH-37	D2	3	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743	33	30	3								25	74	1	2.61		
	UD2	4.05	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743				105.32	52.66	10										
	D5	7.5	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743													16	84		
	D8	12	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743											34		13	87		
	D12	18	94 no. Hasim Nagar Govt. Primary School	22.75204	91.51743	38	24	14													
	UD1	2.55	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612				104.06	52.03	10										
BH-38	D2	3	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612	32	28	4									15	65	20	2.61	
	D4	6	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612																
	D8	12	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612														16	84	
	D10	15	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612														12	88	
	D18	27	Ichakhali Economic Zone Office, Ichakhali	22.76242	91.46612	35	33	2													
	UD1	2.55	Lodiakhali, Ichakhali	22.78207	91.47032						58	0									
BH-M39	D2	3	Lodiakhali, Ichakhali	22.78207	91.47032	30	27	3													
	UD2	4.05	Lodiakhali, Ichakhali	22.78207	91.47032				105.41	52.7	11						31	67	2	2.63	
	D4	6	Lodiakhali, Ichakhali	22.78207	91.47032																
	D6	9	Lodiakhali, Ichakhali	22.78207	91.47032														8.2	91.8	
	D9	13.5	Lodiakhali, Ichakhali	22.78207	91.47032															9.3	90.7
	D16	24	Lodiakhali, Ichakhali	22.78207	91.47032	39	29	10													
	D17	25.5	Lodiakhali, Ichakhali	22.78207	91.47032												36				
	UD1	2.55	Sony Mijer tek, Tekerhat Bazar, Ichakhali	22.81053	91.47058				107.86	53.93	10										
BH-M40	D2	3	Sony Mijer tek, Tekerhat Bazar, Ichakhali	22.81053	91.47058	30	27	3								19	80	1	2.59		
	D5	7.5	Sony Mijer tek, Tekerhat Bazar, Ichakhali	22.81053	91.47058													13.9	86.1		
	D9	13.5	Sony Mijer tek, Tekerhat Bazar, Ichakhali	22.81053	91.47058													20.9	79.1		
	D17	25.5	Sony Mijer tek, Tekerhat Bazar, Ichakhali	22.81053	91.47058	38	36	2													
		UD1	1.5	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786	37	28	9												
BH-M41	UD1	2.55	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786						70	0									
	D2	3	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786												13	85	2	2.65	
	D3	4.5	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786	31	27	4											25.8	74.2	
	D5	7.5	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786																
	D6	9	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786												35				
	D7	10.5	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786														16.9	83.1	
	D16	24	Ichakhali Economic Zone, Ichakhali	22.82266	91.44786												38				
	UD1	2.55	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229				125.32	62.66	12										
BH-M42	D2	3	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229											29	70	1	2.52		
	D3	4.5	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229	31	27	4													
	D5	7.5	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229														23.5	76.5	
	D9	13.5	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229														24.9	75.1	
	D12	18	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229												35				
	D14	21	Kazigram govt. Primary School, Ichakhali	22.82931	91.50229	32	24	7													
		UD1	2.55	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854				141.87	70.93	14									
BH-M43	D2	3	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854	44	28	16													
	UD2	4.05	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854						68	0									
	D3	4.5	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854												30	69	1	2.42	
	D6	9	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854														9.8	90.2	
	D8	12	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854														3.3	96.7	
	D16	24	Rajamiar Farm, Char Shorot, Ichakhali	22.74718	91.48854	26	22	4													
	UD1	2.55	Rahmatabad, Ichakhali	22.77602	91.49851				90.94	45.47	14										
BH-M44	D2	3	Rahmatabad, Ichakhali	22.77602	91.49851												33	66	1	2.5	
	D3	4.5	Rahmatabad, Ichakhali	22.77602	91.49851	45	35	10													
	D5	7.5	Rahmatabad, Ichakhali	22.77602	91.49851														27.4	72.6	
	D9	13.5	Rahmatabad, Ichakhali	22.77602	91.49851														39.4	60.6	
	D15	22.5	Rahmatabad, Ichakhali	22.77602	91.49851	32	29	3													
	D2	3	Mohamaya Eco Park, Durgapur	22.81944	91.56983														18.3	81.7	
BH-M45	D6	9	Mohamaya Eco Park, Durgapur	22.81944	91.56983											38					
	D8	12	Mohamaya Eco Park, Durgapur	22.81944	91.56983														17.6	82.4	
	D11	16.5	Mohamaya Eco Park, Durgapur	22.81944	91.56983														33.7	66.3	
	D1	1.5	Mithachora Bazar, Mirshorai	22.80319	91.55990	34	25	9													
BH-M46	D4	6	Mithachora Bazar, Mirshorai	22.80319	91.55990												37	60	3	2.61	
	D8	12	Mithachora Bazar, Mirshorai	22.80319	91.55990																
	D12	18	Mithachora Bazar, Mirshorai	22.80319	91.55990	32	25	7								31		25.8	74.2		
		UD1	2.55	South Talbaria, Mirshorai	22.78553	91.57944						48	0								
BH-M47	D2	3	South Talbaria, Mirshorai	22.78553	91.57944												20	79	1	2.57	
	UD2	4.05	South Talbaria, Mirshorai	22.78553	91.57944				186.98	93.49	11										
	D3	4.5	South Talbaria, Mirshorai	22.78553	91.57944	29	19	10													
	D5	7.5	South Talbaria, Mirshorai	22.78553	91.57944														28.4	71.6	
	D9	13.5	South Talbaria, Mirshorai	22.78553	91.57944														28.1	71.9	
	D14	21	South Talbaria, Mirshorai	22.78553	91.57944	37	32	5													
BH-M48	UD1	2.55	East Ambaria, Mirshorai	22.77940	91.59575				322.58	161.29	7										
	D4	6	East Ambaria, Mirshorai	22.77940	91.59575	30	25	5													
	D7	10.5	East Ambaria, Mirshorai	22.77940	91.59575												9	82	9	2.59	
	D8	12	East Ambaria, Mirshorai	22.77940	91.59575	36	23	13									13	72	15	2.66	
	D1	1.5	Ora Kazi Mijibari Jame Mosque, Mirshorai	22.78863	91.55093	29	26	3													
BH-M49	UD1	2.55	Ora Kazi Mijibari Jame Mosque, Mirshorai	22.78863	91.55093				101.81	50.91	13										
	D2	3	Ora Kazi Mijibari Jame Mosque, Mirshorai	22.78863	91.55093											19	76	5	2.59		



BH-M63	D3	4.5	Komor all Union High School, Komor All Union Bazar	22.68562	91.58553													33	63	4	2.59		
	D5	7.5	Komor all Union High School, Komor All Union Bazar	22.68562	91.58553															17.6	82.4		
	D9	13.5	Komor all Union High School, Komor All Union Bazar	22.68562	91.58553															15.5	84.5		
	D15	22.5	Komor all Union High School, Komor All Union Bazar	22.68562	91.58553	46	28	18															
BH-M64	UD1	2.55	Katakhal Beribadh, Shekerkhali	22.72091	91.51587				103.07		51.53		14										
	D2	3	Katakhal Beribadh, Shekerkhali	22.72091	91.51587	32	27	5															
	D3	4.5	Katakhal Beribadh, Shekerkhali	22.72091	91.51587														28	71	1	2.61	
	D8	12	Katakhal Beribadh, Shekerkhali	22.72091	91.51587																21.6	78.4	
	D11	16.5	Katakhal Beribadh, Shekerkhali	22.72091	91.51587																21.5	78.5	
	D16	24	Katakhal Beribadh, Shekerkhali	22.72091	91.51587	36	24	12															
BH-M65	D3	4.5	Baribadh, Shekerkhali	22.71076	91.53028	36	29	7										30	68	2	2.55		
	D4	6	Baribadh, Shekerkhali	22.71076	91.53028																		
	D6	9	Baribadh, Shekerkhali	22.71076	91.53028																16.5	83.5	
	D8	12	Baribadh, Shekerkhali	22.71076	91.53028																15.5	84.5	
BH-66	D18	27	Baribadh, Shekerkhali	22.71076	91.53028	33	30	2															
	D4	6	North Dhoom Khali, Gazaria, Shekerkhali	22.69645	91.54869																33.4	66.6	
BH-M67	D8	12	North Dhoom Khali, Gazaria, Shekerkhali	22.69645	91.54869																15.5	84.5	
	D9	13.5	North Dhoom Khali, Gazaria, Shekerkhali	22.69645	91.54869																16.1	83.9	
	UD1	2.55	Ichakhali Khalpar, Ichakhali	22.78336	91.48410							43	0										
	UD2	4.05	Ichakhali Khalpar, Ichakhali	22.78336	91.48410				95.68		47.84		13										
	D3	4.5	Ichakhali Khalpar, Ichakhali	22.78336	91.48410	32	22	10															
	D4	6	Ichakhali Khalpar, Ichakhali	22.78336	91.48410															13	82	5	2.68
	D6	9	Ichakhali Khalpar, Ichakhali	22.78336	91.48410																27.3	72.7	
	D8	12	Ichakhali Khalpar, Ichakhali	22.78336	91.48410																21.7	78.3	
	D10	15	Ichakhali Khalpar, Ichakhali	22.78336	91.48410														33				
BH-M68	D17	25.5	Ichakhali Khalpar, Ichakhali	22.78336	91.48410	29	27	1															
	D1	1.5	Shaherkhali High School, Shaherkhali	22.71369	91.56564	24	23	1															
	UD1	2.55	Shaherkhali High School, Shaherkhali	22.71369	91.56564				83.13		41.57		12										
	D3	4.5	Shaherkhali High School, Shaherkhali	22.71369	91.56564	32	29	3															
	D4	6	Shaherkhali High School, Shaherkhali	22.71369	91.56564															18	81	1	2.7
	D7	10.5	Shaherkhali High School, Shaherkhali	22.71369	91.56564																16.6	83.4	
BH-M69	D10		Shaherkhali High School, Shaherkhali	22.71369	91.56564															12	88		
	UD1	2.55	Dhoomkhali, Shaherkhali	22.69363	91.56484				100.59		50.29		13										
	D2	3	Dhoomkhali, Shaherkhali	22.69363	91.56484	30	26	4															
	D3	4.5	Dhoomkhali, Shaherkhali	22.69363	91.56484															23	76	1	2.53
	D4	6	Dhoomkhali, Shaherkhali	22.69363	91.56484																25	75	
	D6	9	Dhoomkhali, Shaherkhali	22.69363	91.56484															32	18	82	
BH-M70	D18	27	Dhoomkhali, Shaherkhali	22.69363	91.56484	29	24	5															
	UD1	2.55	West Gobania, Mirsharai	22.76866	91.56601				116.41		58.2		14										
	D3	4.5	West Gobania, Mirsharai	22.76866	91.56601	27	24	3															
	D4	6	West Gobania, Mirsharai	22.76866	91.56601															35	64	1	2.5
	D8	12	West Gobania, Mirsharai	22.76866	91.56601																31.5	68.5	
BH-M71	D9	13.5	West Gobania, Mirsharai	22.76866	91.56601																		
	D16	24	West Gobania, Mirsharai	22.76866	91.56601	35	29	5															
	D3	4.5	Shonaichora, Khoiachora	22.75824	91.60582																27.5	72.5	
	D6	9	Shonaichora, Khoiachora	22.75824	91.60582																14.4	85.6	
BH-M72	D8	12	Shonaichora, Khoiachora	22.75824	91.60582																14.2	85.8	
	D10	15	Shonaichora, Khoiachora	22.75824	91.60582															37			
	D3	4.5	Morjida Masima Taluk, Borotakia	22.74442	91.58926																37	63	
BH-M73	D6	9	Morjida Masima Taluk, Borotakia	22.74442	91.58926																35.7	64.3	
	D9	13.5	Morjida Masima Taluk, Borotakia	22.74442	91.58926																29.6	70.4	
	UD1	2.55	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991				95.79		47.9		14										
	D3	4.5	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991																16	67	
	D5	7.5	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991																17	71	
	D6	9	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991	25	21	4													17	12	
	D7	10.5	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991																19	71	
	D8	12	Khoiachora Waterfall Road, Khoiachora	22.76957	91.59991	24	19	5														10	
	BH-M74	UD1	2.55	Said Ali Govt. Primary School	22.75439	91.57765				87.64		43.82		16									
D2		3	Said Ali Govt. Primary School	22.75439	91.57765																32	66	
UD2		4.05	Said Ali Govt. Primary School	22.75439	91.57765								63	0								2	
D3		4.5	Said Ali Govt. Primary School	22.75439	91.57765	30	24	6															
D4		6	Said Ali Govt. Primary School	22.75439	91.57765																	30.8	69.2
D8		12	Said Ali Govt. Primary School	22.75439	91.57765																	34.8	65.2
D10		15	Said Ali Govt. Primary School	22.75439	91.57765																35		
BH-M75	D19	28.5	Said Ali Govt. Primary School	22.75439	91.57765	33	25	8															
	D1	1.5	Majeda Huq High School, Mayani	22.72981	91.57939	32	27	5															
	UD1	2.55	Majeda Huq High School, Mayani	22.72981	91.57939				95.79		47.9		14										
	D2	3	Majeda Huq High School, Mayani	22.72981	91.57939																27	72	
	D5	7.5	Majeda Huq High School, Mayani	22.72981	91.57939																	20.5	79.5
	D9	13.5	Majeda Huq High School, Mayani	22.72981	91.57939																	21.9	78.1
BH-M76	D12	18	Majeda Huq High School, Mayani	22.72981	91.57939	33	26	7															
	UD1	2.55	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582								52	0									
	UD2	4.05	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582				98.13		49.07		13										
	D2	3	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582																35	64	
	D3	4.5	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582	38	36	2														1	2.61
	D4	6	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582																	27.9	72.1
	D6	9	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582																	16	84
BH-M77	D16	24	Shah Abdul Majid Govt. Primary School, West Mayani	22.71760	91.54582	30	25	5															
	UD1	2.55	West Mayani Shahid Kamal Uddin Govt. Primary School	22.73242	91.54217				93.06		46.53		12										
	UD2	4.05	West Mayani Shahid Kamal Uddin Govt. Primary School	22.73242	91.54217																58	0	
	D3	4.5	West Mayani Shahid Kamal Uddin Govt. Primary School	22.73242	91.54217																	20	79
BH-M77	D4	6	West Mayani Shahid Kamal Uddin Govt. Primary School	22.73242	91.54217	39	28	11														1	2.46





### **3. APPENDICES**

A Grain Size Analysis

B Specific Gravity Test

C Atterberg Limits Determination

D Direct Shear Test

E Unconfined Compression strength Determination

F Triaxial Test (Undrained Unconsolidated)

# A Grain Size Analysis

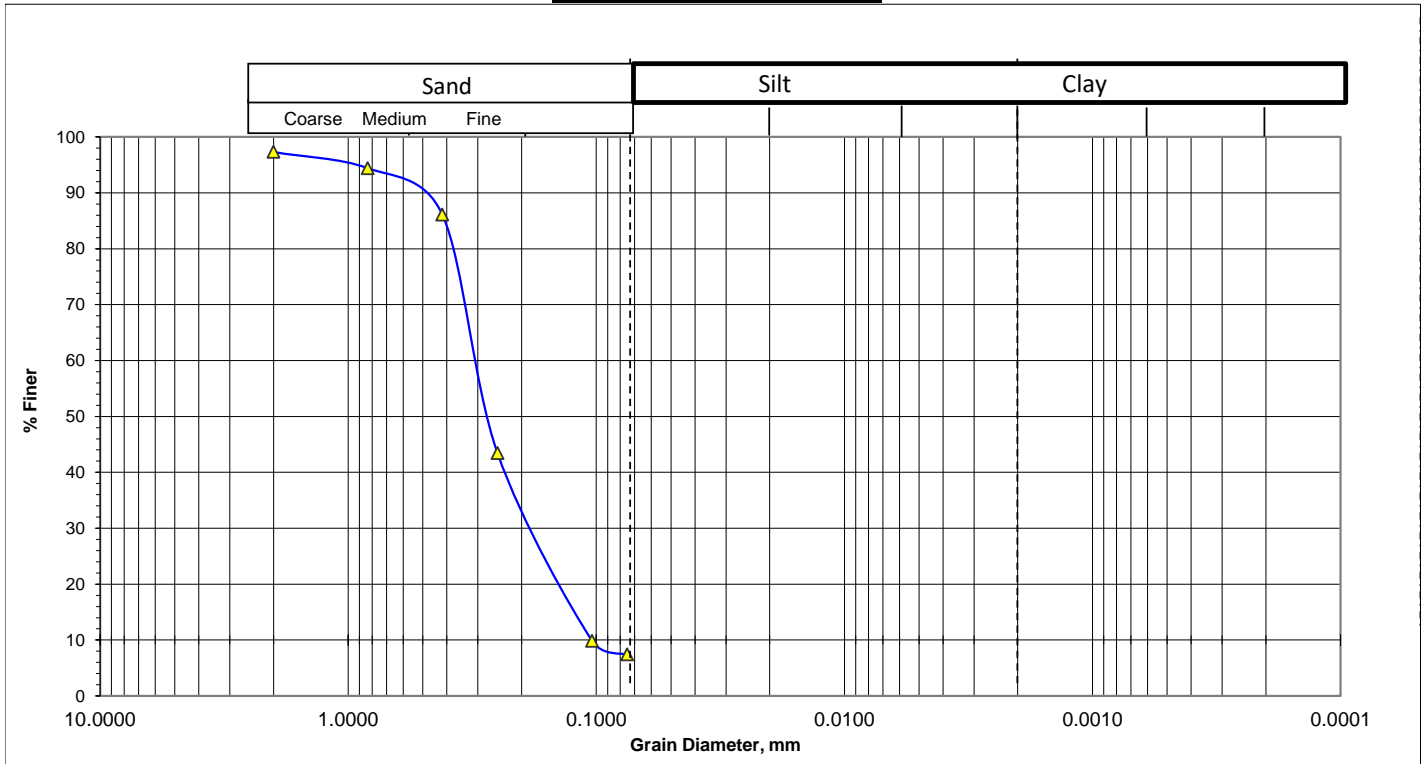


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** West Joar Roshidia Govt. Primary School (Lat- 22.94282 Long- 91.54206)  
**Bore Hole No:** BH-M01 **Sampled Date:** 25/01/2018  
**Sample No :** S09 **Test Date :** 10/03/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 7.60

Mean Diameter(mm),  $D_{50}$  = 0.280

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.93

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 92.4

(0.005mm size) & (0.001mm size) = 7.6



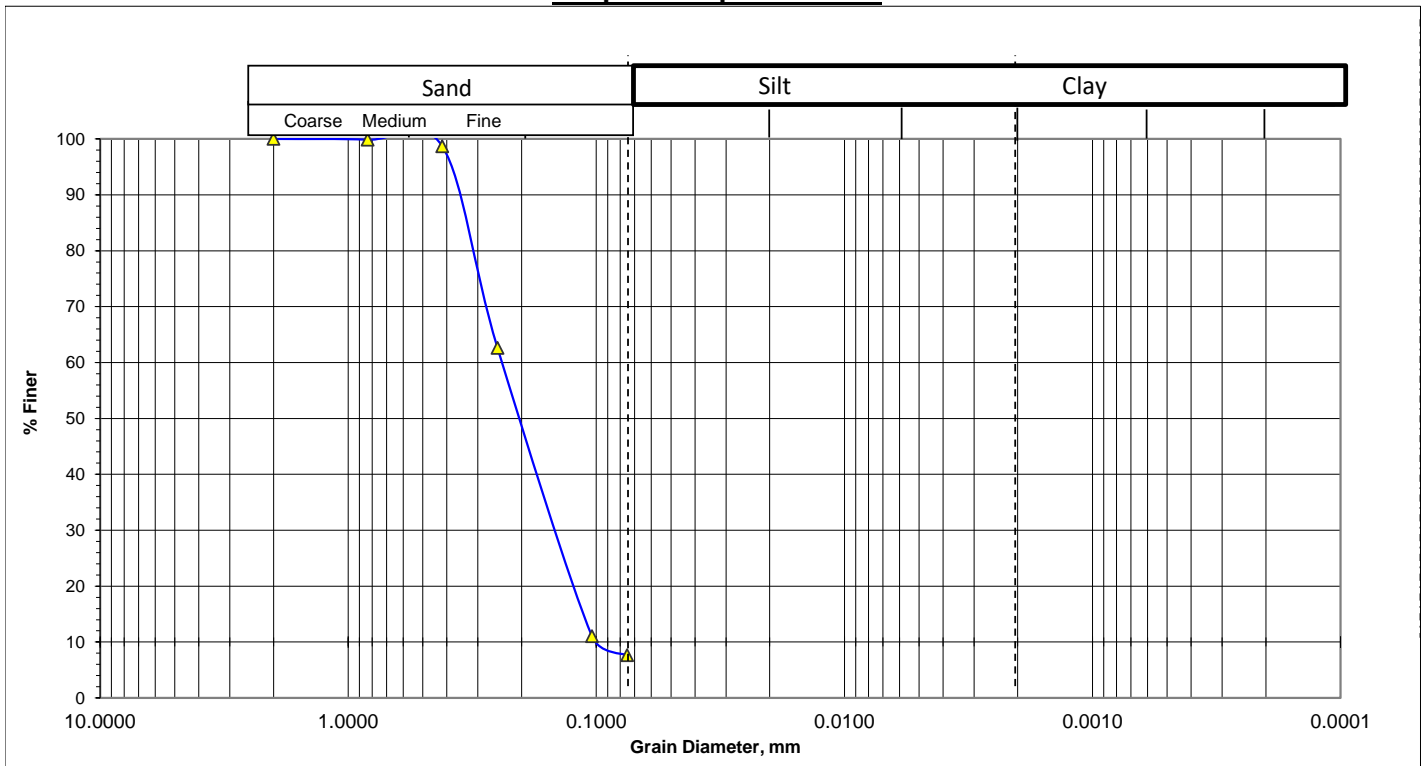
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Choturua, Ward-1, Korerhat (Lat- 22.93579, Long- 91.55832)

**Bore Hole No:** BH-M02 **Sampled Date:** 26/01/2018  
**Sample No :** S10 **Test Date :** 12/03/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 7.85

Mean Diameter(mm),  $D_{50}$  = 0.210

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.81

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 92.2

(0.005mm size) & (0.001mm size) = 7.8

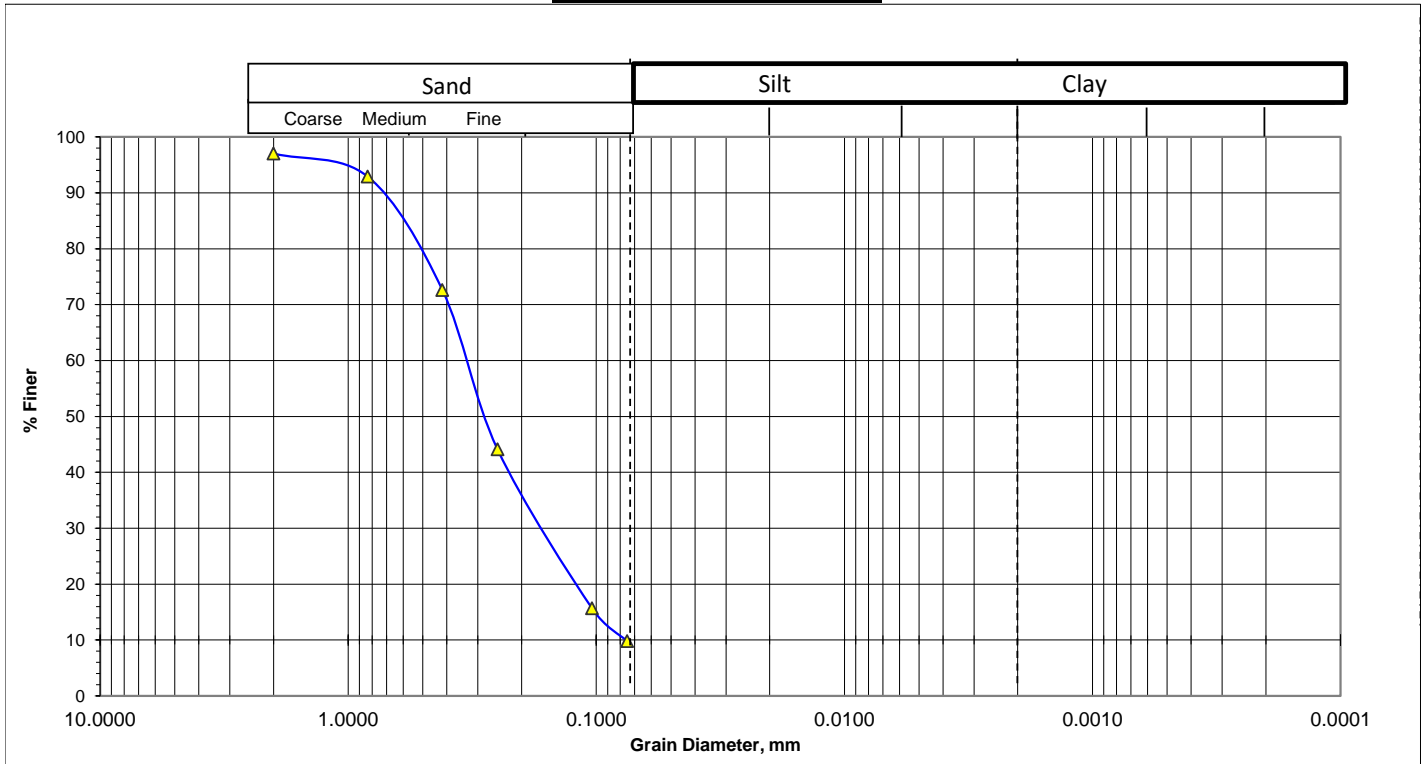


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Giamara gram, Bagan road, Korerhat (Lat- 22.92456, Long- 91.57372)  
**Bore Hole No:** BH-M03 **Sampled Date:** 26/01/2018  
**Sample No :** S09 **Test Date :** 03/10/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 9.95

Mean Diameter(mm),  $D_{50}$  = 0.290

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.95

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 90.1

(0.005mm size) & (0.001mm size) = 9.9

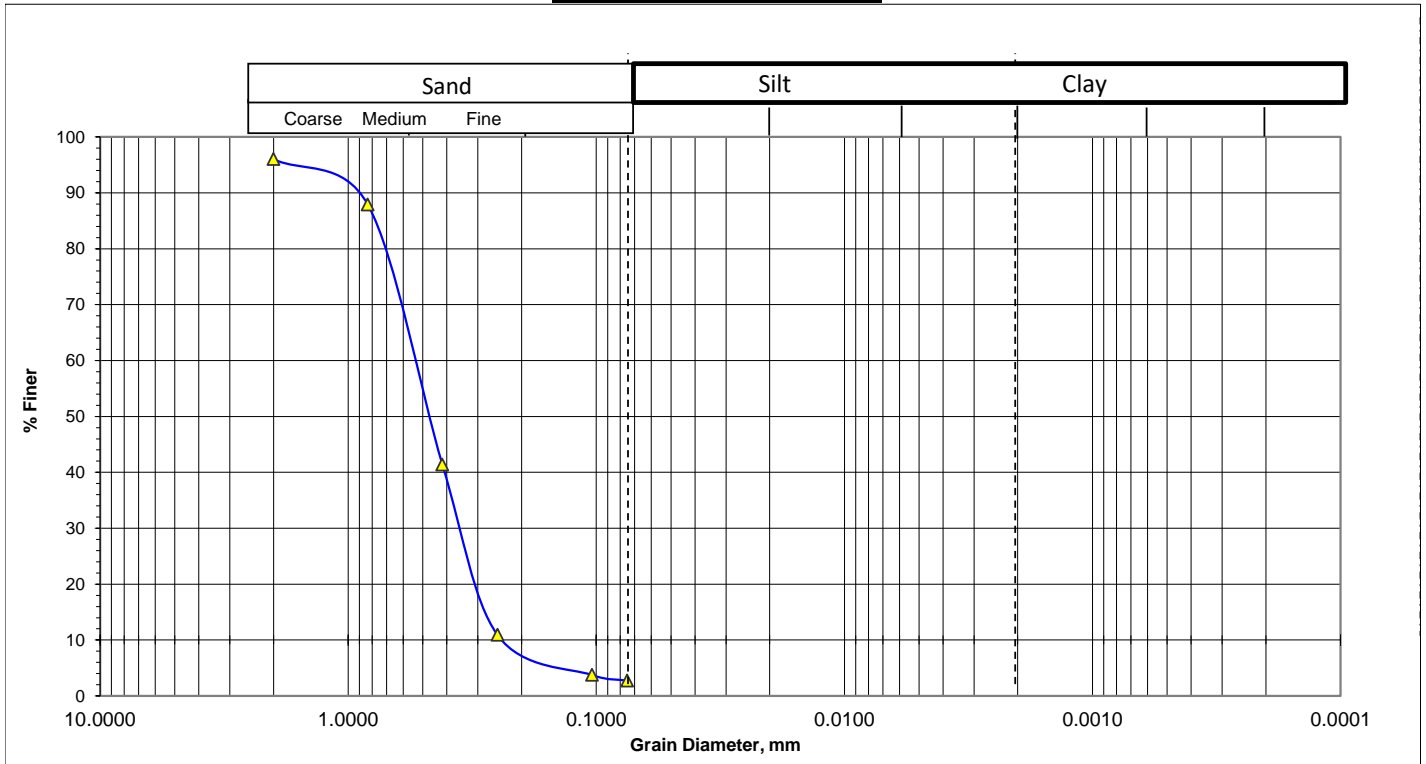


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Bisshowtila Jame mosque, Olinogor, Korerhat (Lat- 22.9626, Long- 91.58258)  
 Bore Hole No: BH-M04 Sampled Date: 25/01/2018  
 Sample No : S03 Test Date : 12/03/2018  
 Depth (m) : 4.5

### Graphical Representation:



Fines or % of silt and clay = 2.94

Mean Diameter(mm),  $D_{50}$  = 0.480

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 1.22

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 97.1

(0.005mm size) & (0.001mm size) = 2.9



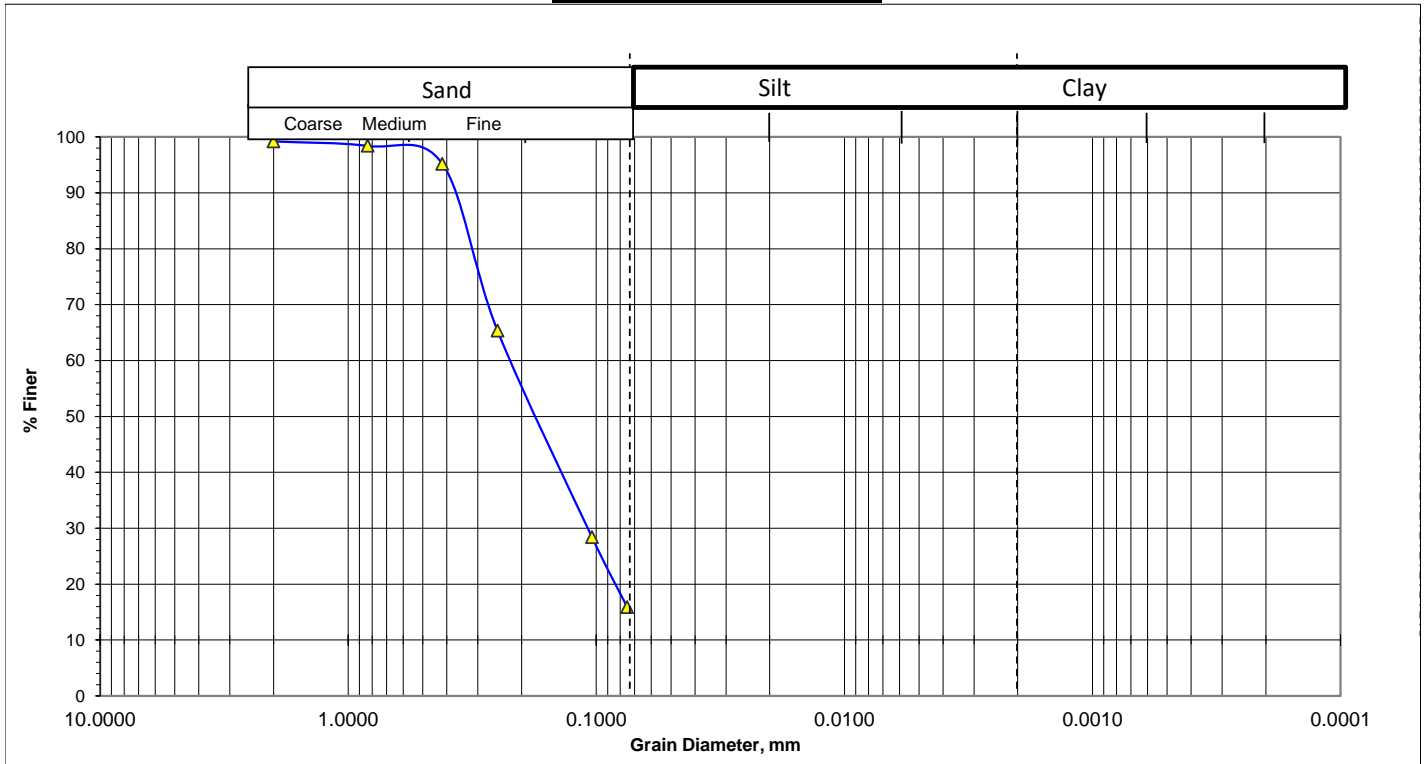
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Poshchim olinogor, Korerhat (Lat- 22.94435, Long- 91.5759)

**Bore Hole No:** BH-M05 **Sampled Date:** 25/01/2018  
**Sample No :** S7 **Test Date :** 15/03/2018  
**Depth (m) :** 10.5

### Graphical Representation:



Fines or % of silt and clay = 16.00

Mean Diameter(mm),  $D_{50}$  = 0.180

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.75

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.0

(0.005mm size) & (0.001mm size) = 16.0

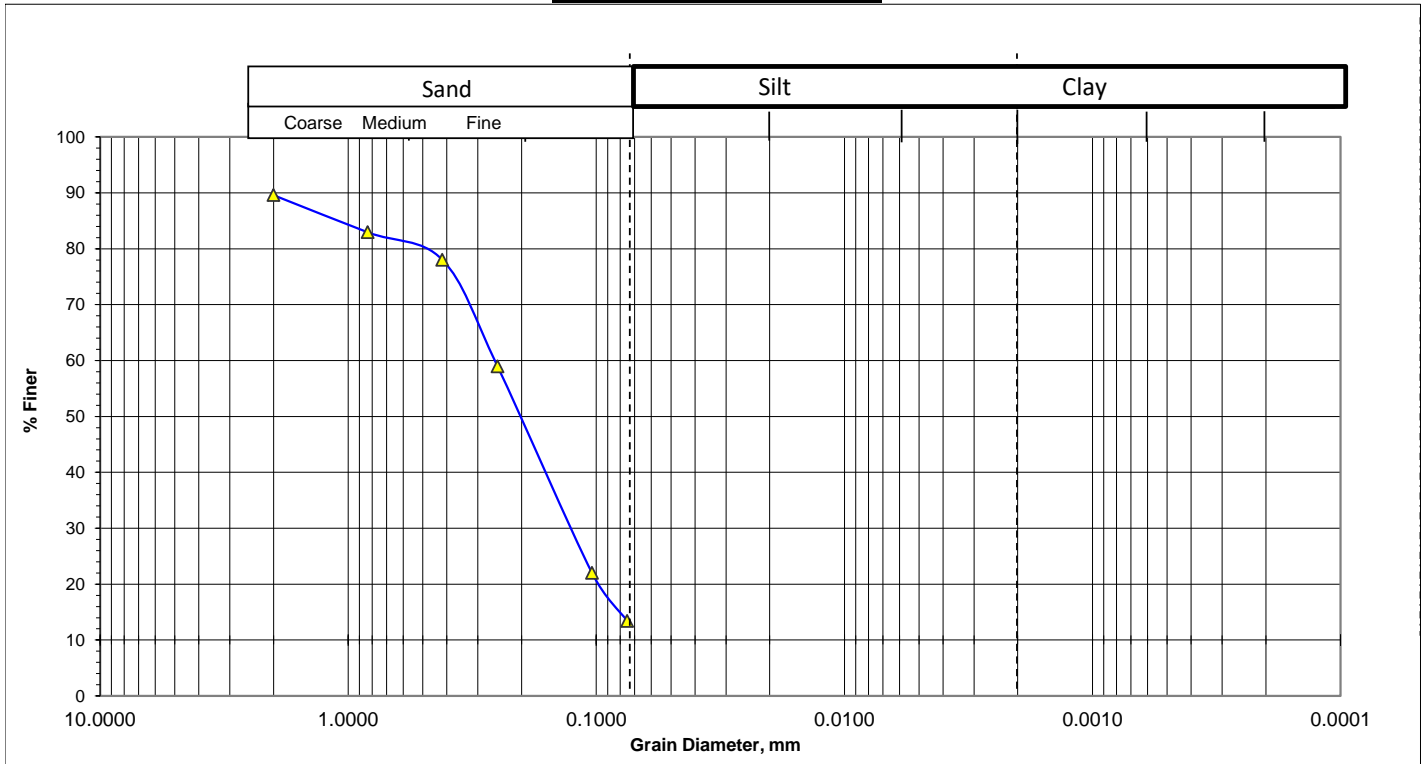


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Khil hinguli Govt. Primary School (Lat- 22.89774, Long- 91.5464)  
**Bore Hole No:** BH-M07 **Sampled Date:** 27/01/2018  
**Sample No :** S10 **Test Date :** 08/03/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 13.49

Mean Diameter(mm),  $D_{50}$  = 0.200

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.79

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 86.5

(0.005mm size) & (0.001mm size) = 13.5



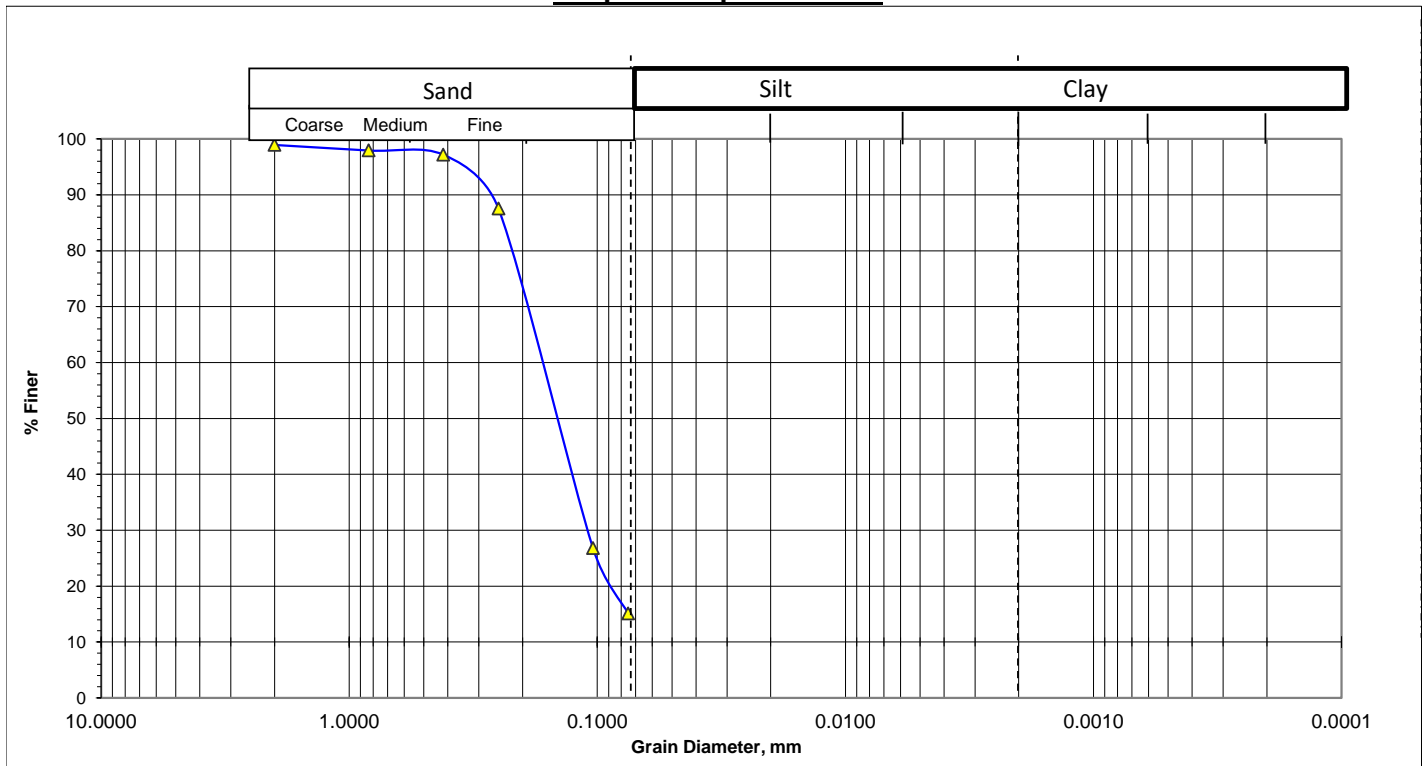


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Jamalpur, Baraiarhat Pourashava (Lat- 22.89317, Long- 91.5297)  
**Bore Hole No:** BH-M08 **Sampled Date:** 28/01/2018  
**Sample No :** S08 **Test Date :** 19/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 15.24

Mean Diameter(mm),  $D_{50}$  = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.8

(0.005mm size) & (0.001mm size) = 15.2

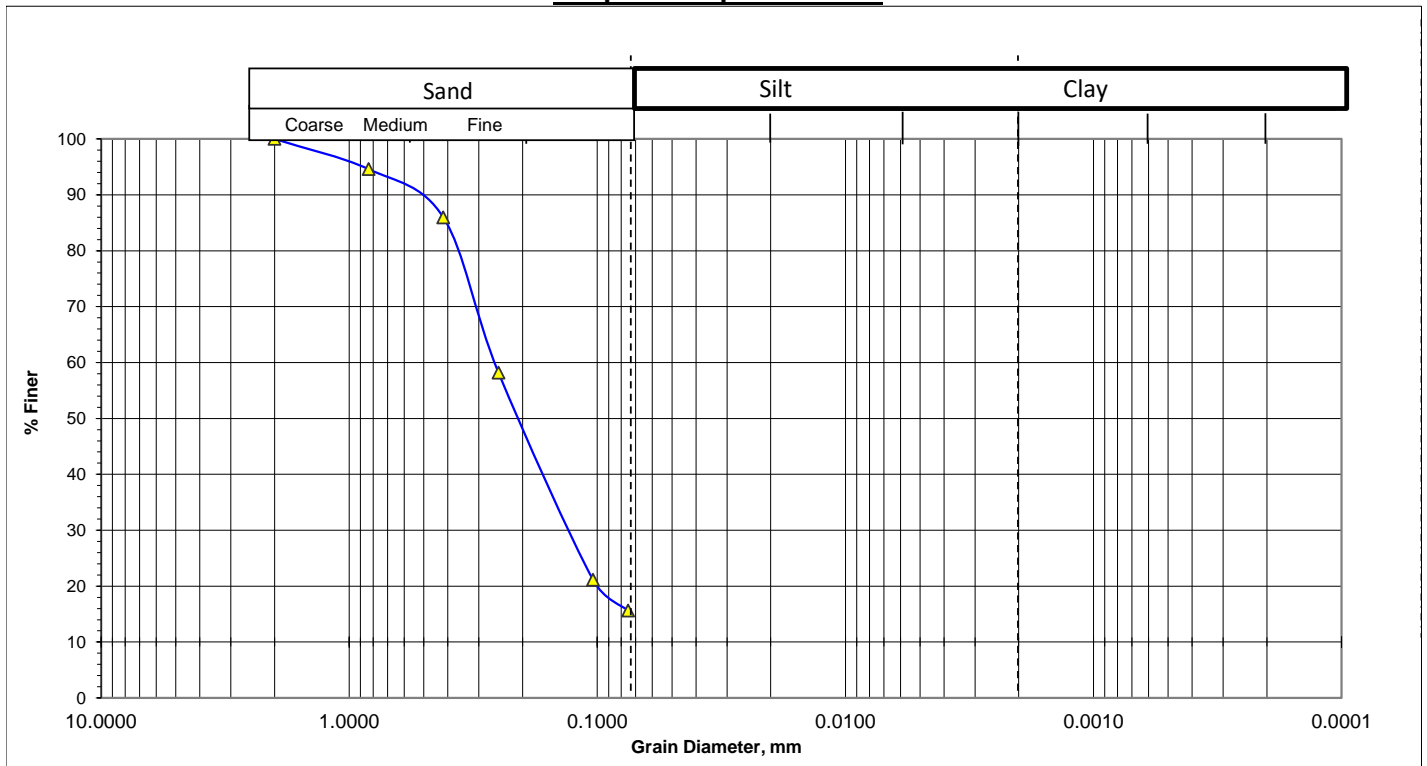


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** East Mehedi Nagar (Forrest Office) (Lat- 22.88751, Long- 91.55489)  
**Bore Hole No:** BH-M09 **Sampled Date:** 28/01/2018  
**Sample No :** S08 **Test Date :** 19/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 15.82

Mean Diameter(mm),  $D_{50}$  = 0.210

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.81

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.2

(0.005mm size) & (0.001mm size) = 15.8

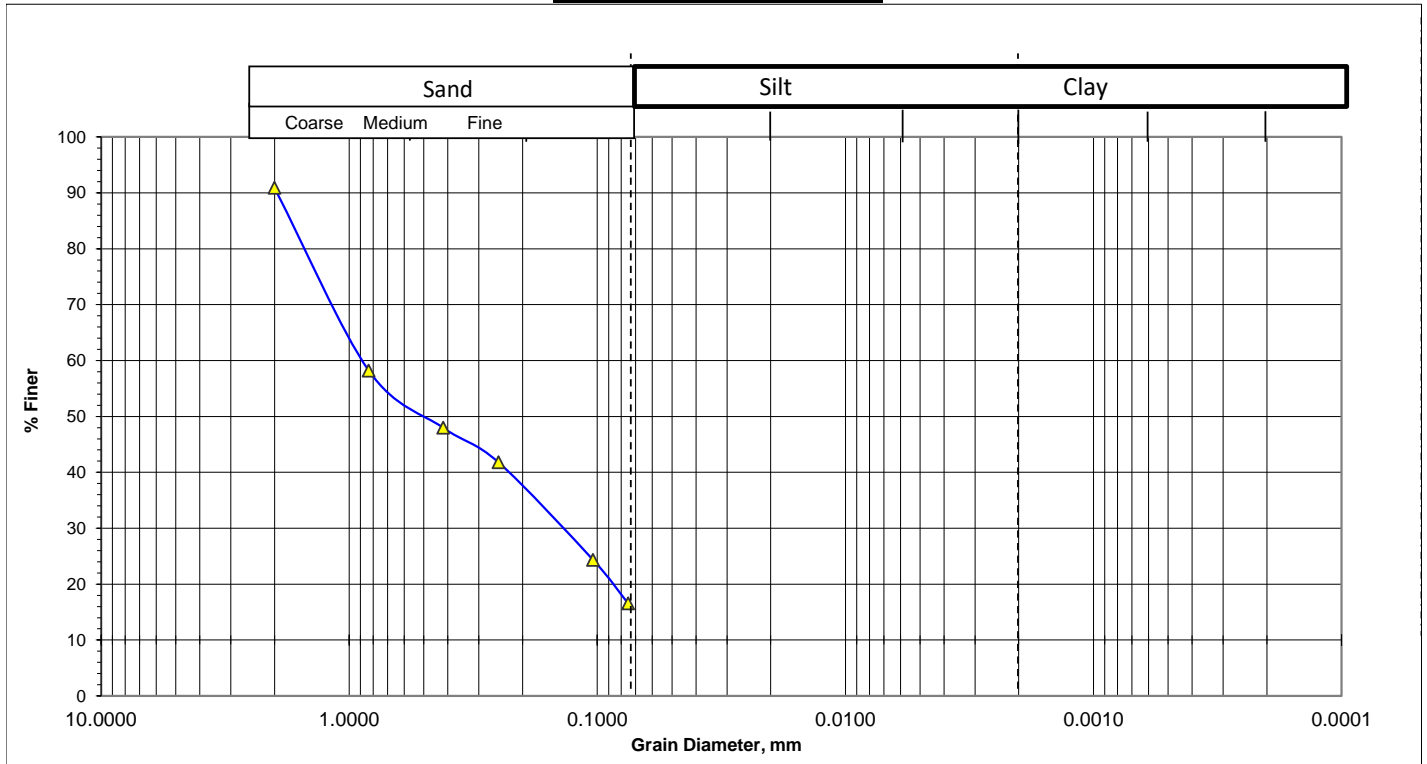


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Imampur Titabot tola Furkania Madrasha (Lat- 22.87949, Long- 91.53175)  
**Bore Hole No:** BH-M11 **Sampled Date:** 30/01/2018  
**Sample No :** S04 **Test Date :** 19/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 16.66

Mean Diameter(mm),  $D_{50}$  = 0.500

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 1.24

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 83.3

(0.005mm size) & (0.001mm size) = 16.7

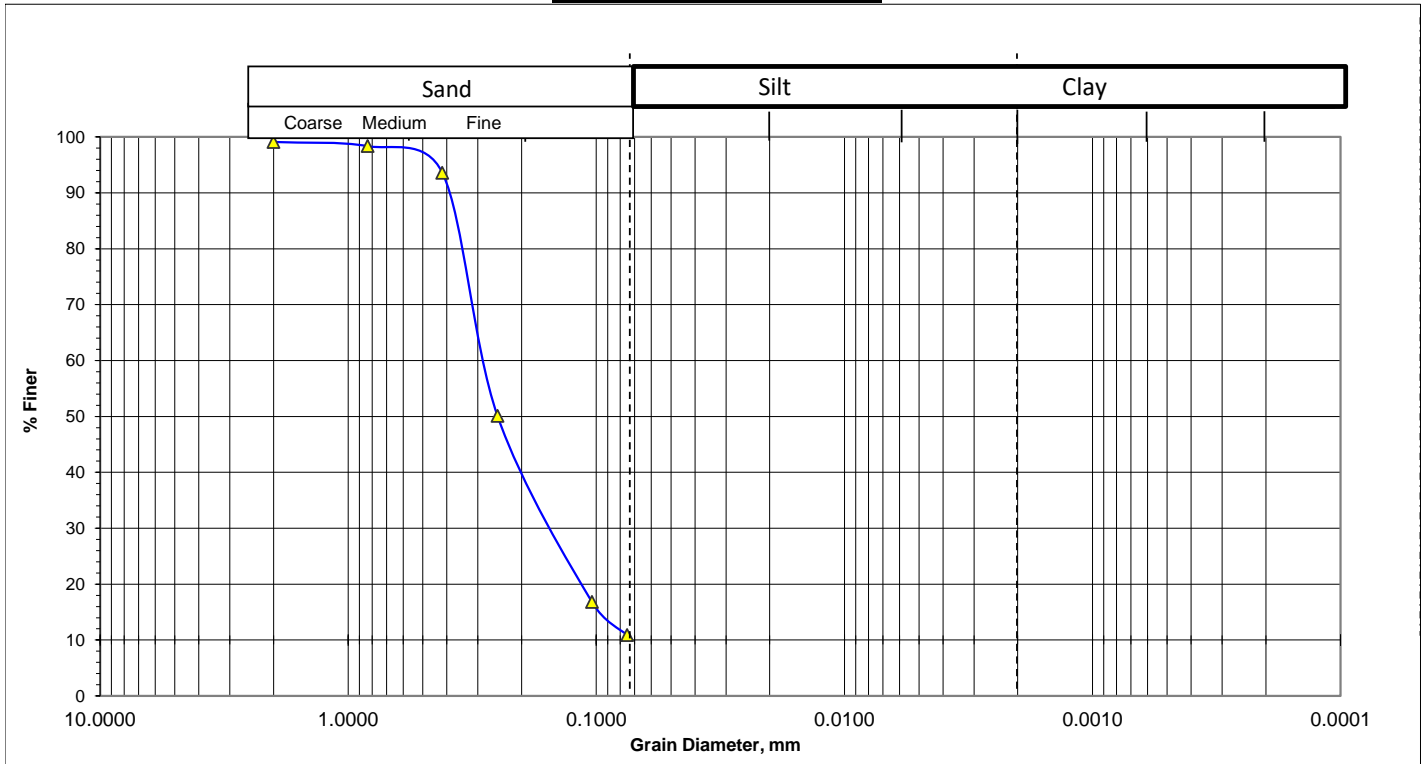


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom (Lat- 22.89871, Long- 91.49581)  
**Bore Hole No:** BH-M12 **Sampled Date:** 29/01/2018  
**Sample No :** S11 **Test Date :** 17/03/2018  
**Depth (m) :** 16.5

### Graphical Representation:



Fines or % of silt and clay = 11.02

Mean Diameter(mm),  $D_{50}$  = 0.250

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.88

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 89.0

(0.005mm size) & (0.001mm size) = 11.0

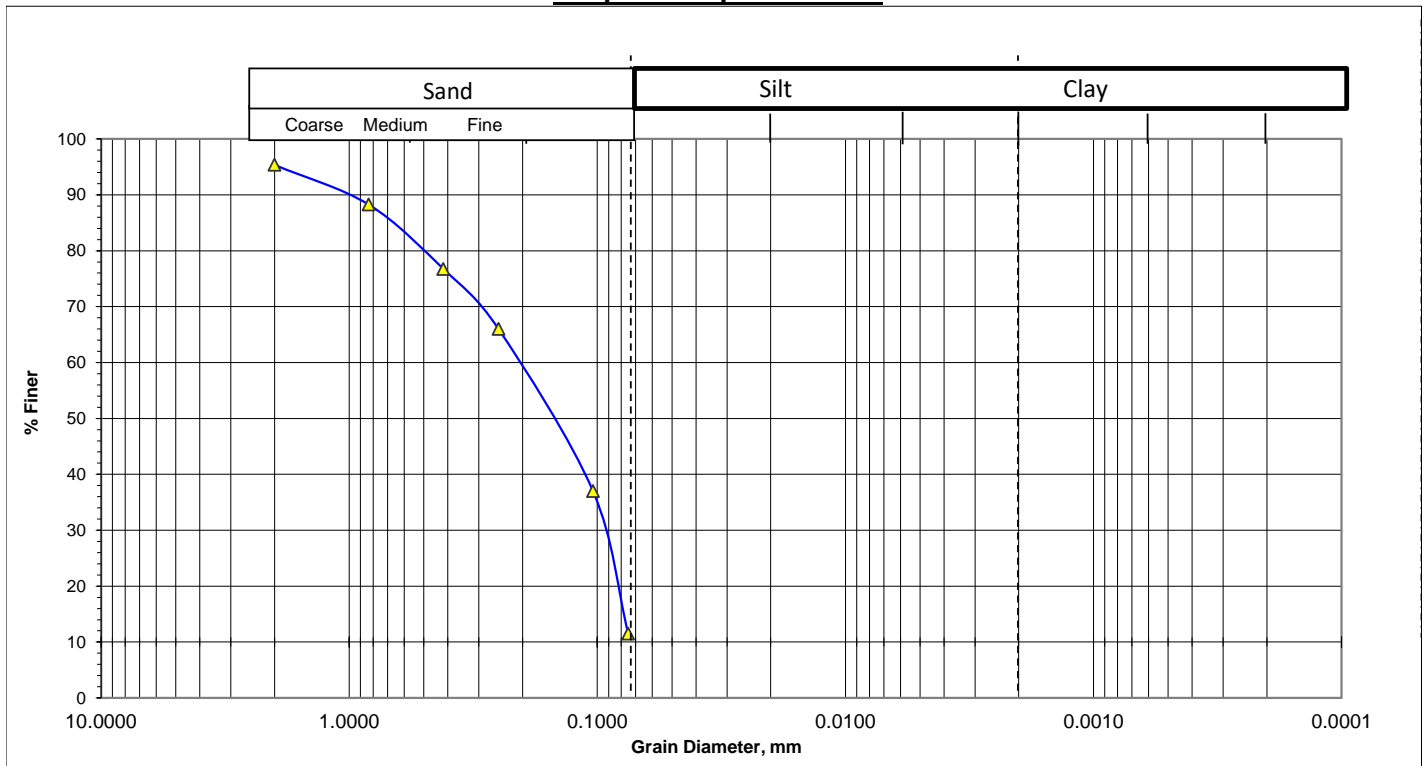


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Banglabazar, Shantor road, Dhoom (Lat- 22.88204, Long- 91.51064)  
**Bore Hole No:** BH-M13 **Sampled Date:** 30/01/2018  
**Sample No :** S04 **Test Date :** 19/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 11.60

Mean Diameter(mm),  $D_{50}$  = 0.060

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.43

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 88.4

(0.005mm size) & (0.001mm size) = 11.6

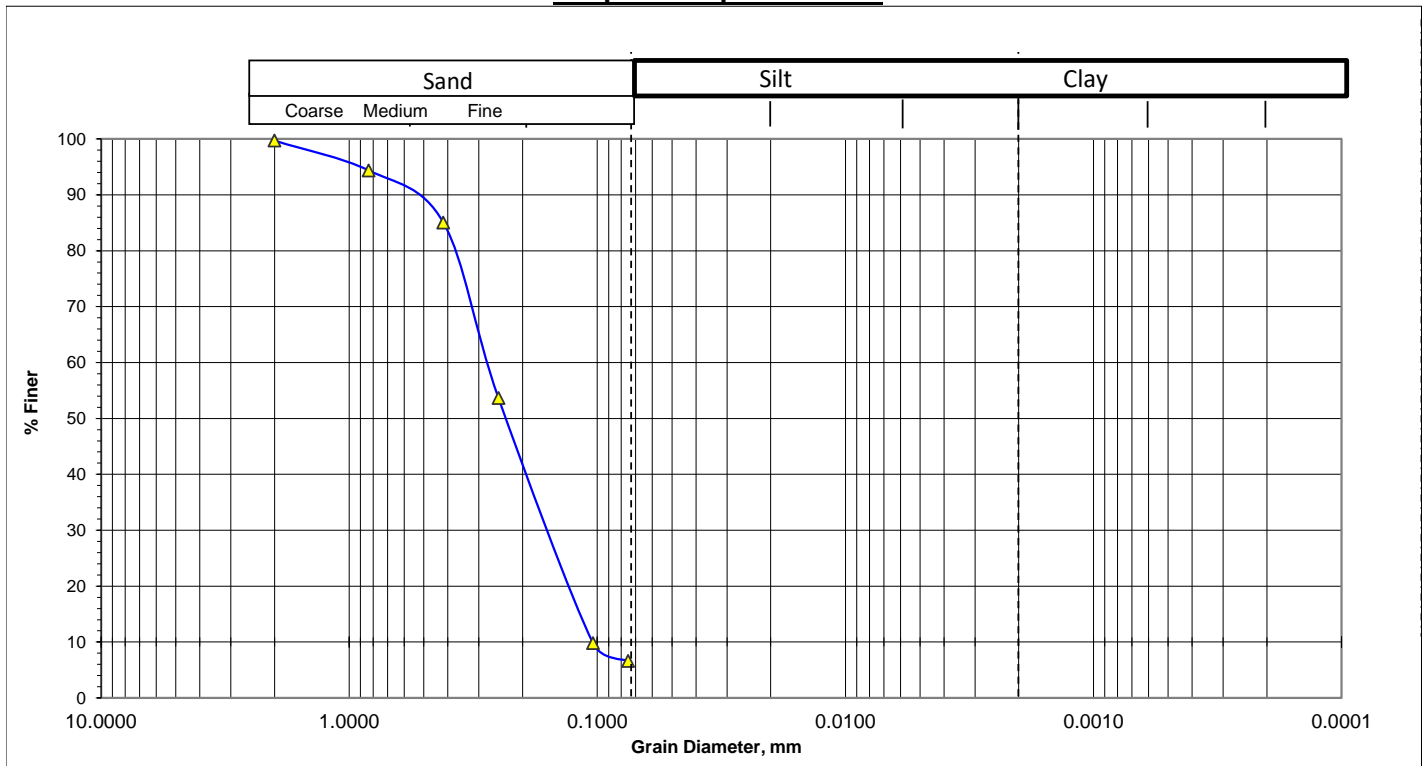


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 163 no. FayeZullah master Govt. Primary School (Lat- 22.86107, Long- 91.54115)  
**Bore Hole No:** BH-M14 **Sampled Date:** 30/01/2018  
**Sample No :** S05 **Test Date :** 12/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 6.74

Mean Diameter(mm),  $D_{50}$  = 0.240

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.86

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 93.3

(0.005mm size) & (0.001mm size) = 6.7

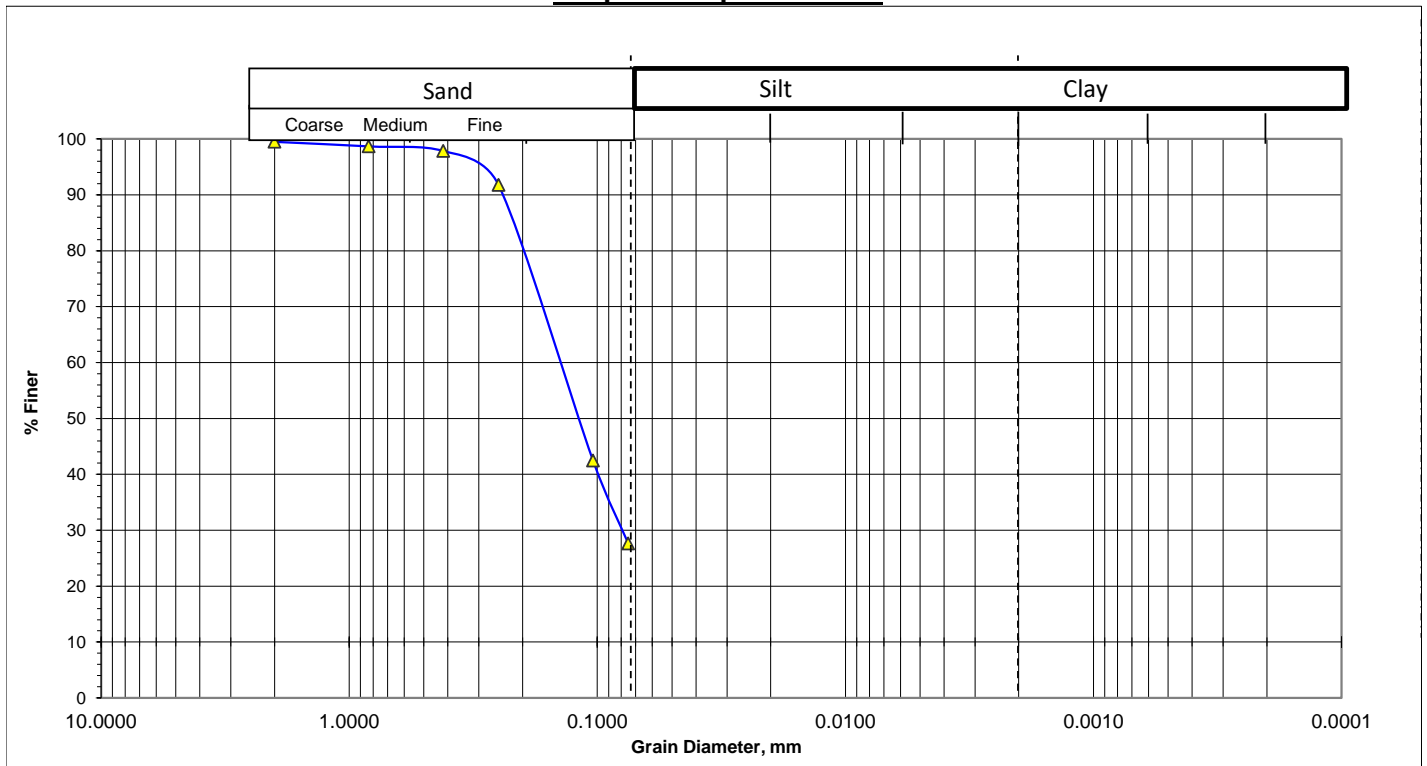


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Alhaz Bodiul alam Chowdhury Govt. Primary School (Lat- 22.85769, Long- 91.52032)  
**Bore Hole No:** BH-M15 **Sampled Date:** 31/01/2018  
**Sample No :** S06 **Test Date :** 19/03/2018  
**Depth (m) :** 9.0

### Graphical Representation:



Fines or % of silt and clay = 27.74

Mean Diameter(mm),  $D_{50}$  = 0.120

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.61

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 72.3

(0.005mm size) & (0.001mm size) = 27.7

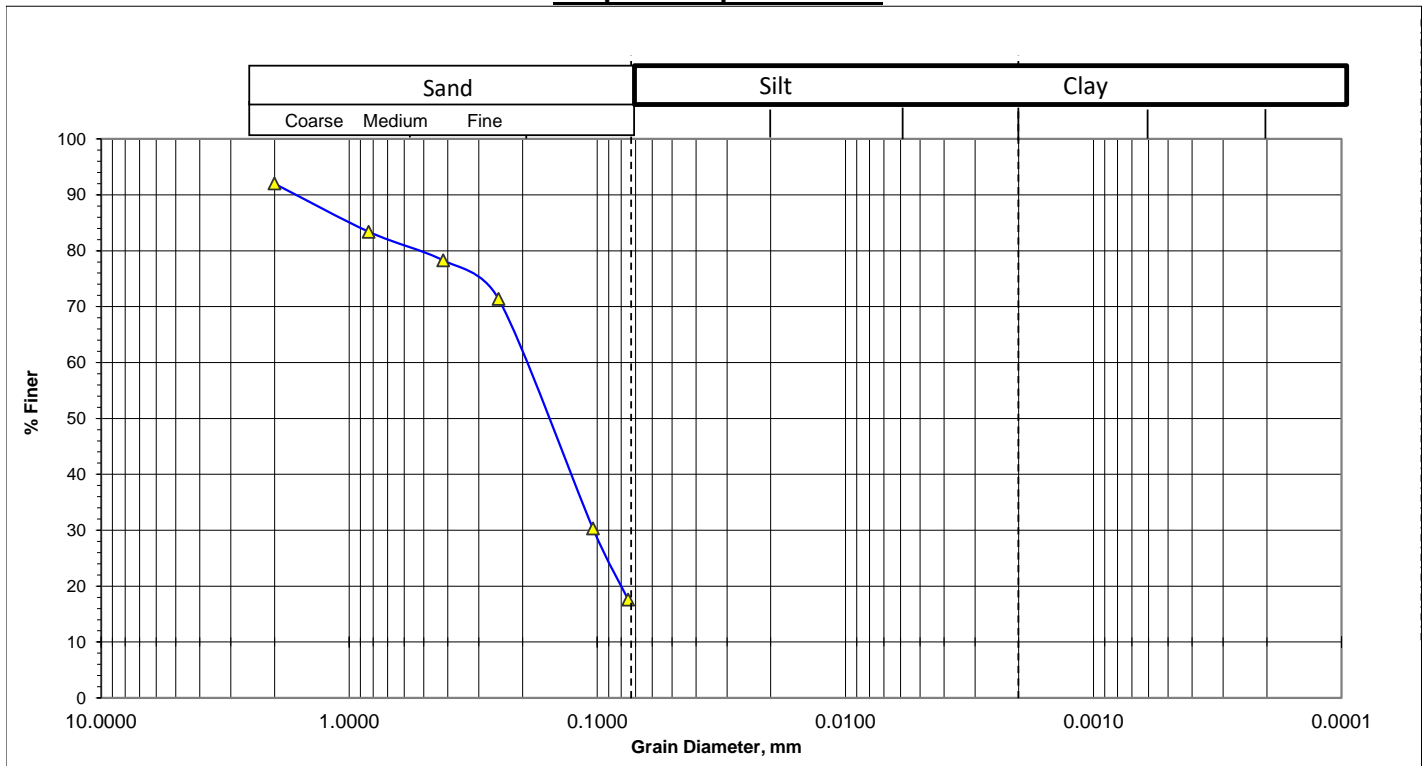


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Khil murari, ward no. 5, Zorargonj (Lat- 22.8783, Long- 91.55009)  
**Bore Hole No:** BH-M16 **Sampled Date:** 29/01/2018  
**Sample No :** S04 **Test Date :** 12/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 17.73

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 82.3

(0.005mm size) & (0.001mm size) = 17.7



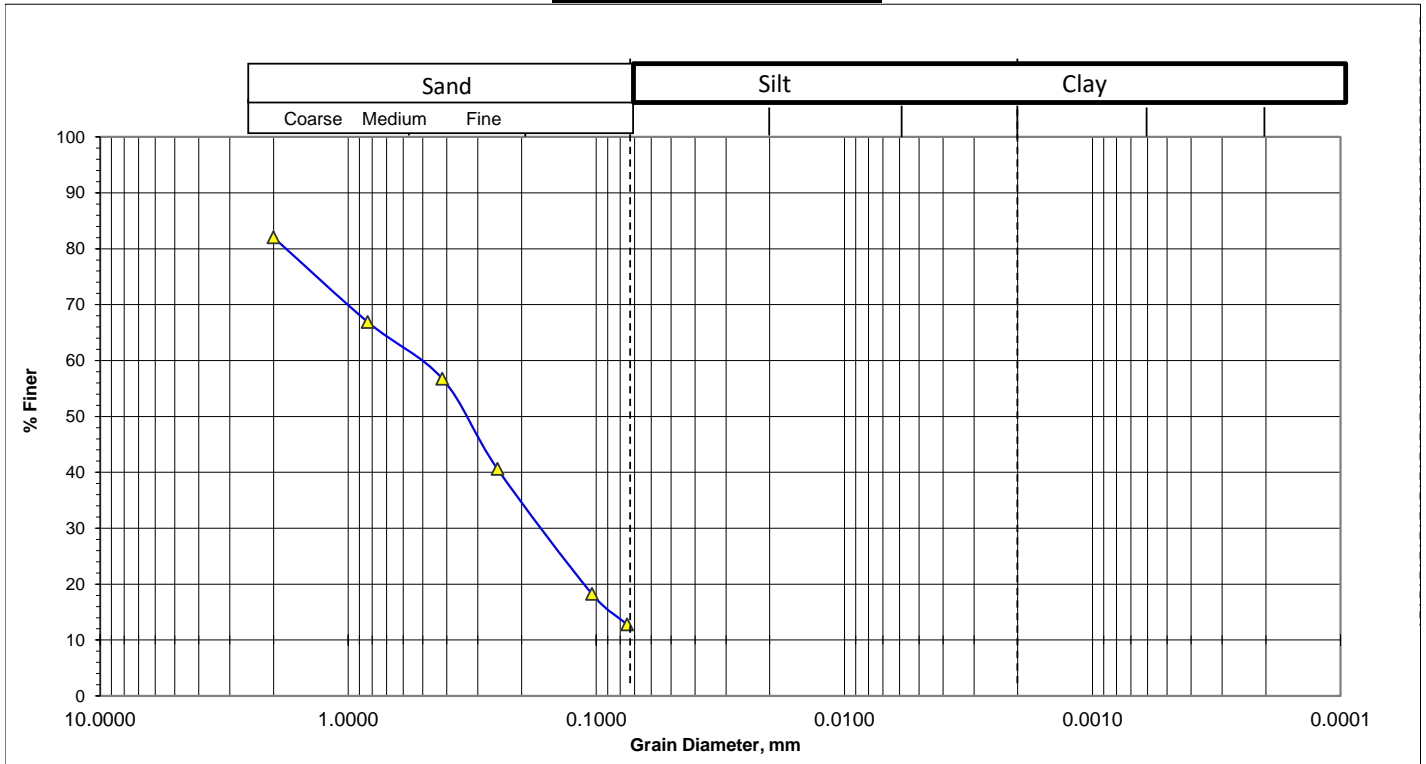


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Shonapahar, murari, Zorargonj (Lat- 22.85143, Long- 91.55145)  
**Bore Hole No:** BH-M17 **Sampled Date:** 31/01/2018  
**Sample No :** S02 **Test Date :** 15/03/2018  
**Depth (m) :** 3.0

### Graphical Representation:



Fines or % of silt and clay = 12.87

Mean Diameter(mm),  $D_{50}$  = 0.330

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 1.01

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 87.1

(0.005mm size) & (0.001mm size) = 12.9

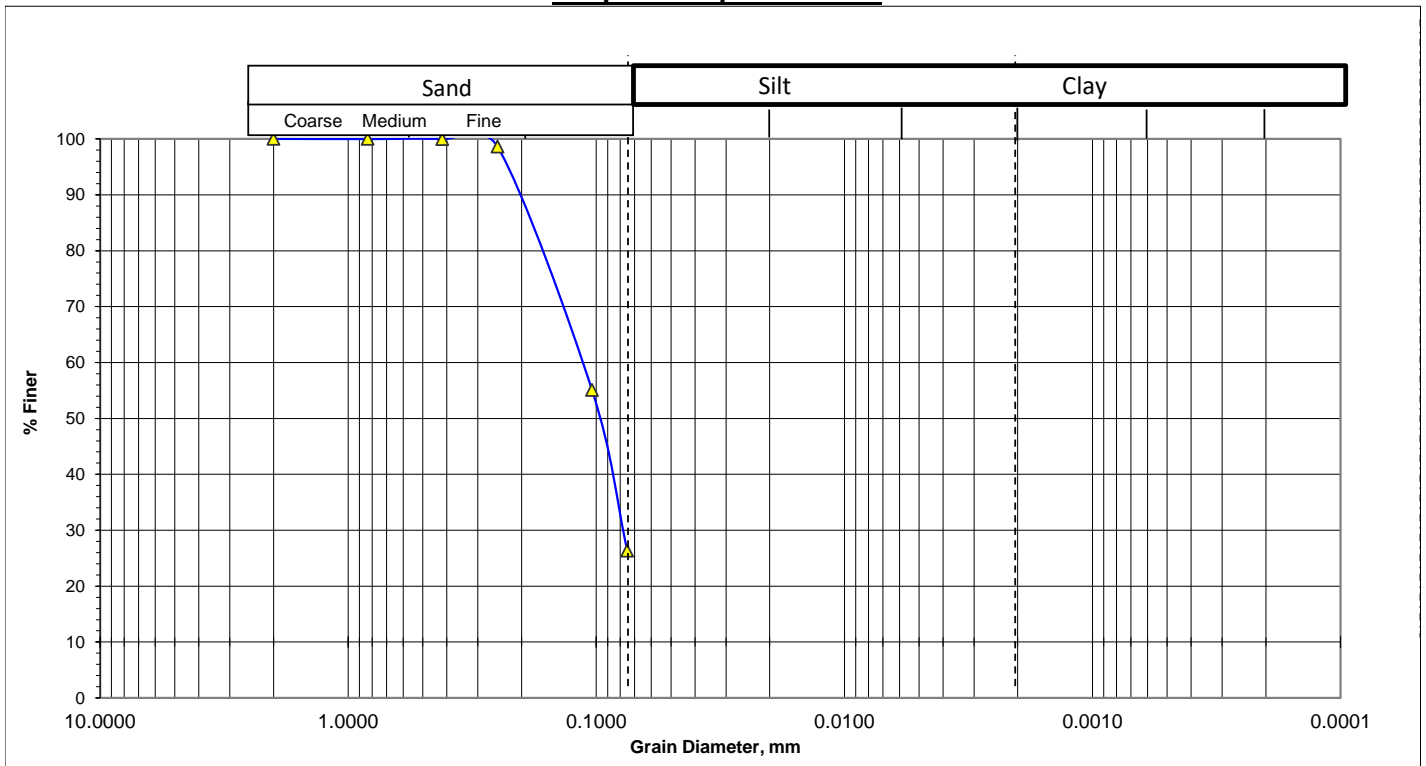


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Guccho gram M.A. Haider Primary School, Osmanpur (Lat- 22.88176, Long- 91.4809)  
**Bore Hole No:** BH-M18 **Sampled Date:** 21/02/2018  
**Sample No :** S05 **Test Date :** 05/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 26.50

Mean Diameter(mm),  $D_{50}$  = 0.098

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.55

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 73.5

(0.005mm size) & (0.001mm size) = 26.5



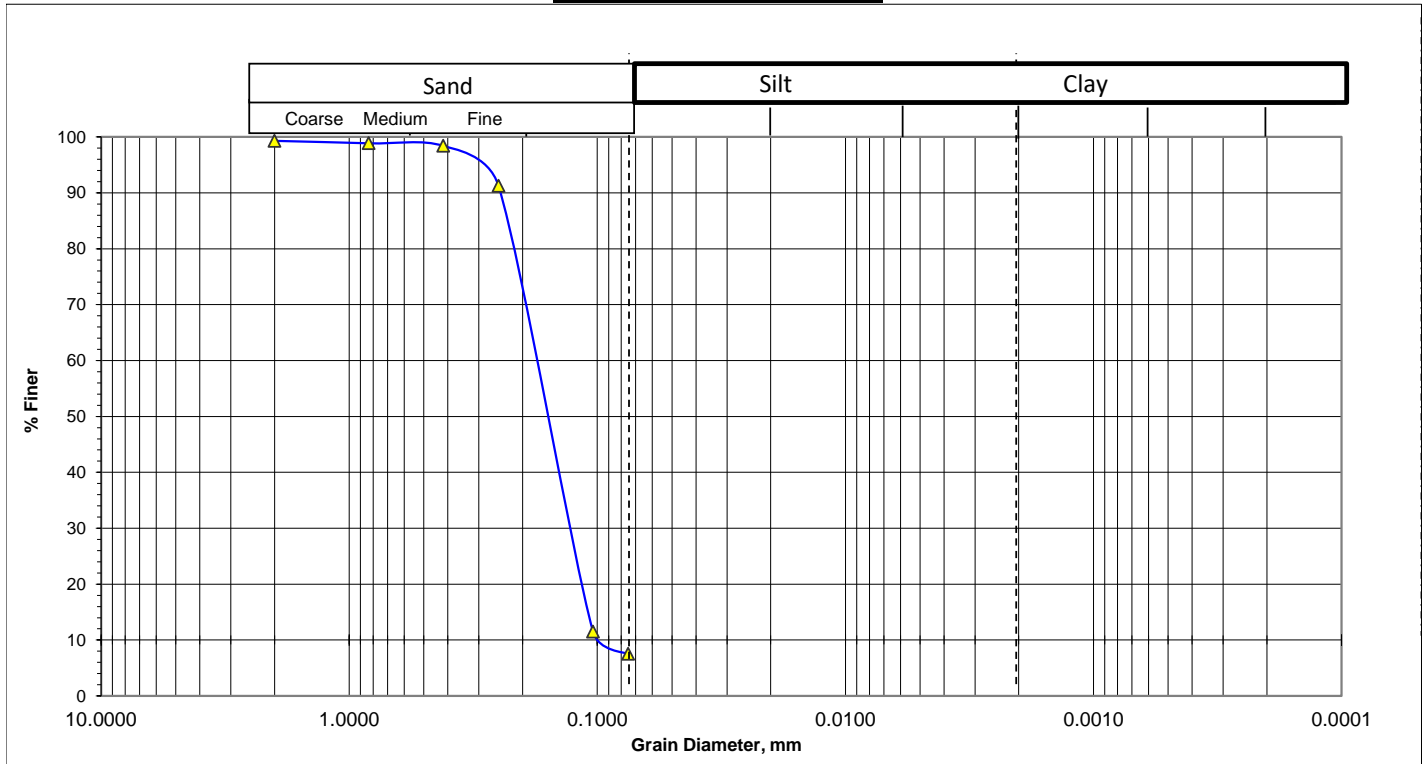


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 39 no. East Shahedpur Govt. Primary School, Azampur (Lat- 22.85378, Long- 91.50001)  
**Bore Hole No:** BH-M20 **Sampled Date:** 19/02/2018  
**Sample No :** S07 **Test Date :** 04/04/2018  
**Depth (m) :** 10.5

### Graphical Representation:



Fines or % of silt and clay = 7.63

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 92.4

(0.005mm size) & (0.001mm size) = 7.6

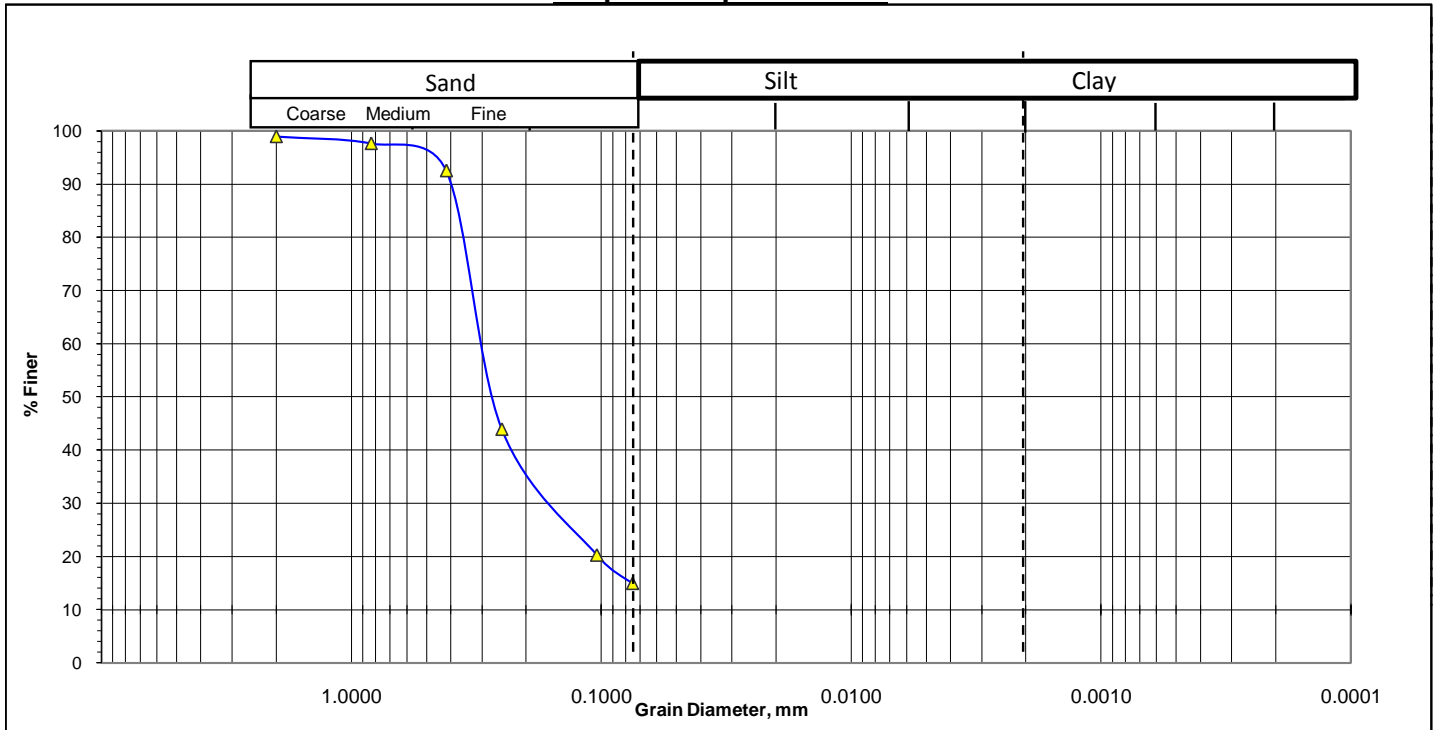


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** East Moregang Jame Mosque, Osmanpur (Lat- 22.87252, Long- 91.49651)  
**Bore Hole No:** BH-M21 **Sampled Date:** 21/02/2018  
**Sample No :** S11 **Test Date :** 02/04/2018  
**Depth (m) :** 16.5

### Graphical Representation:



Fines or % of silt and clay = 15.16  
 Mean Diameter(mm),  $D_{50}$  = 0.260  
 Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.90  
**% Particles (from the grain -size analysis graph).**  
 (0.075mm size) = 84.8  
 (0.005mm size) & (0.001mm size) = 15.2

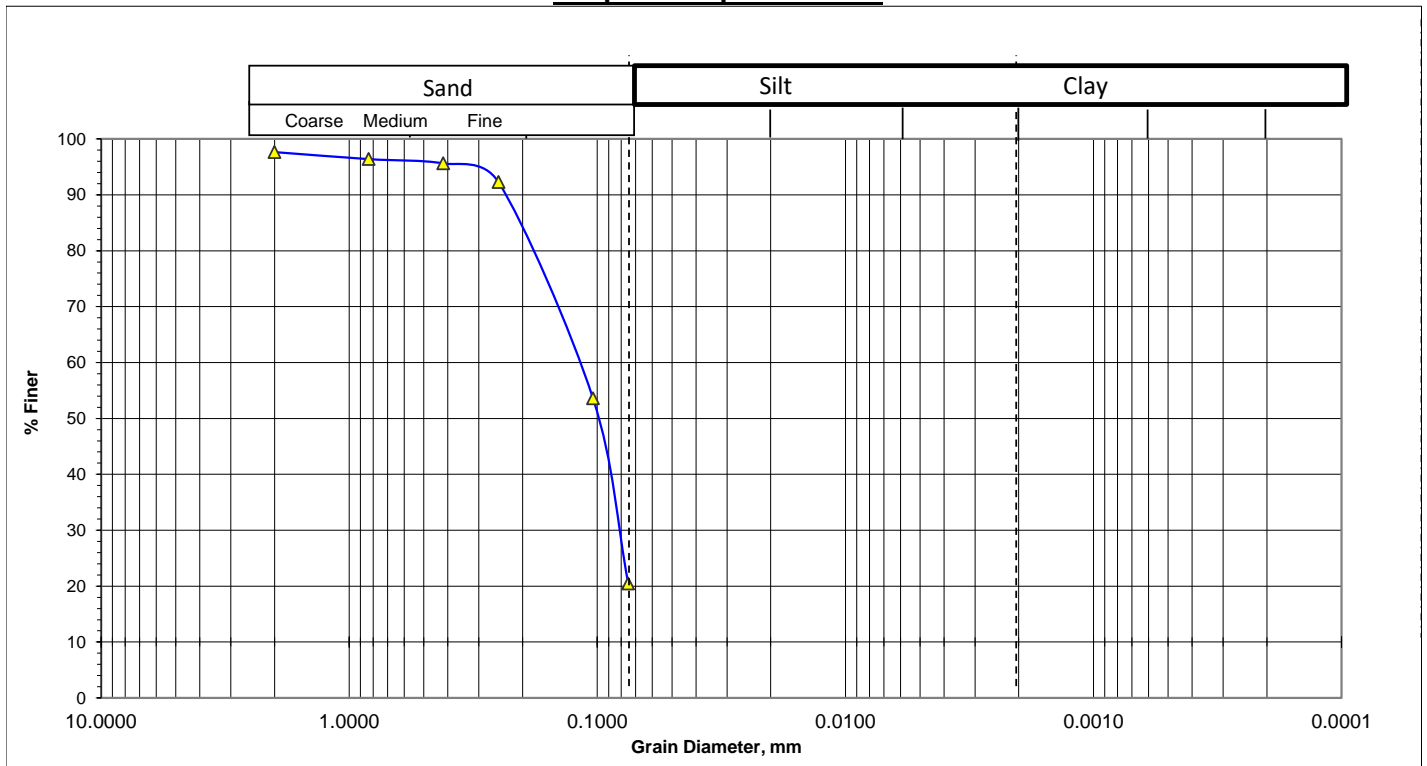


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Patacoat, Azampur, Osmanpur (Lat- 22.85292, Long- 91.48433)  
**Bore Hole No:** BH-M22 **Sampled Date:** 20/02/2018  
**Sample No :** S05 **Test Date :** 21/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 20.65

Mean Diameter(mm),  $D_{50}$  = 0.100

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.56

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 79.3

(0.005mm size) & (0.001mm size) = 20.7

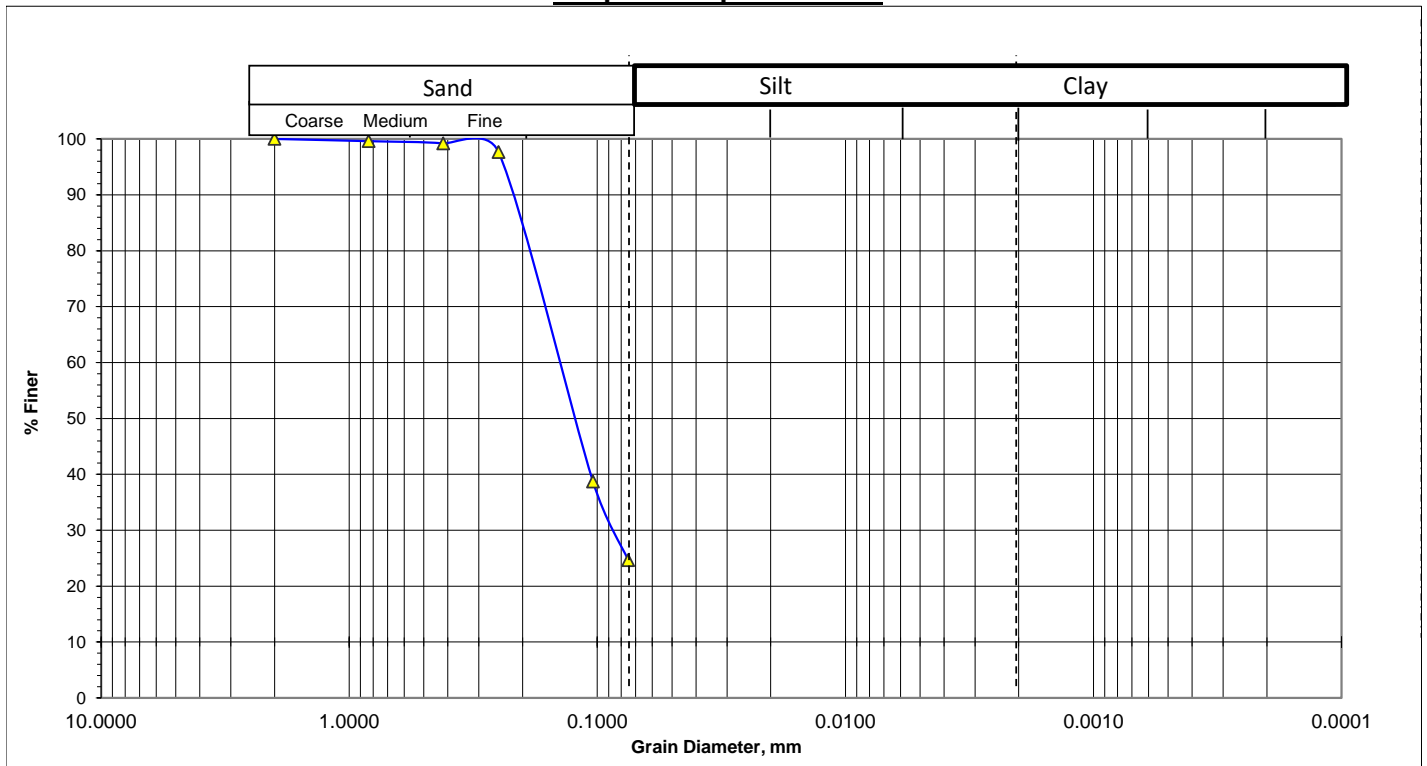


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 68 north durgapur Primary School, Varoddaj hat (Lat- 22.81511, Long- 91.54094)  
**Bore Hole No:** BH-M23 **Sampled Date:** 02/02/2018  
**Sample No :** S04 **Test Date :** 18/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 24.84

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 75.2

(0.005mm size) & (0.001mm size) = 24.8

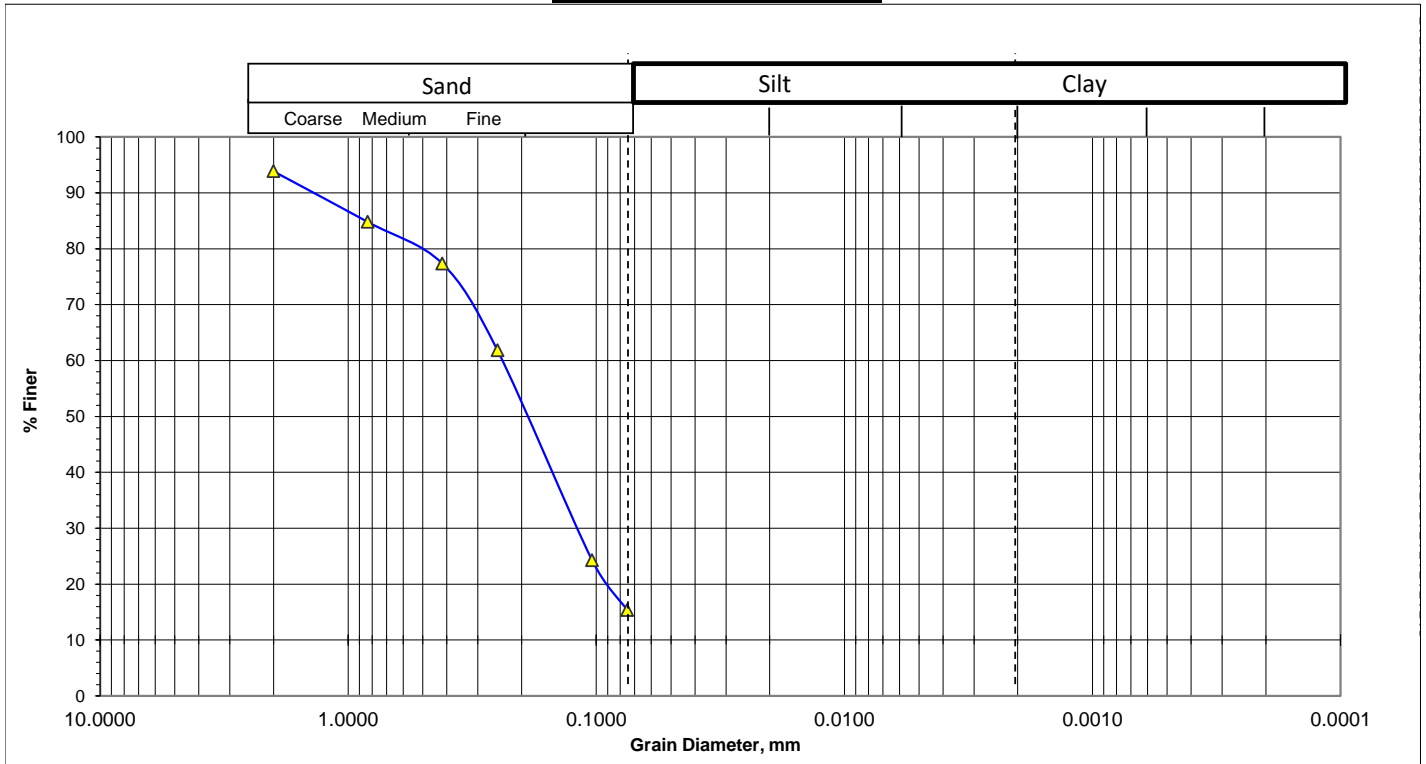


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** East Raypur Baitul Aman Jame Mosque, Durgapur (Lat- 22.83193, Long- 91.55396)  
**Bore Hole No:** BH-M24 **Sampled Date:** 01/02/2018  
**Sample No :** S04 **Test Date :** 16/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 15.52

Mean Diameter(mm),  $D_{50}$  = 0.190

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.77

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 84.5

(0.005mm size) & (0.001mm size) = 15.5



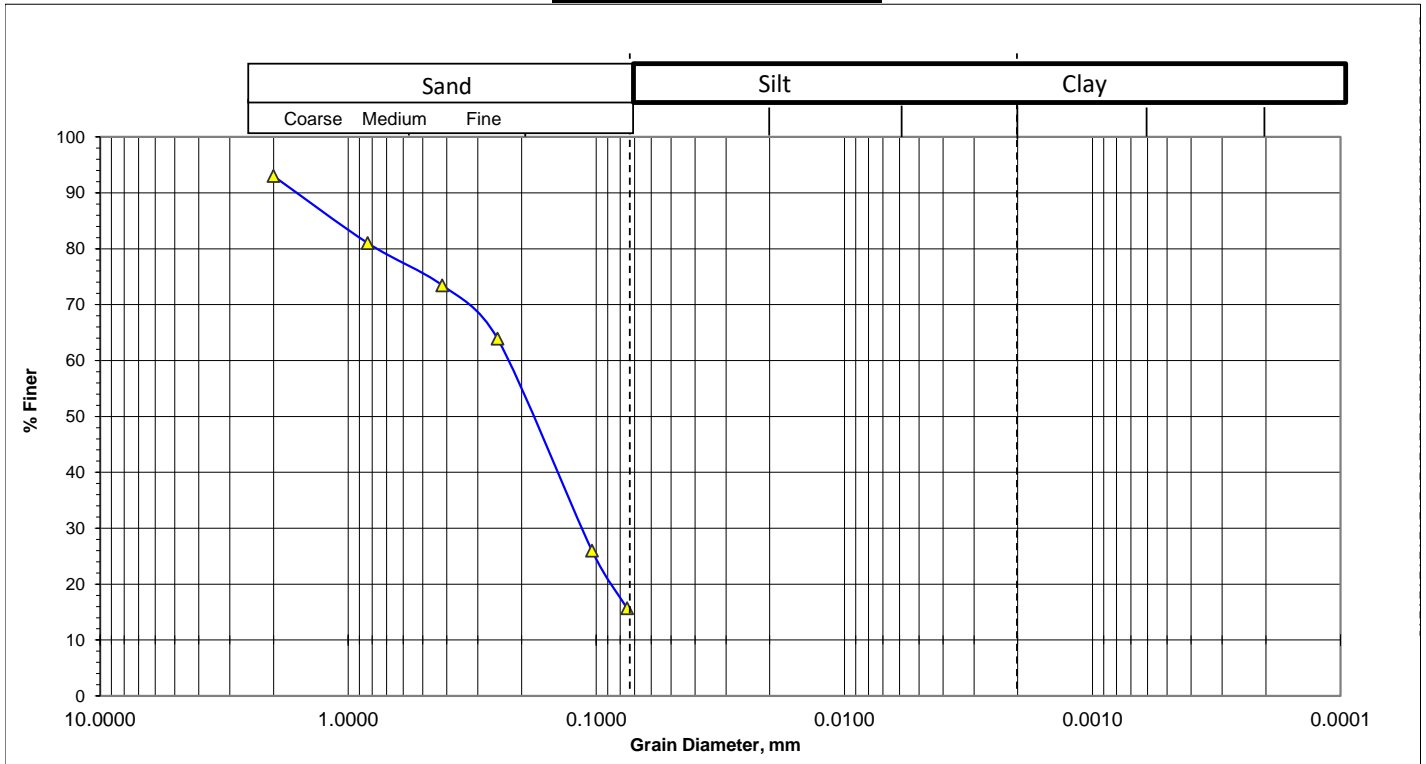


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Jaferer Poultry Farm, Choitonner Hat, Durgapur (Lat- 22.83615, Long- 91.54239)  
**Bore Hole No:** BH-M25 **Sampled Date:** 01/02/2018  
**Sample No :** S16 **Test Date :** 15/03/2018  
**Depth (m) :** 24.0

### Graphical Representation:



Fines or % of silt and clay = 15.78

Mean Diameter(mm),  $D_{50}$  = 0.180

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.75

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.2

(0.005mm size) & (0.001mm size) = 15.8

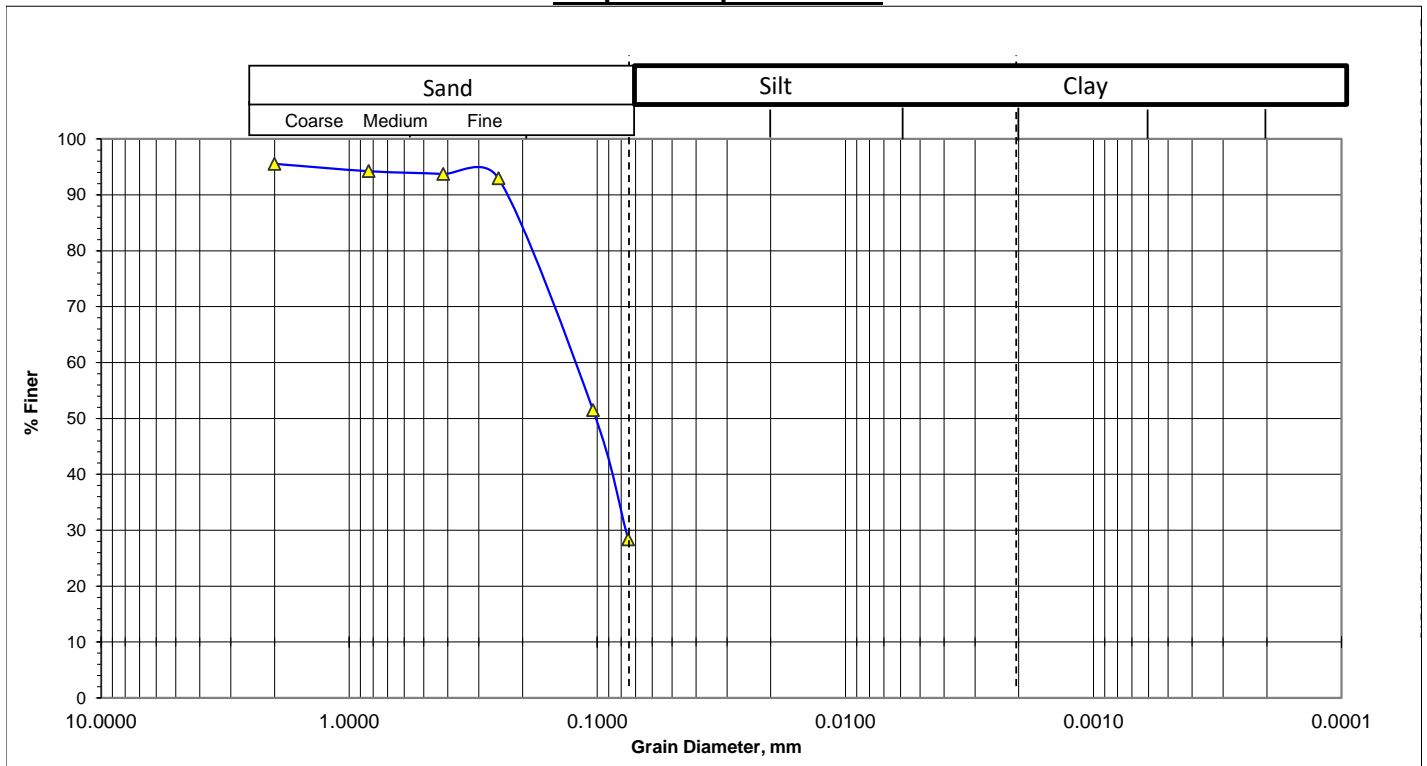


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Tetuiana Nath Para, Durgapur (Lat- 22.83779, Long- 91.51776)  
**Bore Hole No:** BH-M26 **Sampled Date:** 01/02/2018  
**Sample No :** S10 **Test Date :** 18/03/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 28.53

Mean Diameter(mm),  $D_{50}$  = 0.100

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.56

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 71.5

(0.005mm size) & (0.001mm size) = 28.5

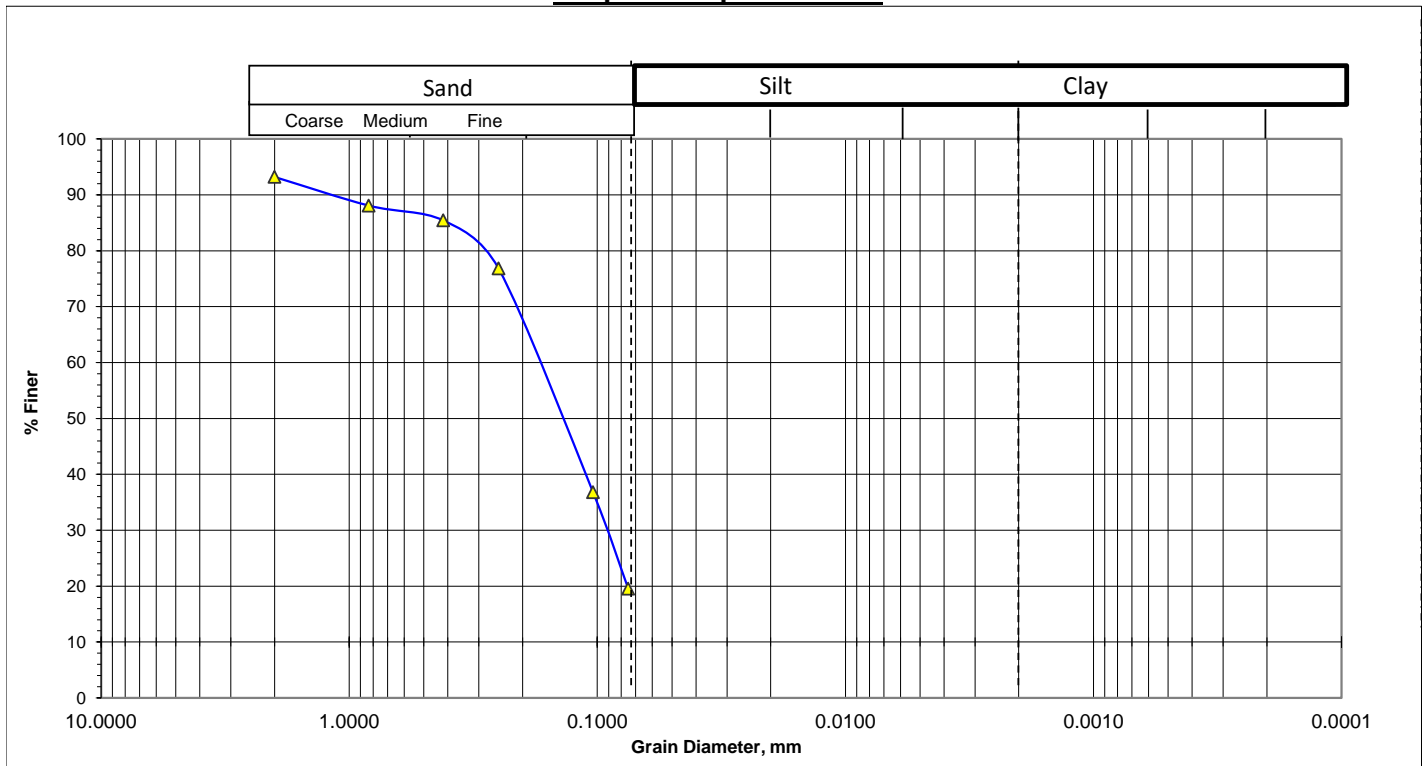


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora (Lat- 22.81188, Long- 91.51746)  
**Bore Hole No:** BH-M27 **Sampled Date:** 02/02/2018  
**Sample No :** S09 **Test Date :** 03/10/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 19.66

Mean Diameter(mm),  $D_{50}$  = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 80.3

(0.005mm size) & (0.001mm size) = 19.7

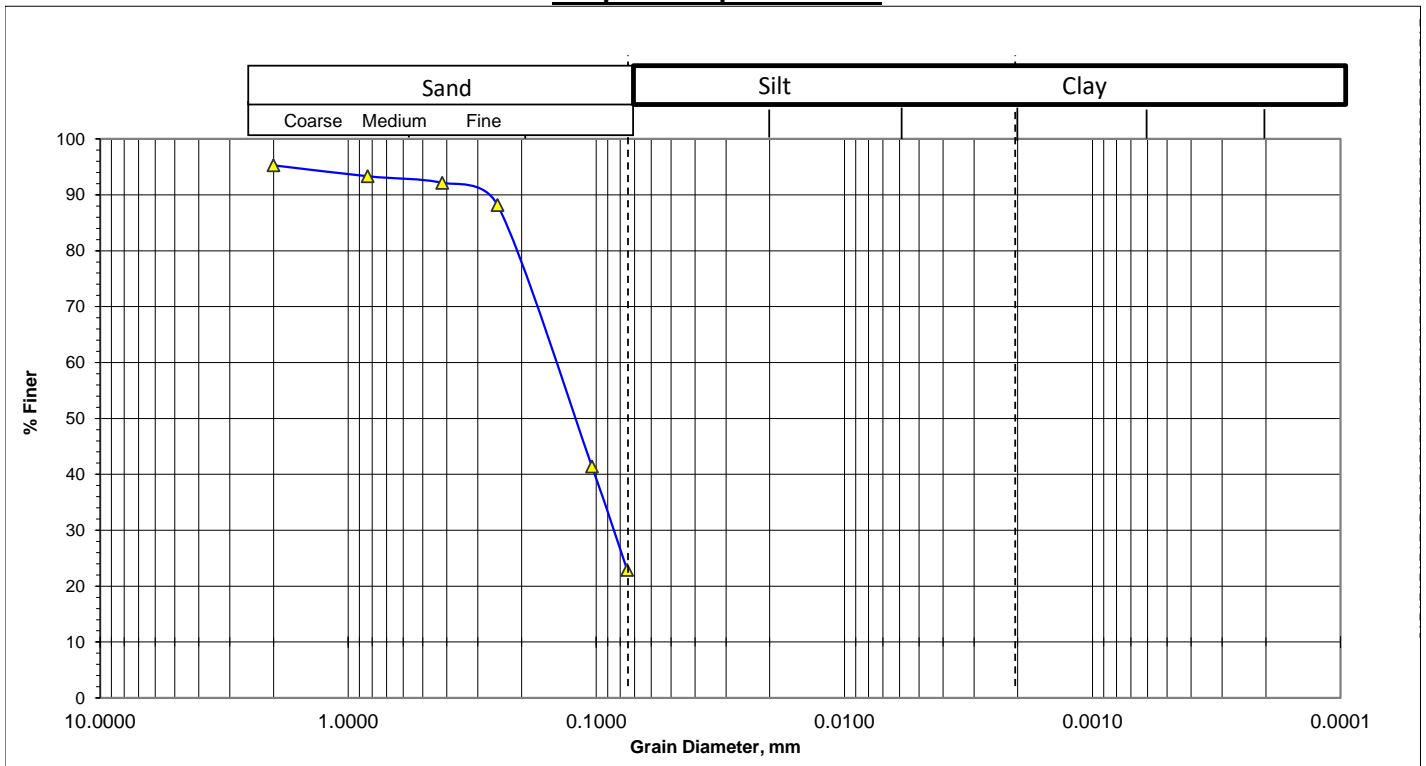


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Bamon Shundor Govt. Primary School, Kata Chora (Lat- 22.79988, Long- 91.51379)  
**Bore Hole No:** BH-M28 **Sampled Date:** 17/02/2018  
**Sample No :** S08 **Test Date :** 03/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 23.04

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 77.0

(0.005mm size) & (0.001mm size) = 23.0

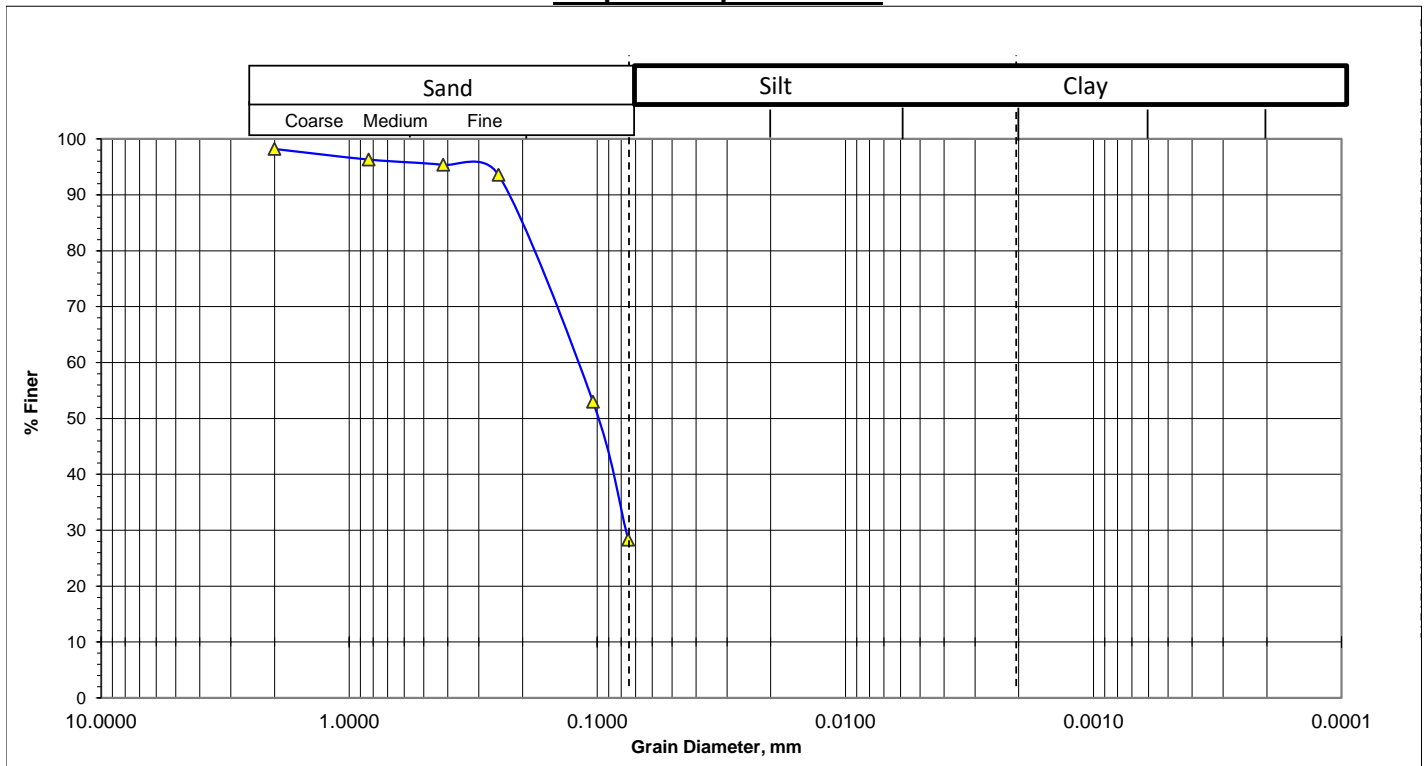


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Ahmed Ali Miar Hat Govt Primary School, Kata Chora (Lat- 22.81297, Long- 91.49413)  
**Bore Hole No:** BH-M29 **Sampled Date:** 18/02/2018  
**Sample No :** S08 **Test Date :** 20/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 28.43

Mean Diameter(mm),  $D_{50}$  = 0.100

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.56

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 71.6

(0.005mm size) & (0.001mm size) = 28.4



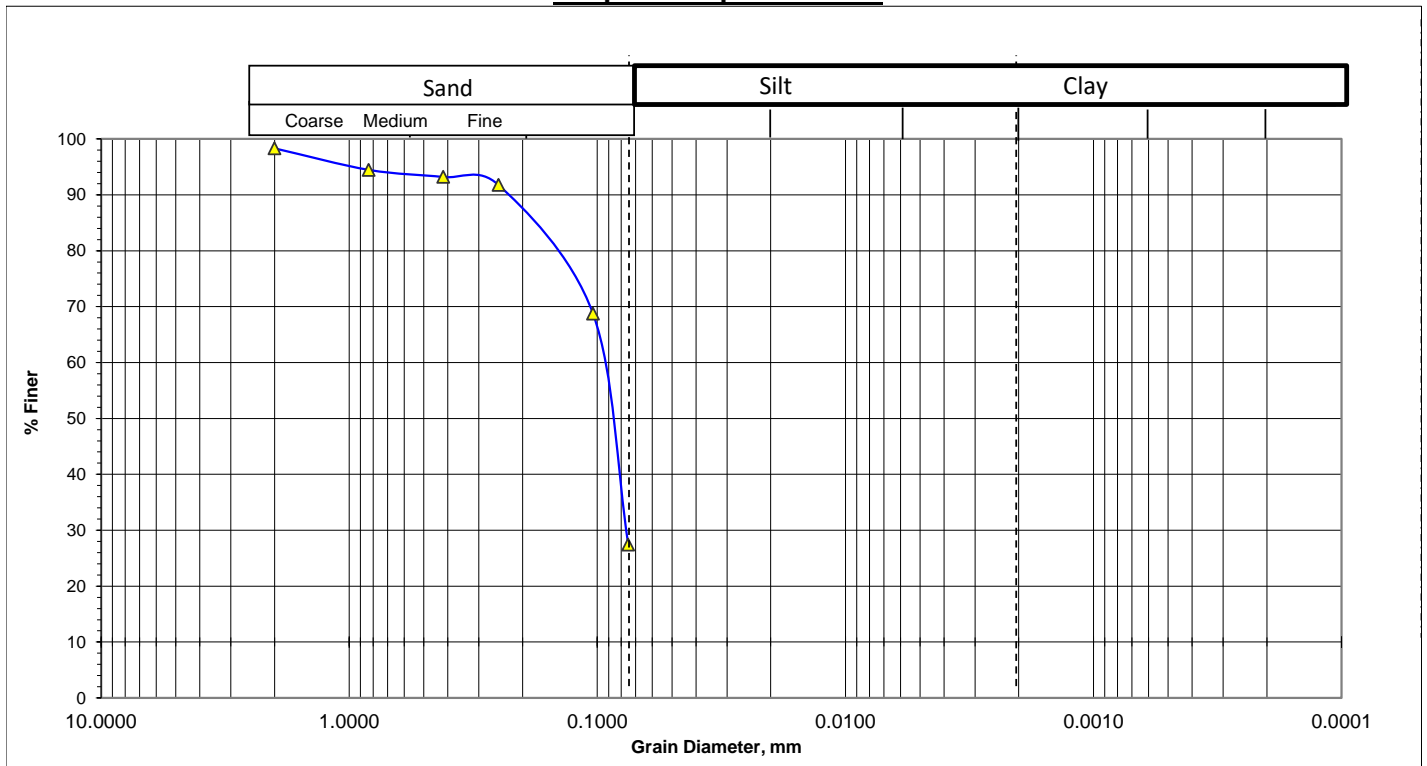
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Gudammar tek, Ichakhali (Lat- 22.76421, Long- 91.48643)

**Bore Hole No:** BH-M30 **Sampled Date:** 15/02/2018  
**Sample No :** S05 **Test Date :** 01/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 27.58

Mean Diameter(mm),  $D_{50}$  = 0.078

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.49

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 72.4

(0.005mm size) & (0.001mm size) = 27.6

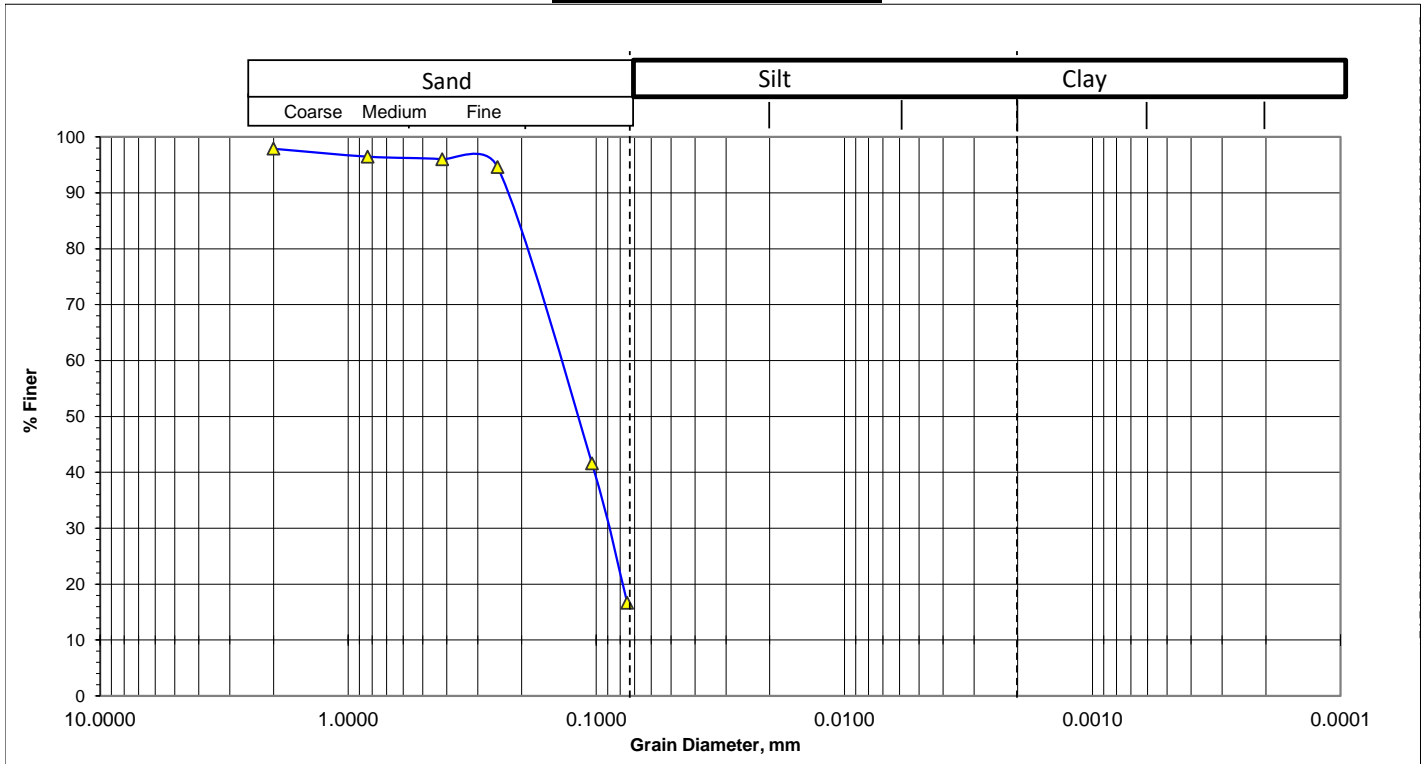


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali (Lat- 22.75251, Long- 91.50399)  
**Bore Hole No:** BH-M31 **Sampled Date:** 15/02/2018  
**Sample No :** S4 **Test Date :** 20/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 16.84

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 83.2

(0.005mm size) & (0.001mm size) = 16.8

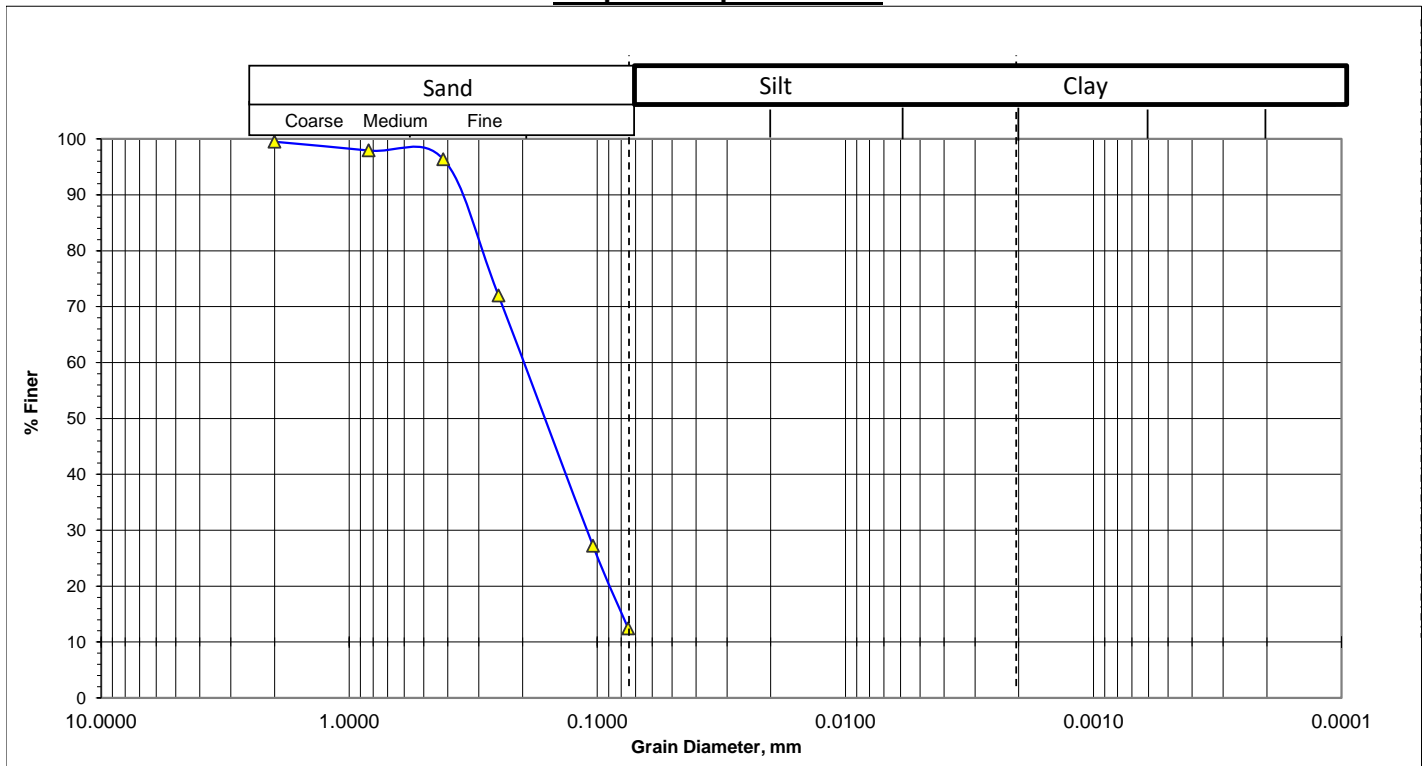


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Jobayeda Islam Nurani Islamia madrasa (Lat- 22.80081, Long- 91.48951)  
**Bore Hole No:** BH-M32 **Sampled Date:** 18/02/2018  
**Sample No :** S08 **Test Date :** 04/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 12.48

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 87.5

(0.005mm size) & (0.001mm size) = 12.5



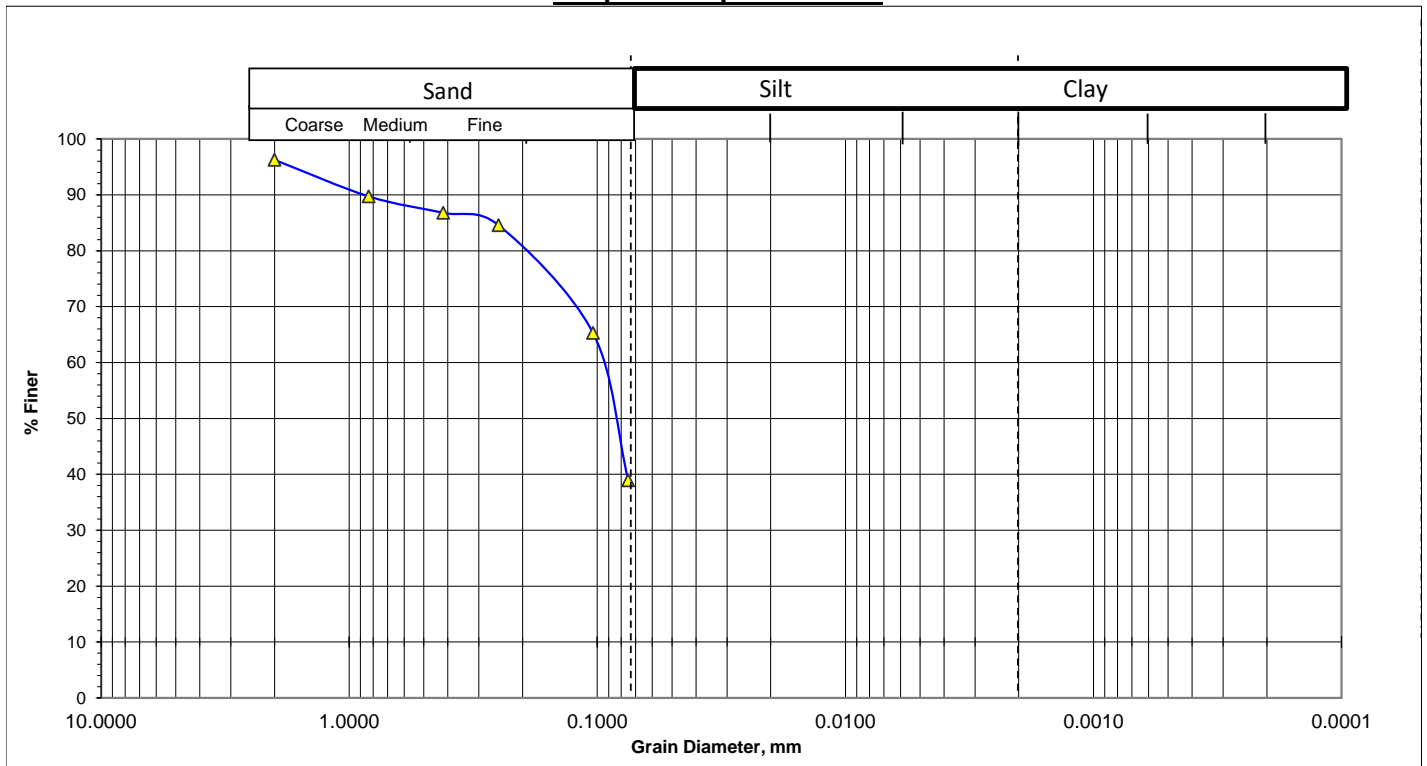


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Muhuri Project, Sluice Gate, Ichakhali (Lat- 22.83434, Long- 91.45464)  
**Bore Hole No:** BH-M33 **Sampled Date:** 19/02/2018  
**Sample No :** S05 **Test Date :** 21/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 39.02

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 61.0

(0.005mm size) & (0.001mm size) = 39.0

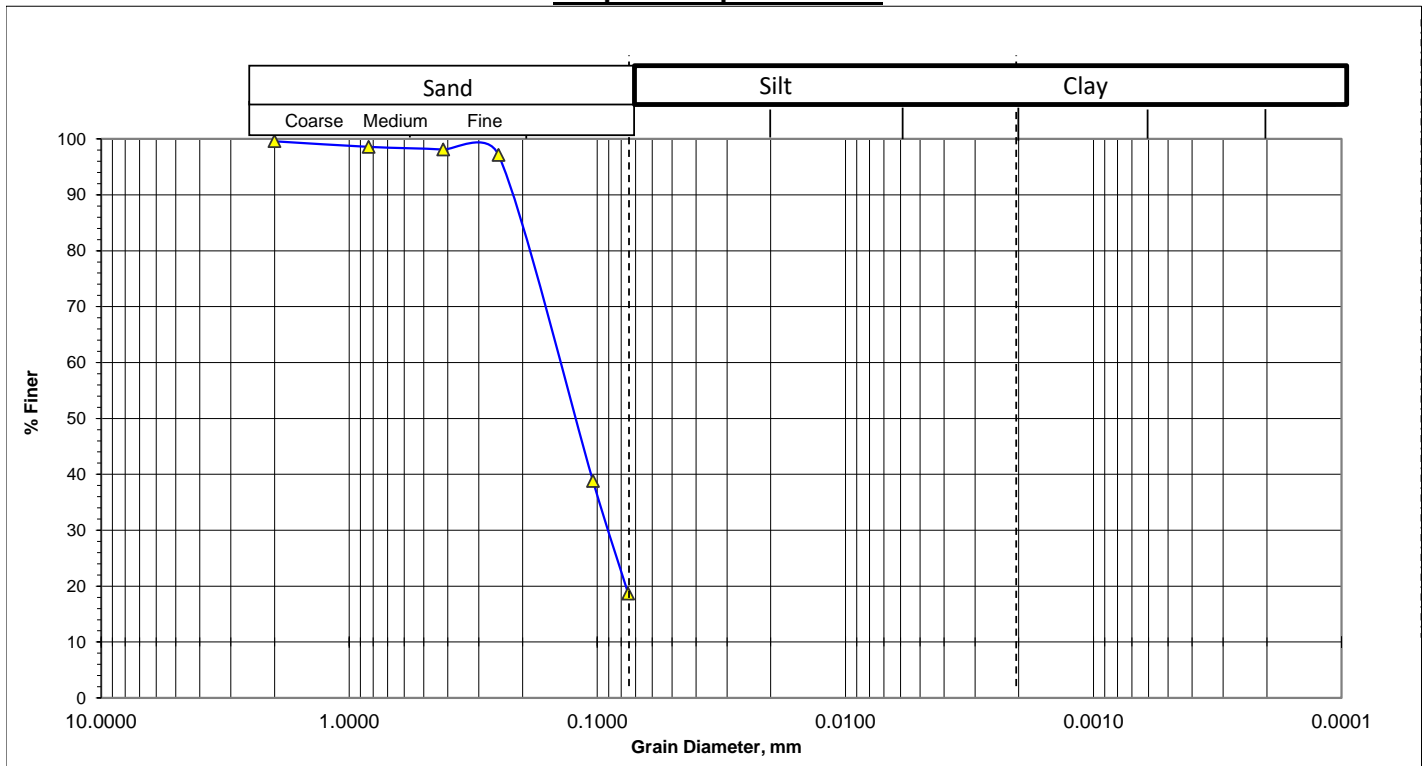


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Bamonshundor Forrest Bit Office, Shaherkhali (Lat- 22.7343, Long- 91.50339)  
**Bore Hole No:** BH-M34 **Sampled Date:** 14/02/2018  
**Sample No :** S07 **Test Date :** 04/04/2018  
**Depth (m) :** 10.5

### Graphical Representation:



Fines or % of silt and clay = 18.80

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 81.2

(0.005mm size) & (0.001mm size) = 18.8

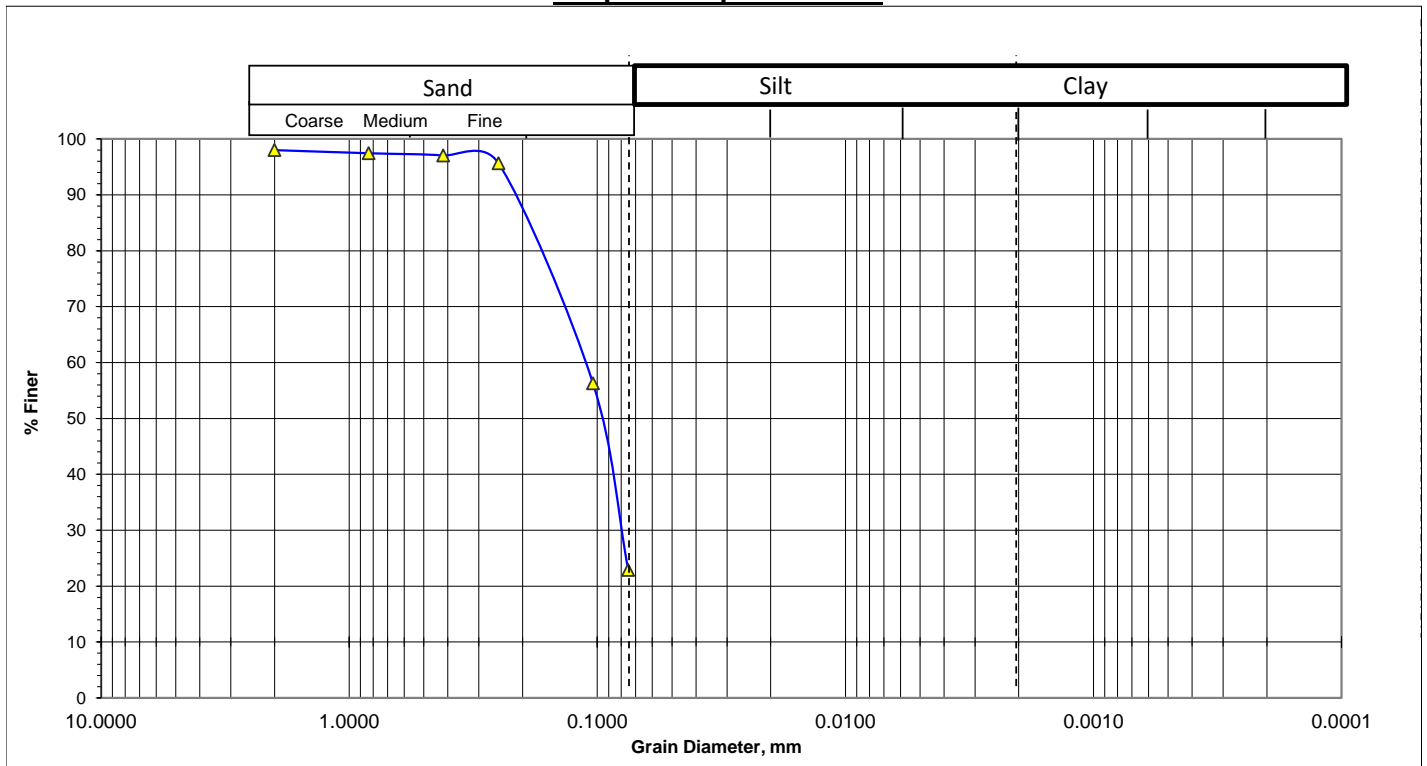


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali (Lat- 22.82661, Long- 91.48335)  
**Bore Hole No:** BH-M35 **Sampled Date:** 18/02/2018  
**Sample No :** S05 **Test Date :** 04/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 23.06

Mean Diameter(mm),  $D_{50}$  = 0.095

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.54

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 76.9

(0.005mm size) & (0.001mm size) = 23.1



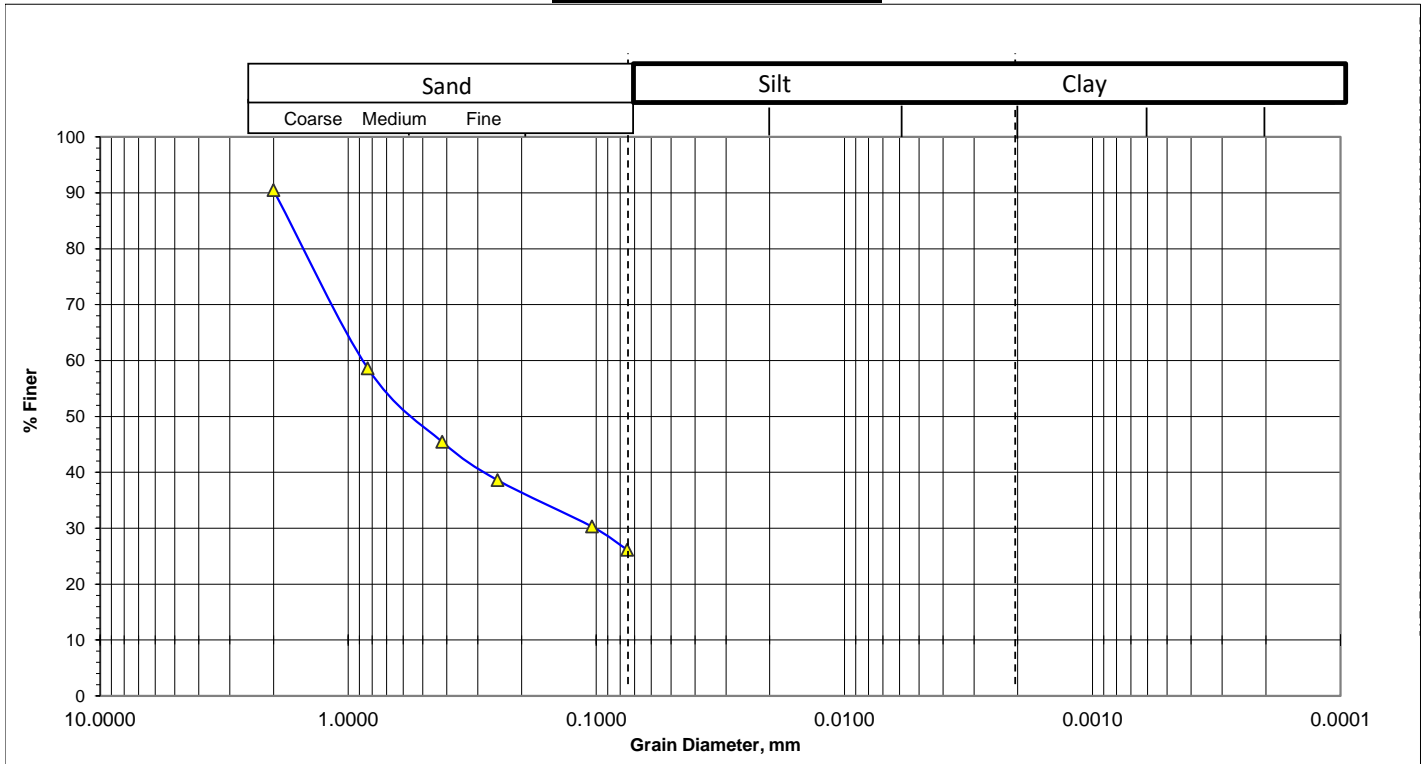
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Chunumijar Tek, Ichakhali (Lat- 22.79233, Long- 91.46452)

**Bore Hole No:** BH-M36 **Sampled Date:** 17/02/2018  
**Sample No :** S04 **Test Date :** 02/04/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 26.22

Mean Diameter(mm),  $D_{50}$  = 0.380

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 1.08

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 73.8

(0.005mm size) & (0.001mm size) = 26.2

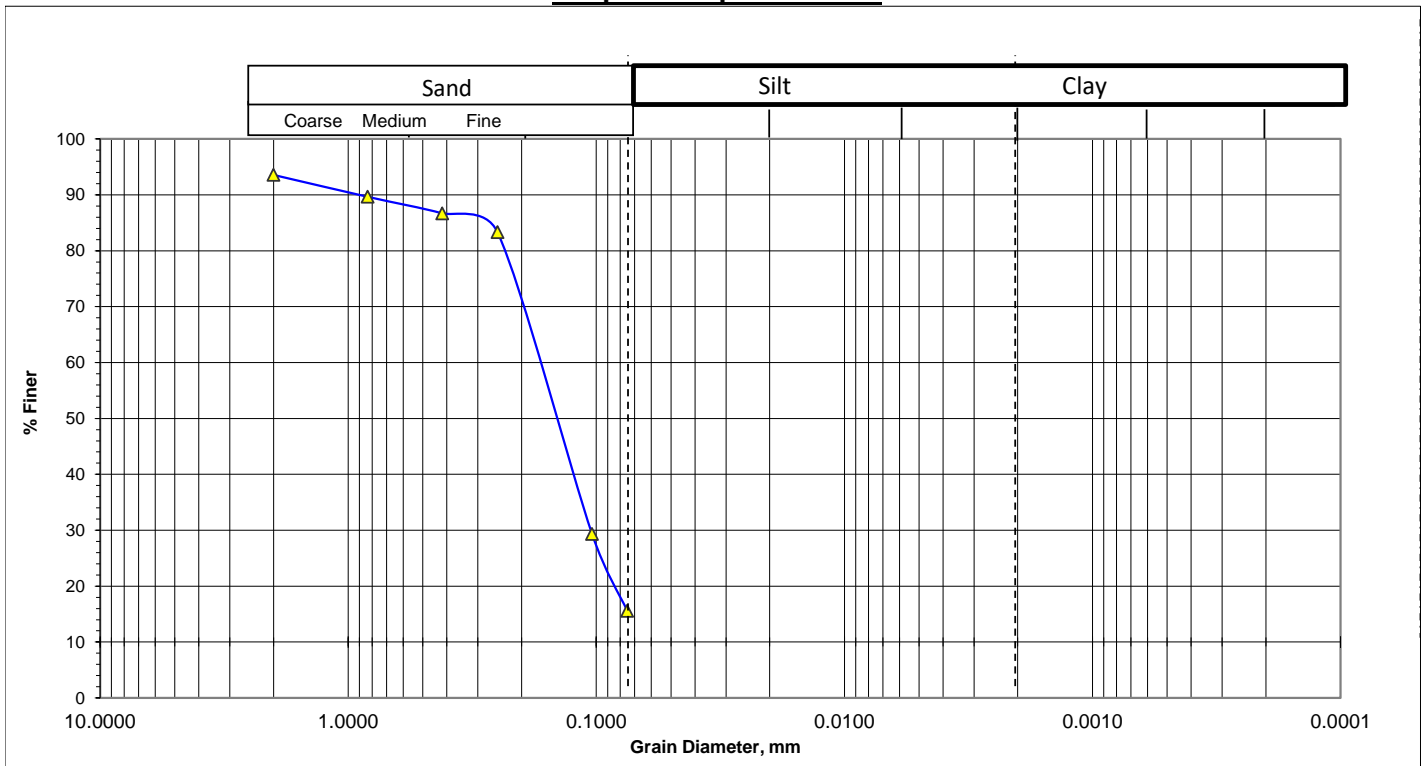


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 94 no. Hasim Nagar Govt. Primary School, (Lat- 22.75204, Long- 91.51743)  
**Bore Hole No:** BH-M37 **Sampled Date:** 15/02/2018  
**Sample No :** S05 **Test Date :** 01/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 15.74

Mean Diameter(mm),  $D_{50}$  = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.3

(0.005mm size) & (0.001mm size) = 15.7

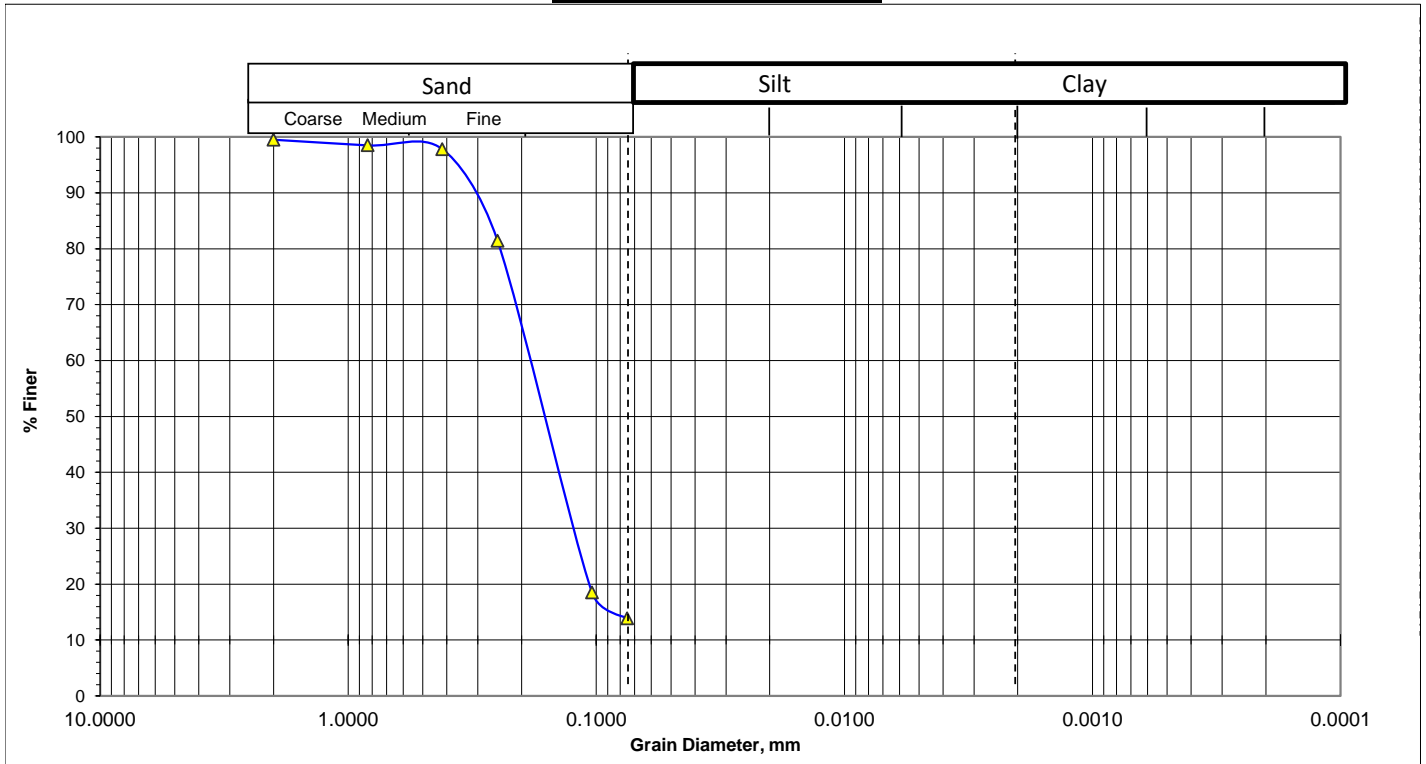


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Ichakhali Economic Zone Office, Ichakhali (Lat- 22.76242, Long- 91.46612)  
**Bore Hole No:** BH-M38 **Sampled Date:** 30/05/2016  
**Sample No :** S08 **Test Date :** 04/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 14.01

Mean Diameter(mm),  $D_{50}$  = 0.170

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.73

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 86.0

(0.005mm size) & (0.001mm size) = 14.0



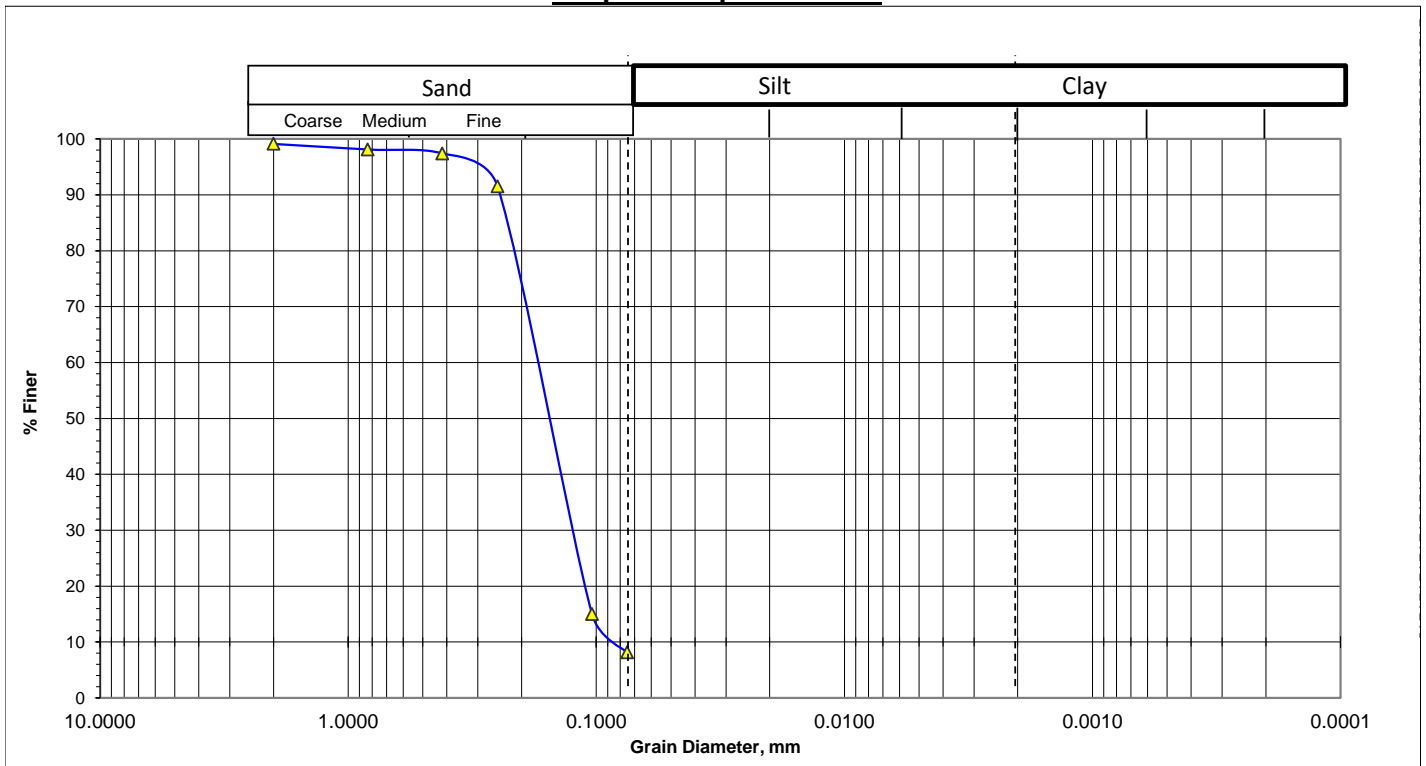
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Lodiakhali, Ichakhali (Lat- 22.78207, Long- 91.47032)

Bore Hole No: BH-M39 Sampled Date: 16/02/2018  
 Sample No : S06 Test Date : 31/03/2018  
 Depth (m) : 9.0

### Graphical Representation:



Fines or % of silt and clay = 8.22

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 91.8

(0.005mm size) & (0.001mm size) = 8.2

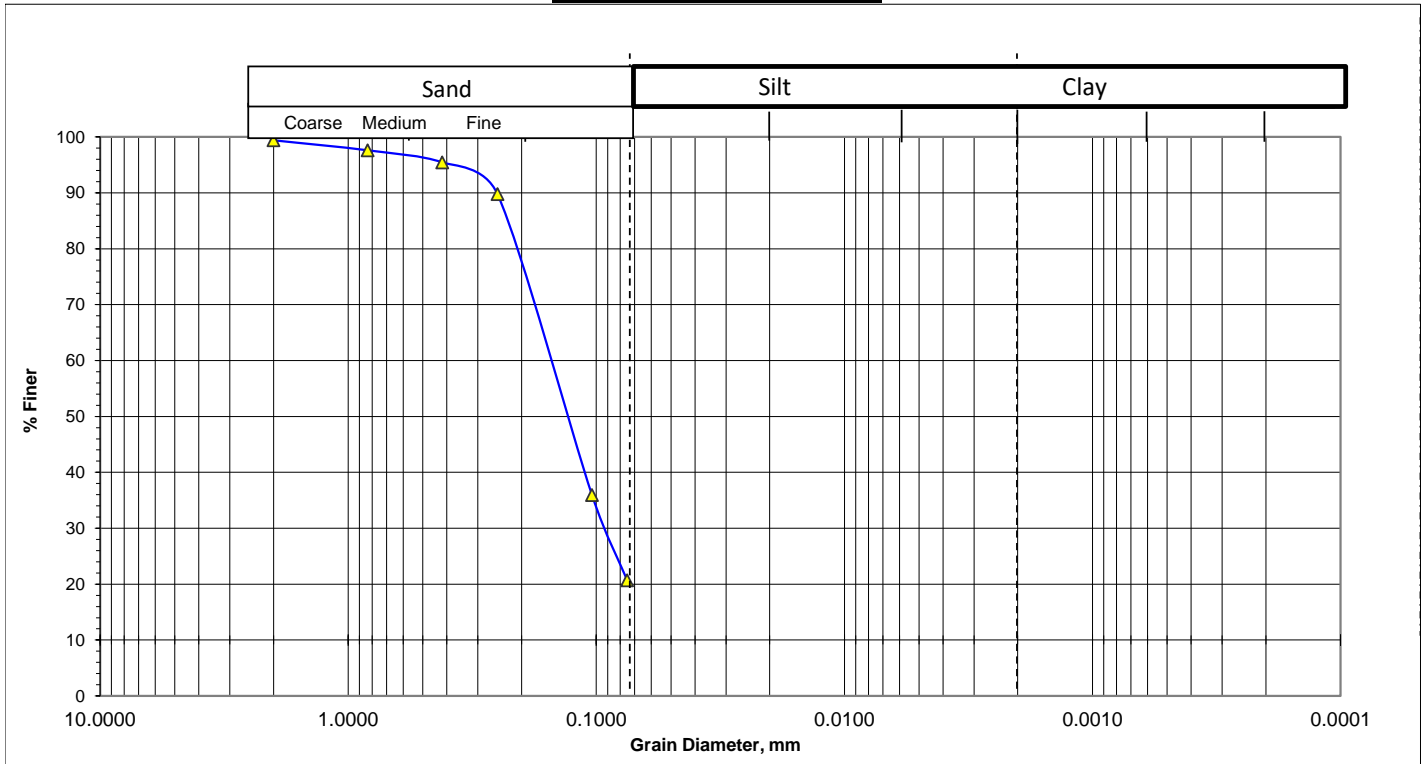


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Sony Mijer tek, Tekerhat Bazar, Ichakhali (Lat- 22.81053, Long- 91.47058)  
**Bore Hole No:** BH-M40 **Sampled Date:** 17/02/2018  
**Sample No :** S09 **Test Date :** 21/03/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 20.87

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 79.1

(0.005mm size) & (0.001mm size) = 20.9



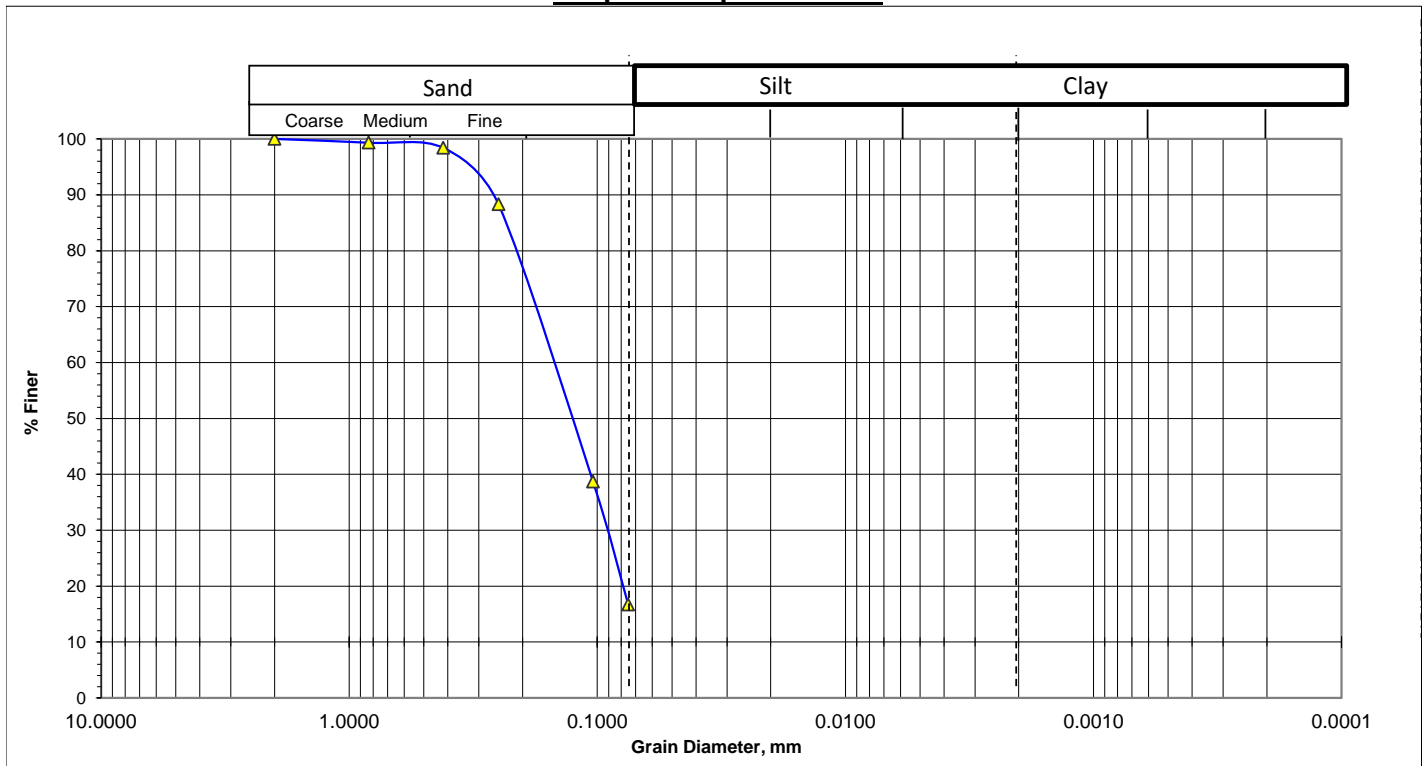


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Ichakhali Economic Zone, Ichakhali (Lat- 22.82266, Long- 91.44786)  
**Bore Hole No:** BH-M41 **Sampled Date:** 20/02/2018  
**Sample No :** S07 **Test Date :** 01/04/2018  
**Depth (m) :** 10.5

### Graphical Representation:



Fines or % of silt and clay = 16.86

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 83.1

(0.005mm size) & (0.001mm size) = 16.9

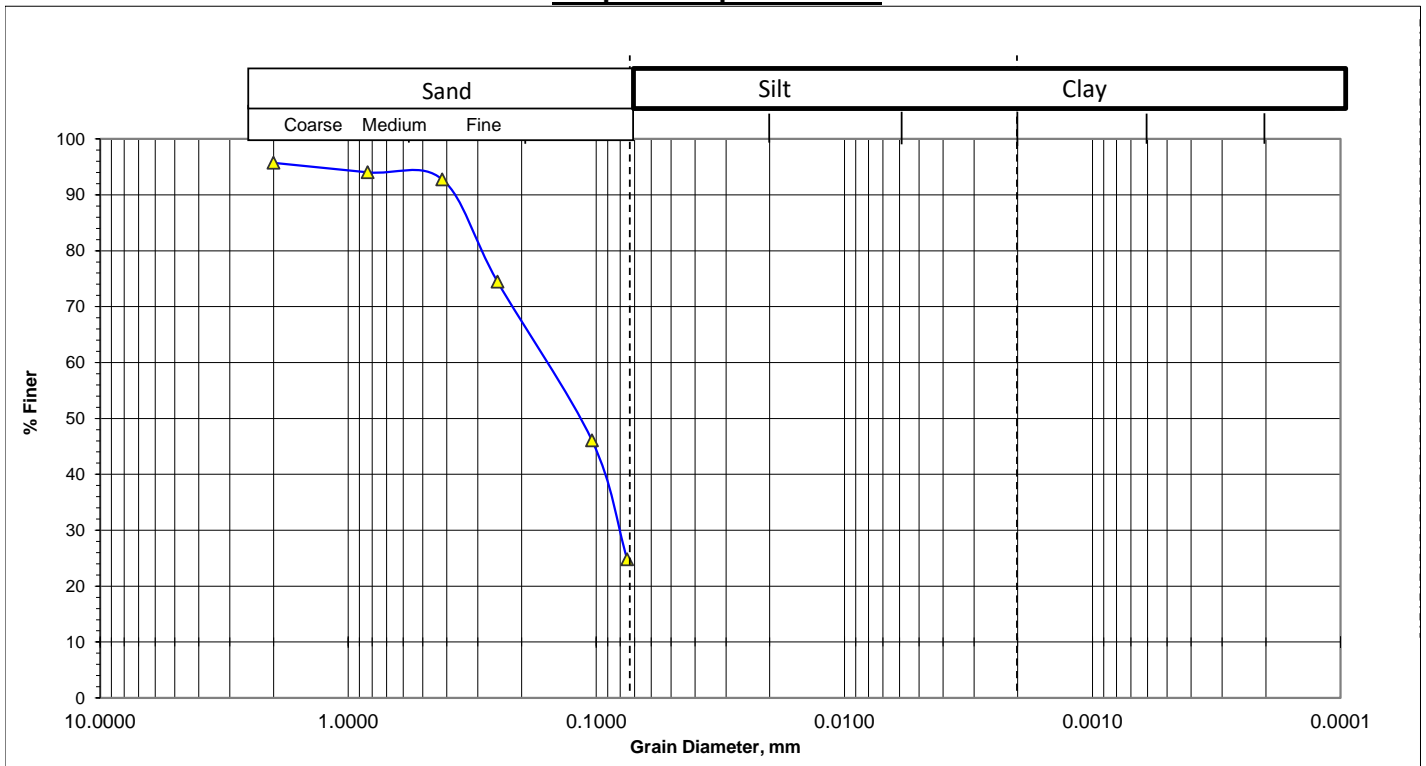


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Kazigram govt. Primary School, Ichakhali (Lat- 22.82931, Long- 91.50229)  
**Bore Hole No:** BH-M42 **Sampled Date:** 19/02/2018  
**Sample No :** S09 **Test Date :** 19/03/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 24.93

Mean Diameter(mm),  $D_{50}$  = 0.080

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.50

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 75.1

(0.005mm size) & (0.001mm size) = 24.9

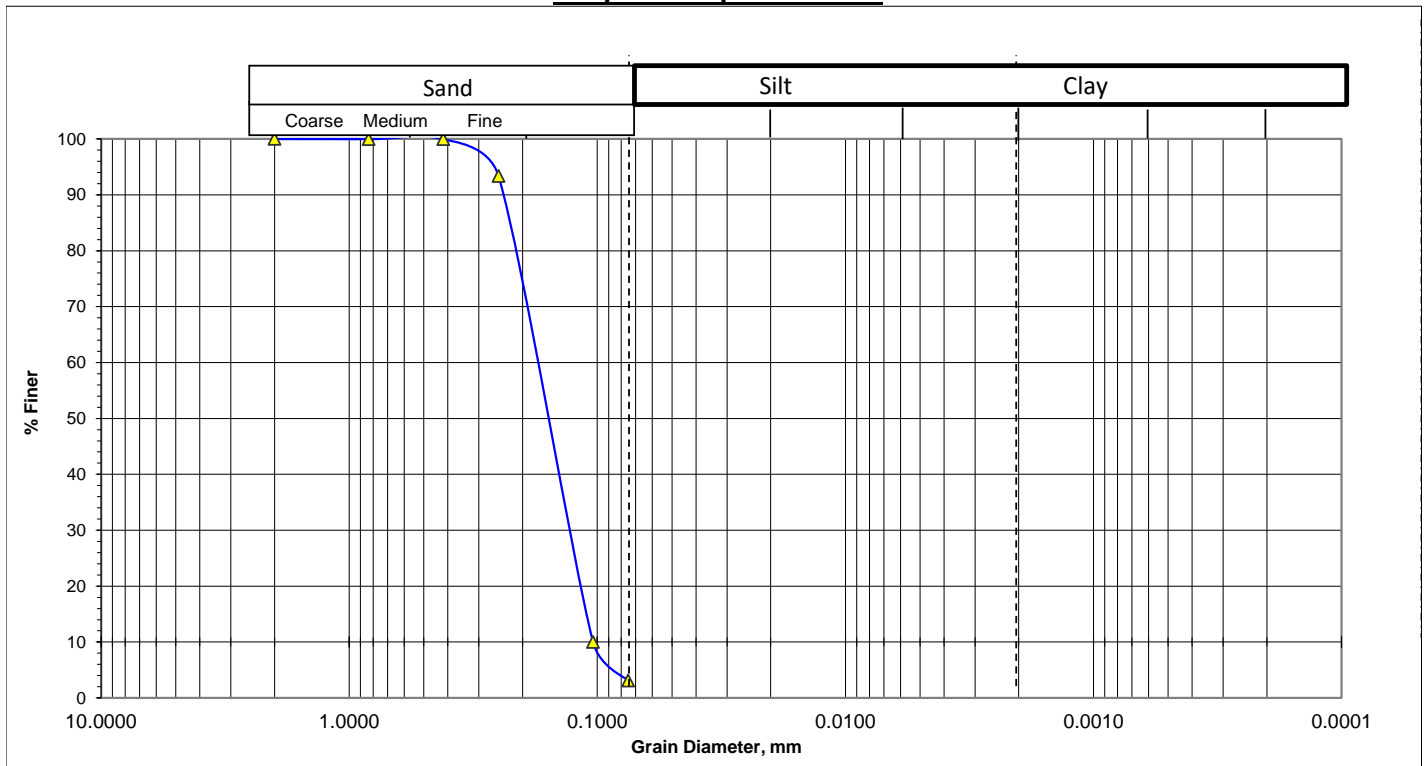


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Rajamiar Farm, Char Shorot, Ichakhali (Lat- 22.74718, Long- 91.48854)  
**Bore Hole No:** BH-M43 **Sampled Date:** 15/02/2018  
**Sample No :** S08 **Test Date :** 04/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 3.28

Mean Diameter(mm),  $D_{50}$  = 0.170

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.73

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 96.7

(0.005mm size) & (0.001mm size) = 3.3



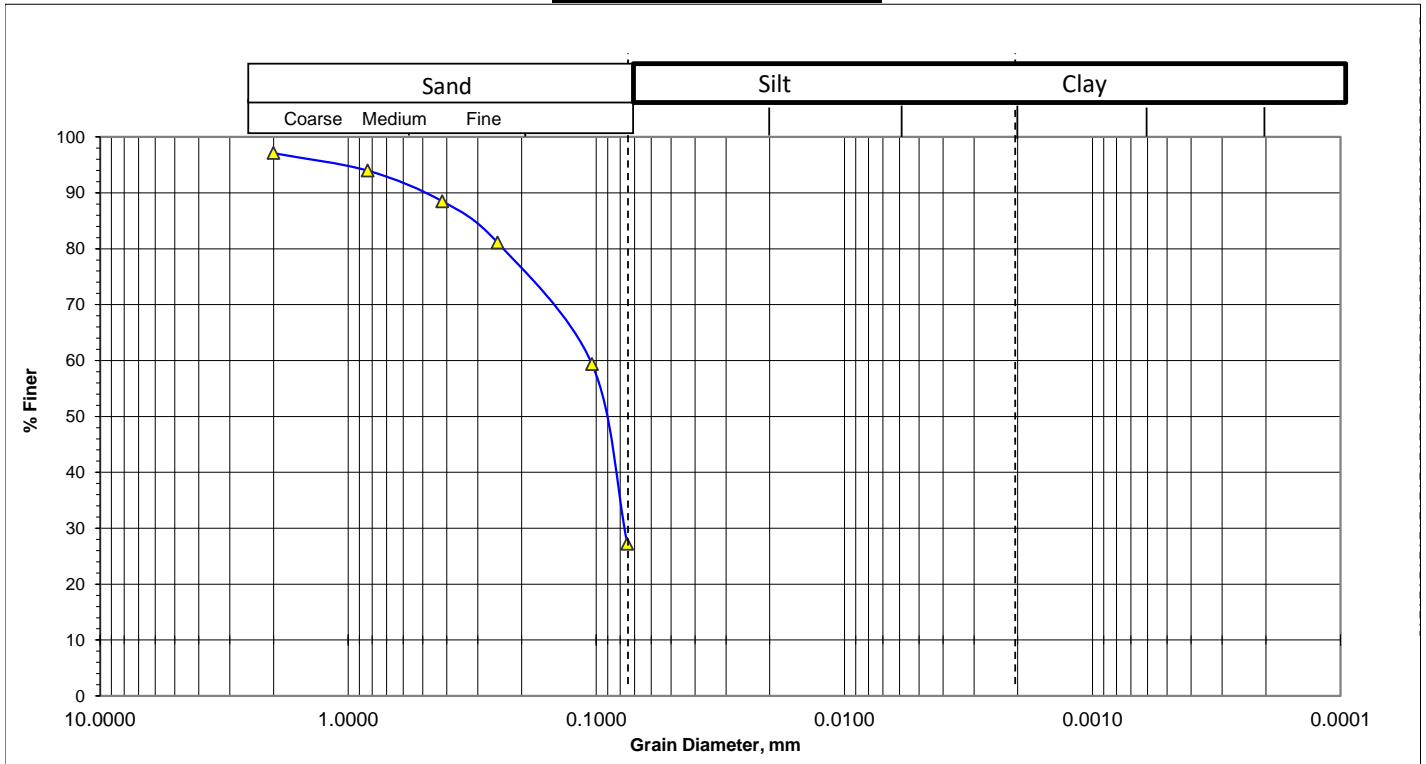
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Rahmatabad, Ichakhali (Lat- 22.77602, Long- 91.49851)

Bore Hole No: BH-M44 Sampled Date: 15/02/2018  
 Sample No : S05 Test Date : 02/04/2018  
 Depth (m) : 7.5

### Graphical Representation:



Fines or % of silt and clay = 27.36

Mean Diameter(mm),  $D_{50}$  = 0.079

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.49

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 72.6

(0.005mm size) & (0.001mm size) = 27.4

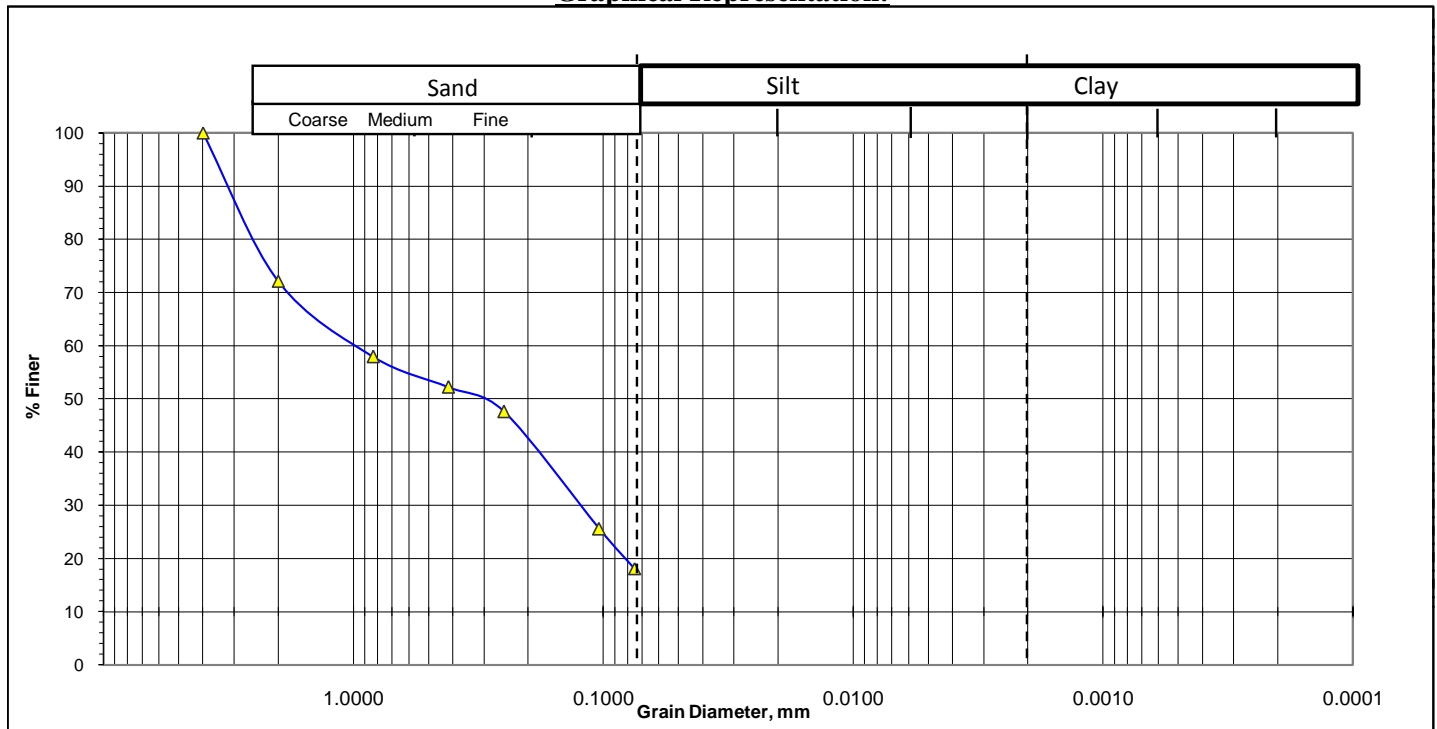


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mohamaya Eco Park, Durgapur (Lat- 22.81944, Long- 91.56983)  
**Bore Hole No:** BH-M45 **Sampled Date:** 02/02/2018  
**Sample No :** S02 **Test Date :** 14/03/2018  
**Depth (m) :** 3.0

### Graphical Representation:



Fines or % of silt and clay = 18.31  
 Mean Diameter(mm),  $D_{50}$  = 0.300  
 Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.96  
**% Particles (from the grain -size analysis graph).**  
 (0.075mm size) = 81.7  
 (0.005mm size) & (0.001mm size) = 18.3

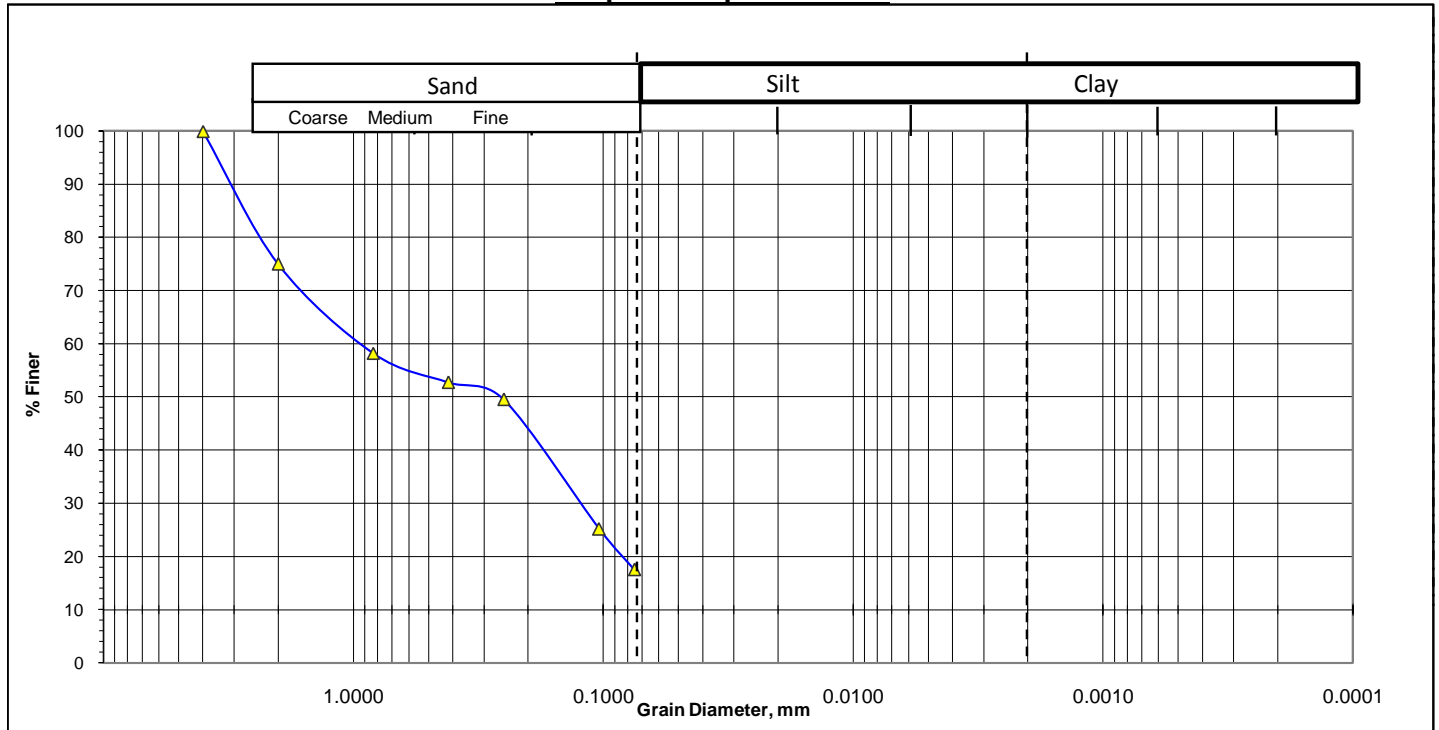


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mohamaya Eco Park, Durgapur (Lat- 22.81944, Long- 91.56983)  
**Bore Hole No:** BH-M45 **Sampled Date:** 02/02/2018  
**Sample No :** S8 **Test Date :** 14/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 17.64

Mean Diameter(mm),  $D_{50}$  = 0.250

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.88

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 82.4

(0.005mm size) & (0.001mm size) = 17.6



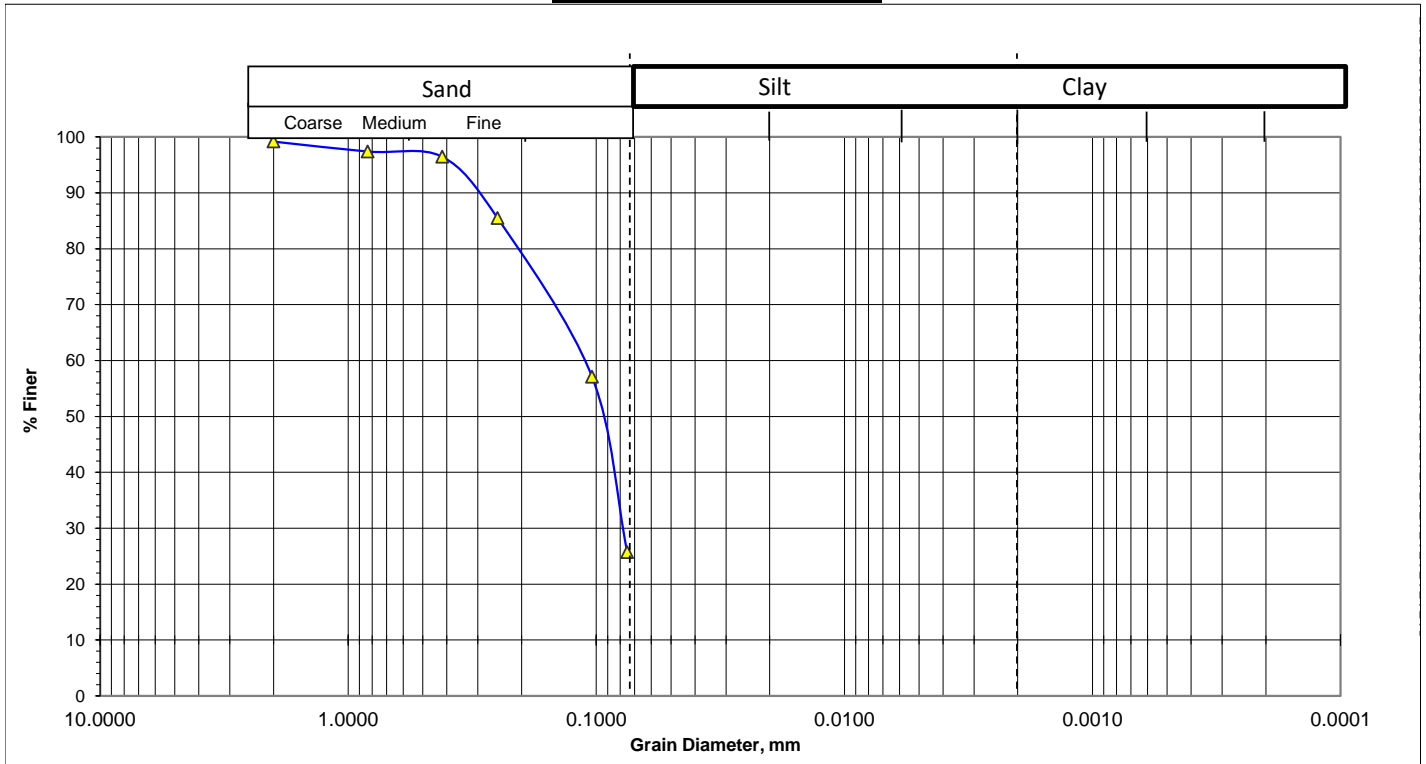
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mithachora Bazar , Mirshorai (Lat- 22.80319, Long- 91.5599)

**Bore Hole No:** BH-M46 **Sampled Date:** 03/02/2018  
**Sample No :** S08 **Test Date :** 17/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 25.81

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 74.2

(0.005mm size) & (0.001mm size) = 25.8



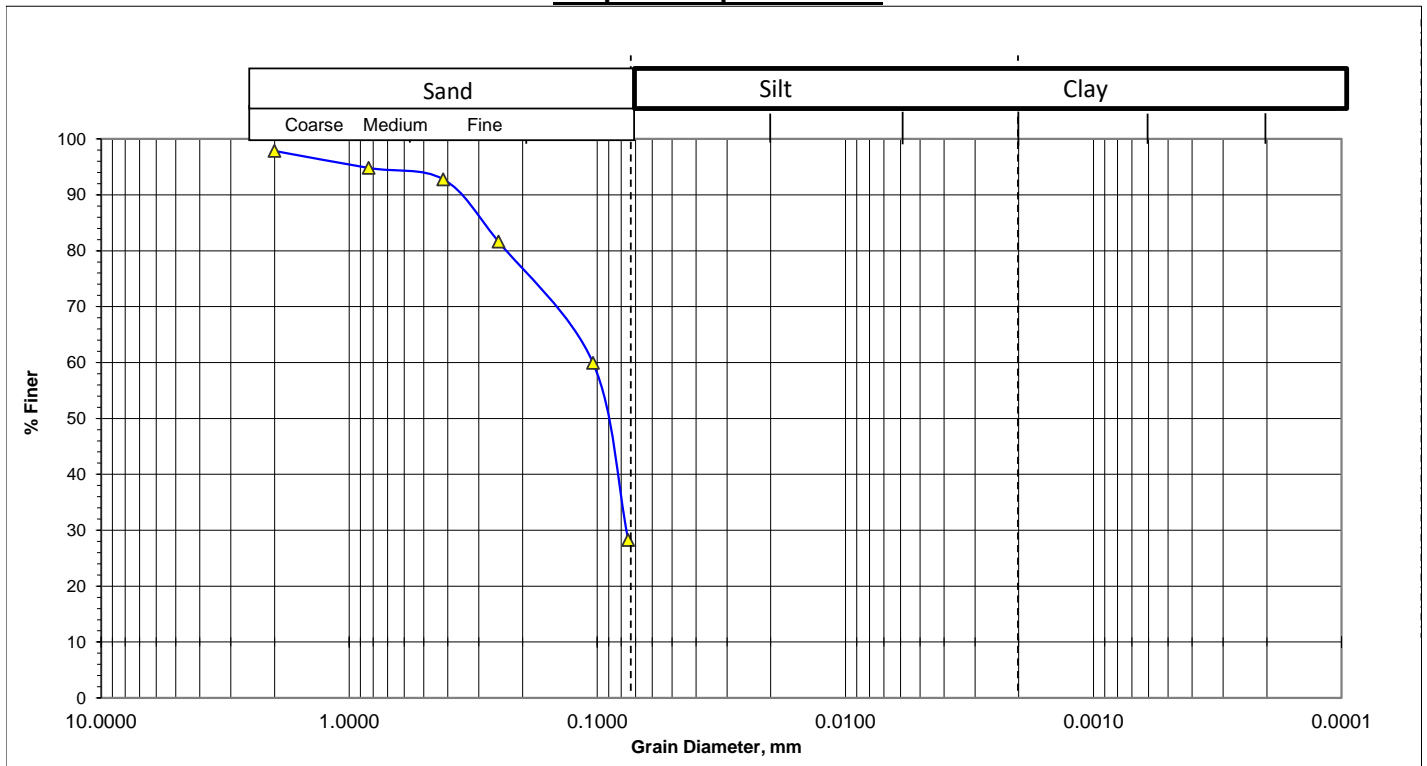
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** South Talbaria, Mirshorai (Lat- 22.78553, Long- 91.57944)

**Bore Hole No:** BH-M47 **Sampled Date:** 08/02/2018  
**Sample No :** S05 **Test Date :** 17/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 28.38

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 71.6

(0.005mm size) & (0.001mm size) = 28.4





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)

**Location :** Ora Kazi Mijibari Jame Mosque, Mirshorai

**Bore Hole No:** BH-M49

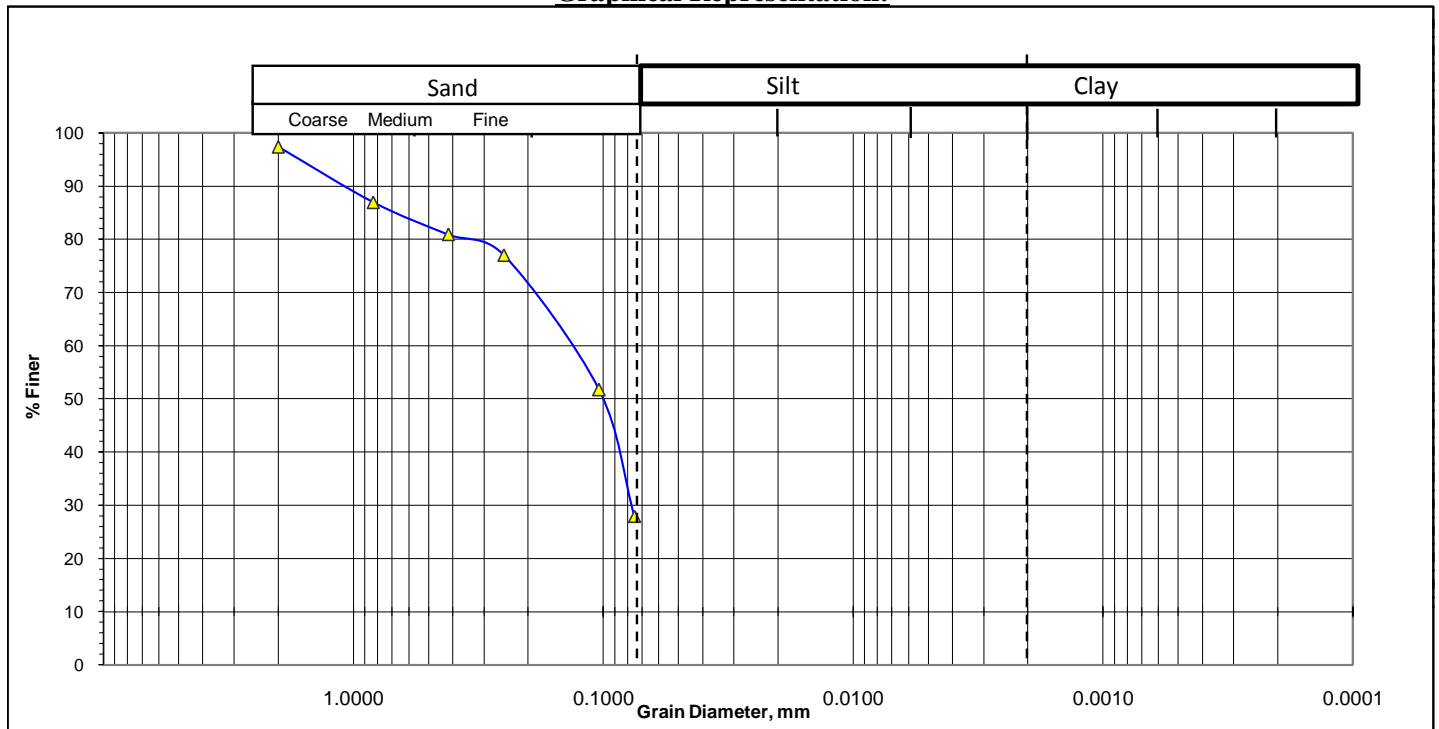
**Sampled Date:** 08/02/2018

**Sample No :** S05

**Test Date :** 17/03/2018

**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 28.32

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 71.7

(0.005mm size) & (0.001mm size) = 28.3

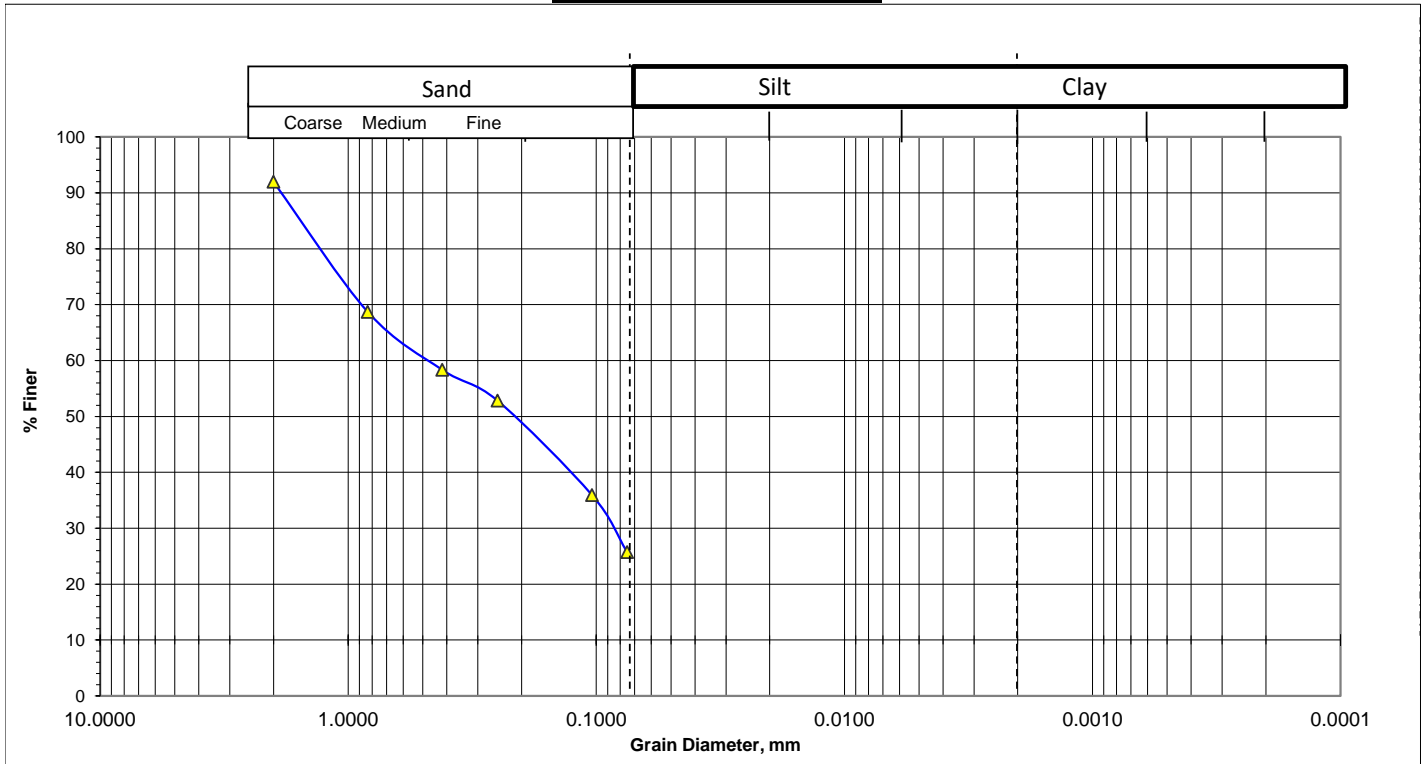


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mirshorai Degree College, Mirsorai (Lat- 22.77792, Long- 91.57289)  
**Bore Hole No:** BH-M50 **Sampled Date:** 07/02/2018  
**Sample No :** S02 **Test Date :** 17/03/2018  
**Depth (m) :** 3.0

### Graphical Representation:



Fines or % of silt and clay = 25.88

Mean Diameter(mm),  $D_{50}$  = 0.210

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.81

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 74.1

(0.005mm size) & (0.001mm size) = 25.9

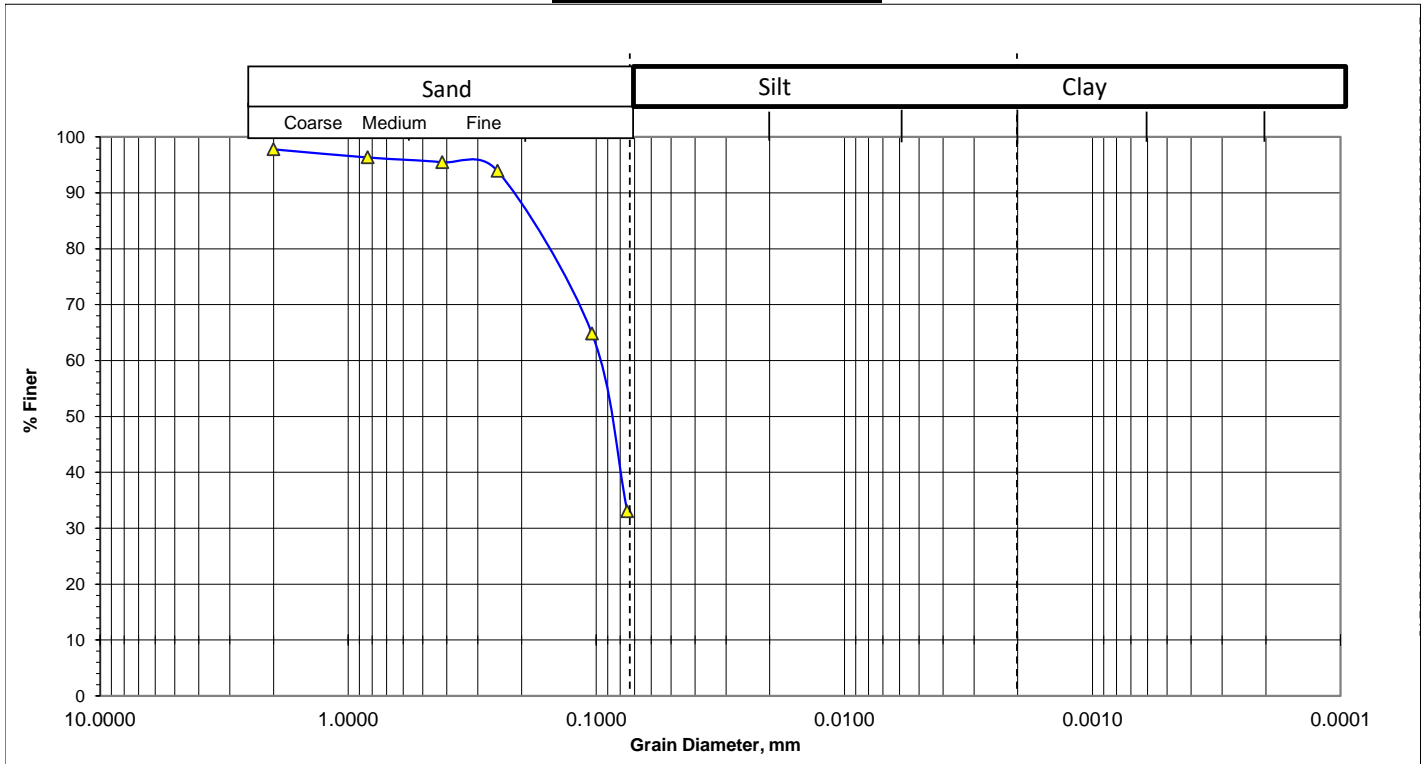


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mirshorai Degree College, Mirsorai (Lat- 22.77792, Long- 91.57289)  
**Bore Hole No:** BH-M50 **Sampled Date:** 07/02/2018  
**Sample No :** S08 **Test Date :** 17/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 33.15

Mean Diameter(mm),  $D_{50}$  = 0.088

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.52

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 66.9

(0.005mm size) & (0.001mm size) = 33.1

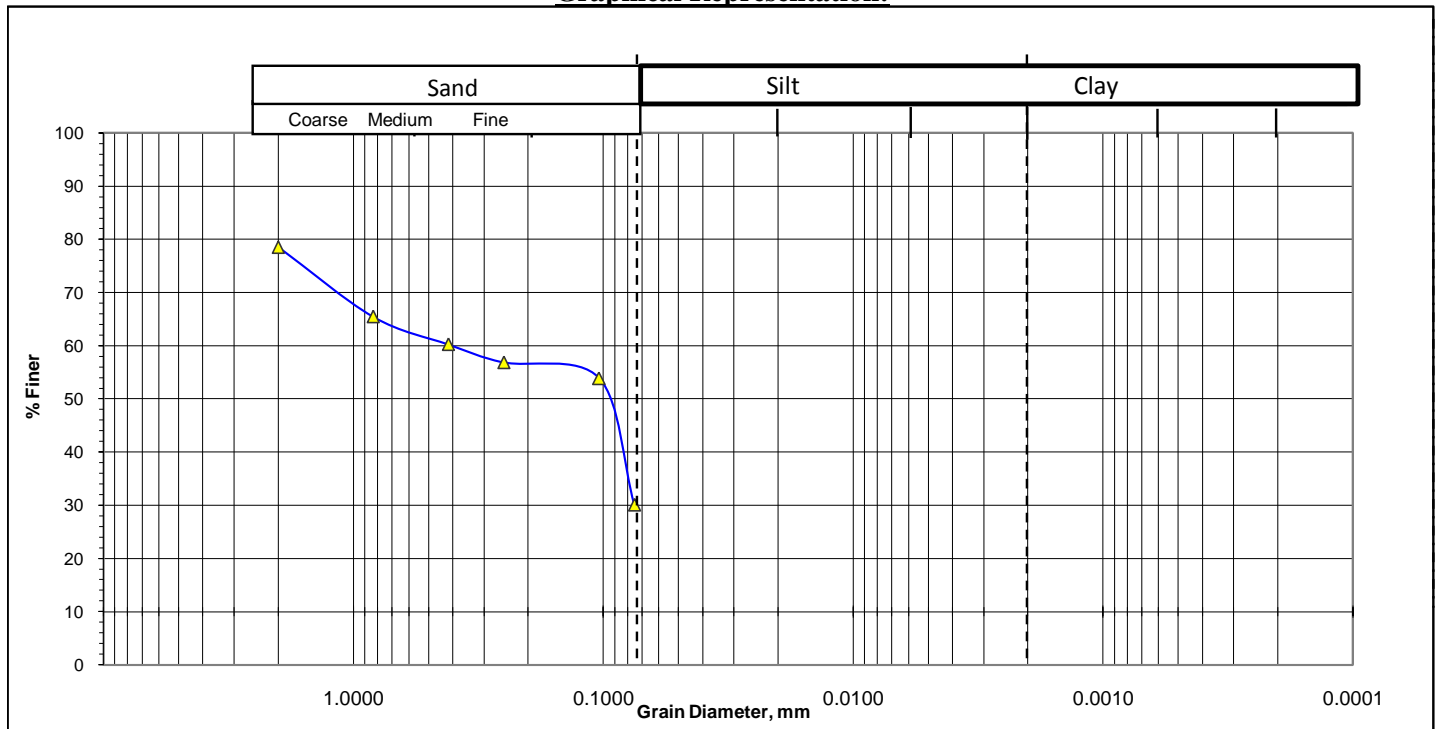


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** North Talbaria Govt. Primary School, Mirshorai (Lat- 22.79426, Long- 91.57335)  
**Bore Hole No:** BH-M51 **Sampled Date:** 04/02/2018  
**Sample No :** S03 **Test Date :** 20/03/2018  
**Depth (m) :** 4.5

### Graphical Representation:



Fines or % of silt and clay = 30.26

Mean Diameter(mm),  $D_{50}$  = 0.070

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.47

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 69.7

(0.005mm size) & (0.001mm size) = 30.3

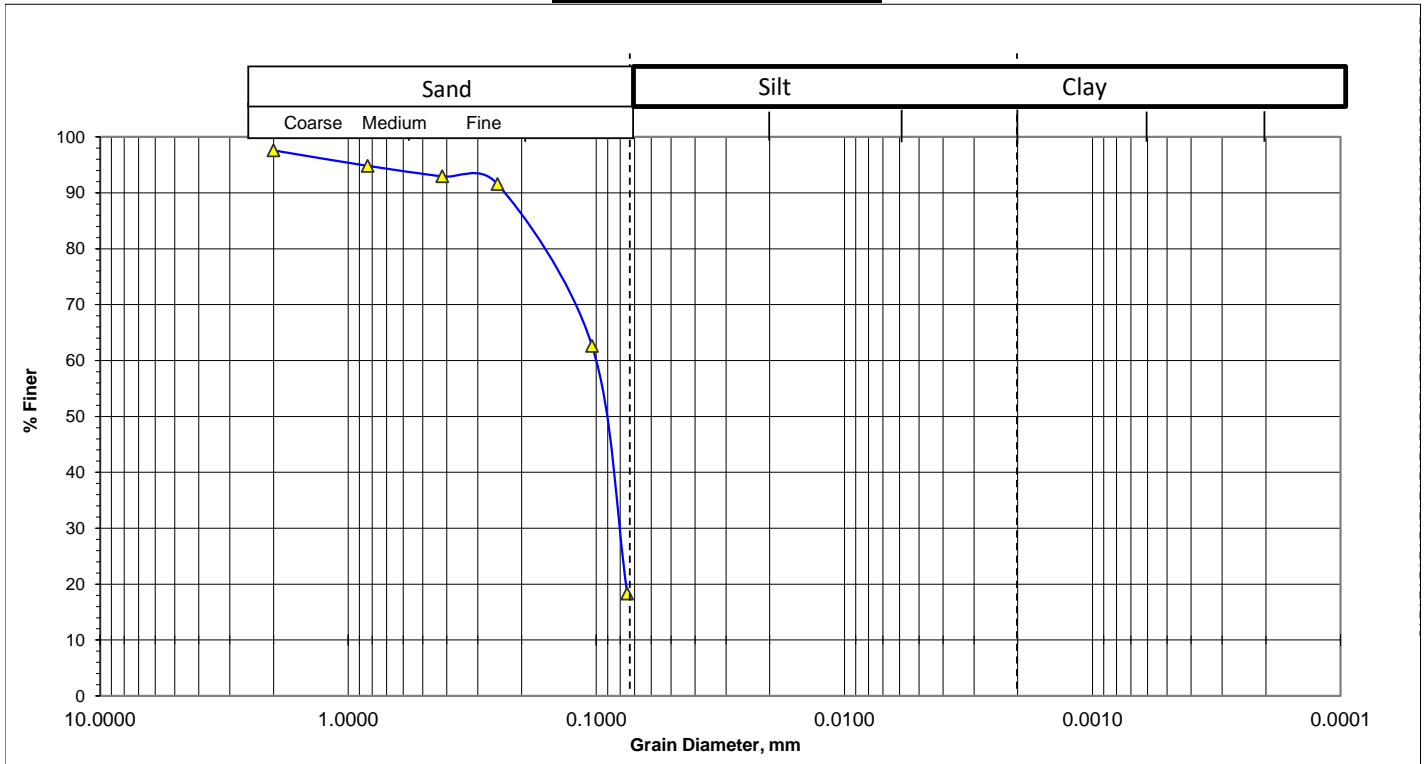


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Hamid Ali Jame Mosque, East Khoiachora (Lat- 22.76701, Long- 91.58471)  
**Bore Hole No:** BH-M52 **Sampled Date:** 09/02/2018  
**Sample No :** S09 **Test Date :** 20/03/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 18.46

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 81.5

(0.005mm size) & (0.001mm size) = 18.5

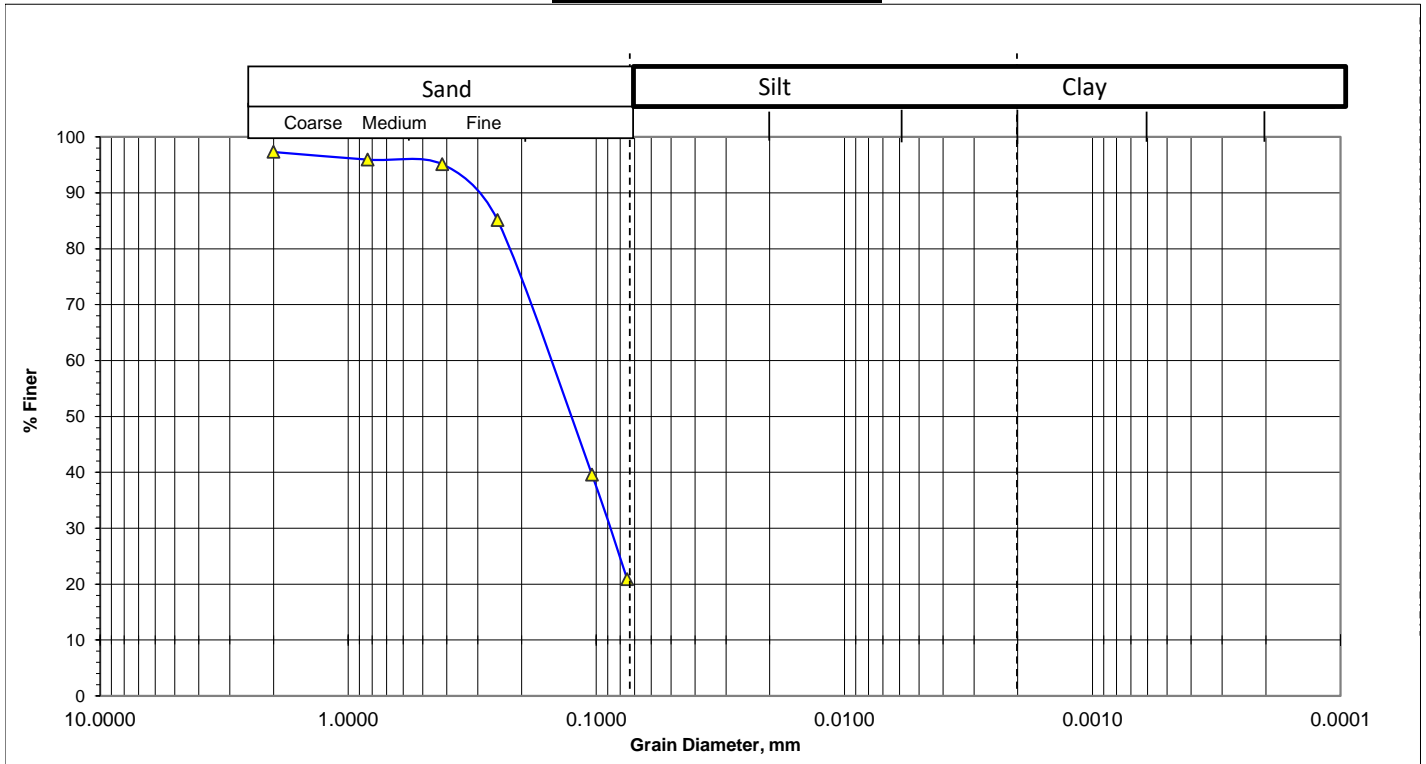


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Khankaye Latifia Madrasha, Mirshorai (Lat- 22.7811, Long- 91.56298)  
**Bore Hole No:** BH-M53 **Sampled Date:** 03/02/2018  
**Sample No :** S09 **Test Date :** 19/03/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 21.02

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 79.0

(0.005mm size) & (0.001mm size) = 21.0

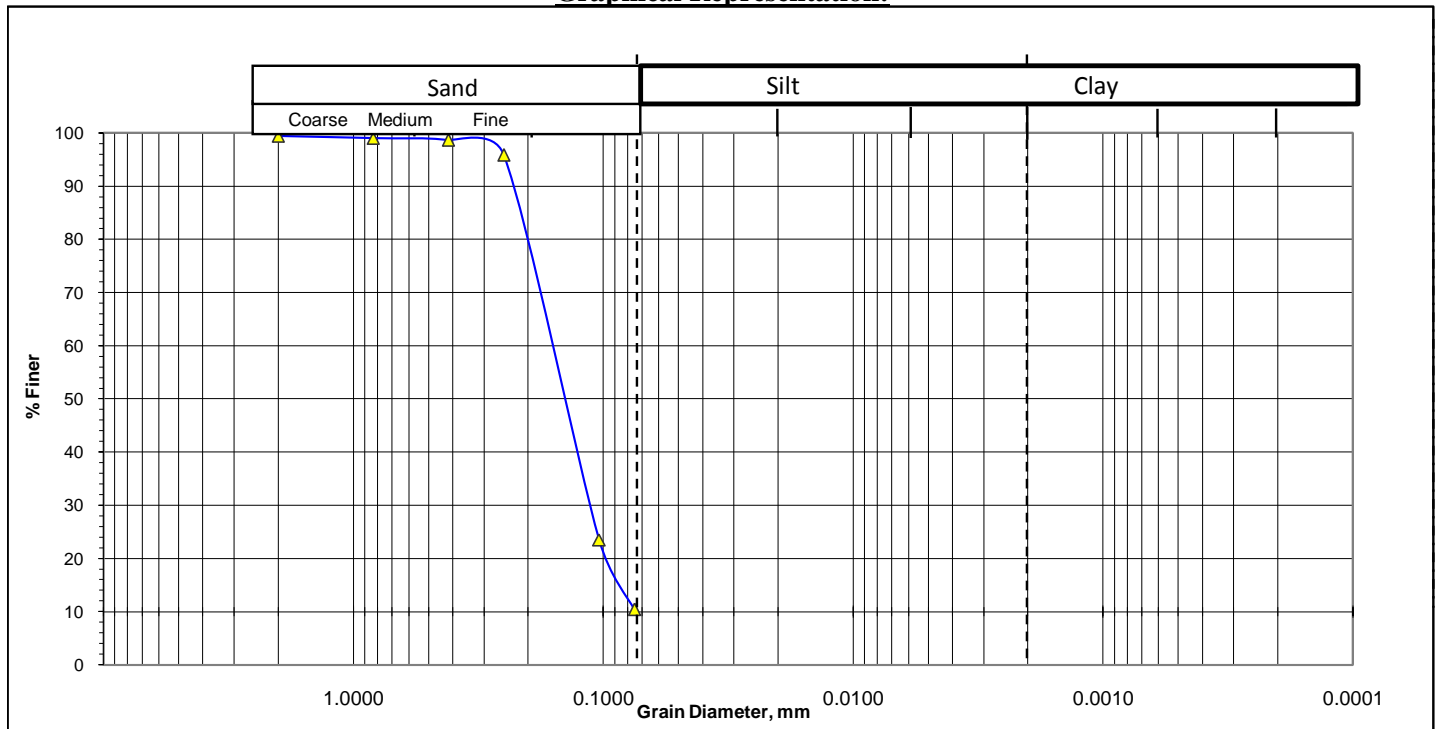


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Rabiul Hossain Govt. Primary School (Lat- 22.78867, Long- 91.50636)  
**Bore Hole No:** BH-M54 **Sampled Date:** 16/02/2018  
**Sample No :** S03 **Test Date :** 20/03/2018  
**Depth (m) :** 4.5

### Graphical Representation:



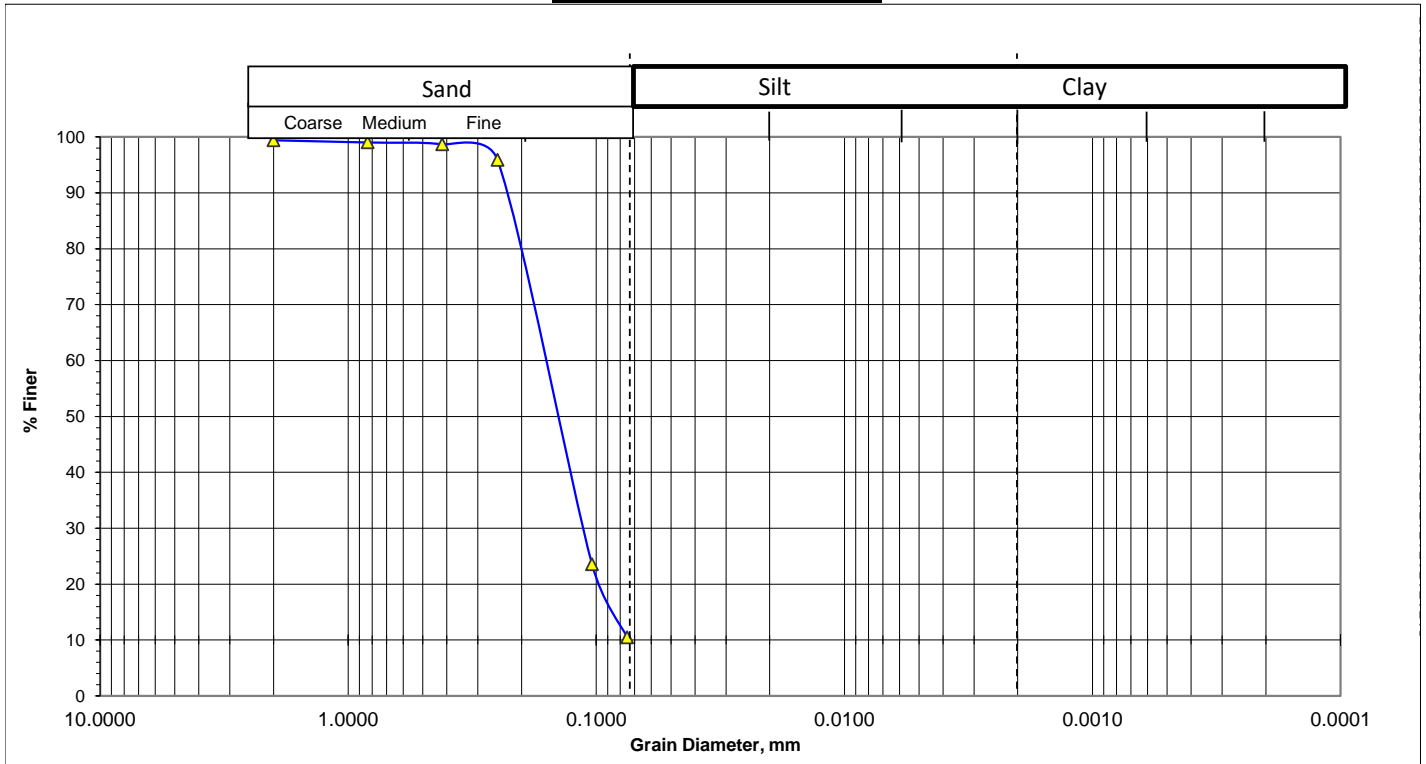


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Rabiul Hossain Govt. Primary School (Lat- 22.78867, Long- 91.50636)  
**Bore Hole No:** BH-M54 **Sampled Date:** 16/02/2018  
**Sample No :** S08 **Test Date :** 20/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 10.67

Mean Diameter(mm),  $D_{50}$  = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 89.3

(0.005mm size) & (0.001mm size) = 10.7



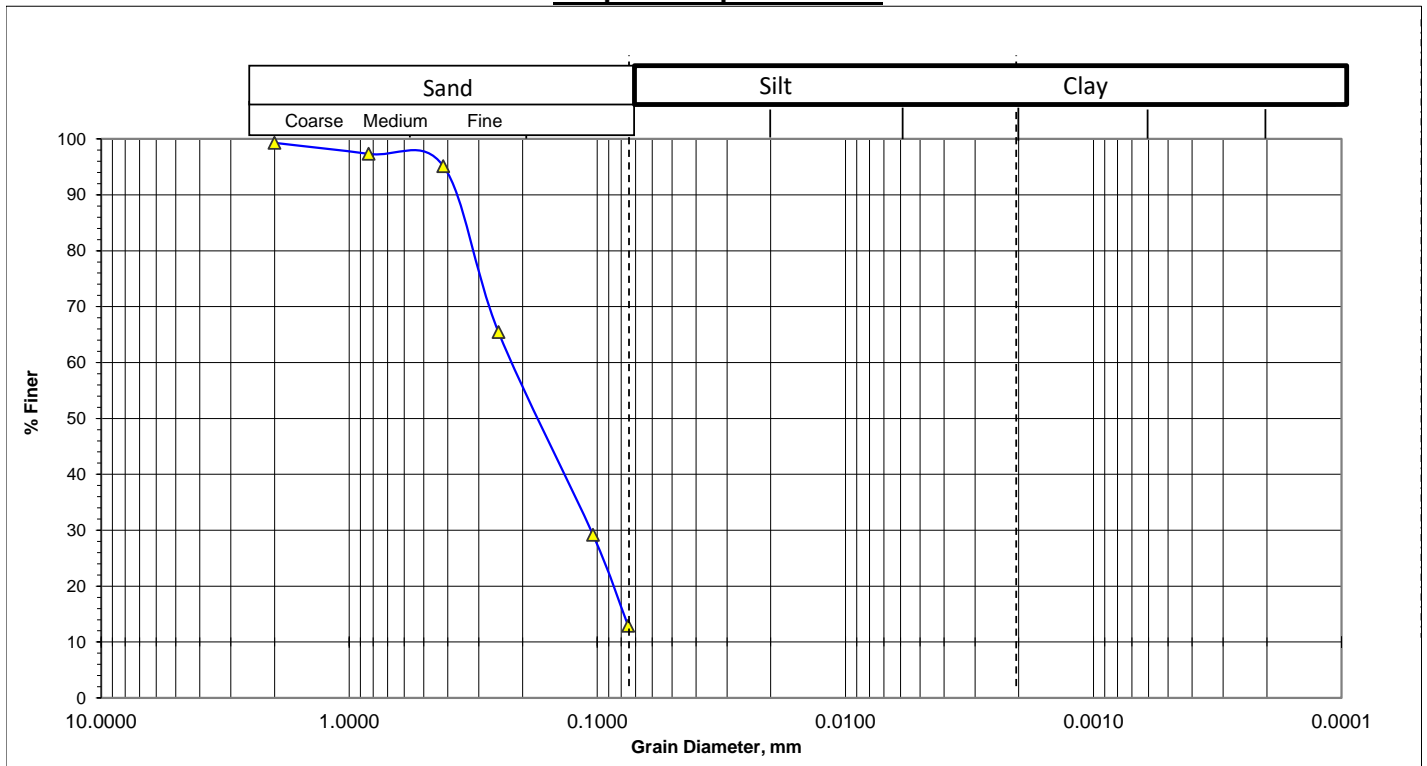


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Chairman Bari, West Muliash (Lat- 22.77471, Long- 91.51698)  
**Bore Hole No:** BH-M55 **Sampled Date:** 17/02/2018  
**Sample No :** S05 **Test Date :** 03/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 13.02

Mean Diameter(mm),  $D_{50}$  = 0.180

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.75

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 87.0

(0.005mm size) & (0.001mm size) = 13.0

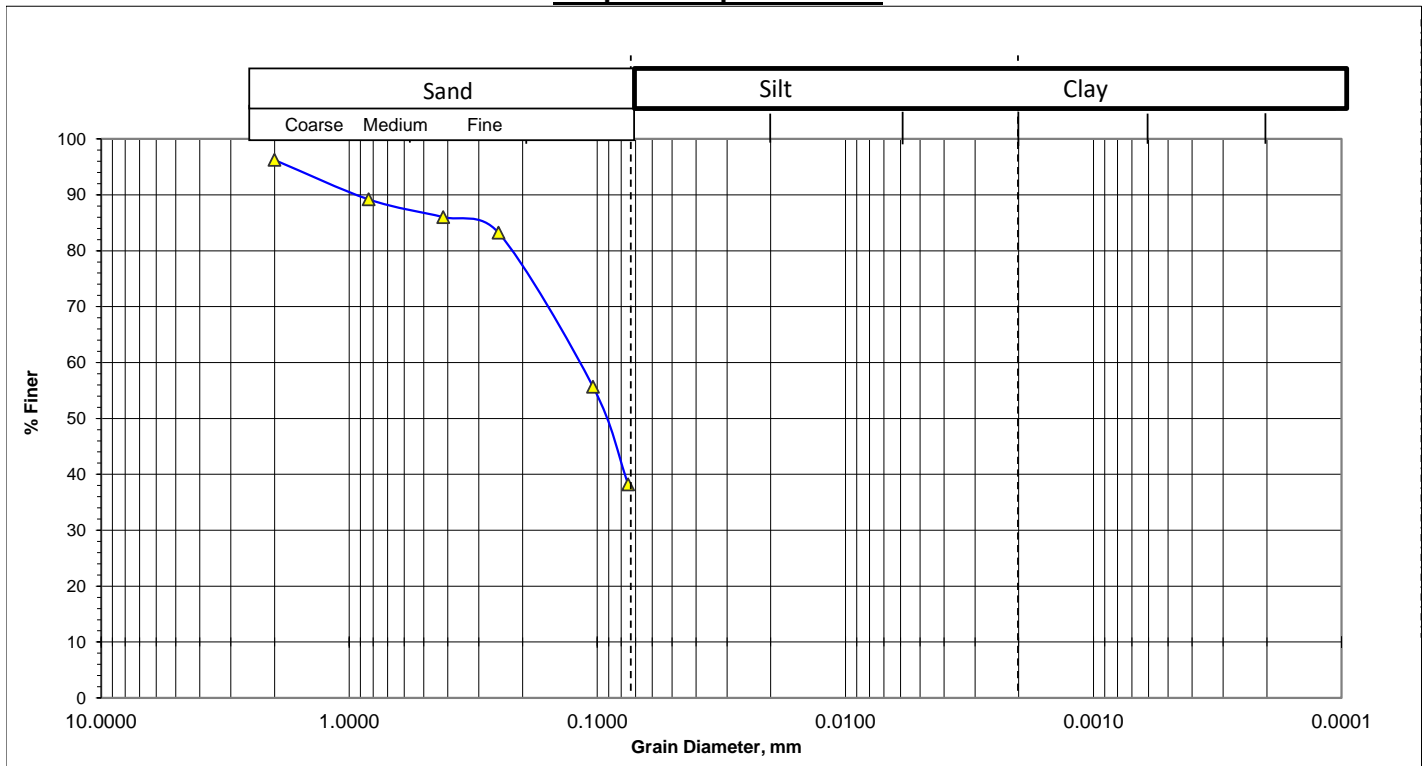


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Hazi Badiul Alam Chowdhury Govt. Primary School, Mithanala (Lat- 22.78397, Long- 91.53249)  
**Bore Hole No:** BH-M56 **Sampled Date:** 03/02/2018  
**Sample No :** S4 **Test Date :** 14/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 38.30

Mean Diameter(mm),  $D_{50}$  = 0.091

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.53

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 61.7

(0.005mm size) & (0.001mm size) = 38.3

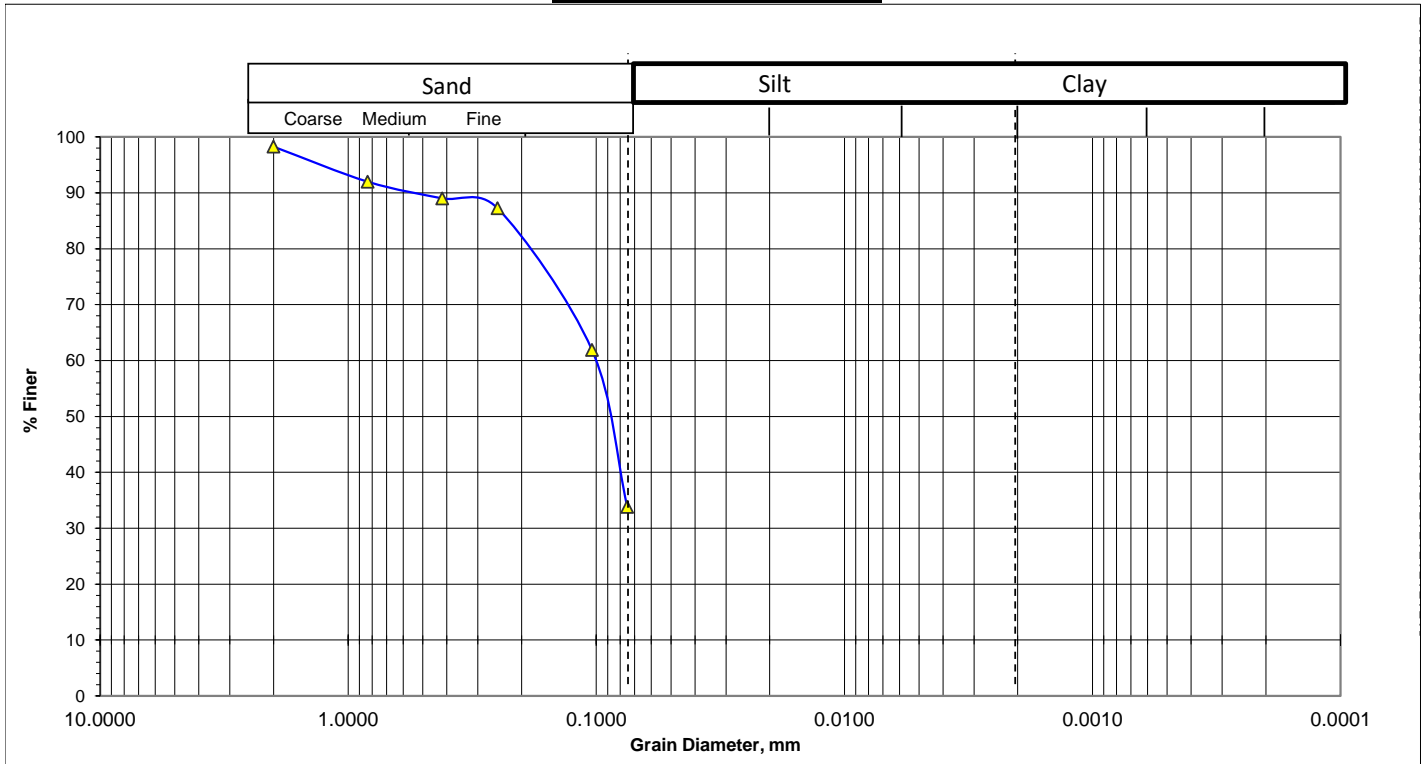


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Mayani Bogla Kumar Primary School, Mayani (Lat- 22.73095, Long- 91.56573)  
**Bore Hole No:** BH-M57 **Sampled Date:** 14/02/2018  
**Sample No :** S04 **Test Date :** 05/04/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 33.98

Mean Diameter(mm),  $D_{50}$  = 0.090

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.53

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 66.0

(0.005mm size) & (0.001mm size) = 34.0

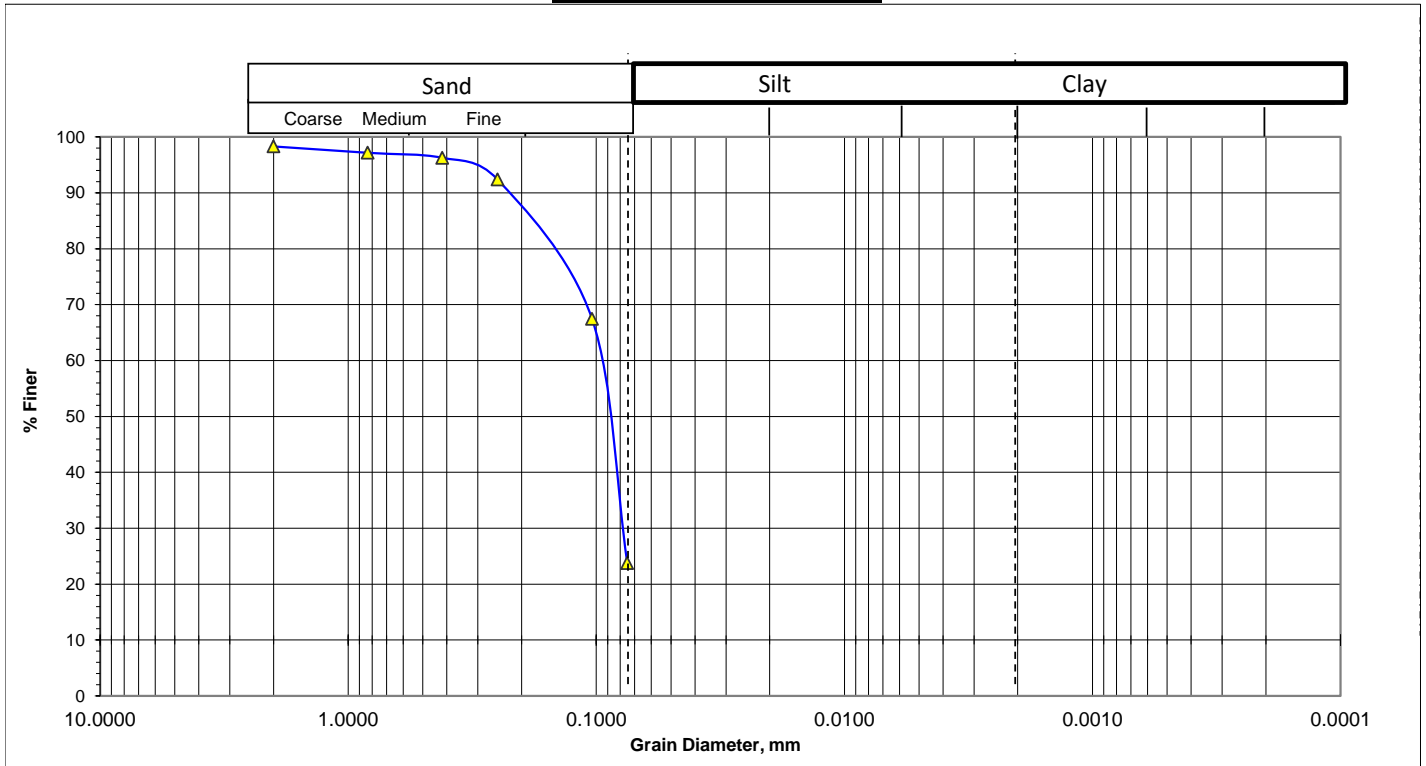


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** West Khoiachora Munipara, Jame Mosque (Lat- 22.758, Long- 91.57073)  
**Bore Hole No:** BH-M58 **Sampled Date:** 06/02/2018  
**Sample No :** S08 **Test Date :** 01/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 23.88

Mean Diameter(mm),  $D_{50}$  = 0.080

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.50

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 76.1

(0.005mm size) & (0.001mm size) = 23.9

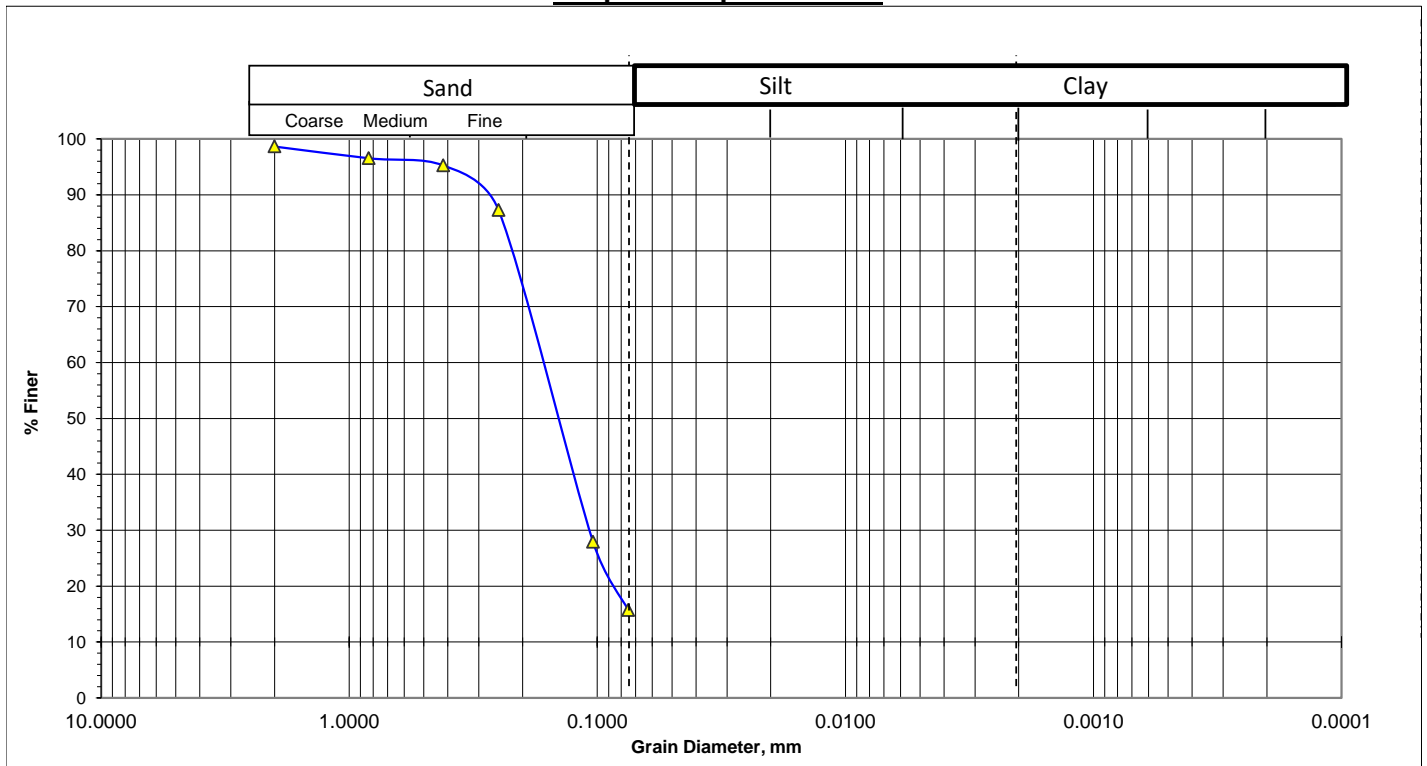


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 3 Ghoriatola, Jame mosque, Maghadia (Lat- 22.76206, Long- 91.5293)  
**Bore Hole No:** BH-M59 **Sampled Date:** 16/02/2018  
**Sample No :** S10 **Test Date :** 03/04/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 15.88

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 84.1

(0.005mm size) & (0.001mm size) = 15.9

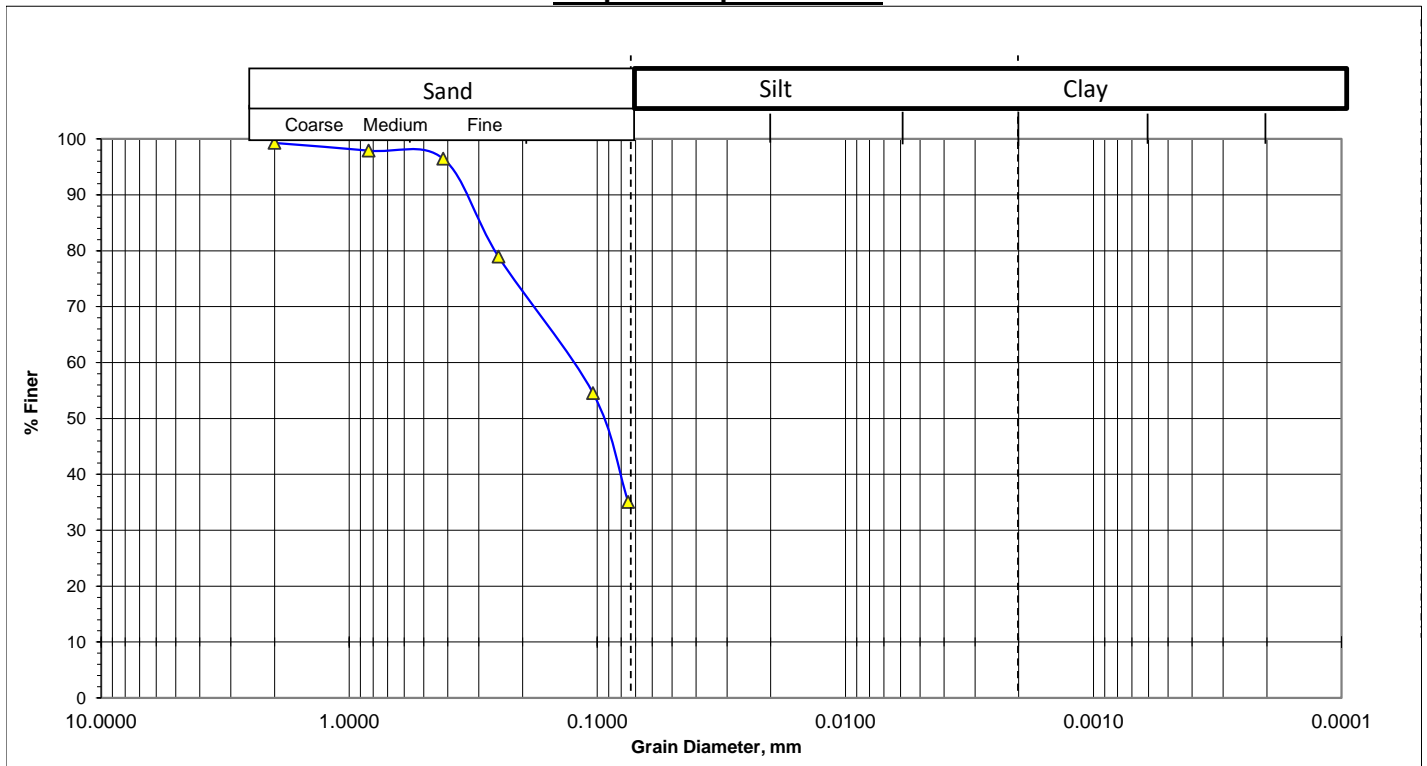


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 90 no. Maghadia NC Govt. Primary School, Maghadia (Lat- 22.74951, Long- 91.53351)  
**Bore Hole No:** BH-M60 **Sampled Date:** 05/02/2018  
**Sample No :** S05 **Test Date :** 18/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 35.25

Mean Diameter(mm),  $D_{50}$  = 0.095

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.54

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 64.8

(0.005mm size) & (0.001mm size) = 35.2

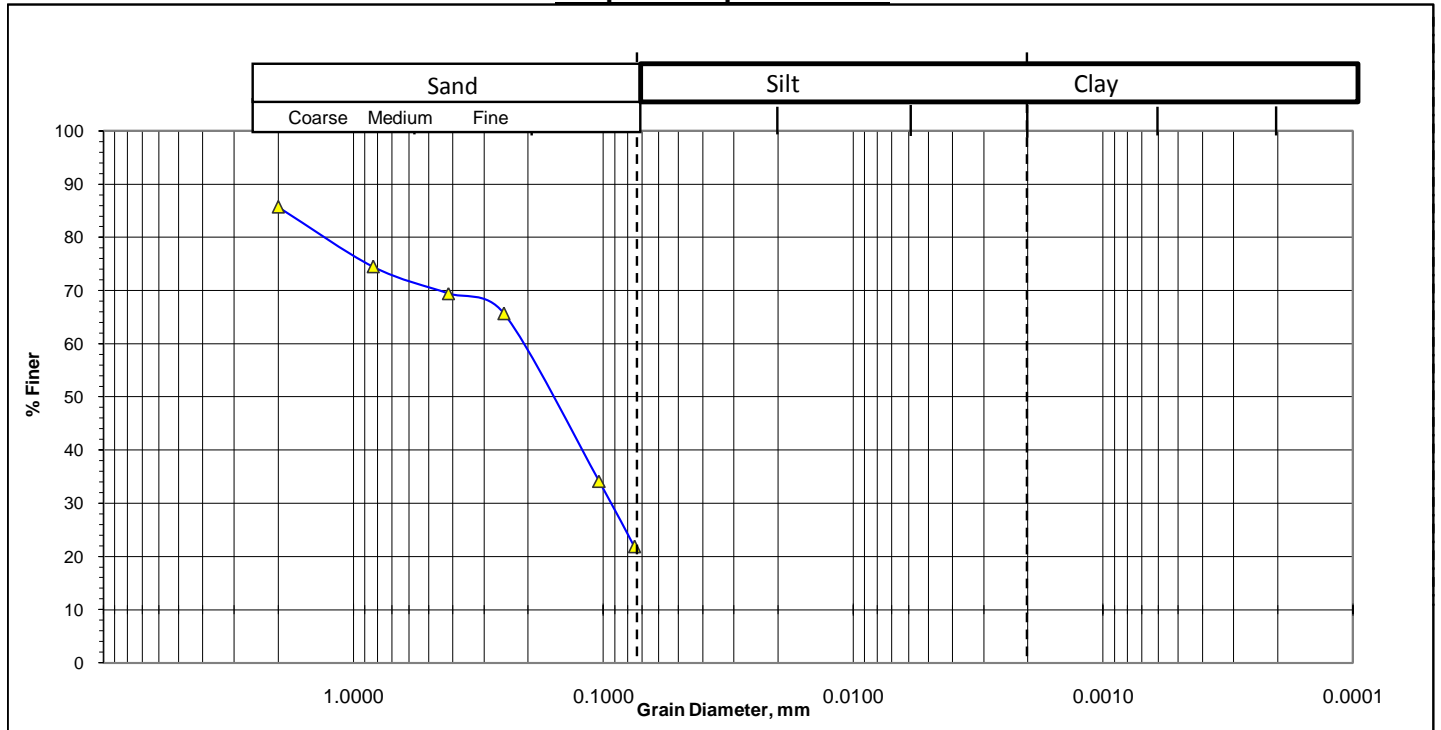


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Sheker Taluk, Middle Maghadia (Lat- 22.76571, Long- 91.55742)  
**Bore Hole No:** BH-M61 **Sampled Date:** 04/02/2018  
**Sample No :** S5 **Test Date :** 19/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 21.90  
 Mean Diameter(mm),  $D_{50}$  = 0.160  
 Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70  
**% Particles (from the grain -size analysis graph).**  
 (0.075mm size) = 78.1  
 (0.005mm size) & (0.001mm size) = 21.9

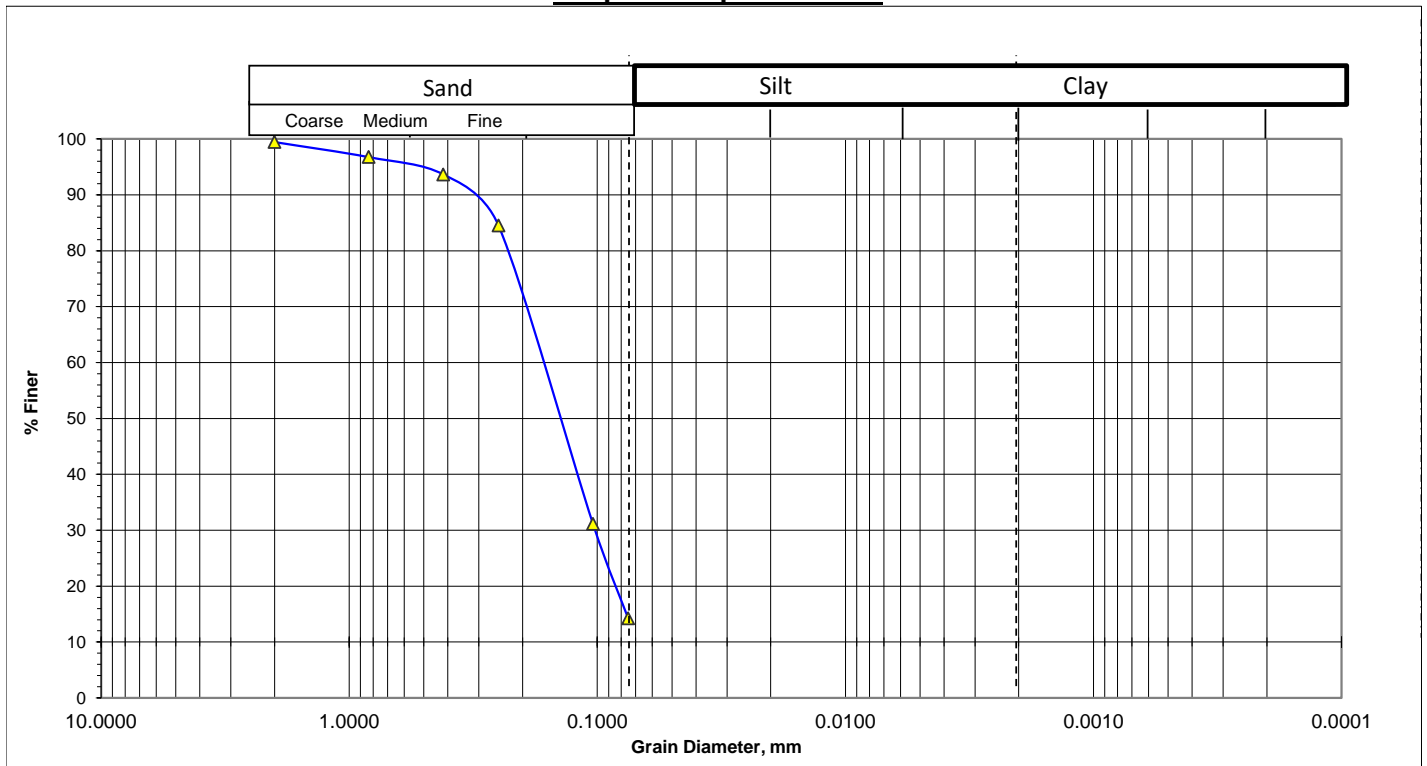


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Kazir Taluk Govt. Primary School, Maghadia (Lat- 22.73803, Long- 91.53299)  
**Bore Hole No:** BH-M62 **Sampled Date:** 13/02/2018  
**Sample No :** S06 **Test Date :** 01/04/2018  
**Depth (m) :** 9.0

### Graphical Representation:



Fines or % of silt and clay = 14.40

Mean Diameter(mm),  $D_{50}$  = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 85.6

(0.005mm size) & (0.001mm size) = 14.4



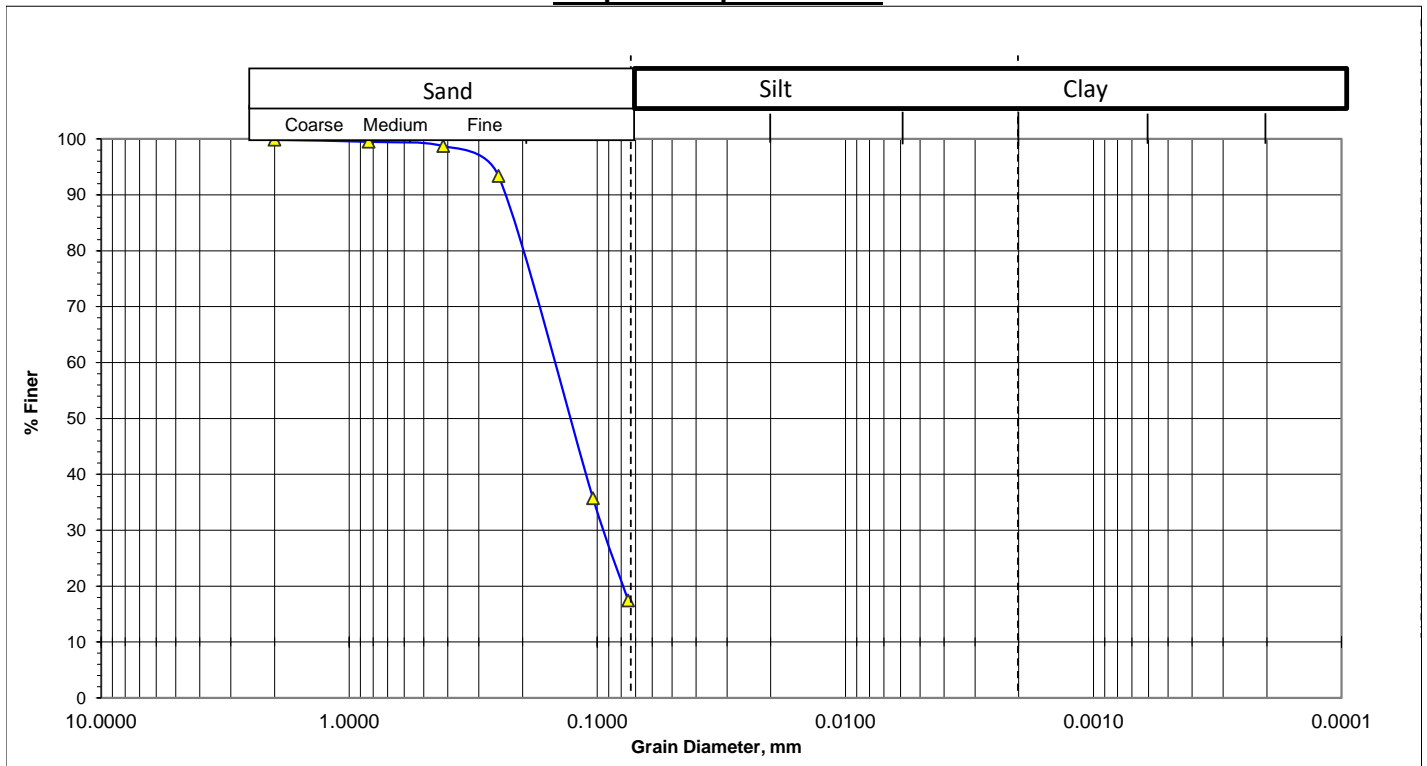


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Komor ali Union High School, Komor Ali Union Bazar (Lat- 22.68562, Long- 91.58553)  
**Bore Hole No:** BH-M63 **Sampled Date:** 12/02/2018  
**Sample No :** S05 **Test Date :** 20/03/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 17.58

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 82.4

(0.005mm size) & (0.001mm size) = 17.6

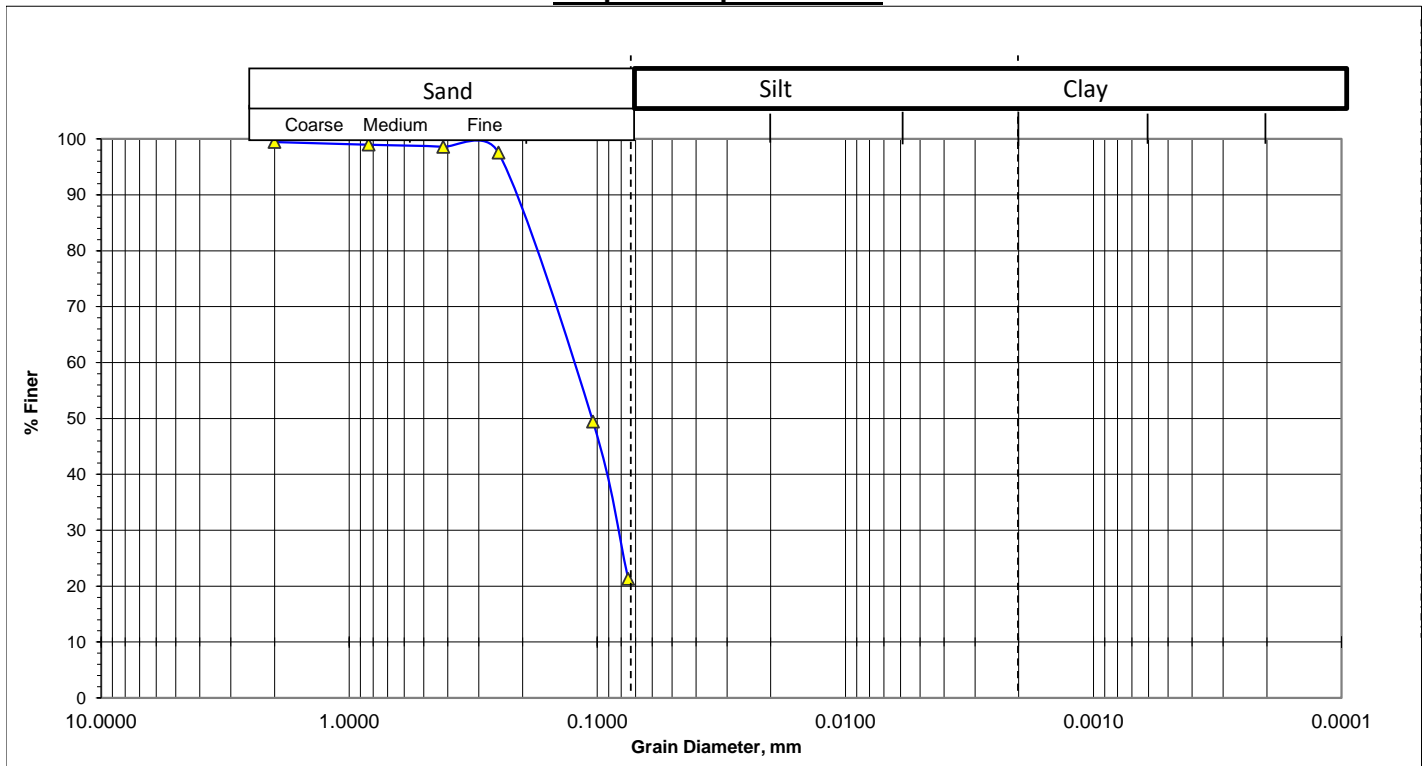


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Katakhalī Beribadh, Shekerkhali (Lat- 22.72091, Long- 91.51587)  
**Bore Hole No:** BH-M64 **Sampled Date:** 13/02/2018  
**Sample No :** S11 **Test Date :** 20/03/2018  
**Depth (m) :** 16.5

### Graphical Representation:



Fines or % of silt and clay = 21.49

Mean Diameter(mm),  $D_{50}$  = 0.110

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.58

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 78.5

(0.005mm size) & (0.001mm size) = 21.5



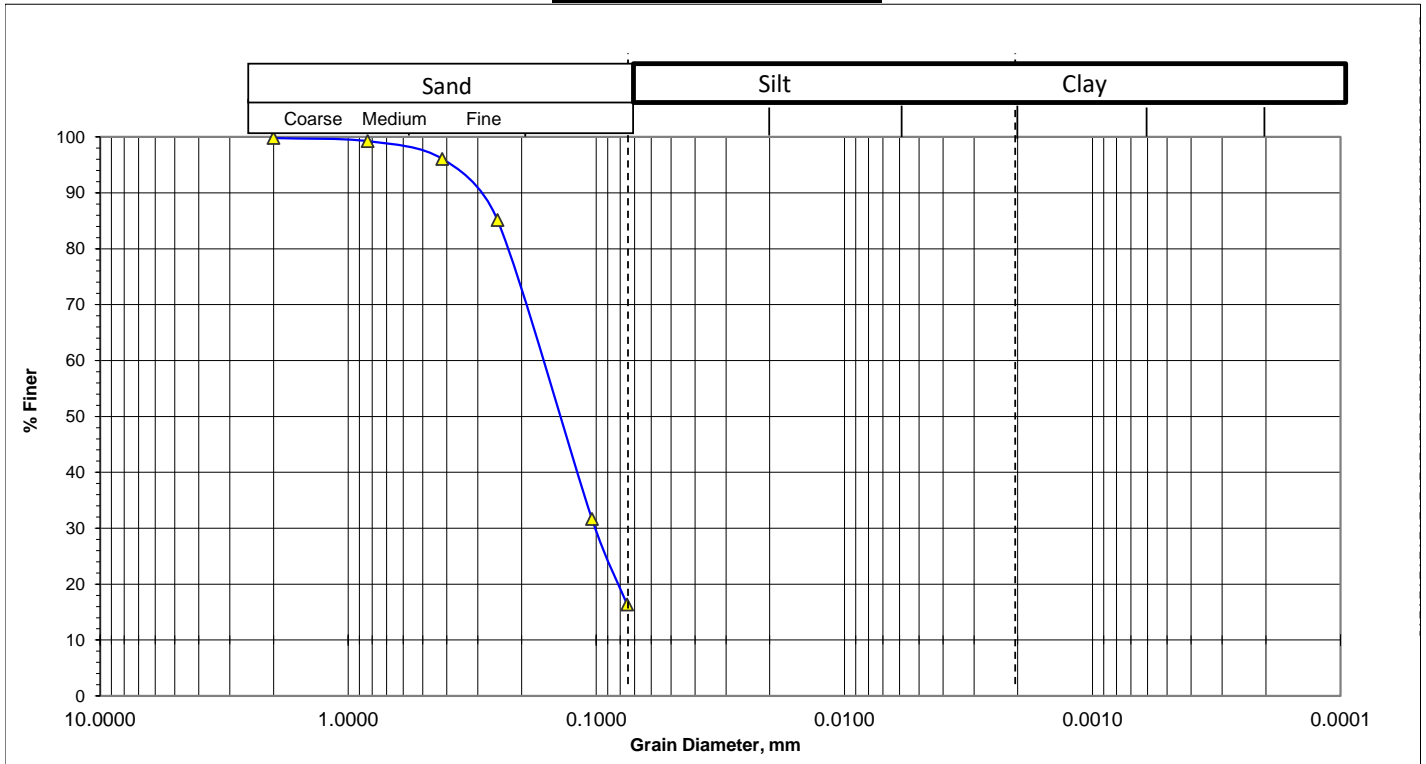
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Beri Badh, Shekerkhali (Lat- 22.71091, Long- 91.53063)

Bore Hole No: BH-M65 Sampled Date: 11/02/2018  
 Sample No : S06 Test Date : 01/04/2018  
 Depth (m) : 9.0

### Graphical Representation:



Fines or % of silt and clay = 16.52

Mean Diameter(mm), D<sub>50</sub> = 0.150

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.68

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 83.5

(0.005mm size) & (0.001mm size) = 16.5

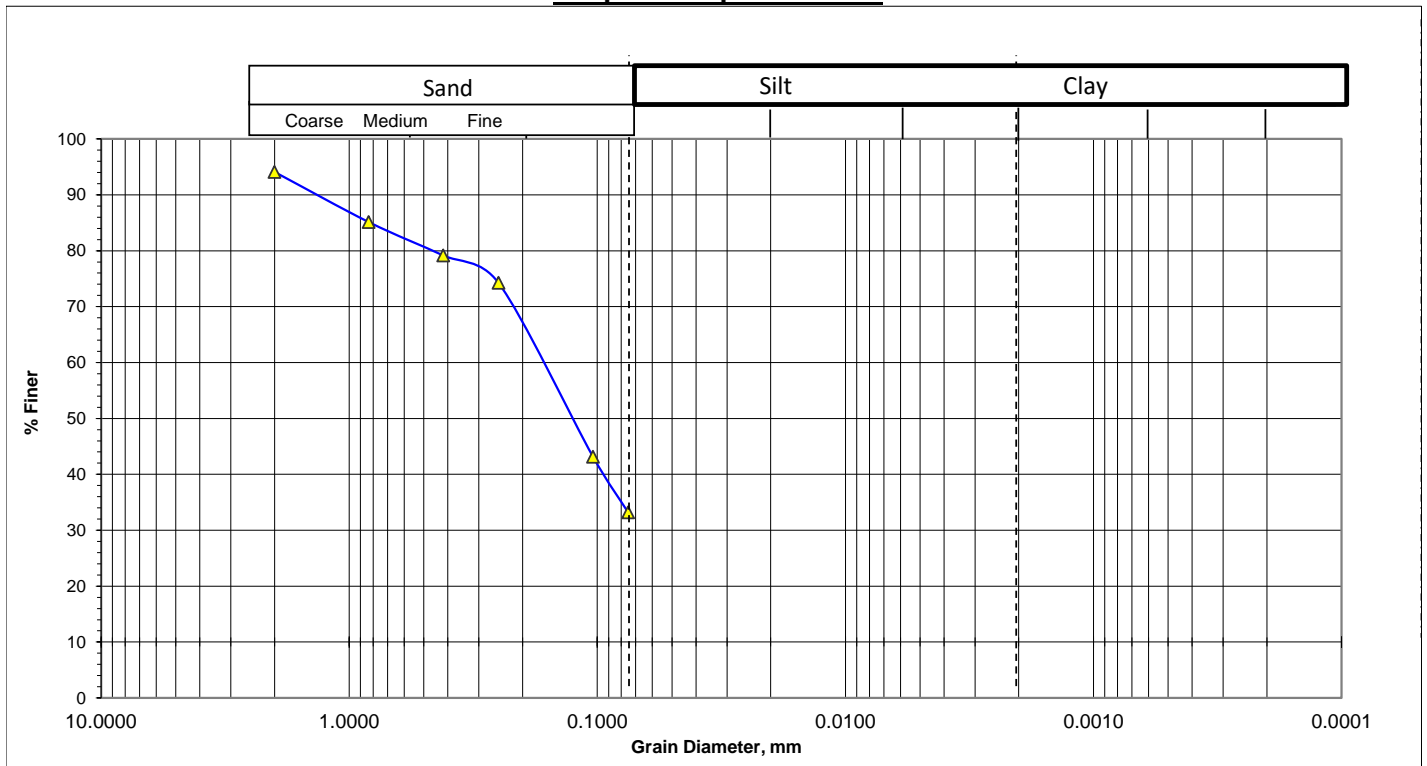


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** North Dhoom Khali, Gazaria, Shekerkhali (Lat- 22.69645, Long- 91.54869)  
**Bore Hole No:** BH-M66 **Sampled Date:** 11/02/2018  
**Sample No :** S04 **Test Date :** 01/04/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 33.36

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 66.6

(0.005mm size) & (0.001mm size) = 33.4

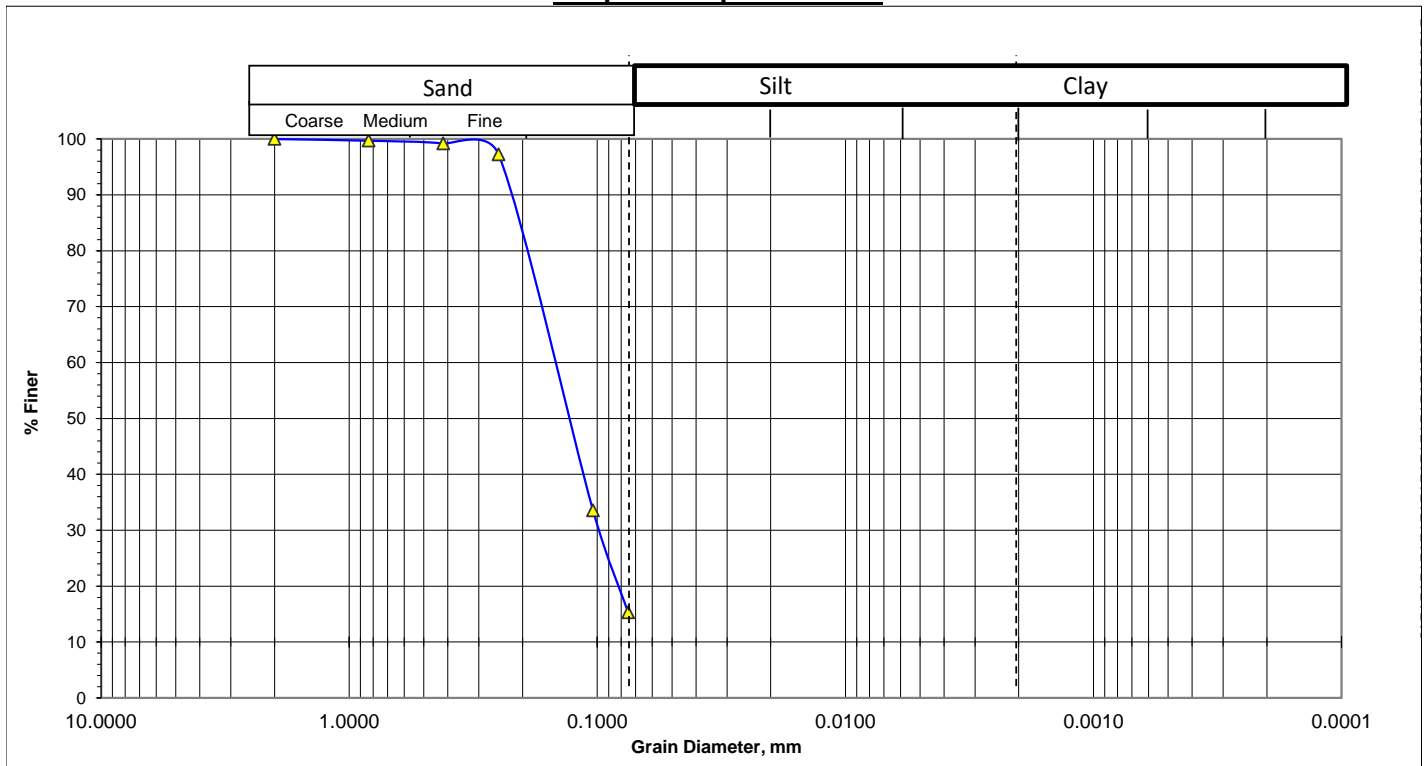


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** North Dhoom Khali, Gazaria, Shekerkhali (Lat- 22.69645, Long- 91.54869)  
**Bore Hole No:** BH-M66 **Sampled Date:** 11/02/2018  
**Sample No :** S08 **Test Date :** 01/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 15.46

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 84.5

(0.005mm size) & (0.001mm size) = 15.5



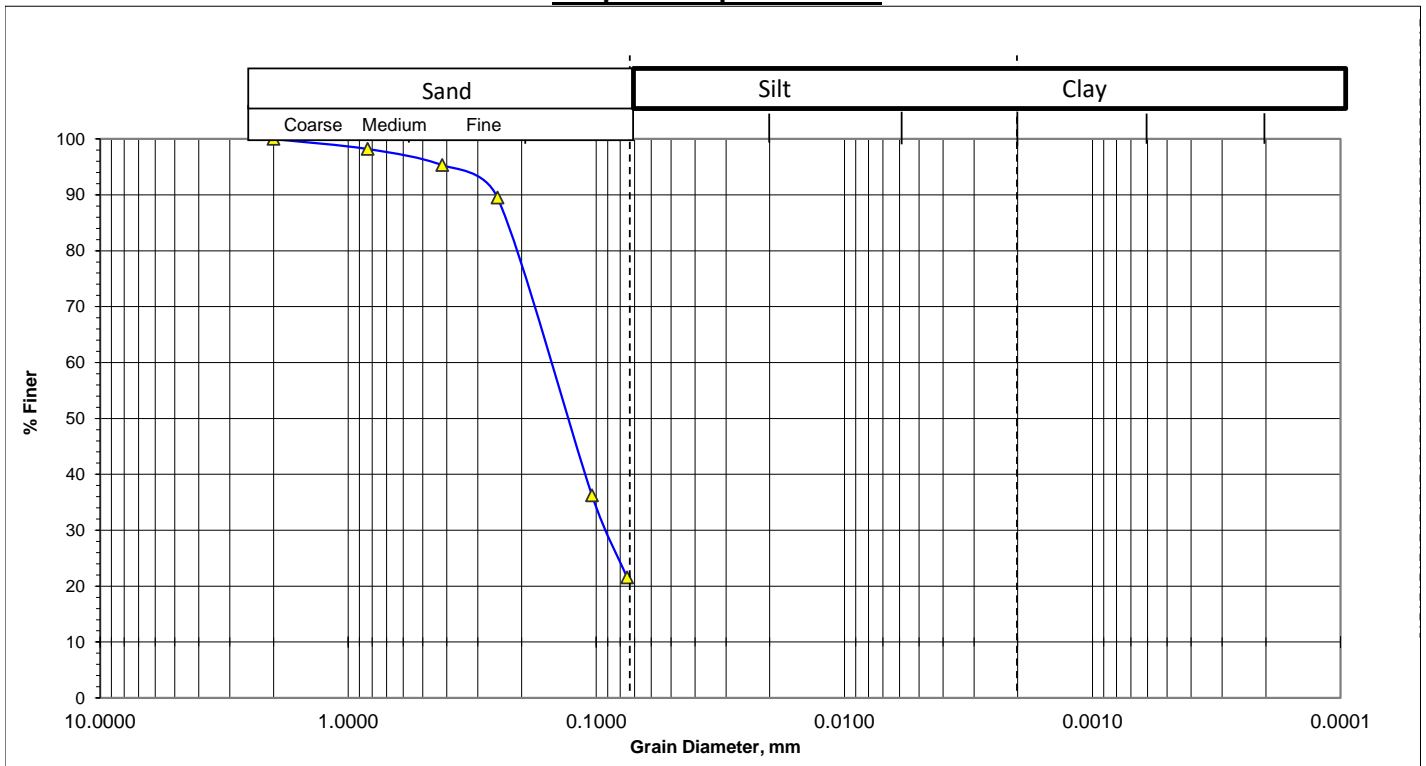
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Ichakhali Khalpar, Ichakhali (Lat- 22.78354, Long- 91.48431)

**Bore Hole No:** BH-M67 **Sampled Date:** 16/02/2018  
**Sample No :** S8 **Test Date :** 19/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 21.72

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 78.3

(0.005mm size) & (0.001mm size) = 21.7

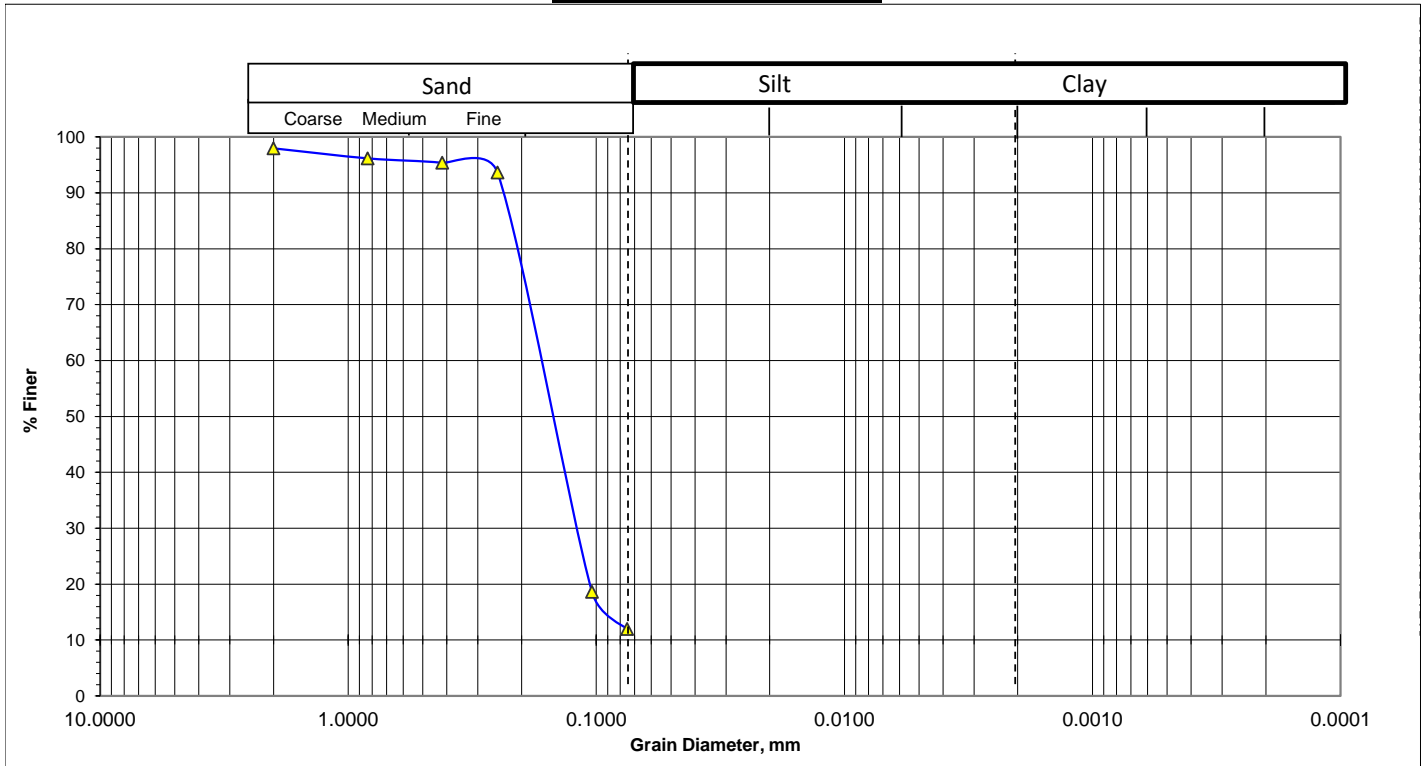


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Shaherkhali High School, Shaherkhali (Lat- 22.71369, Long- 91.56564)  
**Bore Hole No:** BH-M68 **Sampled Date:** 13/02/2018  
**Sample No :** S10 **Test Date :** 05/04/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 12.03

Mean Diameter(mm),  $D_{50}$  = 0.160

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.70

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 88.0

(0.005mm size) & (0.001mm size) = 12.0



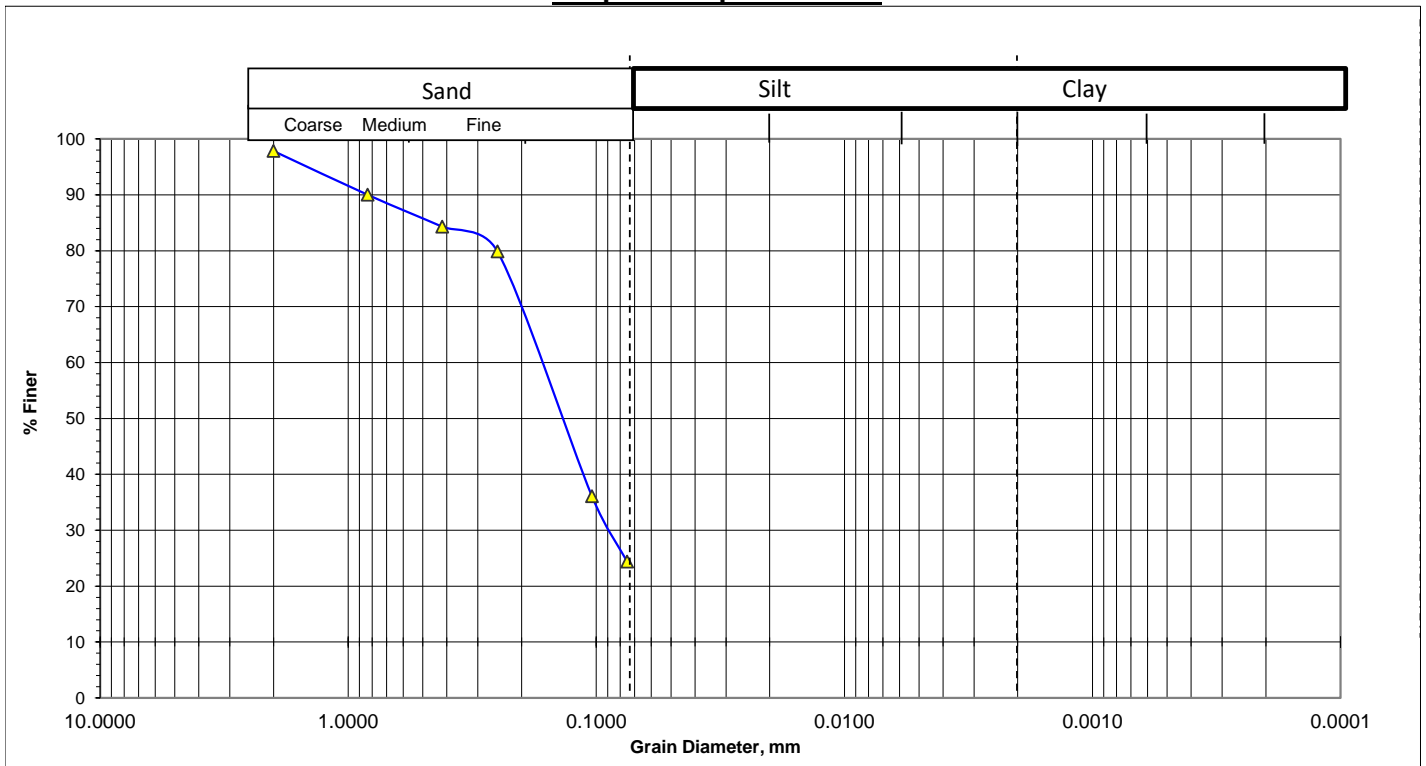
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Dhoomkhali, Shaherkhali (Lat- 22.69363, Long- 91.56484)

**Bore Hole No:** BH-M69 **Sampled Date:** 12/02/2018  
**Sample No :** S04 **Test Date :** 20/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 24.99

Mean Diameter(mm),  $D_{50}$  = 0.110

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.58

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 75.0

(0.005mm size) & (0.001mm size) = 25.0





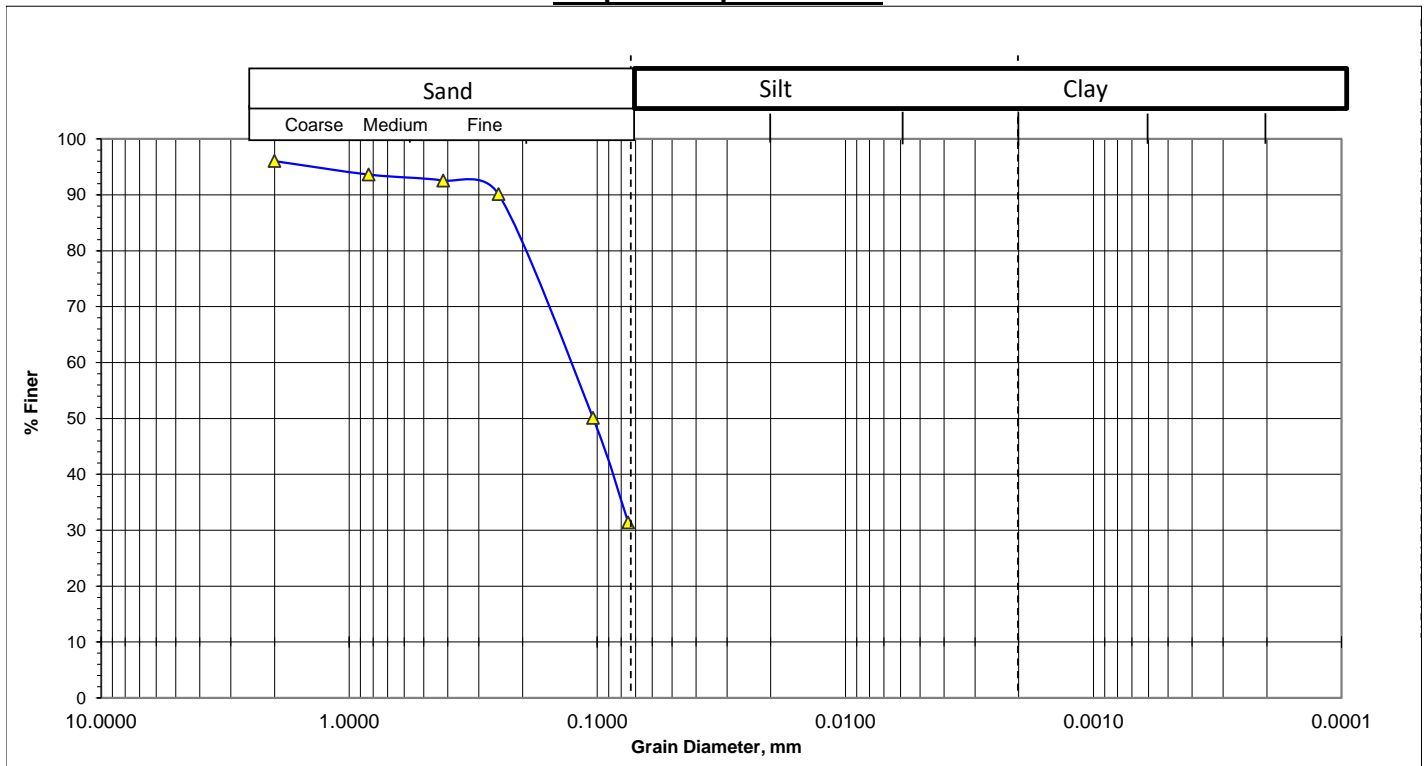
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** West Gobania, Mirshorai (Lat- 22.76866, Long- 91.56601)

**Bore Hole No:** BH-M70 **Sampled Date:** 08/02/2018  
**Sample No :** S8 **Test Date :** 17/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 31.48

Mean Diameter(mm),  $D_{50}$  = 0.110

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.58

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 68.5

(0.005mm size) & (0.001mm size) = 31.5



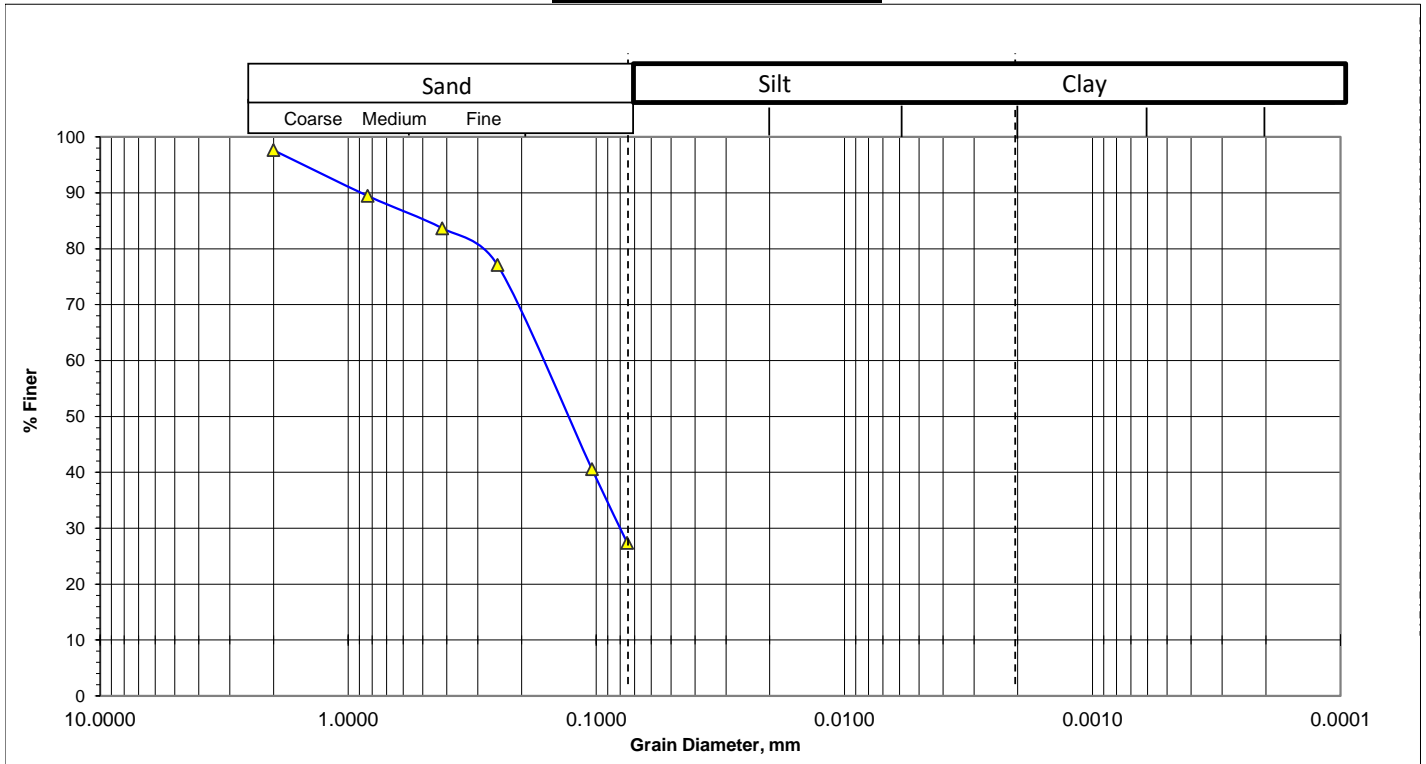
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Shonaichora, Khoiachora (Lat- 22.75824, Long- 91.60582)

Bore Hole No: BH-M71 Sampled Date: 08/02/2018  
 Sample No : S03 Test Date : 04/04/2018  
 Depth (m) : 4.5

### Graphical Representation:



Fines or % of silt and clay = 27.54

Mean Diameter(mm),  $D_{50}$  = 0.140

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.66

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 72.5

(0.005mm size) & (0.001mm size) = 27.5



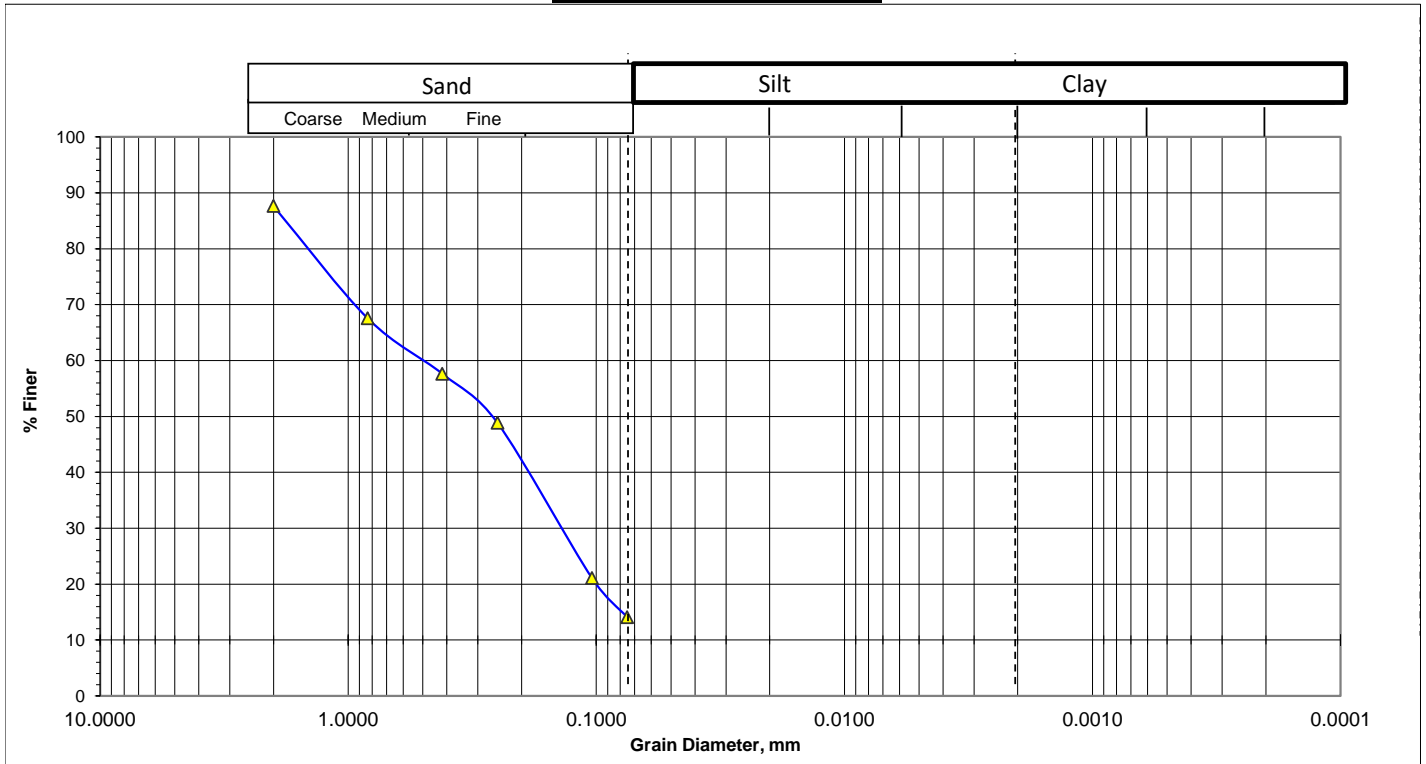
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Shonaichora, Khoiachora (Lat- 22.75824, Long- 91.60582)

Bore Hole No: BH-M71 Sampled Date: 08/02/2018  
 Sample No : S08 Test Date : 03/04/2018  
 Depth (m) : 12.0

### Graphical Representation:



Fines or % of silt and clay = 14.22

Mean Diameter(mm),  $D_{50}$  = 0.260

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.90

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 85.8

(0.005mm size) & (0.001mm size) = 14.2

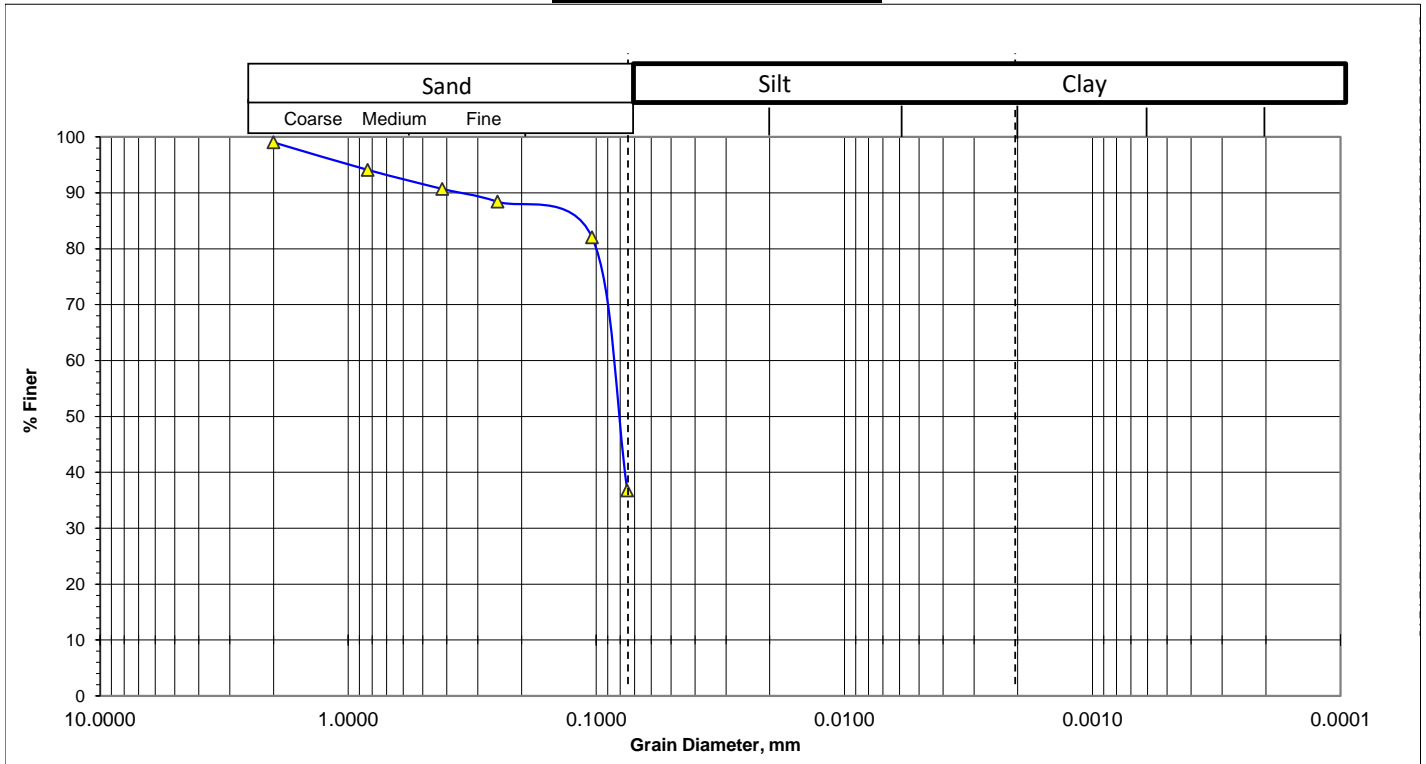


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Morjida Masima Taluk, Borotakia (Lat- 22.74442, Long- 91.58926)  
**Bore Hole No:** BH-M72 **Sampled Date:** 08/02/2018  
**Sample No :** S09 **Test Date :** 05/04/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 36.95

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 63.0

(0.005mm size) & (0.001mm size) = 37.0

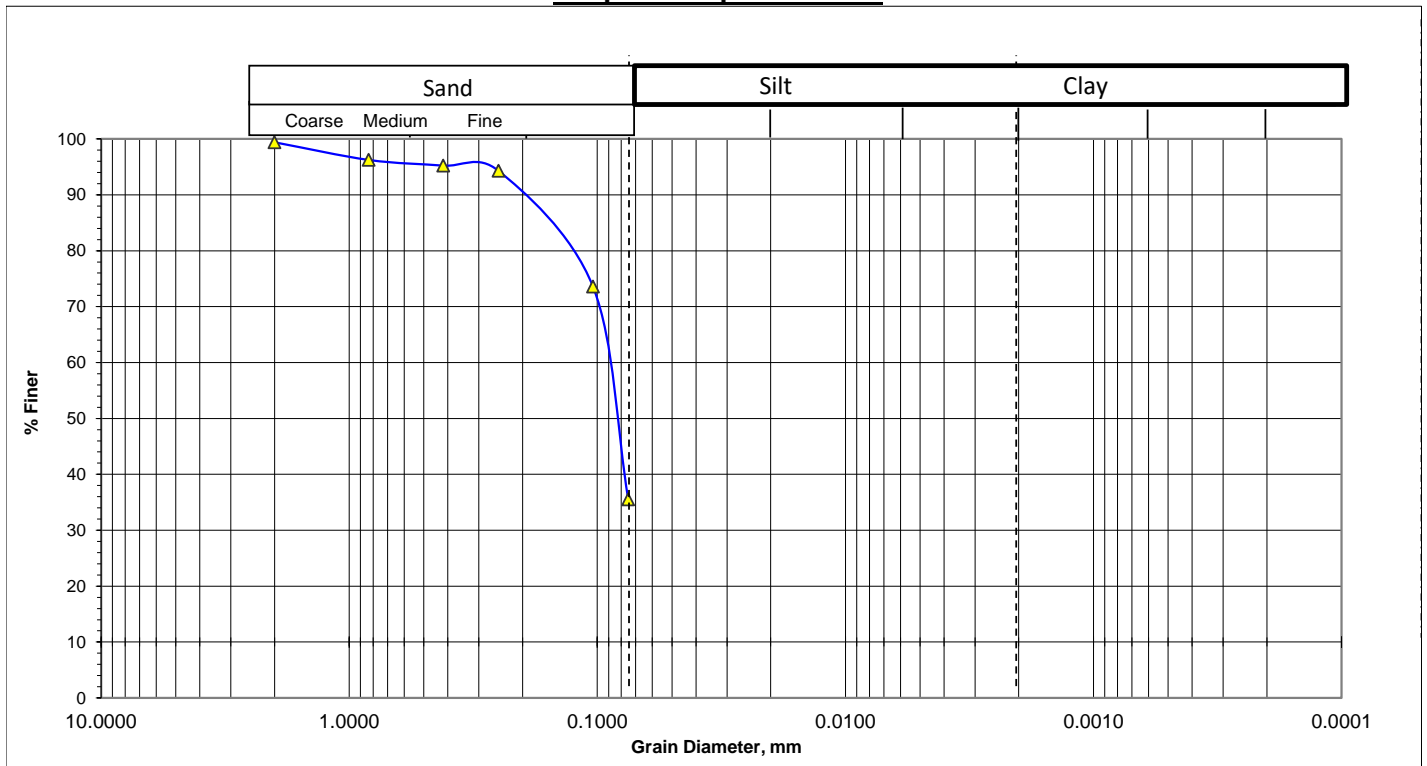


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Morjida Masima Taluk, Borotakia (Lat- 22.74442, Long- 91.58926)  
**Bore Hole No:** BH-M72 **Sampled Date:** 08/02/2018  
**Sample No :** S06 **Test Date :** 05/04/2018  
**Depth (m) :** 9.0

### Graphical Representation:



Fines or % of silt and clay = 35.66

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 64.3

(0.005mm size) & (0.001mm size) = 35.7

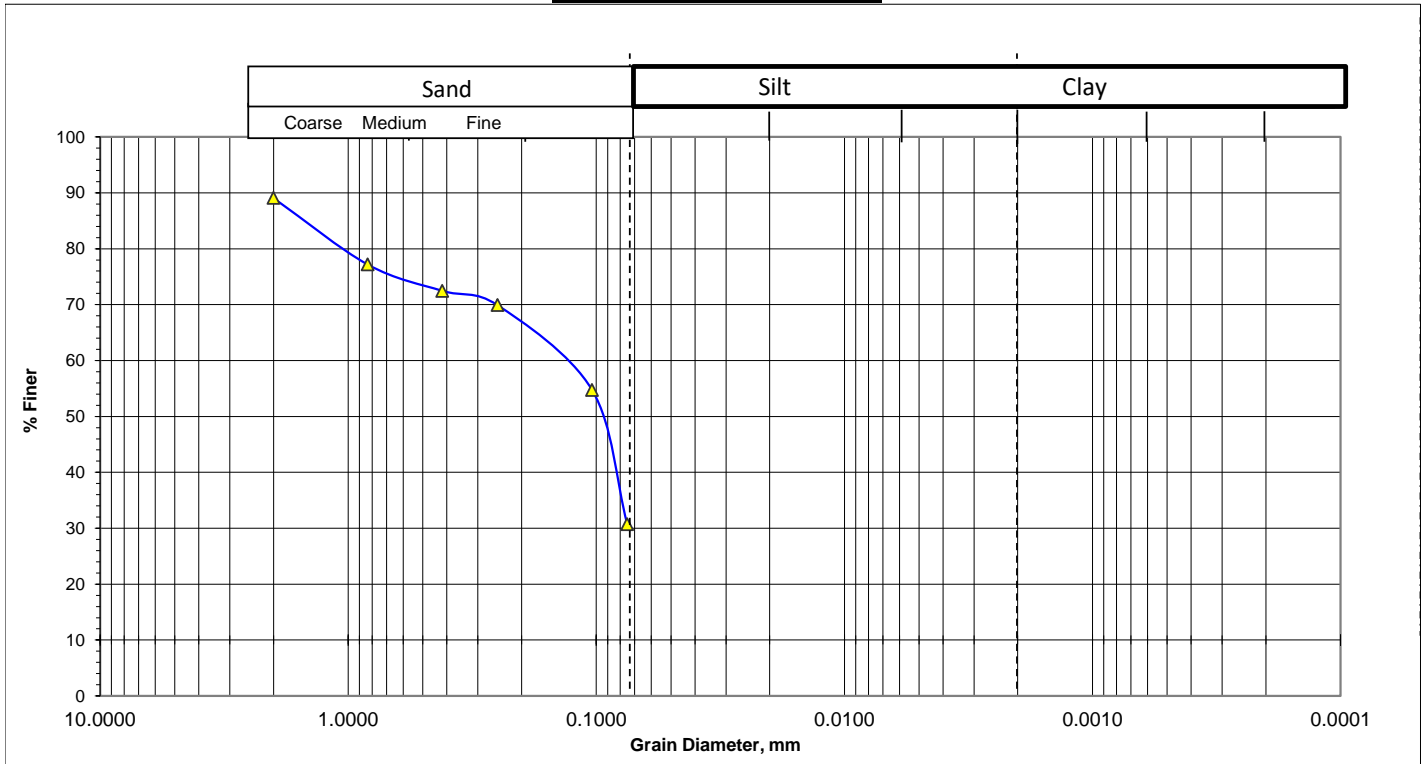


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Said Ali Govt. Primary School (Lat- 22.75439, Long- 91.57765)  
**Bore Hole No:** BH-M74 **Sampled Date:** 06/02/2018  
**Sample No :** S04 **Test Date :** 16/03/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 30.80

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 69.2

(0.005mm size) & (0.001mm size) = 30.8

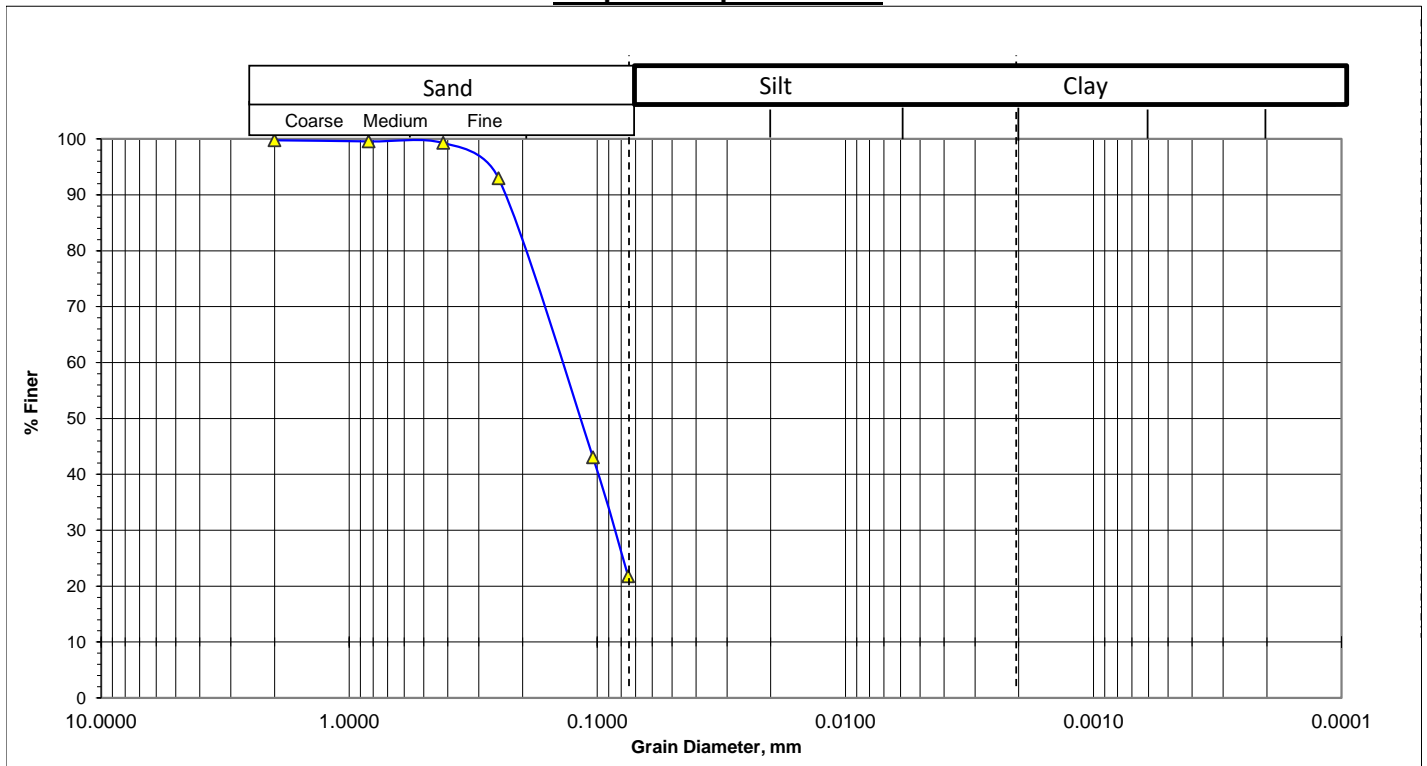


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Majeda Huq High School, Mayani (Lat- 22.72981, Long- 91.57939)  
**Bore Hole No:** BH-M75 **Sampled Date:** 09/02/2018  
**Sample No :** S09 **Test Date :** 02/04/2018  
**Depth (m) :** 13.5

### Graphical Representation:



Fines or % of silt and clay = 21.86

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 78.1

(0.005mm size) & (0.001mm size) = 21.9

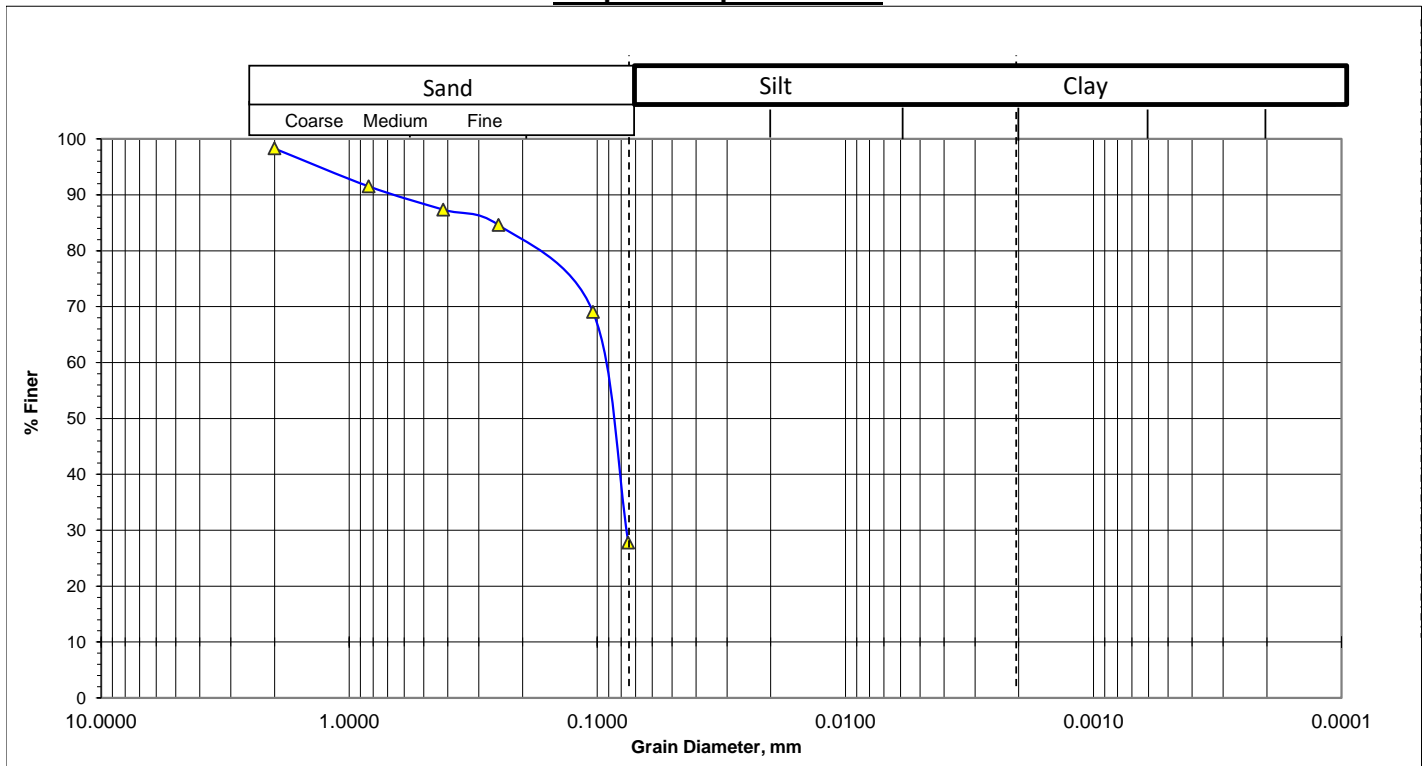


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Shah Abdul Majid Govt. Primary School, West Mayani (Lat- 22.7176, Long- 91.54582)  
**Bore Hole No:** BH-M76 **Sampled Date:** 13/02/2018  
**Sample No :** S04 **Test Date :** 03/04/2018  
**Depth (m) :** 6.0

### Graphical Representation:



Fines or % of silt and clay = 27.88

Mean Diameter(mm),  $D_{50}$  = 0.079

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.49

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 72.1

(0.005mm size) & (0.001mm size) = 27.9



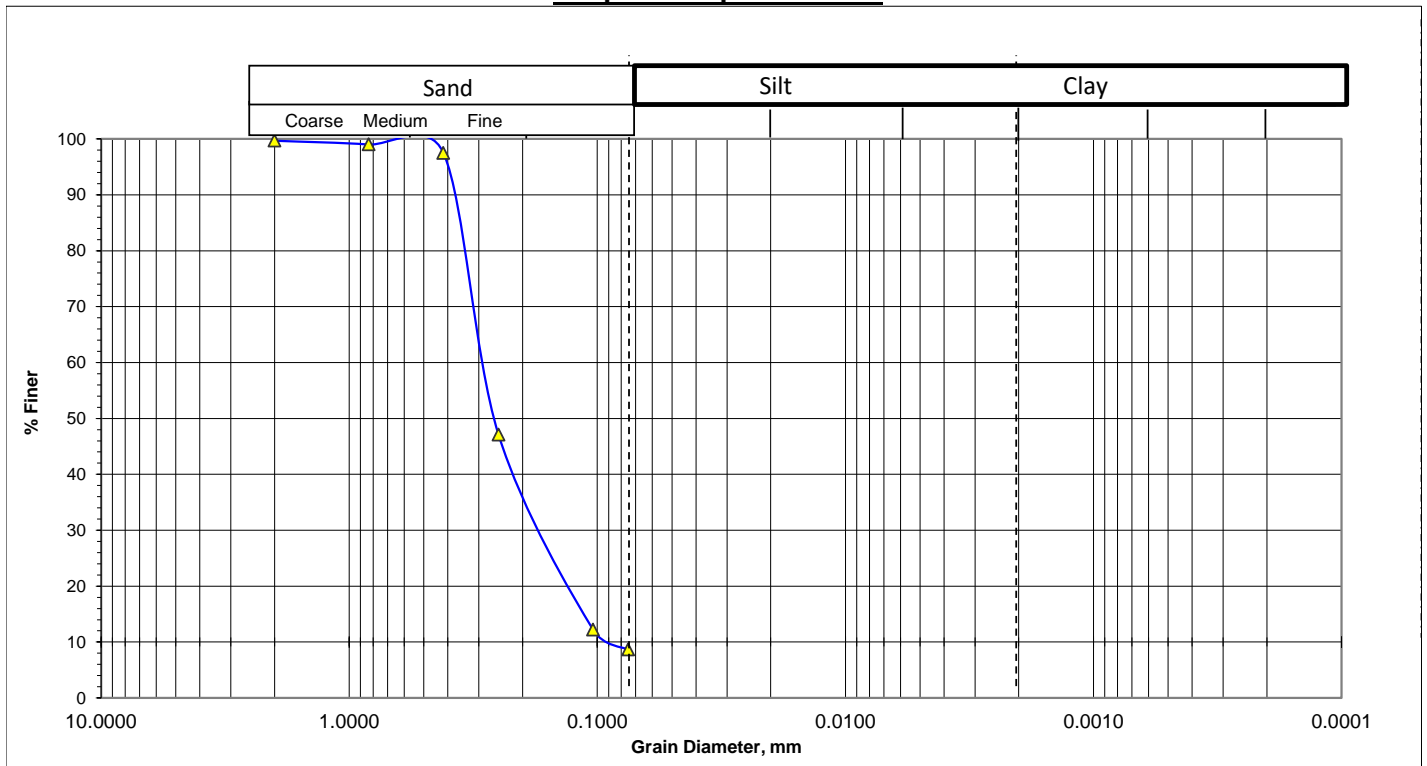


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** West Mayani Shahid Kamal Uddin Govt. Primary School (Lat- 22.73242, Long- 91.54217)  
**Bore Hole No:** BH-M77 **Sampled Date:** 14/02/2018  
**Sample No :** S10 **Test Date :** 04/04/2018  
**Depth (m) :** 15.0

### Graphical Representation:



Fines or % of silt and clay = 8.84

Mean Diameter(mm),  $D_{50}$  = 0.260

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.90

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 91.2

(0.005mm size) & (0.001mm size) = 8.8

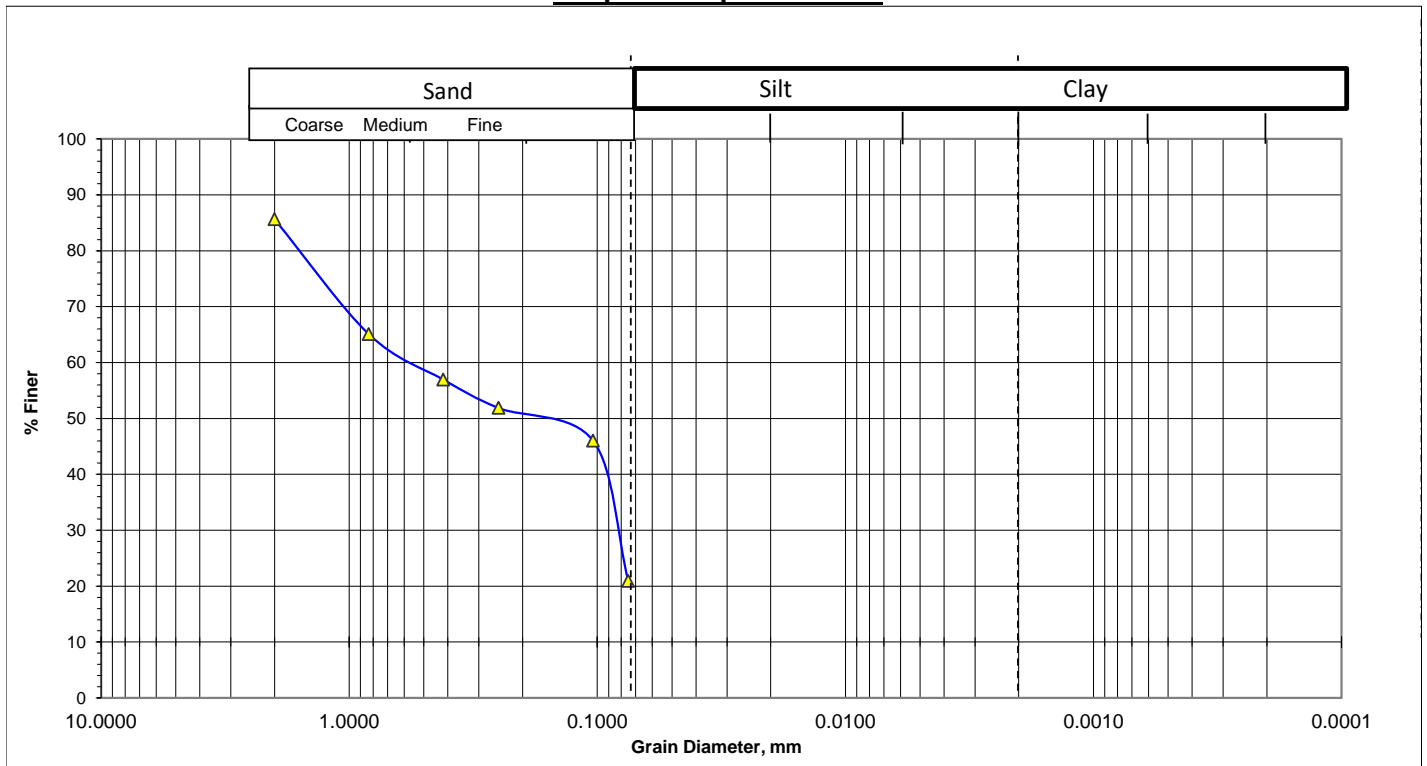


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** 13 no. Mayani Union Complex Building (Lat- 22.7457, Long- 91.55657)  
**Bore Hole No:** BH-M78 **Sampled Date:** 06/02/2018  
**Sample No :** S08 **Test Date :** 21/03/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 21.01

Mean Diameter(mm),  $D_{50}$  = 0.190

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.77

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 79.0

(0.005mm size) & (0.001mm size) = 21.0

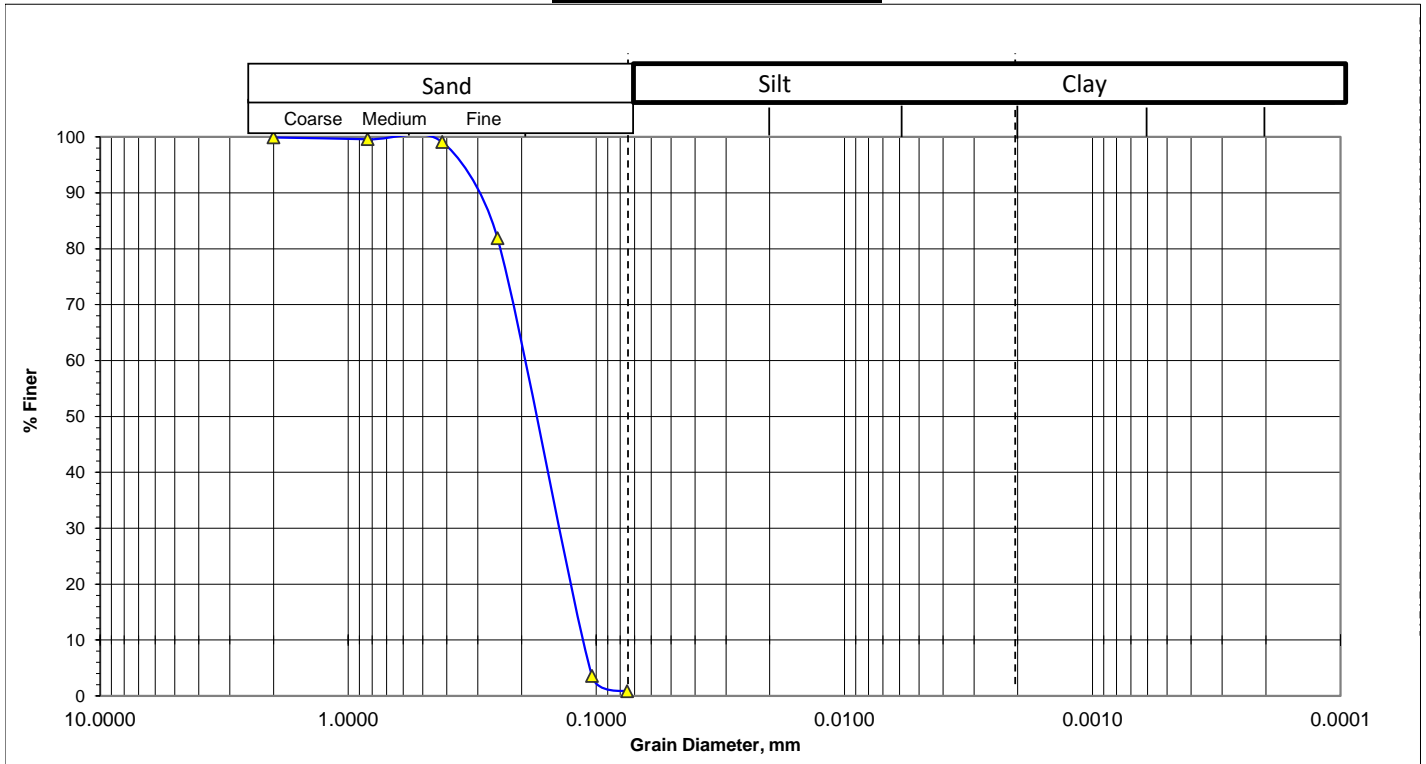


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** West Wahedpur Molla para Mosque (Lat- 22.7002, Long- 91.62035)  
**Bore Hole No:** BH-M79 **Sampled Date:** 11/02/2018  
**Sample No :** S13 **Test Date :** 04/04/2018  
**Depth (m) :** 19.5

### Graphical Representation:



Fines or % of silt and clay = 1.00

Mean Diameter(mm),  $D_{50}$  = 0.180

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.75

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 99.0

(0.005mm size) & (0.001mm size) = 1.0



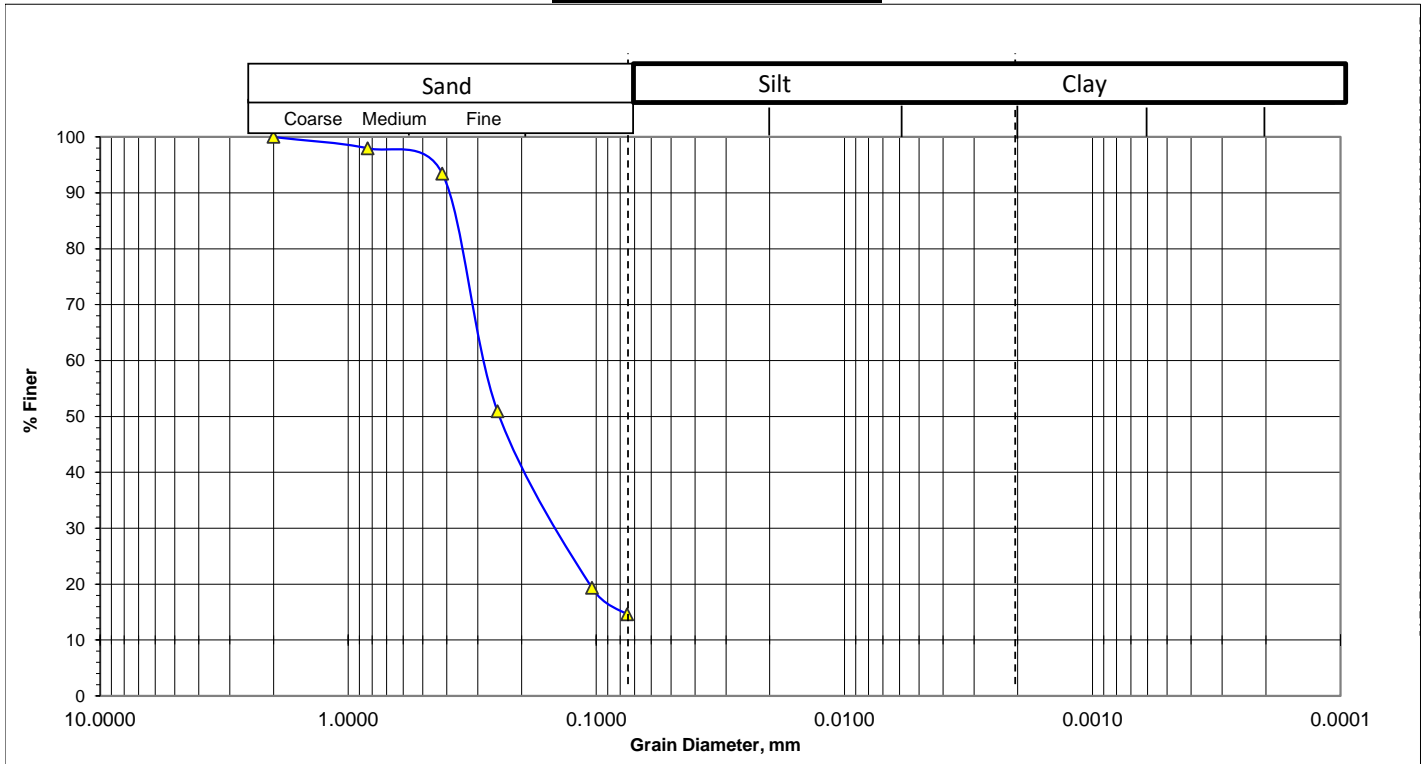
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Beltola, Wahedpur (Lat- 22.74, Long- 91.604)

Bore Hole No: BH-M80 Sampled Date: 09/02/2018  
 Sample No : S10 Test Date : 04/04/2018  
 Depth (m) : 15.0

### Graphical Representation:



Fines or % of silt and clay = 15.74

Mean Diameter(mm),  $D_{50}$  = 0.250

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.88

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 84.3

(0.005mm size) & (0.001mm size) = 15.7



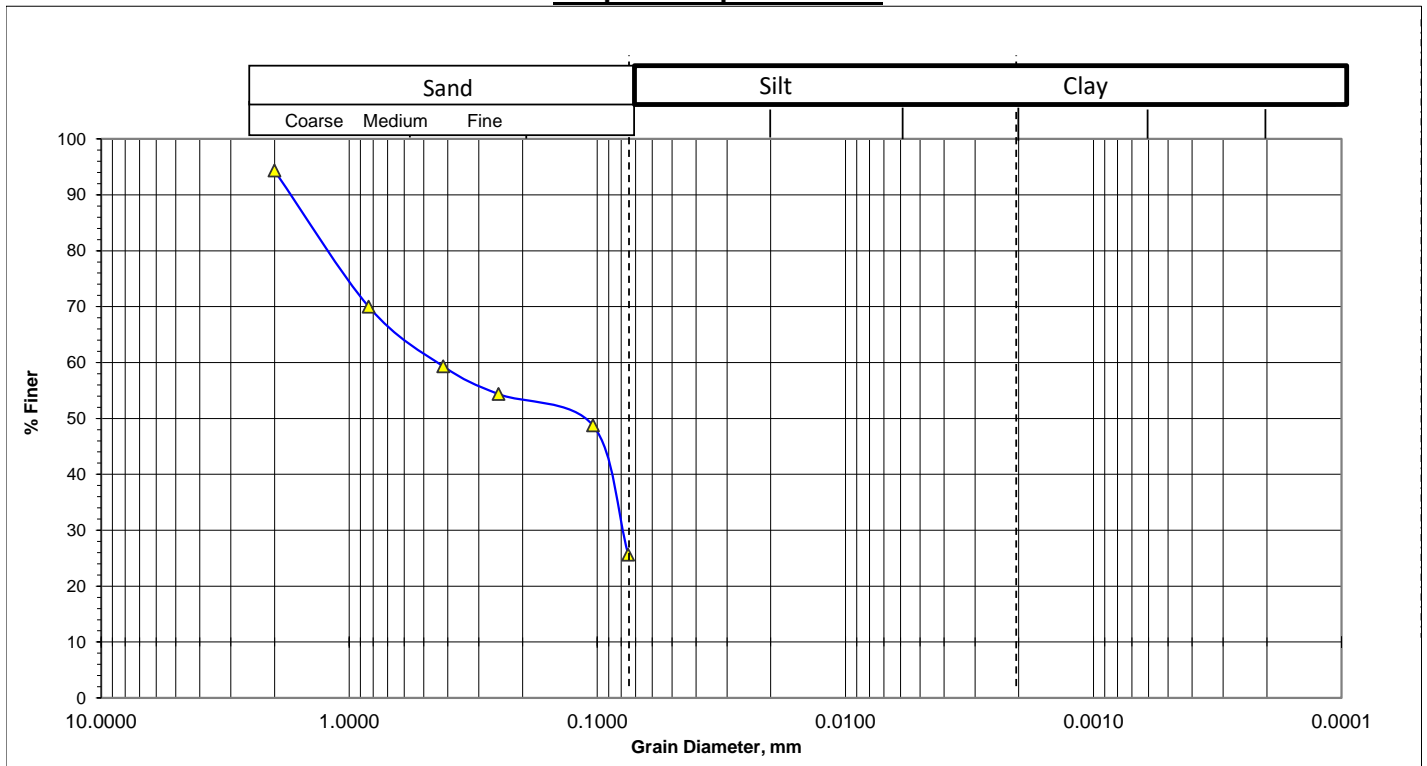
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Beltola, Wahedpur (Lat- 22.74, Long- 91.604)

Bore Hole No: BH-M80 Sampled Date: 09/02/2018  
 Sample No : S05 Test Date : 04/04/2018  
 Depth (m) : 7.5

### Graphical Representation:



Fines or % of silt and clay = 25.79

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

#### % Particles (from the grain -size analysis graph).

(0.075mm size) = 74.2

(0.005mm size) & (0.001mm size) = 25.8

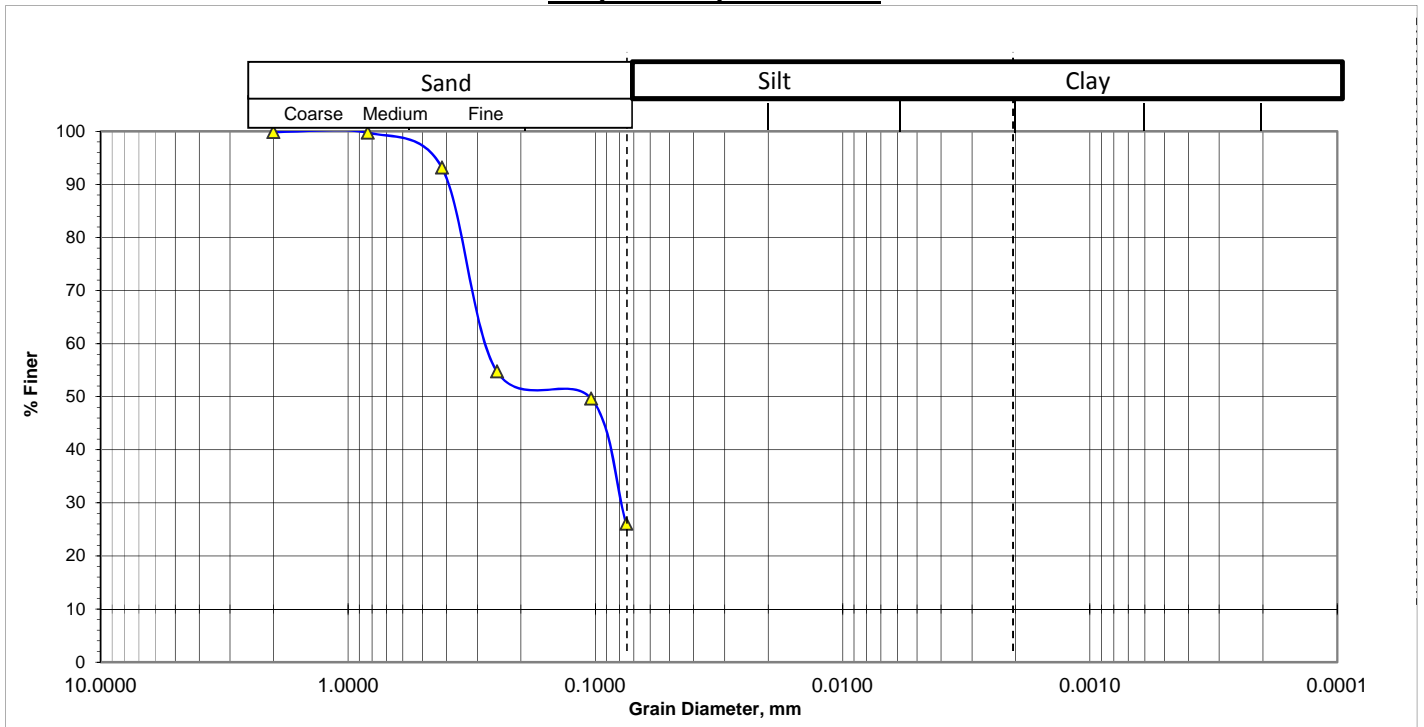


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client :** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Sheker Taluk, Wahedpur (Lat- 22.71732, Long- 91.61549)  
**Bore Hole No:** BH-M81 **Sampled Date:** 10-02-2018  
**Sample No :** S06 **Test Date :** 04-04-2018  
**Depth (m) :** 9.0

### Graphical Representation:



Fines or % of silt and clay = 26.10

Mean Diameter(mm),  $D_{50}$  = 0.100

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.56

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 73.9

(0.005mm size) & (0.001mm size) = 26.1



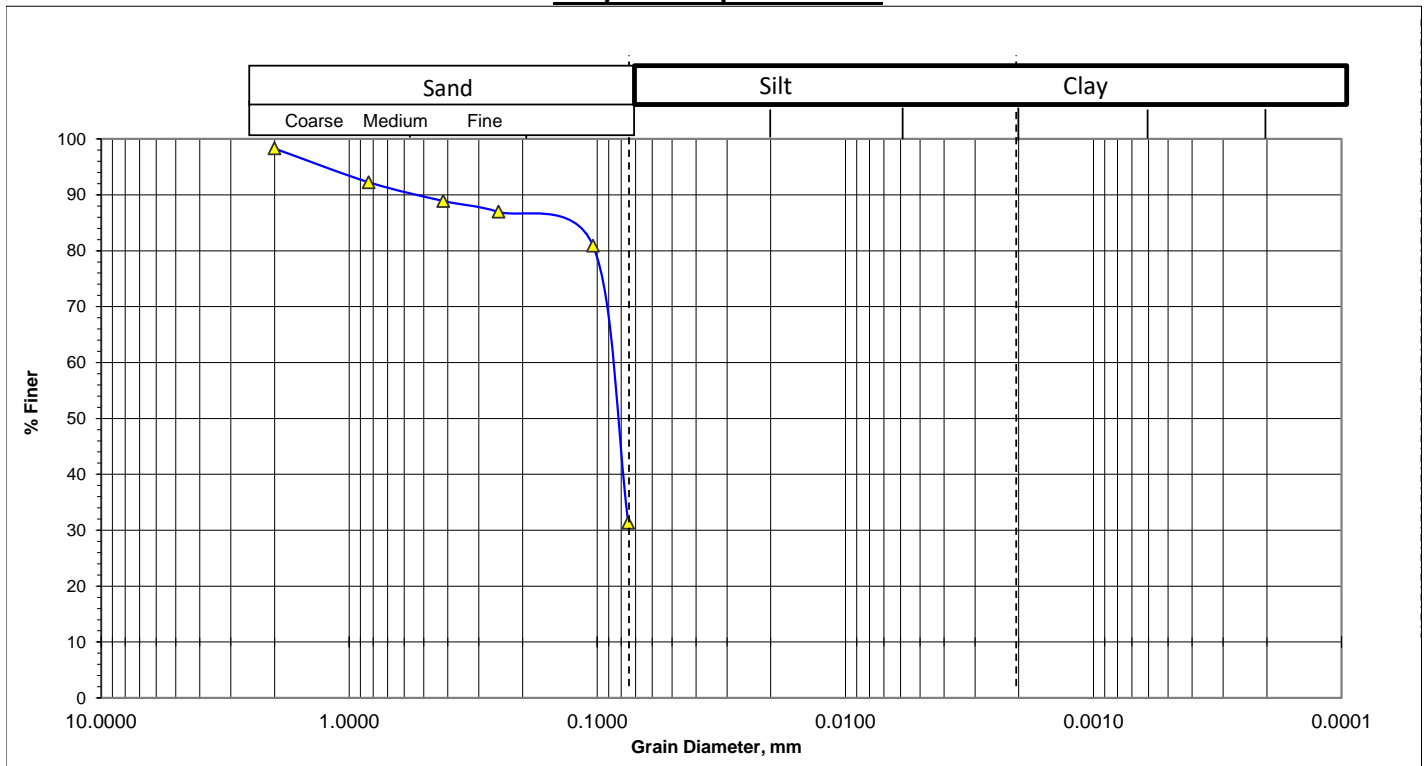
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Maizgao (Lat- 22.70669, Long- 91.6047)

**Bore Hole No:** BH-M82 **Sampled Date:** 11/02/2018  
**Sample No :** S02 **Test Date :** 05/04/2018  
**Depth (m) :** 3.0

### Graphical Representation:



Fines or % of silt and clay = 31.51

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 68.5

(0.005mm size) & (0.001mm size) = 31.5



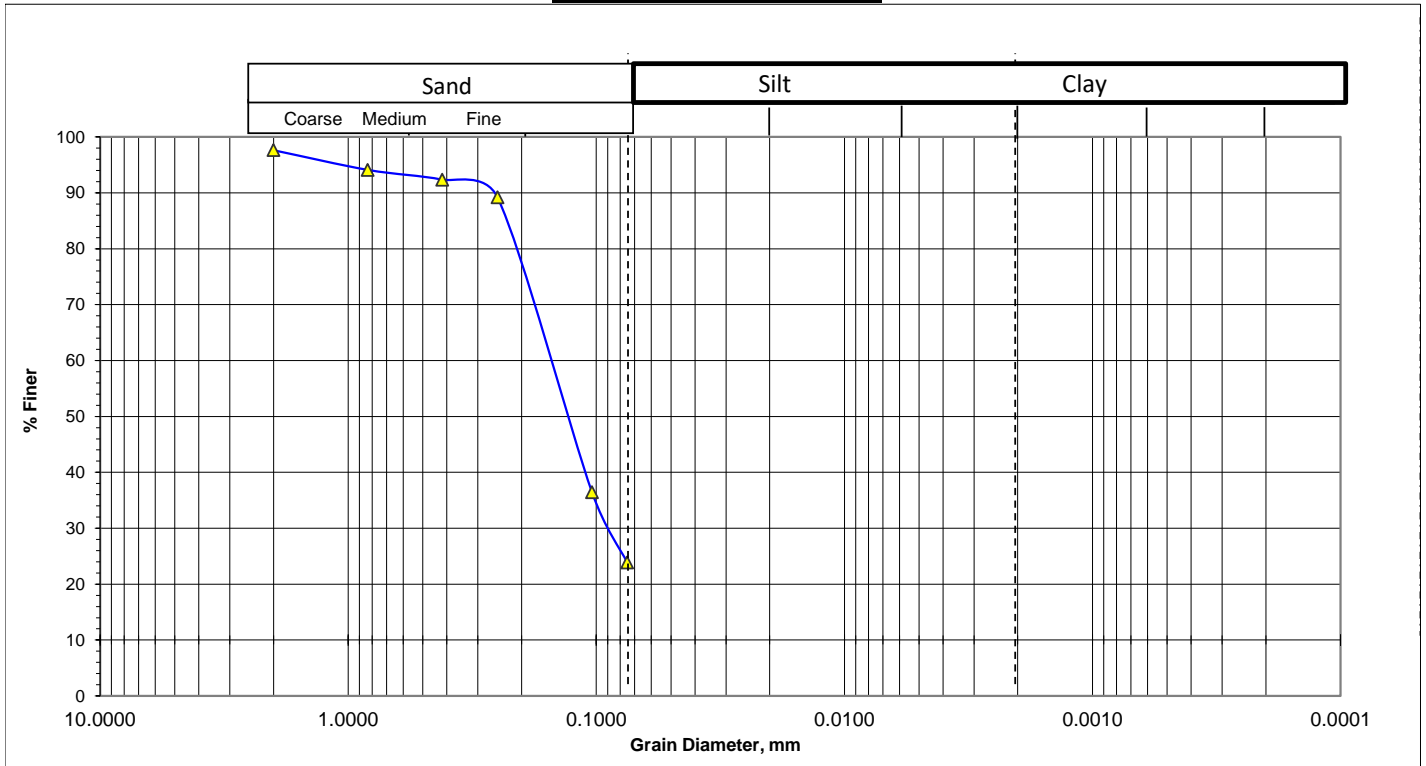
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Maizgao (Lat- 22.70669, Long- 91.6047)

**Bore Hole No:** BH-M82 **Sampled Date:** 11/02/2018  
**Sample No :** S08 **Test Date :** 04/04/2018  
**Depth (m) :** 12.0

### Graphical Representation:



Fines or % of silt and clay = 24.04

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 76.0

(0.005mm size) & (0.001mm size) = 24.0



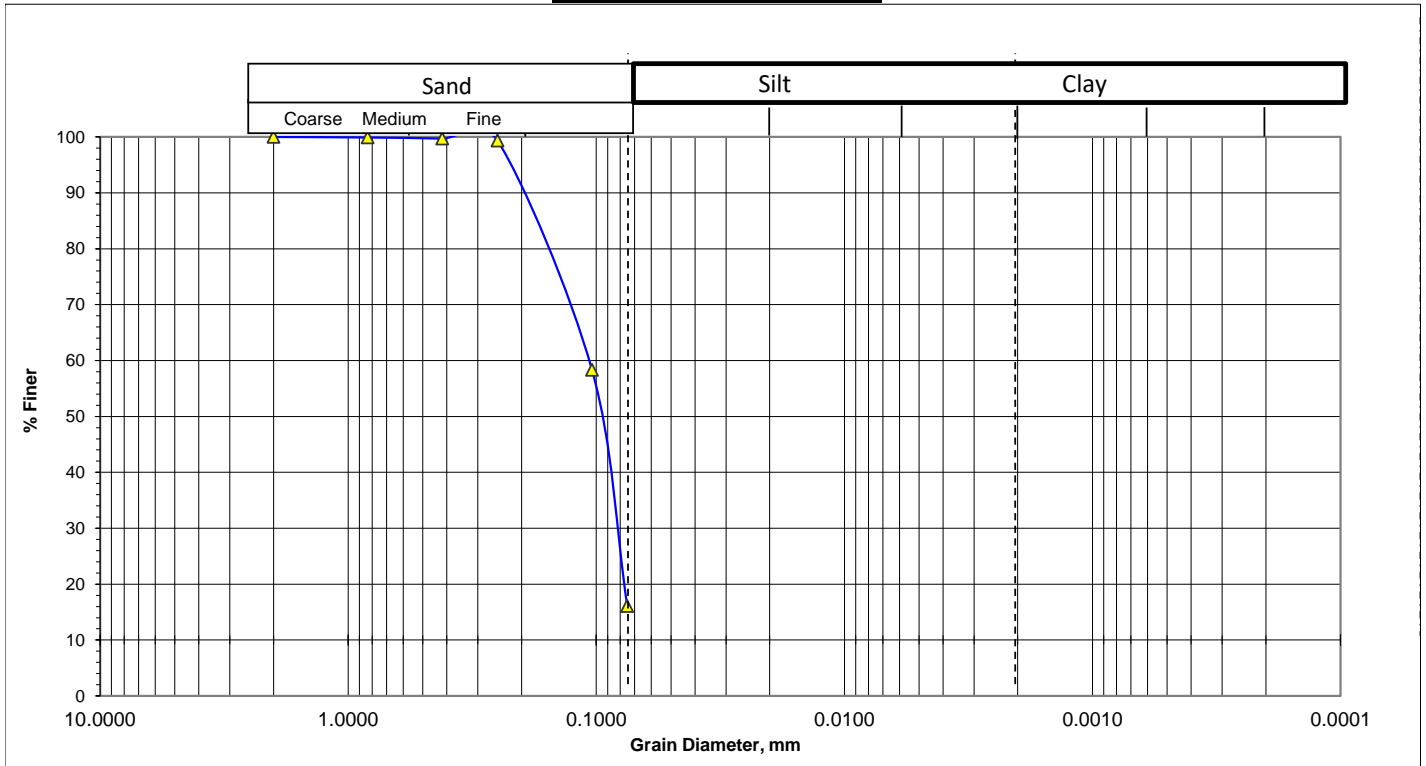


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Jafrabad Govt. Primary School, Wahedpur (Lat- 22.68304, Long- 91.62183)  
**Bore Hole No:** BH-M83 **Sampled Date:** 10/02/2018  
**Sample No :** S05 **Test Date :** 04/04/2018  
**Depth (m) :** 7.5

### Graphical Representation:



Fines or % of silt and clay = 16.20

Mean Diameter(mm),  $D_{50}$  = 0.062

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.44

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 83.8

(0.005mm size) & (0.001mm size) = 16.2

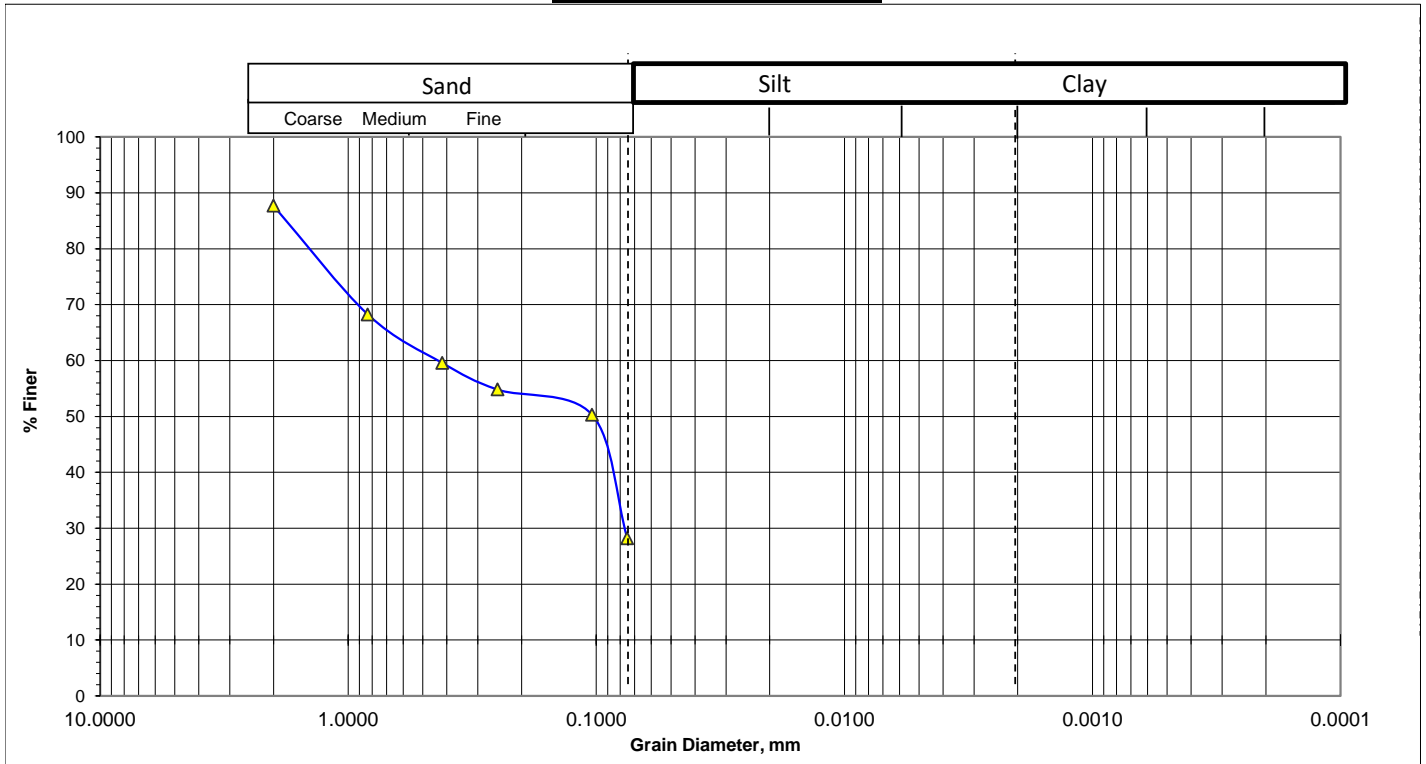


# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** South Baliadi Govt. Primary School (Lat- 22.67191, Long- 91.60059)  
**Bore Hole No:** BH-M84 **Sampled Date:** 10/02/2018  
**Sample No :** S03 **Test Date :** 02/04/2018  
**Depth (m) :** 4.5

### Graphical Representation:



Fines or % of silt and clay = 28.28

Mean Diameter(mm),  $D_{50}$  = 0.100

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.56

**% Particles (from the grain -size analysis graph).**

(0.075mm size) = 71.7

(0.005mm size) & (0.001mm size) = 28.3



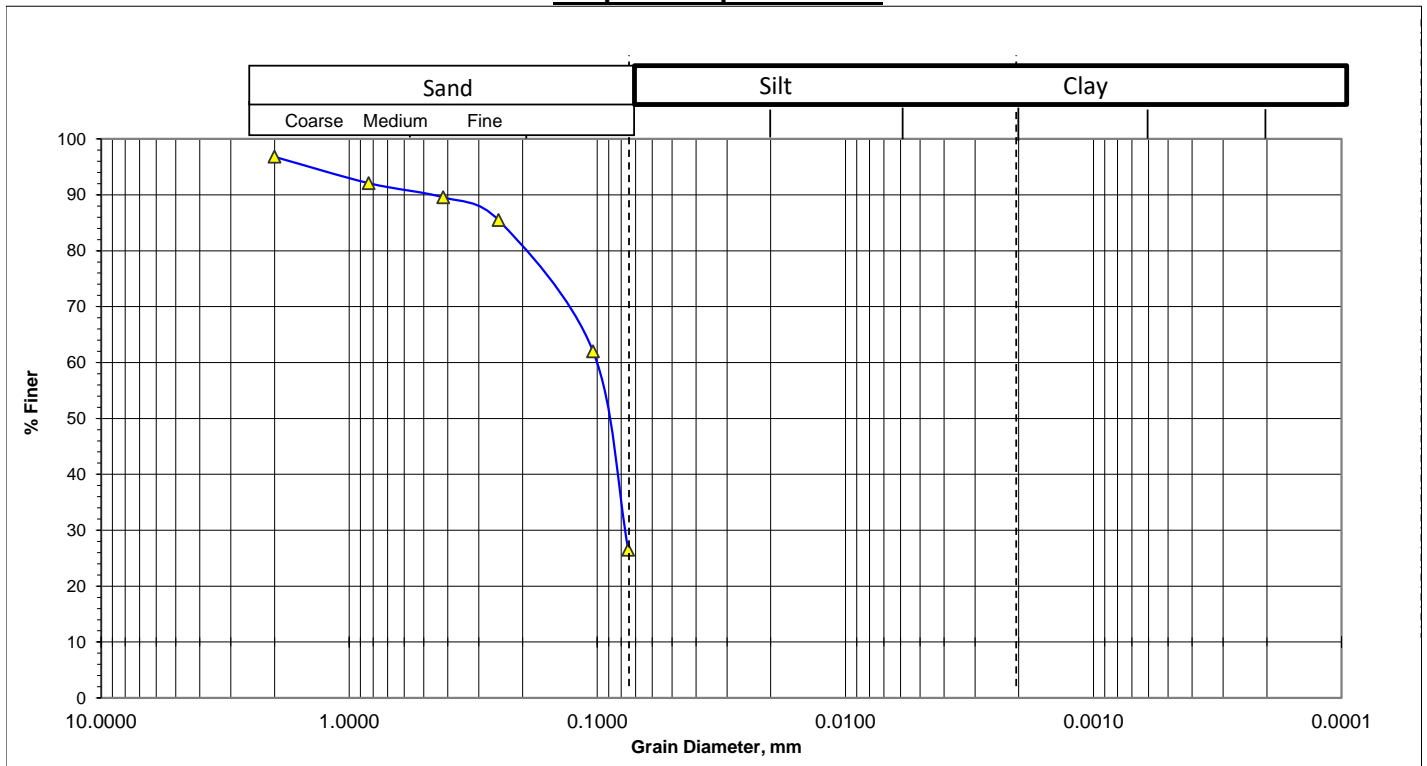
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

Client : Urban Development Directorate, UDD  
 Project : Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
 Location : Hait kandi High School (Lat- 22.71106, Long- 91.57895)

Bore Hole No: BH-M85 Sampled Date: 10/02/2018  
 Sample No : S03 Test Date : 01/04/2018  
 Depth (m) : 4.5

### Graphical Representation:



Fines or % of silt and clay = 26.66

Mean Diameter(mm),  $D_{50}$  = 0.081

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.50

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 73.3

(0.005mm size) & (0.001mm size) = 26.7



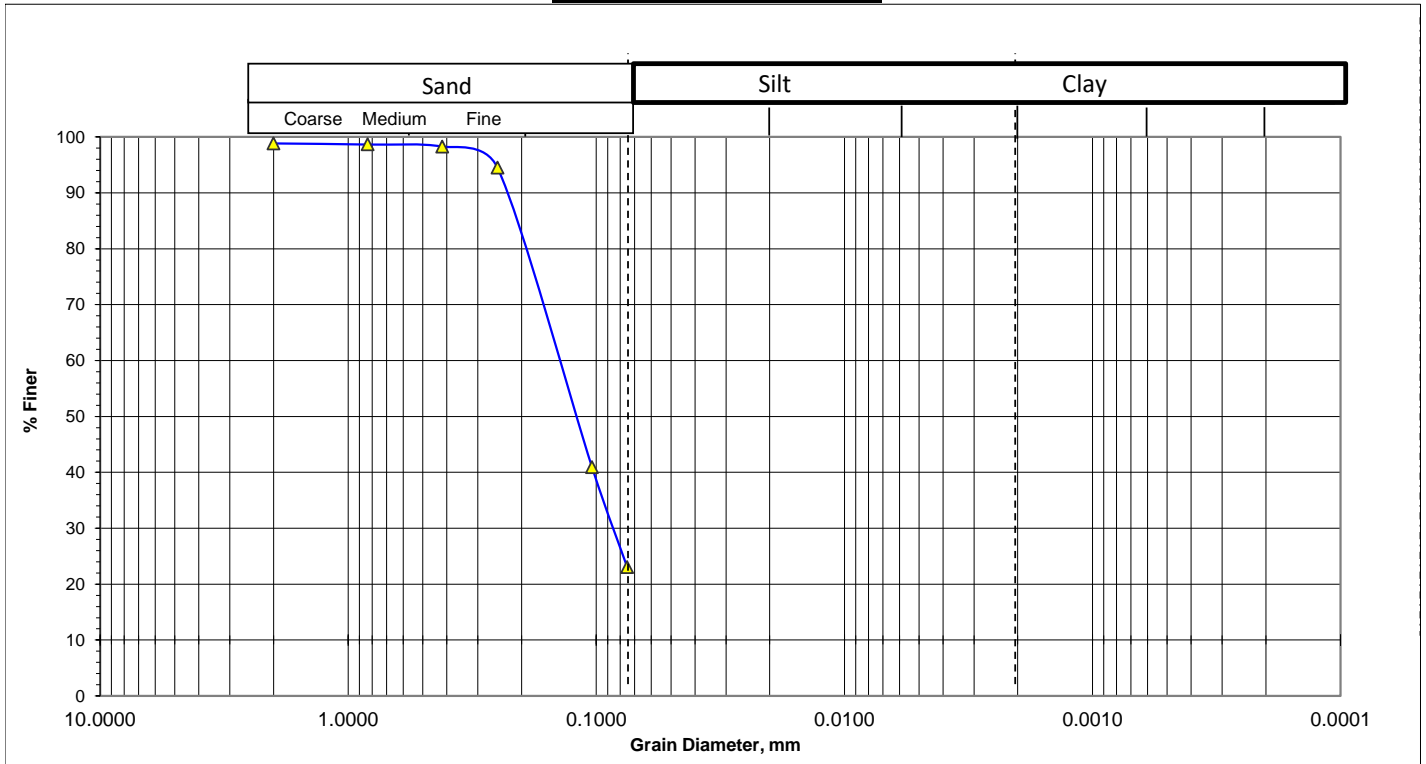
# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS (Mechanical) OF FINE AGGREGATE, SOIL ETC.

**Client .:** Urban Development Directorate, UDD  
**Project :** Preparation of Development Plan for Mirsharai Upazila,  
 Chittagong District: Risk Sensitive Landuse Plan (Package-2)  
**Location :** Hait kandi High School (Lat- 22.71106, Long- 91.57895)

**Bore Hole No:** BH-M85 **Sampled Date:** 10/02/2018  
**Sample No :** S07 **Test Date :** 01/04/2018  
**Depth (m) :** 10.5

### Graphical Representation:



Fines or % of silt and clay = 23.16

Mean Diameter(mm),  $D_{50}$  = 0.130

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.63

### % Particles (from the grain -size analysis graph).

(0.075mm size) = 76.8

(0.005mm size) & (0.001mm size) = 23.2



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

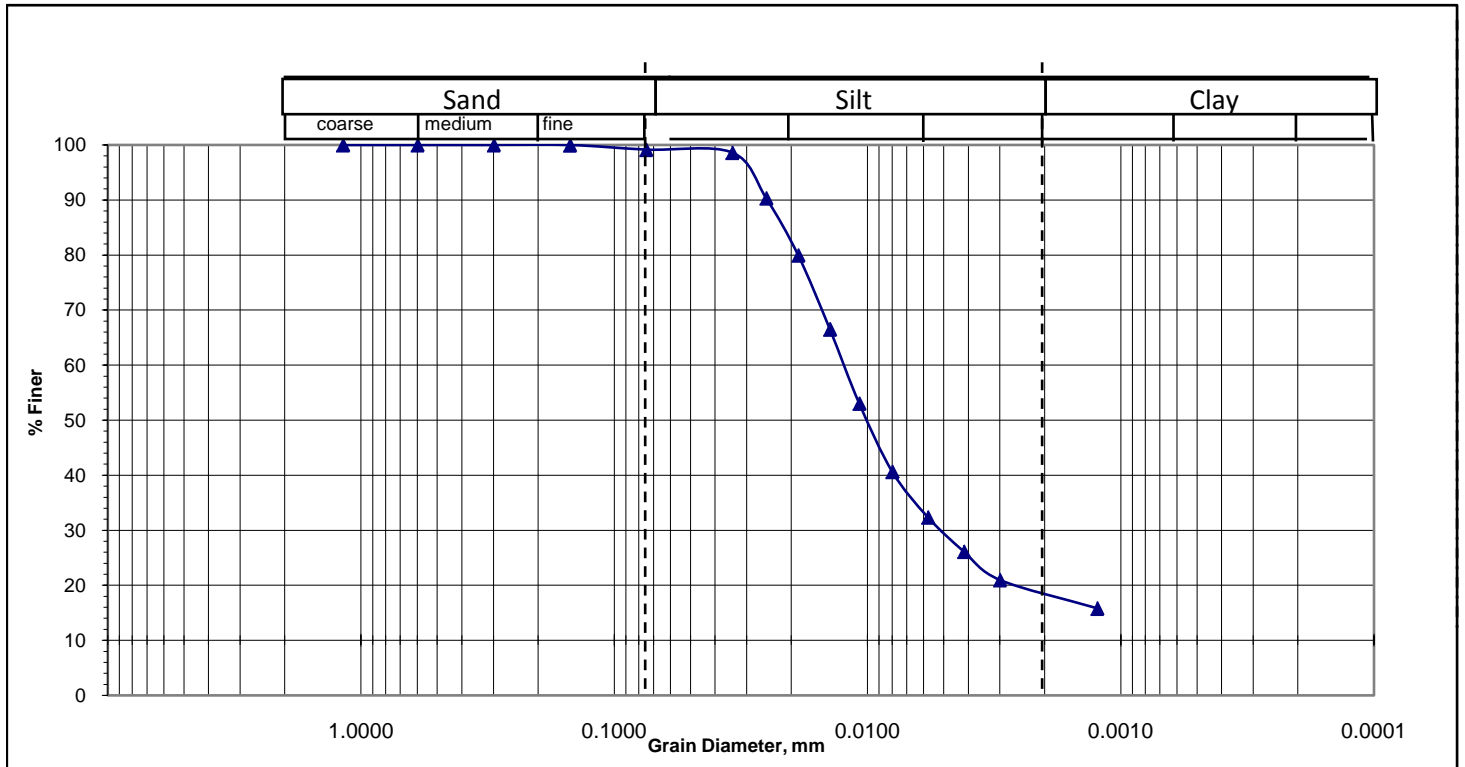
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location :West Joar Rashidia Govt. Primary School

Bore Hole No : BH-M01      Sample No. S5      Sampled Date: 25/01/2018

Depth (m) : 7.5      Test Date : 10/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.01 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.18

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 81% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Choturua, Ward-1, Korerhat

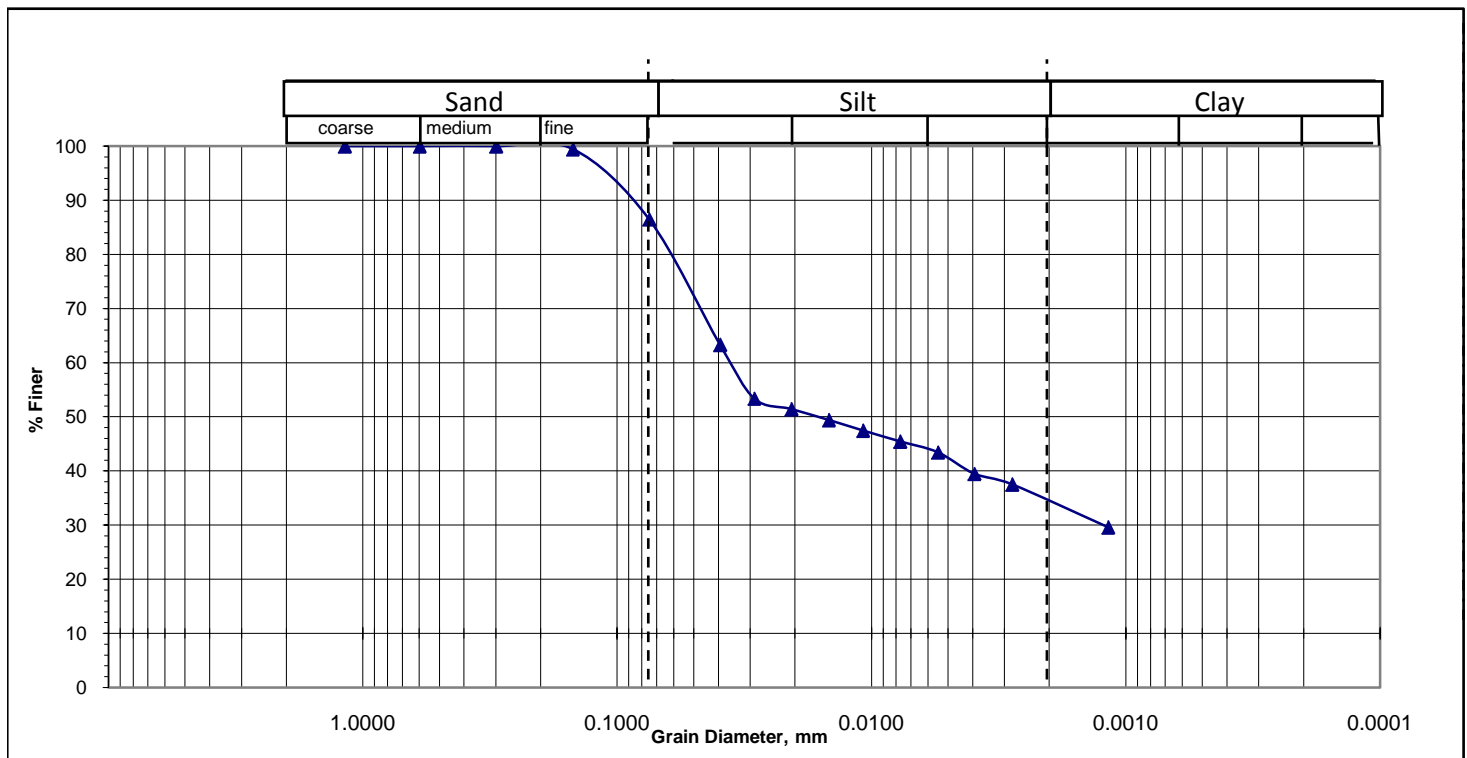
Bore Hole No : BH-M02 Sample No. S3

Sampled Date: 26/01/2018

Depth (m) : 4.5

Test Date : 12/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.015$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =14%, Silt (0.005mm size)= 61% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Giamara gram, Bagan road, Korerhat

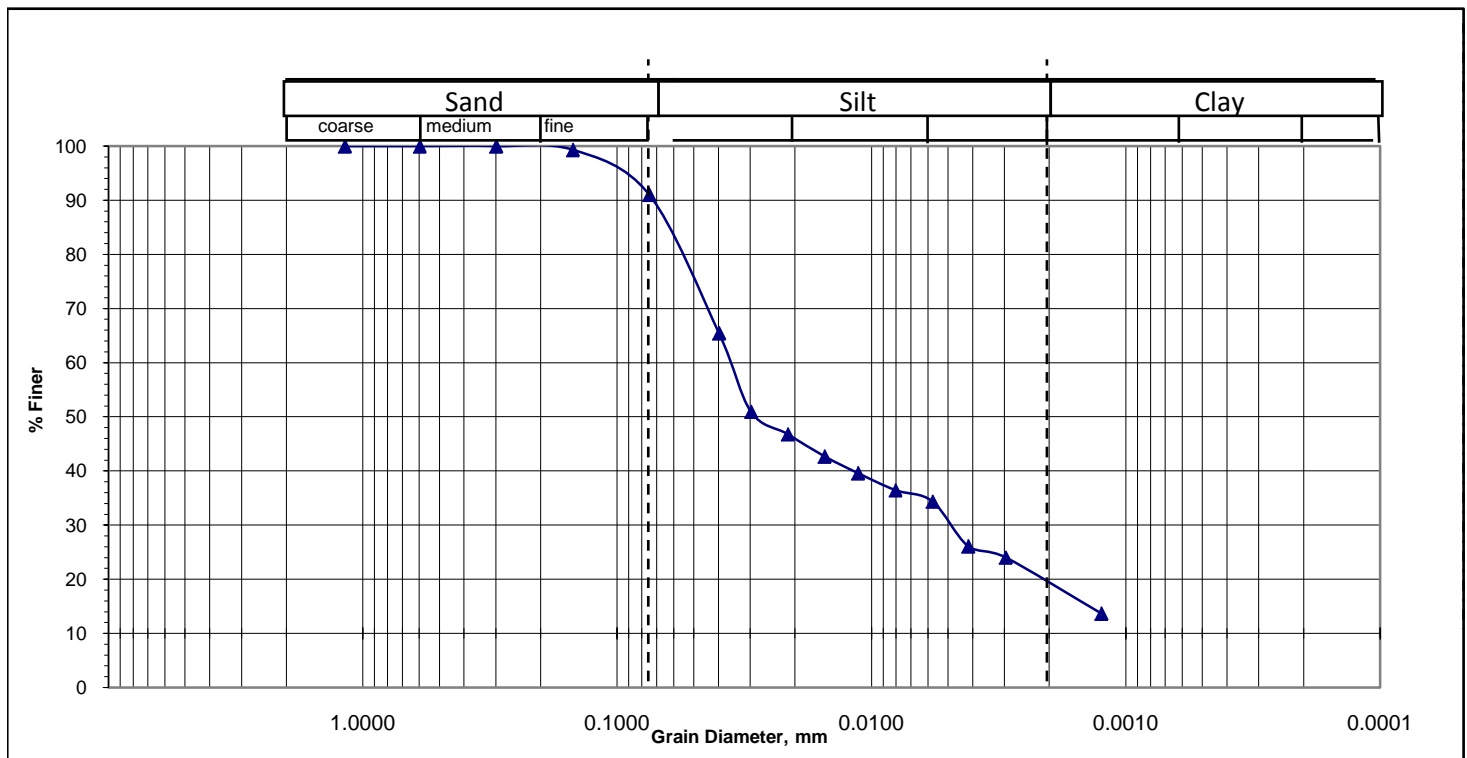
Bore Hole No : BH-M03 Sample No. S5

Sampled Date: 26/01/2018

Depth (m) : 7.5

Test Date : 12/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.03$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.30$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =10%, Silt (0.005mm size)= 70% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Bisshowtila Jame mosque, Olinogor, Korerhat

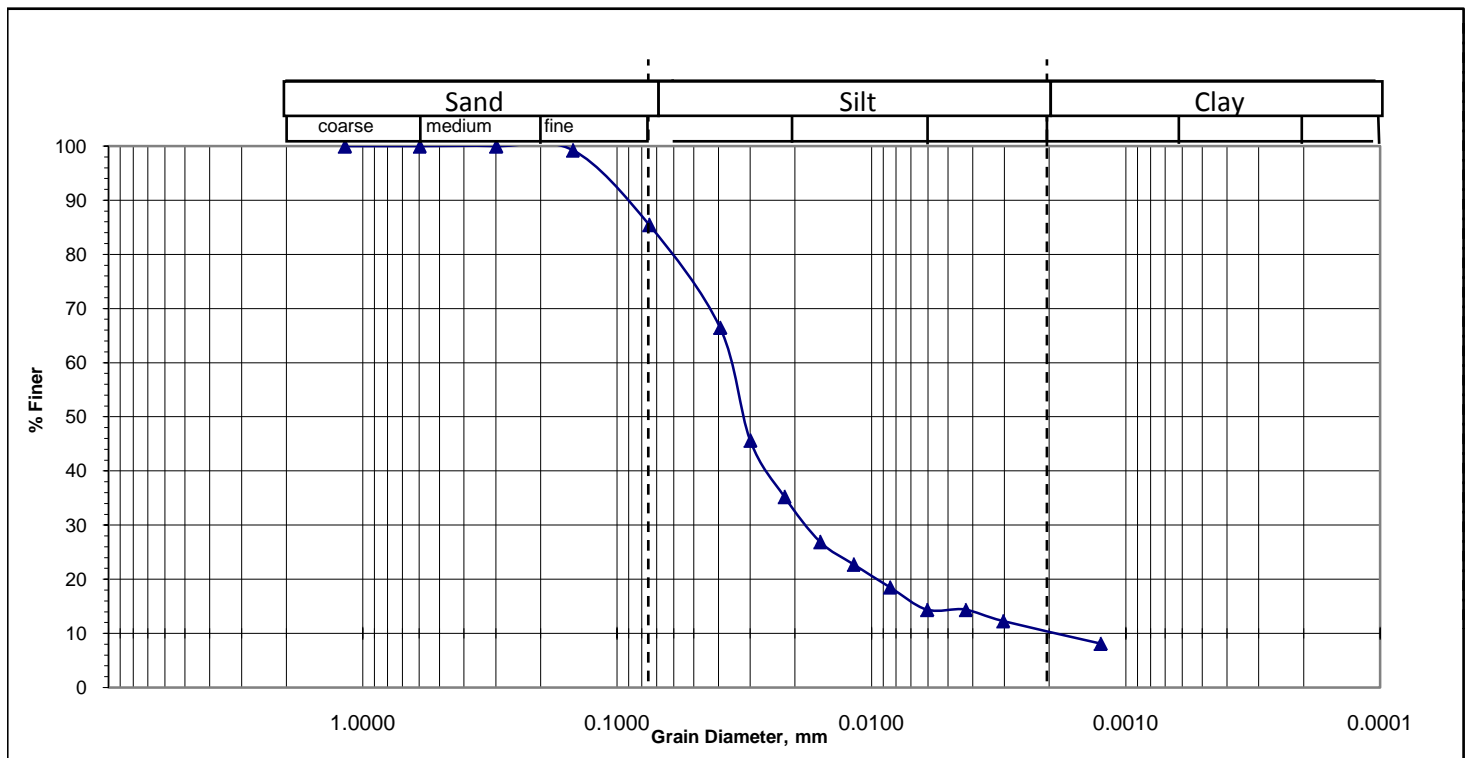
Bore Hole No : BH-M04 Sample No. S11

Sampled Date: 25/01/2018

Depth (m) : 16.5

Test Date : 12/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.032$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.31$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =15%, Silt (0.005mm size)= 75% & Clay (0.001mm size) = 10%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Poshchim olinogor, Korerhat

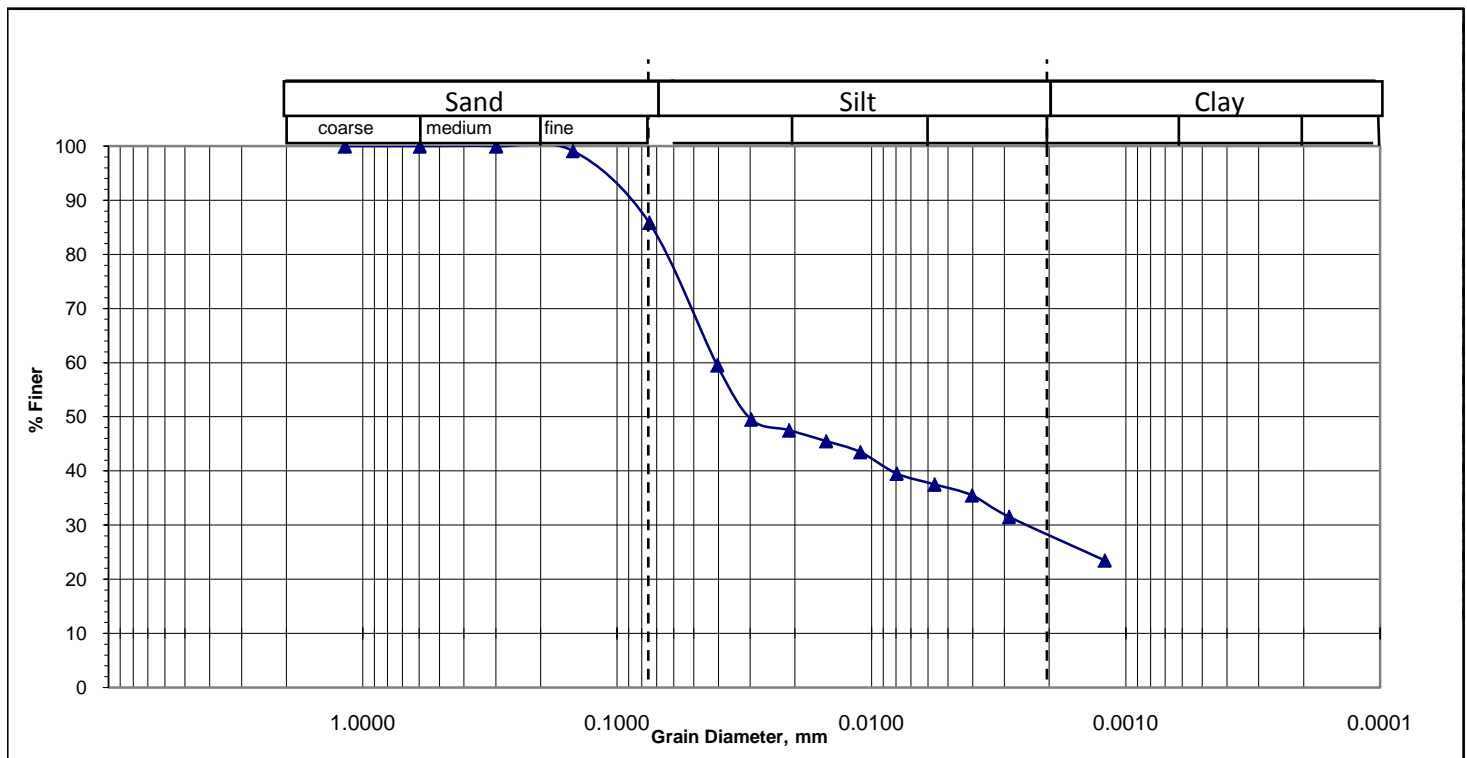
Bore Hole No : BH-M05 Sample No. S2

Sampled Date: 25/01/2018

Depth (m) : 3.0

Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.03 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.30

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =15%, Silt (0.005mm size)= 57% & Clay (0.001mm size) = 28%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ajomnogor Community Clinic, Hinguli

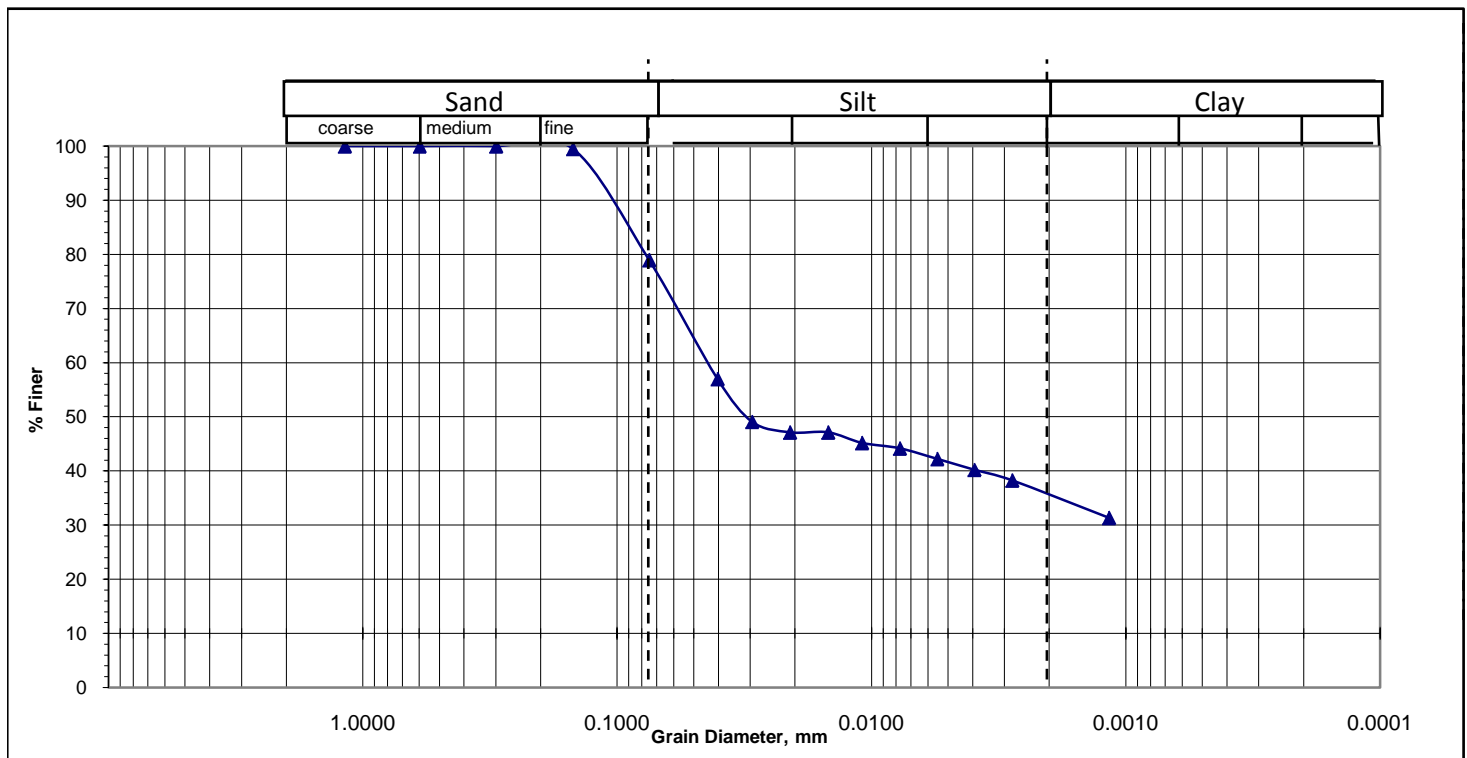
Bore Hole No : BH-M06 Sample No. S2

Sampled Date: 27/01/2018

Depth (m) : 3.0

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.031$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.31$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =20%, Silt (0.005mm size)= 45% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ajomnogor Community Clinic, Hinguli

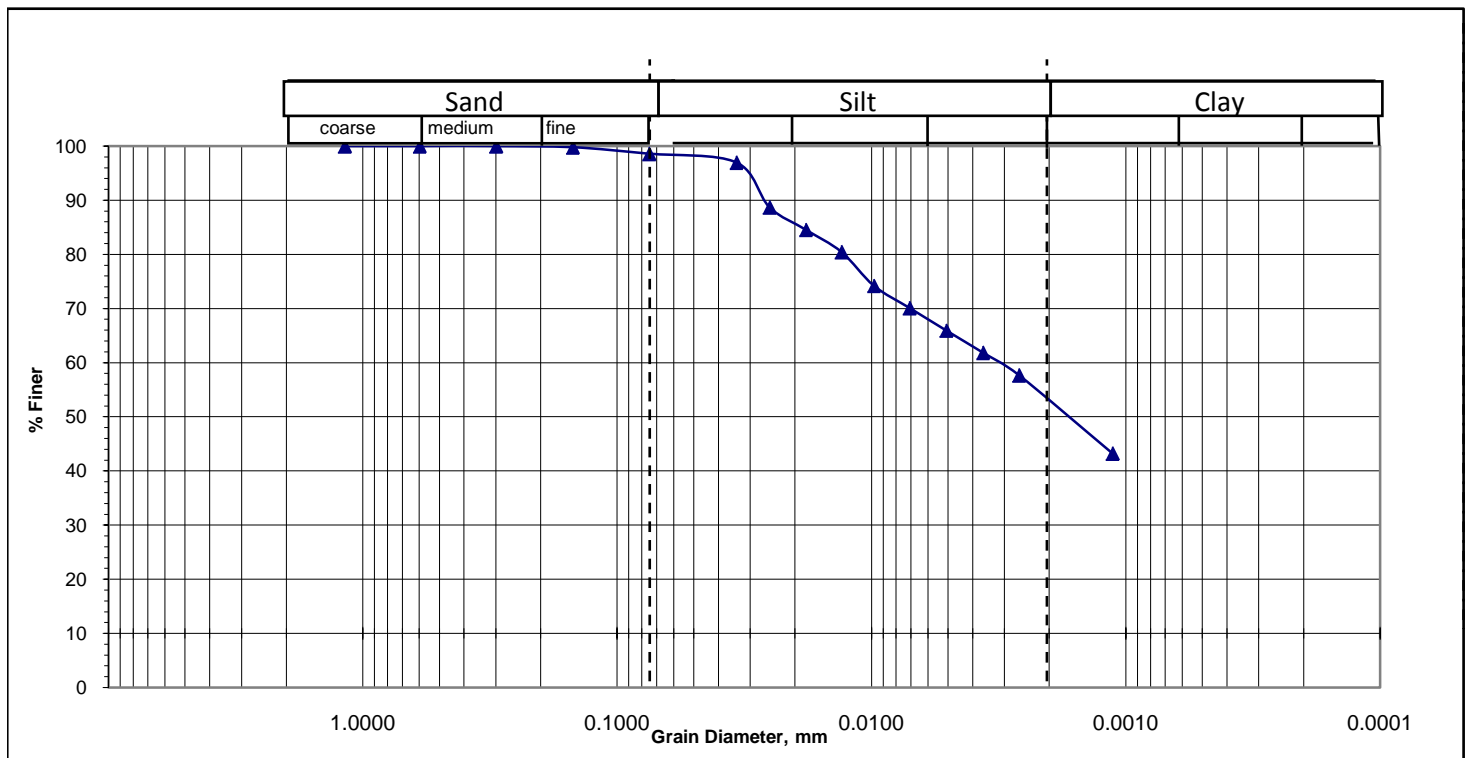
Bore Hole No : BH-M06 Sample No. S5

Sampled Date: 27/01/2018

Depth (m) : 7.5

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0017$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.07$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 46% & Clay (0.001mm size) = 54%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Khil hinguli Govt. Primary School

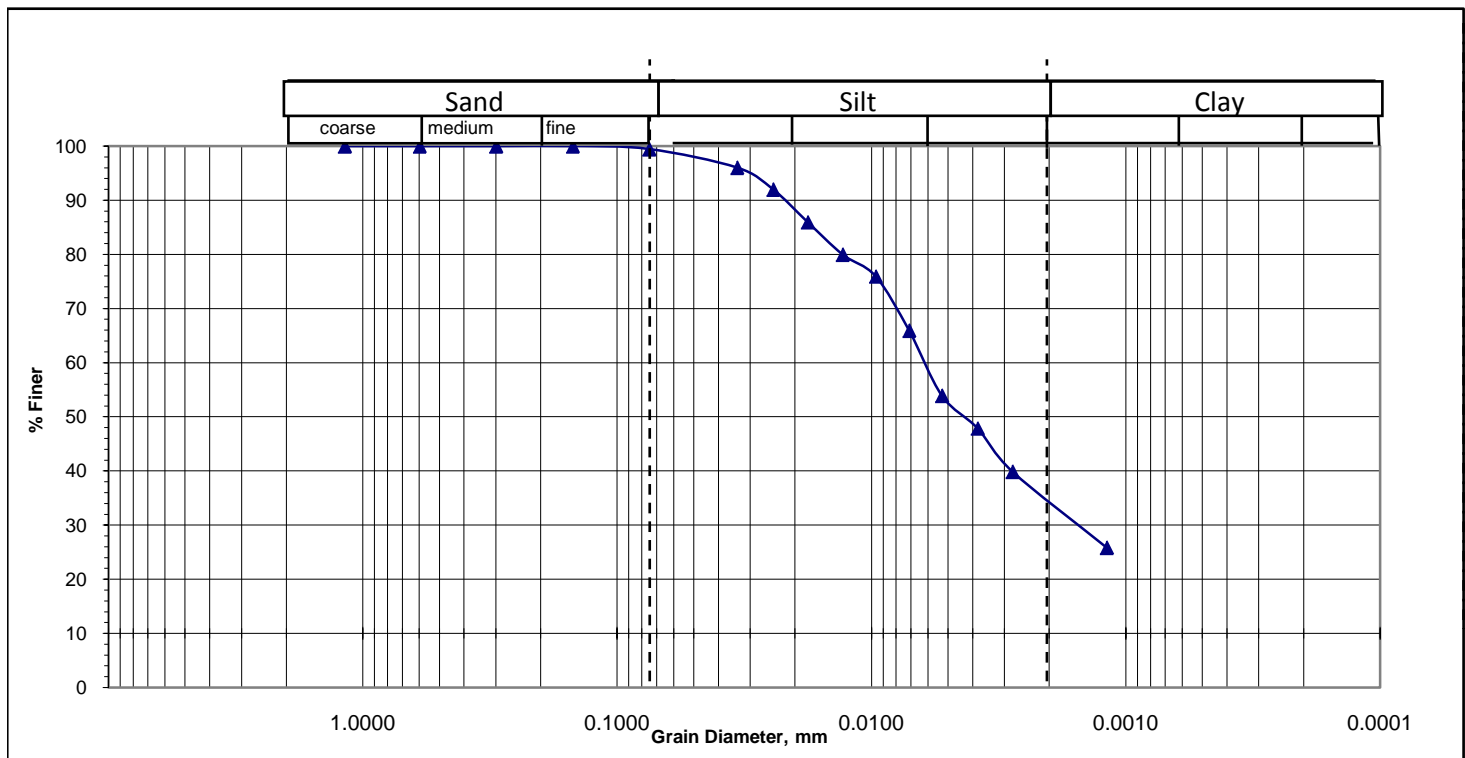
Bore Hole No : BH-M07 Sample No. S5

Sampled Date: 27/01/2018

Depth (m) : 7.5

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0043$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.12$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 67% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Jamalpur, Baraiarhat Pourashava

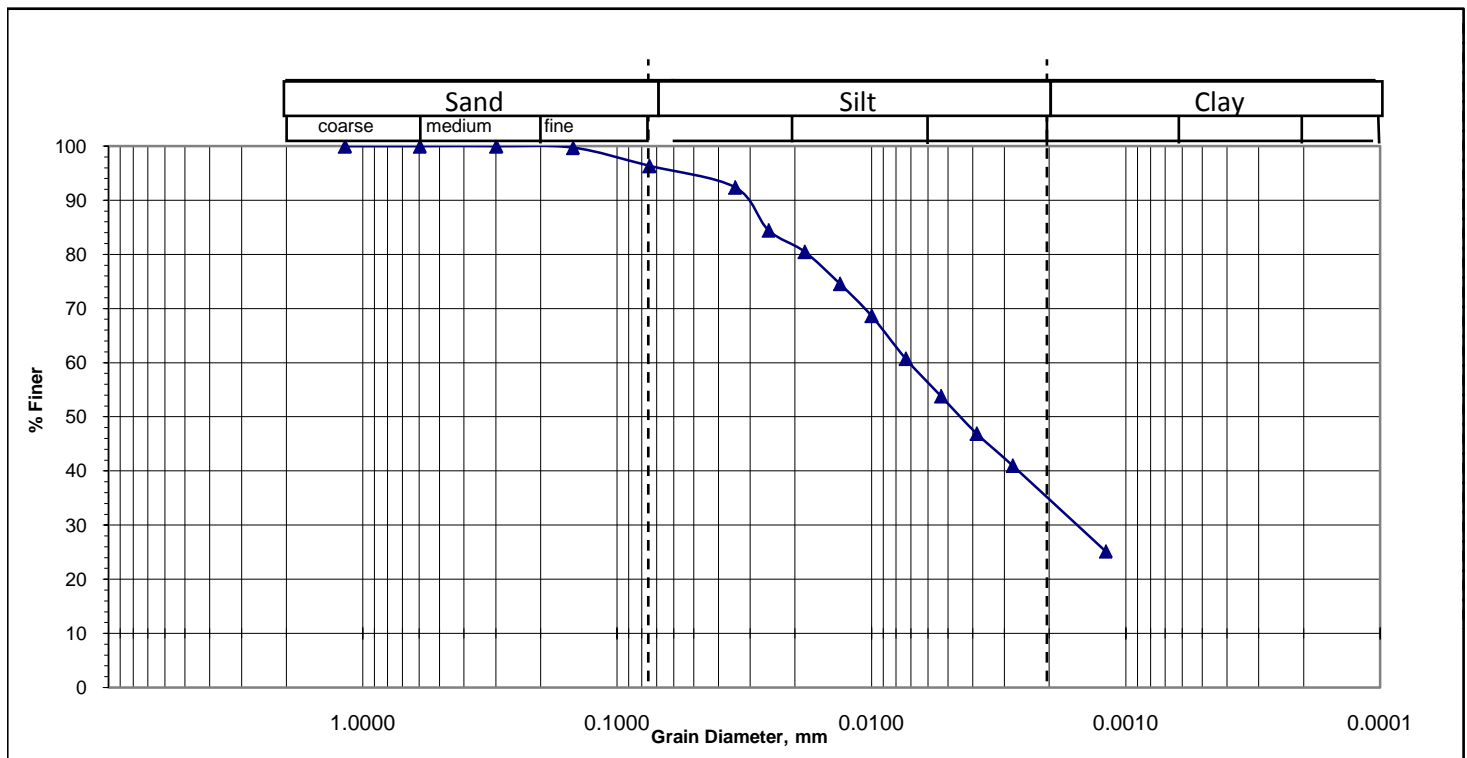
Bore Hole No : BH-M08 Sample No. S3

Sampled Date: 28/01/2018

Depth (m) : 4.5

Test Date : 17/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0045$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.12$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =5%, Silt (0.005mm size)= 60% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : East Mehedi Nagar (Forrest Office)

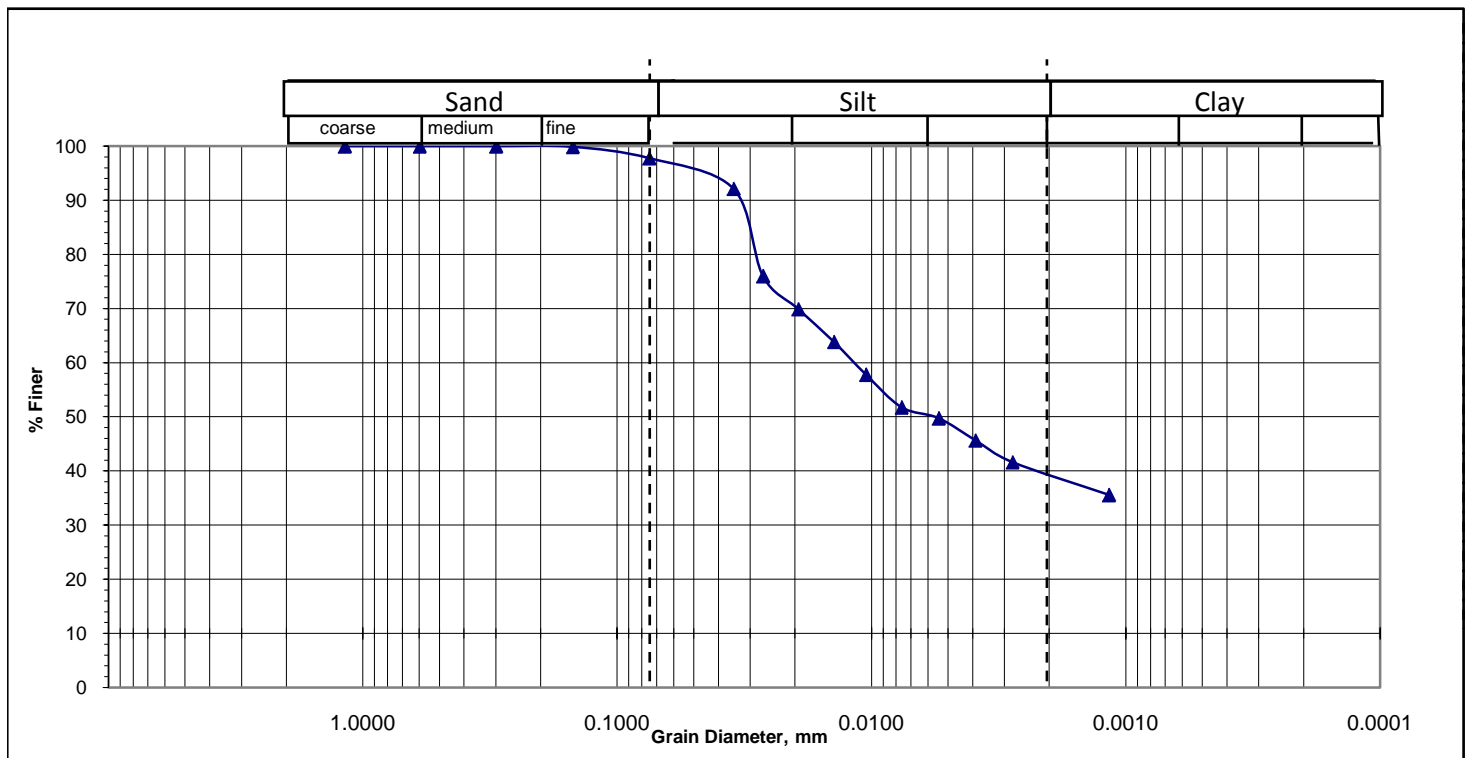
Bore Hole No : BH-M09 Sample No. S2

Sampled Date: 28/01/2018

Depth (m) : 3.0

Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0055$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.13$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 60% & Clay (0.001mm size) = 38%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : West Hinguli, Gonokchora

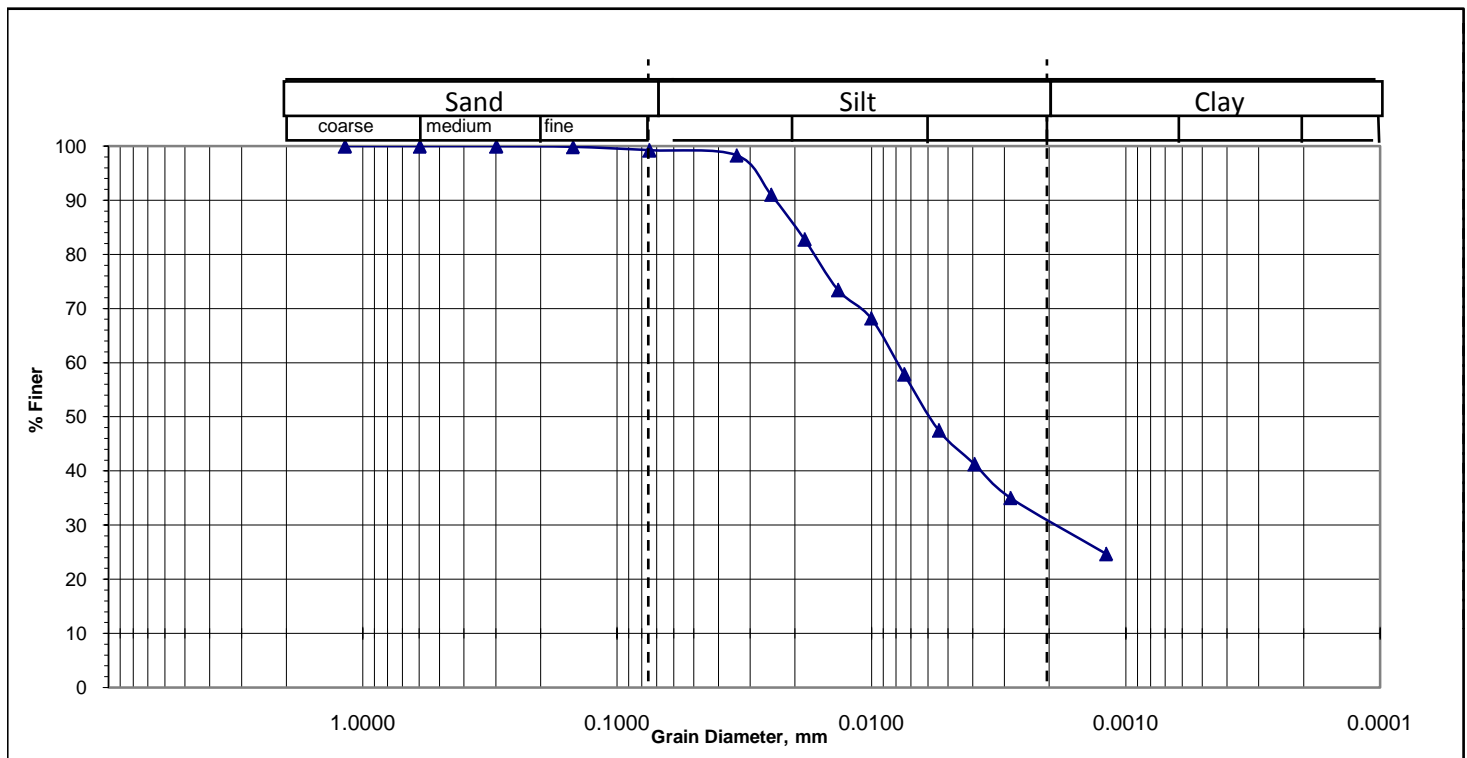
Bore Hole No : BH-M10 Sample No. S7

Sampled Date: 28/01/2018

Depth (m) : 10.5

Test Date : 11/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.006$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 69% & Clay (0.001mm size) = 30%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Imampur Titabot tola Furkania Madrasha

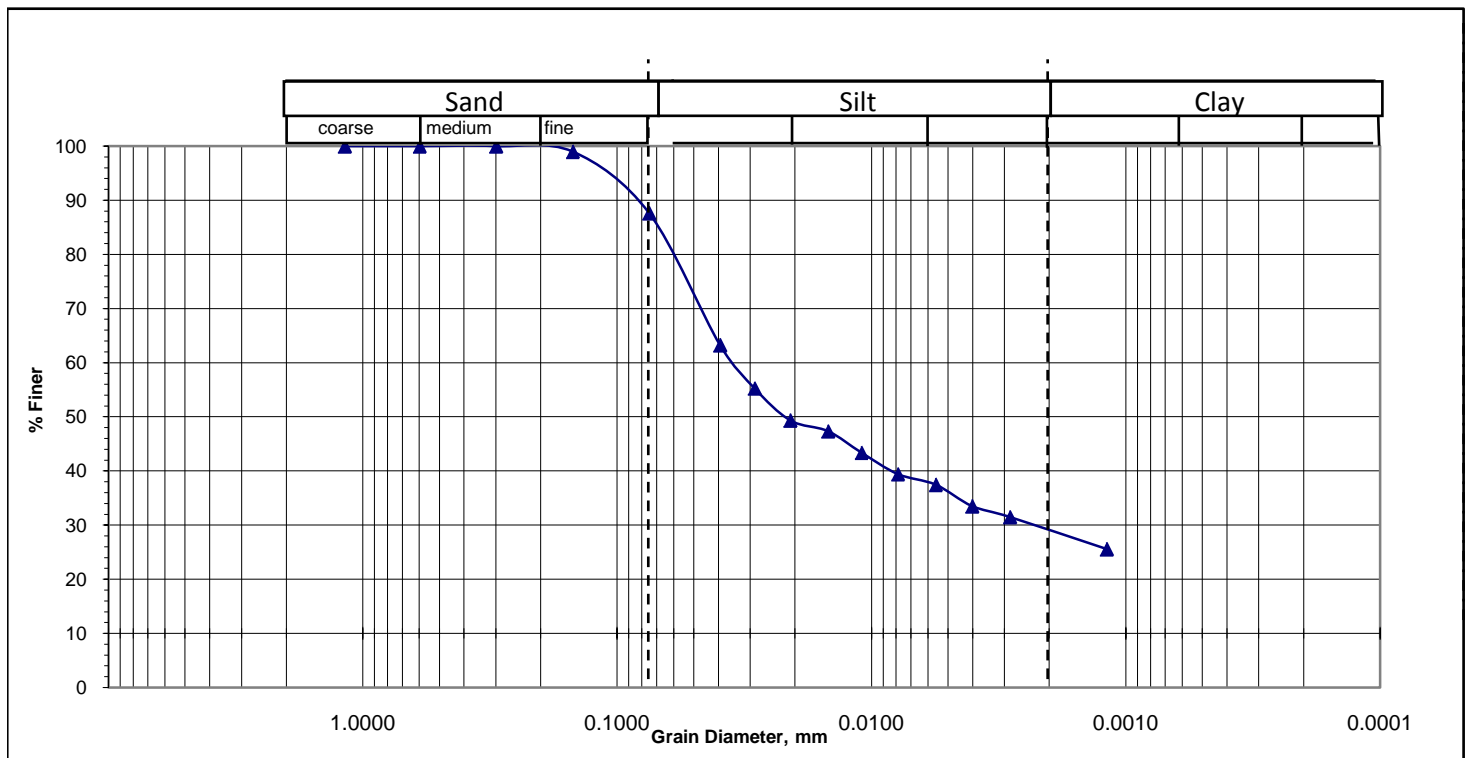
Bore Hole No : BH-M11 Sample No. S2

Sampled Date: 30/01/2018

Depth (m) : 3.0

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.045$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.37$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =12%, Silt (0.005mm size)= 59% & Clay (0.001mm size) = 29%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom

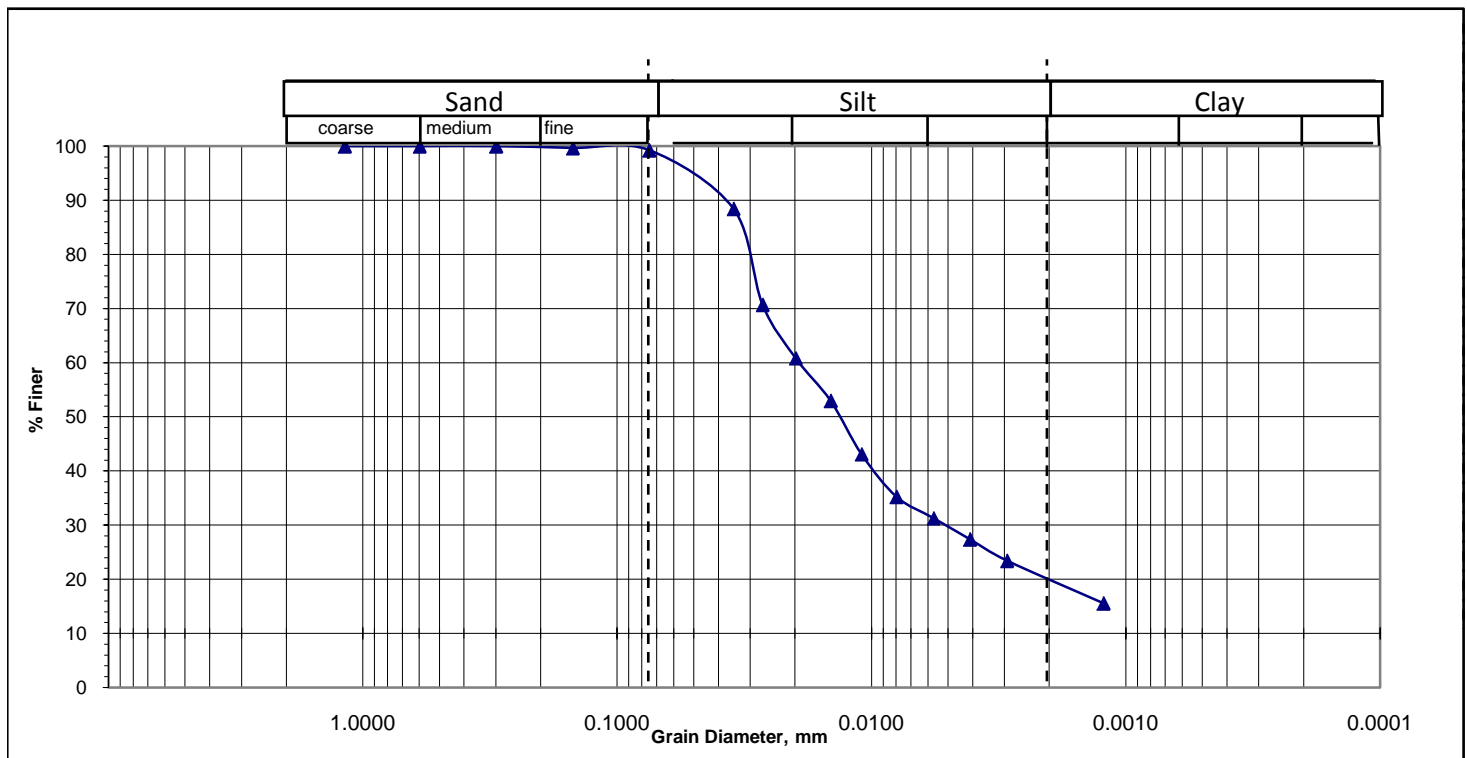
Bore Hole No : BH-M12 Sample No. S3

Sampled Date: 29/01/2018

Depth (m) : 4.5

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.014$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.21$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 78% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Banglabazar, Shantor road, Dhoom

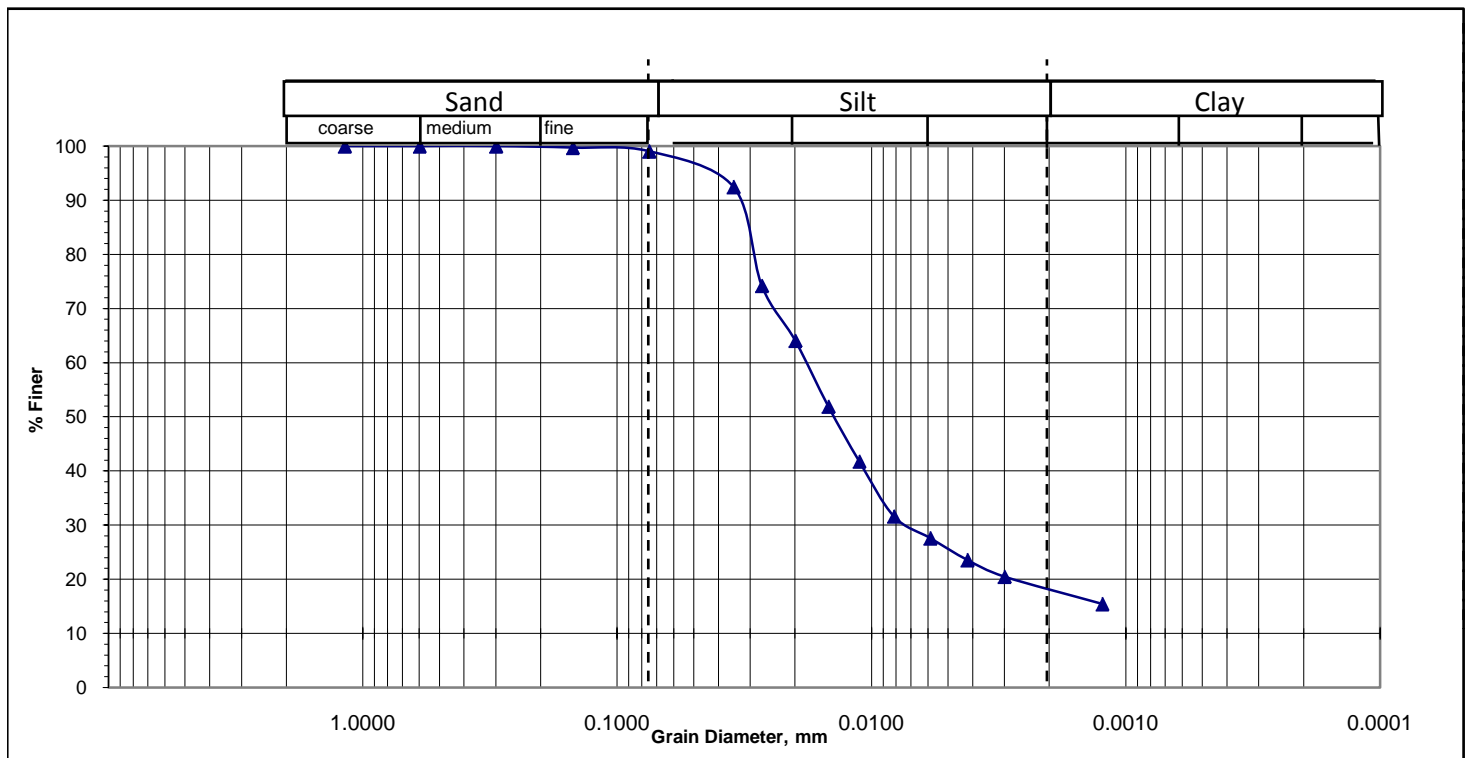
Bore Hole No : BH-M13 Sample No. S2

Sampled Date: 30/01/2018

Depth (m) : 3.0

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.015$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 81% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 163 no. Fayezullah master Govt. Primary School

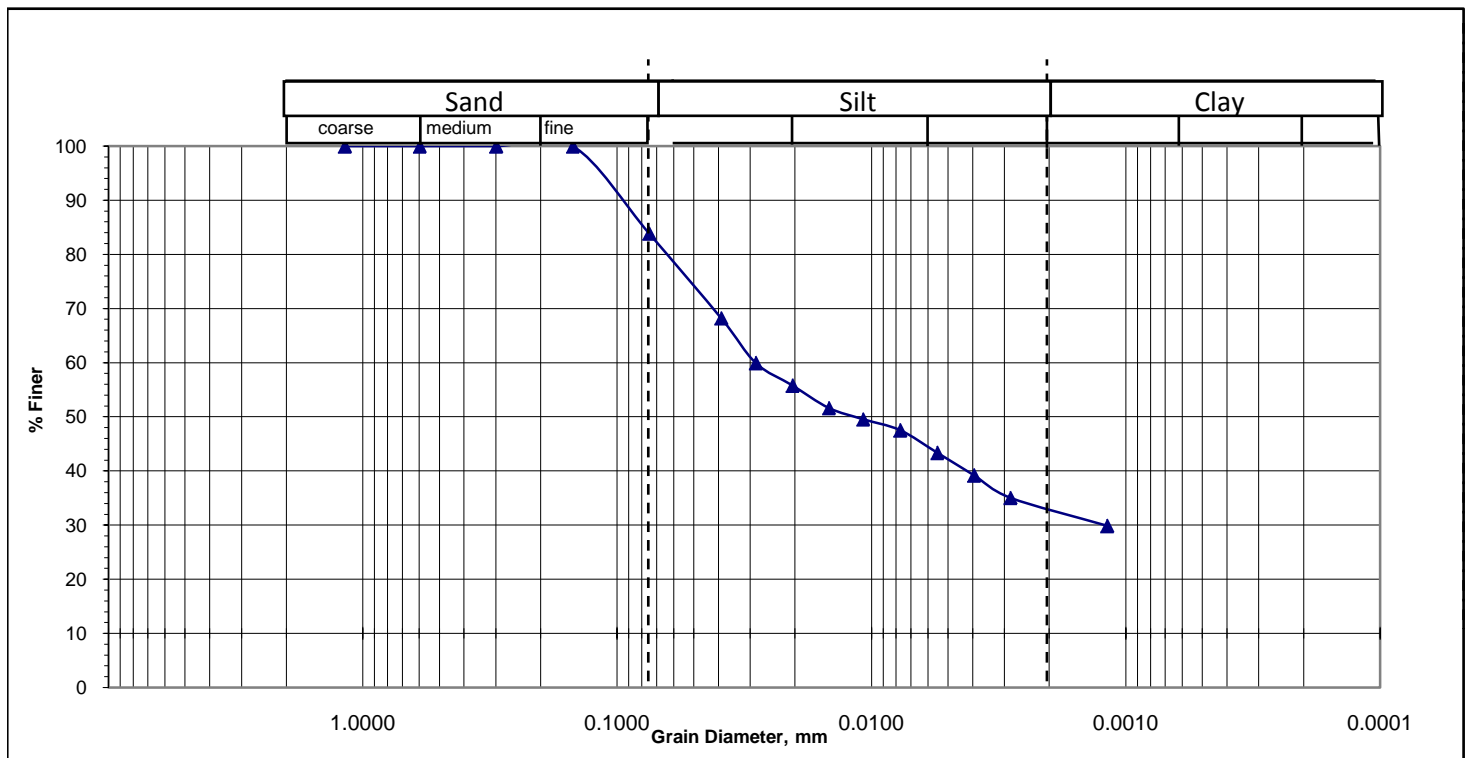
Bore Hole No : BH-M14 Sample No. S2

Sampled Date: 30/01/2018

Depth (m) : 3.0

Test Date : 12/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.011$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.18$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =17%, Silt (0.005mm size)= 50% & Clay (0.001mm size) = 33%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 163 no. FayeZullah master Govt. Primary School

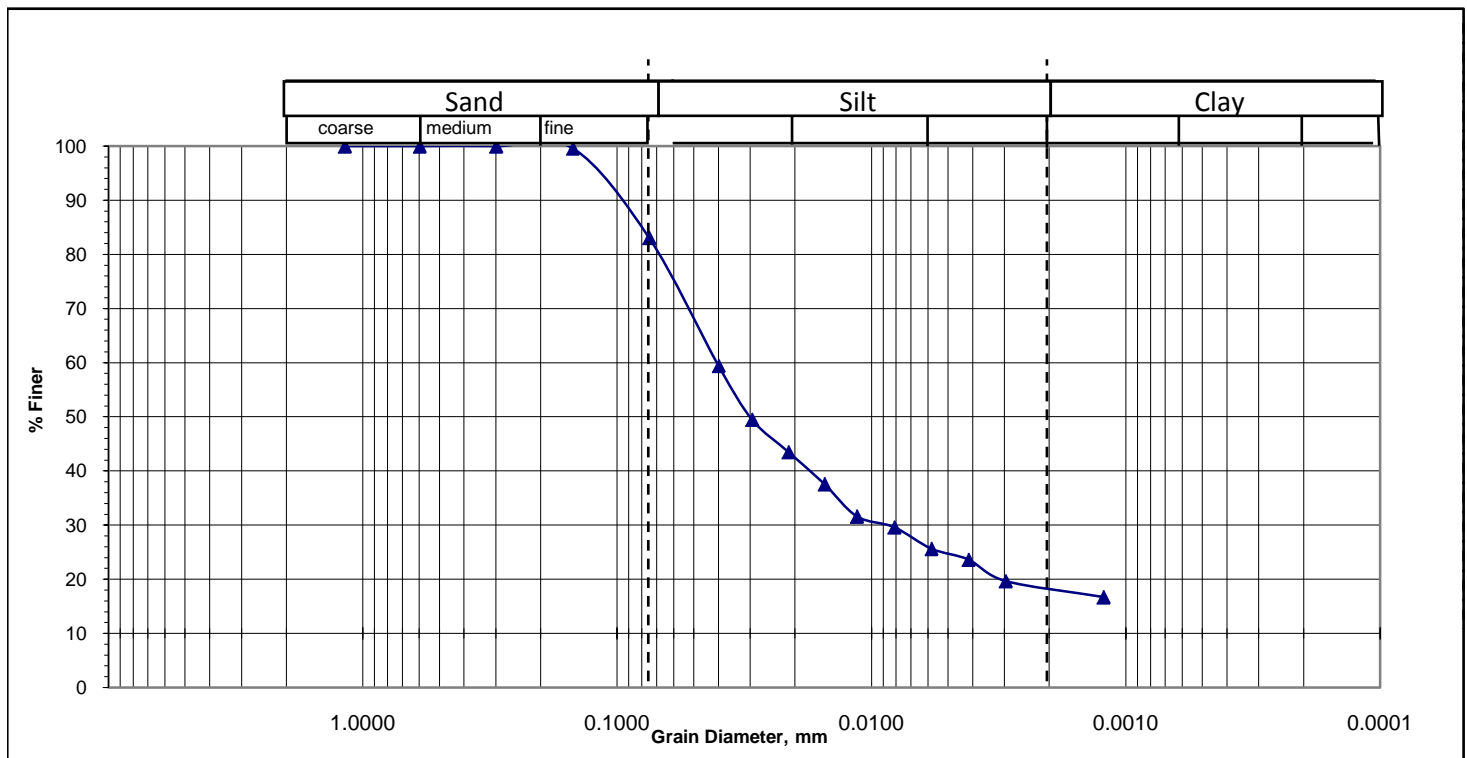
Bore Hole No : BH-M14 Sample No. S8

Sampled Date: 30/01/2018

Depth (m) : 12.0

Test Date : 13/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.03$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.30$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =18%, Silt (0.005mm size)= 64% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Alhaz Bodiul alam Chowdhury Govt. Primary School

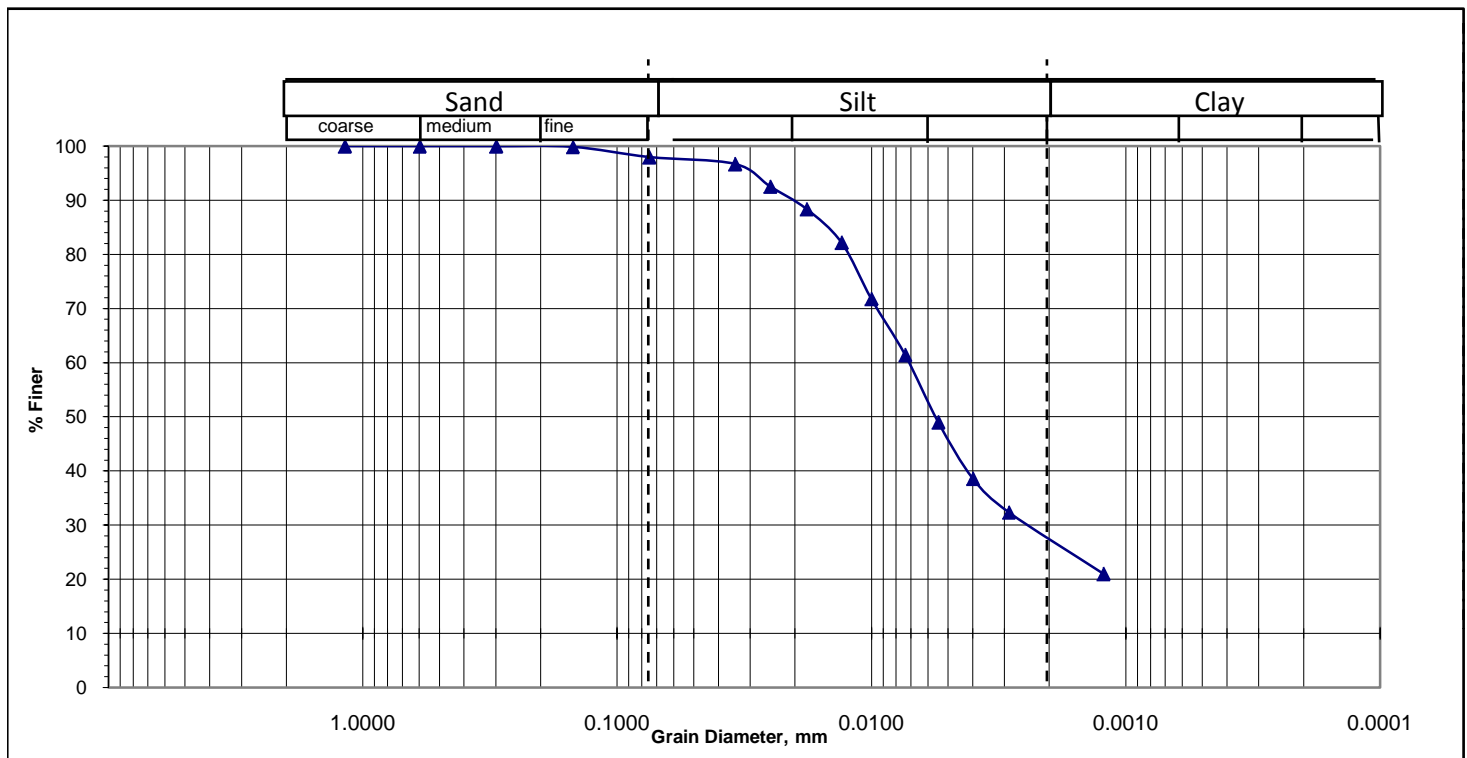
Bore Hole No : BH-M15 Sample No. S2

Sampled Date: 31/01/2018

Depth (m) : 3.0

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0055$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.13$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 71% & Clay (0.001mm size) = 27%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Khil murari, ward no. 5, Zorargonj

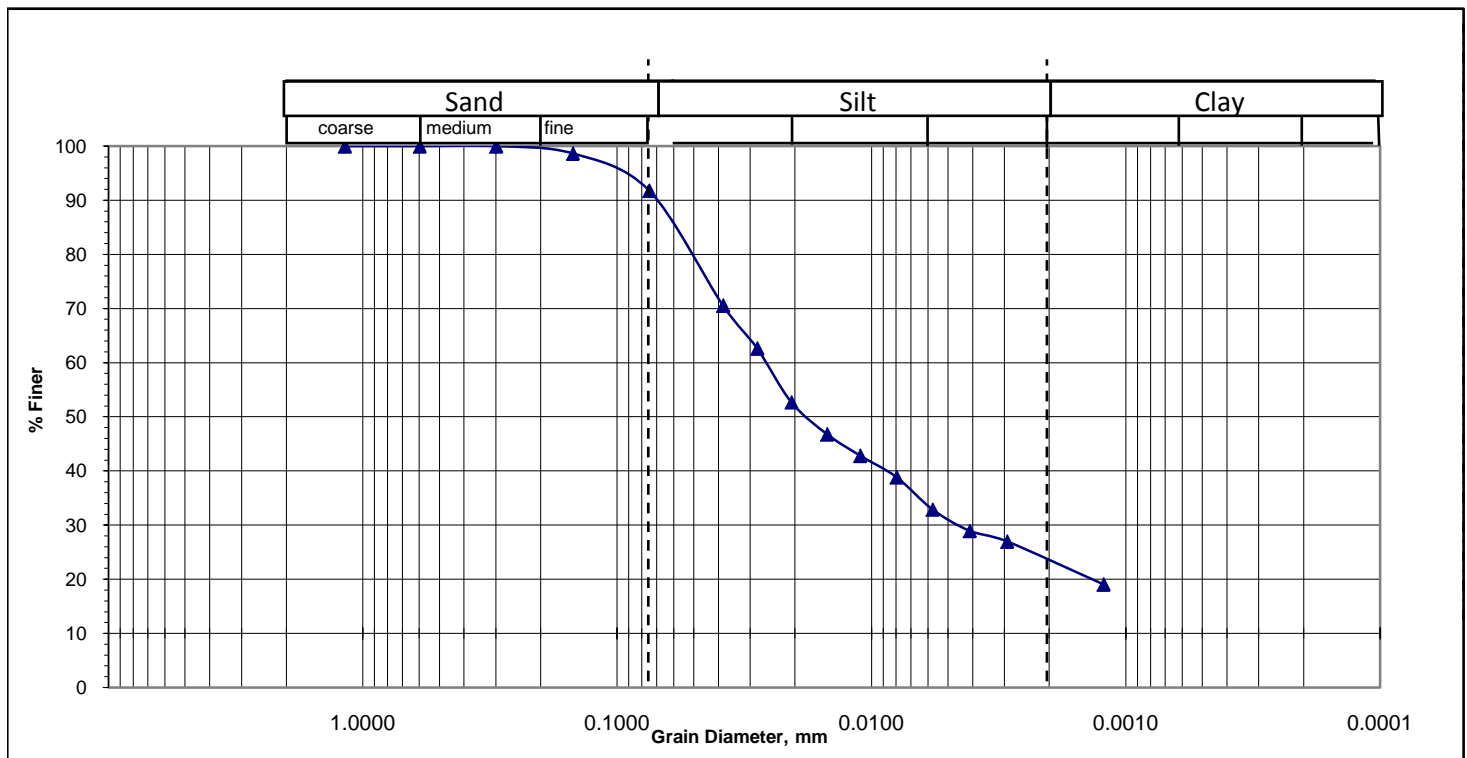
Bore Hole No : BH-M16 Sample No. S8

Sampled Date: 29/01/2018

Depth (m) : 12.0

Test Date : 12/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.018 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.24$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =8%, Silt (0.005mm size)= 68% & Clay (0.001mm size) = 24%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Shonapahar, murari, Zorargonj

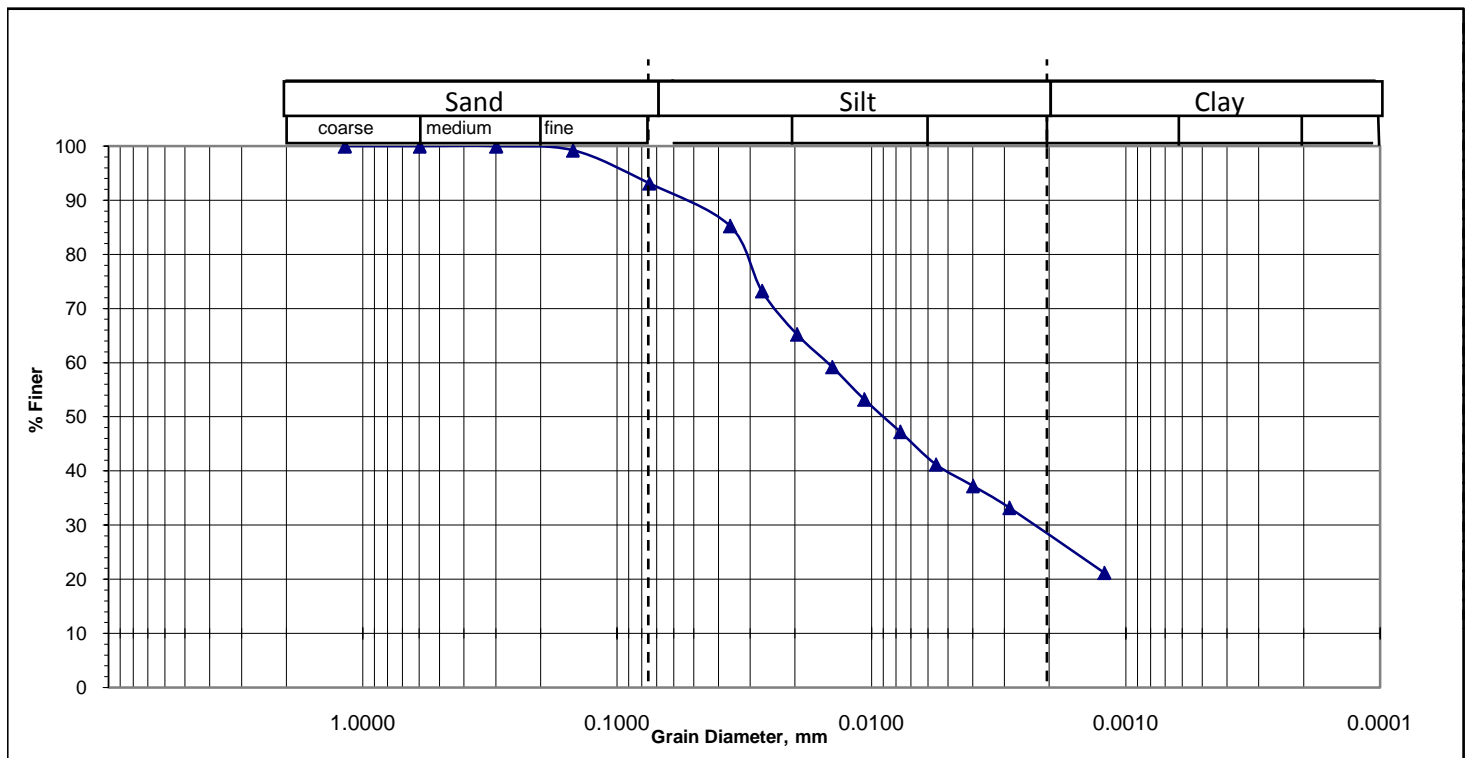
Bore Hole No : BH-M17 Sample No. S7

Sampled Date: 31/01/2018

Depth (m) : 10.5

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.009$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.17$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =7%, Silt (0.005mm size)= 65% & Clay (0.001mm size) = 28%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Guccho gram M.A. Haider Primary School, Osmanpur

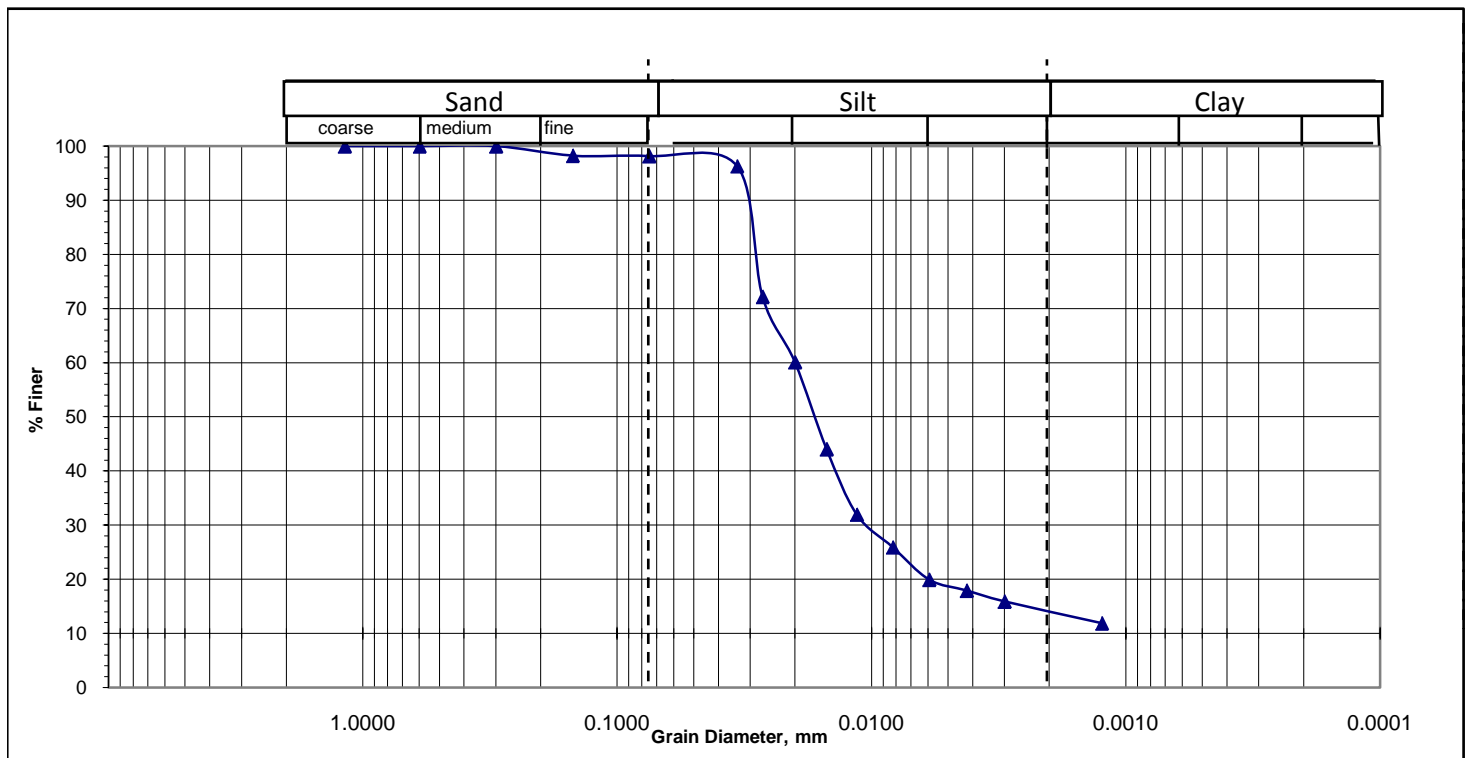
Bore Hole No : BH-M18 Sample No. S2

Sampled Date: 21/02/2018

Depth (m) : 3.0

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.017$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.23$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 85% & Clay (0.001mm size) = 13%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Bashkhali, Veribadh, Muhuri Project, Osmanpur

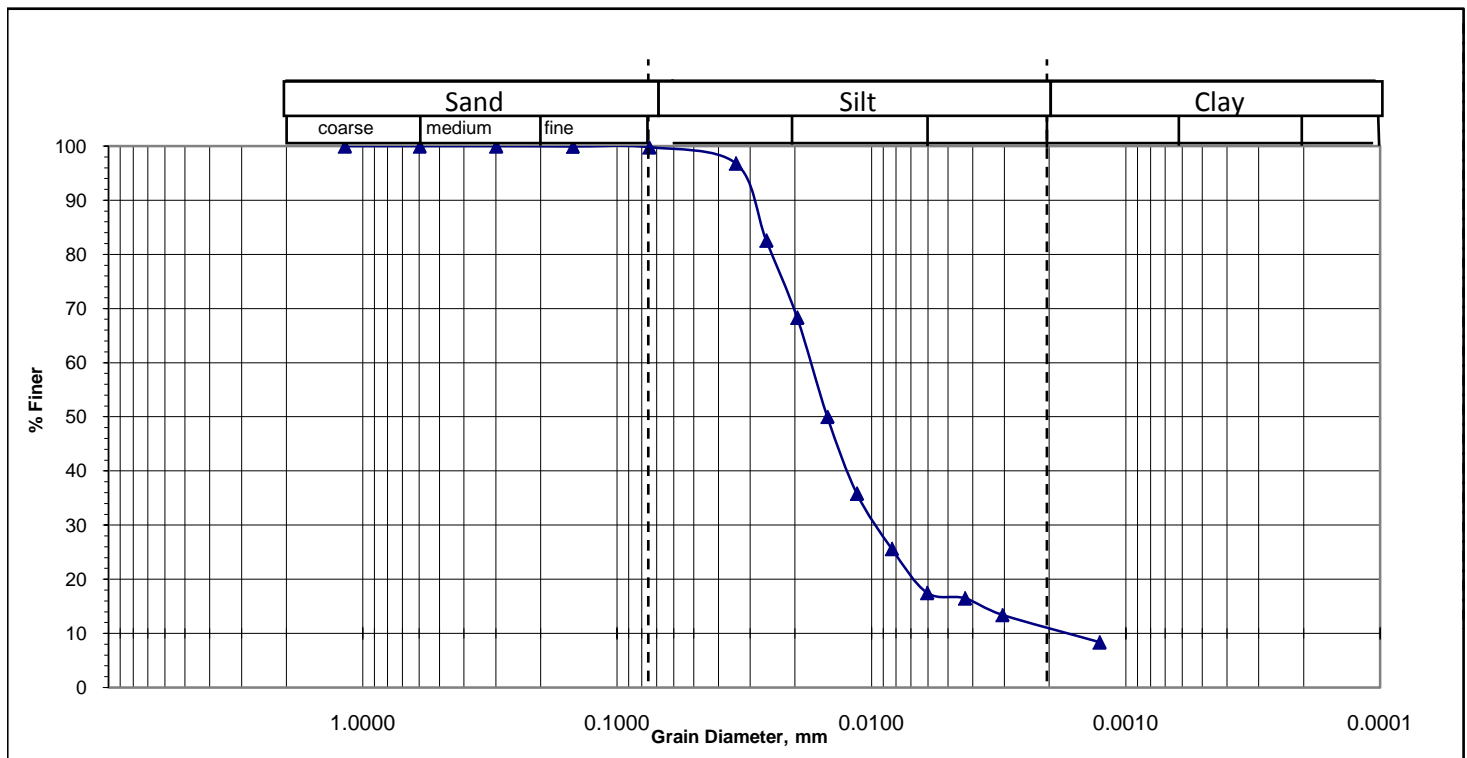
Bore Hole No : BH-M19 Sample No. S4

Sampled Date: 20/02/2018

Depth (m) : 6.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.015$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 88% & Clay (0.001mm size) = 11%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 39 no. East Shahedpur Govt. Primary School, Azampur

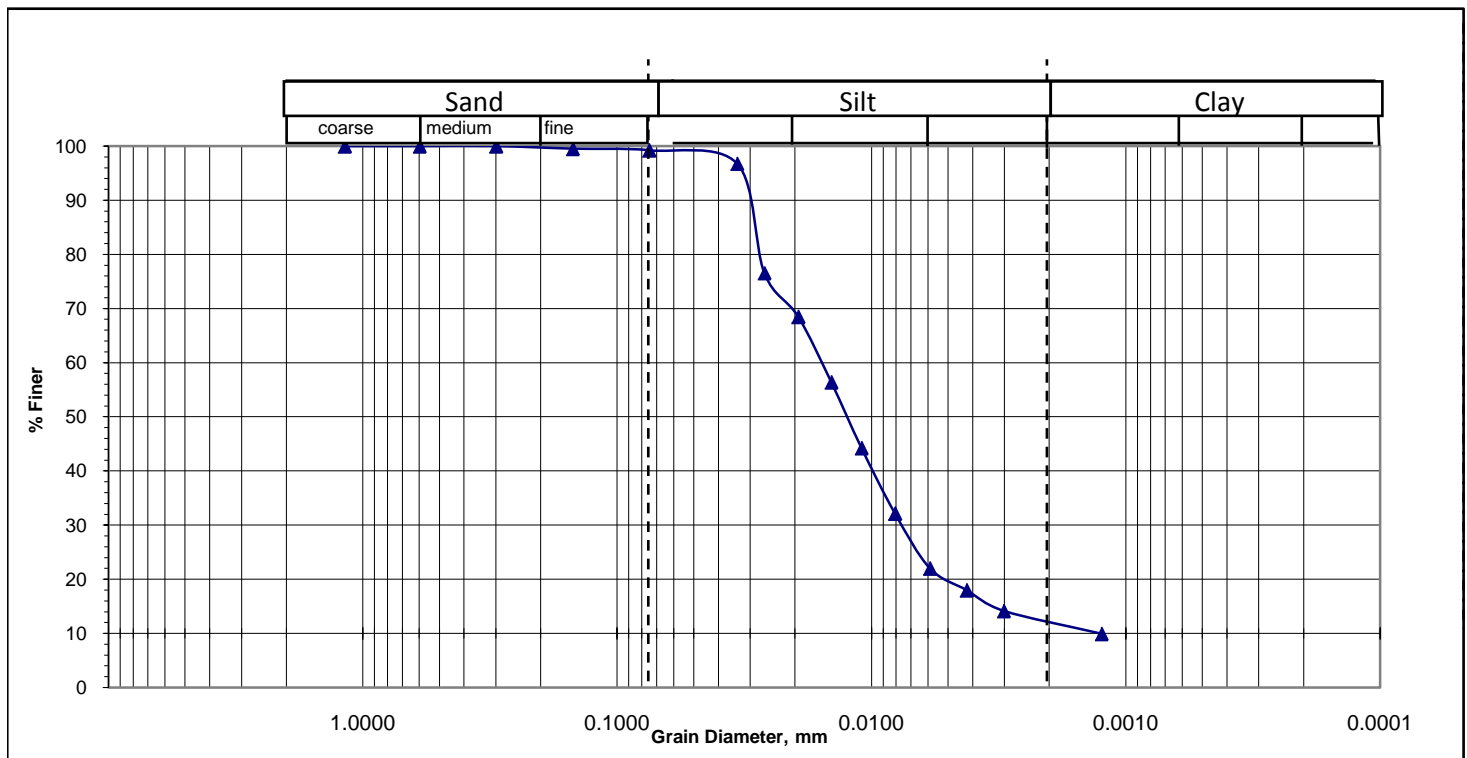
Bore Hole No : BH-M20 Sample No. S3

Sampled Date: 19/02/2018

Depth (m) : 4.5

Test Date : 05/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.045 mm

Silt-Factor,  $f = 1.76\sqrt{D_{50}}$  = 0.37

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 86% & Clay (0.001mm size) = 13%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : East Moregang Jame Mosque, Osmanpur

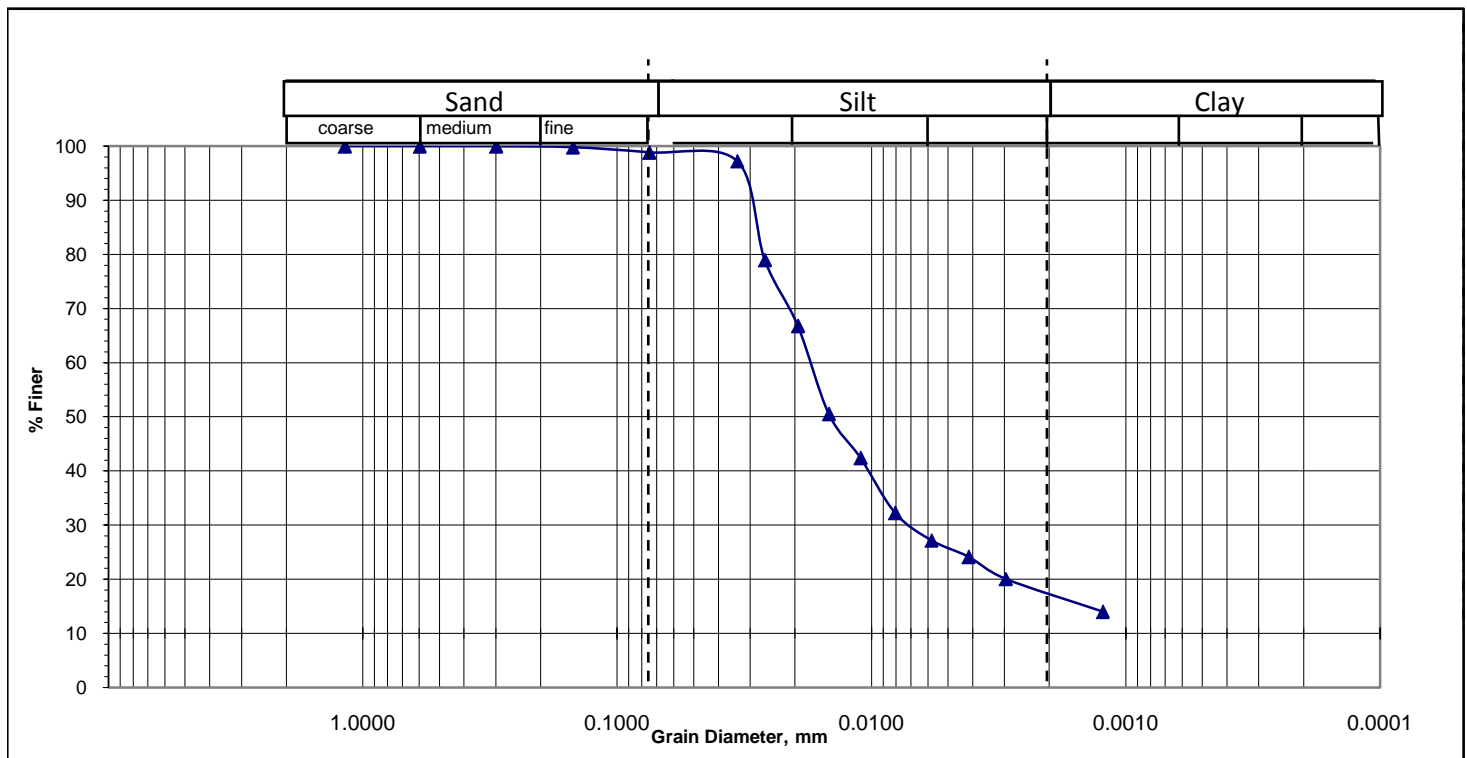
Bore Hole No : BH-M21      Sample No. S2

Sampled Date: 21/02/2018

Depth (m) : 3.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.016 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.22

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 81% & Clay (0.001mm size) = 17%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Patacoat, Azampur, Osmanpur

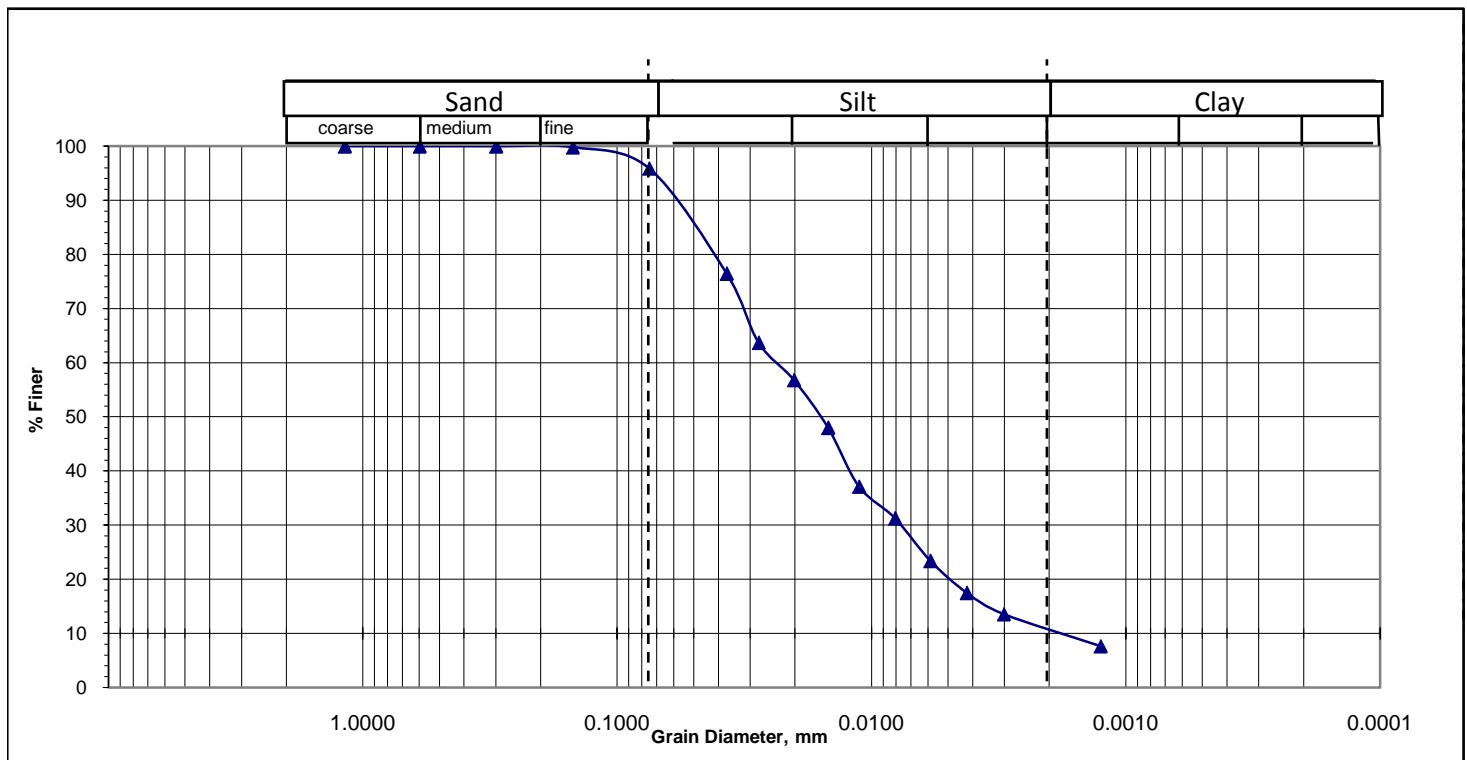
Bore Hole No : BH-M22      Sample No. S2

Sampled Date: 20/02/2018

Depth (m) : 3.0

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.015$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =5%, Silt (0.005mm size)= 84% & Clay (0.001mm size) = 11%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 68 north durgapur Primary School, Varoddaj hat

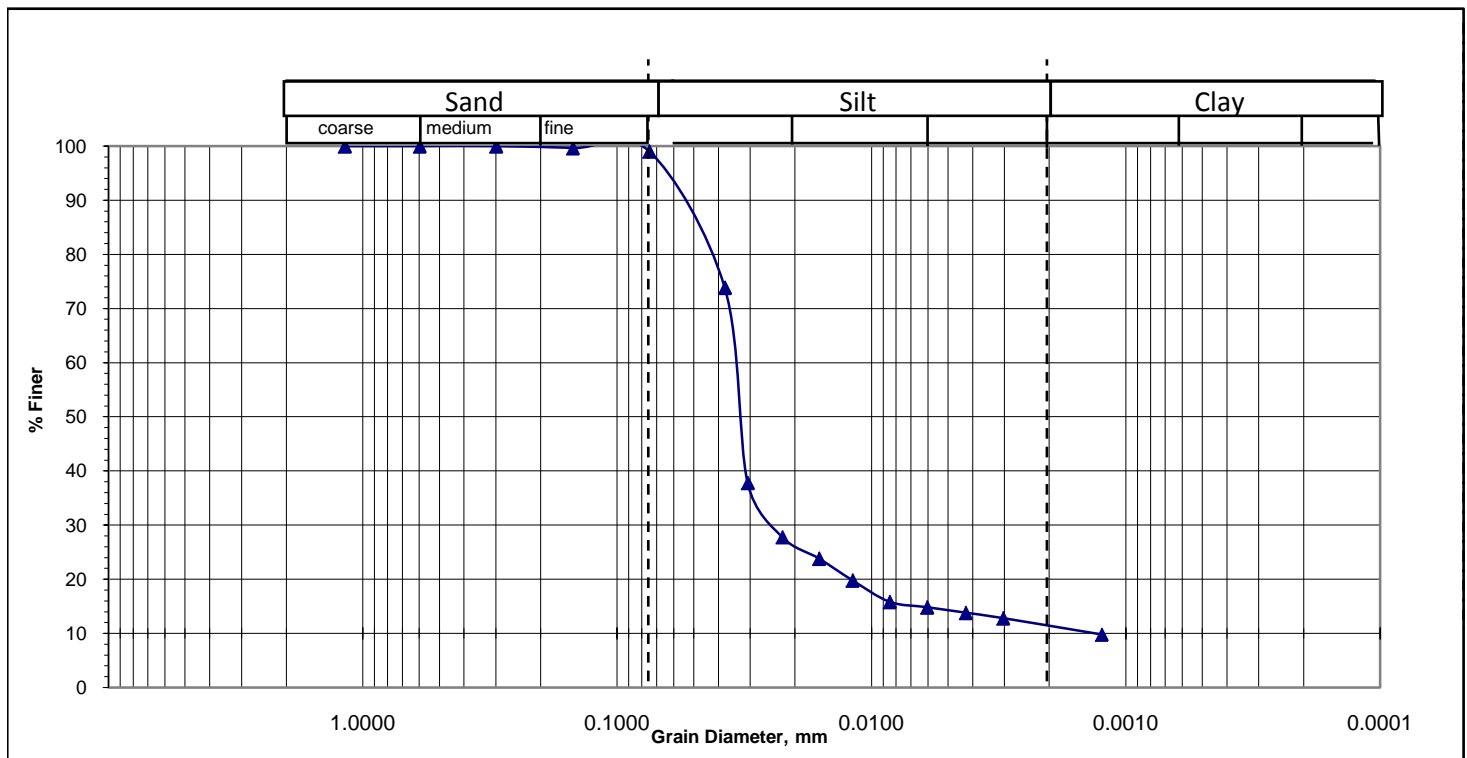
Bore Hole No : BH-M23 Sample No. S2

Sampled Date: 02/02/2018

Depth (m) : 3.0

Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.022$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.26$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 87% & Clay (0.001mm size) = 12%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : East Raypur Baitul Aman Jame Mosque, Durgapur

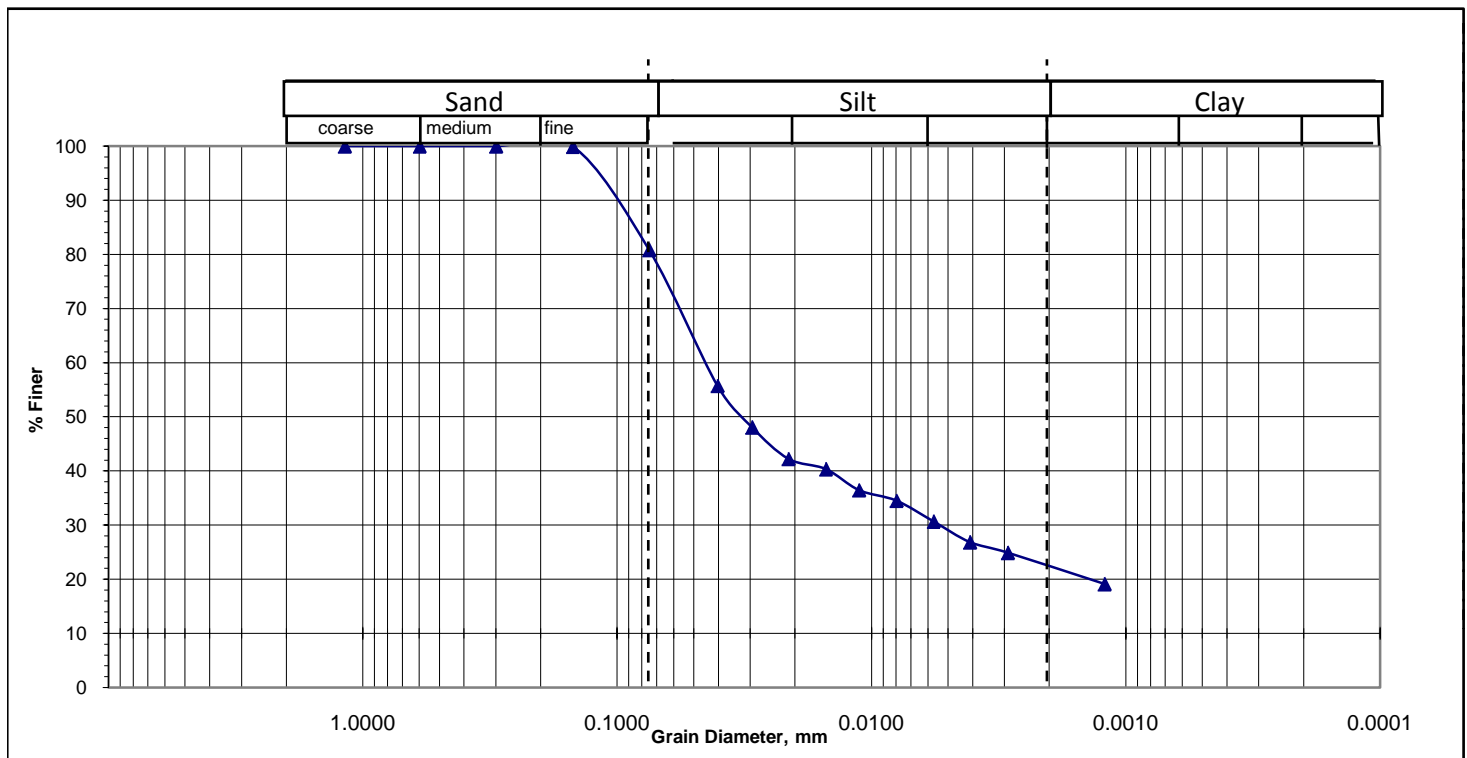
Bore Hole No : BH-M24 Sample No. S6

Sampled Date: 01/02/2018

Depth (m) : 9.0

Test Date : 17/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.031$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.31$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =20%, Silt (0.005mm size)= 57% & Clay (0.001mm size) = 23%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur

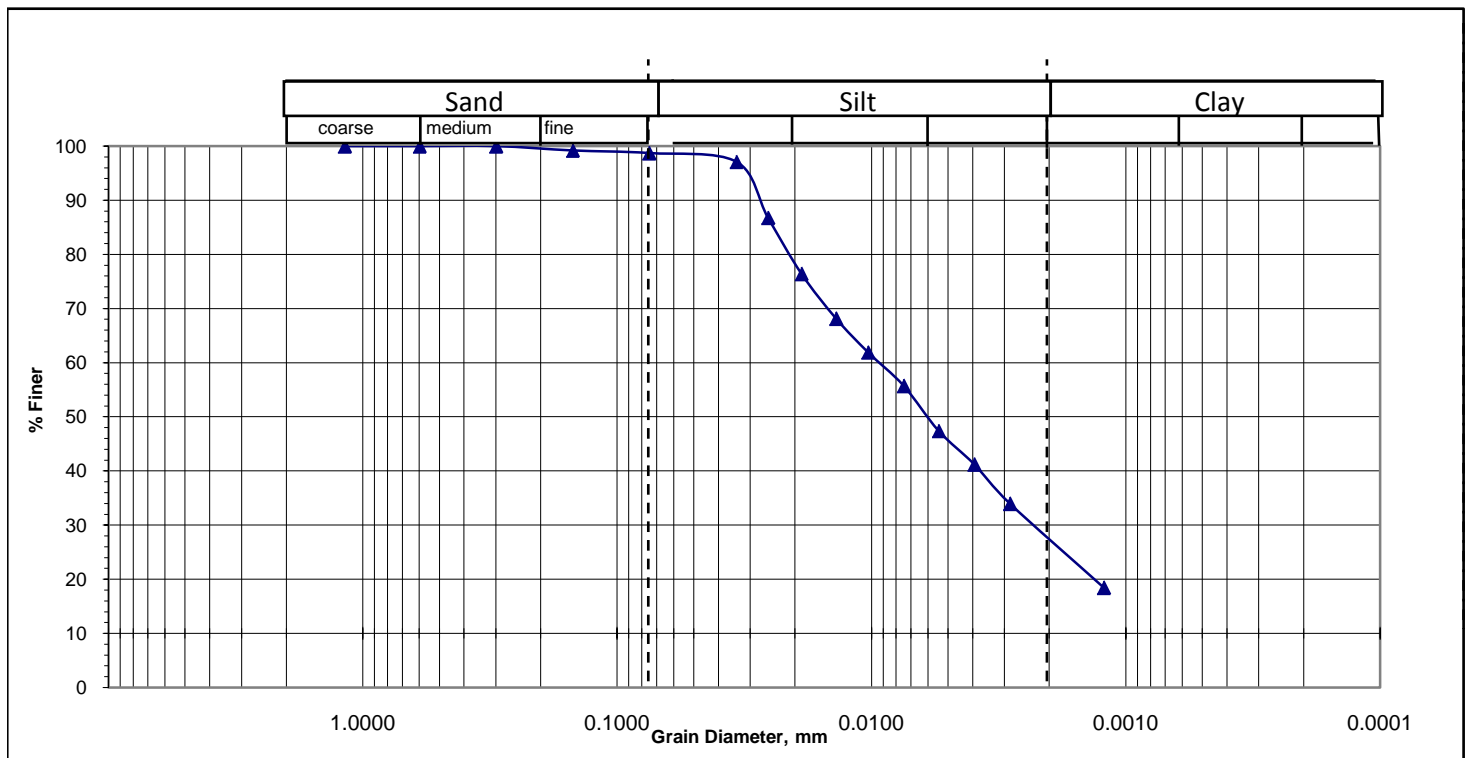
Bore Hole No : BH-M25 Sample No. S3

Sampled Date: 01/02/2018

Depth (m) : 4.5

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.006$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 70% & Clay (0.001mm size) = 28%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur

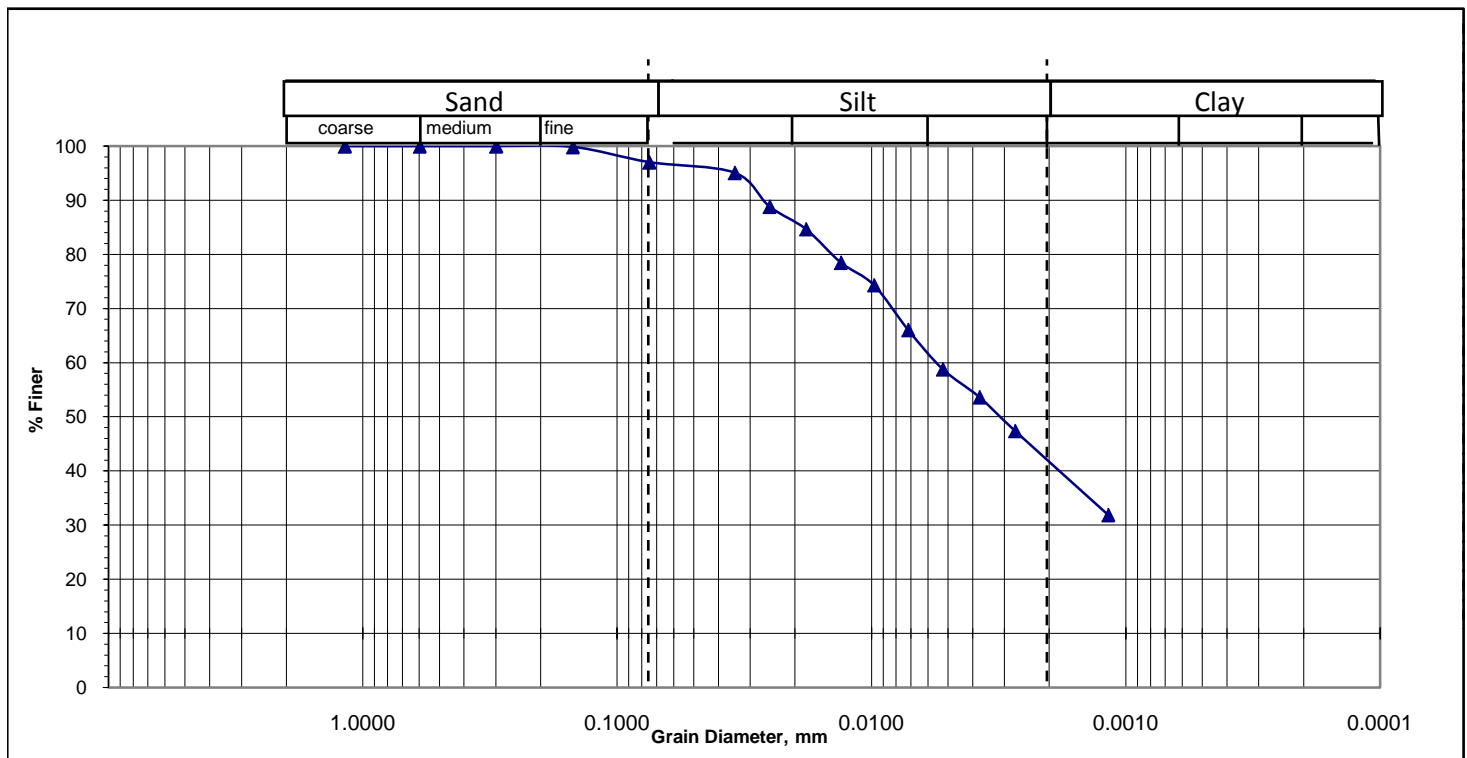
Bore Hole No : BH-M25 Sample No. S3

Sampled Date: 01/02/2018

Depth (m) : 4.5

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.003$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.10$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =4%, Silt (0.005mm size)= 55% & Clay (0.001mm size) = 41%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Tetuiana Nath Para, Durgapur

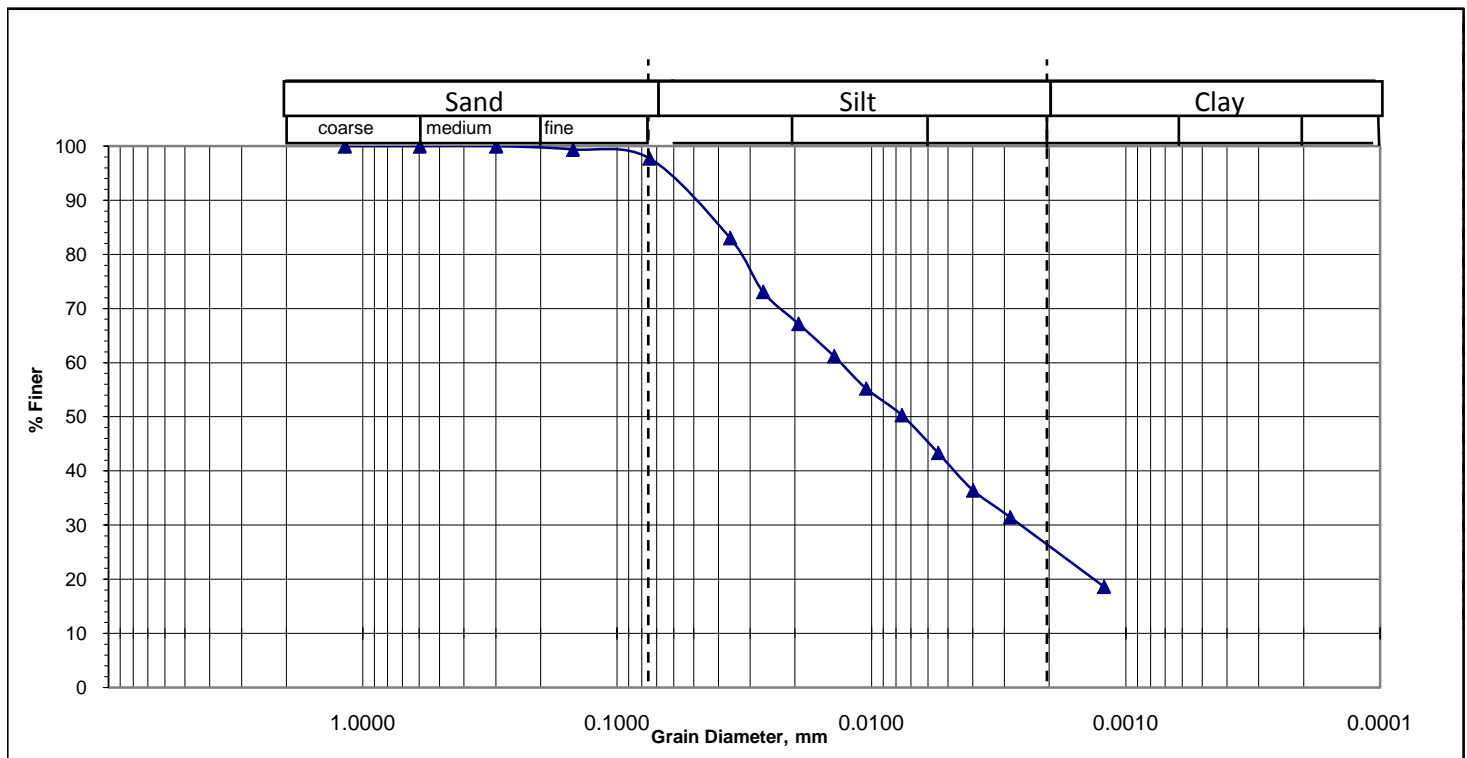
Bore Hole No : BH-M26 Sample No. S3

Sampled Date: 01/02/2018

Depth (m) : 4.5

Test Date : 17/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0075$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =3%, Silt (0.005mm size)= 70% & Clay (0.001mm size) = 27%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora

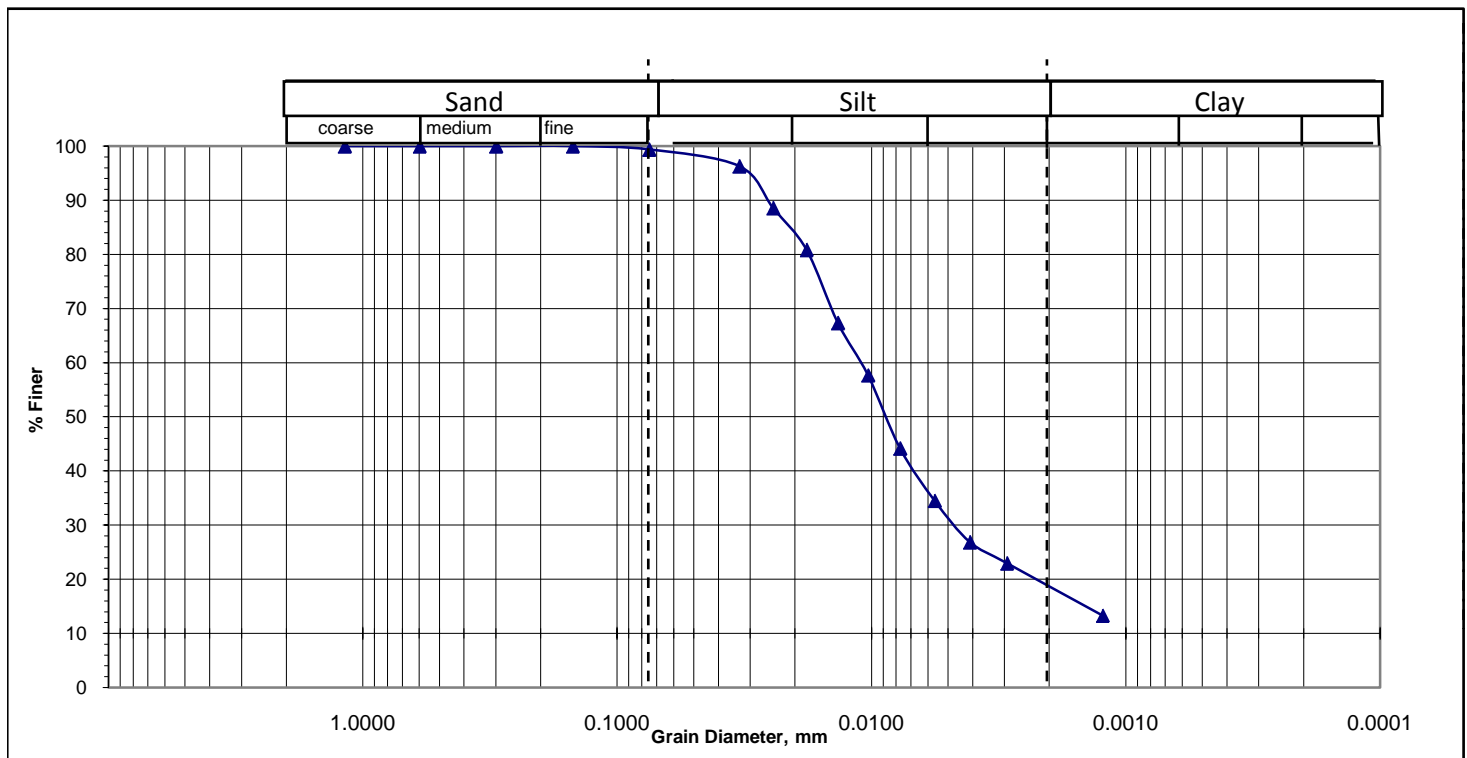
Bore Hole No : BH-M27 Sample No. S3

Sampled Date: 02/02/2018

Depth (m) : 4.5

Test Date : 11/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.009$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.17$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 81% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Bamon Shundor Govt. Primary School, Kata Chora

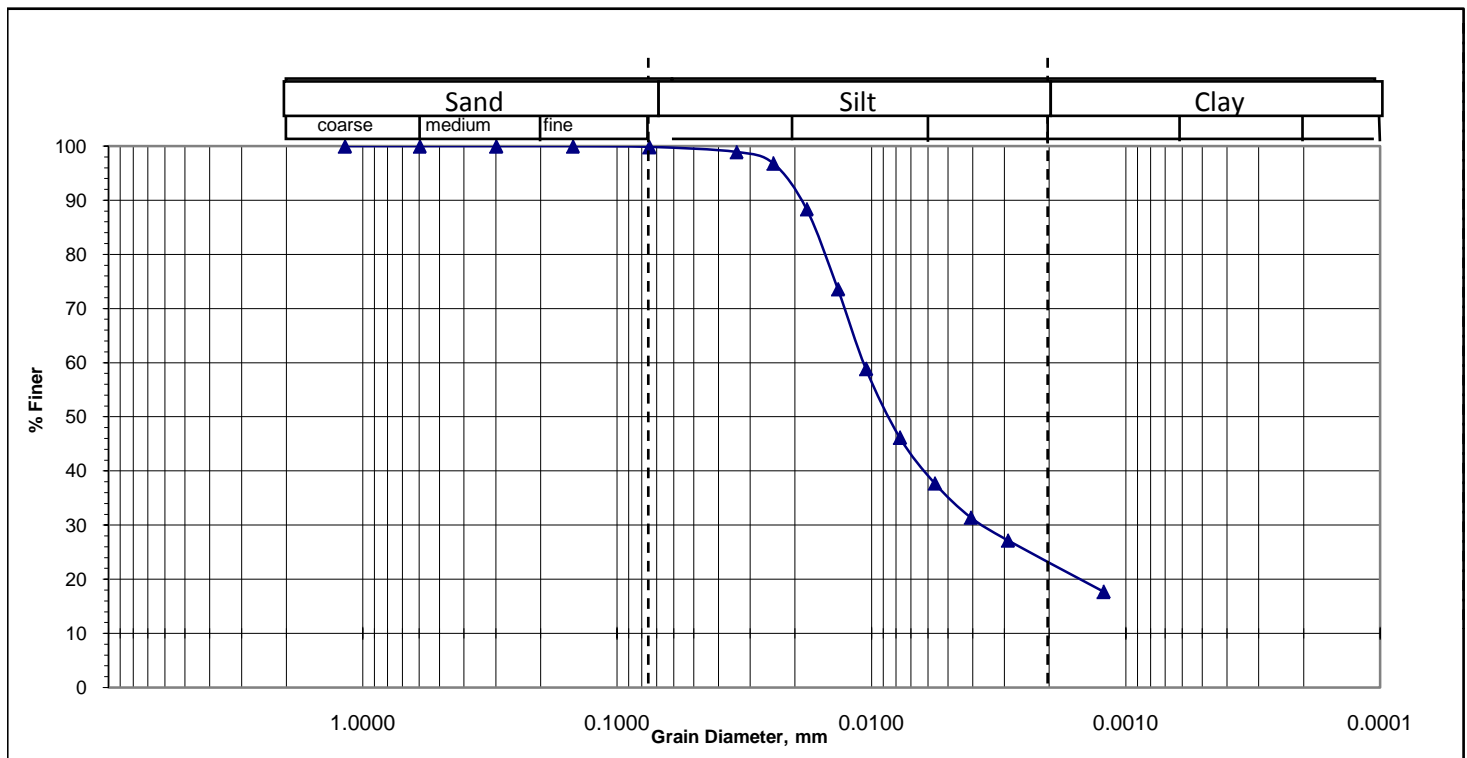
Bore Hole No : BH-M28 Sample No. S2

Sampled Date: 17/02/2018

Depth (m) : 3.0

Test Date : 03/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.009 mm

Silt-Factor,  $f = 1.76\sqrt{D_{50}}$  = 0.17

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 75% & Clay (0.001mm size) = 24%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

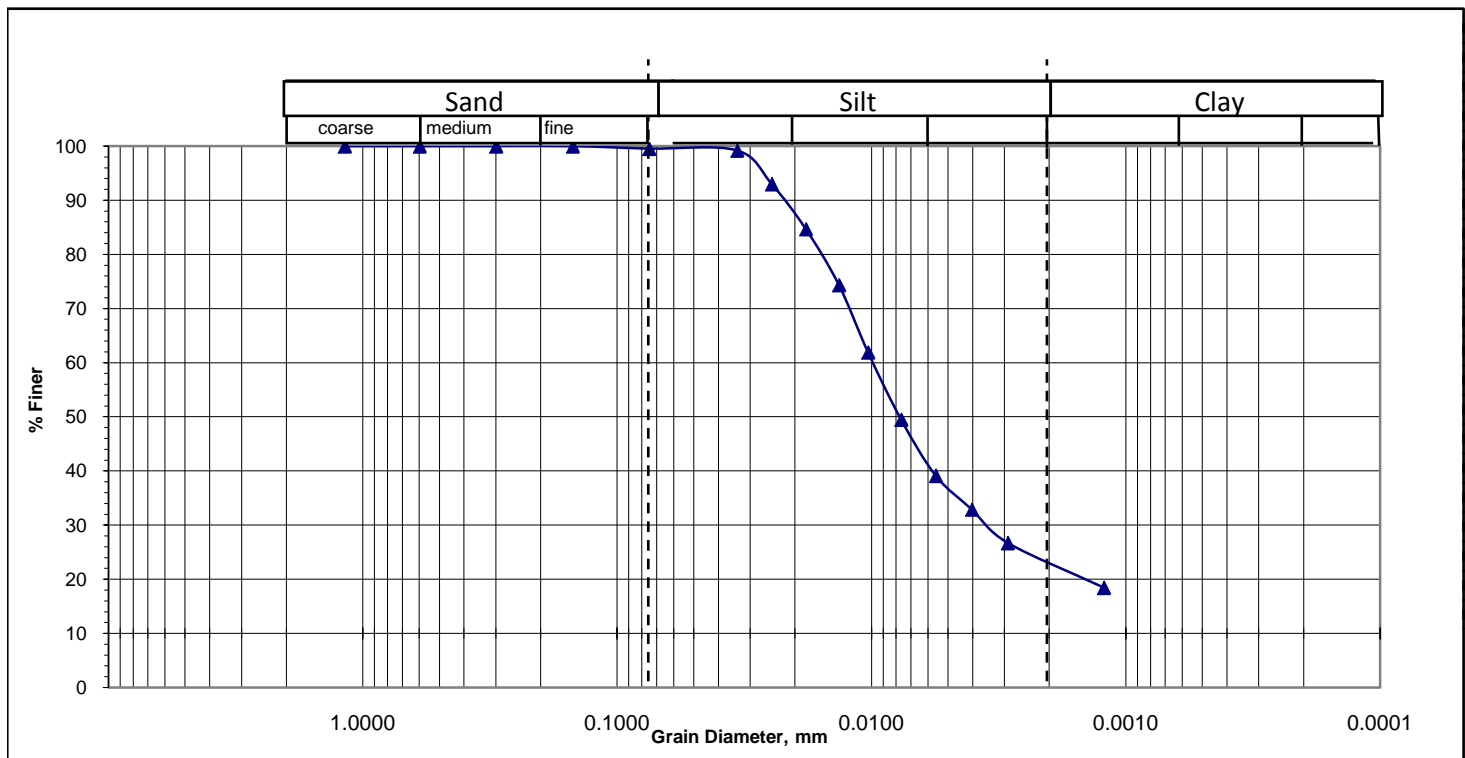
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ahmed Ali Miar Hat Govt Primary School, Kata Chora

Bore Hole No : BH-M29      Sample No. S3      Sampled Date: 18/02/2018

Depth (m) : 4.5      Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.045$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.37$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 76% & Clay (0.001mm size) = 23%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Gudaimmar tek, Ichakhali

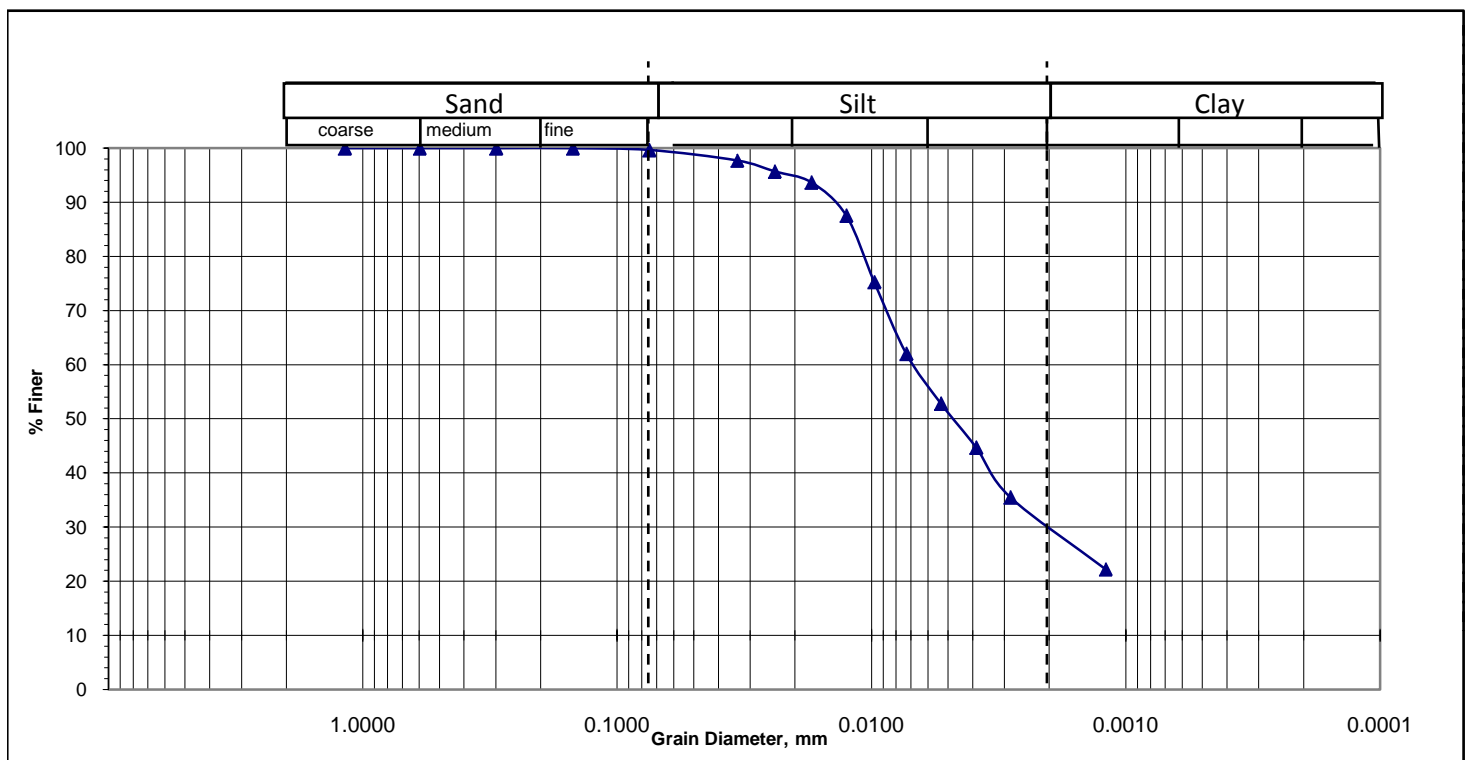
Bore Hole No : BH-M30 Sample No. S2

Sampled Date: 16/02/2018

Depth (m) : 3.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.005 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.12

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 69% & Clay (0.001mm size) = 30%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Jobayeda Islam Nurani Islamia madrasha

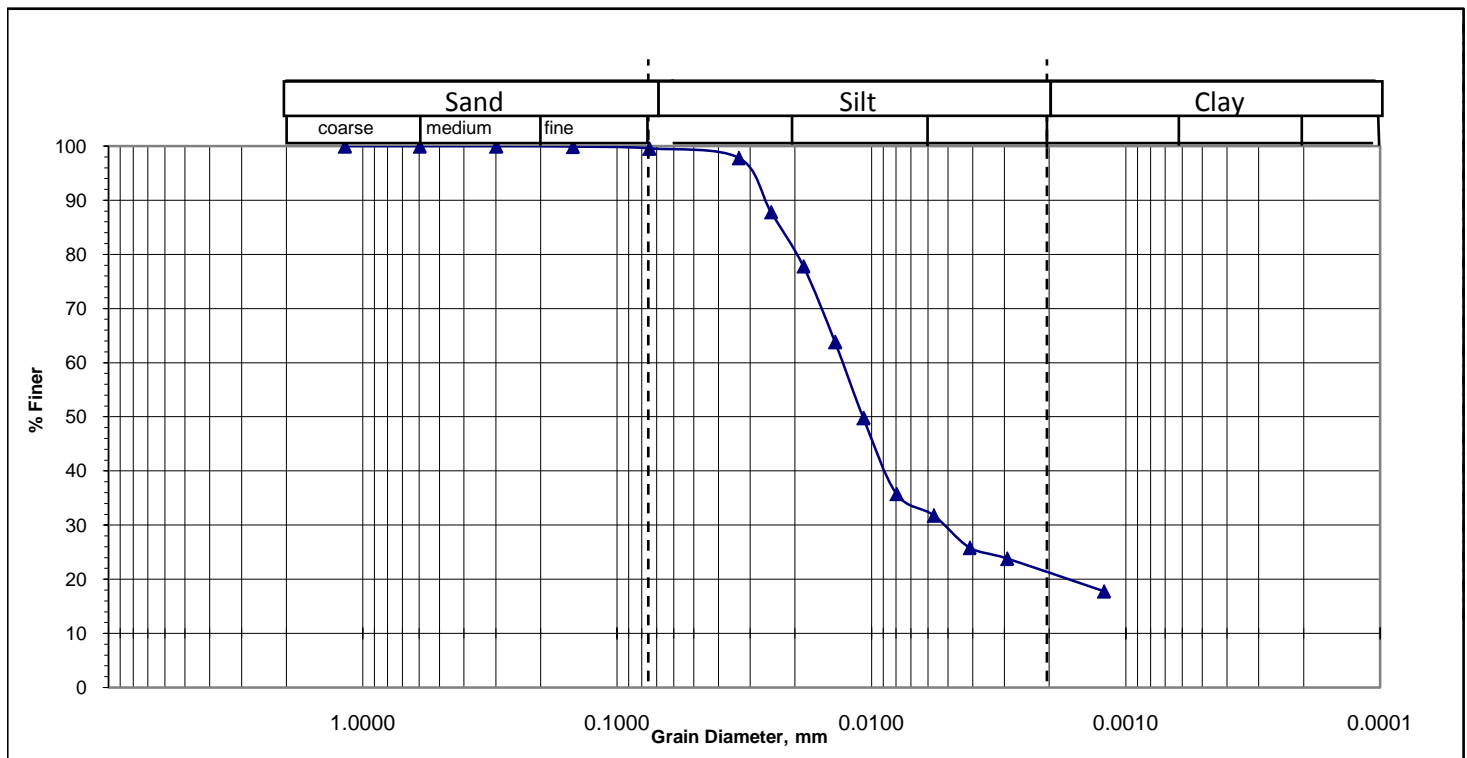
Bore Hole No : BH-M32 Sample No. S2

Sampled Date: 18/02/2018

Depth (m) : 3.0

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.012$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.19$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 77% & Clay (0.001mm size) = 22%







# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Bamonshundor Forrest Bit Office, Shaherkhali

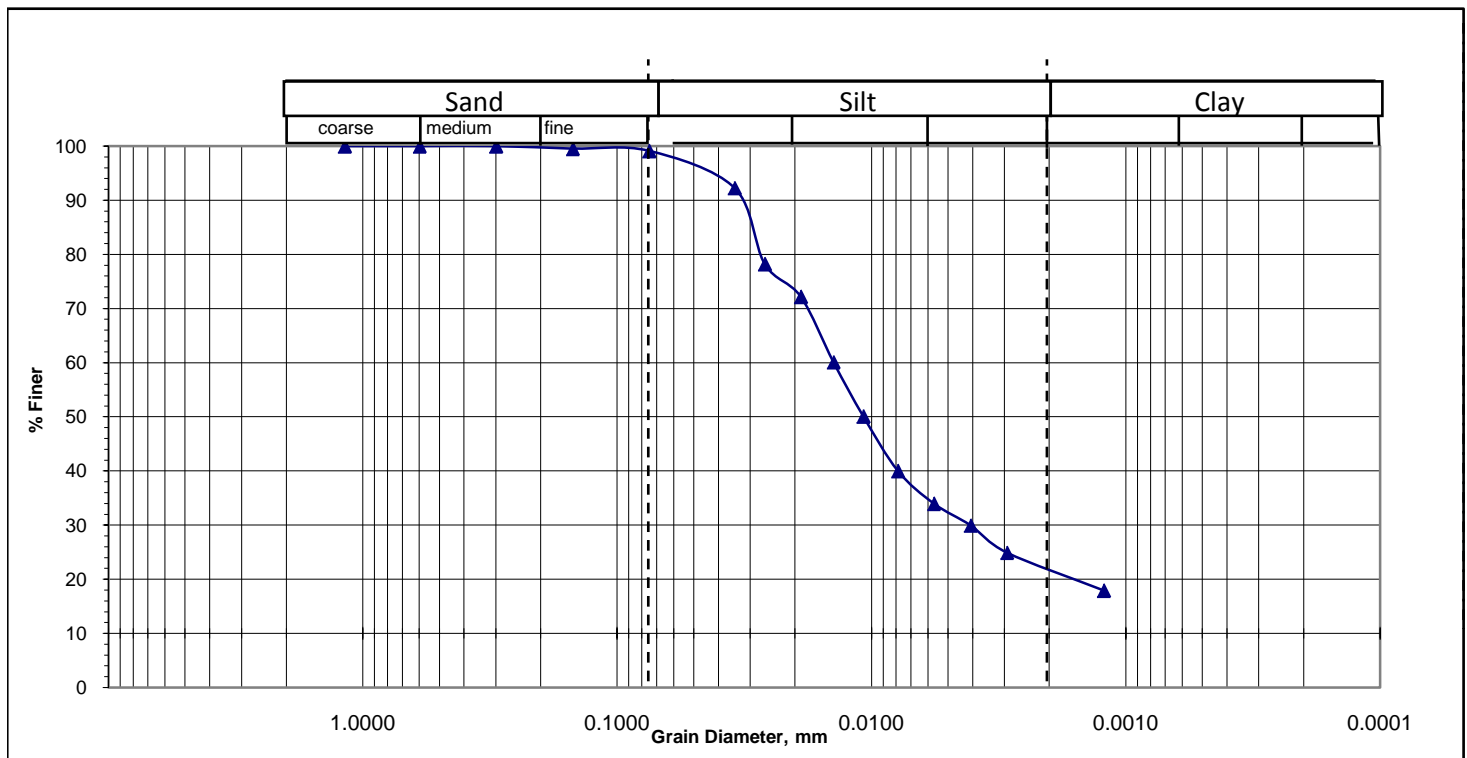
Bore Hole No : BH-M34 Sample No. S3

Sampled Date: 14/02/2018

Depth (m) : 4.5

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.011$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.18$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 77% & Clay (0.001mm size) = 22%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali

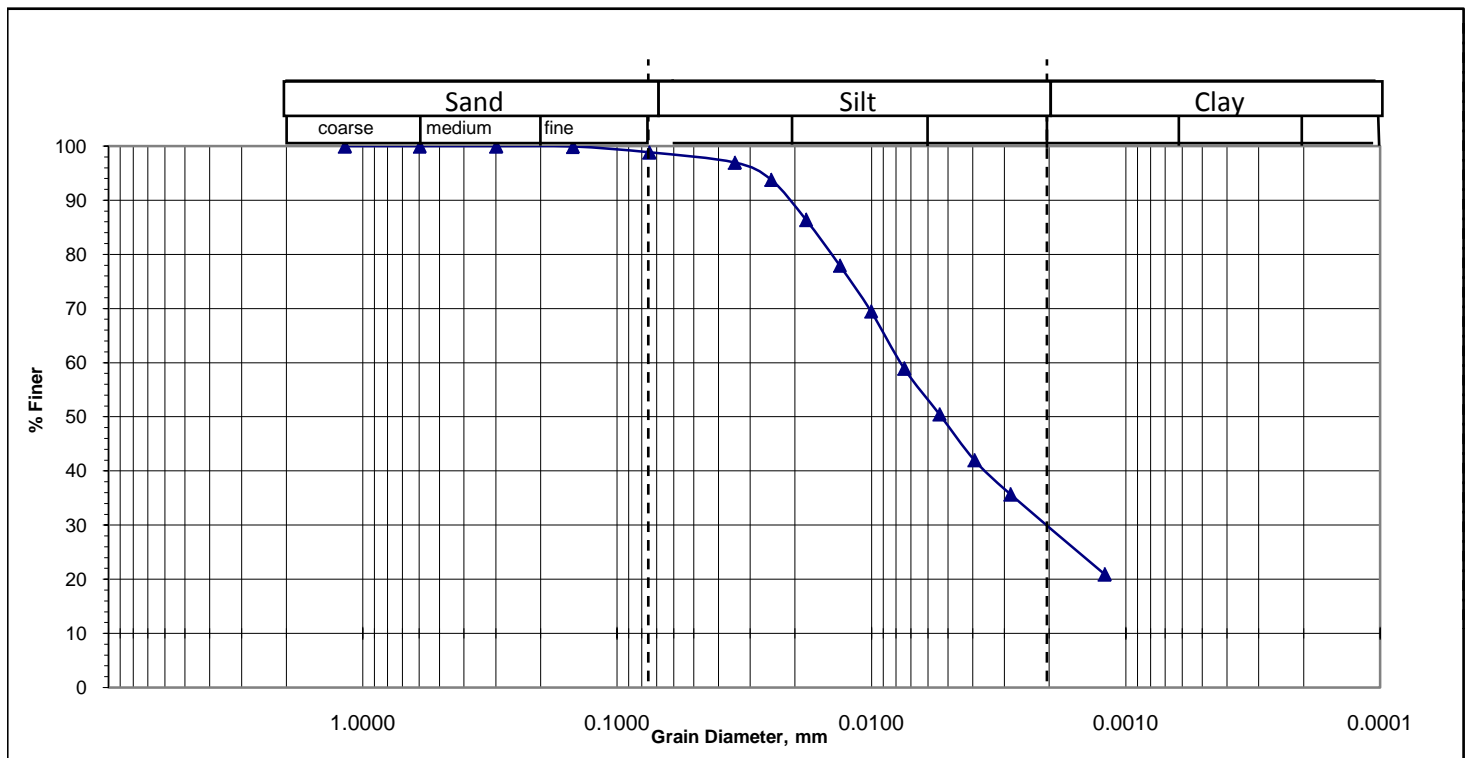
Bore Hole No : BH-M35 Sample No. S3

Sampled Date: 18/02/2018

Depth (m) : 4.5

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0054$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.13$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 68% & Clay (0.001mm size) = 30%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

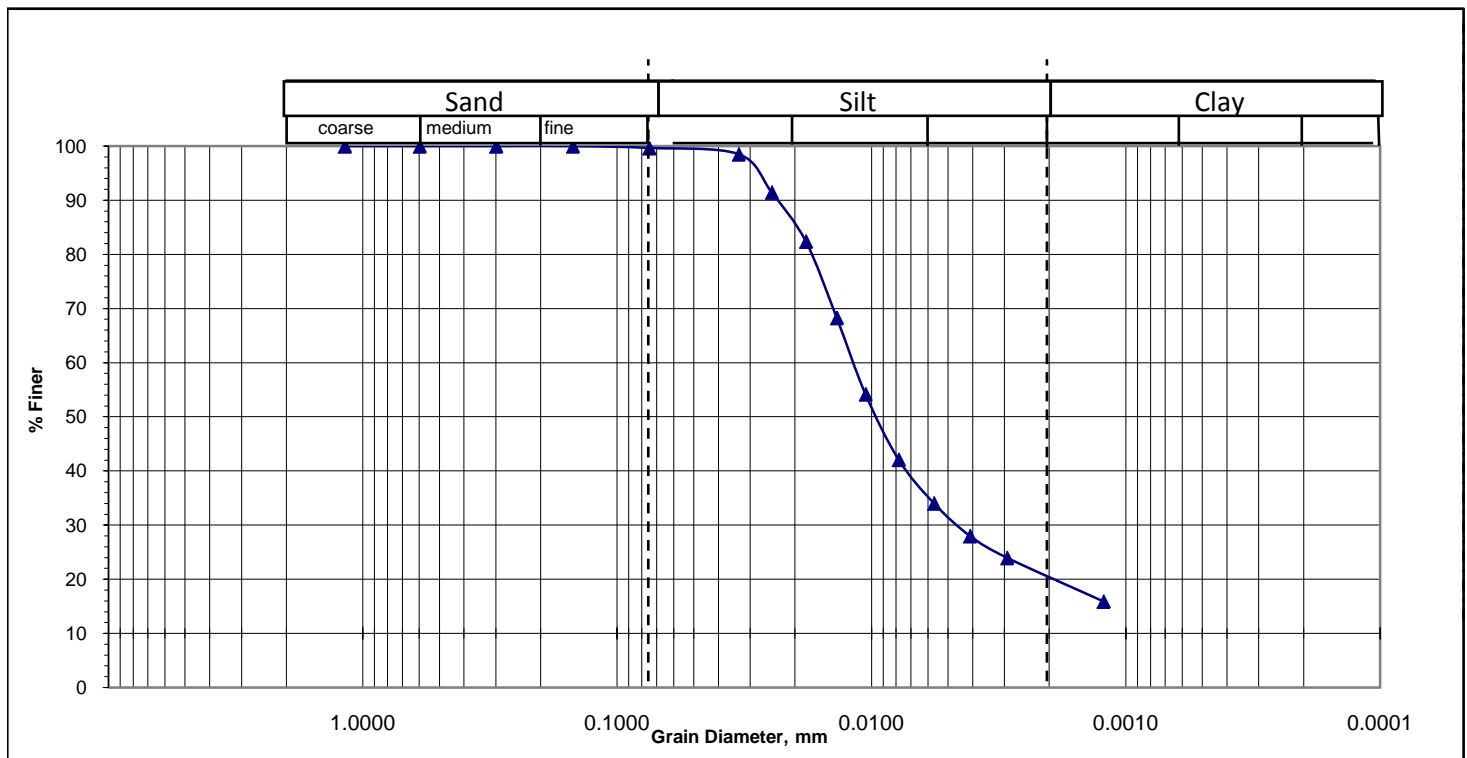
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Chunumijer tek,Ichakhali

Bore Hole No : BH-M36      Sample No. S2      Sampled Date: 18/02/2018

Depth (m) : 3.0      Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0099$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.18$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 79% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 94 no. Hasim Nagar Govt. Primary School

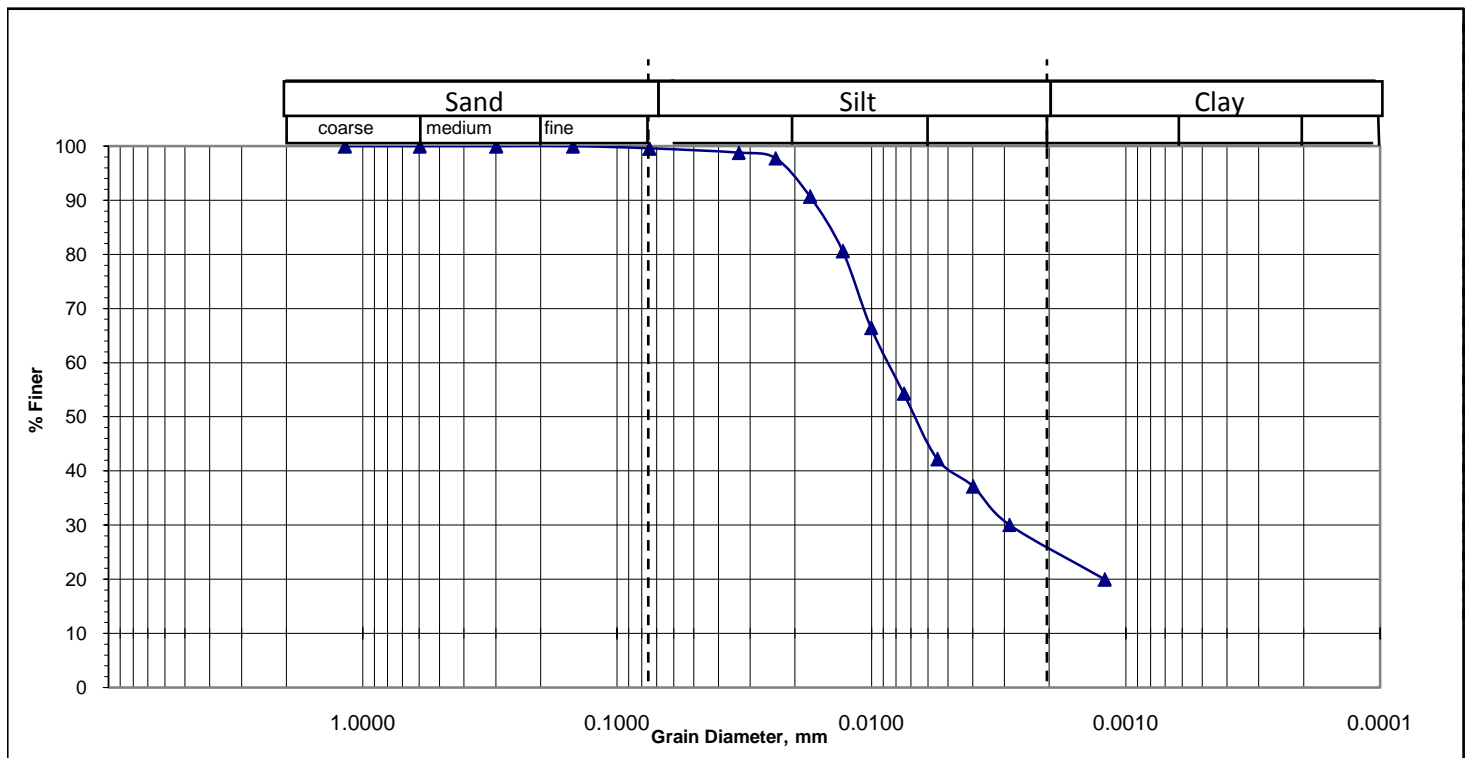
Bore Hole No : BH-M37 Sample No. S2

Sampled Date: 15/02/2018

Depth (m) : 3.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.007$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 74% & Clay (0.001mm size) = 25%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ichakhali Economic Zone Office, Ichakhali

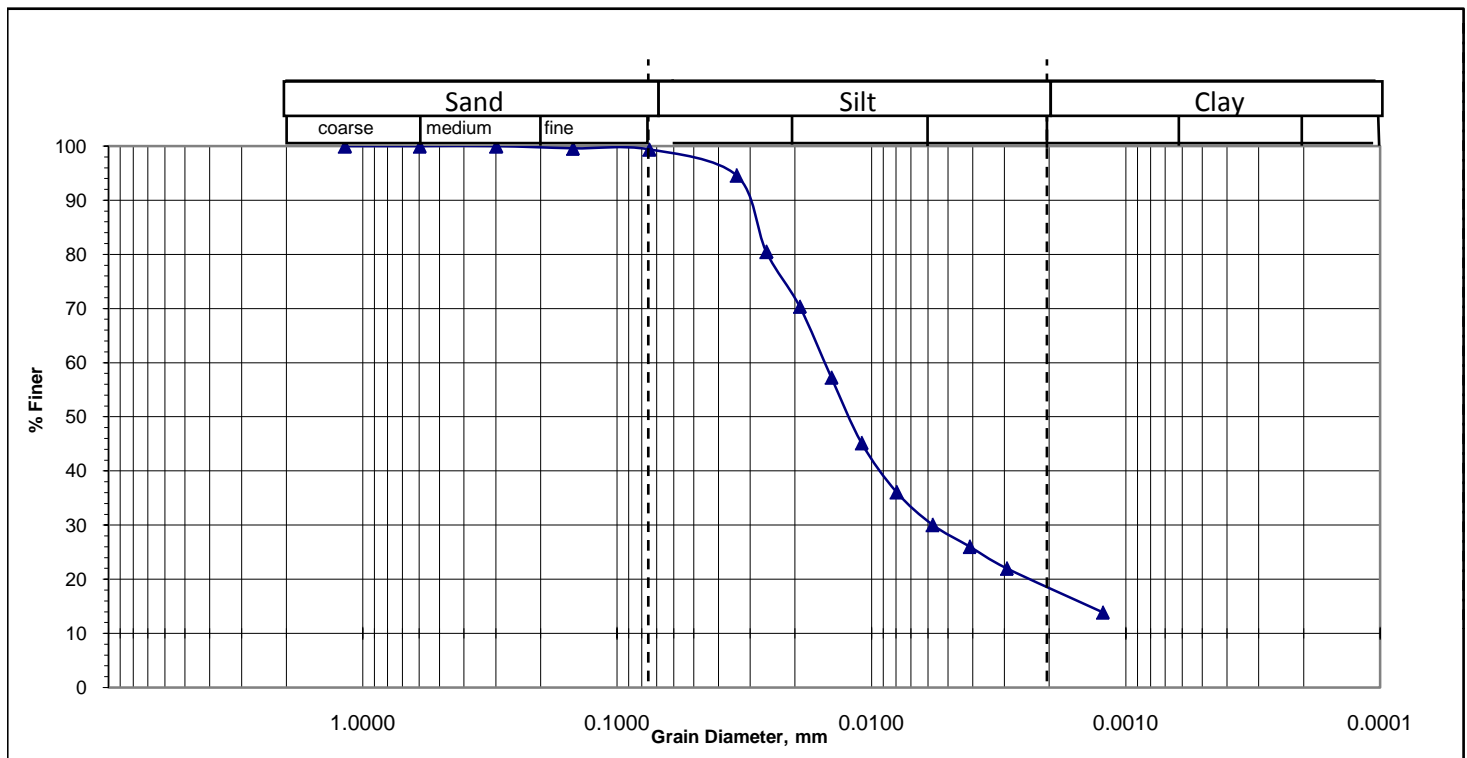
Bore Hole No : BH-M38 Sample No. S4

Sampled Date: 15/02/2018

Depth (m) : 6.0

Test Date : 03/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.013$  mm

Silt-Factor,  $f = 1.76\sqrt{D_{50}} = 0.20$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =20%, Silt (0.005mm size)= 65% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Lodiakhali, Ichakhali

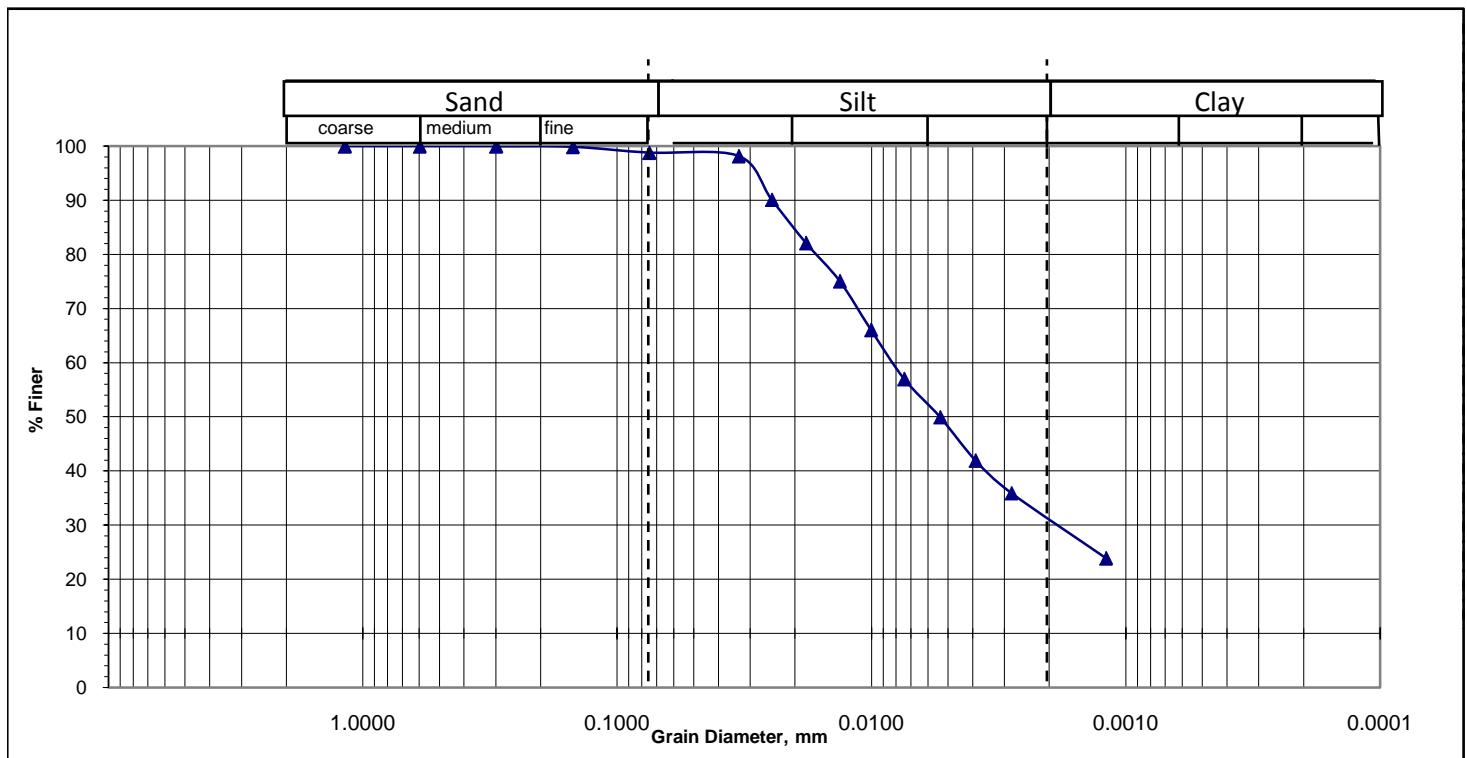
Bore Hole No : BH-M39 Sample No. S4

Sampled Date: 16/02/2018

Depth (m) : 6.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.0045 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.12

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 67% & Clay (0.001mm size) = 31%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Sony Mijer tek, Tekerhat Bazar,Ichakhali

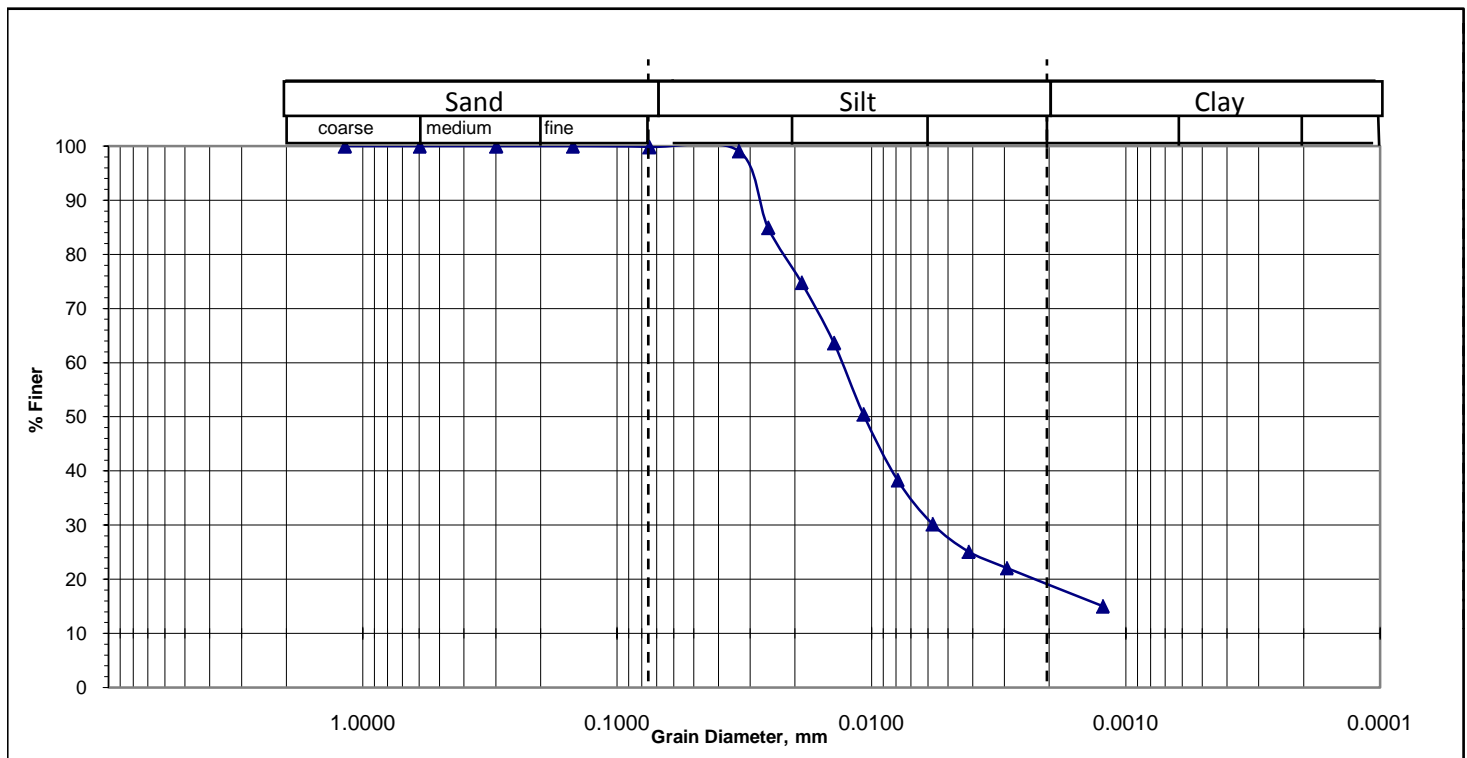
Bore Hole No : BH-M40 Sample No. S2

Sampled Date: 17/02/2018

Depth (m) : 3.0

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.045 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.37

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 80% & Clay (0.001mm size) = 19%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ichakhali Economic Zone, Ichakhali

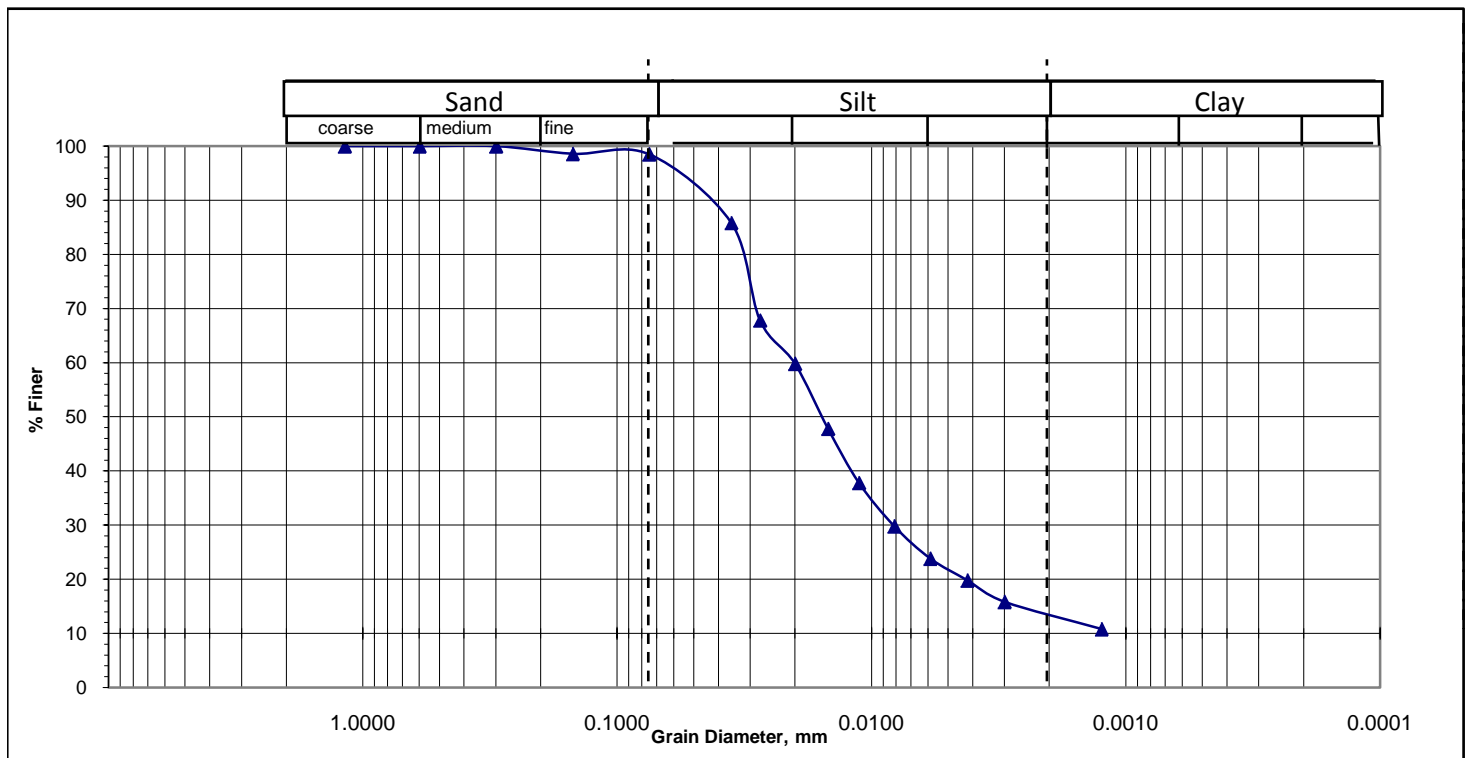
Bore Hole No : BH-M41 Sample No. S2

Sampled Date: 20/02/2018

Depth (m) : 3.0

Test Date : 02/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.016$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 85% & Clay (0.001mm size) = 13%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Kazigram govt. Primary School, Ichakhali

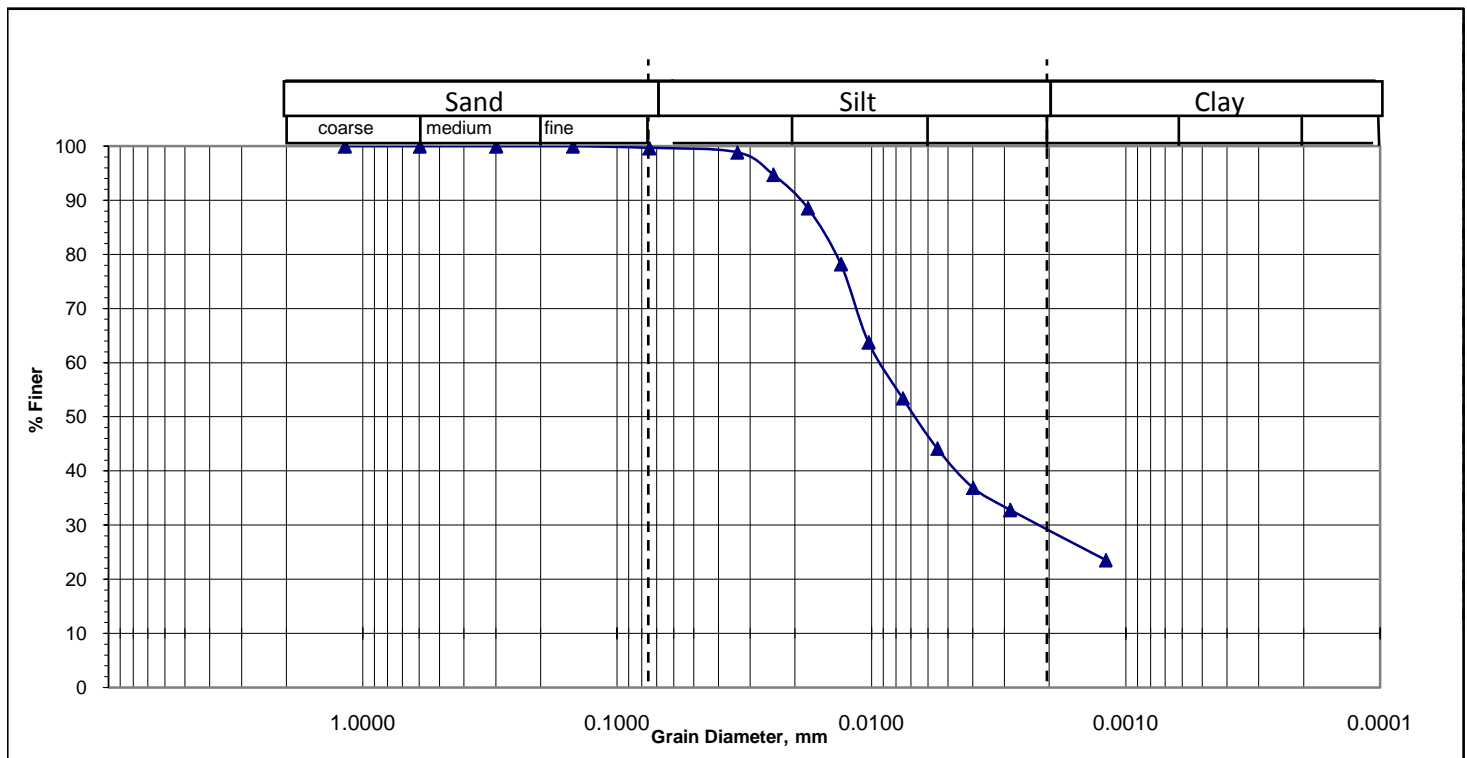
Bore Hole No : BH-M42 Sample No. S2

Sampled Date: 19/02/2018

Depth (m) : 3.0

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.007$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 70% & Clay (0.001mm size) = 29%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Rajamiar Farm, Char Shorot, Ichakhali

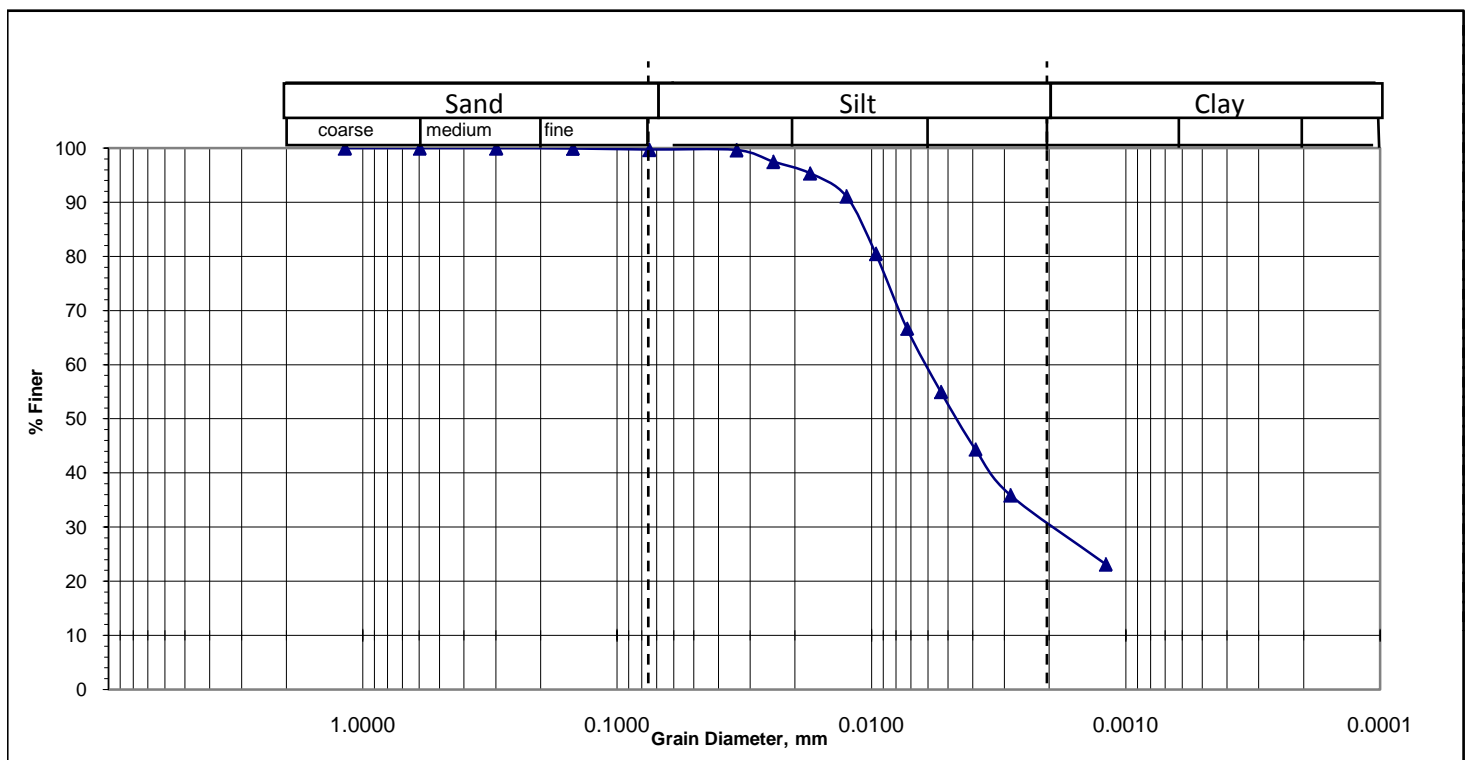
Bore Hole No : BH-M43 Sample No. S3

Sampled Date: 15/02/2018

Depth (m) : 4.5

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0045$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.12$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 69% & Clay (0.001mm size) = 30%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location :Rahmatabad, Ichakhali

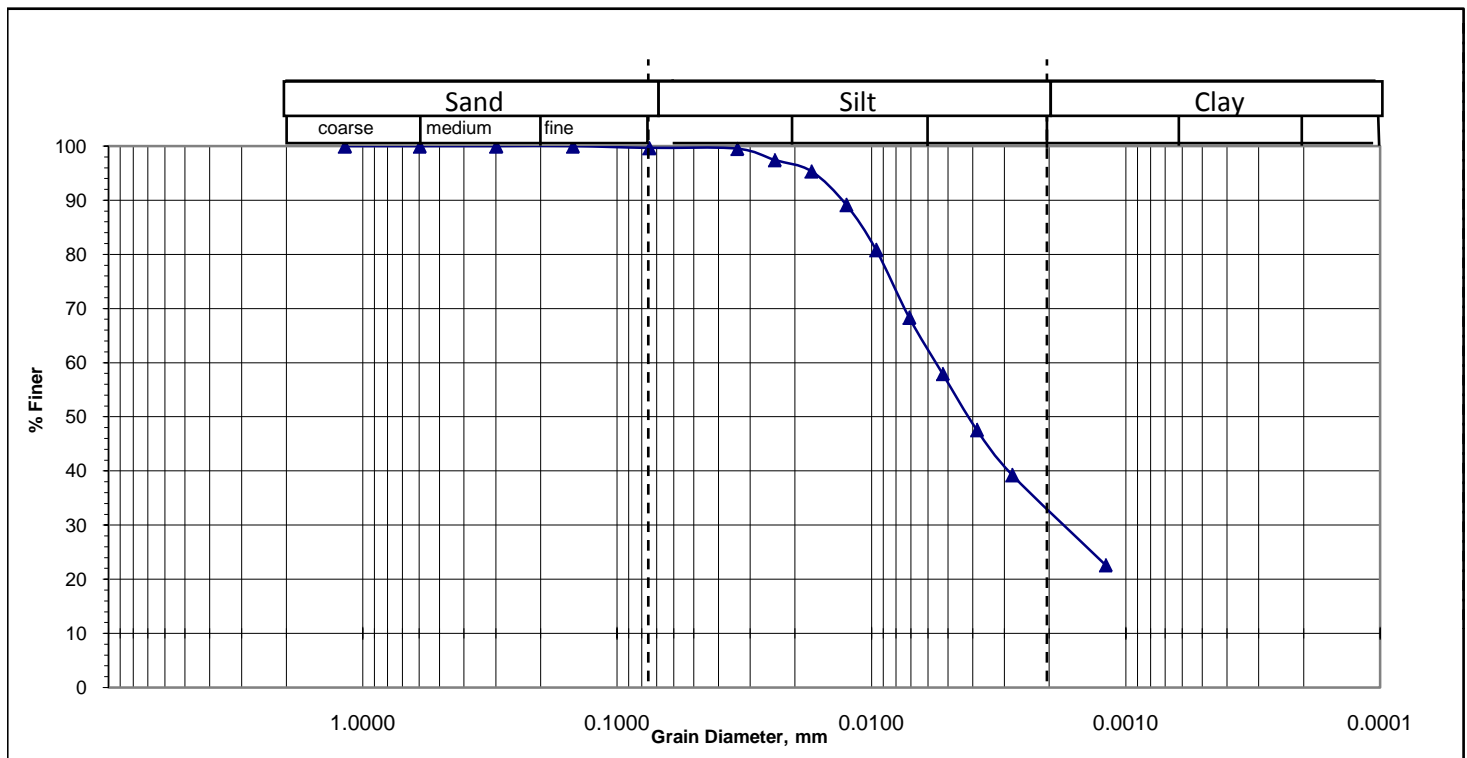
Bore Hole No : BH-M44 Sample No. S2

Sampled Date: 15/02/2018

Depth (m) : 3.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0041$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.11$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 66% & Clay (0.001mm size) = 33%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Mithachora Bazar , Mirshorai

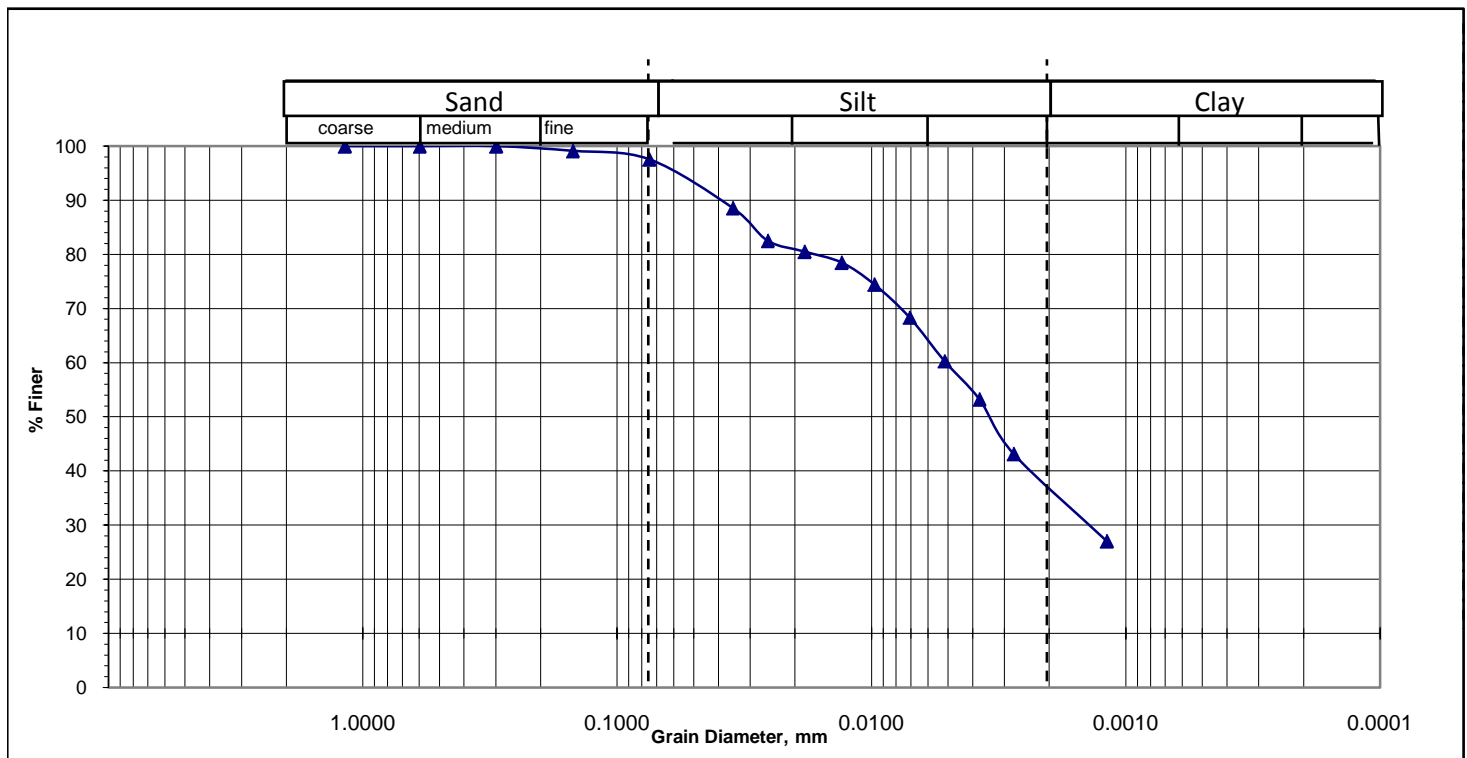
Bore Hole No : BH-M46 Sample No. S1

Sampled Date: 03/02/2018

Depth (m) : 1.5

Test Date : 11/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0035$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.10$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =3%, Silt (0.005mm size)= 60% & Clay (0.001mm size) = 37%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : South Talbaria, Mirshorai

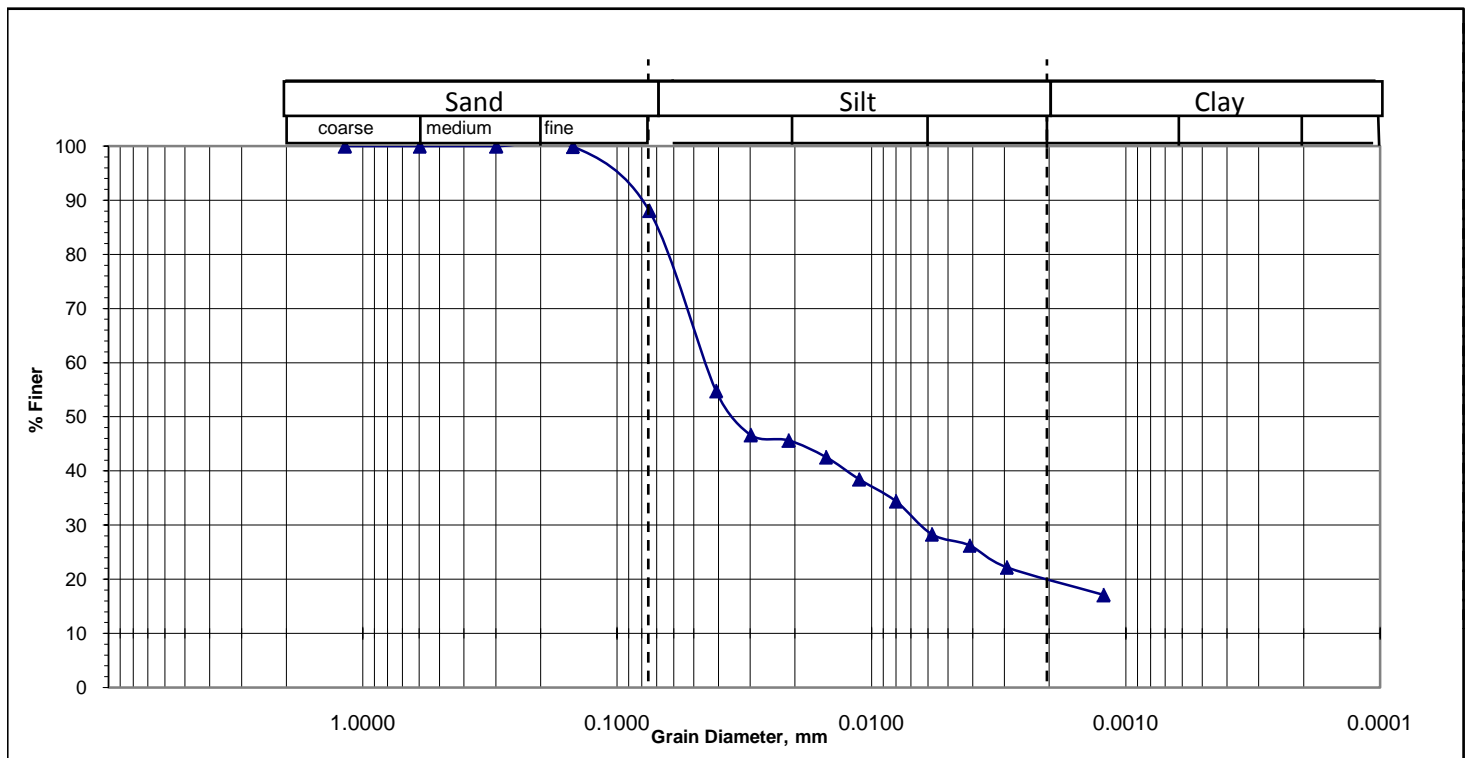
Bore Hole No : BH-M47 Sample No. S2

Sampled Date: 08/03/2018

Depth (m) : 3.0

Test Date : 21/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.035$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.33$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 79% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : East Ambaria, Mirshorai

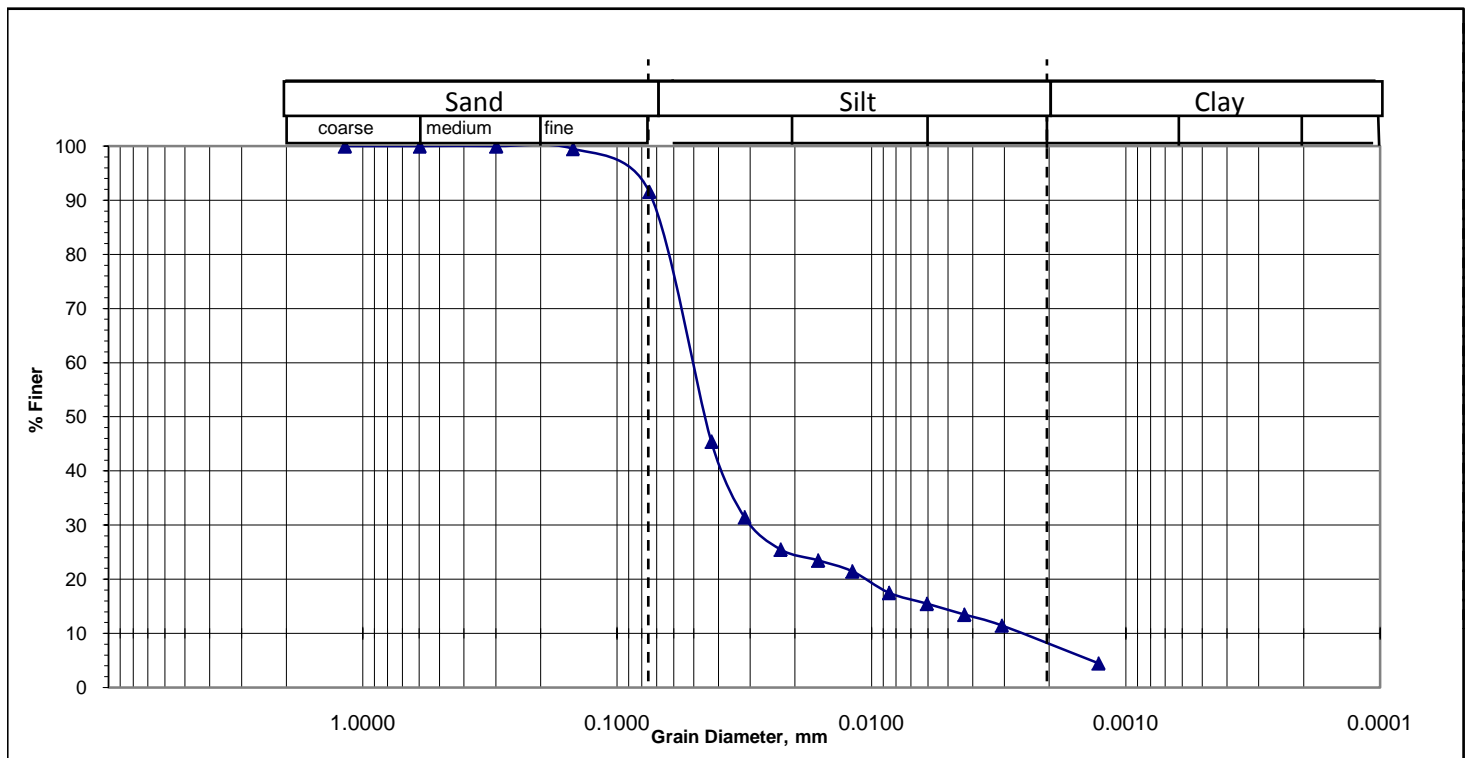
Bore Hole No : BH-M48 Sample No. S7

Sampled Date: 05/02/2018

Depth (m) : 10.5

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.045 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.37$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =9%, Silt (0.005mm size)= 82% & Clay (0.001mm size) = 9%







# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ora Kazi Mijibari Jame Mosque, Mirshorai

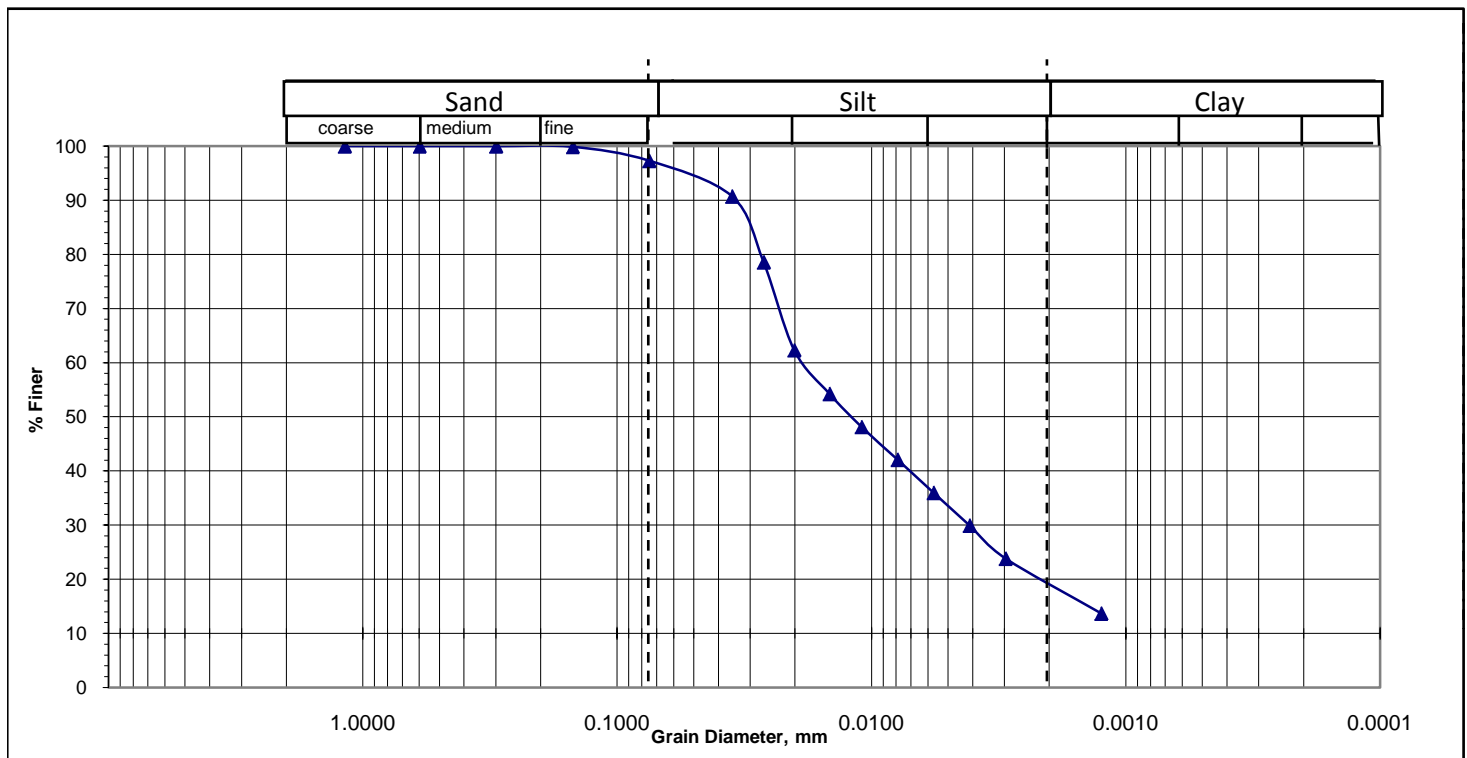
Bore Hole No : BH-M49 Sample No. S2

Sampled Date: 02/02/2018

Depth (m) : 3.0

Test Date : 11/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.013 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.20$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =5%, Silt (0.005mm size)= 76% & Clay (0.001mm size) = 19%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : North Talbaria Govt. Primary School, Mirshorai

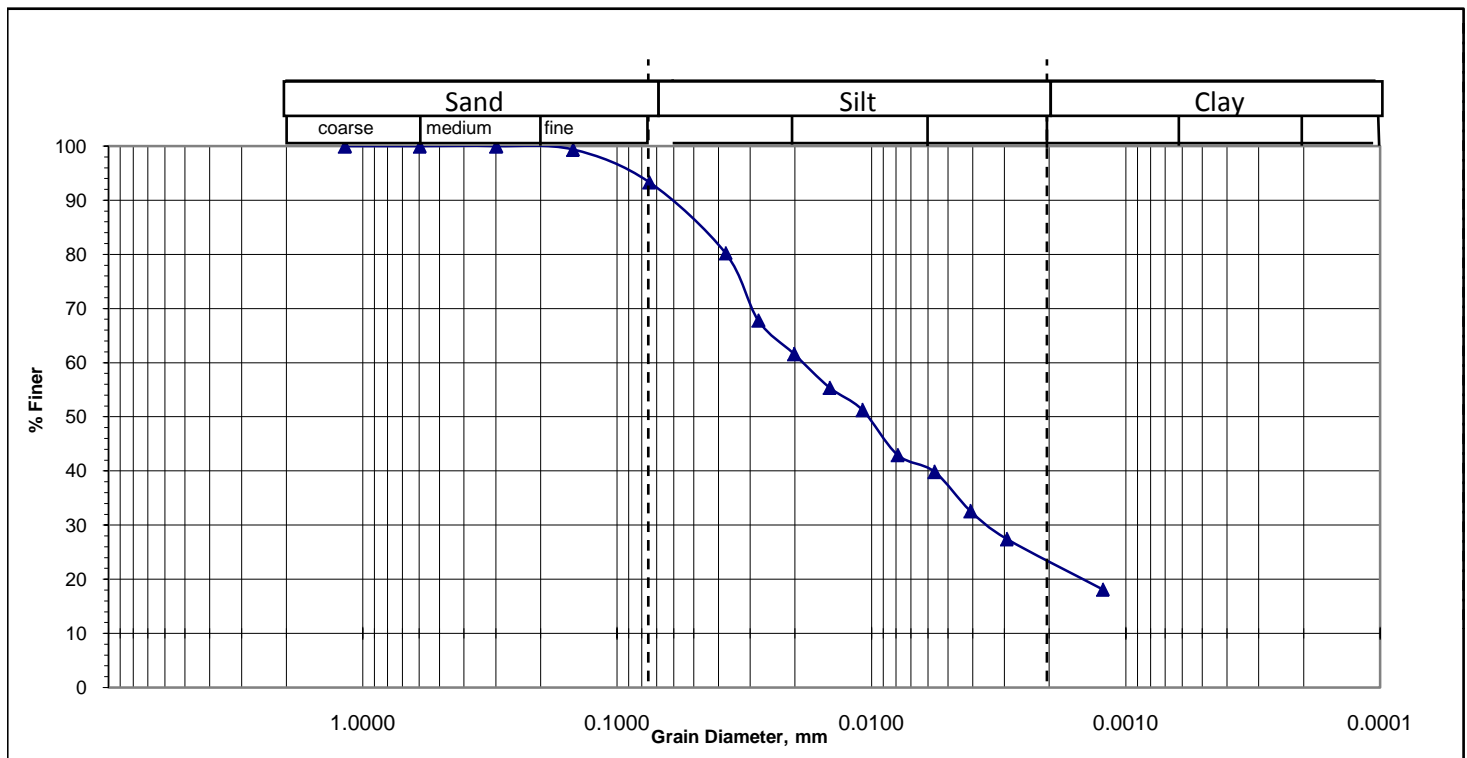
Bore Hole No : BH-M51 Sample No. S1

Sampled Date: 04/02/2018

Depth (m) : 1.5

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.011$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.18$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =7%, Silt (0.005mm size)= 70% & Clay (0.001mm size) = 23%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Hamid Ali Jame Mosque, East Khoiachora

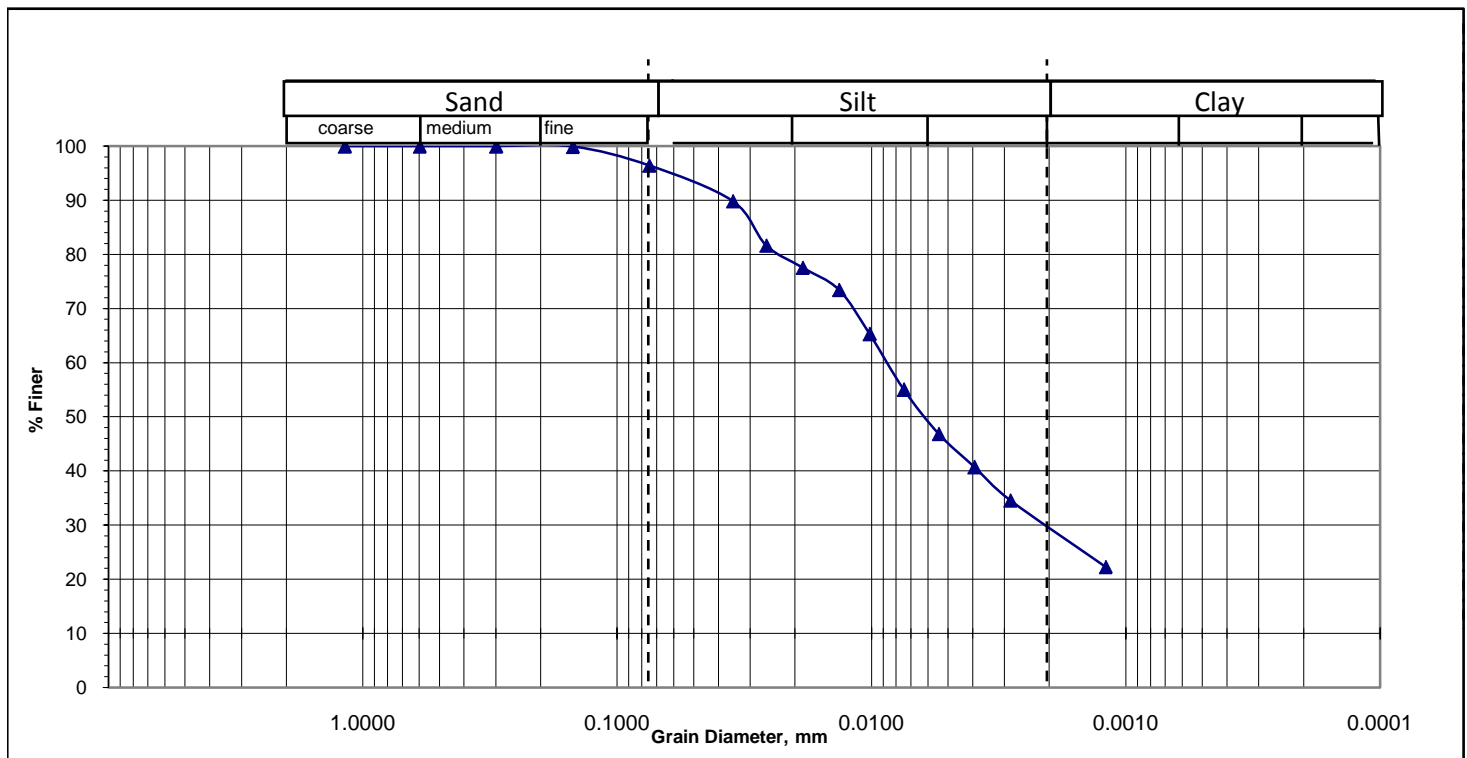
Bore Hole No : BH-M52 Sample No. S3

Sampled Date: 09/02/2018

Depth (m) : 4.5

Test Date : 19/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.006$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =5%, Silt (0.005mm size)= 65% & Clay (0.001mm size) = 30%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Rabiul Hossain Govt. Primary School

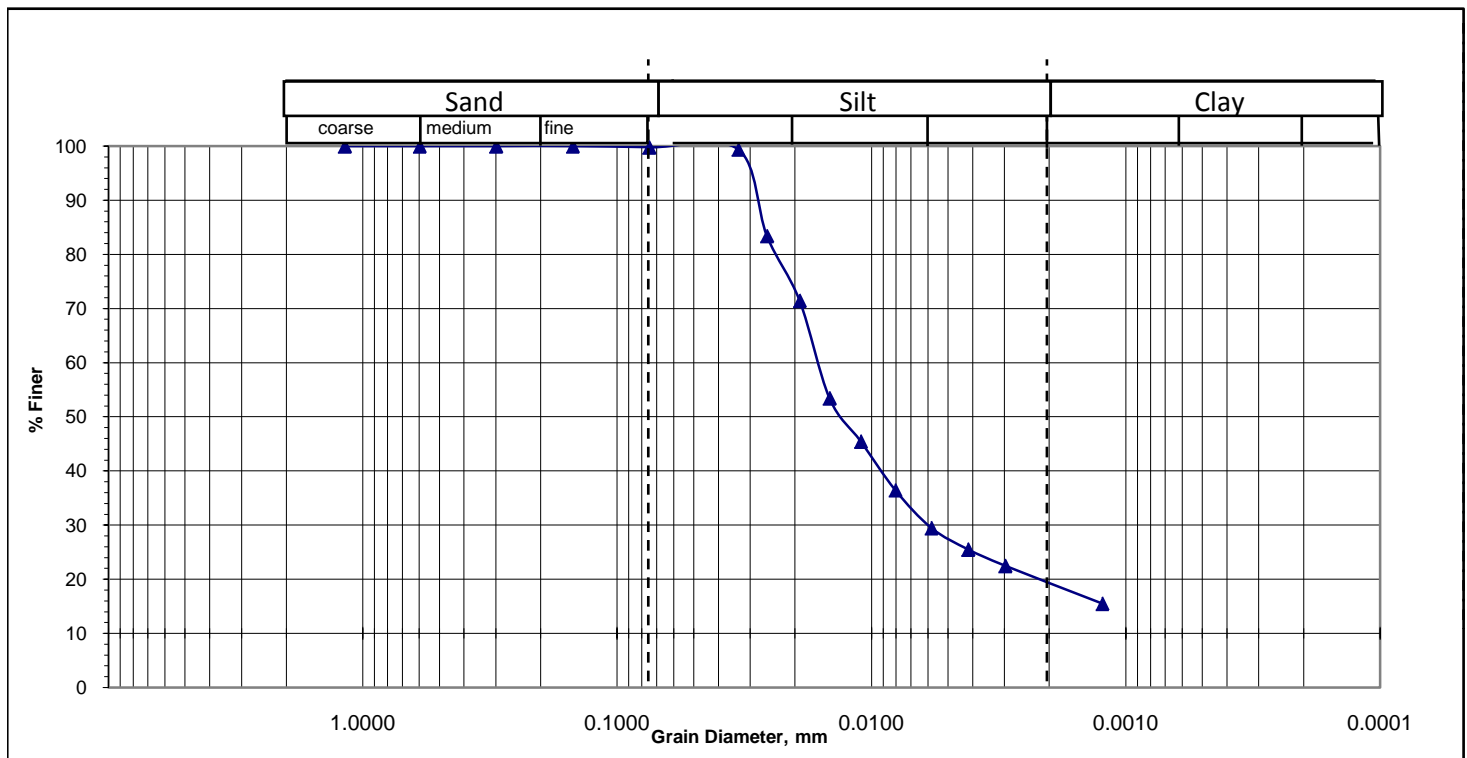
Bore Hole No : BH-M54 Sample No. S2

Sampled Date: 16/02/2018

Depth (m) : 3.0

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.015$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.22$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 79% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Chairman Bari, West Moliyash

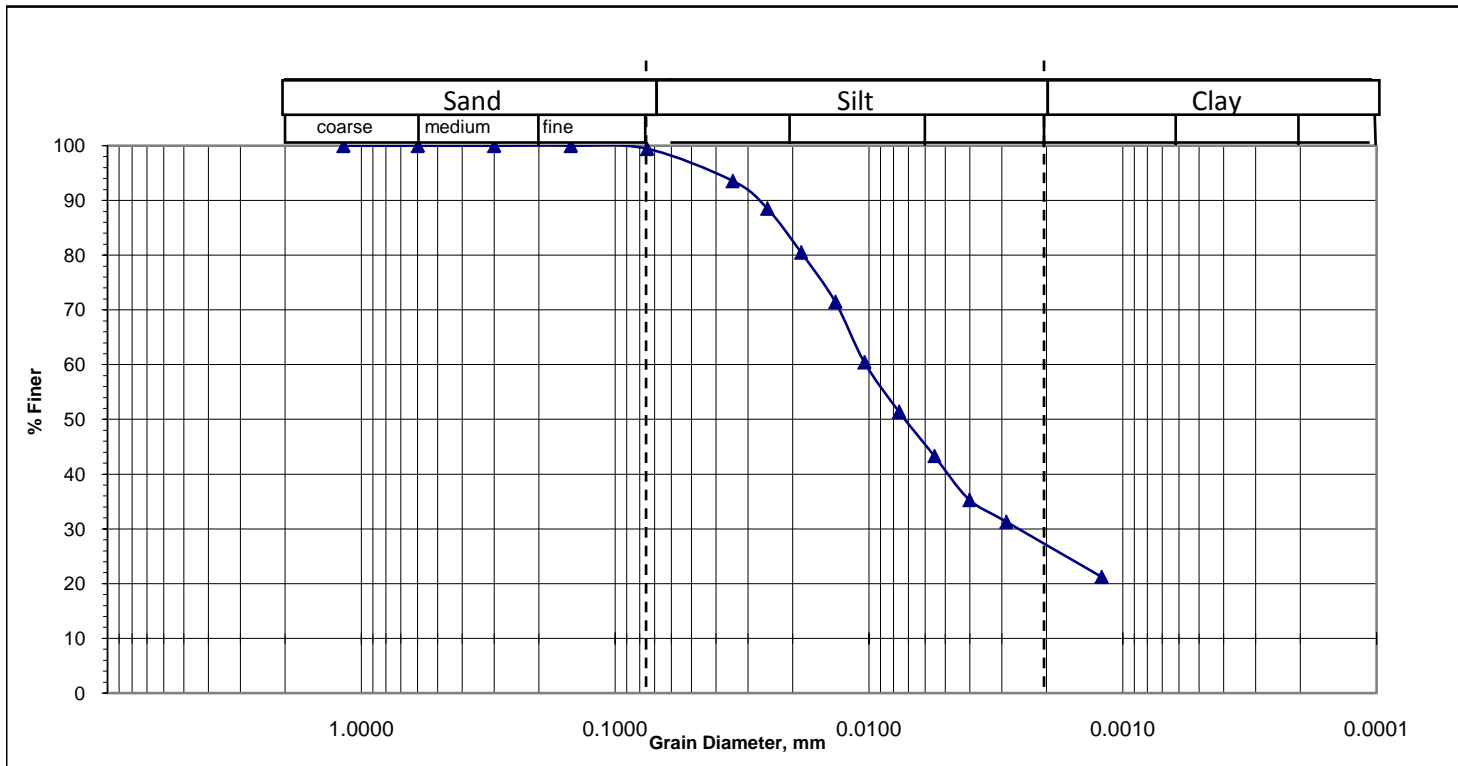
Bore Hole No : BH-M55 Sample No. S2

Sampled Date: 17/02/2018

Depth (m) : 3.0

Test Date : 03/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.007$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 72% & Clay (0.001mm size) = 27%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Hazi Badiul Alam Chowdhury Govt. Primary School, Mithanala

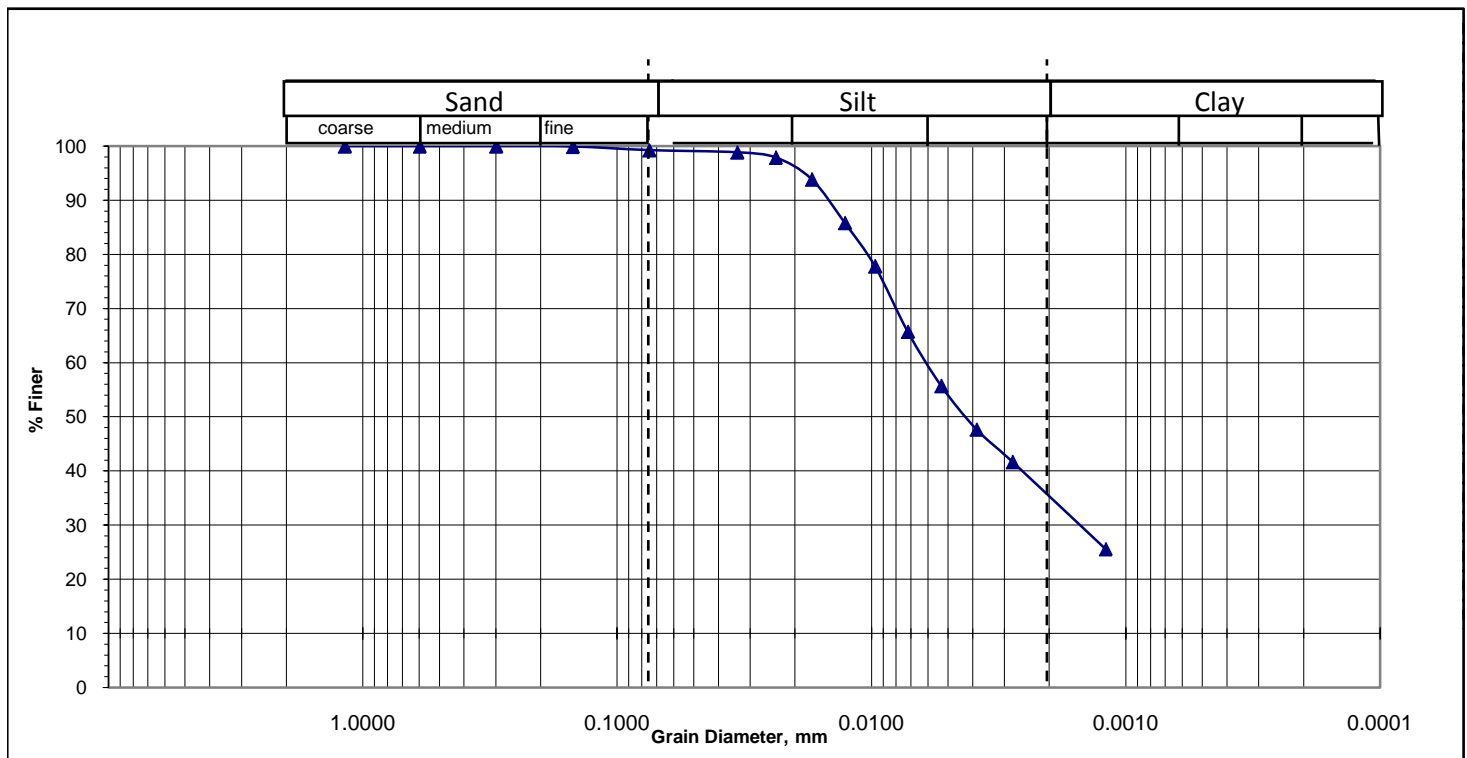
Bore Hole No : BH-M56 Sample No. S1

Sampled Date: 03/02/2018

Depth (m) : 1.5

Test Date : 15/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0041$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.11$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 64% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Mayani Bogla Kumar Primary School, Mayani

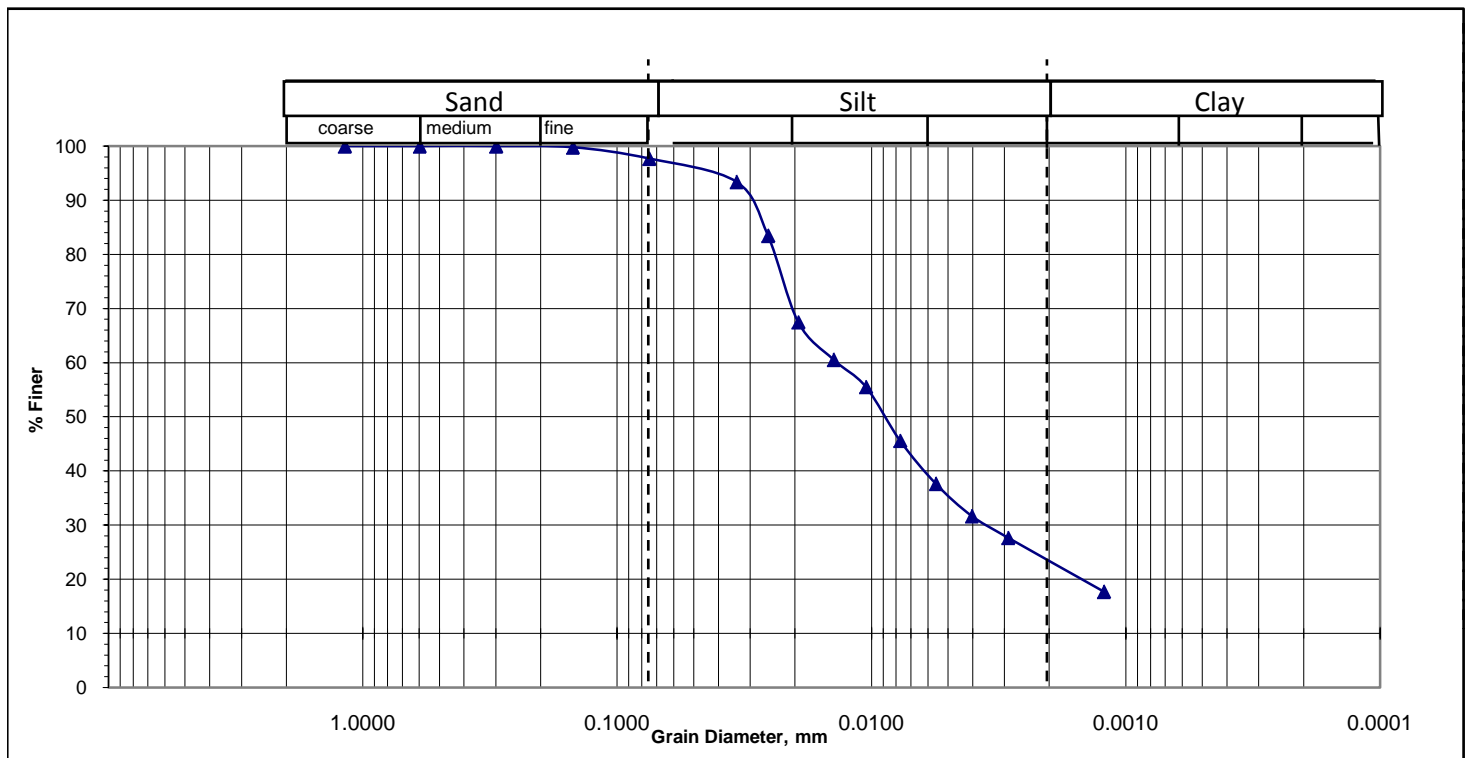
Bore Hole No : BH-M57 Sample No. S2

Sampled Date: 14/02/2018

Depth (m) : 3.0

Test Date : 05/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.009$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.17$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =3%, Silt (0.005mm size)= 74% & Clay (0.001mm size) = 23%







# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 3 Ghoriatola, Jame mosque, Maghadia

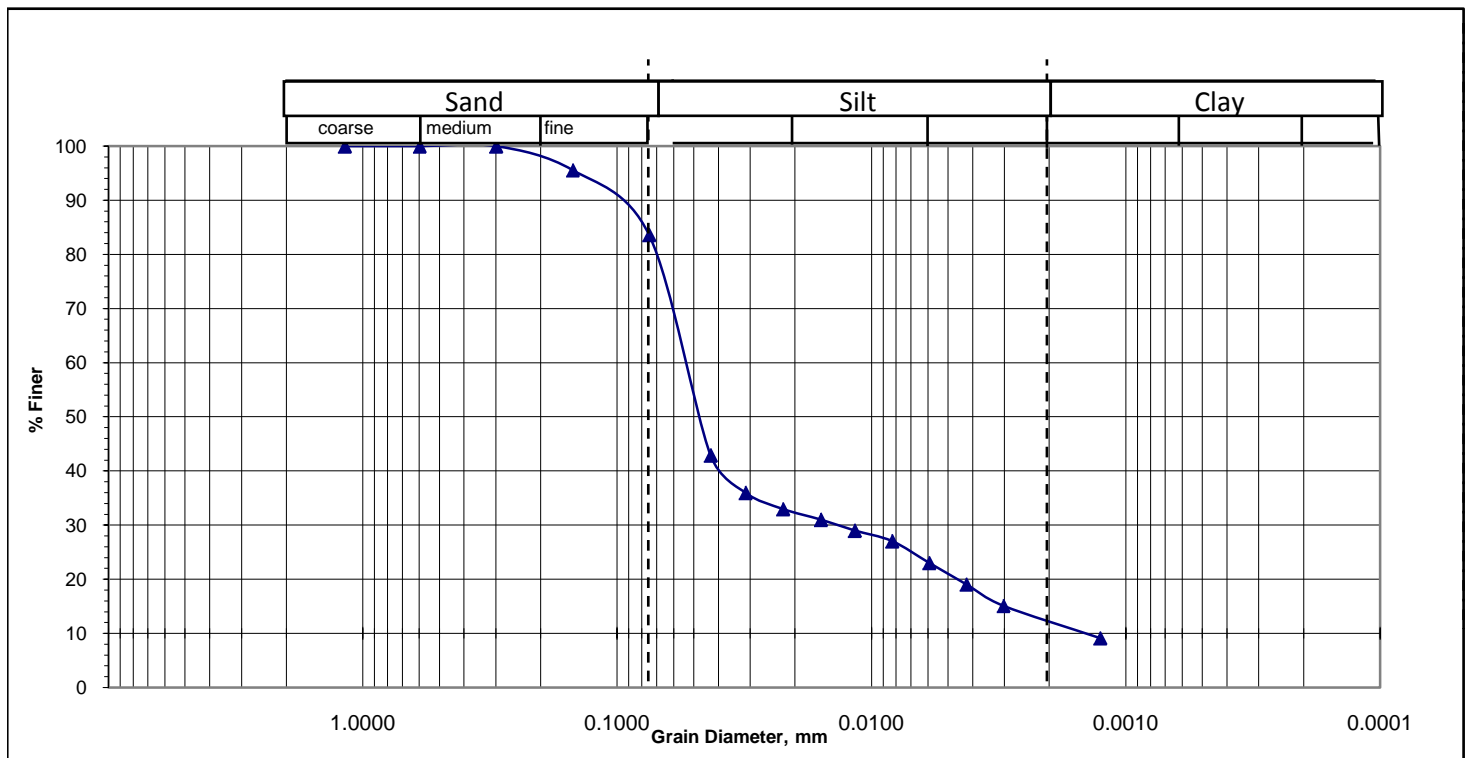
Bore Hole No : BH-M59 Sample No. S3

Sampled Date: 16/02/2018

Depth (m) : 4.5

Test Date : 03/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.048$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.39$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =17%, Silt (0.005mm size)= 71% & Clay (0.001mm size) = 12%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location :90 no. Maghadia NC Govt. Primary School, Maghadia

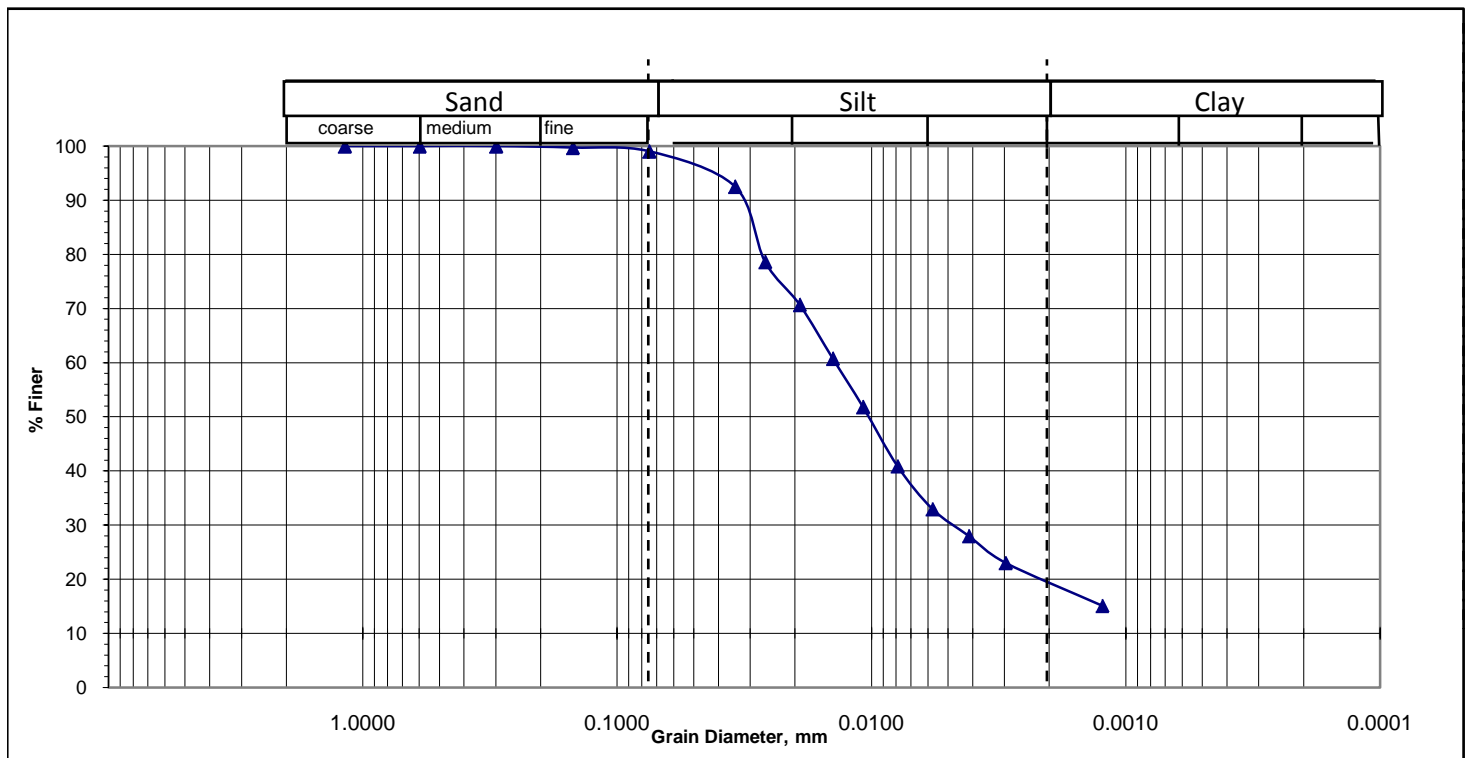
Bore Hole No : BH-M60 Sample No. S3

Sampled Date: 05/02/2018

Depth (m) : 4.5

Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.011$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.18$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 80% & Clay (0.001mm size) = 19%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Sheker Taluk, Middle Maghadia

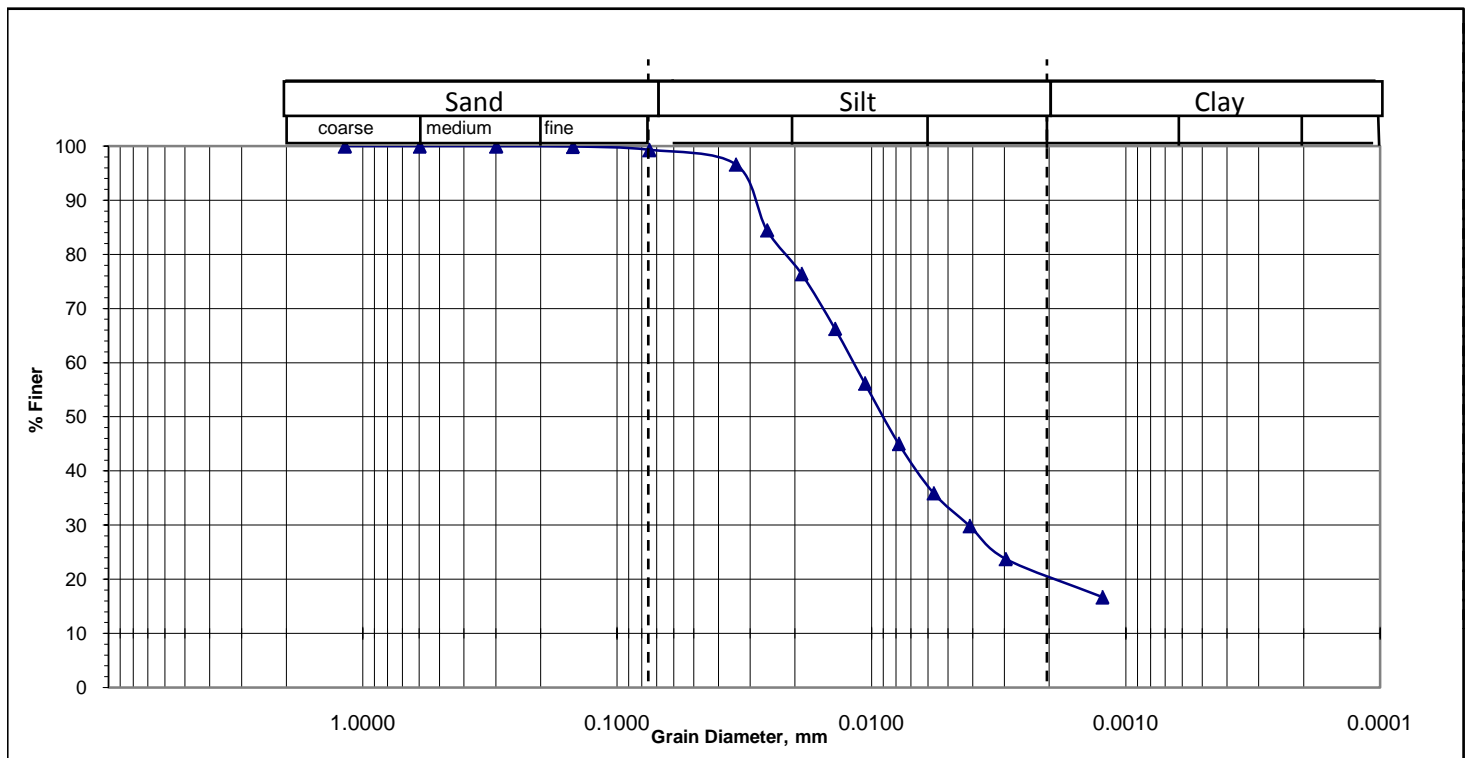
Bore Hole No : BH-M61 Sample No. S1

Sampled Date: 04/02/2018

Depth (m) : 1.5

Test Date : 18/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.009$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.17$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 79% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Kazir Taluk Govt. Primary School, Maghadia

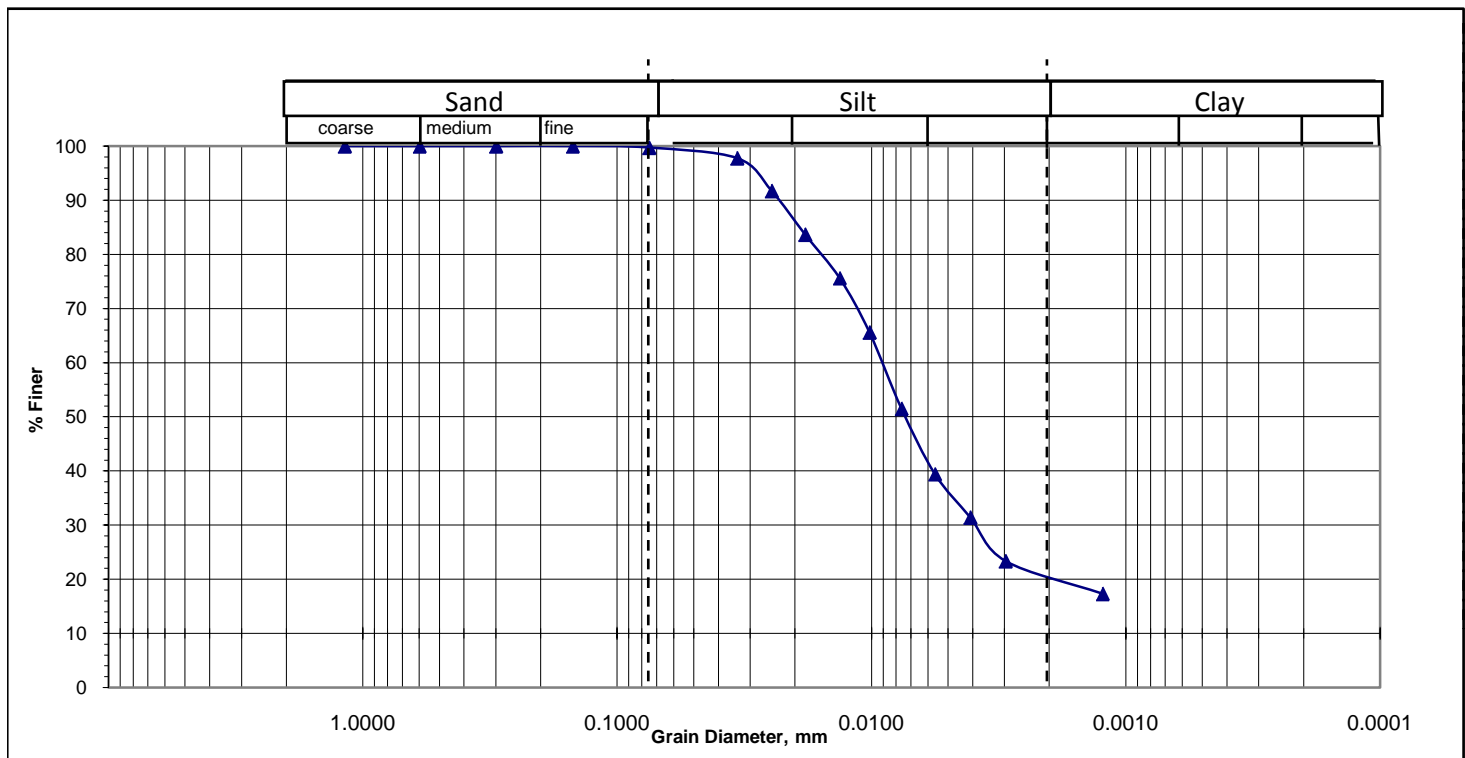
Bore Hole No : BH-M62 Sample No. S3

Sampled Date: 13/02/2018

Depth (m) : 4.5

Test Date : 02/04/2018

### Graphical Representation:





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Komor ali Union High School, Komor Ali Union Bazar

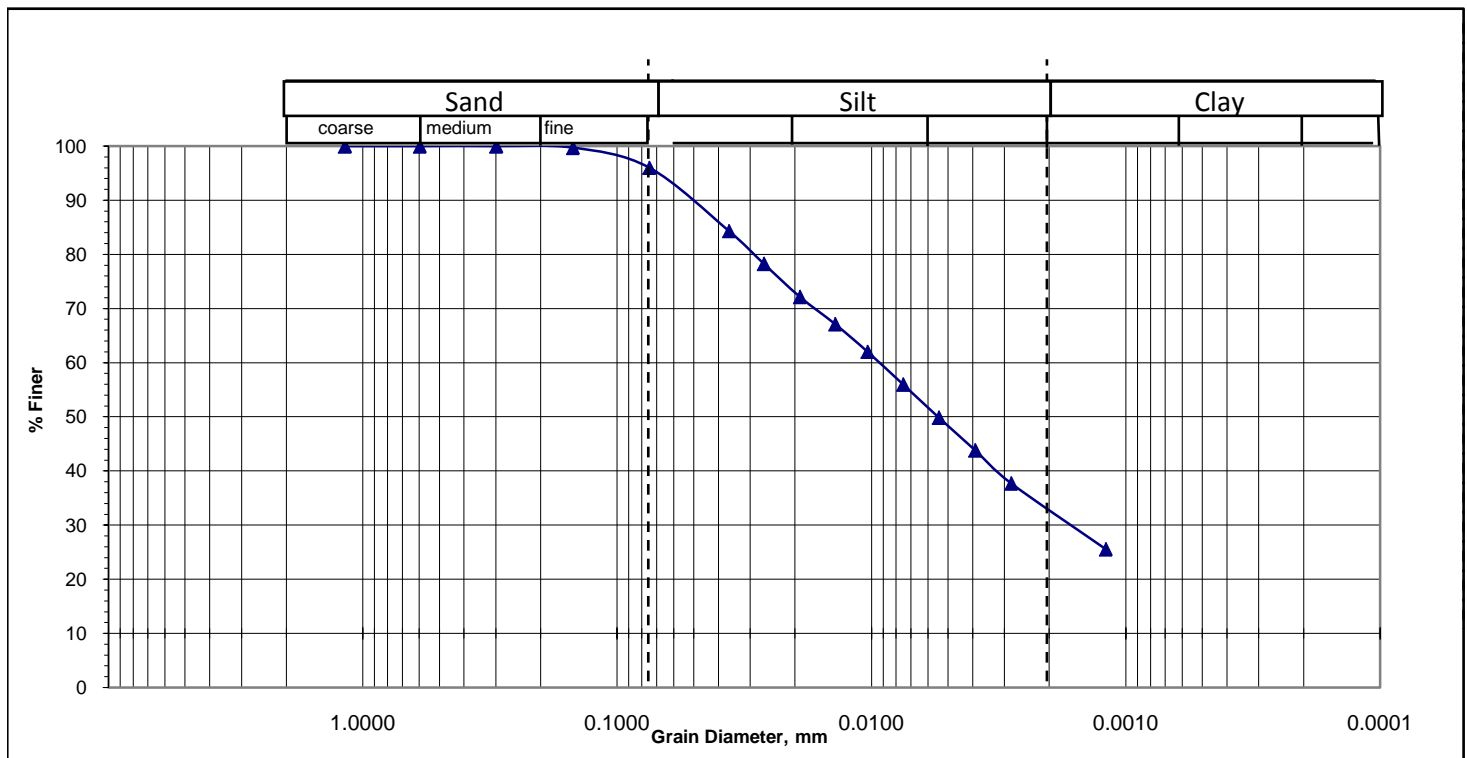
Bore Hole No : BH-M63 Sample No. S3

Sampled Date: 12/02/2018

Depth (m) : 4.5

Test Date : 19/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0055$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.13$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =4%, Silt (0.005mm size)= 63% & Clay (0.001mm size) = 33%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Katakhalı Beribadh, Shekerkhali

Bore Hole No : BH-M64

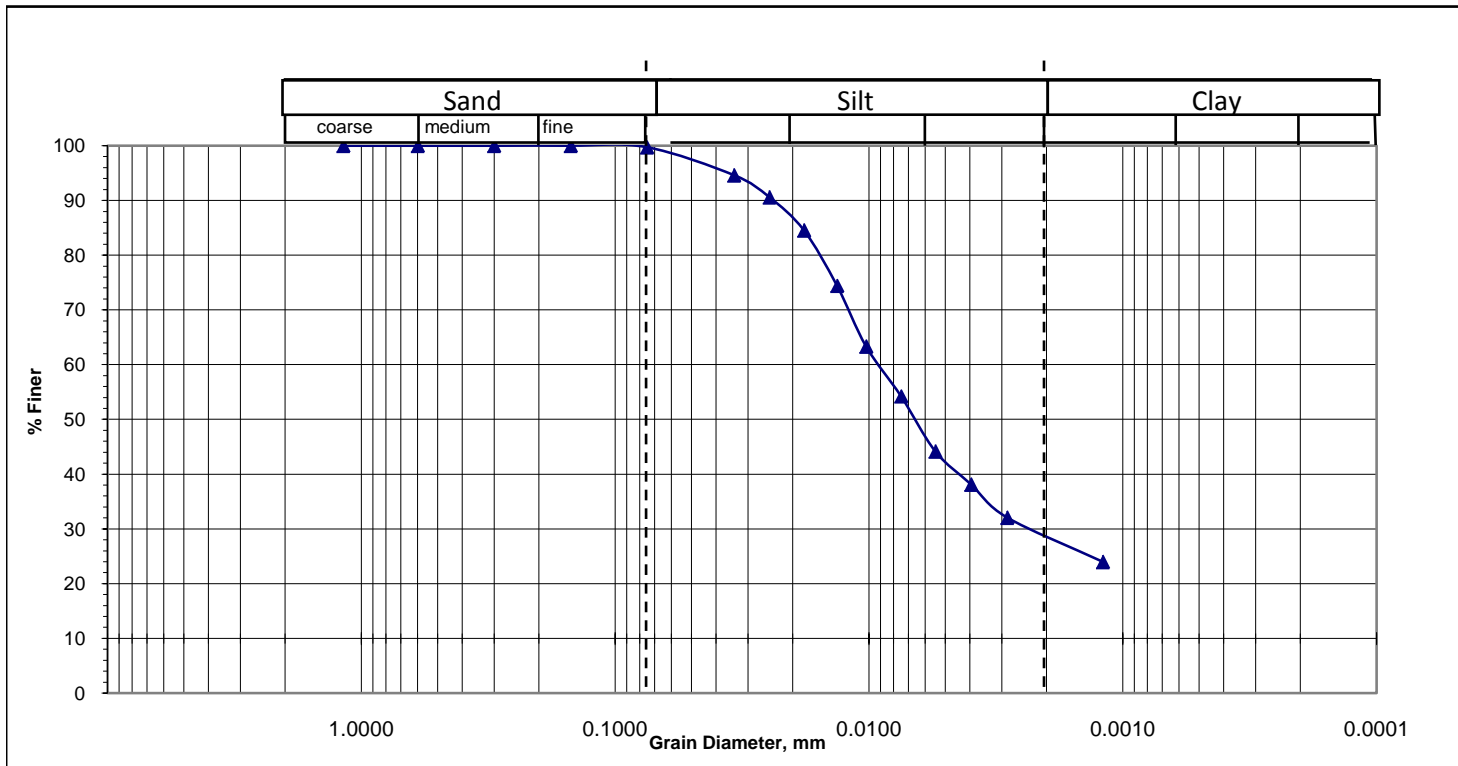
Sample No. S3

Sampled Date: 13/02/2018

Depth (m) : 4.5

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0068$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 71% & Clay (0.001mm size) = 28%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Baribadh, Shekerkhali

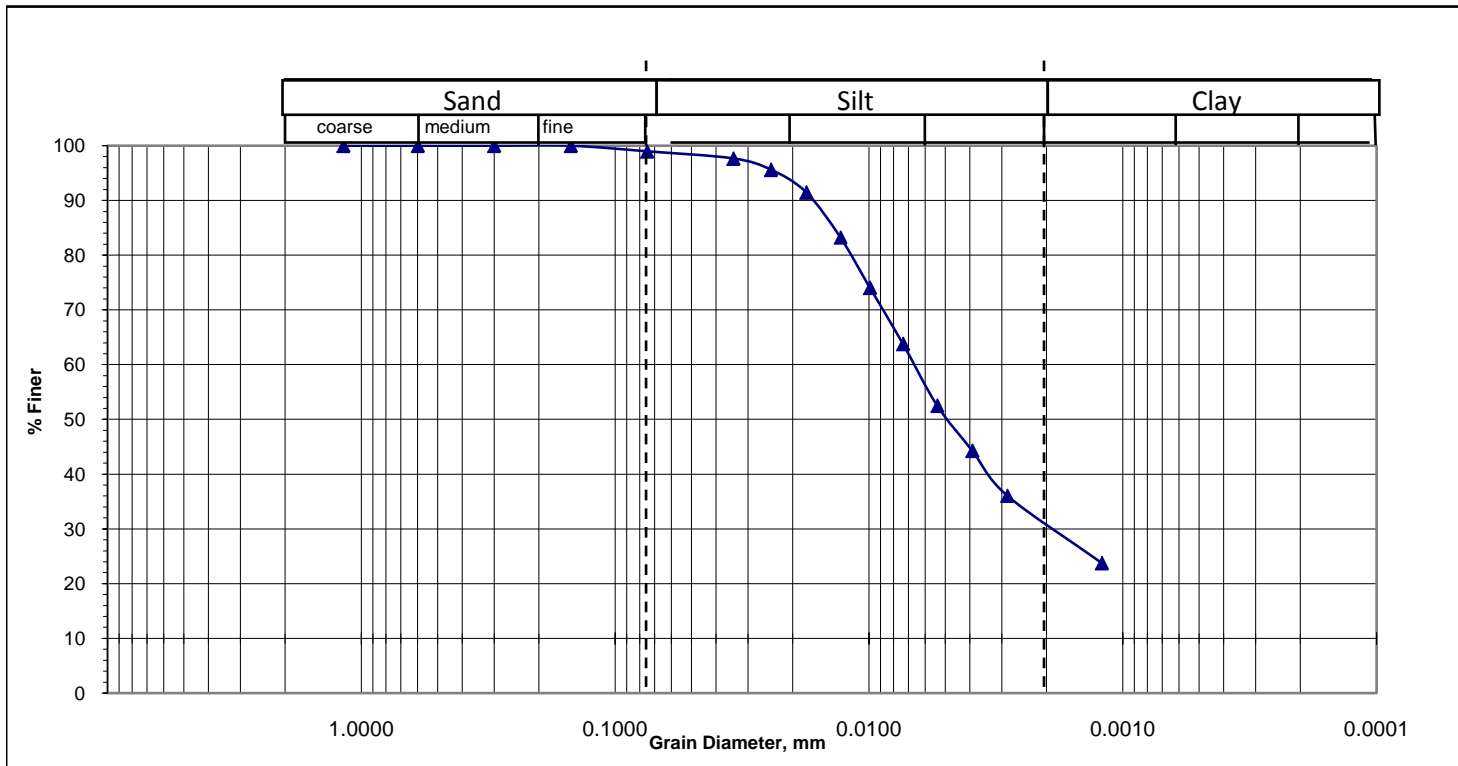
Bore Hole No : BH-M65 Sample No. S18

Sampled Date: 11/02/2018

Depth (m) : 27.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.005 \text{ mm}$

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.12$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 68% & Clay (0.001mm size) = 30%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Ichakhali Khalpar, Ichakhali

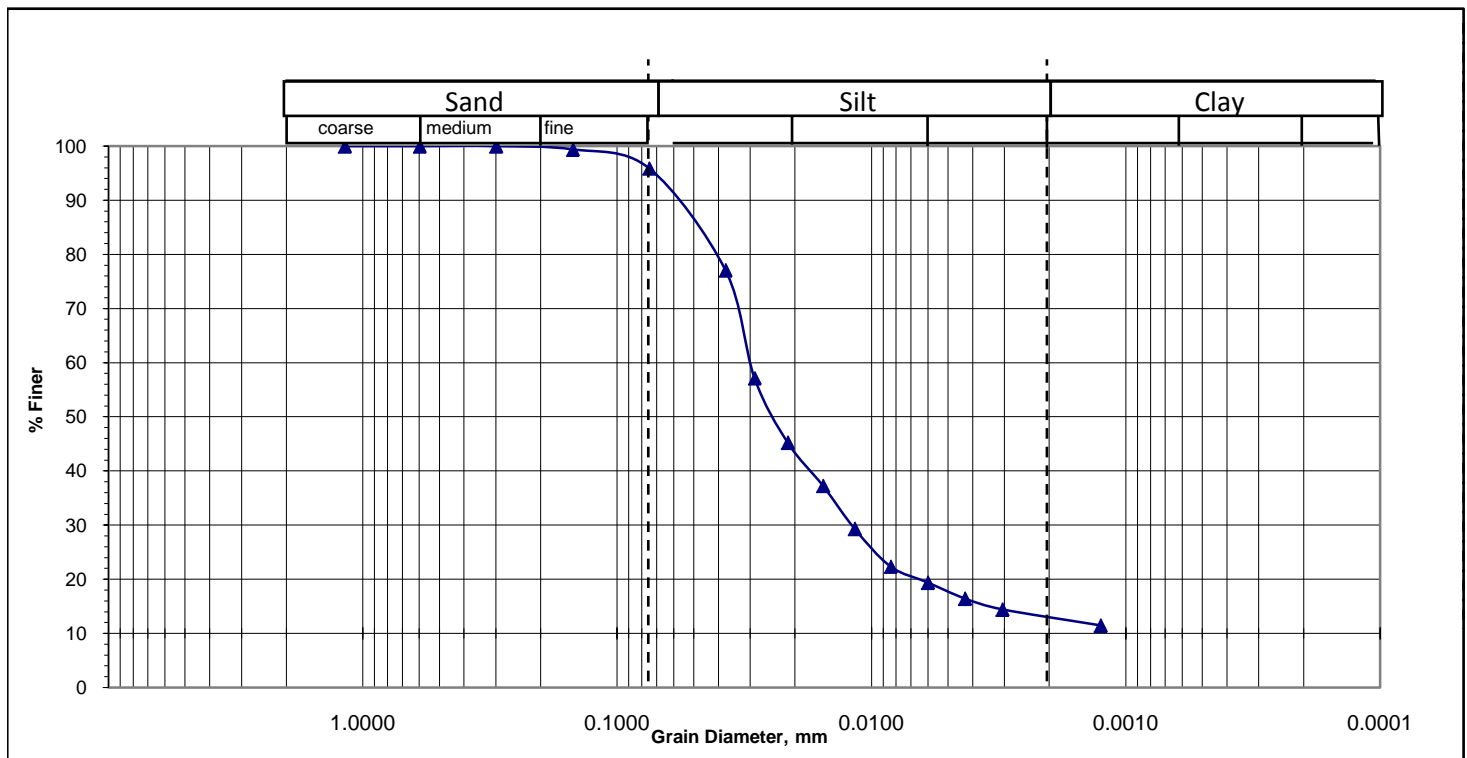
Bore Hole No : BH-M67 Sample No. S4

Sampled Date: 16/02/2018

Depth (m) : 6.0

Test Date : 21/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.025$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.28$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =5%, Silt (0.005mm size)= 82% & Clay (0.001mm size) = 13%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Shaherkhali High School, Shaherkhali

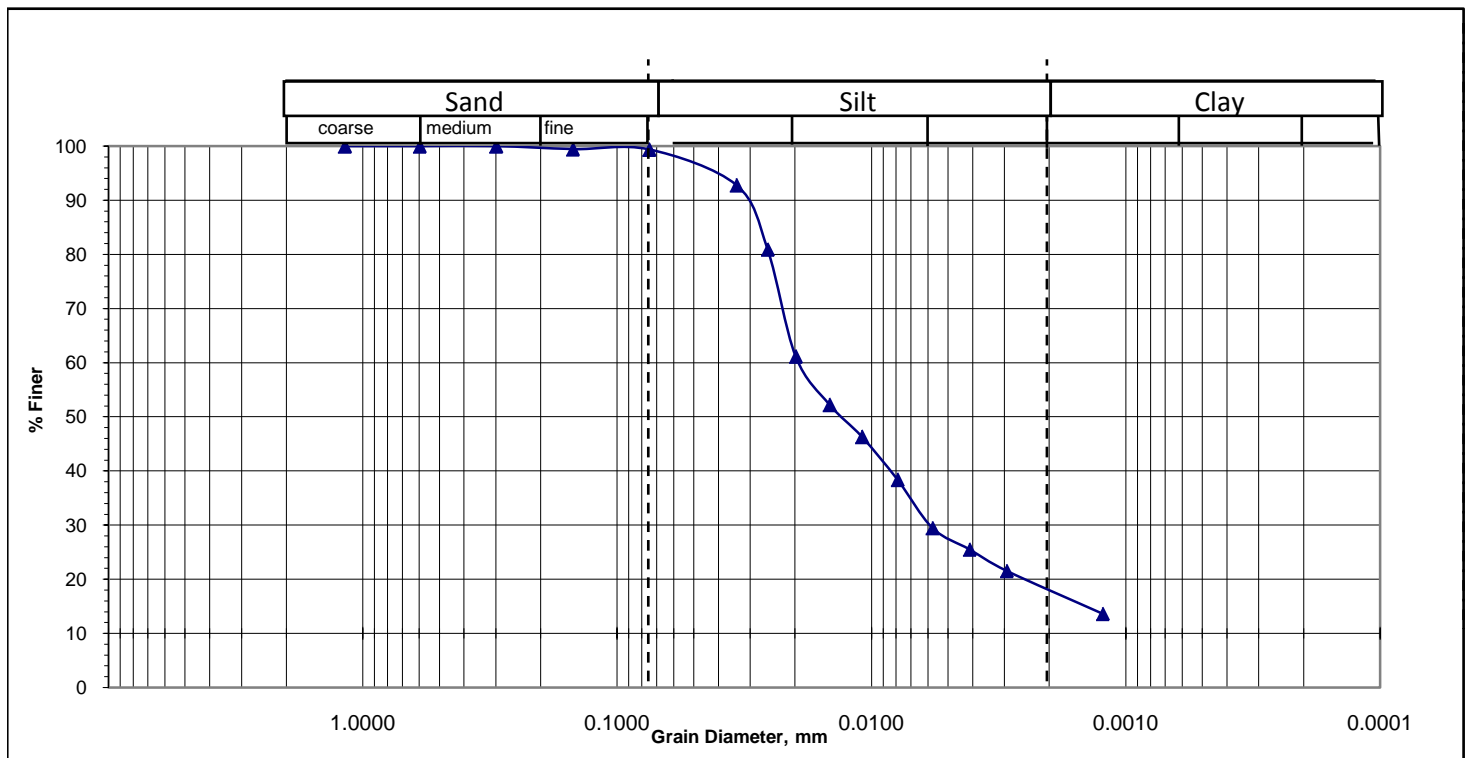
Bore Hole No : BH-M68 Sample No. S4

Sampled Date: 13/02/2018

Depth (m) : 6.0

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.013 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.20

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 81% & Clay (0.001mm size) = 18%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Dhoomkhali, Shaherkhali

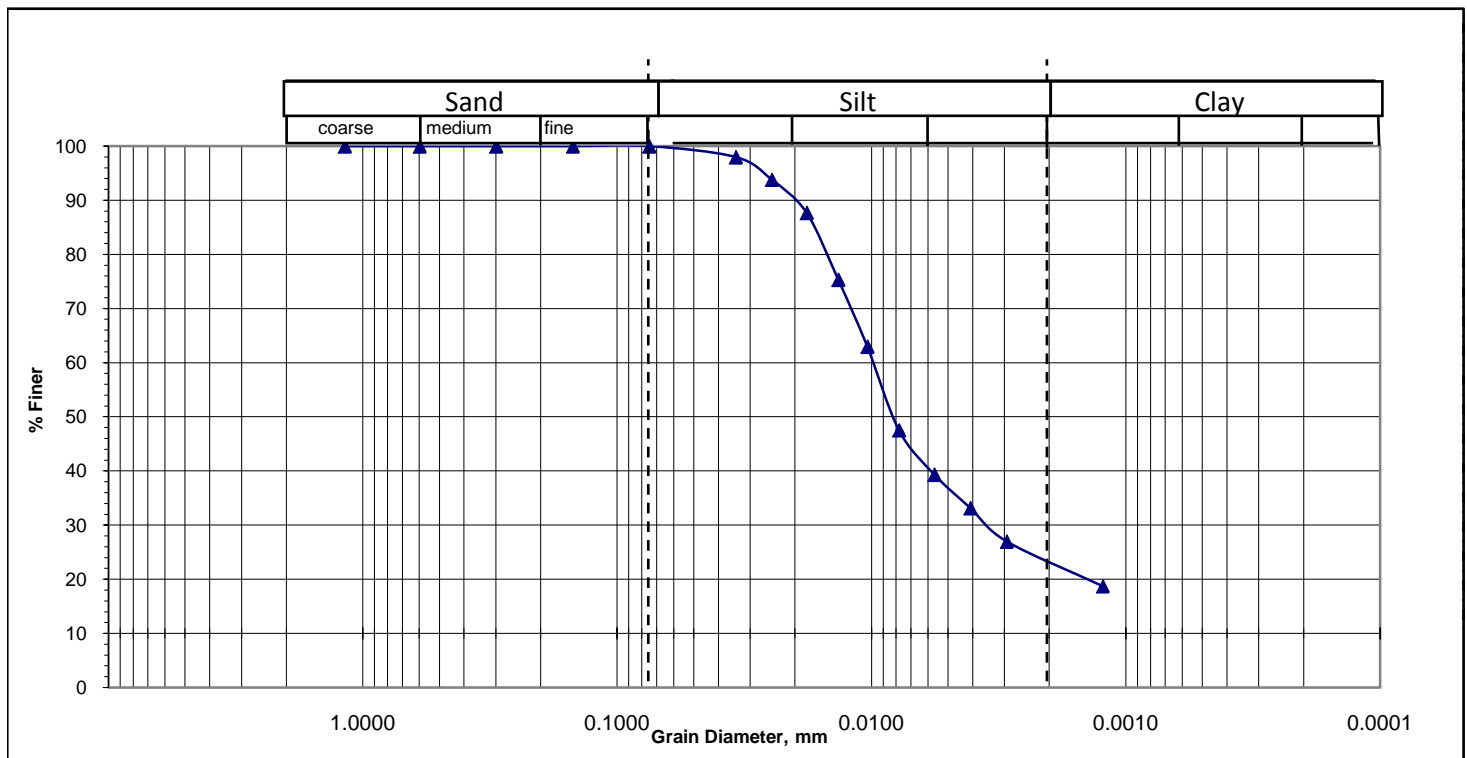
Bore Hole No : BH-M69 Sample No. S3

Sampled Date: 12/02/2018

Depth (m) : 4.5

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.008$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.16$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 76% & Clay (0.001mm size) = 23%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

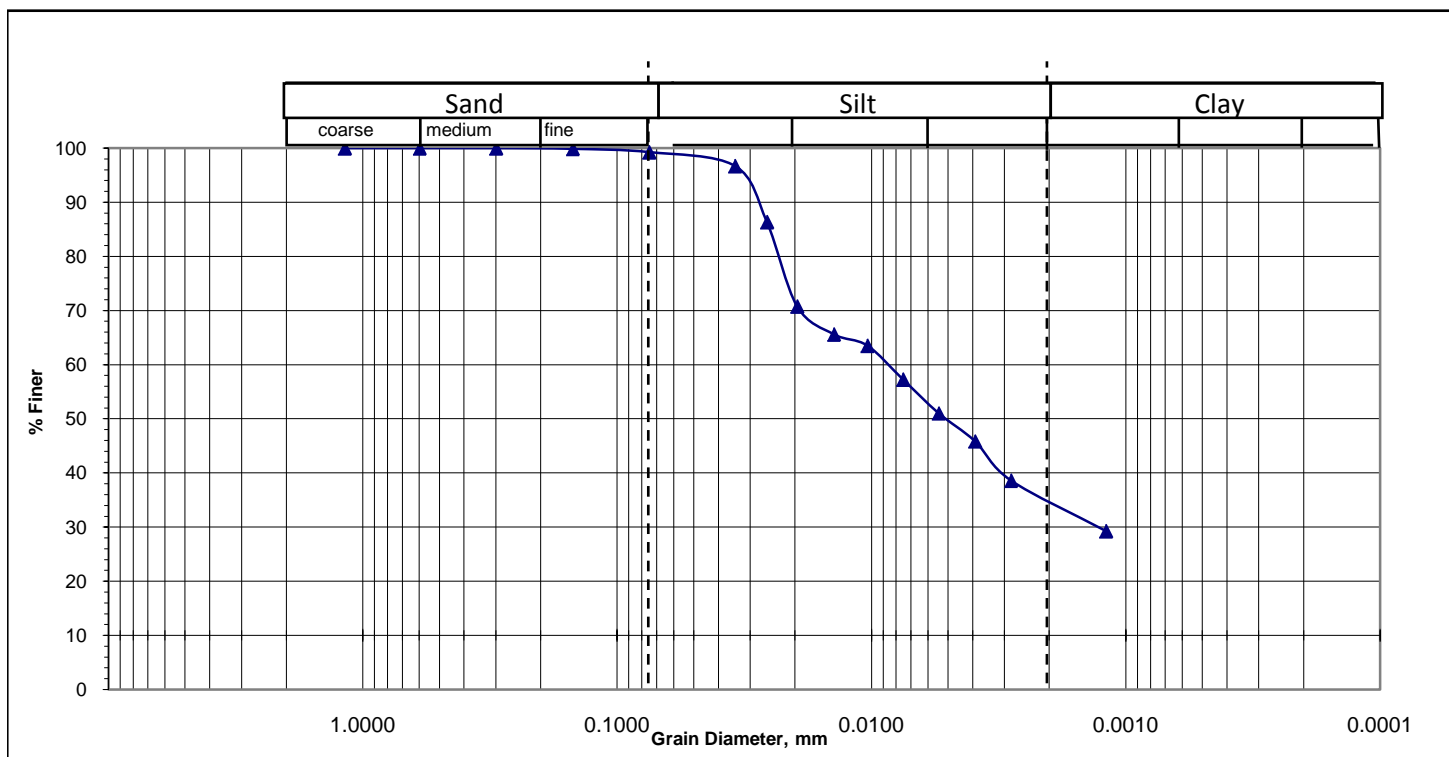
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : West Gobania, Mirsharai

Bore Hole No : BH-M70          Sample No. S4          Sampled Date: 08/02/2018

Depth (m) : 6.0          Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.005 \text{ mm}$

Silt-Factor,  $f = 1.76\sqrt{D_{50}} = 0.12$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 64% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Khoiachora Waterfall Road, Khoiachora

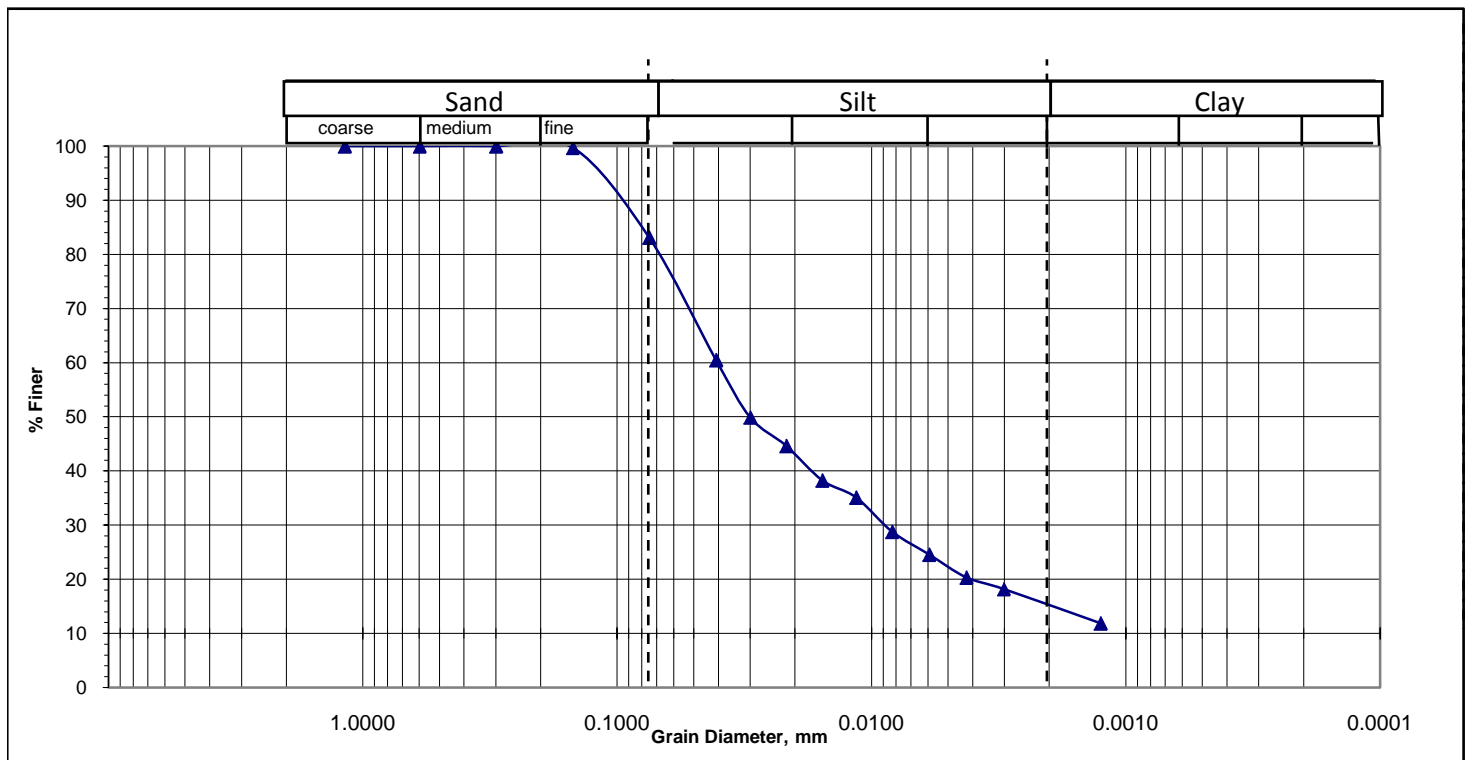
Bore Hole No : BH-M73 Sample No. S2

Sampled Date: 06/02/2018

Depth (m) : 3.0

Test Date : 20/03/2018

### Graphical Representation:





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Khoiachora Waterfall Road, Khoiachora

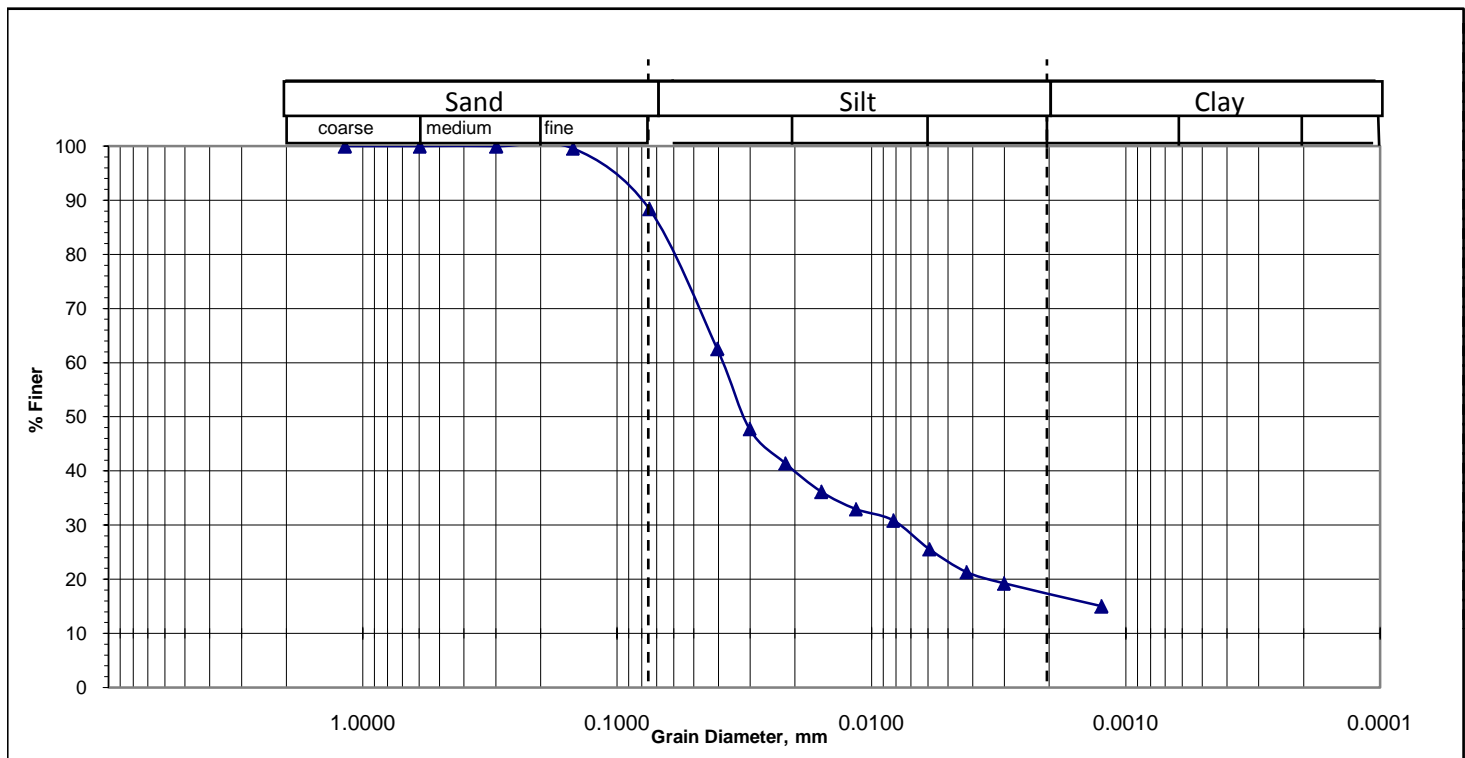
Bore Hole No : BH-M73      Sample No. S5

Sampled Date: 06/02/2018

Depth (m) : 7.5

Test Date : 20/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.032$  mm

Silt-Factor,  $f = 1.76 \times \text{sqrt}(D_{50}) = 0.31$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =12%, Silt (0.005mm size)= 71% & Clay (0.001mm size) = 17%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Said Ali Govt. Primary School

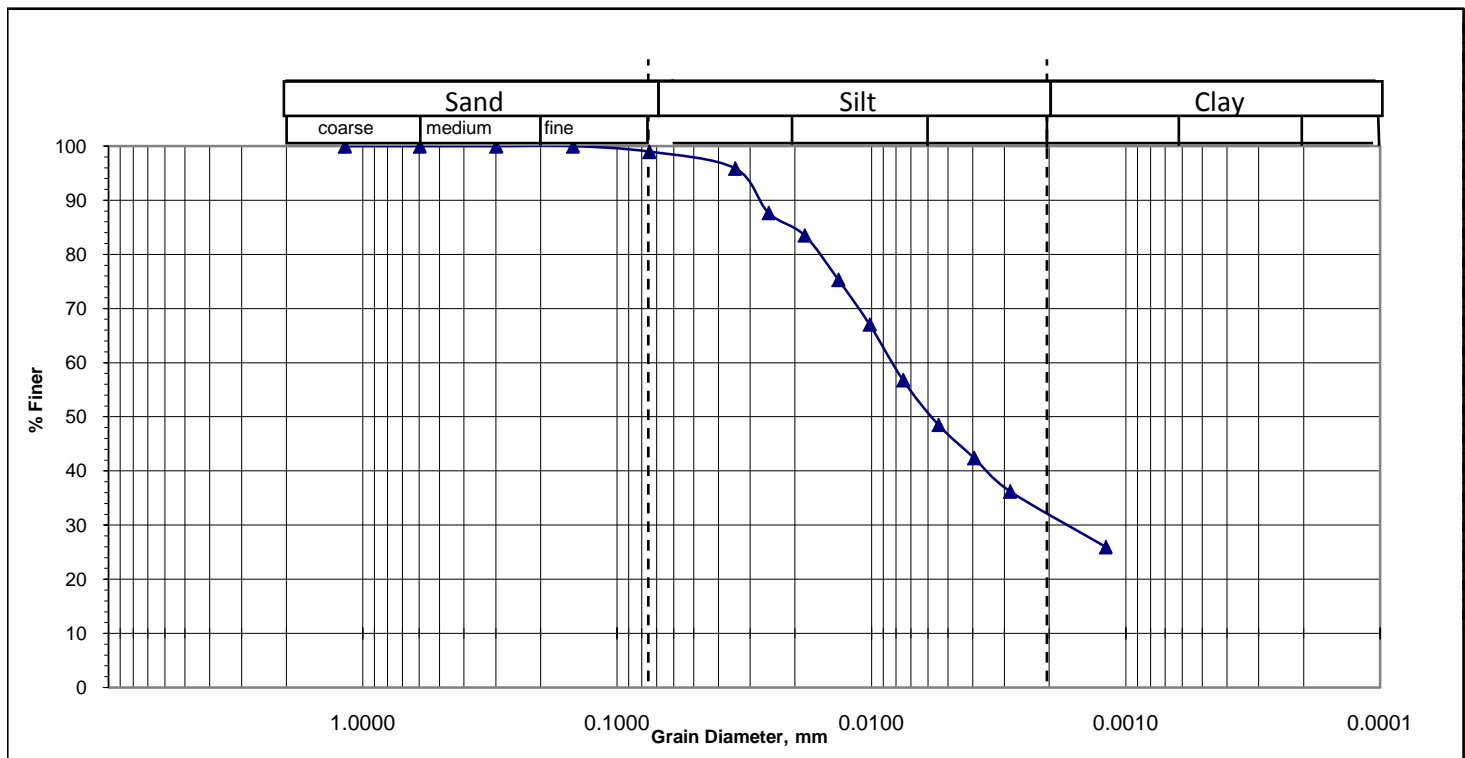
Bore Hole No : BH-M74 Sample No. S2

Sampled Date: 06/02/2018

Depth (m) : 3.0

Test Date : 17/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.045 mm

Silt-Factor,  $f = 1.76\sqrt{D_{50}}$  = 0.37

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 66% & Clay (0.001mm size) = 32%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Majeda Huq High School, Mayani

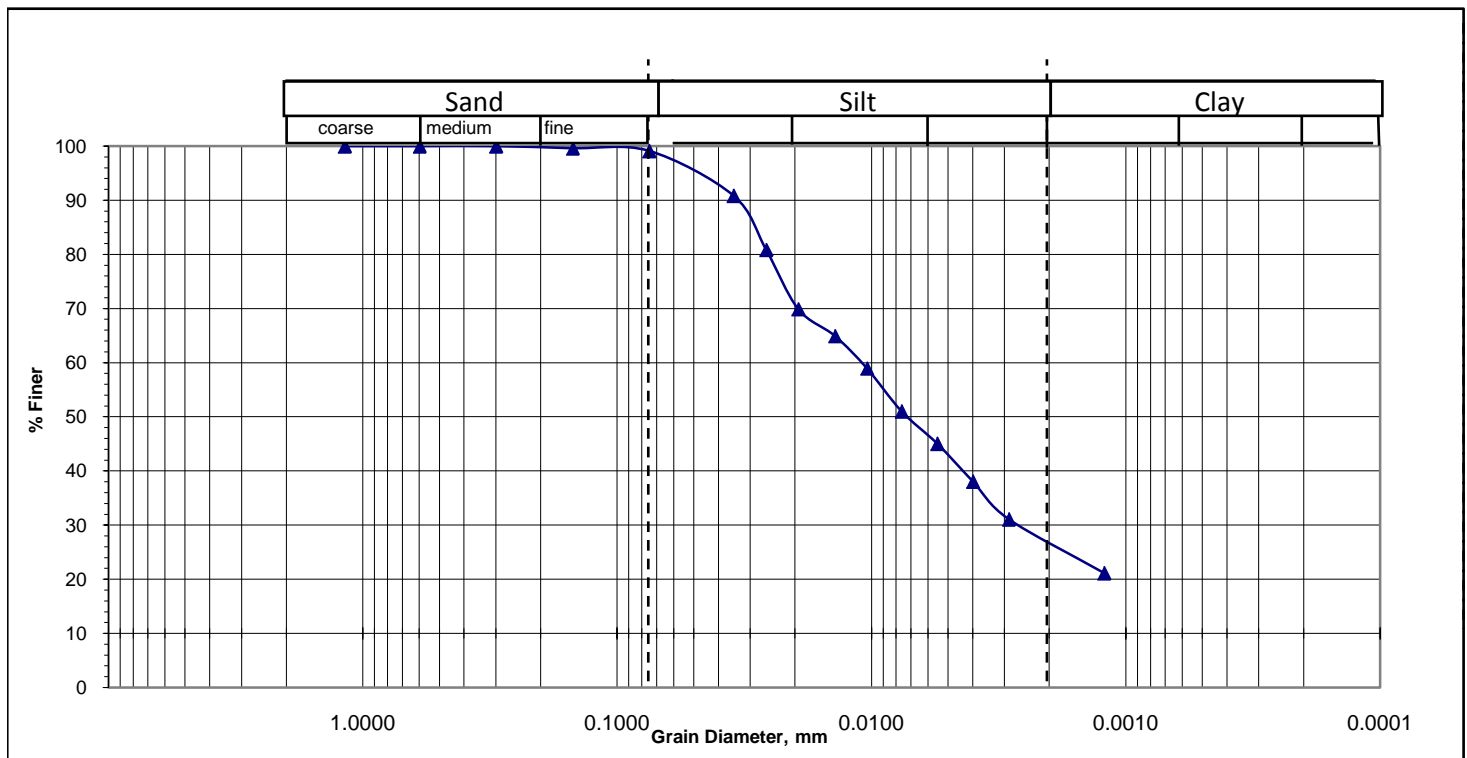
Bore Hole No : BH-M75 Sample No. S2

Sampled Date: 09/02/2018

Depth (m) : 3.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0072$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.15$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 72% & Clay (0.001mm size) = 27%





# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

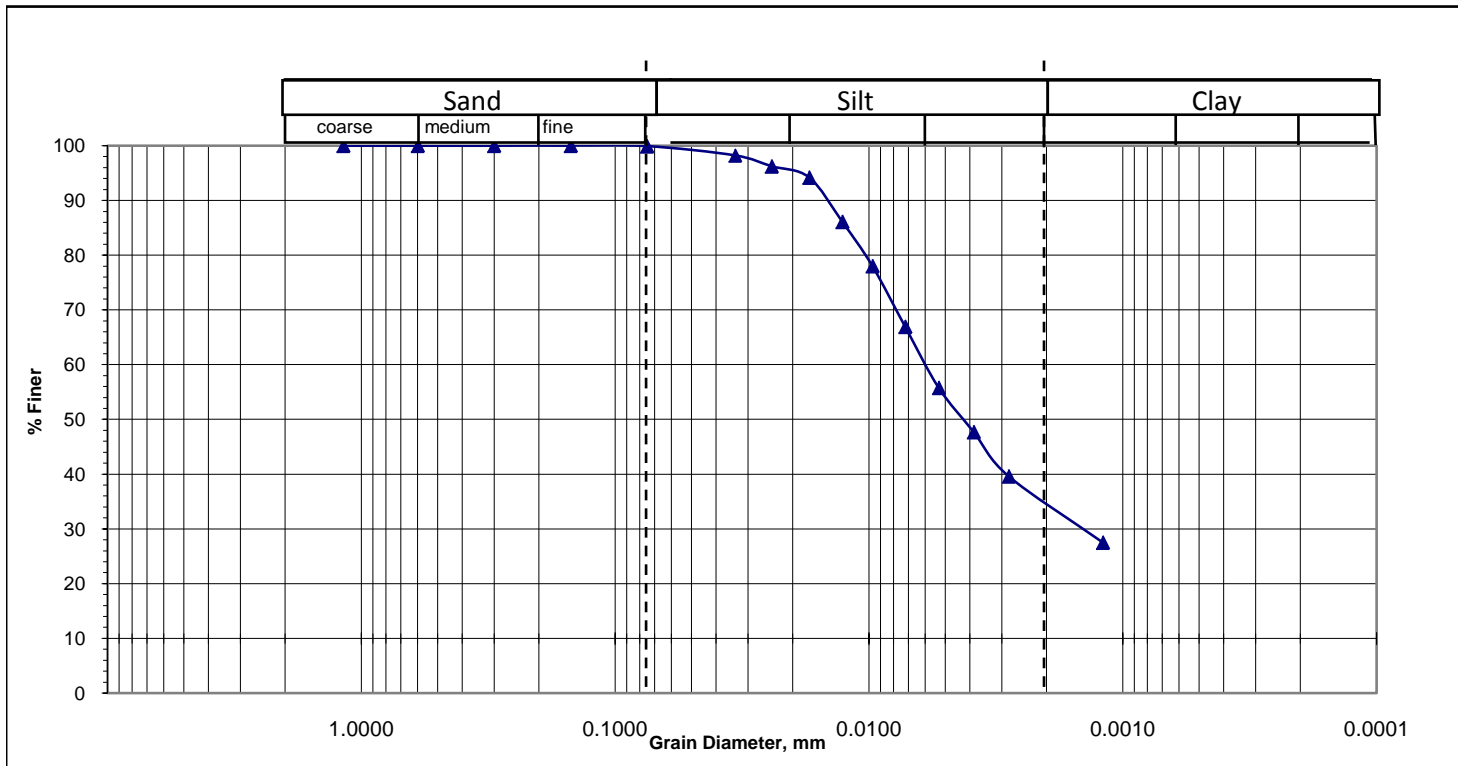
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Shah Abdul Majid Govt. Primary School, West Mayani

Bore Hole No : BH-M76      Sample No. S2      Sampled Date: 13/02/2018

Depth (m) : 3.0      Test Date : 03/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.045 \text{ mm}$

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.37$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 64% & Clay (0.001mm size) = 35%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : West Mayani Shahid Kamal Uddin Govt. Primary School

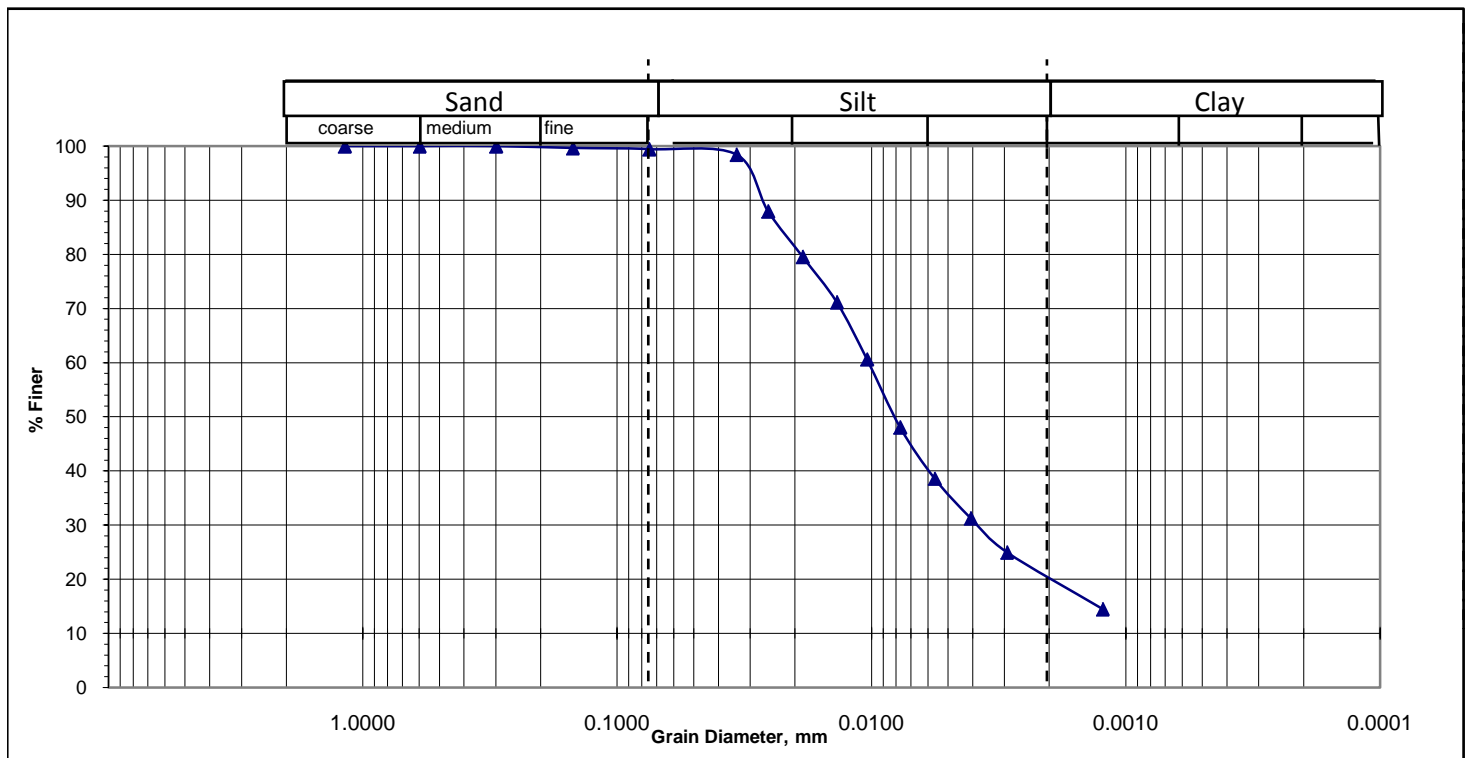
Bore Hole No : BH-M77 Sample No. S3

Sampled Date: 14/02/2018

Depth (m) : 4.5

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.008$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.16$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 79% & Clay (0.001mm size) = 20%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : 13 no. Mayani Union Complex Building

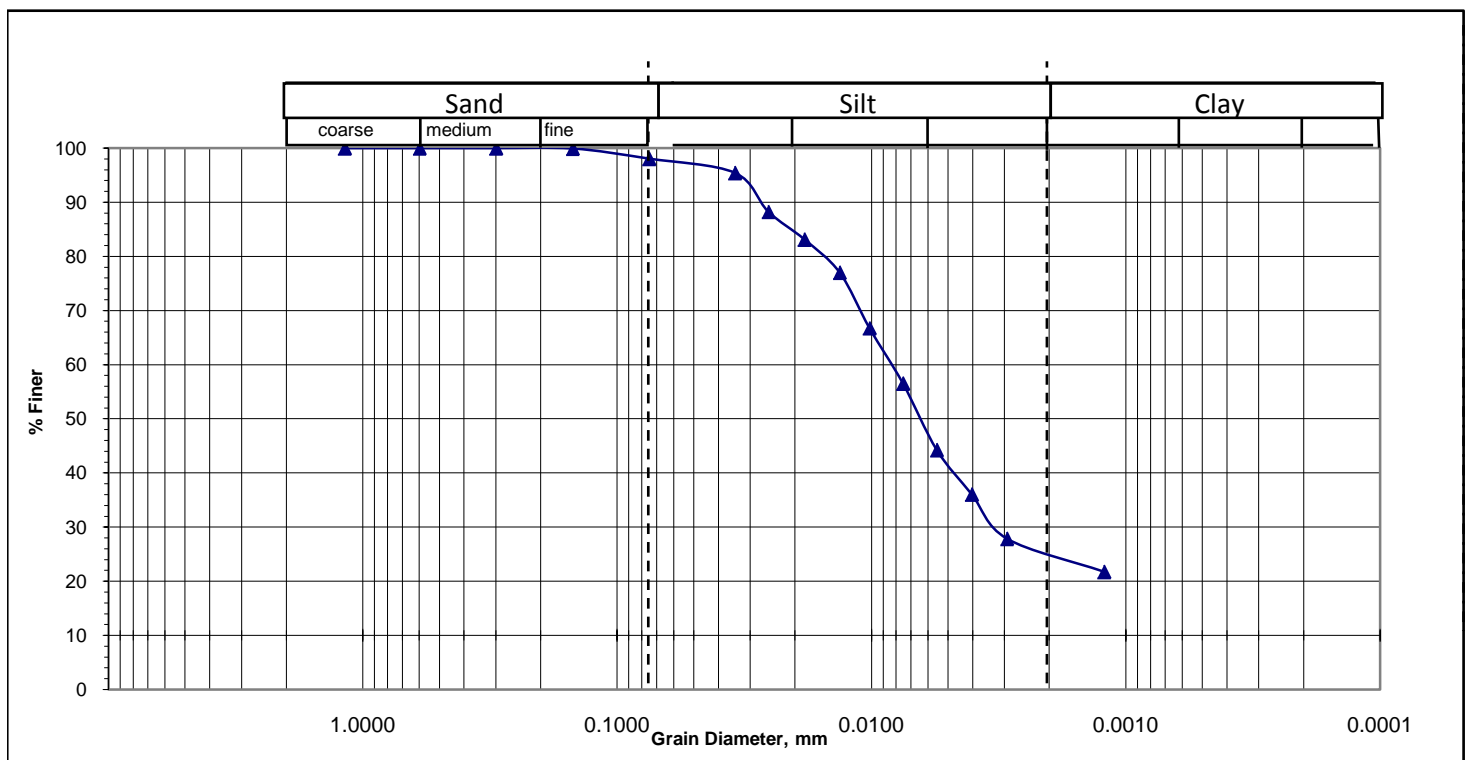
Bore Hole No : BH-M78 Sample No. S2

Sampled Date: 06/02/2018

Depth (m) : 3.0

Test Date : 16/03/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0065$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =3%, Silt (0.005mm size)= 72% & Clay (0.001mm size) = 25%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : West Wahedpur Molla para Mosque

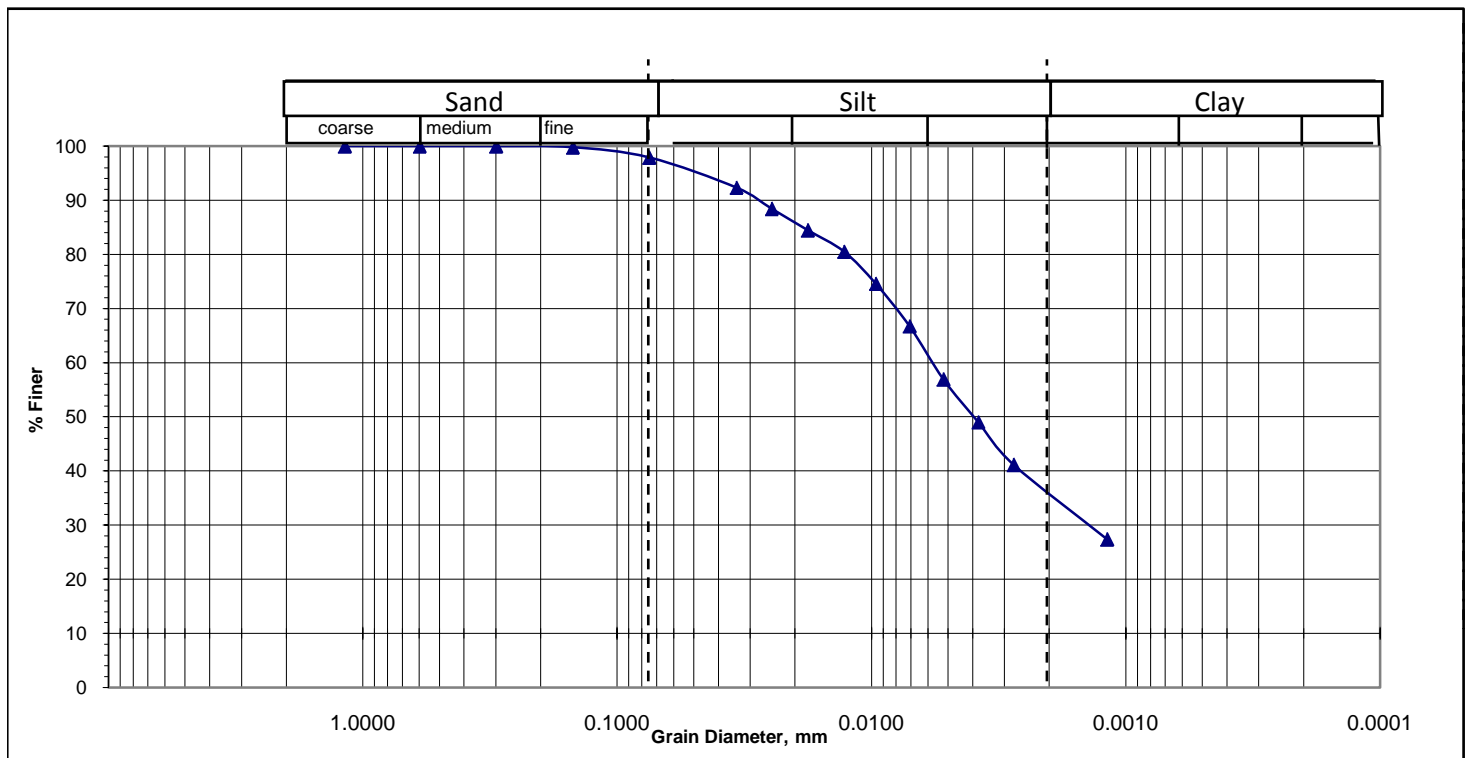
Bore Hole No : BH-M79 Sample No. S1

Sampled Date: 11/02/2018

Depth (m) : 1.5

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.045$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.37$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =3%, Silt (0.005mm size)= 61% & Clay (0.001mm size) = 36%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

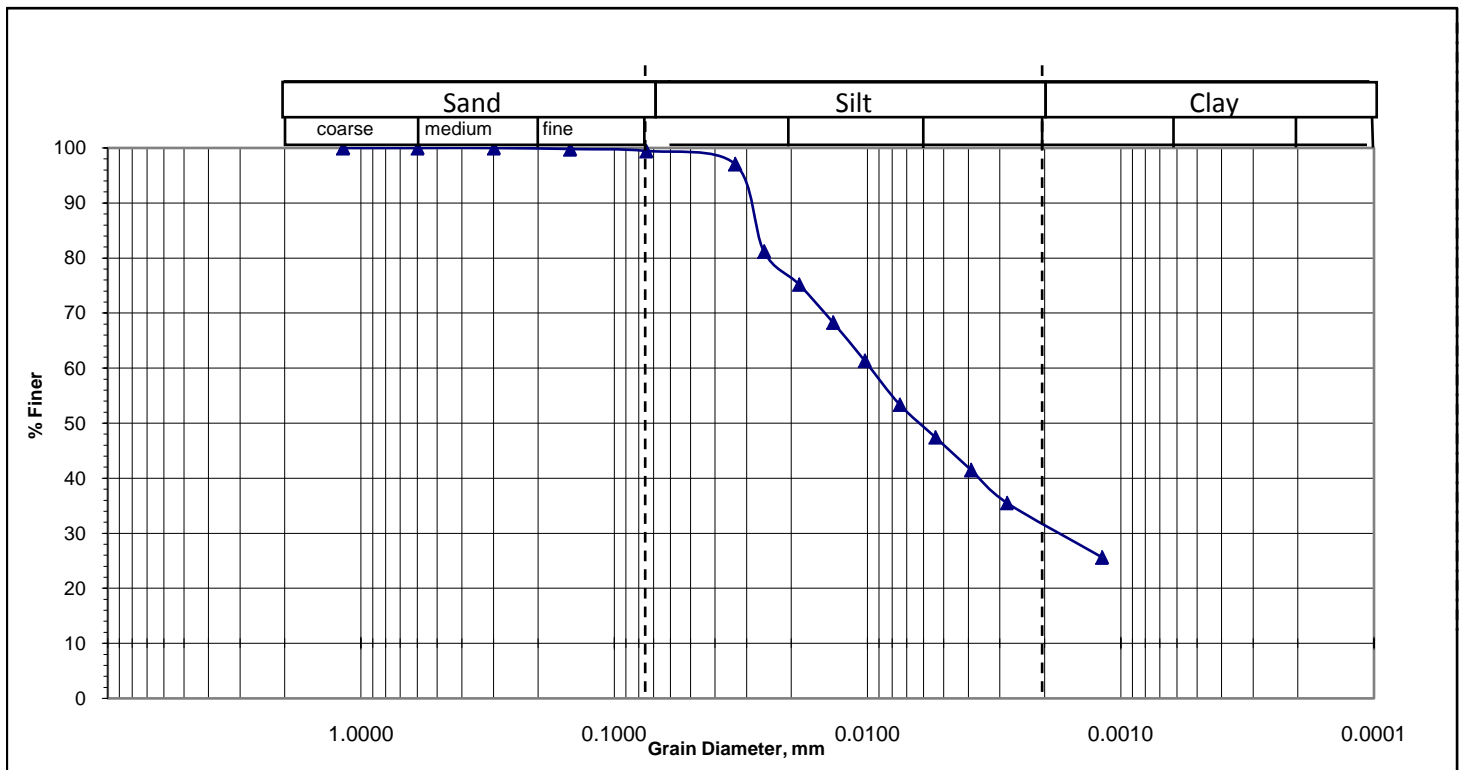
Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Sheker Taluk, Wahedpur

Bore Hole No : BH-M81      Sample No. S2      Sampled Date: 10/02/2018

Depth (m) : 3.0      Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.006$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 67% & Clay (0.001mm size) = 32%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : Jafrabad Govt. Primary School, Wahedpur

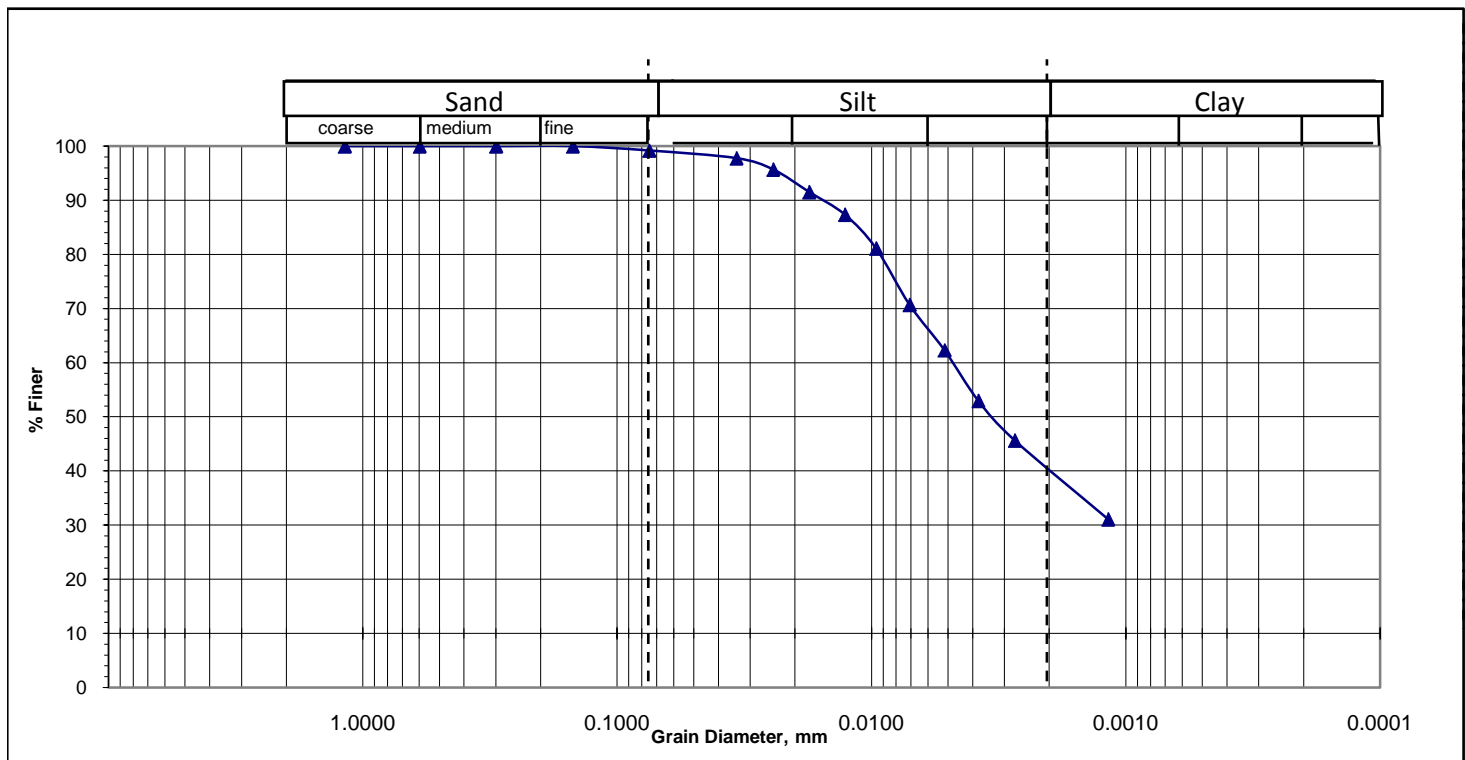
Bore Hole No : BH-M83 Sample No. S2

Sampled Date: 10/02/2018

Depth (m) : 3.0

Test Date : 04/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50}$  = 0.0035 mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}}$  = 0.10

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =1%, Silt (0.005mm size)= 59% & Clay (0.001mm size) = 40%



# Environmental & Geospatial Solutions (EGS)

## GRAIN SIZE ANALYSIS BY HYDROMETER

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Location : South Baliadi Govt. Primary School

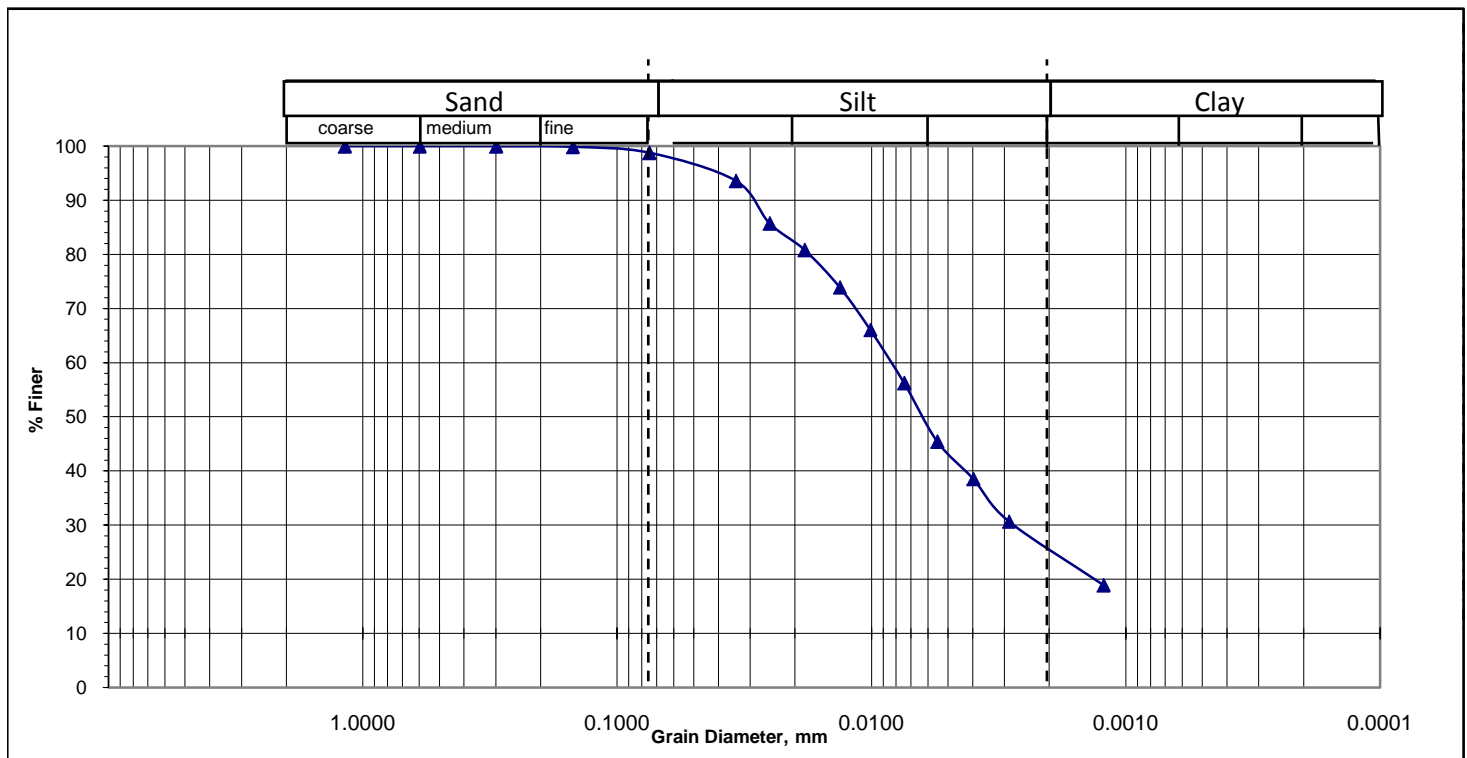
Bore Hole No : BH-M84 Sample No. S10

Sampled Date: 10/02/2018

Depth (m) : 15.0

Test Date : 01/04/2018

### Graphical Representation:



Mean Diameter,  $D_{50} = 0.0062$  mm

Silt-Factor,  $f = 1.76 \times \sqrt{D_{50}} = 0.14$

% Particles ( from the grain -size analysis graph).

Sand (0.075mm size) =2%, Silt (0.005mm size)= 73% & Clay (0.001mm size) = 25%

## B Specific Gravity Test





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M1** Sample No. : **D5** Depth (m) : **7.5**

Location :West Joar Rashidia Govt. Primary School

Sampled Date : 25/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 10/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.21		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M02** Sample No. : **D3** Depth (m) : **4.5**

Location : Choturua, Ward-1, Korerhat

Sampled Date : 26/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 12/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.47		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.69		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.68



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M3** Sample No. : **D5** Depth (m) : **7.5**

Location : Giamara gram, Bagan road, Korerhat

Sampled Date : 26/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 12/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.21		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M04** Sample No. : **D11** Depth (m) : **16.5**

Location : Bisshowtila Jame mosque, Olinogor, Korerhat

Sampled Date : 25/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 12/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.64		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.62		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.49		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.49
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.48



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M05** Sample No. : **D2** Depth (m) : **3.0**

Location : Poshchim olinogor, Korerhat

Sampled Date : 25/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 13/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.62		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.85		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.65	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M6** Sample No. : **D2** Depth (m) : **3.0**

Location : Ajomnogor Community Clinic, Hinguli

Sampled Date : 27/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 15/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.51		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.72		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.71



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M6** Sample No. : **D5** Depth (m) : **7.5**

Location : Ajomnogor Community Clinic, Hinguli

Sampled Date : 27/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 15/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.62		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.65		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.52		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M07** Sample No. : **D5** Depth (m) : **7.5**  
 Location : Khil hinguli Govt. Primary School  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 27/01/2018  
 Test Date : 10/03/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.41		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.64	





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M8** Sample No. : **D3** Depth (m) : **4.5**

Location : Jamalpur, Baraiarhat Pourashava

Sampled Date : 28/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 17/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.65		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.71		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.71		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.71		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M9** Sample No. : **D2** Depth (m) : **3.0**  
 Location : East Mehedi Nagar (Forrest Office) Sampled Date : 28/01/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL** Test Date : 16/03/2018  
 Description of soil : Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample** Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.08		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.25		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.61		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.61



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M10** Sample No. : **D3** Depth (m) : **4.5**

Location : West Hinguli, Gonokchora

Sampled Date : 28/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 11/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.38		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.62		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.62



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M10** Sample No. : **D7** Depth (m) : **10.5**

Location : West Hinguli, Gonokchora

Sampled Date : 28/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 11/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.18		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.19		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.50	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M11** Sample No. : **D2** Depth (m) : **3.0**  
 Location : Imampur Titabot tola Furkania Madrasha  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 30/01/2018  
 Test Date : 18/03/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.63		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.70		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.69	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M12** Sample No. : **D3** Depth (m) : **4.5**

Location : Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom

Sampled Date : 29/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.67		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.72		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.72



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M13** Sample No. : **D2** Depth (m) : **3.0**

Location : Banglabazar, Shantor road, Dhoom

Sampled Date : 30/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.49		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.60		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.59		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M14** Sample No. : **D8** Depth (m) : **12.0**

Location : 163 no. FayeZullah master Govt. Primary School

Sampled Date : 30/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 12/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	6		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.61		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.88		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.68		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.68





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M15** Sample No. : **D2** Depth (m) : **3.0**

Location : Alhaz Bodiul alam Chowdhury Govt. Primary School

Sampled Date : 31/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.35		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.50



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M16** Sample No. : **D8** Depth (m) : **12.0**

Location : Khil murari, ward no. 5, Zorargonj

Sampled Date : 29/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 12/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	7		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.64		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.93		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.70		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of $G_s$ )/ Smallest value of $G_s$ ) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. $G_s$ (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.69		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M17** Sample No. : **D7** Depth (m) : **10.5**

Location : Shonapahar, murari, Zorargonj

Sampled Date : 31/01/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 15/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.78		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	76.01		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.65		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M18** Sample No. : **D2** Depth (m) : **3.0**  
 Location : Guccho gram M.A. Haider Primary School, Osmanpur  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 21/02/2018  
 Test Date : 04/04/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.78		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.63		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.63



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M19**    Sample No. : **D4**    Depth (m) : **6.0**  
 Location : Bashkhali, Veribadh, Muhuri Project, Osmanpur    Sampled Date : 20/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**    Capacity : **50mL**    Test Date : 01/04/2018  
 Description of soil :    Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**    Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	2		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.71		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.58		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.58		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M20** Sample No. : **D3** Depth (m) : **4.5**

Location : 39 no. East Shahedpur Govt. Primary School, Azampur

Sampled Date : 19/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 05/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.75		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.61		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.61



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M21**      Sample No. : **D2**      Depth (m) : **3.0**  
 Location : East Moregang Jame Mosque, Osmanpur      Sampled Date : 21/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**      Test Date : 01/04/2018  
 Description of soil :      Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**      Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.72		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.59		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.59		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M22** Sample No. : **D2** Depth (m) : **3.0**  
 Location : Patacoat, Azampur, Osmanpur  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 20/02/2018  
 Test Date : 20/03/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.68		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.73		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.73	





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M23** Sample No. : **D2** Depth (m) : **3.0**

Location : 68 north durgapur Primary School, Varoddaj hat

Sampled Date : 02/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 16/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.08		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.31		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.65		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M24** Sample No. : **D6** Depth (m) : **9.0**

Location : East Raypur Baitul Aman Jame Mosque, Durgapur

Sampled Date : 01/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 17/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	10		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.8		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.82		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.82
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.82



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M25** Sample No. : **D3** Depth (m) : **4.5**

Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur

Sampled Date : 01/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 15/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.45		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.47		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M26** Sample No. : **D3** Depth (m) : **4.5**

Location : Tetuiana Nath Para, Durgapur

Sampled Date : 01/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 17/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	9		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.63		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.70		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.69



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M27** Sample No. : **D3** Depth (m) : **4.5**

Location : Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora

Sampled Date : 02/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 11/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.65		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.82		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.82
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.82



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M28** Sample No. : **D2** Depth (m) : **3.0**

Location : Bamon Shundor Govt. Primary School, Kata Chora

Sampled Date : 17/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 03/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.49		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.44		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.44
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.44



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M29** Sample No. : **D3** Depth (m) : **4.5**

Location : Ahmed Ali Miar Hat Govt Primary School, Kata Chora

Sampled Date : 18/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	8		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.23		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M30** Sample No. : **D2** Depth (m) : **3.0**

Location : Gudaimmar tek, Ichakhali

Sampled Date : 16/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.69		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.57		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.57
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.57





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M31** Sample No. : **D2** Depth (m) : **3.0**

Location : Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali

Sampled Date : 15/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	6		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.5		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.60



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M32** Sample No. : **D2** Depth (m) : **3.0**

Location : Jobayeda Islam Nurani Islamia madrasa

Sampled Date : 18/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	7		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.81		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.65		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.65		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M33** Sample No. : **D2** Depth (m) : **3.0**

Location : Muhuri Project, Sluice Gate, Ichakhali

Sampled Date : 19/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.32		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.57		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.57		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M34** Sample No. : **D3** Depth (m) : **4.5**

Location : Bamonshundor Forrest Bit Office, Shaherkhali

Sampled Date : 14/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	8		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.78		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.63		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.63



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M35** Sample No. : **D3** Depth (m) : **4.5**

Location : Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali

Sampled Date : 18/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	9		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.48		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.44		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.44
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.43



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M36**      Sample No. : **D2**      Depth (m) : **3.0**  
 Location : Chunumijer tek,Ichakhali  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**    Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 18/02/2018  
 Test Date : 01/04/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

**TEST DATA :**

TEST/TRIAL NO.	10		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.77		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.62		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Avg. Gs (at $T_x$ )	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.62



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M37** Sample No. : **D2** Depth (m) : **3.0**

Location : 94 no. Hasim Nagar Govt. Primary School

Sampled Date : 15/2/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.75		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.61		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.61	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M38** Sample No. : **D4** Depth (m) : **6.0**

Location : Ichakhali Economic Zone Office, Ichakhali

Sampled Date : 15/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 03/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.76		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.62		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.62		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.61		





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M39** Sample No. : **D4** Depth (m) : **6.0**

Location : Lodiakhali, Ichakhali

Sampled Date : 16/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.79		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.64		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		2.64	
Density of Water at 20 deg.Cent., in gm/cc		0.9957	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		0.9974	
		2.63	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M40** Sample No. : **D2** Depth (m) : **3.0**

Location : Sony Mijer tek, Tekerhat Bazar, Ichakhali

Sampled Date : 17/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.49		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.59



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M41** Sample No. : **D2** Depth (m) : **3.0**

Location : Ichakhali Economic Zone, Ichakhali

Sampled Date : 20/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 02/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.81		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.65		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.65		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.65		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M42** Sample No. : **D2** Depth (m) : **3.0**

Location : Kazigram govt. Primary School, Ichakhali

Sampled Date : 19/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.38		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.53		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.53		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.52		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M43**      Sample No. : **D2**      Depth (m) : **3.0**  
 Location : Rajamiar Farm, Char Shorot, Ichakhali      Sampled Date : 15/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**      Test Date : 04/04/2018  
 Description of soil :      Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**      Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.45		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.42		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.42



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M44** Sample No. : **D2** Depth (m) : **3.0**

Location :Rahmatabad, Ichakhali

Sampled Date : 15/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.58		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.50		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.50



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M46** Sample No. : **D1** Depth (m) : **1.5**

Location : Mithachora Bazar , Mirshorai

Sampled Date : 03/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 11/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	5		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.62		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.8		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.62		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.61



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M47** Sample No. : **D2** Depth (m) : **3.0**

Location : South Talbaria, Mirshorai

Sampled Date : 08/03/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 21/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.33		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.58		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.58		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.57		





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M48** Sample No. : **D8** Depth (m) : **12.0**

Location : East Ambaria, Mirshorai

Sampled Date : 05/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	7		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.58		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.66		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.66
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.66



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M49** Sample No. : **D2** Depth (m) : **3.0**

Location : Ora Kazi Mijibari Jame Mosque, Mirshorai

Sampled Date : 02/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 11/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	8		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.19		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.34		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.59



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M51** Sample No. : **D1** Depth (m) : **1.5**

Location : North Talbaria Govt. Primary School, Mirshorai

Sampled Date : 04/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	9		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.36		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.51



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M52**      Sample No. : **D3**      Depth (m) : **4.5**  
 Location : Hamid Ali Jame Mosque, East Khoiachora      Sampled Date : 09/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**      Test Date : 19/03/2018  
 Description of soil :      Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**      Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	10		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.3		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.56		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.55		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M53** Sample No. : **D1** Depth (m) : **1.5**

Location : Khankaye Latifia Madrasha, Mirsharai

Sampled Date : 03/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 18/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	7		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.77		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.80		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.80		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M55** Sample No. : **D2** Depth (m) : **3.0**

Location : Chairman Bari, West Moliyash

Sampled Date : 17/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 03/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.79		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.64		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		2.64	
Density of Water at 20 deg.Cent., in gm/cc		0.9957	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		0.9974	
		2.63	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M56** Sample No. : **D1** Depth (m) : **1.5**

Location : Hazi Badiul Alam Chowdhury Govt. Primary School, Mithanala

Sampled Date : 03/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 15/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	9		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.62		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.83		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.64		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.63	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M57** Sample No. : **D2** Depth (m) : **3.0**

Location : Mayani Bogla Kumar Primary School, Mayani

Sampled Date : 14/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 05/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	7		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.84		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.67		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.67	





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M58** Sample No. : **D2** Depth (m) : **3.0**

Location : West Khoiachora Munipara, Jame Mosque

Sampled Date : 06/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	8		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.88		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.70		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.70



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M59**      Sample No. : **D3**      Depth (m) : **4.5**  
 Location : 3 Ghoriatola, Jame mosque, Maghadia      Sampled Date : 16/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**      Test Date : 03/04/2018  
 Description of soil :      Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**      Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	9		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.86		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.69		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.68		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M60**      Sample No. : **D3**      Depth (m) : **4.5**

Location :90 no. Maghadia NC Govt. Primary School, Maghadia

Sampled Date : 05/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**

Test Date : 16/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	10		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.08		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.36		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.69		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )		2.69	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.68	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M61** Sample No. : **D1** Depth (m) : **1.5**  
 Location : Sheker Taluk, Middle Maghadia  
 Pycnometer Type : **Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 04/02/2018  
 Test Date : 18/03/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNO METER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.5		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of $G_s$ /Smallest value of $G_s$ ) < or = 1.02)	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. $G_s$ (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.60



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M62** Sample No. : **D3** Depth (m) : **4.5**  
 Location : Kazir Taluk Govt. Primary School, Maghadia  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 13/02/2018  
 Test Date : 02/04/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	10		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.78		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.63		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.63	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M63** Sample No. : **D3** Depth (m) : **4.5**

Location : Komor ali Union High School, Komor Ali Union Bazar

Sampled Date : 12/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 19/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.36		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.60		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.59		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M64** Sample No. : **D3** Depth (m) : **4.5**

Location : Katakhalı Beribadh, Shekerkhali

Sampled Date : 13/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.52		
Specific Gravity, $G$ (at $T_x$ ) = $W_o / (W_o + W_a - W_b)$	2.62		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of $G_s$ / Smallest value of $G_s$ ) < or = 1.02)	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. $G_s$ (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ / Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.61		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M65** Sample No. : **D4** Depth (m) : **6.0**

Location : Baribadh, Shekerkhali

Sampled Date : 11/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.66		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.55		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.55		





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M66** Sample No. : **D4** Depth (m) : **6.0**

Location : North Dhoom Khali, Gazaria, Shekerkhali

Sampled Date : 11/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 03/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	1		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.56		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.49		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.48	



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M67** Sample No. : **D4** Depth (m) : **6.0**

Location : Ichakhali Khalpar, Ichakhali

Sampled Date : 16/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.61		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.68		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.68
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.68



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M68** Sample No. : **D4** Depth (m) : **6.0**

Location : Shaherkhali High School, Shaherkhali

Sampled Date : 13/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	2		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.88		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.70		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.70



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M69** Sample No. : **D3** Depth (m) : **4.5**

Location : Dhoomkhali, Shaherkhali

Sampled Date : 12/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.4		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.54		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.54		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.53		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M70** Sample No. : **D4** Depth (m) : **6.0**

Location : West Gobania, Mirsharai

Sampled Date : 08/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 16/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.08		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.09		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.51		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.50



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M71** Sample No. : **D2** Depth (m) : **3.0**

Location : Shonaichora, Khoiyachora

Sampled Date : 08/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 03/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	3		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.67		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.56		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.56		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.55		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M73** Sample No. : **D3** Depth (m) : **4.5**

Location : Khoiachora Waterfall Road, Khoiachora

Sampled Date : 06/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.11		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.44		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.44		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.43		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M73** Sample No. : **D5** Depth (m) : **7.5**

Location : Khoiachora Waterfall Road, Khoiachora

Sampled Date : 06/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 20/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt. of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.21		
Wt. of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.21		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.50		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02		
	Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc		0.9957	
Density of Water at 20 deg.Cent., in gm/cc		0.9974	
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )		2.50	





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M74** Sample No. : **D2** Depth (m) : **3.0**  
 Location : Said Ali Govt. Primary School  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 06/02/2018  
 Test Date : 17/03/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	4		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	69.34		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	75.4		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.54		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.53



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M75** Sample No. : **D2** Depth (m) : **3.0**

Location : Majeda Huq High School, Mayani

Sampled Date : 09/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	4		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.84		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.67		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.67



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M76**      Sample No. : **D2**      Depth (m) : **3.0**  
 Location : Shah Abdul Majid Govt. Primary School, West Mayani      Sampled Date : 13/02/2018  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**      Capacity : **50mL**      Test Date : 03/04/2018  
 Description of soil :      Air Removal By : **Boiling**  
 Nature of Specimen : **Oven-Dry Sample**      Test Specimen :  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

**TEST DATA :**

TEST/TRIAL NO.	5		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.75		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.61		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Avg. Gs (at $T_x$ )		
	Ratio : 2.71/2.63 >or = 1.02		
	Ratio : 2.73/2.71 < or = 1.02		
	0.000		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.61		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M77** Sample No. : **D3** Depth (m) : **4.5**

Location : West Mayani Shahid Kamal Uddin Govt. Primary School

Sampled Date : 14/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	6		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.52		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.46		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )	0.000	
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.46		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M78** Sample No. : **D2** Depth (m) : **3.0**

Location : 13 no. Mayani Union Complex Building

Sampled Date : 06/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 16/03/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	11		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.08		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.17		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.56		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.56		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.55		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M79**      Sample No. : **D1**      Depth (m) : **1.5**  
 Location : West Wahedpur Molla para Mosque  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**    Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 11/02/2018  
 Test Date : 04/04/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

**TEST DATA :**

TEST/TRIAL NO.	7		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.91		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.72		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Avg. Gs (at $T_x$ )	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.72



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)  
 Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Bore Hole No. : **BH M81**    Sample No. : **D2**    Depth (m) : **3.0**  
 Location : Sheker Taluk, Wahedpur  
 Pycnometer Type :**Volumetric Flask/Stoppered Bottle**    Capacity : **50mL**  
 Description of soil :  
 Nature of Specimen : **Oven-Dry Sample**  
 Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

Sampled Date : 10/02/2018  
 Test Date : 04/04/2018  
 Air Removal By : **Boiling**  
 Test Specimen :

TEST DATA :

TEST/TRIAL NO.	8		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.86		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.69		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 >or = 1.02 Ratio : 2.73/2.71 < or = 1.02	0.000	
Avg. Gs (at $T_x$ )	2.69		
Density of Water at $T_x$ deg.Cent., in gm/cc	0.9957		
Density of Water at 20 deg.Cent., in gm/cc	0.9974		
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )	2.68		



# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M83** Sample No. : **D2** Depth (m) : **3.0**

Location : Jafrabad Govt. Primary School, Wahedpur

Sampled Date : 10/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 04/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	9		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.56		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.49		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.49
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.48





# Environmental & Geospatial Solutions (EGS)

## SPECIFIC GRAVITY OF SOIL AS PER ASTM D-854

Client :Urban Development Directorate (UDD)

Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan

Bore Hole No. : **BH M84** Sample No. : **D10** Depth (m) : **15.0**

Location : South Baliadi Govt. Primary School

Sampled Date : 10/02/2018

Pycnometer Type :**Volumetric Flask/Stoppered Bottle** Capacity : **50mL**

Test Date : 01/04/2018

Description of soil :

Air Removal By : **Boiling**

Nature of Specimen : **Oven-Dry Sample**

Test Specimen :

Soaking Period : **Soaked overnight (since oven-dry specimen is used)**

### TEST DATA :

TEST/TRIAL NO.	10		
PYCNOMETER NO.	2		
Wt. of Soil (oven dry weight), $W_o$ in gm	10.00		
Observed Temperature, $T_x$ in deg.Centigrade	30		
Wt.of Pycnometer + water, $W_a$ (at $T_x$ ) in gm (from Calibration Data of Pycnometer)	68.58		
Wt.of Pycnometer + water+soil, $W_b$ (at $T_x$ ) in gm	74.92		
Specific Gravity, $G$ (at $T_x$ ) = $W_o/(W_o+W_a-W_b)$	2.73		
Variation of Specific Gravity Values & Average (According to some specification average value shall be calculated only if (Largest value of Gs)/ Smallest value of Gs) < or = 1.02	Ratio : 2.71/2.63 > or = 1.02 Ratio : 2.73/2.71 < or = 1.02 Avg. Gs (at $T_x$ )		0.000 2.73
Density of Water at $T_x$ deg.Cent., in gm/cc			0.9957
Density of Water at 20 deg.Cent., in gm/cc			0.9974
Specific Gravity, $G$ (at 20 deg.Cent.) = (Density of Water at $T_x$ /Density of Water at 20 deg.cent.) x $G$ (at $T_x$ )			2.73

# C Atterberg Limits Determination



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Joar Rashidia Govt. Primary School**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

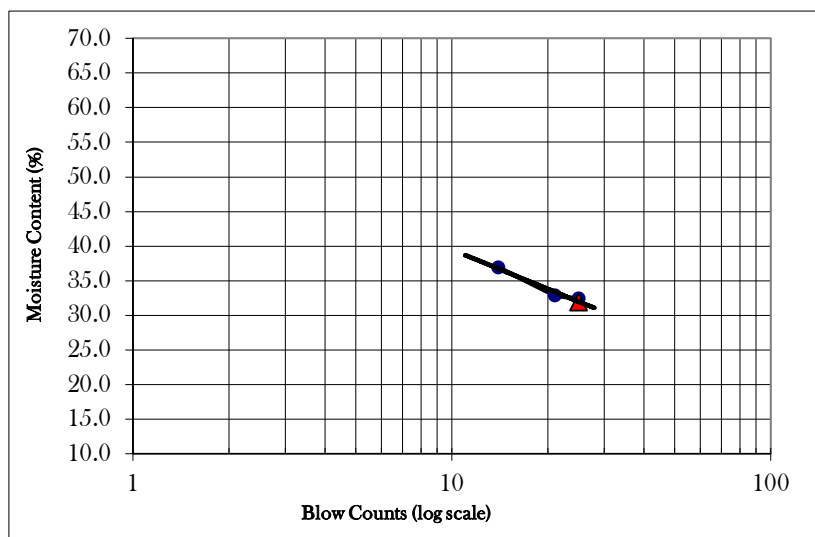
Boring Number M01

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Cr01	13	56	Cup Number	214	214
Weight of Cup (g)	122.65	118.8	95.1	Weight of Cup (g)	94.4	94.4
Weight of Wet Soil and Cup (g)	200	175.05	173	Weight of Wet Soil and Cup (g)	103.45	104.12
Weight of Dry Soil and Cup (g)	179.15	161.15	153.95	Weight of Dry Soil and Cup (g)	101.25	102.2
Moisure Content (%)	36.9	32.8	32.4	Moisure Content (%)	32.1	24.6
Blow Counts	14	21	25			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	28
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Joar Rashidia Govt. Primary School**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

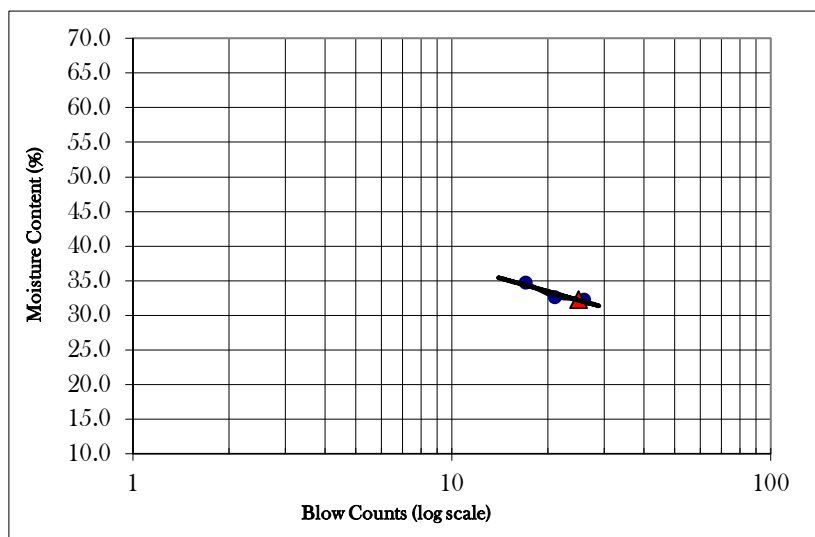
Boring Number M01

Sample Number 06

Depth of Sample(m) 9.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-5	102	Cup Number	CT15	CT15
Weight of Cup (g)	23.95	21.5	14.26	Weight of Cup (g)	35.42	35.42
Weight of Wet Soil and Cup (g)	33.86	33.31	27.79	Weight of Wet Soil and Cup (g)	38.5	38.31
Weight of Dry Soil and Cup (g)	31.31	30.41	24.49	Weight of Dry Soil and Cup (g)	37.9	37.75
Moisure Content (%)	34.6	32.5	32.3	Moisure Content (%)	24.2	24.0
Blow Counts	17	21	26			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	24
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Joar Rashidia Govt. Primary School**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

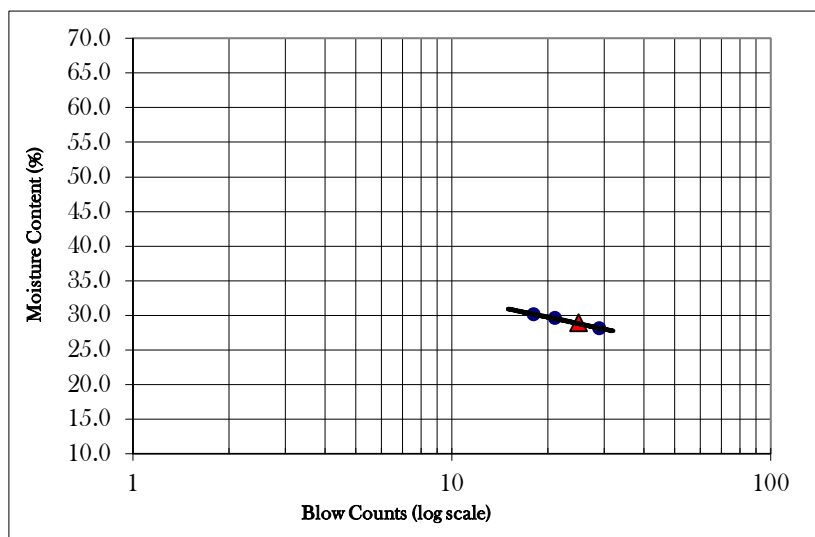
Boring Number M01

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	7P	Ct111	Cup Number	Ct02	Ct02
Weight of Cup (g)	23.37	18.18	18.94	Weight of Cup (g)	22.17	22.17
Weight of Wet Soil and Cup (g)	43.42	34.91	40.07	Weight of Wet Soil and Cup (g)	24.81	24.79
Weight of Dry Soil and Cup (g)	39.02	31.09	35.18	Weight of Dry Soil and Cup (g)	24.36	24.39
Moisure Content (%)	28.1	29.6	30.1	Moisure Content (%)	20.5	18.0
Blow Counts	29	21	18			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	19
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Choturua, Ward-1, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 13/03/2018

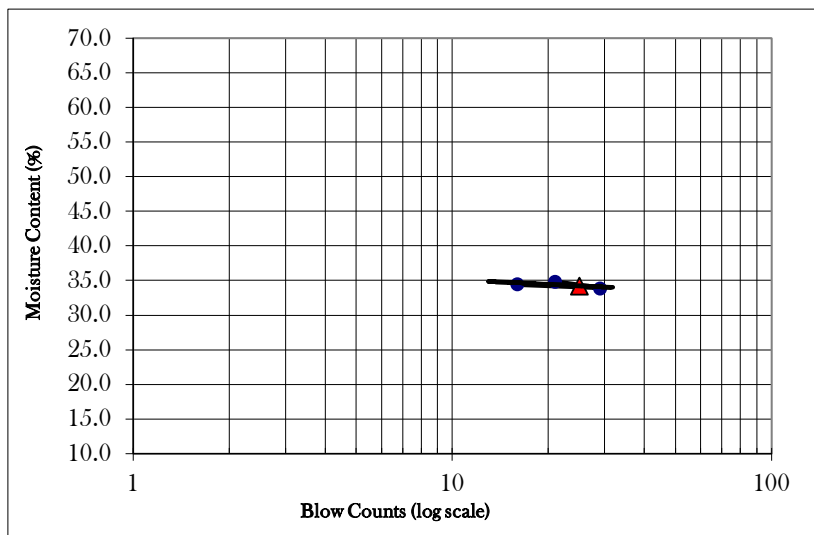
Boring Number M02

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	102	302	301	Cup Number	303	303
Weight of Cup (g)	14.22	12.14	18.38	Weight of Cup (g)	12.5	12.5
Weight of Wet Soil and Cup (g)	26.48	25.65	32.55	Weight of Wet Soil and Cup (g)	14.26	14.61
Weight of Dry Soil and Cup (g)	23.34	22.23	28.89	Weight of Dry Soil and Cup (g)	13.95	14.24
Moisire Content (%)	34.4	33.9	34.8	Moisire Content (%)	21.4	21.3
Blow Counts	16	29	21			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	21
Plasticity Index	13



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Choturua, Ward-1, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 13/03/2018

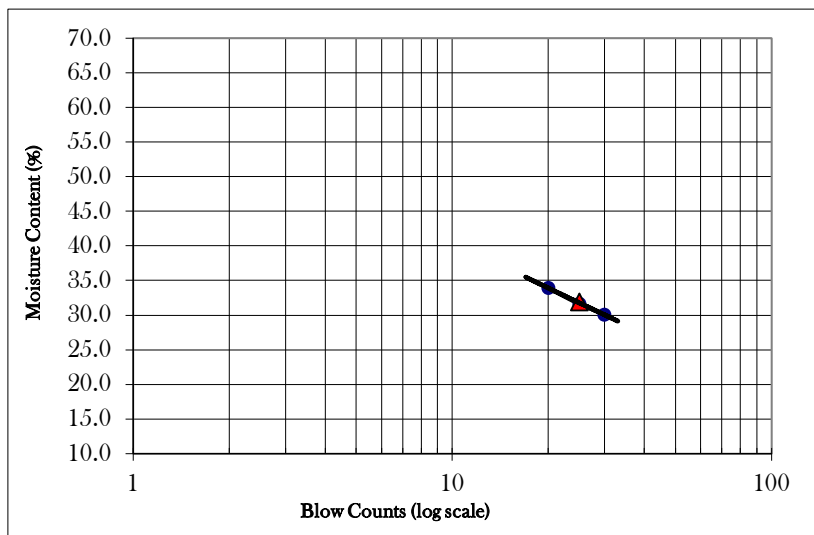
Boring Number M02

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	109	5P	Cup Number	9P	9P
Weight of Cup (g)	23.35	33.88	23.88	Weight of Cup (g)	24.51	24.51
Weight of Wet Soil and Cup (g)	31.69	47.81	35.75	Weight of Wet Soil and Cup (g)	26.68	26.62
Weight of Dry Soil and Cup (g)	29.76	44.46	32.74	Weight of Dry Soil and Cup (g)	26.21	26.2
Moisire Content (%)	30.1	31.7	34.0	Moisire Content (%)	27.6	24.9
Blow Counts	30	25	20			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	26
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Choturua, Ward-1, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 13/03/2018

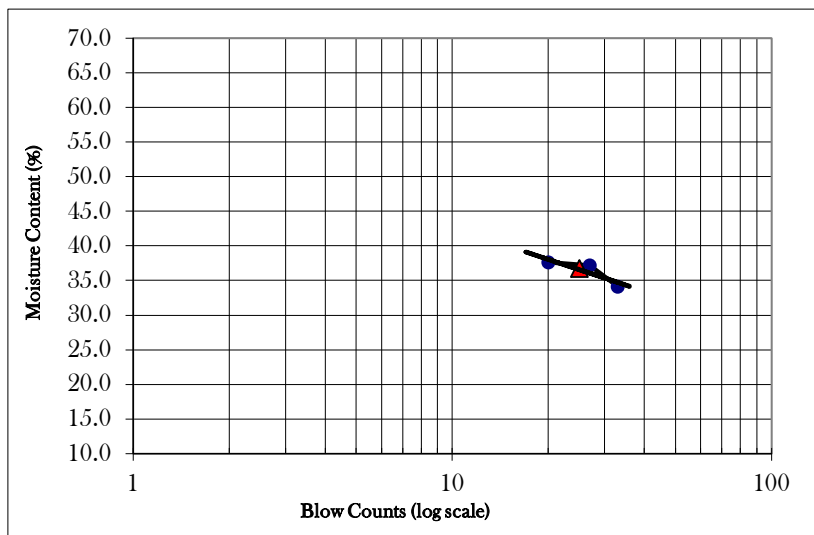
Boring Number M02

Sample Number 15

Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	9	102	C-111	Cup Number	8	8
Weight of Cup (g)	41.44	22.57	29.09	Weight of Cup (g)	24.05	24.05
Weight of Wet Soil and Cup (g)	51.5	33.38	39.32	Weight of Wet Soil and Cup (g)	26.87	26.61
Weight of Dry Soil and Cup (g)	48.75	30.45	36.72	Weight of Dry Soil and Cup (g)	26.27	26.1
Moisire Content (%)	37.6	37.2	34.1	Moisire Content (%)	27.0	24.9
Blow Counts	20	27	33			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	26
Plasticity Index	11





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Giamara gram, Bagan road, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 03-12-18

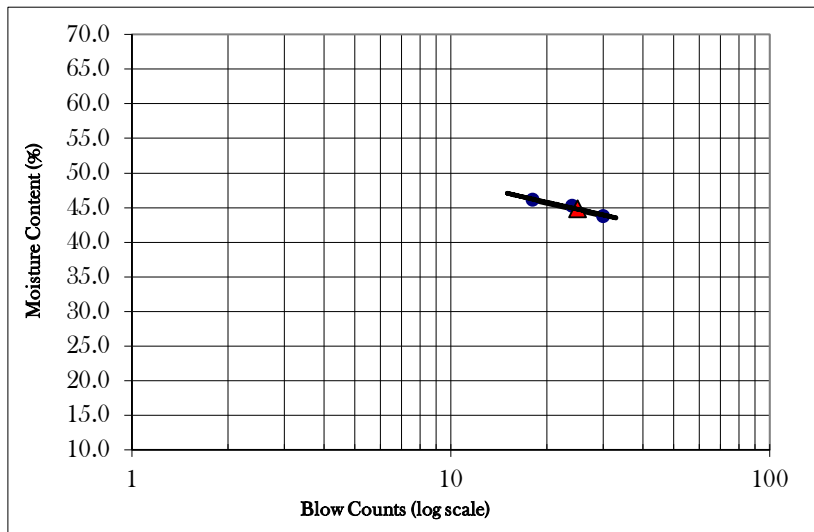
Boring Number M03

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	1011	12	15	Cup Number	109	109
Weight of Cup (g)	28.38	27.3	37.27	Weight of Cup (g)	33.88	33.88
Weight of Wet Soil and Cup (g)	47.89	44.25	56.03	Weight of Wet Soil and Cup (g)	36.25	36.07
Weight of Dry Soil and Cup (g)	41.81	39.09	50.11	Weight of Dry Soil and Cup (g)	35.61	35.5
Moisure Content (%)	45.3	43.8	46.1	Moisure Content (%)	37.0	35.2
Blow Counts	24	30	18			

### Compilation of Test Results



Liquid Limit	45
Plastic Limit	36
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Giamara gram, Bagan road, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 03-12-18

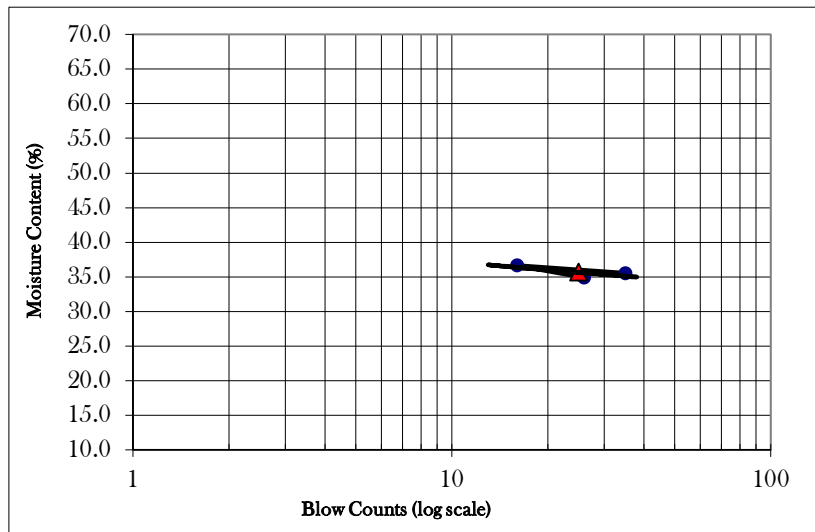
Boring Number M03

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	109	107	Cup Number	300	300
Weight of Cup (g)	94.5	169.35	166.25	Weight of Cup (g)	121.9	121.9
Weight of Wet Soil and Cup (g)	147.85	219.15	214.35	Weight of Wet Soil and Cup (g)	131.15	128.9
Weight of Dry Soil and Cup (g)	134.05	205.8	201.75	Weight of Dry Soil and Cup (g)	129.15	127.4
Moisure Content (%)	34.9	36.6	35.5	Moisure Content (%)	27.6	27.3
Blow Counts	26	16	35			

Compilation of Test Results



Liquid Limit	36
Plastic Limit	27
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Giamara gram, Bagan road, Korerhat**

Sample Information:

Sample Date: 26/01/2018

Test Date: 03-12-18

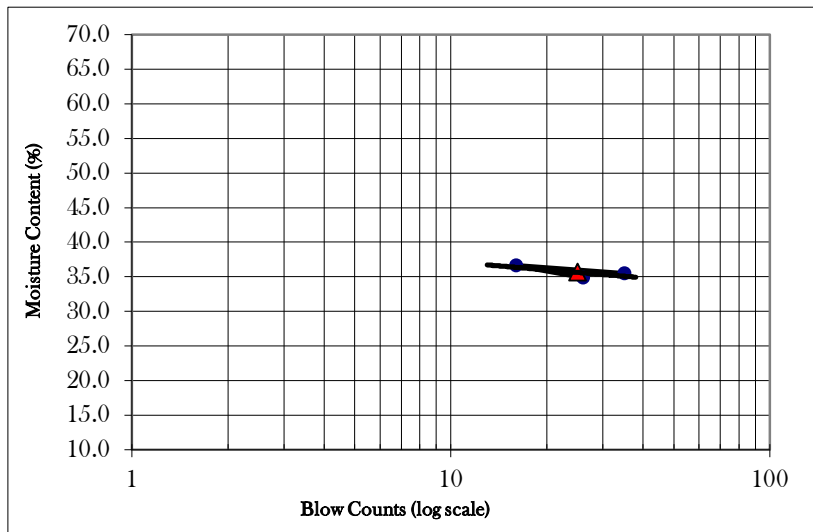
Boring Number M03

Sample Number 06

Depth of Sample(m) 9.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	109	107	Cup Number	300	300
Weight of Cup (g)	94.5	169.35	166.25	Weight of Cup (g)	121.9	121.9
Weight of Wet Soil and Cup (g)	145.18	221.59	209.35	Weight of Wet Soil and Cup (g)	129.7	129.3
Weight of Dry Soil and Cup (g)	131.48	207.19	199.89	Weight of Dry Soil and Cup (g)	127.9	128.1
Moisure Content (%)	37.0	38.1	28.1	Moisure Content (%)	30.0	19.4
Blow Counts	21	18	29			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	25
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bisshowtila Jame mosque, Olinogor, Korerhat**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

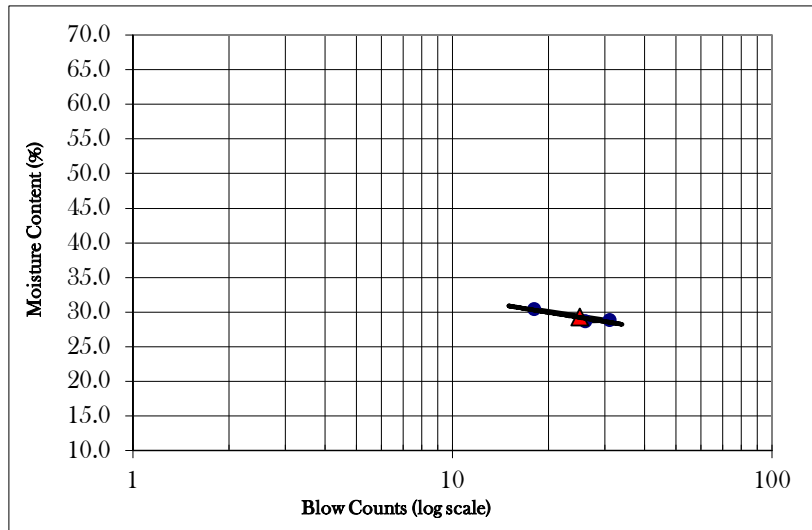
Boring Number M04

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	56	5P	220	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	19	23.9	36.63	Weight of Cup (g)	35.43	35.43
Weight of Wet Soil and Cup (g)	33.49	37	50.72	Weight of Wet Soil and Cup (g)	38.65	38.7
Weight of Dry Soil and Cup (g)	30.11	34.07	47.58	Weight of Dry Soil and Cup (g)	37.98	38.01
Moisure Content (%)	30.4	28.8	28.7	Moisure Content (%)	26.3	26.7
Blow Counts	18	31	26			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	27
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bisshowtila Jame mosque, Olinogor, Korerhat**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

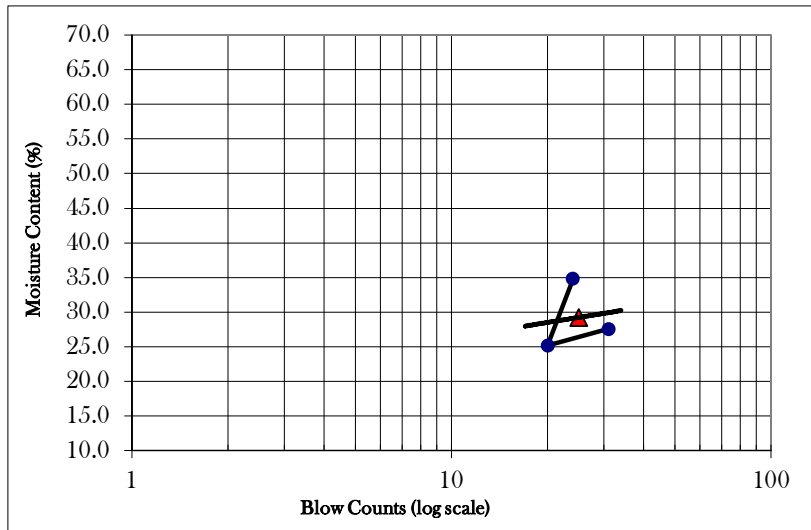
Boring Number M04

Sample Number 10

Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	214	56	109	Cup Number	7	7
Weight of Cup (g)	18.88	19.04	33.85	Weight of Cup (g)	23.93	23.93
Weight of Wet Soil and Cup (g)	29.88	31.12	45.19	Weight of Wet Soil and Cup (g)	26.01	26.1
Weight of Dry Soil and Cup (g)	27.04	28.69	42.74	Weight of Dry Soil and Cup (g)	25.56	25.63
Moisure Content (%)	34.8	25.2	27.6	Moisure Content (%)	27.6	27.6
Blow Counts	24	20	31			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	28
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bisshowtila Jame mosque, Olinogor, Korerhat**

Sample Information:

Sample Date: 25/01/2018

Test Date: 03-12-18

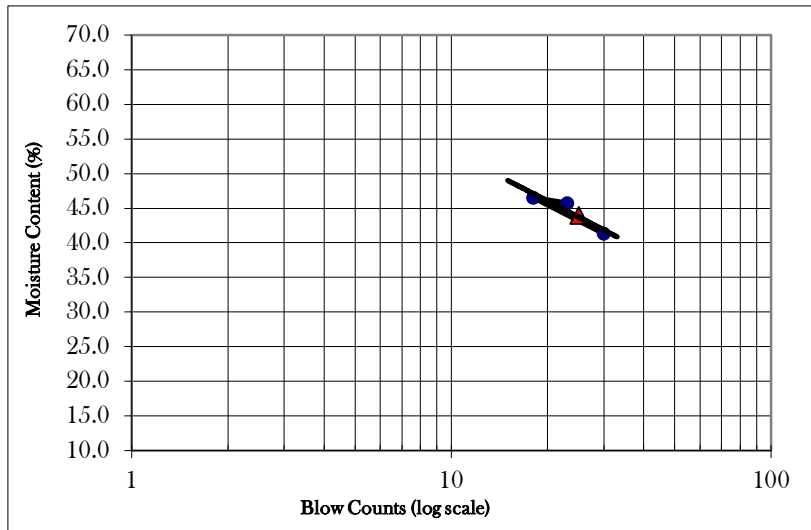
Boring Number M04

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	CT-111-2	2	Cup Number	12	12
Weight of Cup (g)	12.55	19.54	29.6	Weight of Cup (g)	27.2	27.2
Weight of Wet Soil and Cup (g)	24.25	31.38	44.61	Weight of Wet Soil and Cup (g)	29.86	29.85
Weight of Dry Soil and Cup (g)	20.83	27.62	39.9	Weight of Dry Soil and Cup (g)	29.23	29.21
Moisure Content (%)	41.3	46.5	45.7	Moisure Content (%)	31.0	31.8
Blow Counts	30	18	23			

### Compilation of Test Results



Liquid Limit	44
Plastic Limit	31
Plasticity Index	12



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Poshchim olinogor, Korerhat**

Sample Information:

Sample Date: 25/01/2018

Test Date: 13/03/2018

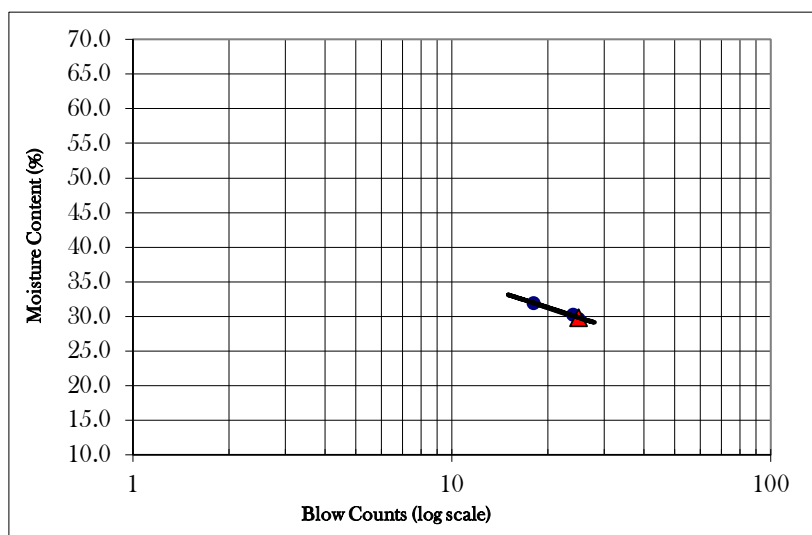
Boring Number M05

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	215	35	1011	Cup Number	107	107
Weight of Cup (g)	59.42	65.81	28.38	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	71.39	79.31	39.91	Weight of Wet Soil and Cup (g)	57.92	58.56
Weight of Dry Soil and Cup (g)	68.61	76.22	37.12	Weight of Dry Soil and Cup (g)	57.4	57.9
Moisure Content (%)	30.3	29.7	31.9	Moisure Content (%)	27.1	27.3
Blow Counts	24	25	18			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	27
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Poshchim olinogor, Korerhat**

Sample Information:

Sample Date: 25/01/2018

Test Date: 13/03/2018

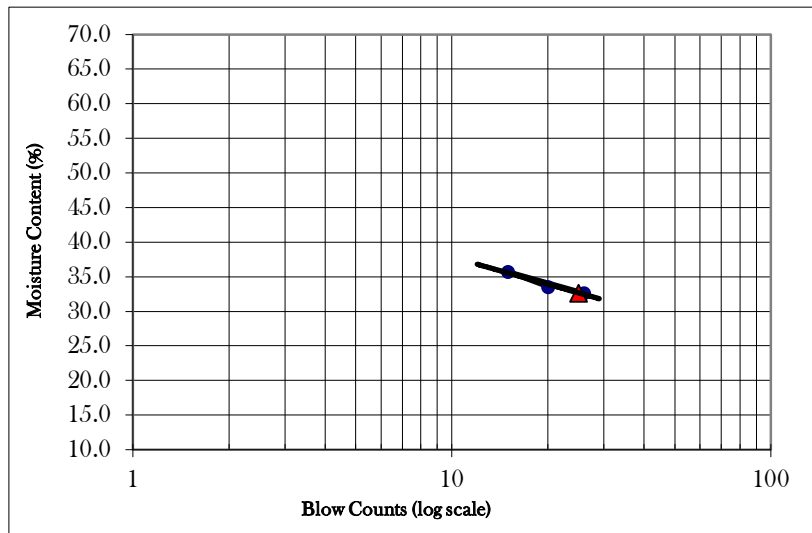
Boring Number M05

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	56	Cr01	Cup Number	109	109
Weight of Cup (g)	19.56	19.03	24.51	Weight of Cup (g)	33.89	33.89
Weight of Wet Soil and Cup (g)	31.18	31	40.12	Weight of Wet Soil and Cup (g)	36.27	36.17
Weight of Dry Soil and Cup (g)	28.26	27.85	36.28	Weight of Dry Soil and Cup (g)	35.72	35.65
Moisure Content (%)	33.6	35.7	32.6	Moisure Content (%)	30.1	29.5
Blow Counts	20	15	26			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	30
Plasticity Index	3





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ajomnogor Community Clinic, Hinguli**

Sample Information:

Sample Date: 27/01/2018

Test Date: 14/03/2018

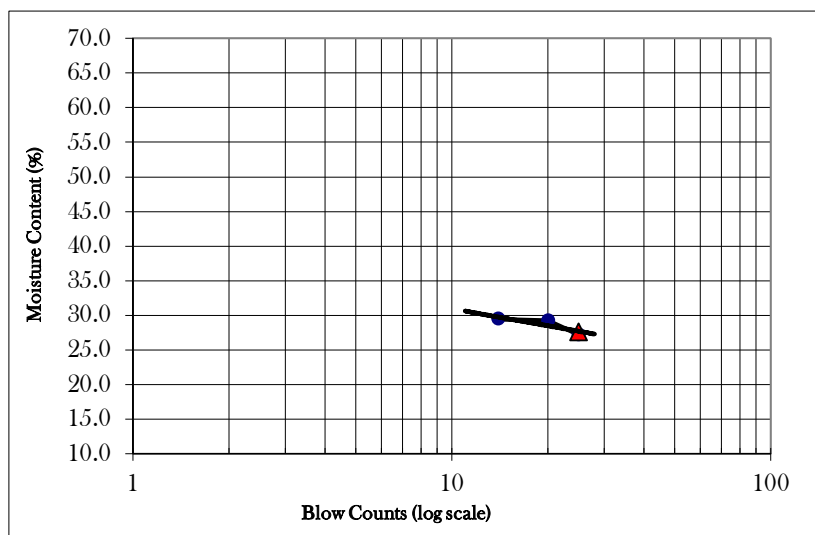
Boring Number M06

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7	107	Ct300	Cup Number	111	111
Weight of Cup (g)	23.92	33.27	24.39	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	38.5	49.38	49.79	Weight of Wet Soil and Cup (g)	21.03	21.31
Weight of Dry Soil and Cup (g)	35.38	45.74	44.01	Weight of Dry Soil and Cup (g)	20.72	20.97
Moisure Content (%)	27.2	29.2	29.5	Moisure Content (%)	17.1	16.5
Blow Counts	25	20	14			

### Compilation of Test Results



Liquid Limit	28
Plastic Limit	17
Plasticity Index	11



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ajomnogor Community Clinic, Hinguli**

Sample Information:

Sample Date: 27/01/2018

Test Date: 14/03/2018

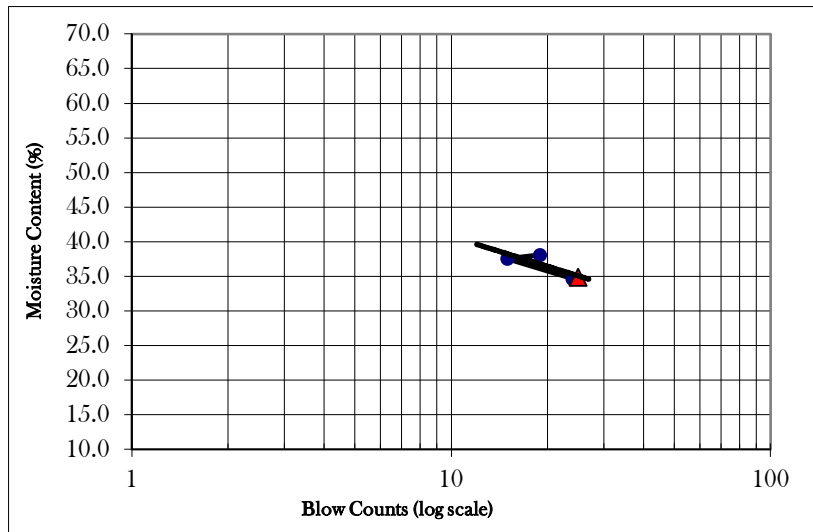
Boring Number M06

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	2	9P	Cup Number	Ct2	Ct2
Weight of Cup (g)	23.79	29.45	24.61	Weight of Cup (g)	22.17	22.17
Weight of Wet Soil and Cup (g)	43.36	39.19	36.97	Weight of Wet Soil and Cup (g)	24.15	24.15
Weight of Dry Soil and Cup (g)	37.96	36.53	33.79	Weight of Dry Soil and Cup (g)	23.83	23.86
Moisure Content (%)	38.1	37.6	34.6	Moisure Content (%)	19.3	17.2
Blow Counts	19	15	24			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	18
Plasticity Index	17



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ajomnogor Community Clinic, Hinguli**

Sample Information:

Sample Date: 27/01/2018

Test Date: 14/03/2018

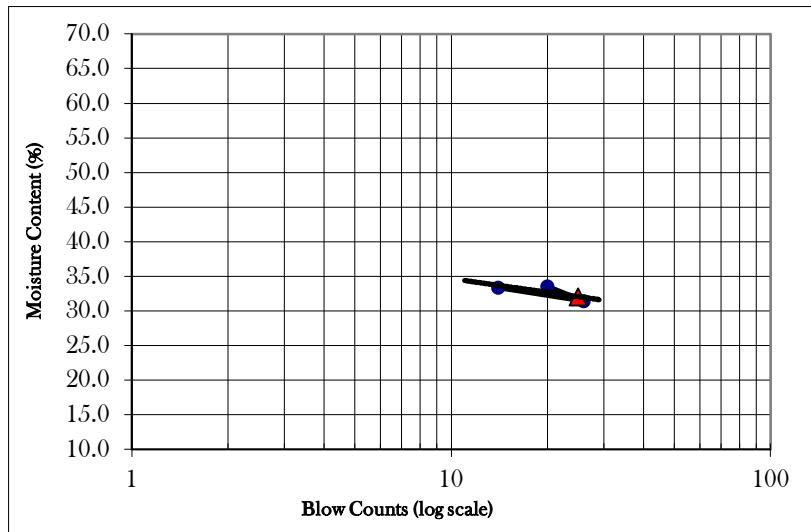
Boring Number M06

Sample Number 10

Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	3	8	Cup Number	C-300	C-300
Weight of Cup (g)	29.25	42.1	44.25	Weight of Cup (g)	24.47	24.47
Weight of Wet Soil and Cup (g)	40.25	54.85	57.26	Weight of Wet Soil and Cup (g)	27.75	27
Weight of Dry Soil and Cup (g)	37.5	51.8	53.99	Weight of Dry Soil and Cup (g)	27.08	26.45
Moisture Content (%)	33.3	31.4	33.6	Moisture Content (%)	25.7	27.8
Blow Counts	14	26	20			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	27
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Khil hinguli Govt. Primary School**

Sample Information:

Sample Date: 27/01/2018

Test Date: 03-12-18

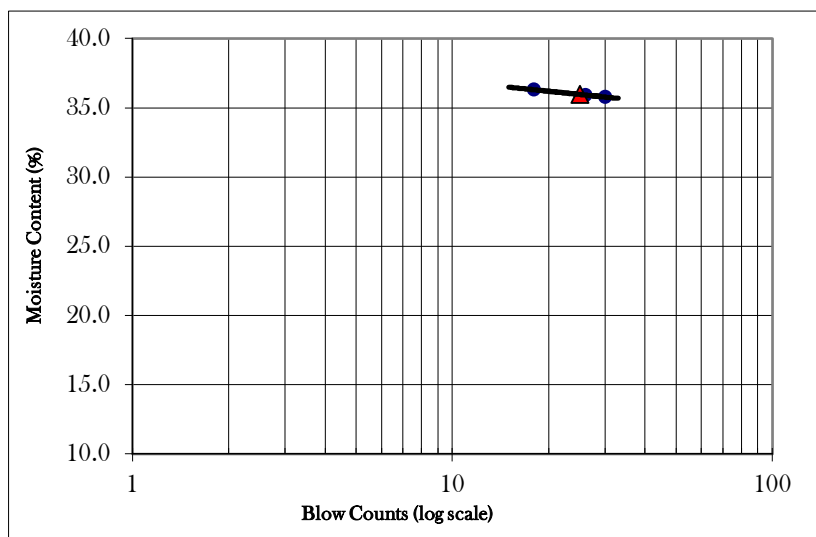
Boring Number M07

Sample Number 05

Depth of Sample(m) 7.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	4	201	Cup Number	8	8
Weight of Cup (g)	116.9	113.3	160.95	Weight of Cup (g)	119.15	119.15
Weight of Wet Soil and Cup (g)	183.55	193.95	259.35	Weight of Wet Soil and Cup (g)	129.05	128.85
Weight of Dry Soil and Cup (g)	165.8	172.7	233.35	Weight of Dry Soil and Cup (g)	127.2	126.85
Moisure Content (%)	36.3	35.8	35.9	Moisure Content (%)	23.0	26.0
Blow Counts	18	30	26			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	24
Plasticity Index	12



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Khil hinguli Govt. Primary School**

Sample Information:

Sample Date: 27/01/2018

Test Date: 03-12-18

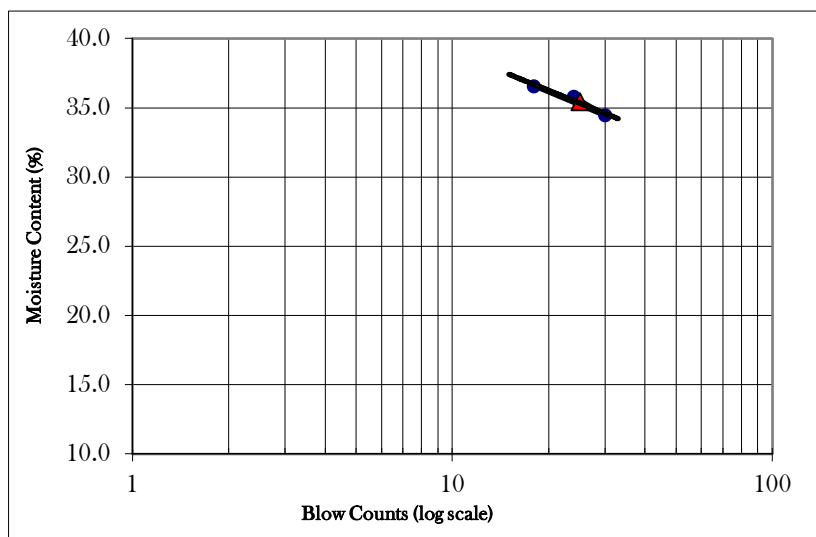
Boring Number M07

Sample Number 08

Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	56	7P	Cup Number	Ct-5	Ct-5
Weight of Cup (g)	12.52	19.04	18.17	Weight of Cup (g)	21.5	21.5
Weight of Wet Soil and Cup (g)	22.46	31.3	28.63	Weight of Wet Soil and Cup (g)	23.72	23.84
Weight of Dry Soil and Cup (g)	19.84	28.16	25.83	Weight of Dry Soil and Cup (g)	23.23	23.34
Moisure Content (%)	35.8	34.4	36.6	Moisure Content (%)	28.3	27.2
Blow Counts	24	30	18			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	28
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Khil hinguli Govt. Primary School**

Sample Information:

Sample Date: 27/01/2018

Test Date: 03-12-18

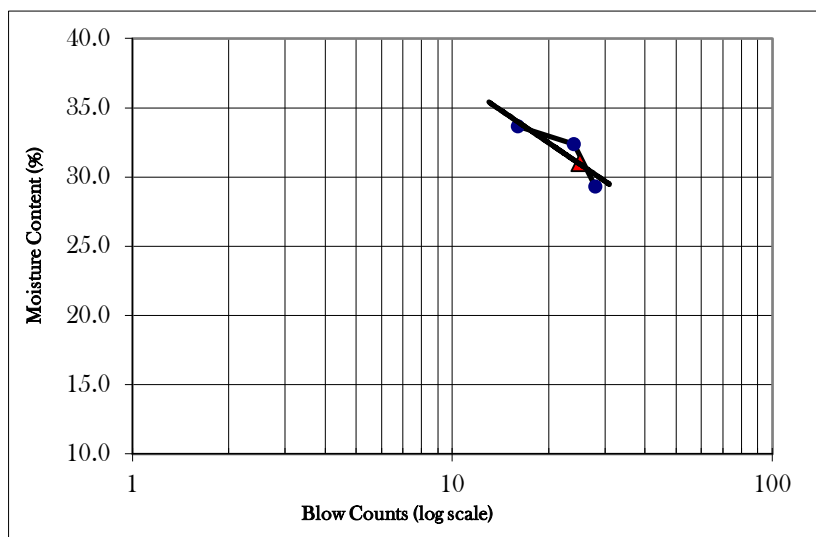
Boring Number M07

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	16	203	Can19	Cup Number	107	107
Weight of Cup (g)	29.52	44.93	37.1	Weight of Cup (g)	33.28	33.28
Weight of Wet Soil and Cup (g)	45.48	64.96	61.8	Weight of Wet Soil and Cup (g)	36.33	36.35
Weight of Dry Soil and Cup (g)	41.46	60.06	56.2	Weight of Dry Soil and Cup (g)	35.67	35.69
Moisure Content (%)	33.7	32.4	29.3	Moisure Content (%)	27.6	27.4
Blow Counts	16	24	28			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	28
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jamalpur, Baraiarhat Pourashava**

Sample Information:

Sample Date: 28/01/2018

Test Date: 18/03/2018

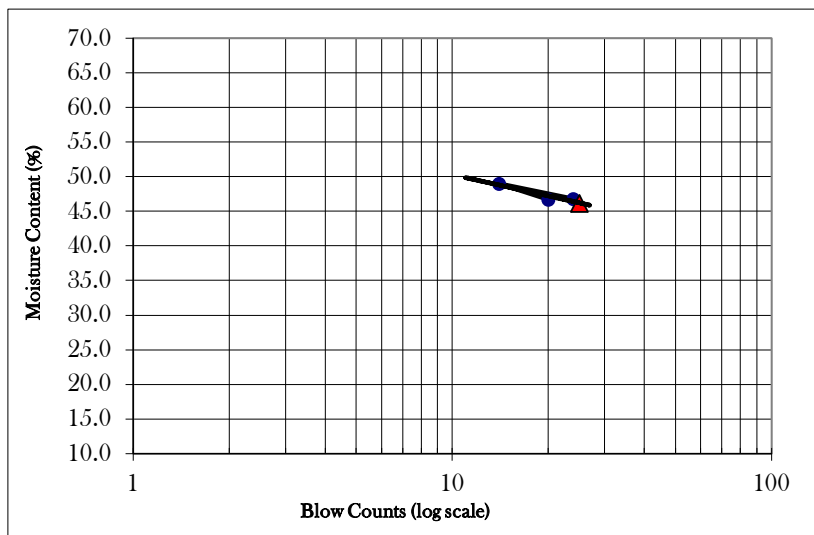
Boring Number M08

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct112	Can216	215	Cup Number	Ct NO	Ct NO
Weight of Cup (g)	14.01	36.8	59.43	Weight of Cup (g)	29.91	29.91
Weight of Wet Soil and Cup (g)	25.2	48.02	75.21	Weight of Wet Soil and Cup (g)	31.78	32.24
Weight of Dry Soil and Cup (g)	21.64	44.33	70.18	Weight of Dry Soil and Cup (g)	31.75	31.4
Moisure Content (%)	46.7	49.0	46.8	Moisure Content (%)	1.6	56.4
Blow Counts	20	14	24			

### Compilation of Test Results



Liquid Limit	46
Plastic Limit	29
Plasticity Index	17



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jamalpur, Baraiarhat Pourashava**

Sample Information:

Sample Date: 28/01/2018

Test Date: 18/03/2018

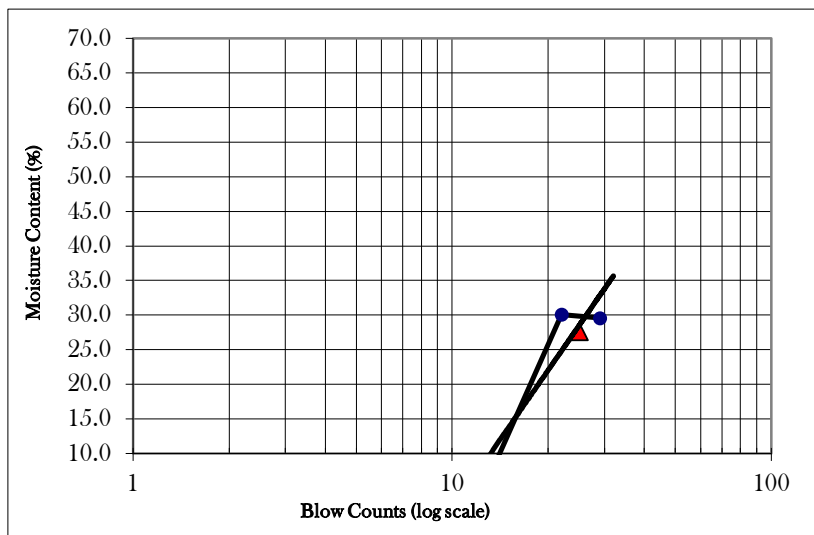
Boring Number M08

Sample Number 10

Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct60	102	10	Cup Number	Ct111-2	Ct111-2
Weight of Cup (g)	22.09	14.24	36.25	Weight of Cup (g)	19.56	19.56
Weight of Wet Soil and Cup (g)	33.31	23.15	50.16	Weight of Wet Soil and Cup (g)	22.81	21.87
Weight of Dry Soil and Cup (g)	30.75	21.09	48.925	Weight of Dry Soil and Cup (g)	22.19	21.51
Moisire Content (%)	29.6	30.1	9.7	Moisire Content (%)	23.6	18.5
Blow Counts	29	22	14			

### Compilation of Test Results



Liquid Limit	28
Plastic Limit	21
Plasticity Index	7





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jamalpur, Baraiarhat Pourashava**

Sample Information:

Sample Date: 28/01/2018

Test Date: 18/03/2018

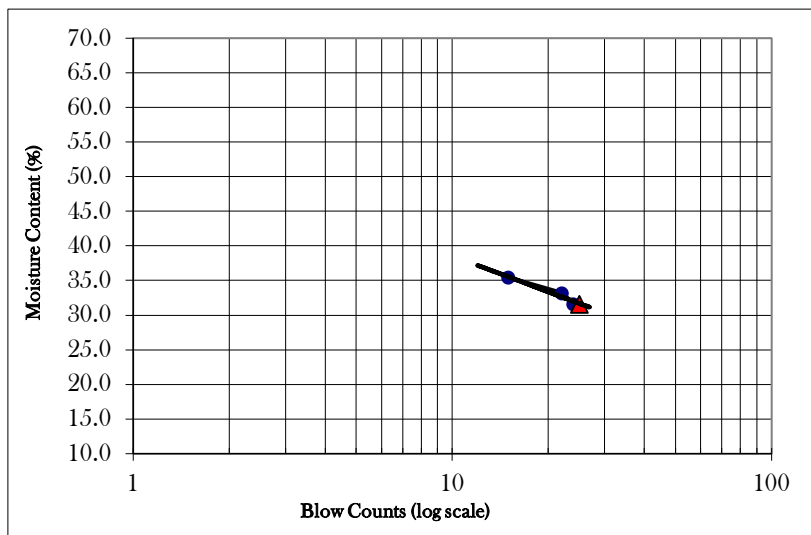
Boring Number M08

Sample Number 11

Depth of Sample(m) 16.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct-111-2	7P	7	Cup Number	12	12
Weight of Cup (g)	19.57	18.2	23.92	Weight of Cup (g)	27.22	27.22
Weight of Wet Soil and Cup (g)	30.96	29.48	38.17	Weight of Wet Soil and Cup (g)	30.78	30.68
Weight of Dry Soil and Cup (g)	27.98	26.67	34.75	Weight of Dry Soil and Cup (g)	29.95	29.89
Moisure Content (%)	35.4	33.2	31.6	Moisure Content (%)	30.4	29.6
Blow Counts	15	22	24			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	30
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : East Mehedi Nagar (Forest Office)**

Sample Information:

Sample Date: 28/01/2018

Test Date: 16/3/2018

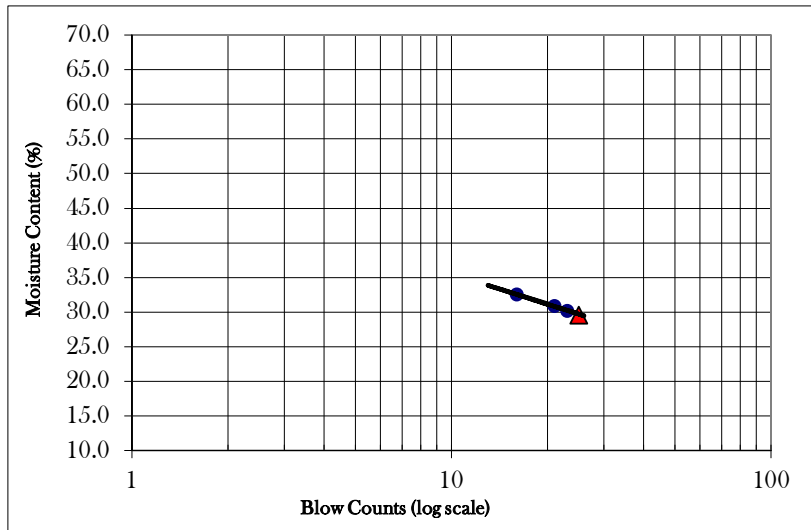
Boring Number M09

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	106	205	14	Cup Number	107	107
Weight of Cup (g)	26.88	26.94	36.34	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	36.25	36.26	47.38	Weight of Wet Soil and Cup (g)	58.28	58.32
Weight of Dry Soil and Cup (g)	33.95	34.06	44.82	Weight of Dry Soil and Cup (g)	57.67	57.75
Moisure Content (%)	32.5	30.9	30.2	Moisure Content (%)	27.9	25.1
Blow Counts	16	21	23			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : East Mehedi Nagar (Forest Office)**

Sample Information:

Sample Date: 28/01/2018

Test Date: 16/3/2018

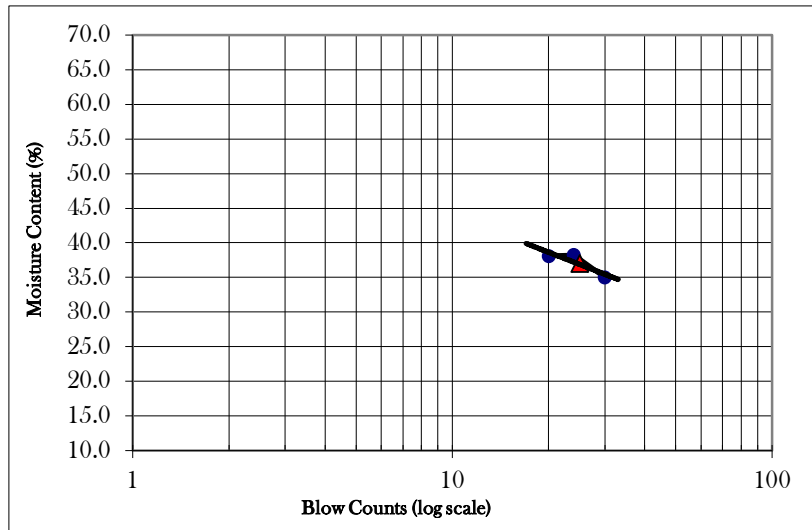
Boring Number M09

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	301	7	Ct15	Cup Number	202	202
Weight of Cup (g)	18.36	23.95	35.63	Weight of Cup (g)	58.63	58.63
Weight of Wet Soil and Cup (g)	25.07	32.45	42.7	Weight of Wet Soil and Cup (g)	59.87	60.04
Weight of Dry Soil and Cup (g)	23.33	30.1	40.75	Weight of Dry Soil and Cup (g)	59.66	59.8
Moisure Content (%)	35.0	38.2	38.1	Moisure Content (%)	20.4	20.5
Blow Counts	30	24	20			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	20
Plasticity Index	17



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Hinguli, Gonokchora**

Sample Information:

Sample Date: 28/01/2018

Test Date: 14/03/2018

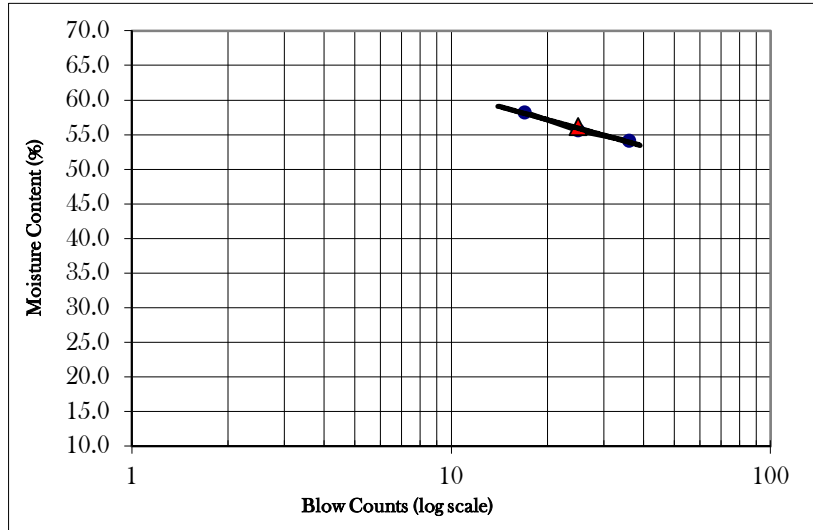
Boring Number M10

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	111	7P	Cup Number	4	4
Weight of Cup (g)	13.99	19.57	18.15	Weight of Cup (g)	22.69	22.69
Weight of Wet Soil and Cup (g)	26.98	33.09	34.33	Weight of Wet Soil and Cup (g)	24.92	24.58
Weight of Dry Soil and Cup (g)	22.2	28.26	28.65	Weight of Dry Soil and Cup (g)	24.23	24.04
Moisture Content (%)	58.2	55.6	54.1	Moisture Content (%)	44.8	40.0
Blow Counts	17	25	36			

### Compilation of Test Results



Liquid Limit	56
Plastic Limit	42
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Hinguli, Gonokchora**

Sample Information:

Sample Date: 28/01/2018

Test Date: 14/03/2018

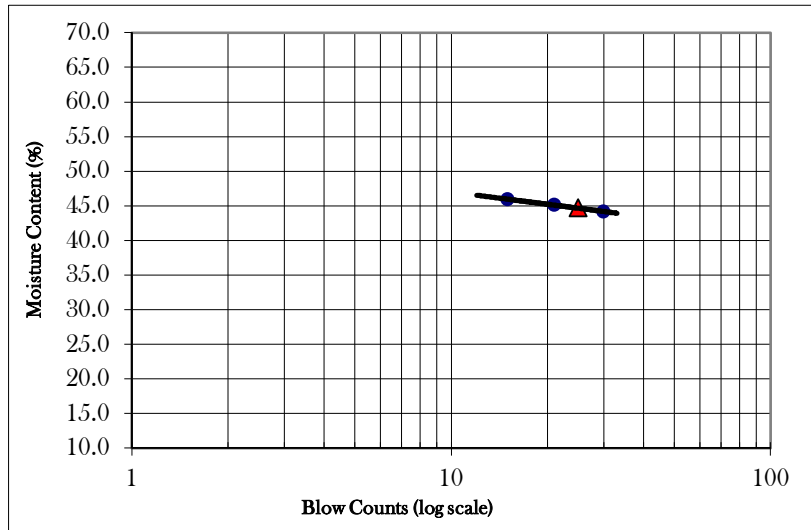
Boring Number M10

Sample Number 09

Depth of Sample(m) 13.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	56	213	13	Cup Number	12	12
Weight of Cup (g)	19.05	23.38	23.75	Weight of Cup (g)	27.21	27.21
Weight of Wet Soil and Cup (g)	30.2	35.44	33.64	Weight of Wet Soil and Cup (g)	29.19	29.42
Weight of Dry Soil and Cup (g)	26.69	31.69	30.61	Weight of Dry Soil and Cup (g)	28.72	28.9
Moisure Content (%)	45.9	45.1	44.2	Moisure Content (%)	31.1	30.8
Blow Counts	15	21	30			

### Compilation of Test Results



Liquid Limit	45
Plastic Limit	31
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Hinguli, Gonokchora**

Sample Information:

Sample Date: 28/01/2018

Test Date: 14/03/2018

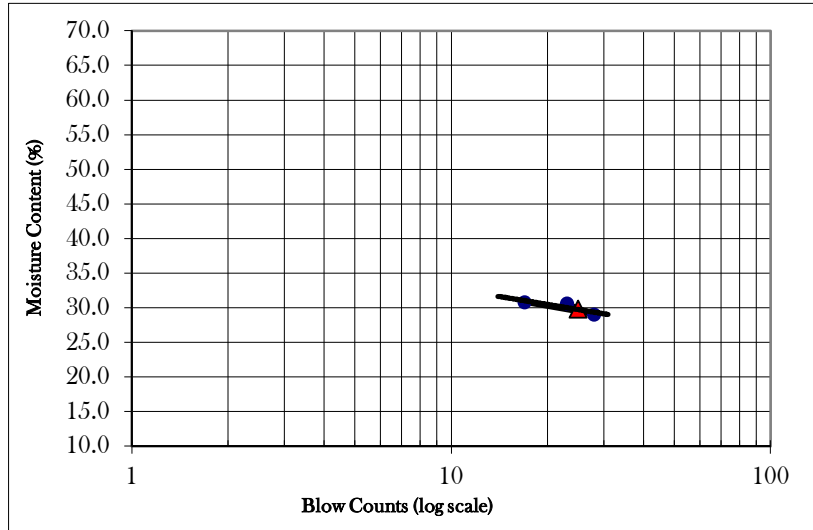
Boring Number M10

Sample Number 11

Depth of Sample(m) 16.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct05	C300	Ct60	Cup Number	Cr01	Cr01
Weight of Cup (g)	21.52	24.34	22.11	Weight of Cup (g)	24.51	24.51
Weight of Wet Soil and Cup (g)	27.68	33.19	31.93	Weight of Wet Soil and Cup (g)	27.26	27.06
Weight of Dry Soil and Cup (g)	26.23	31.2	29.63	Weight of Dry Soil and Cup (g)	26.68	26.56
Moisure Content (%)	30.8	29.0	30.6	Moisure Content (%)	26.7	24.4
Blow Counts	17	28	23			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	4

# Environmental & Geospatial Solutions (EGS)



Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Imampur Titabot tola Furkania Madrasha**

Sample Information:

Sample Date: 30/01/2018

Test Date: 20/03/2018

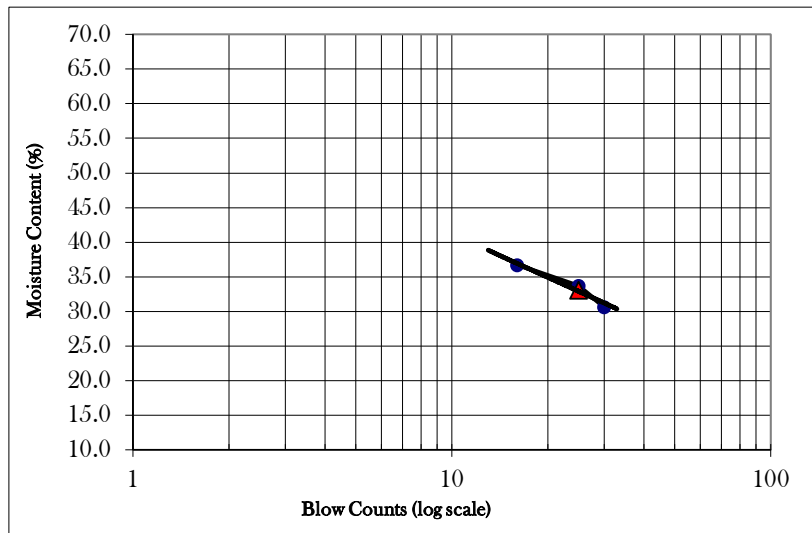
Boring Number M11

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	32	303	Cup Number	Ct NO	Ct NO
Weight of Cup (g)	18.19	12.19	12.56	Weight of Cup (g)	29.31	29.31
Weight of Wet Soil and Cup (g)	27.44	21.76	23.66	Weight of Wet Soil and Cup (g)	32.07	32.25
Weight of Dry Soil and Cup (g)	25.27	19.35	20.68	Weight of Dry Soil and Cup (g)	31.74	31.87
Moisure Content (%)	30.6	33.7	36.7	Moisure Content (%)	13.6	14.8
Blow Counts	30	25	16			

## Compilation of Test Results



Liquid Limit	33
Plastic Limit	14
Plasticity Index	19



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Imampur Titabot tola Furkania Madrasha**

Sample Information:

Sample Date: 30/01/2018

Test Date: 20/03/2018

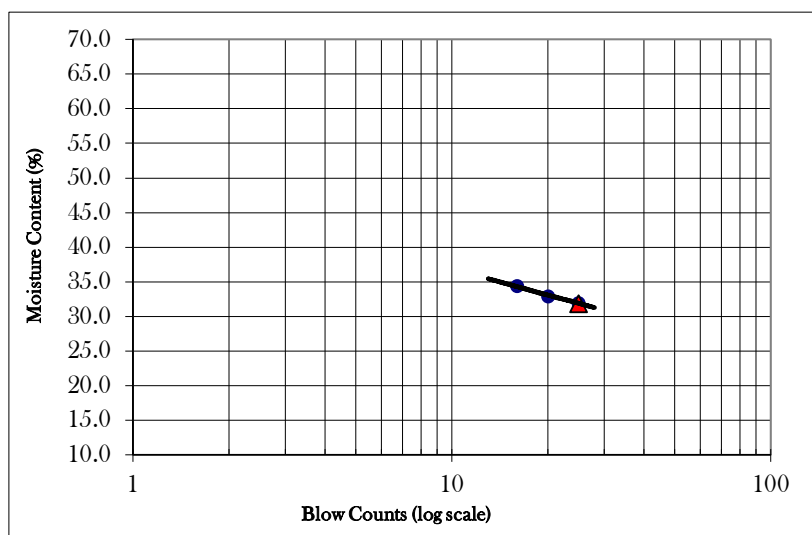
Boring Number M11

Sample Number 08

Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	106	Can-18	107	Cup Number	214	214
Weight of Cup (g)	26.86	32.77	33.41	Weight of Cup (g)	18.89	18.89
Weight of Wet Soil and Cup (g)	37.47	44.89	46.46	Weight of Wet Soil and Cup (g)	21.8	20.86
Weight of Dry Soil and Cup (g)	34.9	41.89	43.12	Weight of Dry Soil and Cup (g)	21.2	20.38
Moisture Content (%)	32.0	32.9	34.4	Moisture Content (%)	26.0	32.2
Blow Counts	25	20	16			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Imampur Titabot tola Furkania Madrasha**

Sample Information:

Sample Date: 30/01/2018

Test Date: 20/03/2018

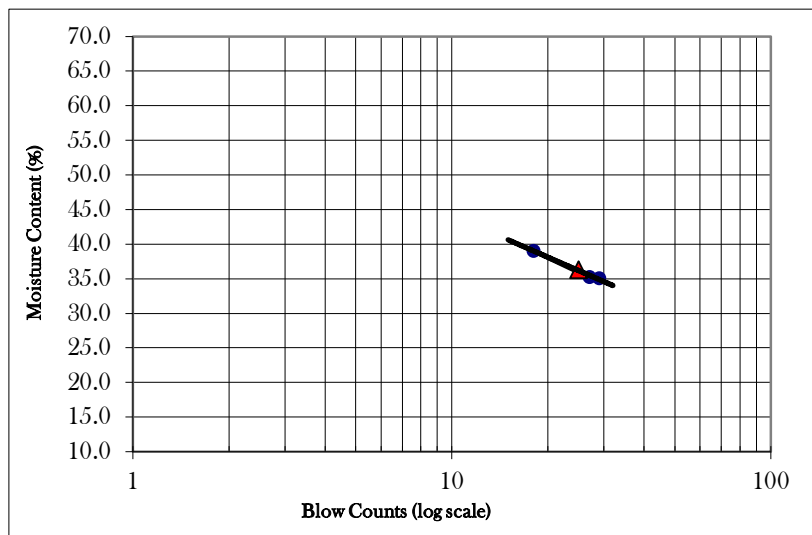
Boring Number M11

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-15	56	Cup Number	213	213
Weight of Cup (g)	23.88	35.41	19.01	Weight of Cup (g)	23.81	23.81
Weight of Wet Soil and Cup (g)	35.24	47.34	30.15	Weight of Wet Soil and Cup (g)	26.41	26.63
Weight of Dry Soil and Cup (g)	32.29	44.23	27.02	Weight of Dry Soil and Cup (g)	25.83	26.03
Moisture Content (%)	35.1	35.3	39.1	Moisture Content (%)	28.7	27.0
Blow Counts	29	27	18			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	28
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom**

Sample Information:

Sample Date: 29/01/2018

Test Date: 17/3/2018

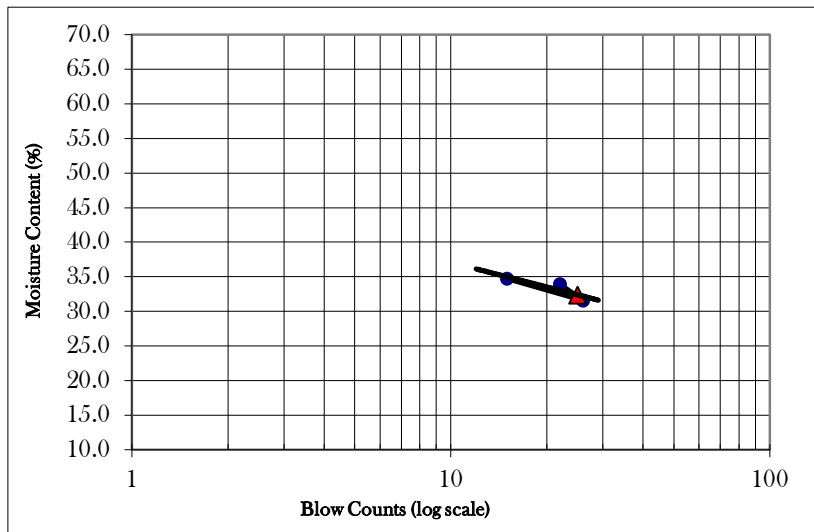
Boring Number M12

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	19	Can216	22	Cup Number	215	215
Weight of Cup (g)	37.12	36.83	36.96	Weight of Cup (g)	59.43	59.43
Weight of Wet Soil and Cup (g)	42.59	41.79	43.91	Weight of Wet Soil and Cup (g)	61.98	61.97
Weight of Dry Soil and Cup (g)	41.18	40.6	42.15	Weight of Dry Soil and Cup (g)	61.45	61.59
Moisure Content (%)	34.7	31.6	33.9	Moisure Content (%)	26.2	17.6
Blow Counts	15	26	22			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	22
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom**

Sample Information:

Sample Date: 29/01/2018

Test Date: 17/3/2018

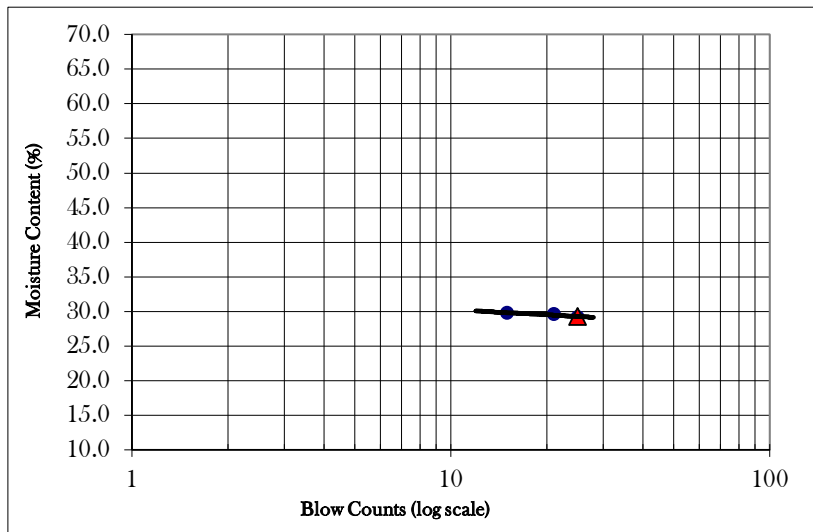
Boring Number M12

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	22	108	202	Cup Number	215	215
Weight of Cup (g)	37.01	56.33	58.62	Weight of Cup (g)	59.42	59.42
Weight of Wet Soil and Cup (g)	47.69	65.13	66.99	Weight of Wet Soil and Cup (g)	61.84	61.34
Weight of Dry Soil and Cup (g)	45.24	63.12	65.1	Weight of Dry Soil and Cup (g)	61.31	60.97
Moisure Content (%)	29.8	29.6	29.2	Moisure Content (%)	28.0	23.9
Blow Counts	15	21	25			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	26
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Banglabazar, Shantor road, Dhoom**

Sample Information:

Sample Date: 30/01/2018

Test Date: 19/3/2018

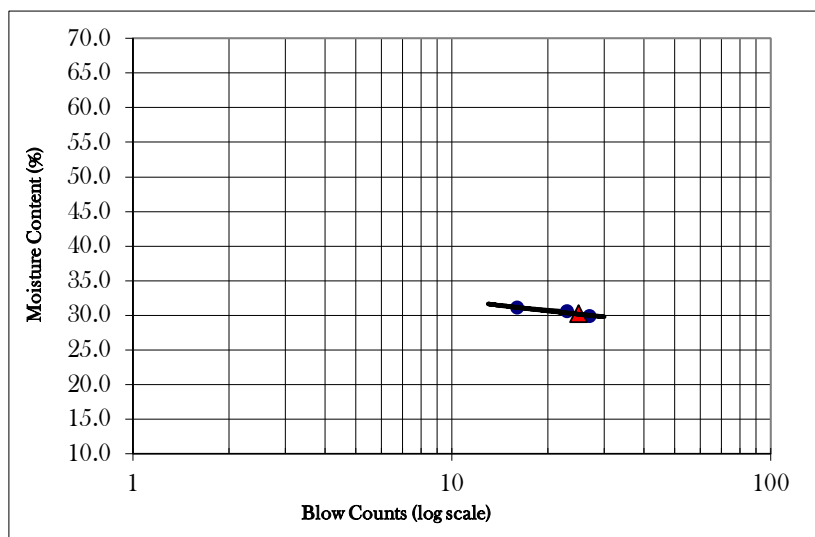
Boring Number M13

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	8	Ct60	56	Cup Number	6P	6P
Weight of Cup (g)	23.83	22.13	18.99	Weight of Cup (g)	35.28	35.28
Weight of Wet Soil and Cup (g)	33.02	30.3	27.47	Weight of Wet Soil and Cup (g)	36.61	36.87
Weight of Dry Soil and Cup (g)	30.84	28.39	25.52	Weight of Dry Soil and Cup (g)	36.33	36.5
Moisure Content (%)	31.1	30.5	29.9	Moisure Content (%)	26.7	30.3
Blow Counts	16	23	27			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	28
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Banglabazar, Shantor road, Dhoom**

Sample Information:

Sample Date: 30/01/2018

Test Date: 19/3/2018

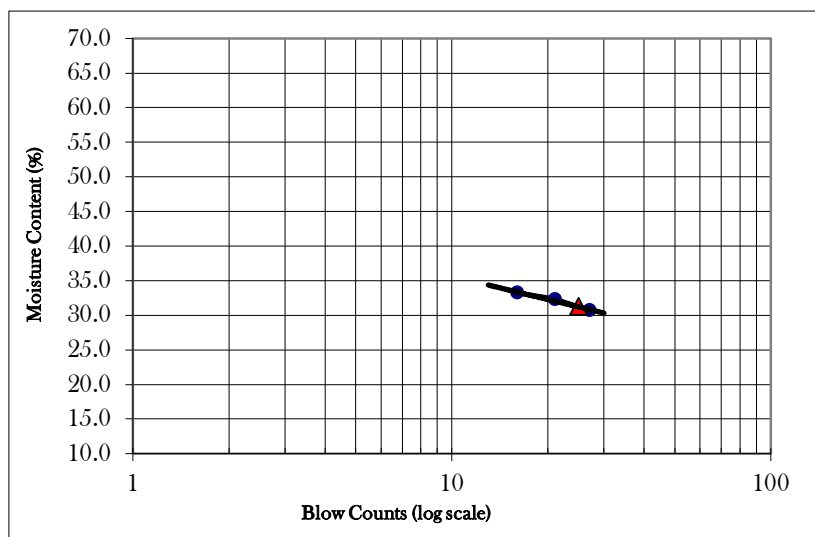
Boring Number M13

Sample Number 09

Depth of Sample(m) 13.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	220	202	Cup Number	203	203
Weight of Cup (g)	29.85	36.63	58.64	Weight of Cup (g)	44.94	44.94
Weight of Wet Soil and Cup (g)	38.55	48.75	71.8	Weight of Wet Soil and Cup (g)	47.82	47.91
Weight of Dry Soil and Cup (g)	36.38	45.79	68.71	Weight of Dry Soil and Cup (g)	47.25	47.29
Moisure Content (%)	33.2	32.3	30.7	Moisure Content (%)	24.7	26.4
Blow Counts	16	21	27			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	26
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Banglabazar, Shantor road, Dhoom**

Sample Information:

Sample Date: 30/01/2018

Test Date: 19/3/2018

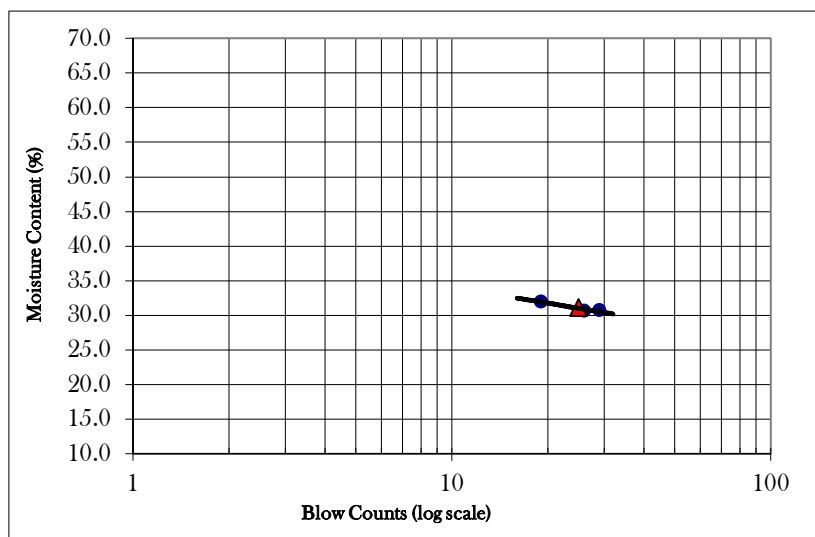
Boring Number M13

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	9	100p	Cup Number	CT2	CT2
Weight of Cup (g)	12.58	41.48	37.66	Weight of Cup (g)	22.16	22.16
Weight of Wet Soil and Cup (g)	28.68	54.05	51.63	Weight of Wet Soil and Cup (g)	24.9	25.08
Weight of Dry Soil and Cup (g)	24.78	51.1	48.35	Weight of Dry Soil and Cup (g)	24.34	24.58
Moisure Content (%)	32.0	30.7	30.7	Moisure Content (%)	25.7	20.7
Blow Counts	19	26	29			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	23
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

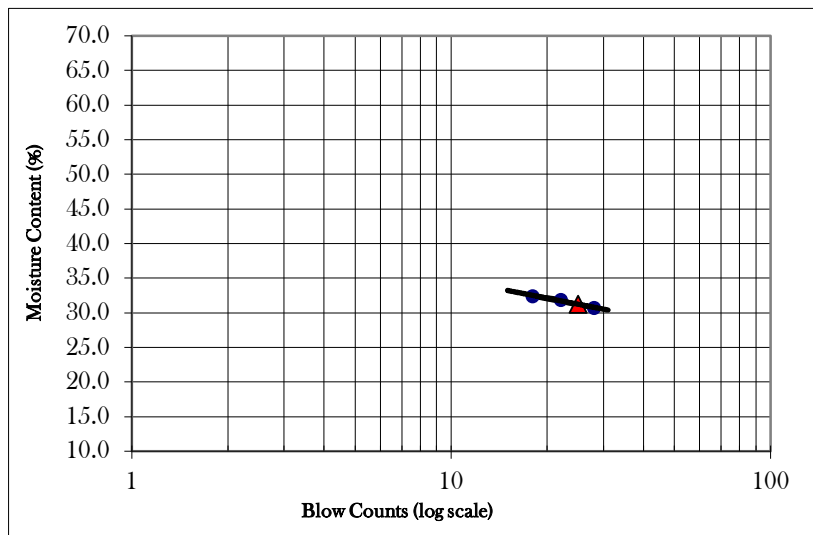
**Project Location : 163 no. Fayezullah master Govt. Primary School**

Sample Information:

Sample Date: 30/01/2018  
 Test Date: 03-12-18  
 Boring Number M14  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	203	102	Can216	Cup Number	105	105
Weight of Cup (g)	44.92	22.58	36.8	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	57.52	35.04	47.92	Weight of Wet Soil and Cup (g)	57.42	58.59
Weight of Dry Soil and Cup (g)	54.56	31.99	45.23	Weight of Dry Soil and Cup (g)	57.02	57.93
Moisure Content (%)	30.7	32.4	31.9	Moisure Content (%)	26.0	26.9
Blow Counts	28	18	22			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	26
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

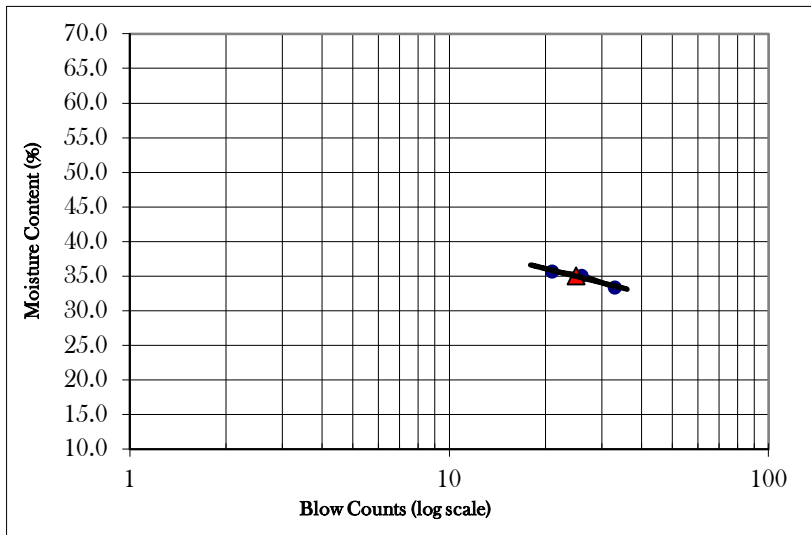
**Project Location : 163 no. Fayezullah master Govt. Primary School**

Sample Information:

Sample Date: 30/01/2018  
 Test Date: 03-12-18  
 Boring Number M14  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	22	15	112	Cup Number	C-300	C-300
Weight of Cup (g)	36.98	37.29	29.84	Weight of Cup (g)	24.57	24.57
Weight of Wet Soil and Cup (g)	49.15	49.49	40.58	Weight of Wet Soil and Cup (g)	27.12	27.5
Weight of Dry Soil and Cup (g)	45.95	46.32	37.89	Weight of Dry Soil and Cup (g)	26.49	26.85
Moisure Content (%)	35.7	35.1	33.4	Moisure Content (%)	32.8	28.5
Blow Counts	21	26	33			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	31
Plasticity Index	4





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

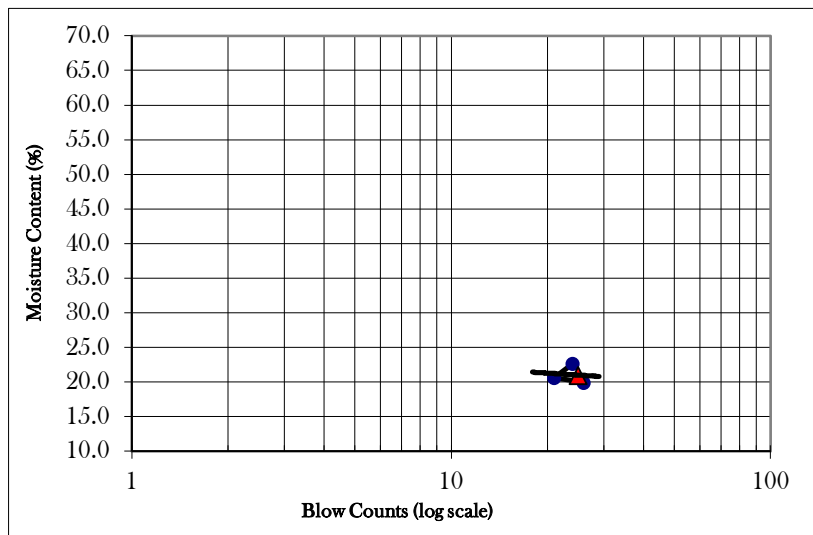
**Project Location : 163 no. Fayezullah master Govt. Primary School**

Sample Information:

Sample Date: 30/01/2018  
 Test Date: 03-12-18  
 Boring Number M14  
 Sample Number 09  
 Depth of Sample(m) 13.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	111	Cr01	Cup Number	107	107
Weight of Cup (g)	18.16	19.54	25.53	Weight of Cup (g)	33.25	33.25
Weight of Wet Soil and Cup (g)	35.55	38.91	46.3	Weight of Wet Soil and Cup (g)	36.57	35.14
Weight of Dry Soil and Cup (g)	32.66	35.6	42.46	Weight of Dry Soil and Cup (g)	36.08	34.86
Moisure Content (%)	19.9	20.6	22.7	Moisure Content (%)	17.3	17.4
Blow Counts	26	21	24			

### Compilation of Test Results



Liquid Limit	<u>21</u>
Plastic Limit	<u>17</u>
Plasticity Index	<u>4</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Alhaz Bodiul alam Chowdhury Govt. Primary School**

Sample Information:

Sample Date: 31/01/2018

Test Date: 19/03/2018

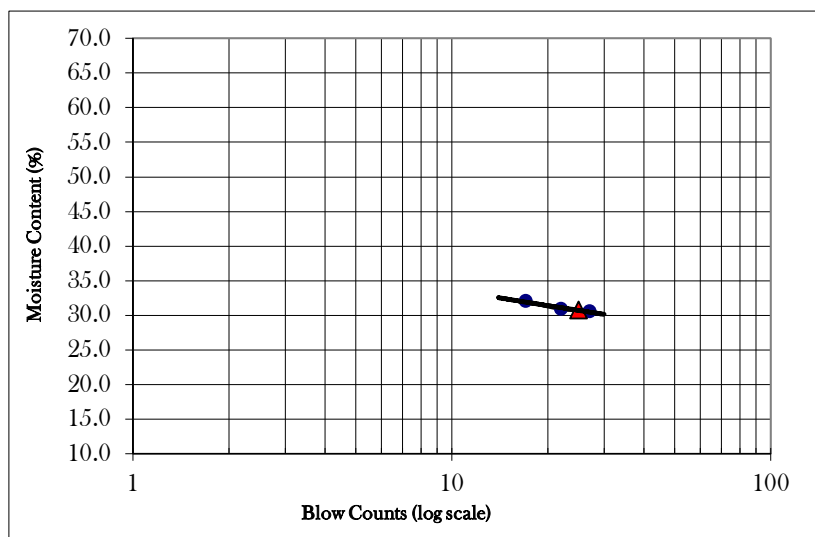
Boring Number M15

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C300	2	4	Cup Number	109	109
Weight of Cup (g)	24.37	29.47	22.78	Weight of Cup (g)	33.92	33.92
Weight of Wet Soil and Cup (g)	35.01	38.29	32.9	Weight of Wet Soil and Cup (g)	36.41	35.85
Weight of Dry Soil and Cup (g)	32.43	36.21	30.53	Weight of Dry Soil and Cup (g)	35.91	35.47
Moisure Content (%)	32.0	30.9	30.6	Moisure Content (%)	25.1	24.5
Blow Counts	17	22	27			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	25
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Alhaz Bodiul alam Chowdhury Govt. Primary School**

Sample Information:

Sample Date: 31/01/2018

Test Date: 19/03/2018

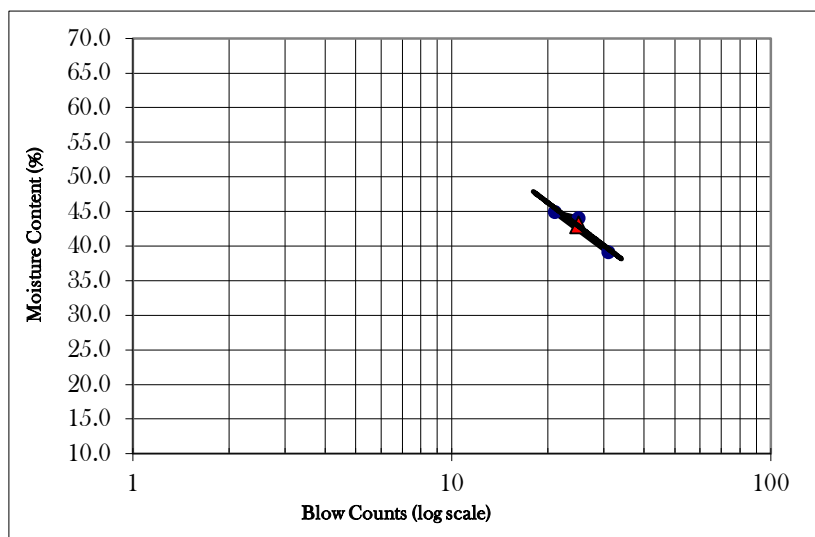
Boring Number M15

Sample Number 08

Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	19	111	Cup Number	15	15
Weight of Cup (g)	29.85	37.1	29.06	Weight of Cup (g)	37.25	37.25
Weight of Wet Soil and Cup (g)	39.11	43.59	37.63	Weight of Wet Soil and Cup (g)	39.33	39.26
Weight of Dry Soil and Cup (g)	36.51	41.58	35.01	Weight of Dry Soil and Cup (g)	38.91	38.97
Moisure Content (%)	39.0	44.9	44.0	Moisure Content (%)	25.3	16.9
Blow Counts	31	21	25			

### Compilation of Test Results



Liquid Limit	43
Plastic Limit	21
Plasticity Index	22



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Alhaz Bodiul alam Chowdhury Govt. Primary School**

Sample Information:

Sample Date: 31/01/2018

Test Date: 19/03/2018

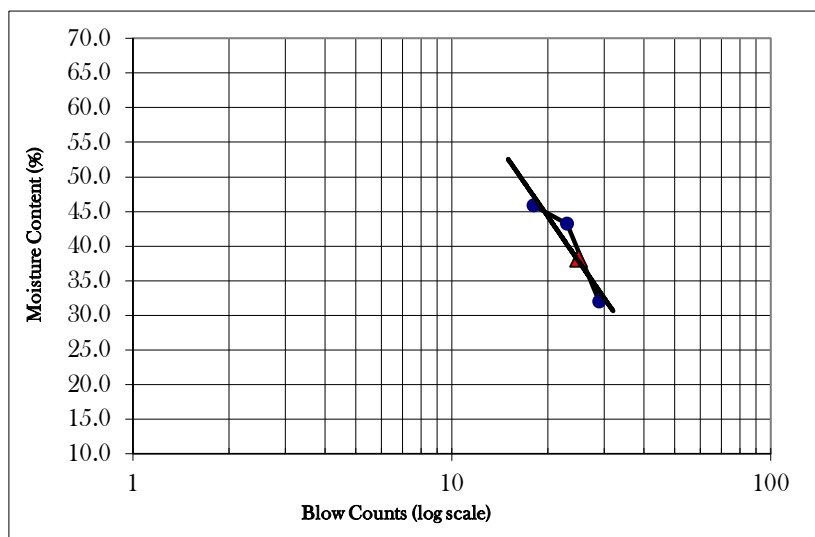
Boring Number M15

Sample Number 13

Depth of Sample(m) 19.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	4	10	Ct112	Cup Number	6P	6P
Weight of Cup (g)	22.76	36.25	14	Weight of Cup (g)	35.18	35.18
Weight of Wet Soil and Cup (g)	41.09	54.52	28.41	Weight of Wet Soil and Cup (g)	38.52	38.68
Weight of Dry Soil and Cup (g)	36.65	49.01	23.88	Weight of Dry Soil and Cup (g)	37.8	37.86
Moisure Content (%)	32.0	43.2	45.9	Moisure Content (%)	27.5	30.6
Blow Counts	29	23	18			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	29
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Khil murari, ward no. 5, Zorargonj**

Sample Information:

Sample Date: 29/01/2018

Test Date: 03-12-18

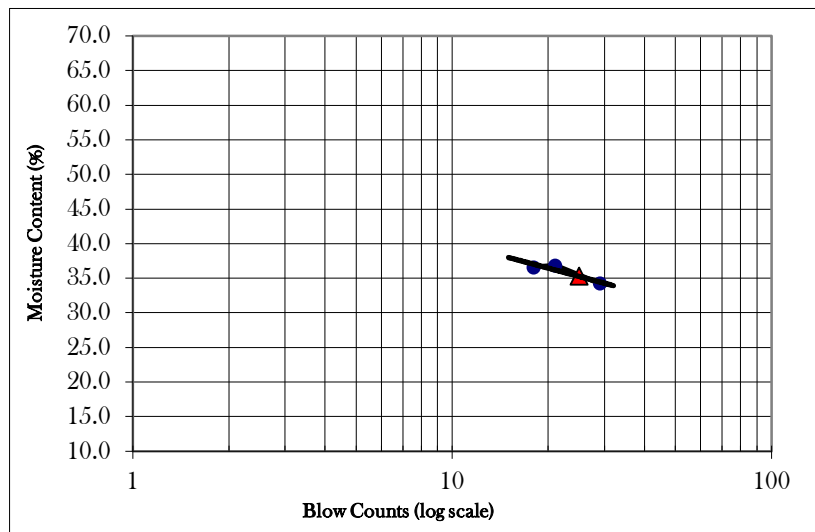
Boring Number M16

Sample Number 10

Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct111	Ct5	CtD-2	Cup Number	9P	9P
Weight of Cup (g)	18.96	21.52	22.53	Weight of Cup (g)	24.53	24.53
Weight of Wet Soil and Cup (g)	26.88	27.09	33.21	Weight of Wet Soil and Cup (g)	27.29	26.62
Weight of Dry Soil and Cup (g)	24.86	25.59	30.35	Weight of Dry Soil and Cup (g)	26.6	26.11
Moisire Content (%)	34.2	36.9	36.6	Moisire Content (%)	33.3	32.3
Blow Counts	29	21	18			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	33
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Khil murari, ward no. 5, Zorargonj**

Sample Information:

Sample Date: 29/01/2018

Test Date: 03-12-18

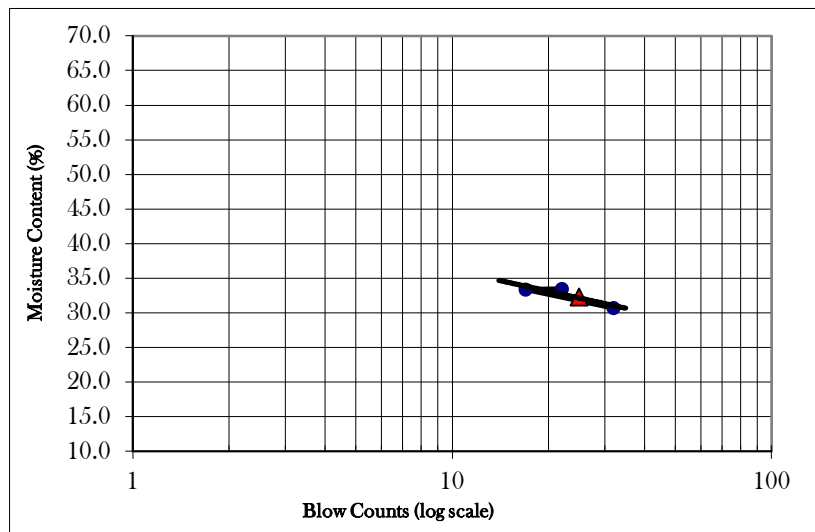
Boring Number M16

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	12	201	Cup Number	C300	C300
Weight of Cup (g)	23.75	27.24	32.2	Weight of Cup (g)	24.38	24.38
Weight of Wet Soil and Cup (g)	36.77	39.47	46.59	Weight of Wet Soil and Cup (g)	27.1	26.82
Weight of Dry Soil and Cup (g)	33.71	36.41	42.98	Weight of Dry Soil and Cup (g)	26.61	26.37
Moisture Content (%)	30.7	33.4	33.5	Moisture Content (%)	22.0	22.6
Blow Counts	32	17	22			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	22
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Shonapahar, murari, Zorargonj**

Sample Information:

Sample Date: 31/01/2018

Test Date: 16/03/2018

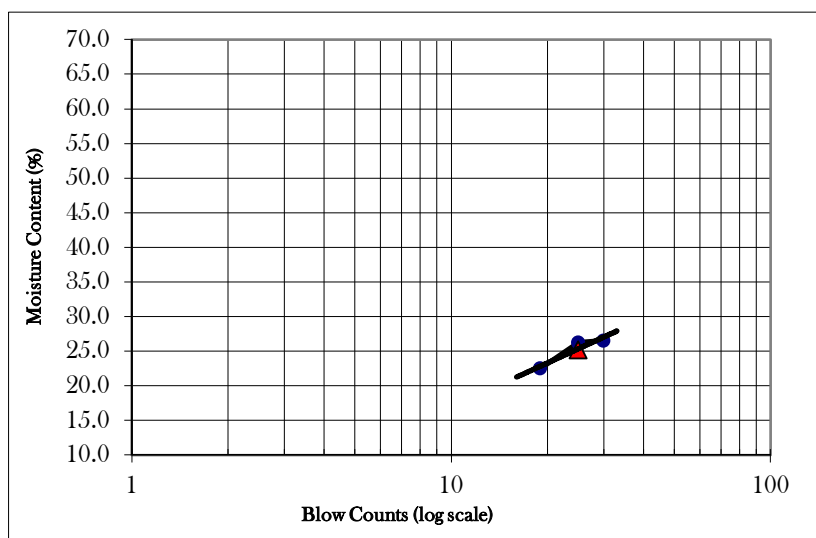
Boring Number M17

Sample Number 06

Depth of Sample(m) 9.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C300	Ct02	7P	Cup Number	12	12
Weight of Cup (g)	24.33	22.55	18.17	Weight of Cup (g)	27.23	27.23
Weight of Wet Soil and Cup (g)	33.76	32.37	25.14	Weight of Wet Soil and Cup (g)	28.56	28.63
Weight of Dry Soil and Cup (g)	32.03	30.33	23.68	Weight of Dry Soil and Cup (g)	28.34	28.41
Moisure Content (%)	22.5	26.2	26.5	Moisure Content (%)	19.8	18.6
Blow Counts	19	25	30			

### Compilation of Test Results



Liquid Limit	25
Plastic Limit	19
Plasticity Index	6



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Shonapahar, murari, Zorargonj**

Sample Information:

Sample Date: 31/01/2018

Test Date: 16/03/2018

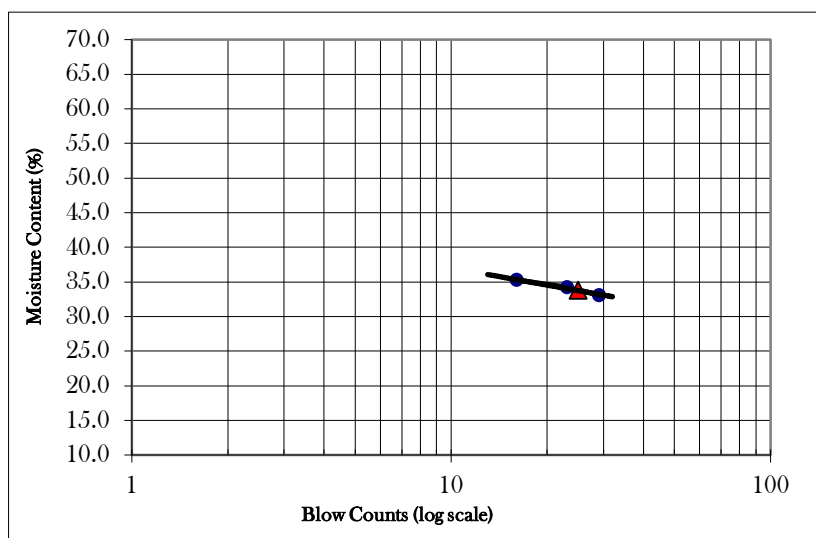
Boring Number M17

Sample Number 10

Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct02	2	302	Cup Number	Ct111	Ct111
Weight of Cup (g)	22.17	29.47	12.15	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	31.78	43.16	23.62	Weight of Wet Soil and Cup (g)	21.69	21.62
Weight of Dry Soil and Cup (g)	29.39	39.67	20.63	Weight of Dry Soil and Cup (g)	21.07	21.05
Moisure Content (%)	33.1	34.2	35.3	Moisure Content (%)	28.7	26.6
Blow Counts	29	23	16			

## Compilation of Test Results



Liquid Limit	34
Plastic Limit	28
Plasticity Index	6





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Shonapahar, murari, Zorargonj**

Sample Information:

Sample Date: 31/01/2018

Test Date: 16/03/2018

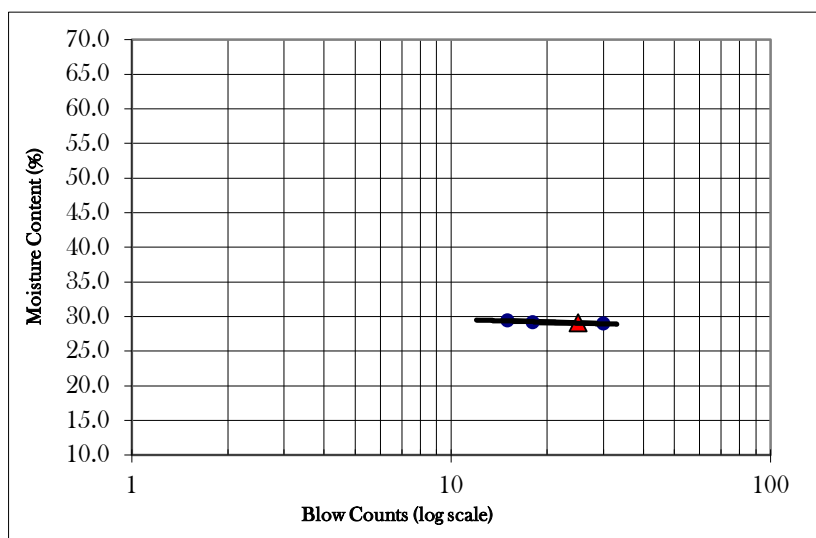
Boring Number M17

Sample Number 11

Depth of Sample(m) 17.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Cr1	Ct8	C300	Cup Number	111	111
Weight of Cup (g)	24.53	22.16	24.37	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	36.8	34.18	34.96	Weight of Wet Soil and Cup (g)	21.18	21.28
Weight of Dry Soil and Cup (g)	34.01	31.48	32.57	Weight of Dry Soil and Cup (g)	20.68	20.76
Moisure Content (%)	29.4	29.0	29.1	Moisure Content (%)	28.2	28.1
Blow Counts	15	30	18			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	28
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

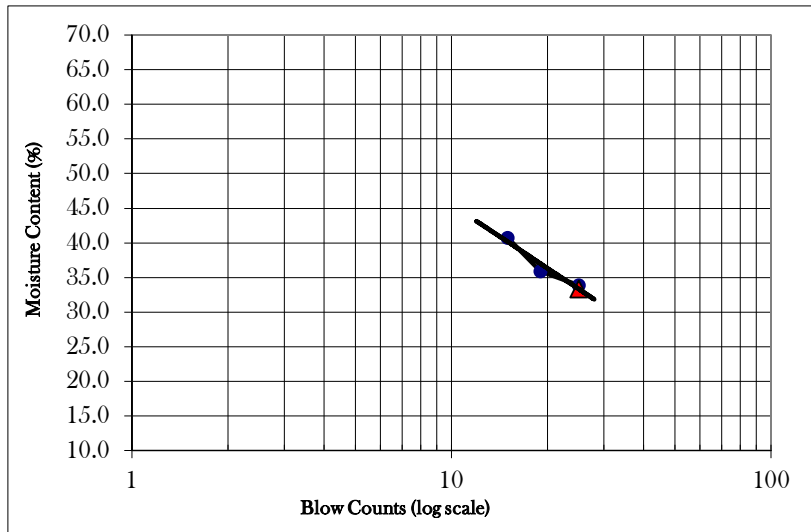
**Project Location : Guccho gram M.A. Haider Primary School, Osmanpur**

Sample Information:

Sample Date: 21-02-18  
 Test Date: 05-04-18  
 Boring Number M18  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	104	13	100P	Cup Number	203	203
Weight of Cup (g)	22.46	36.73	37.65	Weight of Cup (g)	44.91	44.91
Weight of Wet Soil and Cup (g)	32.1	46.76	48.13	Weight of Wet Soil and Cup (g)	47.39	47.37
Weight of Dry Soil and Cup (g)	29.31	44.11	45.48	Weight of Dry Soil and Cup (g)	46.91	46.9
Moisure Content (%)	40.7	35.9	33.8	Moisure Content (%)	24.0	23.6
Blow Counts	15	19	25			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	24
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

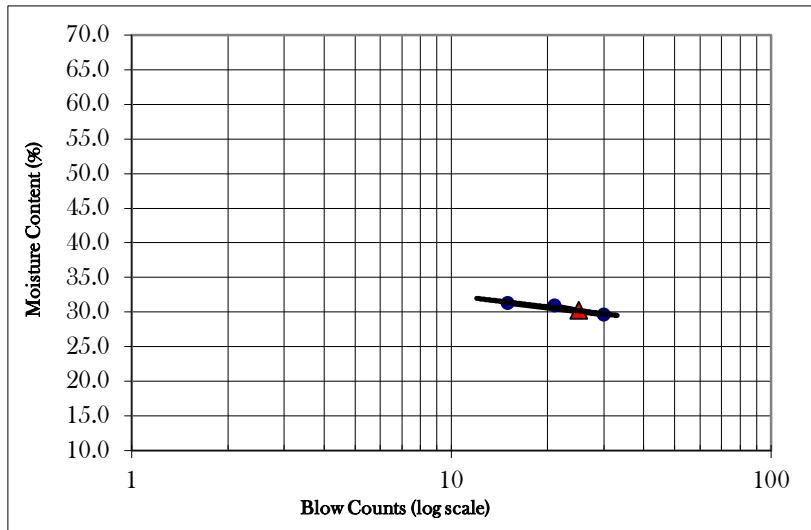
**Project Location : Guccho gram M.A. Haider Primary School, Osmanpur**

Sample Information:

Sample Date: 21-02-18  
 Test Date: 05-04-18  
 Boring Number M18  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	103	9P	CT-211	Cup Number	CT-09	CT-09
Weight of Cup (g)	22.61	24.6	19.14	Weight of Cup (g)	29.26	29.26
Weight of Wet Soil and Cup (g)	30.5	35.37	30.32	Weight of Wet Soil and Cup (g)	31.41	31.28
Weight of Dry Soil and Cup (g)	28.62	32.91	27.68	Weight of Dry Soil and Cup (g)	30.95	30.88
Moisure Content (%)	31.3	29.6	30.9	Moisure Content (%)	27.2	24.7
Blow Counts	15	30	21			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

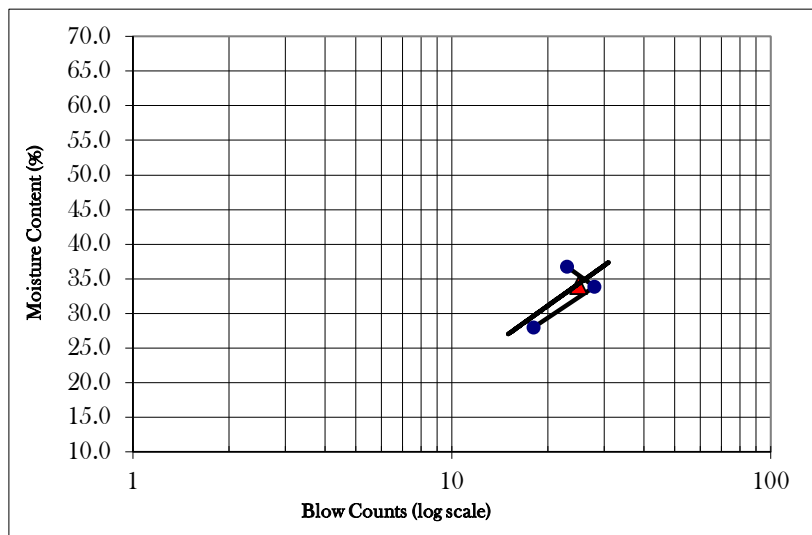
**Project Location : Bashkhali, Veribadh, Muhuri Project, Osmanpur**

Sample Information:

Sample Date: 20-02-18  
 Test Date: 04-04-18  
 Boring Number M19  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	2033	CT-60	Cup Number	56	56
Weight of Cup (g)	55.5	38.09	21.93	Weight of Cup (g)	19.01	19.01
Weight of Wet Soil and Cup (g)	69.57	50.85	36.94	Weight of Wet Soil and Cup (g)	21.44	21.56
Weight of Dry Soil and Cup (g)	65.79	47.62	33.66	Weight of Dry Soil and Cup (g)	20.9	21.06
Moisture Content (%)	36.7	33.9	28.0	Moisture Content (%)	28.6	24.4
Blow Counts	23	28	18			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	26
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

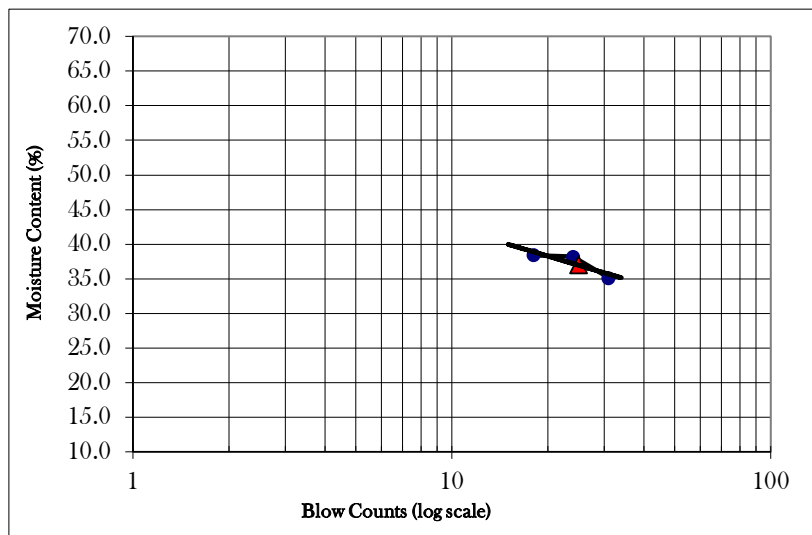
**Project Location : Bashkhali, Veribadh, Muhuri Project, Osmanpur**

Sample Information:

Sample Date: 20-02-18  
 Test Date: 04-04-18  
 Boring Number M19  
 Sample Number 16  
 Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	214	211	CtD-2	Cup Number	Ct5	Ct5
Weight of Cup (g)	18.89	18.97	22.55	Weight of Cup (g)	21.51	21.51
Weight of Wet Soil and Cup (g)	27.39	28.56	30.08	Weight of Wet Soil and Cup (g)	23.6	23.68
Weight of Dry Soil and Cup (g)	25.18	25.91	27.99	Weight of Dry Soil and Cup (g)	23.21	23.28
Moisure Content (%)	35.1	38.2	38.4	Moisure Content (%)	22.9	22.6
Blow Counts	31	24	18			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	23
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : 39 no. East Shahedpur Govt. Primary School, Azampur**

Sample Information:

Sample Date: 19-02-18

Test Date: 15-04-18

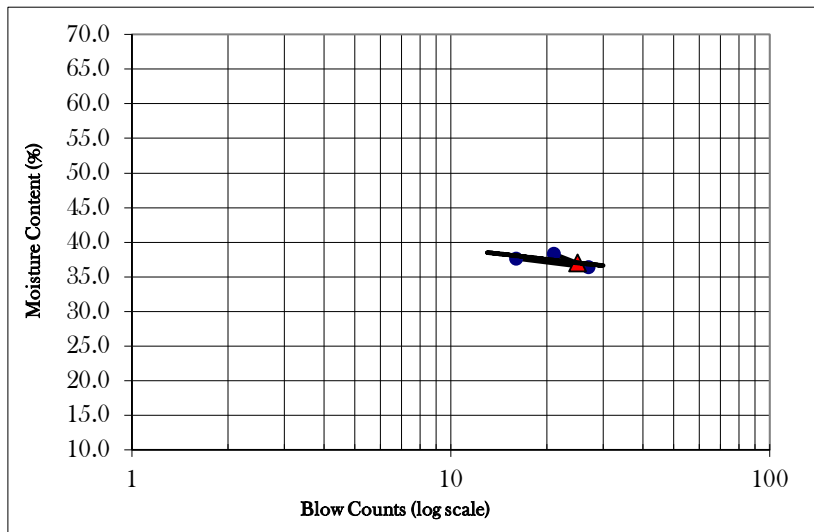
Boring Number M20

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	301	CT-111	Cup Number	6P	6P
Weight of Cup (g)	18.23	18.37	18.92	Weight of Cup (g)	35.14	35.14
Weight of Wet Soil and Cup (g)	29.46	30.78	33.51	Weight of Wet Soil and Cup (g)	37.77	37.52
Weight of Dry Soil and Cup (g)	26.39	27.47	29.47	Weight of Dry Soil and Cup (g)	37.14	36.93
Moisure Content (%)	37.6	36.4	38.3	Moisure Content (%)	31.5	33.0
Blow Counts	16	27	21			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	32
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : 39 no. East Shahedpur Govt. Primary School, Azampur**

Sample Information:

Sample Date: 19-02-18

Test Date: 15-04-18

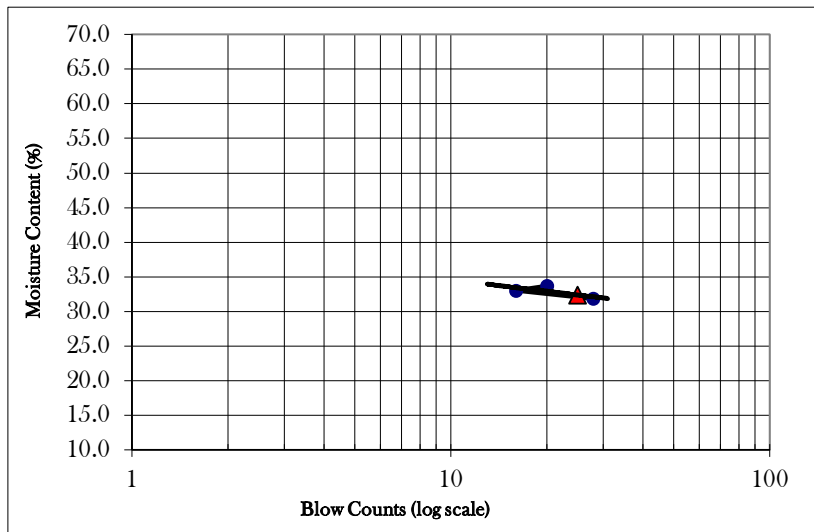
Boring Number M20

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	10	21A	2033	Cup Number	35	35
Weight of Cup (g)	36.26	37.8	38.11	Weight of Cup (g)	65.81	65.81
Weight of Wet Soil and Cup (g)	49.49	48.12	49.59	Weight of Wet Soil and Cup (g)	68.25	68.34
Weight of Dry Soil and Cup (g)	46.16	45.56	46.82	Weight of Dry Soil and Cup (g)	67.66	67.75
Moisture Content (%)	33.6	33.0	31.8	Moisture Content (%)	31.9	30.4
Blow Counts	20	16	28			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	31
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

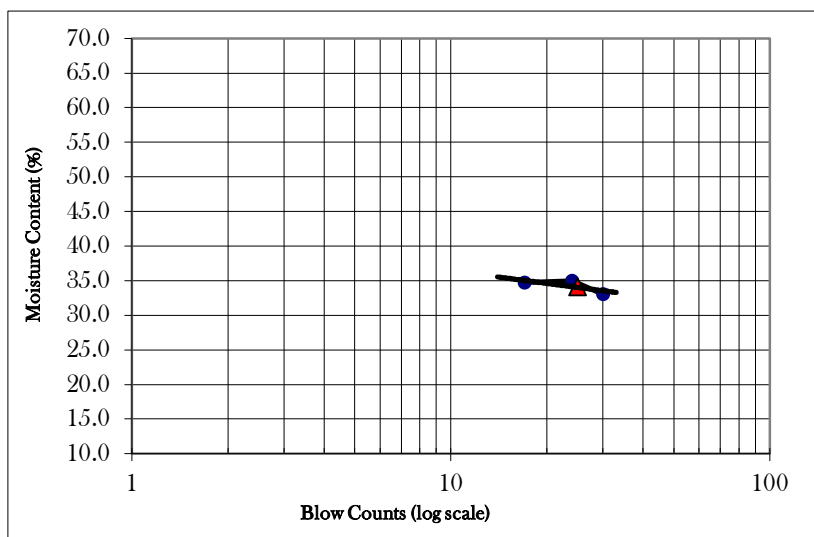
**Project Location : East Moregang Jame Mosque, Osmanpur**

Sample Information:

Sample Date: 21-02-18  
 Test Date: 03-04-18  
 Boring Number M21  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	220	21A	202	Cup Number	14	14
Weight of Cup (g)	36.63	37.79	58.62	Weight of Cup (g)	36.32	36.32
Weight of Wet Soil and Cup (g)	56.35	60.91	78.96	Weight of Wet Soil and Cup (g)	38.87	38.48
Weight of Dry Soil and Cup (g)	51.27	54.92	73.91	Weight of Dry Soil and Cup (g)	38.38	38.01
Moisure Content (%)	34.7	35.0	33.0	Moisure Content (%)	23.8	27.8
Blow Counts	17	24	30			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	26
Plasticity Index	8





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

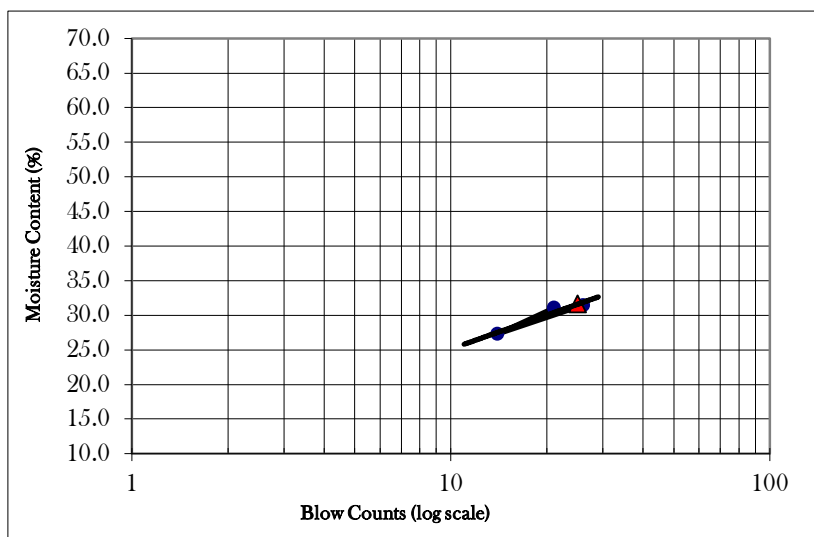
**Project Location : East Moregang Jame Mosque, Osmanpur**

Sample Information:

Sample Date: 21-02-18  
 Test Date: 03-04-18  
 Boring Number M21  
 Sample Number 18  
 Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	105	102	214	Cup Number	Can18	Can18
Weight of Cup (g)	55.47	14.27	18.9	Weight of Cup (g)	32.74	32.74
Weight of Wet Soil and Cup (g)	63.37	28.22	29.75	Weight of Wet Soil and Cup (g)	35.21	35.57
Weight of Dry Soil and Cup (g)	61.48	25.23	27.18	Weight of Dry Soil and Cup (g)	34.68	34.99
Moisure Content (%)	31.4	27.3	31.0	Moisure Content (%)	27.3	25.8
Blow Counts	26	14	21			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	27
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Patacoat, Azampur, Osmanpur**

Sample Information:

Sample Date: 20/02/2018

Test Date: 31/03/2018

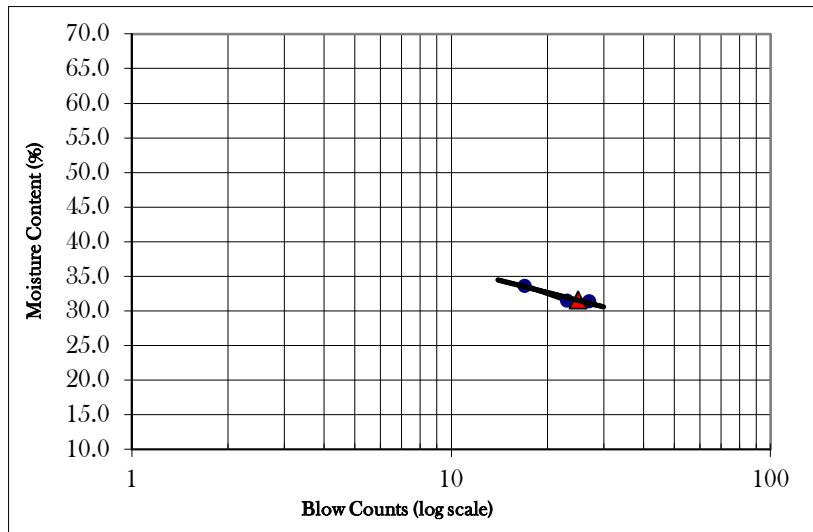
Boring Number M22

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	17A	210	Cup Number	105	105
Weight of Cup (g)	29.62	36.98	37.75	Weight of Cup (g)	55.5	55.5
Weight of Wet Soil and Cup (g)	40	49.62	51.26	Weight of Wet Soil and Cup (g)	58.16	58.09
Weight of Dry Soil and Cup (g)	37.52	46.59	47.86	Weight of Dry Soil and Cup (g)	57.57	57.53
Moisure Content (%)	31.4	31.5	33.6	Moisure Content (%)	28.5	27.6
Blow Counts	27	23	17			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	28
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Patacoat, Azampur, Osmanpur**

Sample Information:

Sample Date: 20/02/2018

Test Date: 31/03/2018

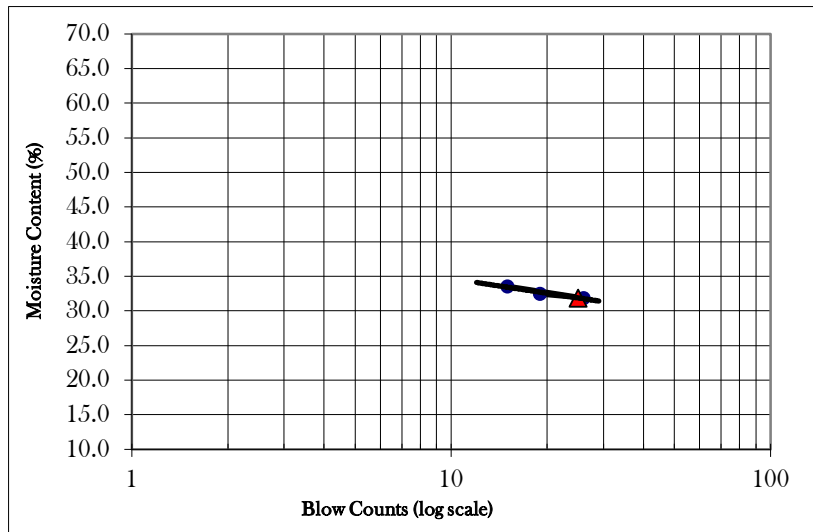
Boring Number M22

Sample Number 19

Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	19	Can216	22	Cup Number	215	215
Weight of Cup (g)	37.12	36.83	36.96	Weight of Cup (g)	59.43	59.43
Weight of Wet Soil and Cup (g)	42.69	41.92	43.98	Weight of Wet Soil and Cup (g)	61.96	61.92
Weight of Dry Soil and Cup (g)	41.29	40.69	42.26	Weight of Dry Soil and Cup (g)	61.43	61.56
Moisture Content (%)	33.6	31.9	32.5	Moisture Content (%)	26.5	16.9
Blow Counts	15	26	19			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	22
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

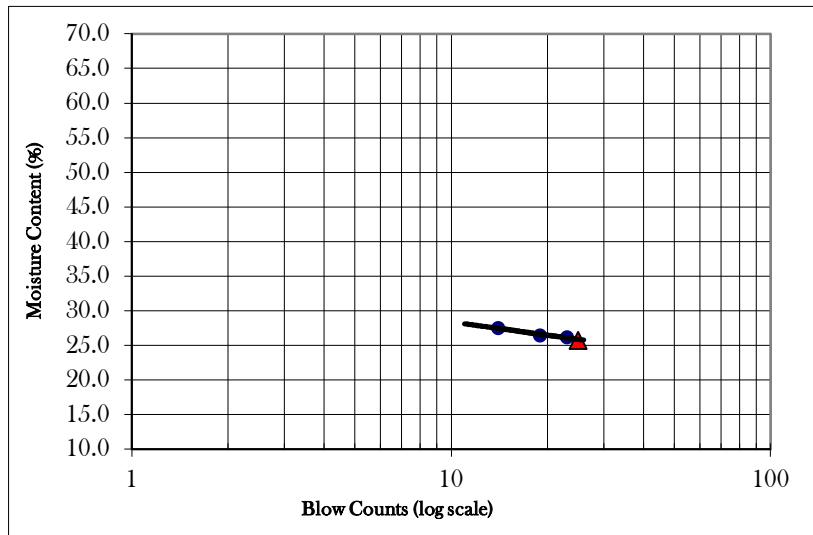
**Project Location : 68 north durgapur Primary School, Varoddaj hat**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 28/3/2018  
 Boring Number M23  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	14	9P	109	Cup Number	13	13
Weight of Cup (g)	36.37	24.56	33.88	Weight of Cup (g)	23.75	23.75
Weight of Wet Soil and Cup (g)	48.42	35.4	45.42	Weight of Wet Soil and Cup (g)	25.94	25.3
Weight of Dry Soil and Cup (g)	45.92	33.13	42.93	Weight of Dry Soil and Cup (g)	25.55	25.04
Moisture Content (%)	26.2	26.5	27.5	Moisture Content (%)	21.7	20.2
Blow Counts	23	19	14			

### Compilation of Test Results



Liquid Limit	26
Plastic Limit	21
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

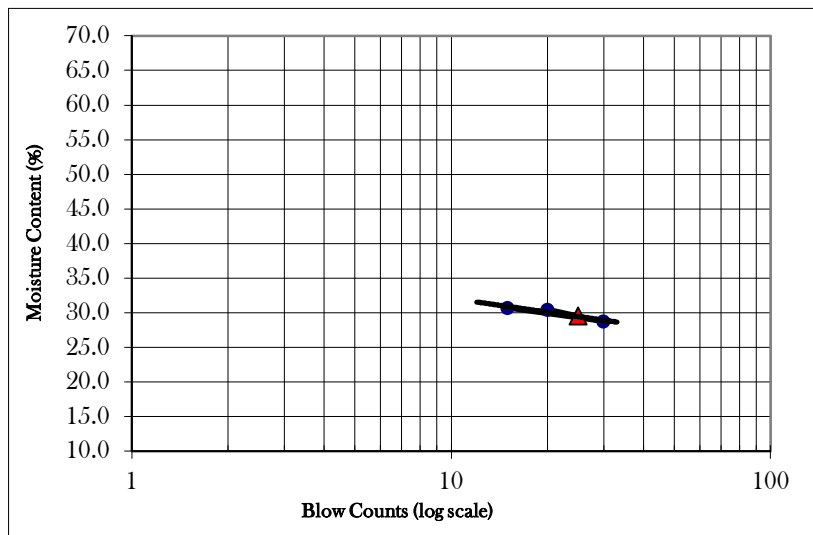
**Project Location : 68 north durgapur Primary School, Varoddaj hat**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 28/3/2018  
 Boring Number M23  
 Sample Number 14  
 Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct05	C300	Ct60	Cup Number	Cr01	Cr01
Weight of Cup (g)	21.52	24.34	22.11	Weight of Cup (g)	24.51	24.51
Weight of Wet Soil and Cup (g)	27.61	33.16	31.91	Weight of Wet Soil and Cup (g)	27.24	26.99
Weight of Dry Soil and Cup (g)	26.18	31.19	29.62	Weight of Dry Soil and Cup (g)	26.59	26.54
Moisture Content (%)	30.7	28.8	30.5	Moisture Content (%)	31.3	22.2
Blow Counts	15	30	20			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	27
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

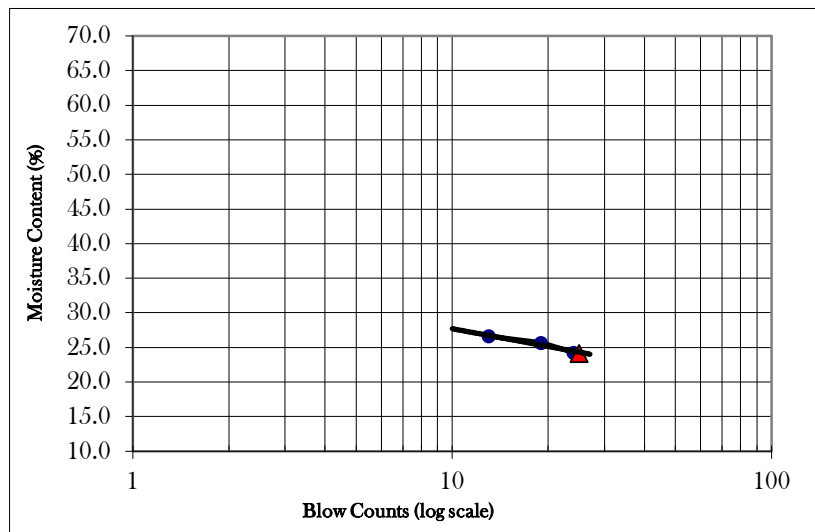
**Project Location : East Raypur Baitul Aman Jame Mosque, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 03-12-18  
 Boring Number M24  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C-300	9P	CT-5	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	24.47	24.61	21.52	Weight of Cup (g)	35.42	35.42
Weight of Wet Soil and Cup (g)	32.89	33.28	31.71	Weight of Wet Soil and Cup (g)	39.47	38.39
Weight of Dry Soil and Cup (g)	31.12	31.51	29.72	Weight of Dry Soil and Cup (g)	38.78	37.79
Moisture Content (%)	26.6	25.7	24.3	Moisture Content (%)	20.5	25.3
Blow Counts	13	19	24			

### Compilation of Test Results





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

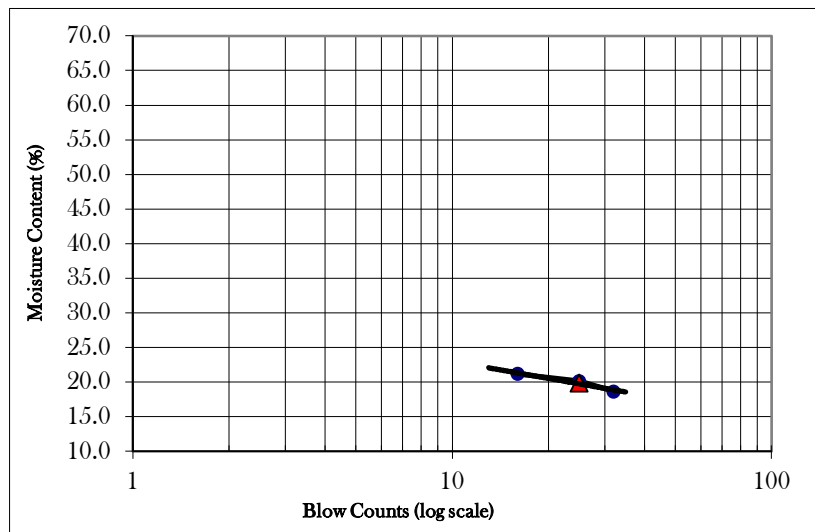
**Project Location : East Raypur Baitul Aman Jame Mosque, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 03-12-18  
 Boring Number M24  
 Sample Number 07  
 Depth of Sample(m) 10.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Pan15	102	Cup Number	22	22
Weight of Cup (g)	55.45	29.94	22.67	Weight of Cup (g)	37.09	37.09
Weight of Wet Soil and Cup (g)	67.93	43.19	41.2	Weight of Wet Soil and Cup (g)	40.35	39.8
Weight of Dry Soil and Cup (g)	65.97	40.97	37.96	Weight of Dry Soil and Cup (g)	39.88	39.42
Moisire Content (%)	18.6	20.1	21.2	Moisire Content (%)	16.8	16.3
Blow Counts	32	25	16			

### Compilation of Test Results



Liquid Limit	20
Plastic Limit	17
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : East Raypur Baitul Aman Jame Mosque, Durgapur**

Sample Information:

Sample Date: 02-01-18

Test Date: 03-12-18

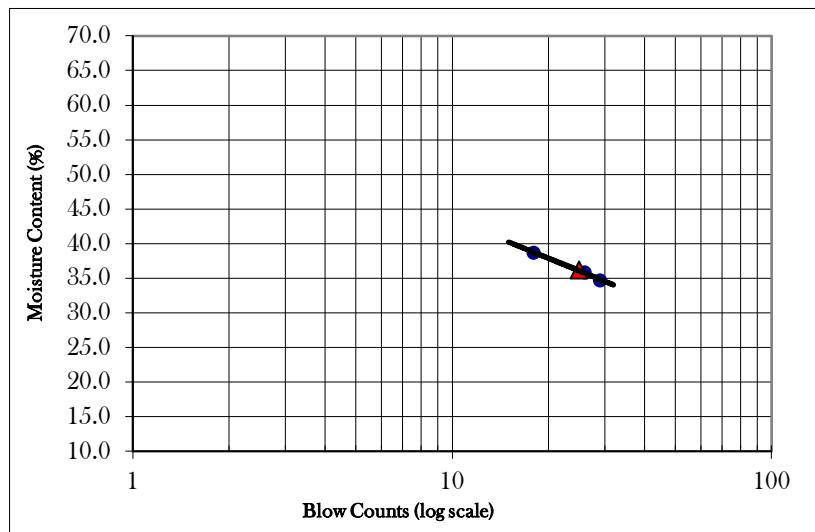
Boring Number M24

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-15	56	Cup Number	213	213
Weight of Cup (g)	23.88	35.41	19.01	Weight of Cup (g)	23.81	23.81
Weight of Wet Soil and Cup (g)	35.01	47.23	30.08	Weight of Wet Soil and Cup (g)	26.36	26.62
Weight of Dry Soil and Cup (g)	32.14	44.11	26.99	Weight of Dry Soil and Cup (g)	25.8	26.01
Moisture Content (%)	34.7	35.9	38.7	Moisture Content (%)	28.1	27.7
Blow Counts	29	26	18			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	28
Plasticity Index	8





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

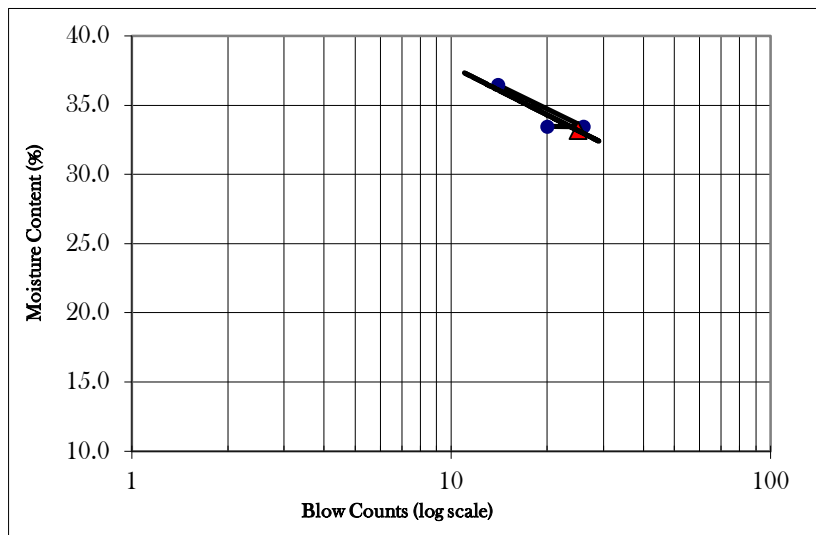
**Project Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 13/03/2018  
 Boring Number M25  
 Sample Number 04  
 Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	Ct112	201	Cup Number	12	12
Weight of Cup (g)	18.15	13.98	32.2	Weight of Cup (g)	27.23	27.23
Weight of Wet Soil and Cup (g)	29.94	27.03	46.36	Weight of Wet Soil and Cup (g)	29.68	29.11
Weight of Dry Soil and Cup (g)	26.79	23.76	42.81	Weight of Dry Soil and Cup (g)	29.15	28.73
Moisure Content (%)	36.5	33.4	33.5	Moisure Content (%)	27.6	25.3
Blow Counts	14	26	20			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	26
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

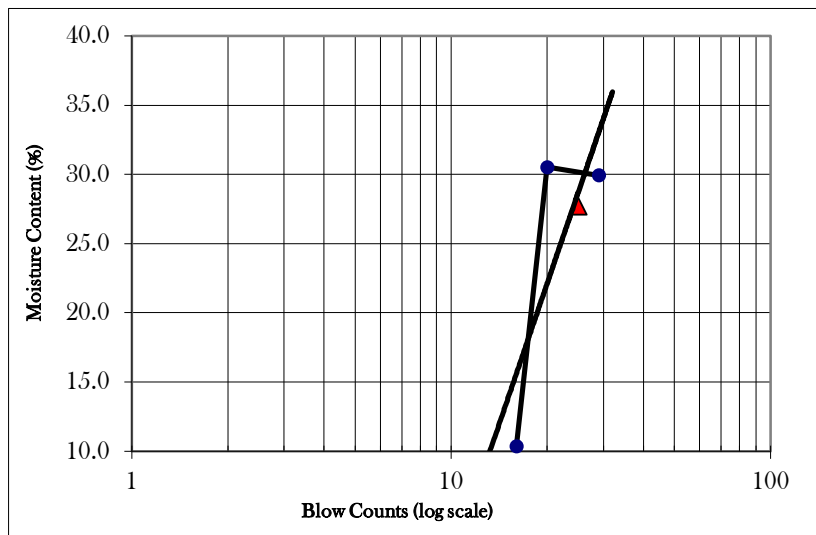
**Project Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 13/03/2018  
 Boring Number M25  
 Sample Number 08  
 Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct60	102	10	Cup Number	Ct111-2	Ct111-2
Weight of Cup (g)	22.09	14.24	36.25	Weight of Cup (g)	19.56	19.56
Weight of Wet Soil and Cup (g)	33.29	23.09	50.18	Weight of Wet Soil and Cup (g)	22.8	21.85
Weight of Dry Soil and Cup (g)	30.71	21.02	48.87	Weight of Dry Soil and Cup (g)	22.12	21.43
Moisure Content (%)	29.9	30.5	10.4	Moisure Content (%)	26.6	22.5
Blow Counts	29	20	16			

### Compilation of Test Results



Liquid Limit	28
Plastic Limit	25
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

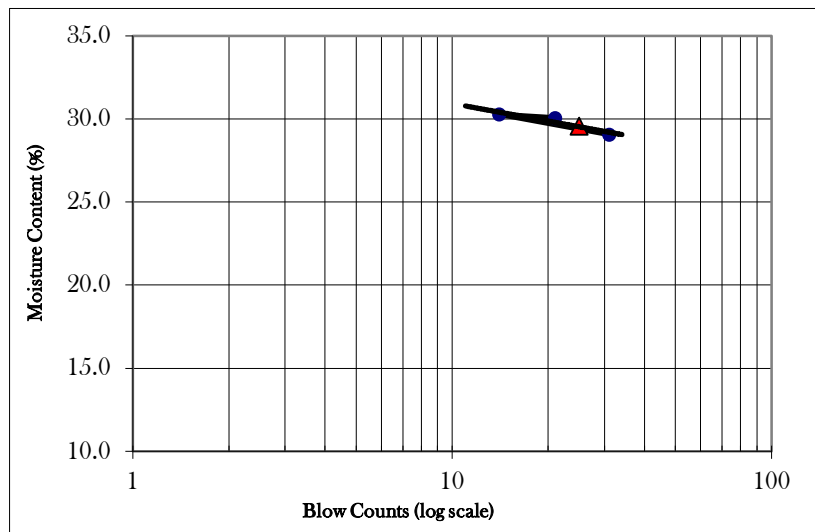
**Project Location : Jaforer Poultry Farm, Choitonner Hat, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 13/03/2018  
 Boring Number M25  
 Sample Number 21  
 Depth of Sample(m) 14.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	56	CT-2	Cup Number	12	12
Weight of Cup (g)	23.73	10	22.16	Weight of Cup (g)	27.19	27.19
Weight of Wet Soil and Cup (g)	35.81	29.49	36.91	Weight of Wet Soil and Cup (g)	29.67	29.59
Weight of Dry Soil and Cup (g)	33.09	24.96	33.5	Weight of Dry Soil and Cup (g)	29.28	29.07
Moisure Content (%)	29.1	30.3	30.1	Moisure Content (%)	18.7	27.7
Blow Counts	31	14	21			

### Compilation of Test Results



Liquid Limit	<u>30</u>
Plastic Limit	<u>23</u>
Plasticity Index	<u>7</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

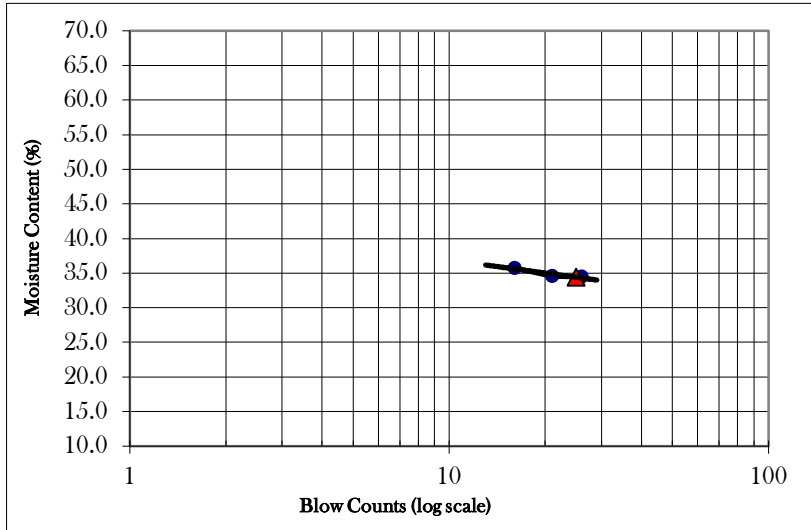
**Project Location : Tetuiana Nath Para, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 16/03/2018  
 Boring Number: M26  
 Sample Number: 02  
 Depth of Sample(m): 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	14	10	220	Cup Number	107	107
Weight of Cup (g)	36.37	36.24	36.63	Weight of Cup (g)	55.46	55.46
Weight of Wet Soil and Cup (g)	45.22	47.02	49.04	Weight of Wet Soil and Cup (g)	57.76	57.59
Weight of Dry Soil and Cup (g)	42.89	44.25	45.86	Weight of Dry Soil and Cup (g)	57.23	57.09
Moisture Content (%)	35.7	34.6	34.5	Moisture Content (%)	29.9	30.7
Blow Counts	16	21	26			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	30
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

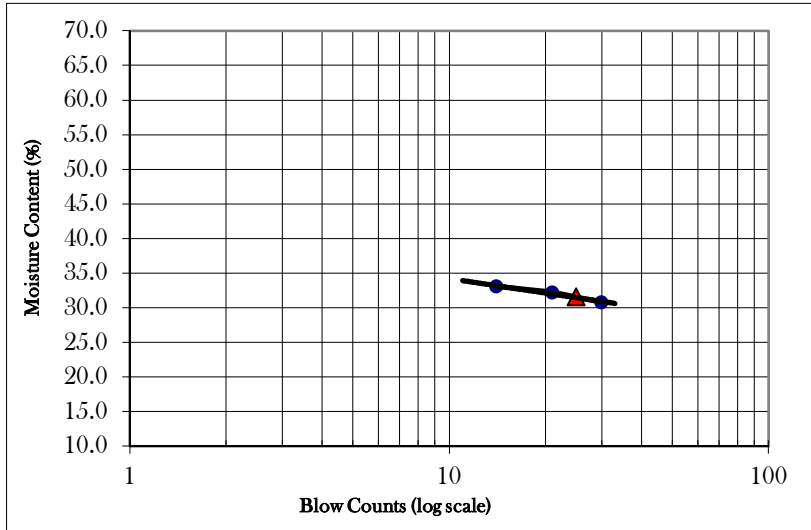
**Project Location : Tetuiana Nath Para, Durgapur**

Sample Information:

Sample Date: 02-01-18  
 Test Date: 16/03/2018  
 Boring Number M26  
 Sample Number 19  
 Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	220	202	Cup Number	203	203
Weight of Cup (g)	29.85	36.63	58.64	Weight of Cup (g)	44.94	44.94
Weight of Wet Soil and Cup (g)	38.5	48.61	71.81	Weight of Wet Soil and Cup (g)	47.79	47.88
Weight of Dry Soil and Cup (g)	36.35	45.69	68.71	Weight of Dry Soil and Cup (g)	47.18	47.24
Moisure Content (%)	33.1	32.2	30.8	Moisure Content (%)	27.2	27.8
Blow Counts	14	21	30			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	28
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

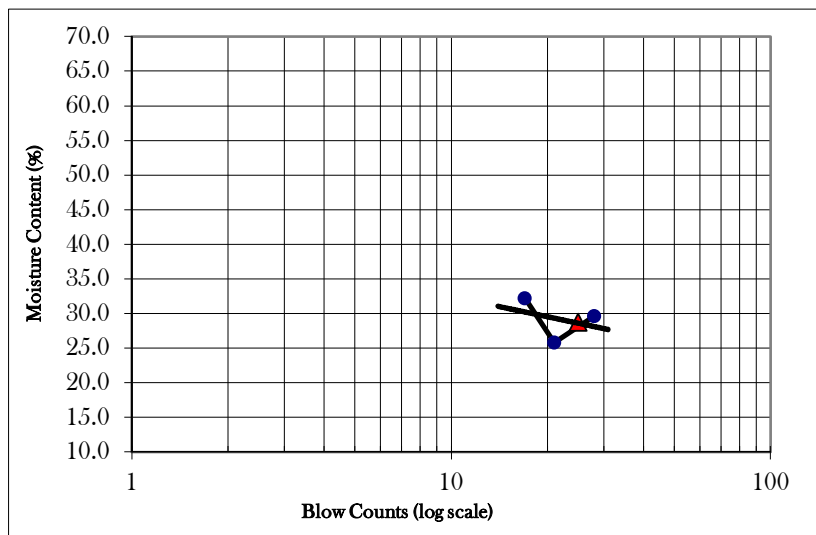
**Project Location : Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 14/03/2018  
 Boring Number M27  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	56	8	Cup Number	409	409
Weight of Cup (g)	23.4	19.04	23.86	Weight of Cup (g)	33.89	33.89
Weight of Wet Soil and Cup (g)	37.34	33.43	40.93	Weight of Wet Soil and Cup (g)	35.73	36.13
Weight of Dry Soil and Cup (g)	33.94	30.48	37.03	Weight of Dry Soil and Cup (g)	35.35	35.71
Moisure Content (%)	32.3	25.8	29.6	Moisure Content (%)	26.0	23.1
Blow Counts	17	21	28			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	25
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

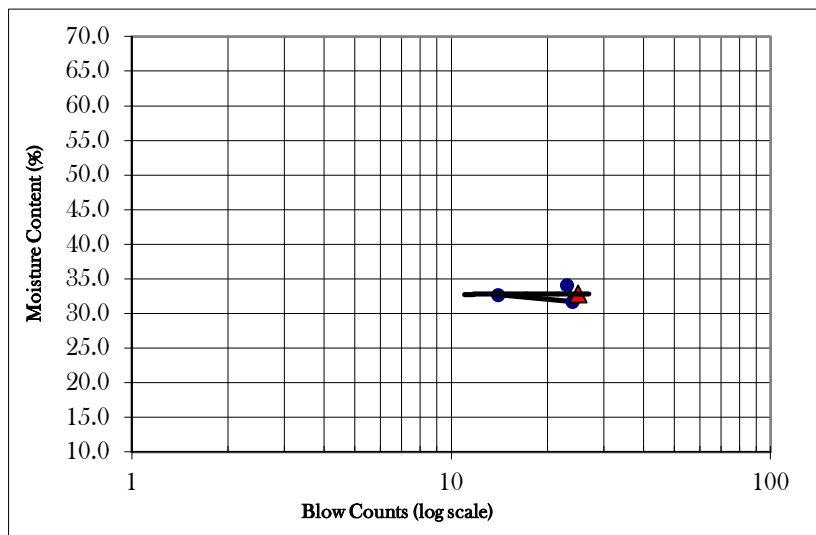
**Project Location : Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 14/03/2018  
 Boring Number M27  
 Sample Number 19  
 Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	3	8	Cup Number	C-300	C-300
Weight of Cup (g)	29.25	42.1	44.25	Weight of Cup (g)	24.47	24.47
Weight of Wet Soil and Cup (g)	40.21	54.82	57.31	Weight of Wet Soil and Cup (g)	27.62	26.91
Weight of Dry Soil and Cup (g)	37.51	51.76	53.99	Weight of Dry Soil and Cup (g)	27.01	26.49
Moisure Content (%)	32.7	31.7	34.1	Moisure Content (%)	24.0	20.8
Blow Counts	14	24	23			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	22
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bamon Shundor Govt. Primary School, Kata Chora**

Sample Information:

Sample Date: 17-02-18

Test Date: 07-04-18

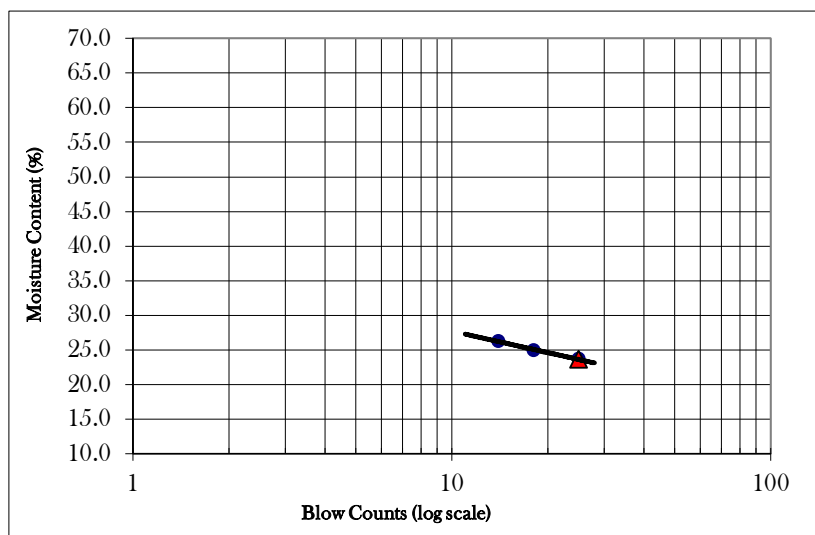
Boring Number M28

Sample Number 06

Depth of Sample(m) 9.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	2	CT-111	Cup Number	107	107
Weight of Cup (g)	29.25	29.57	18.92	Weight of Cup (g)	33.35	33.35
Weight of Wet Soil and Cup (g)	41.32	43.4	32.72	Weight of Wet Soil and Cup (g)	38.12	37.85
Weight of Dry Soil and Cup (g)	38.81	40.64	30.08	Weight of Dry Soil and Cup (g)	37.25	36.99
Moisure Content (%)	26.3	24.9	23.7	Moisure Content (%)	22.3	23.6
Blow Counts	14	18	25			

### Compilation of Test Results



Liquid Limit	24
Plastic Limit	23
Plasticity Index	1





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Bamon Shundor Govt. Primary School, Kata Chora**

Sample Information:

Sample Date: 17-02-18

Test Date: 07-04-18

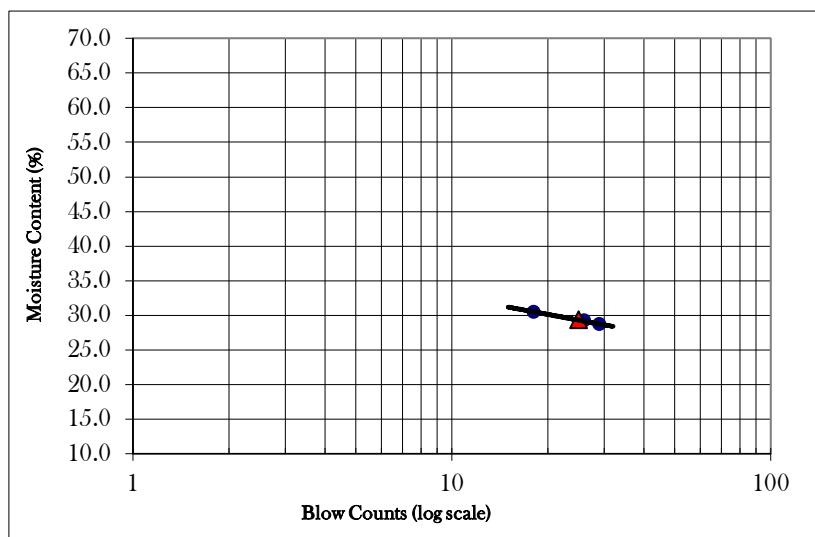
Boring Number M28

Sample Number 15

Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	56	5P	220	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	19	23.9	36.63	Weight of Cup (g)	35.43	35.43
Weight of Wet Soil and Cup (g)	33.51	36.91	50.61	Weight of Wet Soil and Cup (g)	38.68	38.69
Weight of Dry Soil and Cup (g)	30.12	34.01	47.45	Weight of Dry Soil and Cup (g)	37.99	38.01
Moisure Content (%)	30.5	28.7	29.2	Moisure Content (%)	27.0	26.4
Blow Counts	18	29	26			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	27
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ahmed Ali Miar Hat Govt Primary School, Kata Chora**

Sample Information:

Sample Date: 18/02/2018

Test Date: 22/03/2018

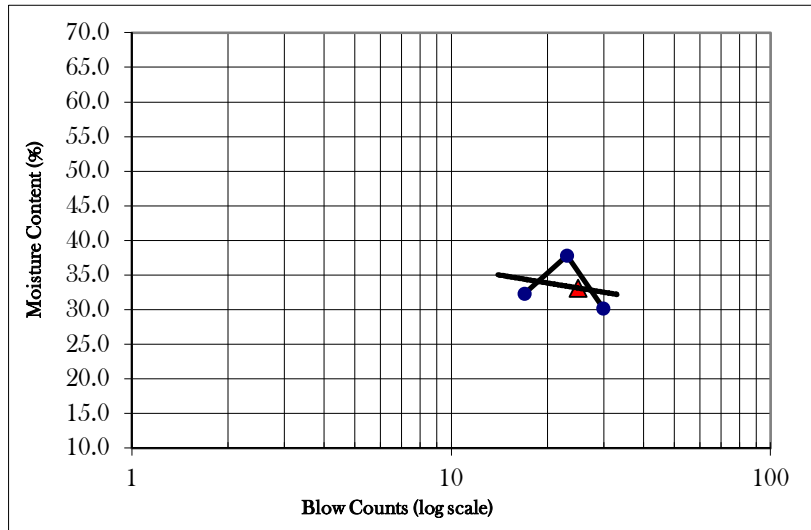
Boring Number M29

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	215	302	108	Cup Number	12	12
Weight of Cup (g)	59.41	12.17	56.28	Weight of Cup (g)	27.2	27.2
Weight of Wet Soil and Cup (g)	81.19	32.25	75.44	Weight of Wet Soil and Cup (g)	30.8	30.23
Weight of Dry Soil and Cup (g)	75.87	26.74	71	Weight of Dry Soil and Cup (g)	30.08	29.61
Moisure Content (%)	32.3	37.8	30.2	Moisure Content (%)	25.0	25.7
Blow Counts	17	23	30			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	25
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ahmed Ali Miar Hat Govt Primary School, Kata Chora**

Sample Information:

Sample Date: 18/02/2018

Test Date: 22/03/2018

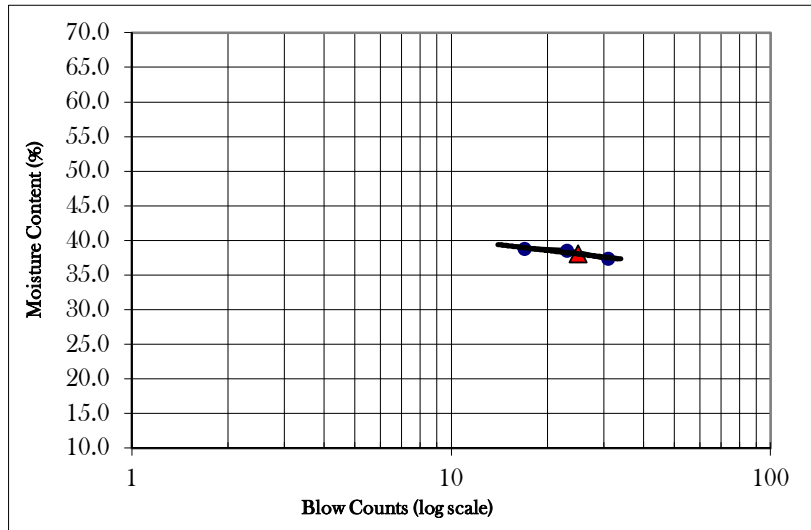
Boring Number M29

Sample Number 13

Depth of Sample(m) 19.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct-60	210	13	Cup Number	CT-NO	CT-NO
Weight of Cup (g)	22.22	37.73	23.73	Weight of Cup (g)	29.93	29.93
Weight of Wet Soil and Cup (g)	35.49	52.08	42.95	Weight of Wet Soil and Cup (g)	33.79	33.08
Weight of Dry Soil and Cup (g)	31.78	48.09	37.72	Weight of Dry Soil and Cup (g)	33.06	32.45
Moisure Content (%)	38.8	38.5	37.4	Moisure Content (%)	23.3	25.0
Blow Counts	17	23	31			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	24
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Gudaimmar tek, Ichakhali**

Sample Information:

Sample Date: 27/01/2018

Test Date: 15-02-18

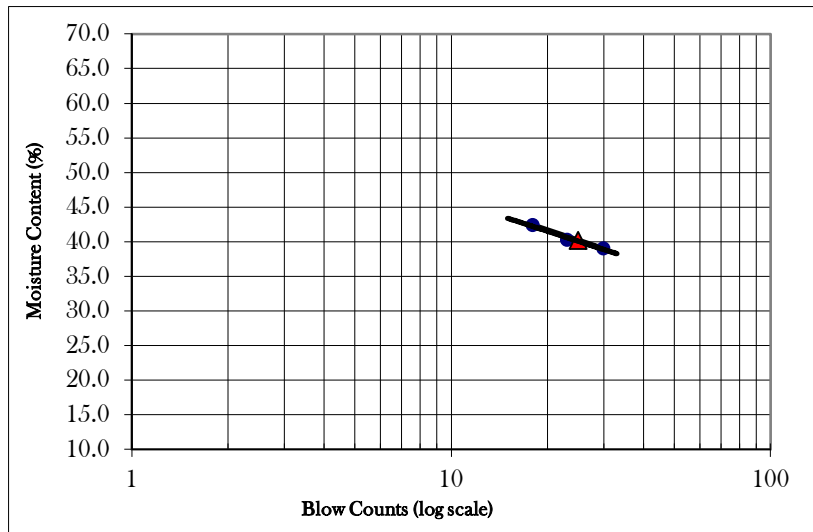
Boring Number M30

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	22	210	7P	Cup Number	108	108
Weight of Cup (g)	36.95	37.7	18.2	Weight of Cup (g)	56.34	56.34
Weight of Wet Soil and Cup (g)	61.68	55.54	41.41	Weight of Wet Soil and Cup (g)	58.62	57.87
Weight of Dry Soil and Cup (g)	54.58	50.53	34.5	Weight of Dry Soil and Cup (g)	58.15	57.57
Moisture Content (%)	40.3	39.0	42.4	Moisture Content (%)	26.0	24.4
Blow Counts	23	30	18			

### Compilation of Test Results



Liquid Limit	40
Plastic Limit	25
Plasticity Index	15



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Gudaimmar tek, Ichakhali**

Sample Information:

Sample Date: 27/01/2018

Test Date: 15-02-18

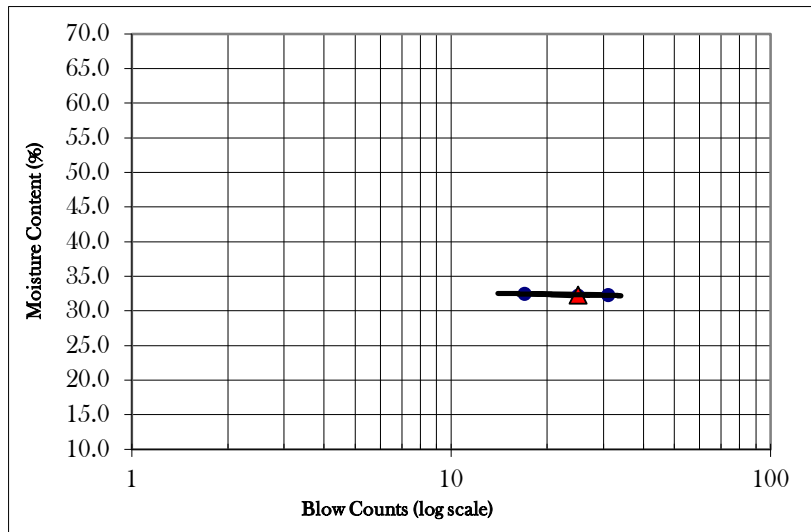
Boring Number M30

Sample Number 15

Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Ct-60	Pan15	Cup Number	109	109
Weight of Cup (g)	33.4	22.49	30	Weight of Cup (g)	33.9	33.9
Weight of Wet Soil and Cup (g)	49.65	32.68	43.56	Weight of Wet Soil and Cup (g)	35.79	36.19
Weight of Dry Soil and Cup (g)	45.68	30.18	40.26	Weight of Dry Soil and Cup (g)	35.36	35.67
Moisture Content (%)	32.3	32.5	32.2	Moisture Content (%)	29.5	29.4
Blow Counts	31	17	25			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali**

Sample Information:

Sample Date: 15/02/2018

Test Date: 31/03/2018

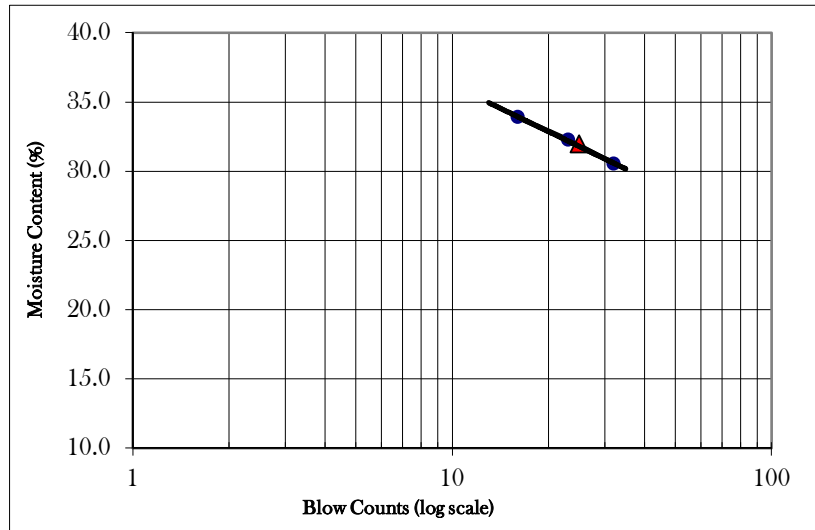
Boring Number M31

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	104	13	102	Cup Number	1011	1011
Weight of Cup (g)	22.59	36.78	22.58	Weight of Cup (g)	28.4	28.4
Weight of Wet Soil and Cup (g)	31.16	45.1	32.41	Weight of Wet Soil and Cup (g)	30.95	30.75
Weight of Dry Soil and Cup (g)	28.99	43.07	30.11	Weight of Dry Soil and Cup (g)	30.4	30.21
Moisure Content (%)	33.9	32.3	30.5	Moisure Content (%)	27.5	29.8
Blow Counts	16	23	32			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali**

Sample Information:

Sample Date: 15/02/2018

Test Date: 31/03/2018

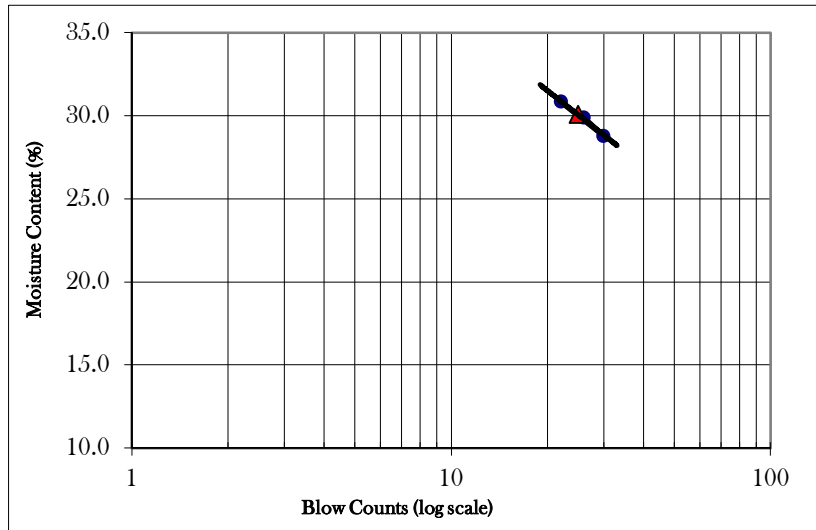
Boring Number M31

Sample Number 19

Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Can18	3	8	Cup Number	108	108
Weight of Cup (g)	32.77	42.11	44.26	Weight of Cup (g)	56.32	56.32
Weight of Wet Soil and Cup (g)	44.52	56.78	62.38	Weight of Wet Soil and Cup (g)	59.94	59.91
Weight of Dry Soil and Cup (g)	41.75	53.5	58.21	Weight of Dry Soil and Cup (g)	59.2	59.25
Moisure Content (%)	30.8	28.8	29.9	Moisure Content (%)	25.7	22.5
Blow Counts	22	30	26			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	24
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

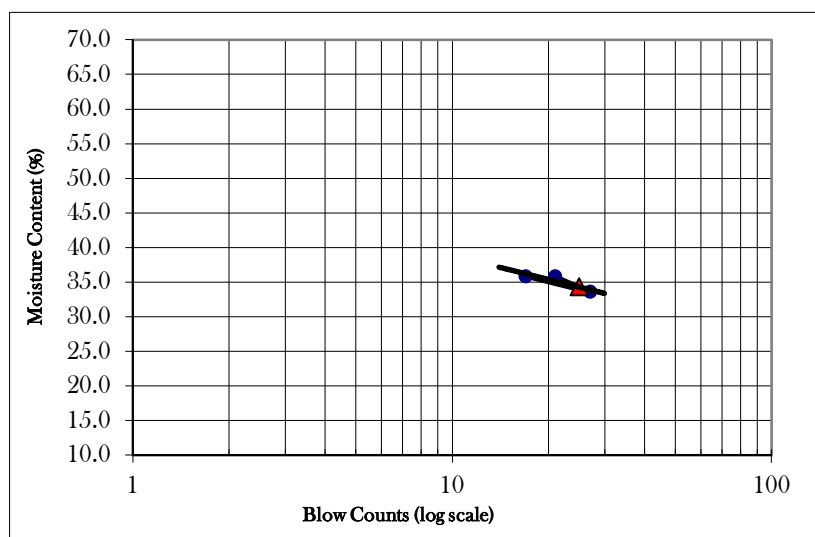
**Project Location : Jobayeda Islam Nurani Islamia madrasha**

Sample Information:

Sample Date: 18-02-18  
 Test Date: 25-03-18  
 Boring Number M32  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7	Ct-NO	Cr-01	Cup Number	Ct D-2	Ct D-2
Weight of Cup (g)	23.94	29.94	24.59	Weight of Cup (g)	22.53	22.53
Weight of Wet Soil and Cup (g)	36	40	37.59	Weight of Wet Soil and Cup (g)	25.1	24.82
Weight of Dry Soil and Cup (g)	32.82	37.47	34.16	Weight of Dry Soil and Cup (g)	24.58	24.32
Moisure Content (%)	35.8	33.6	35.8	Moisure Content (%)	25.4	27.9
Blow Counts	21	27	17			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	27
Plasticity Index	8





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jobayeda Islam Nurani Islamia madrasha**

Sample Information:

Sample Date: 18-02-18

Test Date: 25-03-18

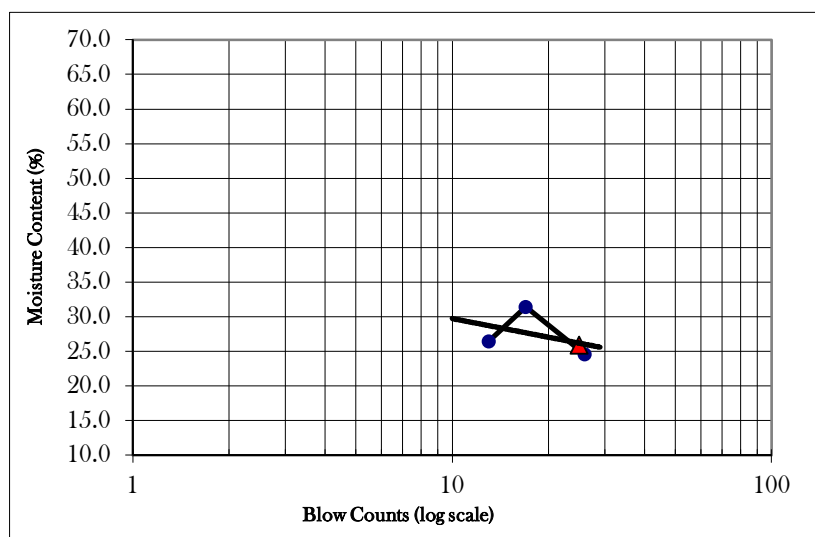
Boring Number M32

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C-300	9P	CT-5	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	24.46	24.62	21.51	Weight of Cup (g)	35.43	35.43
Weight of Wet Soil and Cup (g)	32.88	33.28	31.85	Weight of Wet Soil and Cup (g)	39.45	38.37
Weight of Dry Soil and Cup (g)	31.12	31.21	29.81	Weight of Dry Soil and Cup (g)	38.76	37.79
Moisure Content (%)	26.4	31.4	24.6	Moisure Content (%)	20.7	24.6
Blow Counts	13	17	26			

### Compilation of Test Results



Liquid Limit	26
Plastic Limit	23
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Muhuri Project, Sluice Gate, Ichakhali**

Sample Information:

Sample Date: 19/02/2018

Test Date: 22/03/2018

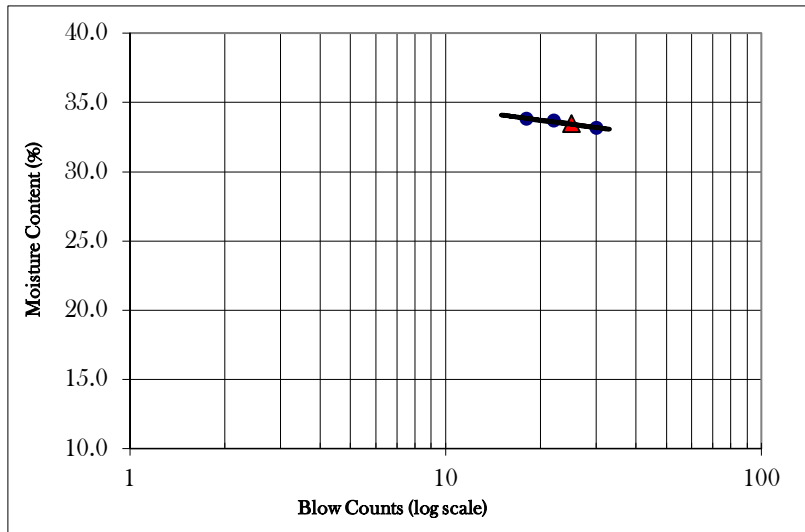
Boring Number M33

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	113	Pan15	220	Cup Number	109	109
Weight of Cup (g)	25.98	29.96	36.61	Weight of Cup (g)	33.9	33.9
Weight of Wet Soil and Cup (g)	41.34	54.1	51.49	Weight of Wet Soil and Cup (g)	37.79	37.96
Weight of Dry Soil and Cup (g)	37.47	48.09	47.73	Weight of Dry Soil and Cup (g)	36.95	37.09
Moisire Content (%)	33.7	33.1	33.8	Moisire Content (%)	27.5	27.3
Blow Counts	22	30	18			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	27
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Muhuri Project, Sluice Gate, Ichakhali**

Sample Information:

Sample Date: 19/02/2018

Test Date: 22/03/2018

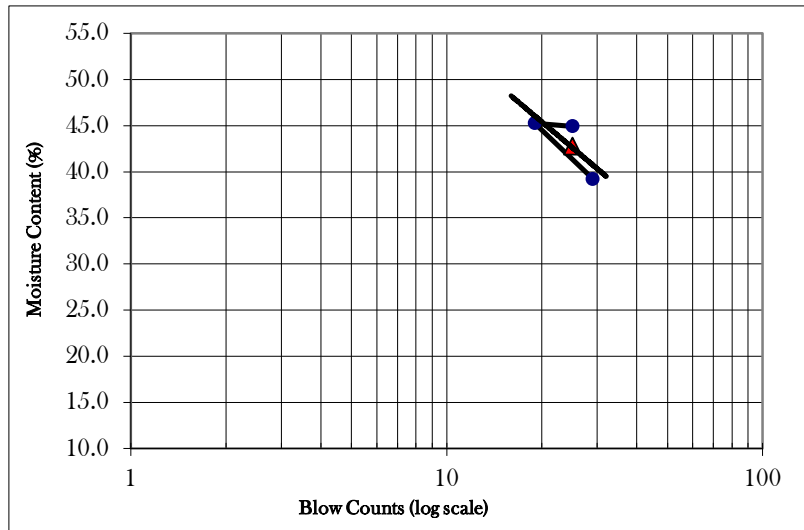
Boring Number M33

Sample Number 17

Depth of Sample(m) 25.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	19	111	Cup Number	15	15
Weight of Cup (g)	29.85	37.1	29.06	Weight of Cup (g)	37.25	37.25
Weight of Wet Soil and Cup (g)	39.04	43.52	37.61	Weight of Wet Soil and Cup (g)	39.36	39.29
Weight of Dry Soil and Cup (g)	36.45	41.52	34.96	Weight of Dry Soil and Cup (g)	38.92	38.99
Moisture Content (%)	39.2	45.2	44.9	Moisture Content (%)	26.3	17.2
Blow Counts	29	19	25			

### Compilation of Test Results



Liquid Limit	43
Plastic Limit	22
Plasticity Index	21



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

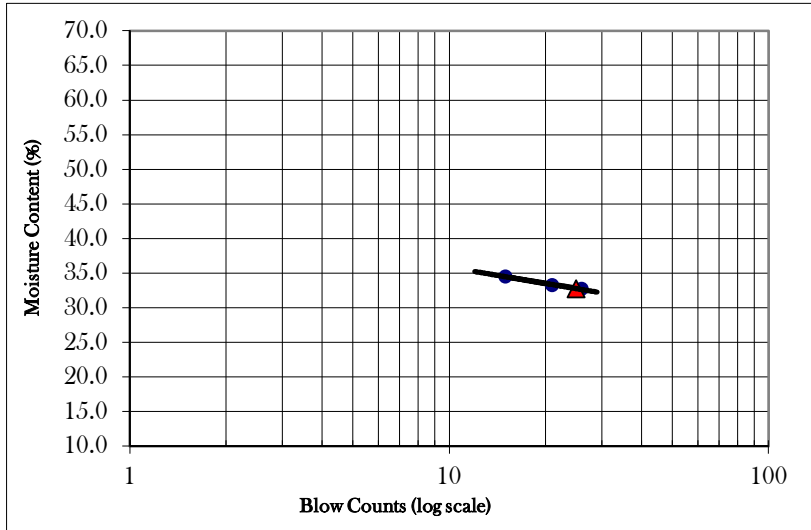
**Project Location : Bamonshundor Forrest Bit Office, Shaherkhali**

Sample Information:

Sample Date: 14-02-18  
 Test Date: 05-04-18  
 Boring Number M34  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	1011	14	17A	Cup Number	Ct-5	Ct-5
Weight of Cup (g)	28.39	36.31	37.01	Weight of Cup (g)	21.52	21.52
Weight of Wet Soil and Cup (g)	36.71	46.13	46.07	Weight of Wet Soil and Cup (g)	23.57	23.76
Weight of Dry Soil and Cup (g)	34.66	43.61	43.81	Weight of Dry Soil and Cup (g)	23.18	23.3
Moisure Content (%)	32.7	34.5	33.2	Moisure Content (%)	23.5	25.8
Blow Counts	26	15	21			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	25
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation: D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

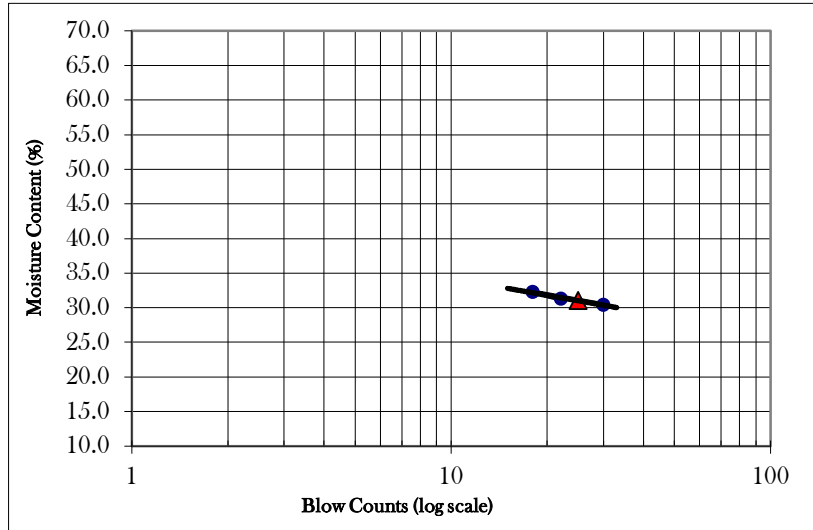
**Project Location : Bamonshundor Forrest Bit Office, Shaherkhali**

Sample Information:

Sample Date: 14-02-18  
 Test Date: 05-04-18  
 Boring Number M34  
 Sample Number 16  
 Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	203	102	Can216	Cup Number	105	105
Weight of Cup (g)	44.92	22.58	36.8	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	57.48	34.92	47.88	Weight of Wet Soil and Cup (g)	57.39	58.56
Weight of Dry Soil and Cup (g)	54.55	31.91	45.24	Weight of Dry Soil and Cup (g)	56.99	57.88
Moisure Content (%)	30.4	32.3	31.3	Moisure Content (%)	26.5	28.3
Blow Counts	30	18	22			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	27
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

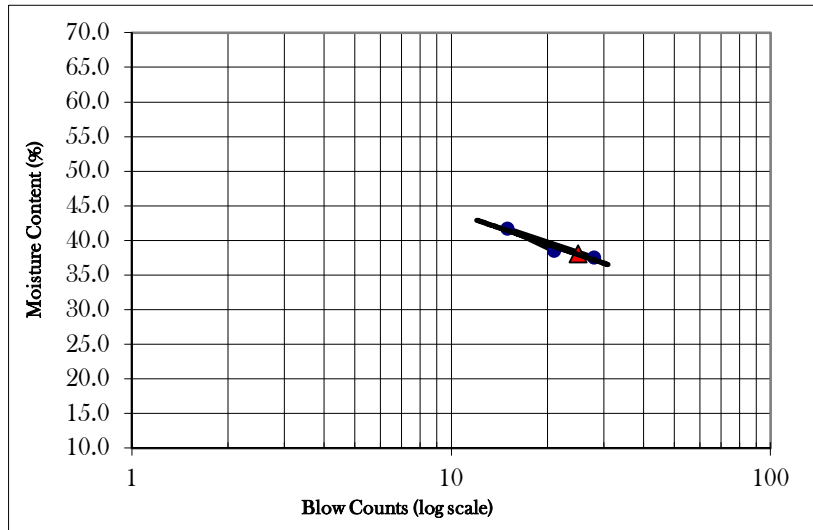
**Project Location : Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali**

Sample Information:

Sample Date: 18-02-18  
 Test Date: 05-04-18  
 Boring Number M35  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	16	302	201	Cup Number	106	106
Weight of Cup (g)	29.46	12.17	32.19	Weight of Cup (g)	26.87	26.87
Weight of Wet Soil and Cup (g)	40.16	23.72	46.51	Weight of Wet Soil and Cup (g)	29.14	29.94
Weight of Dry Soil and Cup (g)	37.24	20.32	42.53	Weight of Dry Soil and Cup (g)	28.64	29.27
Moisure Content (%)	37.5	41.7	38.5	Moisure Content (%)	28.2	27.9
Blow Counts	28	15	21			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	28
Plasticity Index	10



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

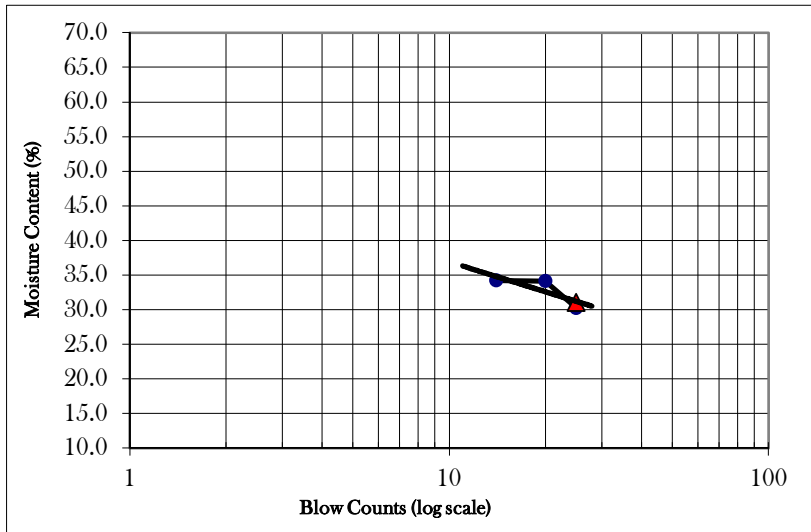
**Project Location : Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali**

Sample Information:

Sample Date: 18-02-18  
 Test Date: 05-04-18  
 Boring Number M35  
 Sample Number 13  
 Depth of Sample(m) 19.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Can216	13	Cup Number	Ct15	Ct15
Weight of Cup (g)	55.49	36.81	36.8	Weight of Cup (g)	35.45	35.45
Weight of Wet Soil and Cup (g)	65.65	45.81	48.21	Weight of Wet Soil and Cup (g)	37.39	37.89
Weight of Dry Soil and Cup (g)	63.06	43.52	45.56	Weight of Dry Soil and Cup (g)	36.96	37.41
Moisure Content (%)	34.2	34.1	30.3	Moisure Content (%)	28.5	24.5
Blow Counts	14	20	25			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	26
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location :Chunumiijer tek,Ichakhali**

Sample Information:

Sample Date: 17-02-18

Test Date: 02-04-18

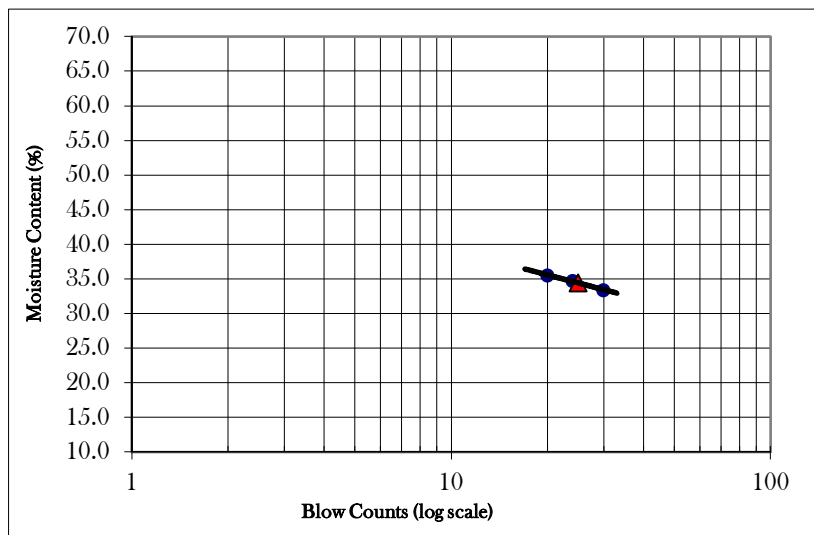
Boring Number M36

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	22	15	112	Cup Number	C-300	C-300
Weight of Cup (g)	36.98	37.29	29.84	Weight of Cup (g)	24.57	24.57
Weight of Wet Soil and Cup (g)	49.07	49.4	40.5	Weight of Wet Soil and Cup (g)	27	27.46
Weight of Dry Soil and Cup (g)	45.9	46.28	37.83	Weight of Dry Soil and Cup (g)	26.41	26.81
Moisire Content (%)	35.5	34.7	33.4	Moisire Content (%)	32.1	29.0
Blow Counts	20	24	30			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	31
Plasticity Index	4





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

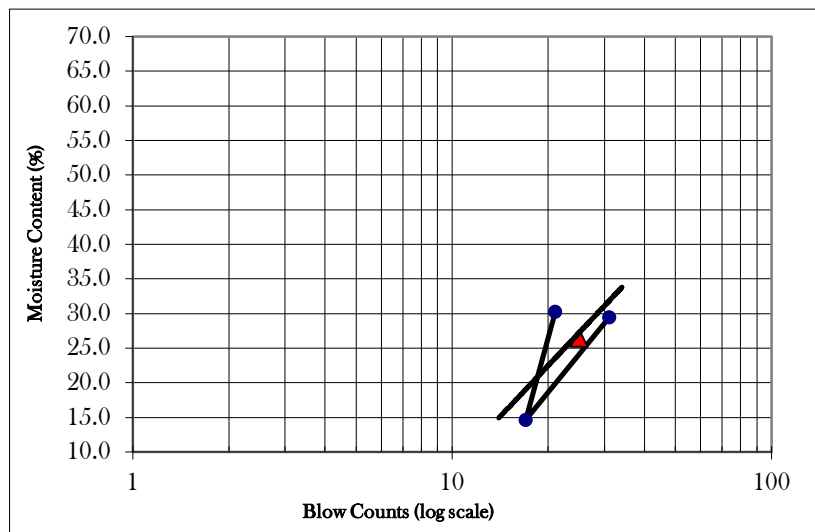
**Project Location :Chunumiijer tek,Ichakhali**

Sample Information:

Sample Date: 17-02-18  
 Test Date: 02-04-18  
 Boring Number M36  
 Sample Number 04  
 Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	56	CT-2	Cup Number	12	12
Weight of Cup (g)	23.73	10	22.16	Weight of Cup (g)	27.19	27.19
Weight of Wet Soil and Cup (g)	35.82	29.48	36.95	Weight of Wet Soil and Cup (g)	29.65	29.58
Weight of Dry Soil and Cup (g)	33.07	26.99	33.51	Weight of Dry Soil and Cup (g)	29.21	29.04
Moisure Content (%)	29.4	14.7	30.3	Moisure Content (%)	21.8	29.2
Blow Counts	31	17	21			

### Compilation of Test Results



Liquid Limit	26
Plastic Limit	25
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : 94 no. Hasim Nagar Govt. Primary School**

Sample Information:

Sample Date: 15-02-18

Test Date: 04-04-18

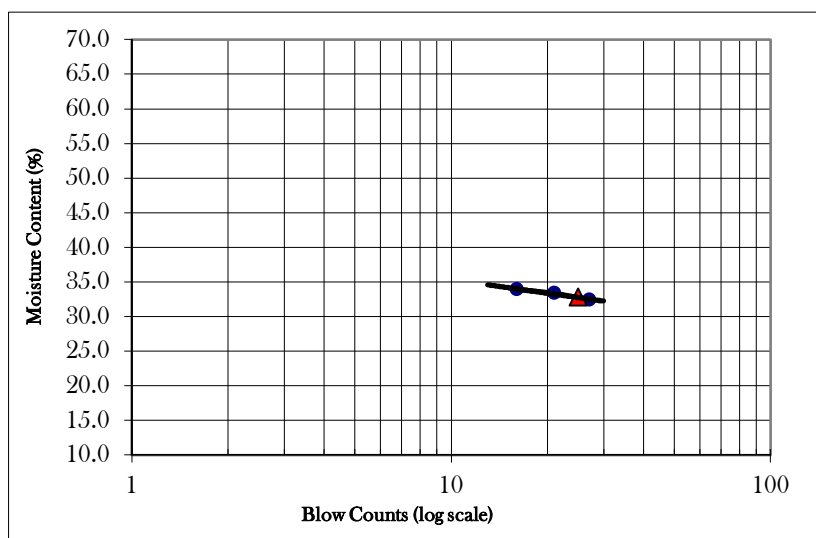
Boring Number M37

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	106	Can-18	107	Cup Number	214	214
Weight of Cup (g)	26.86	32.77	33.41	Weight of Cup (g)	18.89	18.89
Weight of Wet Soil and Cup (g)	37.56	44.99	46.52	Weight of Wet Soil and Cup (g)	21.88	20.91
Weight of Dry Soil and Cup (g)	34.94	41.93	43.2	Weight of Dry Soil and Cup (g)	21.18	20.44
Moisure Content (%)	32.4	33.4	33.9	Moisure Content (%)	30.6	30.3
Blow Counts	27	21	16			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	30
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : 94 no. Hasim Nagar Govt. Primary School**

Sample Information:

Sample Date: 15-02-18

Test Date: 04-04-18

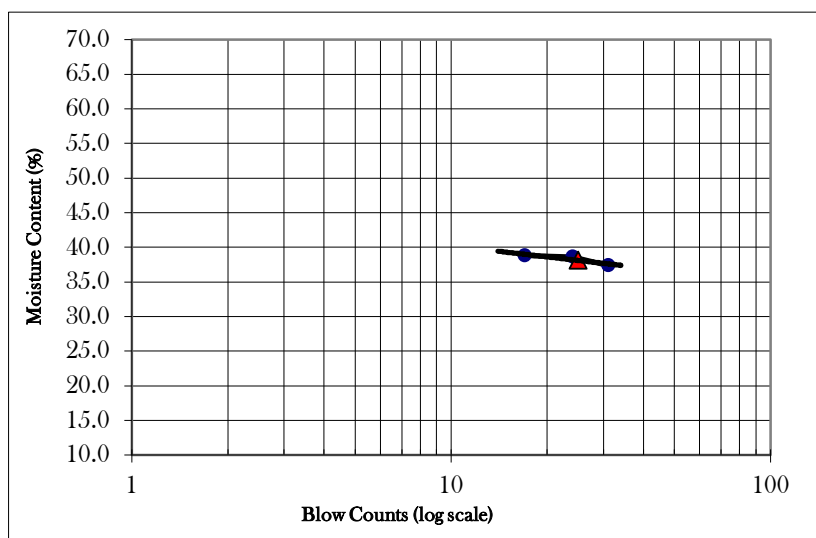
Boring Number M37

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct-60	210	13	Cup Number	CT-NO	CT-NO
Weight of Cup (g)	22.22	37.73	23.73	Weight of Cup (g)	29.93	29.93
Weight of Wet Soil and Cup (g)	35.49	51.91	42.81	Weight of Wet Soil and Cup (g)	33.82	33.11
Weight of Dry Soil and Cup (g)	31.78	47.96	37.62	Weight of Dry Soil and Cup (g)	33.09	32.48
Moisure Content (%)	38.8	38.6	37.4	Moisure Content (%)	23.1	24.7
Blow Counts	17	24	31			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	24
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Economic Zone Office, Ichakhali**

Sample Information:

Sample Date: 15-02-18

Test Date: 06-04-18

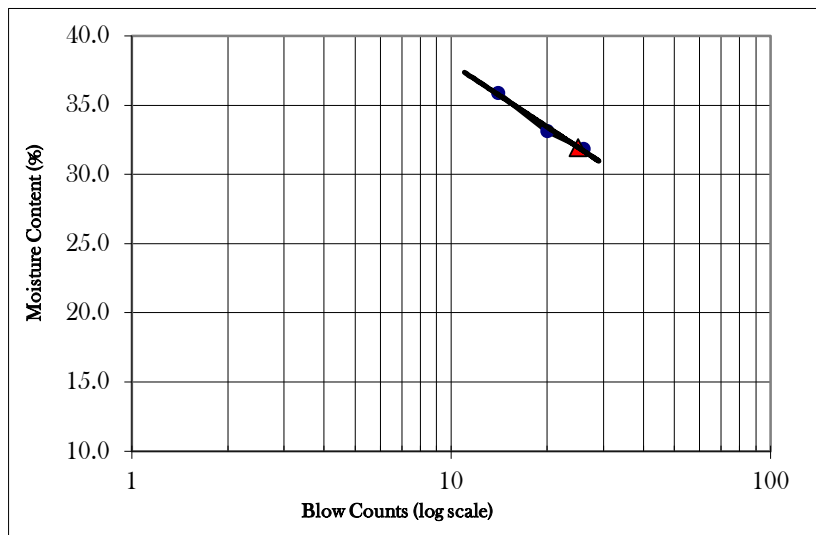
Boring Number M38

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct-111-2	7P	7	Cup Number	12	12
Weight of Cup (g)	19.57	18.2	23.92	Weight of Cup (g)	27.22	27.22
Weight of Wet Soil and Cup (g)	30.89	29.41	38.12	Weight of Wet Soil and Cup (g)	30.7	30.61
Weight of Dry Soil and Cup (g)	27.9	26.62	34.69	Weight of Dry Soil and Cup (g)	29.94	29.86
Moisure Content (%)	35.9	33.1	31.8	Moisure Content (%)	27.9	28.4
Blow Counts	14	20	26			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	28
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Economic Zone Office, Ichakhali**

Sample Information:

Sample Date: 15-02-18

Test Date: 06-04-18

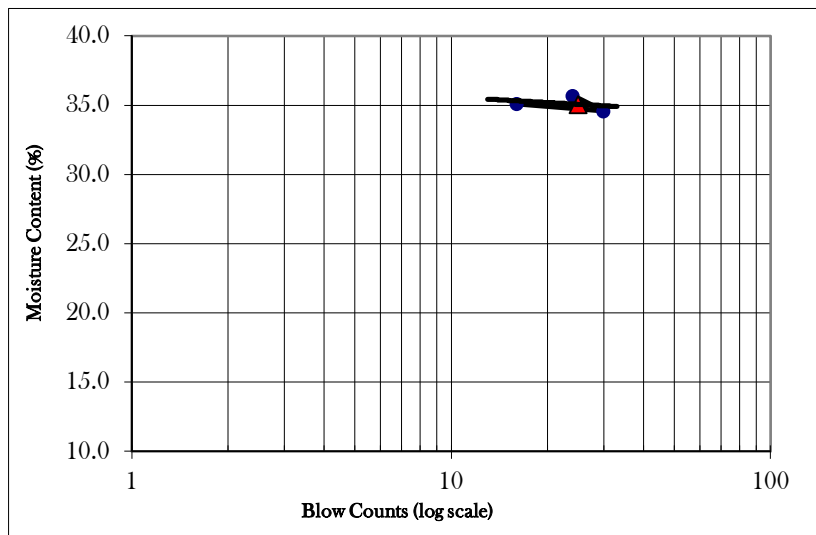
Boring Number M38

Sample Number 18

Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	56	7P	Cup Number	8	8
Weight of Cup (g)	12.52	19.04	18.17	Weight of Cup (g)	23.88	23.88
Weight of Wet Soil and Cup (g)	22.52	31.38	28.6	Weight of Wet Soil and Cup (g)	26.48	26.52
Weight of Dry Soil and Cup (g)	19.89	28.21	25.89	Weight of Dry Soil and Cup (g)	25.81	25.89
Moisure Content (%)	35.7	34.6	35.1	Moisure Content (%)	34.7	31.3
Blow Counts	24	30	16			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	33
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Lodiakhali, Ichakhali**

Sample Information:

Sample Date: 16-02-18

Test Date: 02-04-18

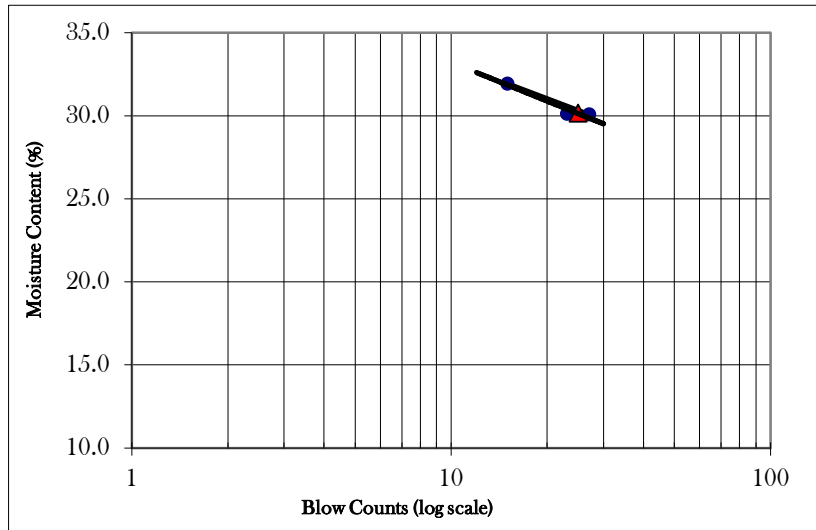
Boring Number M39

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	215	35	1011	Cup Number	107	107
Weight of Cup (g)	59.42	65.81	28.38	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	71.47	79.39	39.99	Weight of Wet Soil and Cup (g)	57.92	58.56
Weight of Dry Soil and Cup (g)	68.68	76.25	37.18	Weight of Dry Soil and Cup (g)	57.4	57.9
Moisure Content (%)	30.1	30.1	31.9	Moisure Content (%)	27.1	27.3
Blow Counts	23	27	15			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	<u>27</u>
Plasticity Index	<u>3</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Lodiakhali, Ichakhali**

Sample Information:

Sample Date: 16-02-18

Test Date: 02-04-18

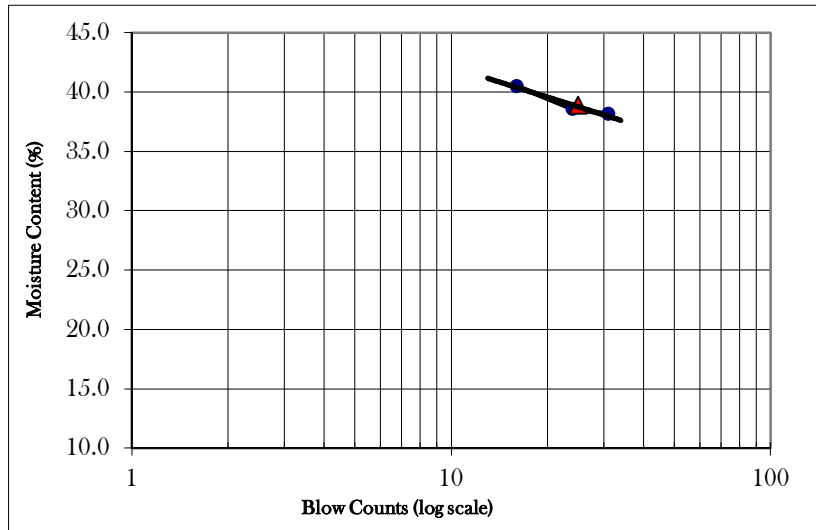
Boring Number M39

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	CT-2	13	4	Cup Number	Ct-5	Ct-5
Weight of Cup (g)	22.18	23.73	22.68	Weight of Cup (g)	21.5	21.5
Weight of Wet Soil and Cup (g)	37.09	34.15	32.49	Weight of Wet Soil and Cup (g)	23.76	23.87
Weight of Dry Soil and Cup (g)	32.79	31.25	29.78	Weight of Dry Soil and Cup (g)	23.24	23.36
Moisure Content (%)	40.5	38.6	38.2	Moisure Content (%)	29.9	27.4
Blow Counts	16	24	31			

Compilation of Test Results



Liquid Limit	39
Plastic Limit	29
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Sony Mijer tek, Tekerhat Bazar,Ichakhali**

Sample Information:

Sample Date: 17/02/2018

Test Date: 31/03/2018

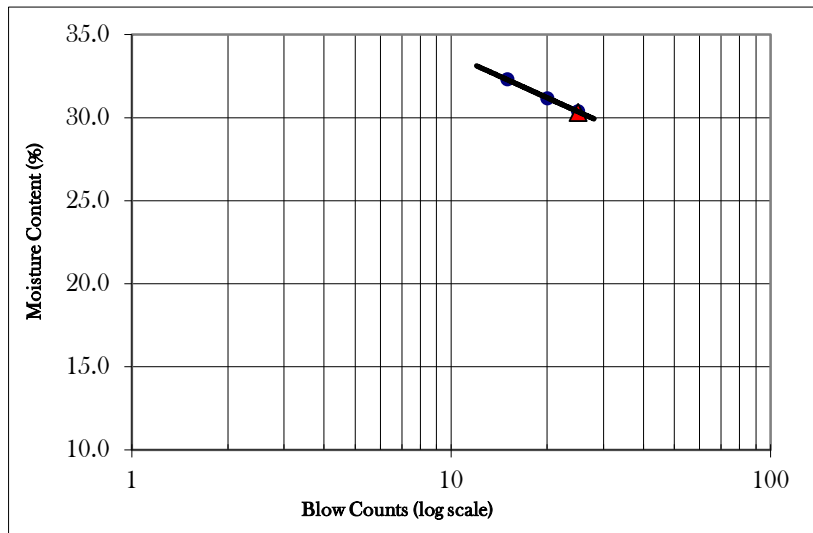
Boring Number M40

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	106	205	14	Cup Number	107	107
Weight of Cup (g)	26.88	26.94	36.34	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	36.18	36.2	47.33	Weight of Wet Soil and Cup (g)	58.26	58.31
Weight of Dry Soil and Cup (g)	33.91	34	44.77	Weight of Dry Soil and Cup (g)	57.65	57.73
Moisure Content (%)	32.3	31.2	30.4	Moisure Content (%)	28.1	25.8
Blow Counts	15	20	25			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	27
Plasticity Index	3





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

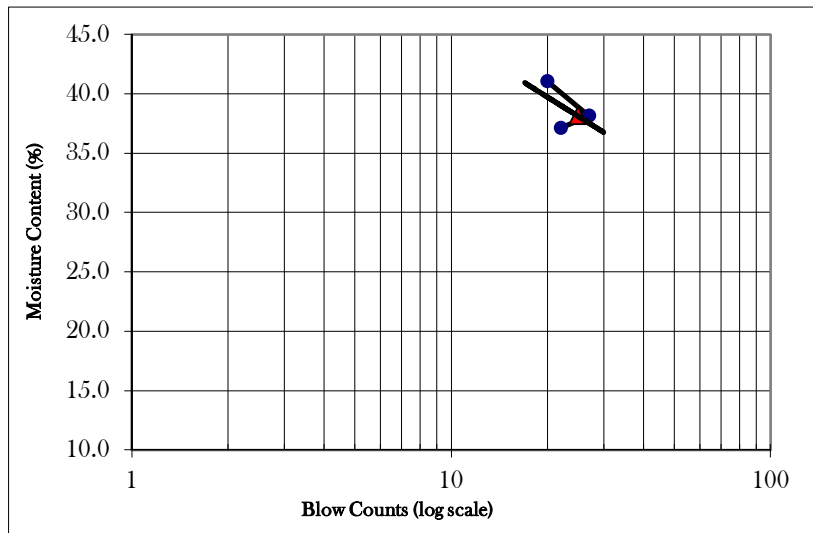
**Project Location : Sony Mijer tek, Tekerhat Bazar,Ichakhali**

Sample Information:

Sample Date: 17/02/2018  
 Test Date: 31/03/2018  
 Boring Number M40  
 Sample Number 17  
 Depth of Sample(m) 25.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	3	8	9	Cup Number	6P	6P
Weight of Cup (g)	42.11	44.23	41.41	Weight of Cup (g)	35.13	35.13
Weight of Wet Soil and Cup (g)	55.56	57.99	55.84	Weight of Wet Soil and Cup (g)	38.12	38.19
Weight of Dry Soil and Cup (g)	51.92	54.19	51.64	Weight of Dry Soil and Cup (g)	37.32	37.38
Moisure Content (%)	37.1	38.2	41.1	Moisure Content (%)	36.5	36.0
Blow Counts	22	27	20			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	36
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Economic Zone, Ichakhali**

Sample Information:

Sample Date: 20-02-18

Test Date: 04-04-18

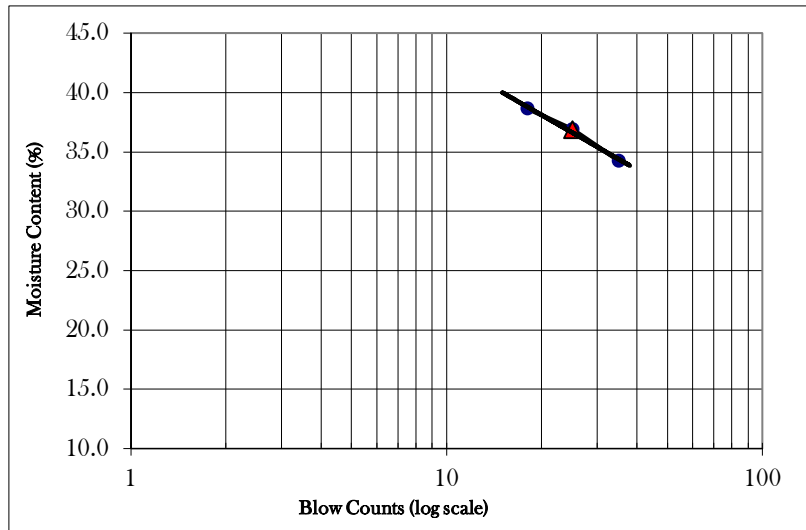
Boring Number M41

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	9	102	C-111	Cup Number	8	8
Weight of Cup (g)	41.44	22.57	29.09	Weight of Cup (g)	24.05	24.05
Weight of Wet Soil and Cup (g)	51.59	33.36	39.28	Weight of Wet Soil and Cup (g)	26.93	26.68
Weight of Dry Soil and Cup (g)	48.76	30.45	36.68	Weight of Dry Soil and Cup (g)	26.29	26.12
Moisure Content (%)	38.7	36.9	34.3	Moisure Content (%)	28.6	27.1
Blow Counts	18	25	35			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	28
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Economic Zone, Ichakhali**

Sample Information:

Sample Date: 20-02-18

Test Date: 04-04-18

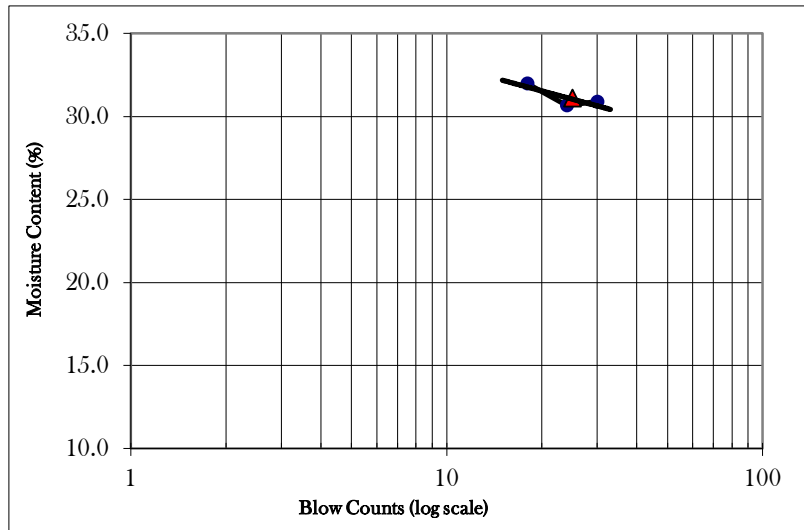
Boring Number M41

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	9	100p	Cup Number	CT2	CT2
Weight of Cup (g)	12.58	41.48	37.66	Weight of Cup (g)	22.16	22.16
Weight of Wet Soil and Cup (g)	28.76	54.01	51.6	Weight of Wet Soil and Cup (g)	24.85	25.02
Weight of Dry Soil and Cup (g)	24.84	51.07	48.31	Weight of Dry Soil and Cup (g)	24.24	24.44
Moisure Content (%)	32.0	30.7	30.9	Moisure Content (%)	29.3	25.4
Blow Counts	18	24	30			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	27
Plasticity Index	4



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Kazigram govt. Primary School, Ichakhali**

Sample Information:

Sample Date: 19/02/2018

Test Date: 22/03/2018

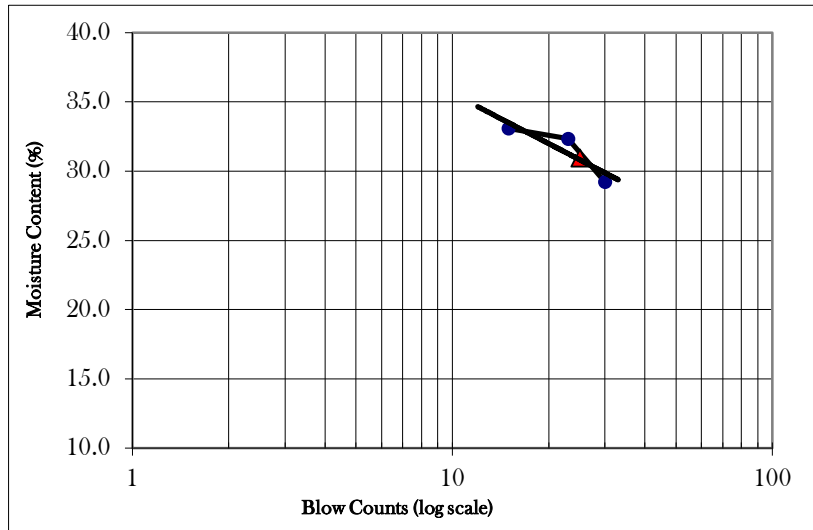
Boring Number M42

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	16	203	Can19	Cup Number	107	107
Weight of Cup (g)	29.53	44.91	37.08	Weight of Cup (g)	33.28	33.28
Weight of Wet Soil and Cup (g)	45.42	64.88	61.72	Weight of Wet Soil and Cup (g)	36.31	36.32
Weight of Dry Soil and Cup (g)	41.47	60	56.15	Weight of Dry Soil and Cup (g)	35.66	35.68
Moisure Content (%)	33.1	32.3	29.2	Moisure Content (%)	27.3	26.7
Blow Counts	15	23	30			

## Compilation of Test Results



Liquid Limit	31
Plastic Limit	27
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Kazigram govt. Primary School, Ichakhali**

Sample Information:

Sample Date: 19/02/2018

Test Date: 22/03/2018

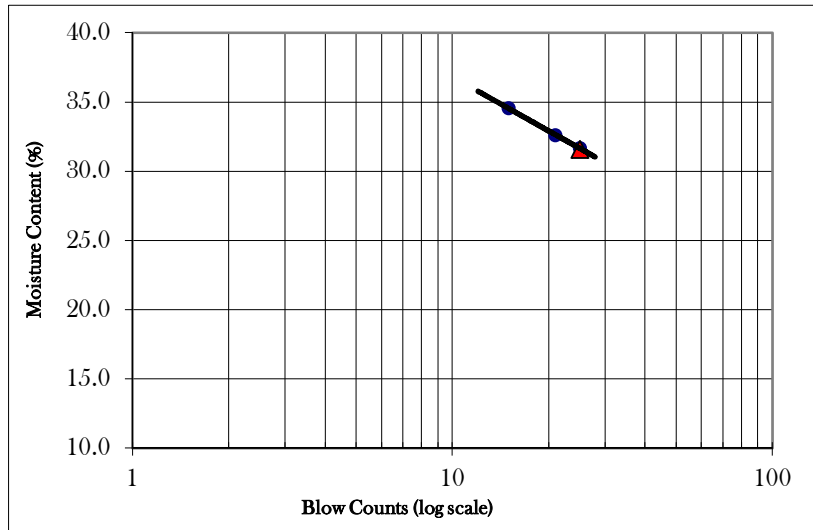
Boring Number M42

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-5	102	Cup Number	CT15	CT15
Weight of Cup (g)	23.95	21.5	14.26	Weight of Cup (g)	35.42	35.42
Weight of Wet Soil and Cup (g)	33.96	33.42	27.81	Weight of Wet Soil and Cup (g)	38.56	38.37
Weight of Dry Soil and Cup (g)	31.39	30.49	24.55	Weight of Dry Soil and Cup (g)	37.96	37.78
Moisure Content (%)	34.5	32.6	31.7	Moisure Content (%)	23.6	25.0
Blow Counts	15	21	25			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	24
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive**

**Project Location : Rajamiar Farm, Char Shorot, Ichakhali**

Sample Information:

Sample Date: 17/02/2018

Test Date: 4/5/2018

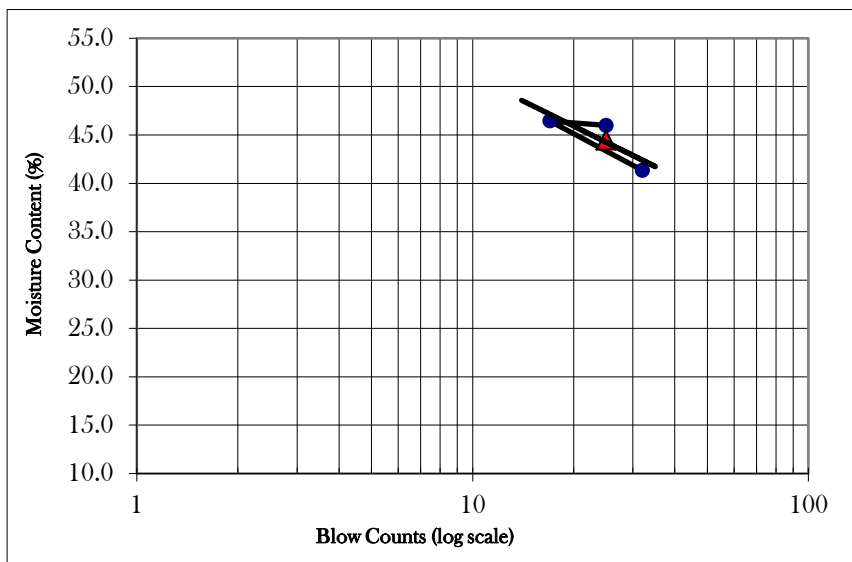
Boring Number M43

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	CT-111-2	2	Cup Number	12	12
Weight of Cup (g)	12.55	19.54	29.6	Weight of Cup (g)	27.2	27
Weight of Wet Soil and Cup (g)	24.14	31.3	44.55	Weight of Wet Soil and Cup (g)	29.82	29.79
Weight of Dry Soil and Cup (g)	20.75	27.57	39.84	Weight of Dry Soil and Cup (g)	29.22	29.2
Moisure Content (%)	41.3	46.5	46.0	Moisure Content (%)	29.7	26.8
Blow Counts	32	17	25			

### Compilation of Test Results



Liquid Limit	44
Plastic Limit	28
Plasticity Index	16



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive**

**Project Location : Rajamiar Farm, Char Shorot, Ichakhali**

Sample Information:

Sample Date: 17/02/2018

Test Date: 4/5/2018

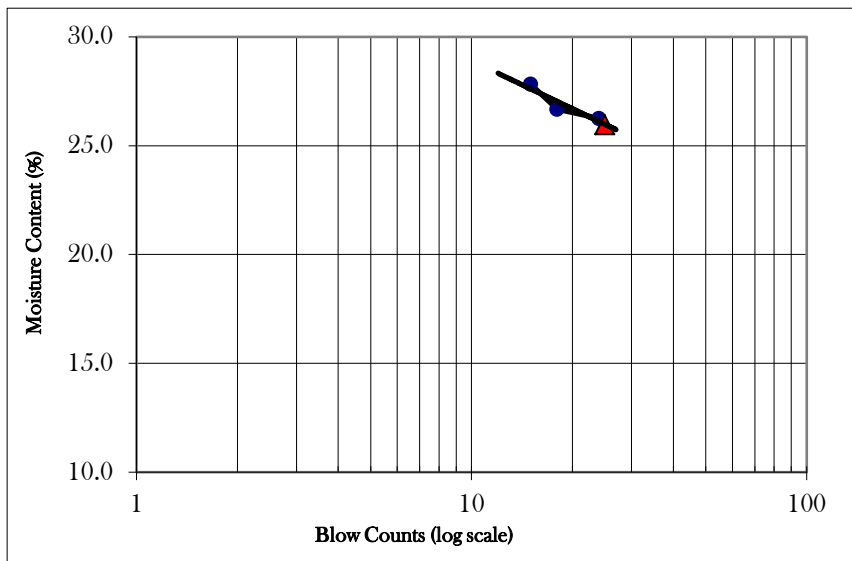
Boring Number M43

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	14	9P	109	Cup Number	13	13
Weight of Cup (g)	36.37	24.56	33.88	Weight of Cup (g)	23.75	23.75
Weight of Wet Soil and Cup (g)	48.49	35.48	45.41	Weight of Wet Soil and Cup (g)	25.99	25.33
Weight of Dry Soil and Cup (g)	45.97	33.18	42.9	Weight of Dry Soil and Cup (g)	25.58	25.06
Moisure Content (%)	26.3	26.7	27.8	Moisure Content (%)	22.4	20.6
Blow Counts	24	18	15			

### Compilation of Test Results



Liquid Limit	26
Plastic Limit	22
Plasticity Index	4



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

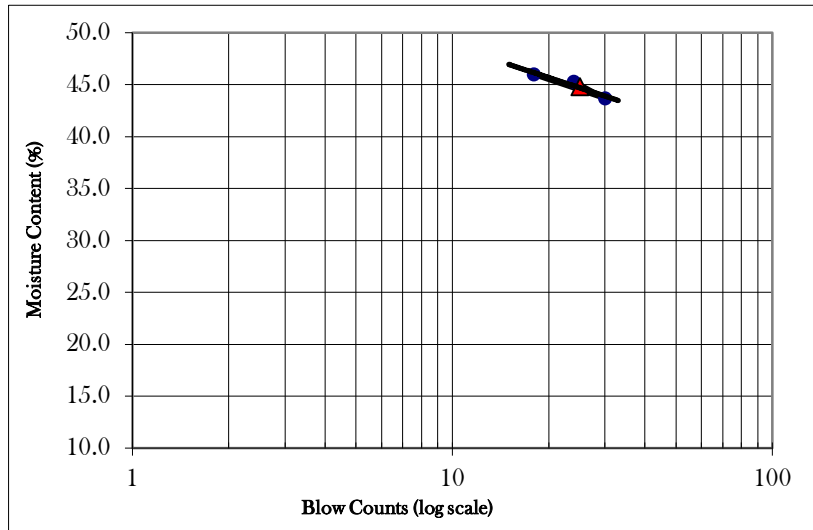
**Project Location : Rahmatabad, Ichakhali**

Sample Information:

Sample Date: 15-02-18  
 Test Date: 03-04-18  
 Boring Number M44  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	1011	12	15	Cup Number	109	109
Weight of Cup (g)	28.39	27.3	37.28	Weight of Cup (g)	33.9	33.9
Weight of Wet Soil and Cup (g)	47.96	44.31	56.11	Weight of Wet Soil and Cup (g)	36.28	36.11
Weight of Dry Soil and Cup (g)	41.86	39.14	50.18	Weight of Dry Soil and Cup (g)	35.64	35.55
Moisure Content (%)	45.3	43.7	46.0	Moisure Content (%)	36.8	33.9
Blow Counts	24	30	18			

## Compilation of Test Results



Liquid Limit	45
Plastic Limit	35
Plasticity Index	10





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Rahmatabad, Ichakhali**

Sample Information:

Sample Date: 15-02-18

Test Date: 03-04-18

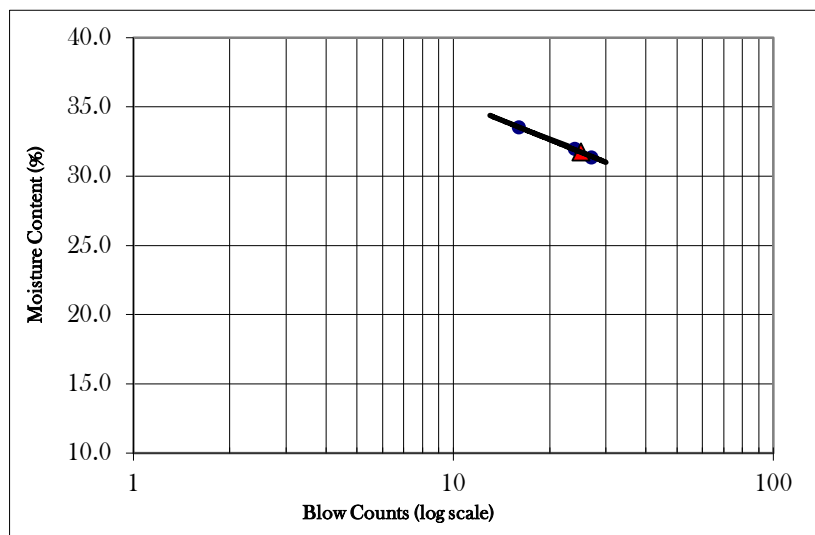
Boring Number M44

Sample Number 15

Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	17A	210	Cup Number	105	105
Weight of Cup (g)	29.62	36.98	37.75	Weight of Cup (g)	55.5	55.5
Weight of Wet Soil and Cup (g)	40.09	49.69	51.29	Weight of Wet Soil and Cup (g)	58.19	58.12
Weight of Dry Soil and Cup (g)	37.59	46.61	47.89	Weight of Dry Soil and Cup (g)	57.58	57.54
Moisture Content (%)	31.4	32.0	33.5	Moisture Content (%)	29.3	28.4
Blow Counts	27	24	16			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

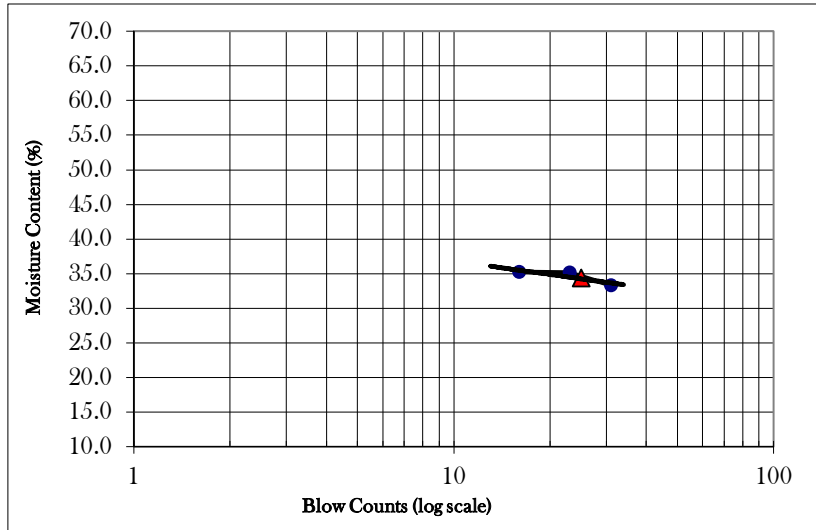
**Project Location : Mithachora Bazar , Mirshorai**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 22/03/2018  
 Boring Number M46  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	220	21A	202	Cup Number	14	14
Weight of Cup (g)	36.63	37.79	58.62	Weight of Cup (g)	36.32	36.32
Weight of Wet Soil and Cup (g)	56.45	60.99	78.91	Weight of Wet Soil and Cup (g)	38.89	38.5
Weight of Dry Soil and Cup (g)	51.29	54.96	73.84	Weight of Dry Soil and Cup (g)	38.41	38.03
Moisure Content (%)	35.2	35.1	33.3	Moisure Content (%)	23.0	27.5
Blow Counts	16	23	31			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	25
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

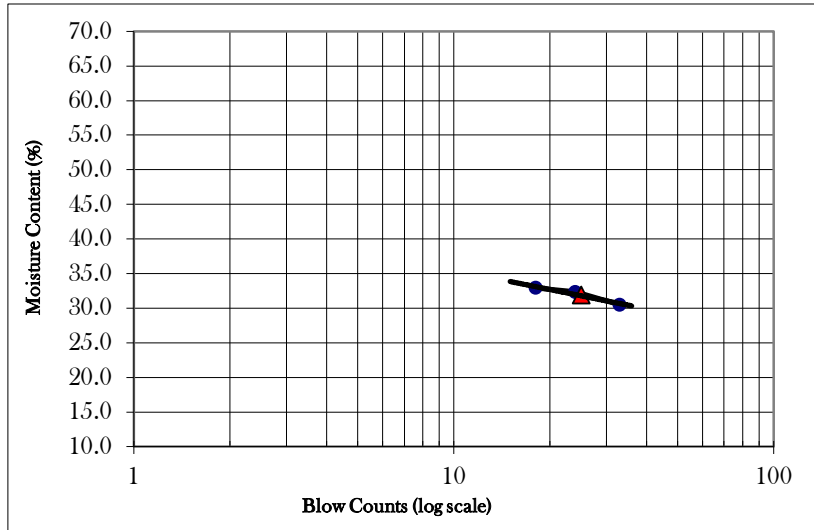
**Project Location : Mithachora Bazar , Mirshorai**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 22/03/2018  
 Boring Number M46  
 Sample Number 12  
 Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	109	5P	Cup Number	9P	9P
Weight of Cup (g)	23.34	33.88	23.88	Weight of Cup (g)	24.51	24.51
Weight of Wet Soil and Cup (g)	31.77	47.84	35.75	Weight of Wet Soil and Cup (g)	26.62	26.57
Weight of Dry Soil and Cup (g)	29.8	44.43	32.81	Weight of Dry Soil and Cup (g)	26.19	26.17
Moisure Content (%)	30.5	32.3	32.9	Moisure Content (%)	25.6	24.1
Blow Counts	33	24	18			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	25
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

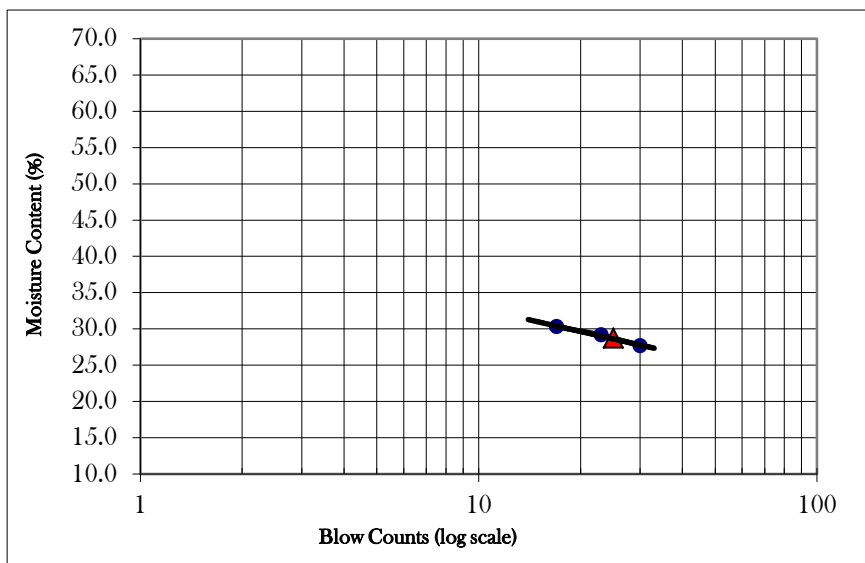
**Project Location : South Talbaria, Mirshorai**

Sample Information:

Sample Date: 8/2/2018  
 Test Date: 21/03/2018  
 Boring Number M47  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	7P	Ct111	Cup Number	Ct02	Ct02
Weight of Cup (g)	23.37	18.18	18.94	Weight of Cup (g)	22.17	22.17
Weight of Wet Soil and Cup (g)	43.48	34.95	40.01	Weight of Wet Soil and Cup (g)	24.85	24.77
Weight of Dry Soil and Cup (g)	39.12	31.16	35.11	Weight of Dry Soil and Cup (g)	24.42	24.37
Moisure Content (%)	27.7	29.2	30.3	Moisure Content (%)	19.1	18.2
Blow Counts	30	23	17			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	19
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

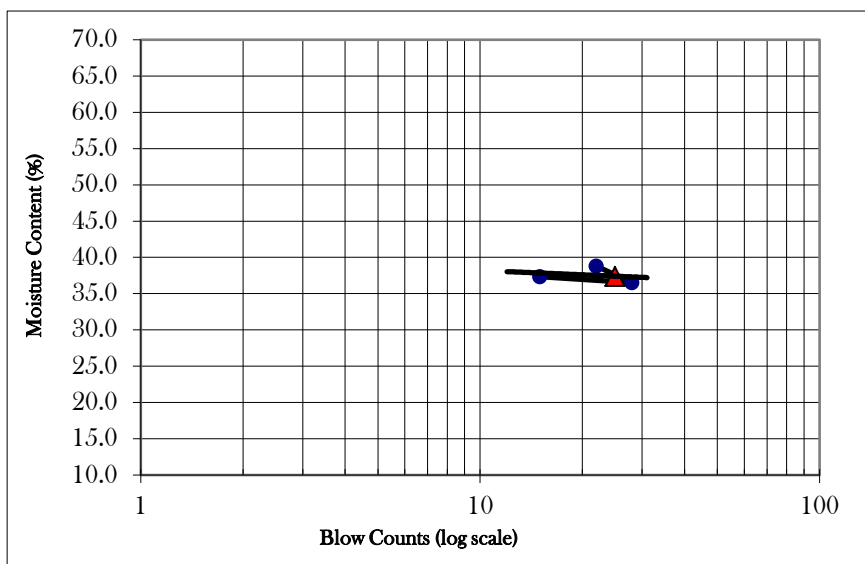
**Project Location : South Talbaria, Mirshorai**

Sample Information:

Sample Date: 8/2/2018  
 Test Date: 21/03/2018  
 Boring Number M47  
 Sample Number 14  
 Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	301	CT-111	Cup Number	6P	6P
Weight of Cup (g)	18.23	18.37	18.92	Weight of Cup (g)	35.14	35.14
Weight of Wet Soil and Cup (g)	29.52	30.82	33.55	Weight of Wet Soil and Cup (g)	37.71	37.48
Weight of Dry Soil and Cup (g)	26.45	27.49	29.46	Weight of Dry Soil and Cup (g)	37.11	36.89
Moisure Content (%)	37.3	36.5	38.8	Moisure Content (%)	30.5	33.7
Blow Counts	15	28	22			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	32
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

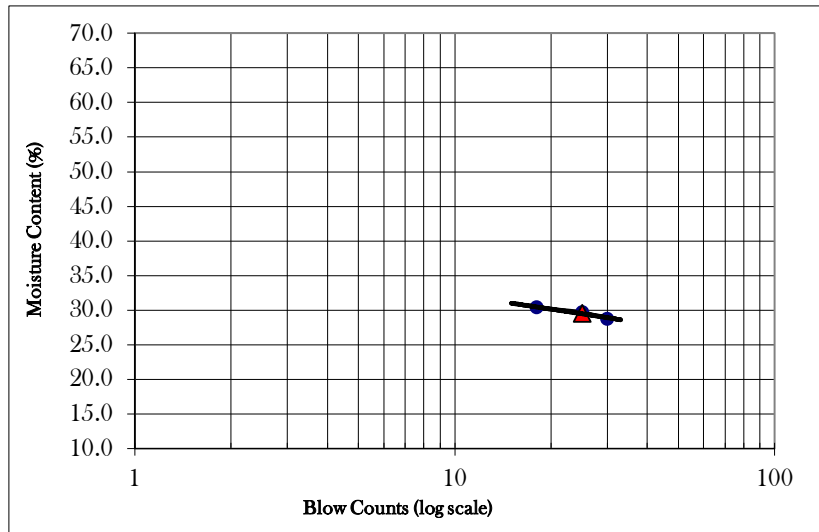
**Project Location : East Ambaria, Mirsharai**

Sample Information:

Sample Date: 02-05-18  
 Test Date: 17/03/2018  
 Boring Number M48  
 Sample Number 04  
 Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	109	9P	Cup Number	Ct111-2	Ct111-2
Weight of Cup (g)	18.95	33.9	24.56	Weight of Cup (g)	19.56	19.56
Weight of Wet Soil and Cup (g)	27.79	42.99	34.72	Weight of Wet Soil and Cup (g)	21.08	21.51
Weight of Dry Soil and Cup (g)	25.73	40.91	32.45	Weight of Dry Soil and Cup (g)	20.77	21.13
Moisure Content (%)	30.4	29.7	28.8	Moisure Content (%)	25.6	24.2
Blow Counts	18	25	30			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	25
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

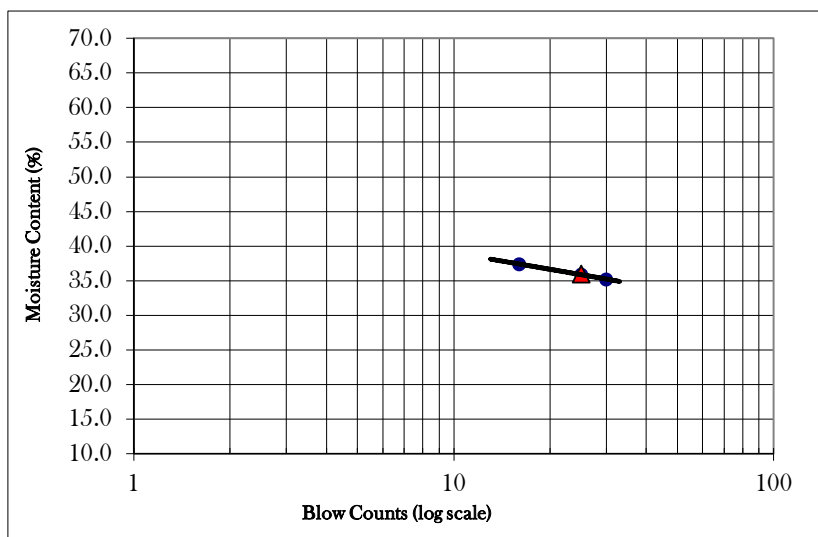
**Project Location : East Ambaria, Mirsharai**

Sample Information:

Sample Date: 02-05-18  
 Test Date: 17/03/2018  
 Boring Number M48  
 Sample Number 08  
 Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	214	211	CtD-2	Cup Number	Ct5	Ct5
Weight of Cup (g)	18.89	18.97	22.55	Weight of Cup (g)	21.51	21.51
Weight of Wet Soil and Cup (g)	27.3	28.48	30.01	Weight of Wet Soil and Cup (g)	23.57	23.65
Weight of Dry Soil and Cup (g)	25.11	25.97	27.98	Weight of Dry Soil and Cup (g)	23.16	23.27
Moisure Content (%)	35.2	35.9	37.4	Moisure Content (%)	24.8	21.6
Blow Counts	30	25	16			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	23
Plasticity Index	13



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

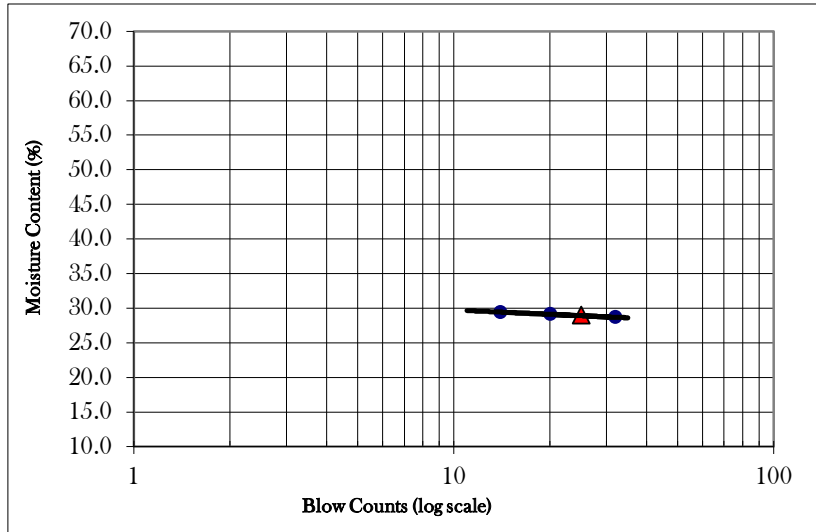
**Project Location : Ora Kazi Mijibari Jame Mosque, Mirsharai**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 19/03/2018  
 Boring Number M49  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Cr1	Ct8	C300	Cup Number	111	111
Weight of Cup (g)	24.53	22.16	24.37	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	36.89	34.23	35.01	Weight of Wet Soil and Cup (g)	21.12	21.23
Weight of Dry Soil and Cup (g)	34.08	31.54	32.61	Weight of Dry Soil and Cup (g)	20.67	20.74
Moisure Content (%)	29.4	28.7	29.1	Moisure Content (%)	25.6	26.8
Blow Counts	14	32	20			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	26
Plasticity Index	3





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

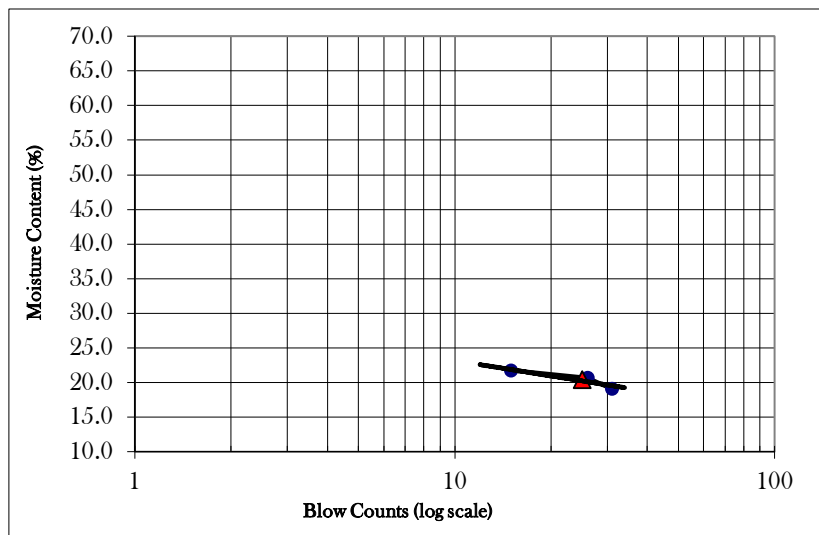
**Project Location : Ora Kazi Mijibari Jame Mosque, Mirsharai**

Sample Information:

Sample Date: 02-02-18  
 Test Date: 19/03/2018  
 Boring Number M49  
 Sample Number 12  
 Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Pan15	102	Cup Number	22	22
Weight of Cup (g)	55.45	29.94	22.67	Weight of Cup (g)	37.09	37.09
Weight of Wet Soil and Cup (g)	67.99	43.26	41.29	Weight of Wet Soil and Cup (g)	40.39	39.85
Weight of Dry Soil and Cup (g)	65.98	40.98	37.97	Weight of Dry Soil and Cup (g)	39.91	39.46
Moisure Content (%)	19.1	20.7	21.7	Moisure Content (%)	17.0	16.5
Blow Counts	31	26	15			

### Compilation of Test Results



Liquid Limit	20
Plastic Limit	17
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

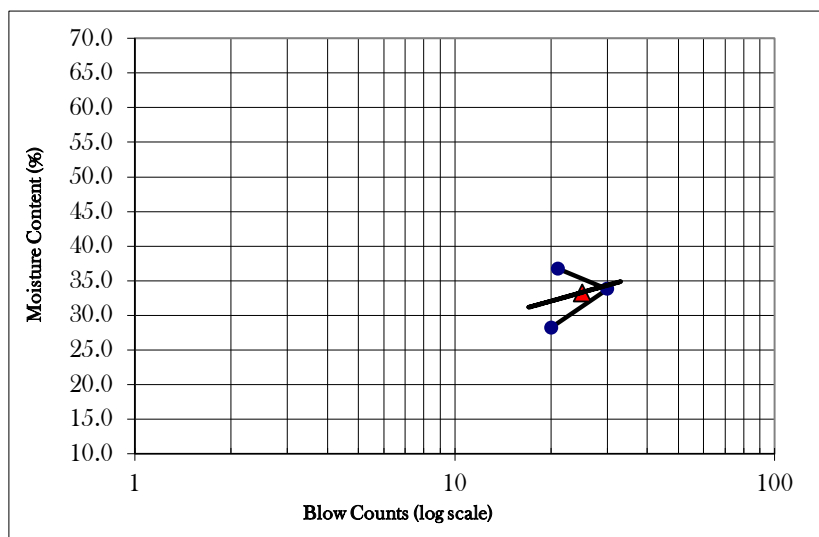
**Project Location : North Talbaria Govt. Primary School, Mirsharai**

Sample Information:

Sample Date: 02-04-18  
 Test Date: 19/03/2018  
 Boring Number M51  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	2033	CT-60	Cup Number	56	56
Weight of Cup (g)	55.5	38.09	21.93	Weight of Cup (g)	19.01	19.01
Weight of Wet Soil and Cup (g)	69.5	50.8	36.9	Weight of Wet Soil and Cup (g)	21.49	21.61
Weight of Dry Soil and Cup (g)	65.74	47.59	33.61	Weight of Dry Soil and Cup (g)	20.96	21.09
Moisure Content (%)	36.7	33.8	28.2	Moisure Content (%)	27.2	25.0
Blow Counts	21	30	20			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	26
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

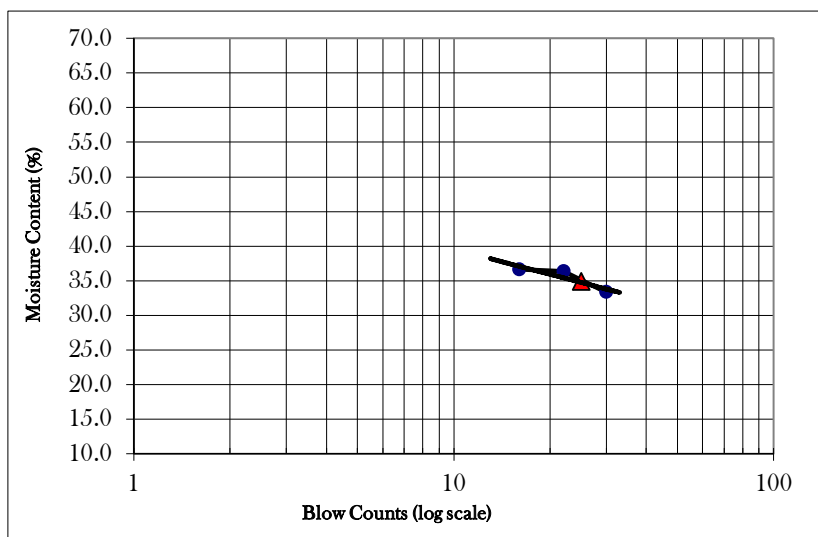
**Project Location : North Talbaria Govt. Primary School, Mirsharai**

Sample Information:

Sample Date: 02-04-18  
 Test Date: 19/03/2018  
 Boring Number M51  
 Sample Number 10  
 Depth of Sample(m) 15.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct111	Ct5	CtD-2	Cup Number	9P	9P
Weight of Cup (g)	18.96	21.52	22.53	Weight of Cup (g)	24.53	24.53
Weight of Wet Soil and Cup (g)	26.8	27	33.16	Weight of Wet Soil and Cup (g)	27.21	26.57
Weight of Dry Soil and Cup (g)	24.84	25.54	30.31	Weight of Dry Soil and Cup (g)	26.65	26.17
Moisure Content (%)	33.3	36.3	36.6	Moisure Content (%)	26.4	24.4
Blow Counts	30	22	16			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	25
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

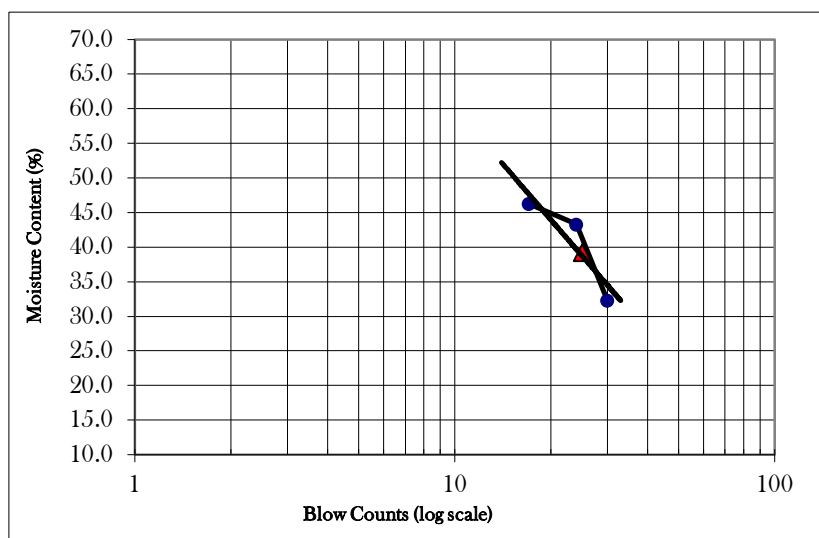
**Project Location : Hamid Ali Jame Mosque, East Khoiachora**

Sample Information:

Sample Date: 02-09-18  
 Test Date: 22/03/2018  
 Boring Number M52  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	4	10	Ct112	Cup Number	6P	6P
Weight of Cup (g)	22.76	36.25	14	Weight of Cup (g)	35.18	35.18
Weight of Wet Soil and Cup (g)	41.03	54.48	28.35	Weight of Wet Soil and Cup (g)	38.63	38.74
Weight of Dry Soil and Cup (g)	36.57	48.97	23.81	Weight of Dry Soil and Cup (g)	37.85	37.91
Moisure Content (%)	32.3	43.3	46.3	Moisure Content (%)	29.2	30.4
Blow Counts	30	24	17			

### Compilation of Test Results



Liquid Limit	39
Plastic Limit	30
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

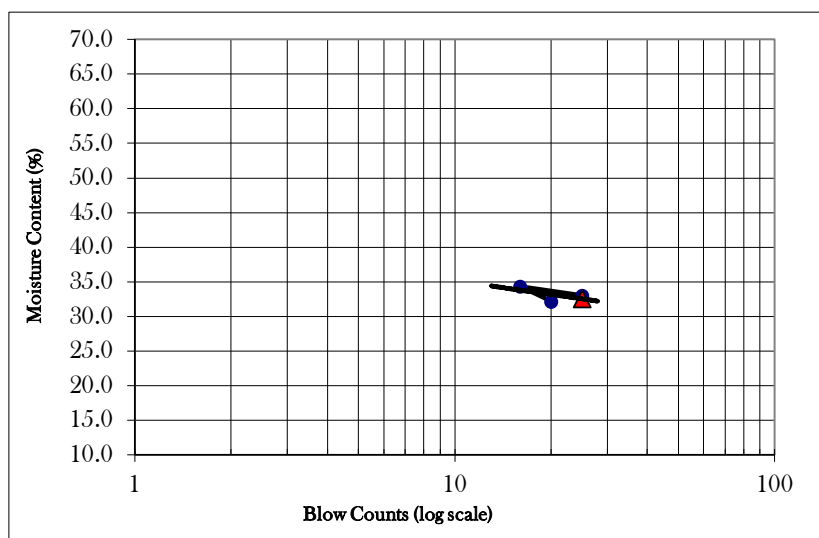
**Project Location : Hamid Ali Jame Mosque, East Khoiachora**

Sample Information:

Sample Date: 02-09-18  
 Test Date: 22/03/2018  
 Boring Number M52  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	1011	14	17A	Cup Number	Ct-5	Ct-5
Weight of Cup (g)	28.39	36.31	37.01	Weight of Cup (g)	21.52	21.52
Weight of Wet Soil and Cup (g)	36.77	46.18	46.01	Weight of Wet Soil and Cup (g)	23.59	23.78
Weight of Dry Soil and Cup (g)	34.69	43.66	43.82	Weight of Dry Soil and Cup (g)	23.2	23.32
Moisure Content (%)	33.0	34.3	32.2	Moisure Content (%)	23.2	25.6
Blow Counts	25	16	20			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	24
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

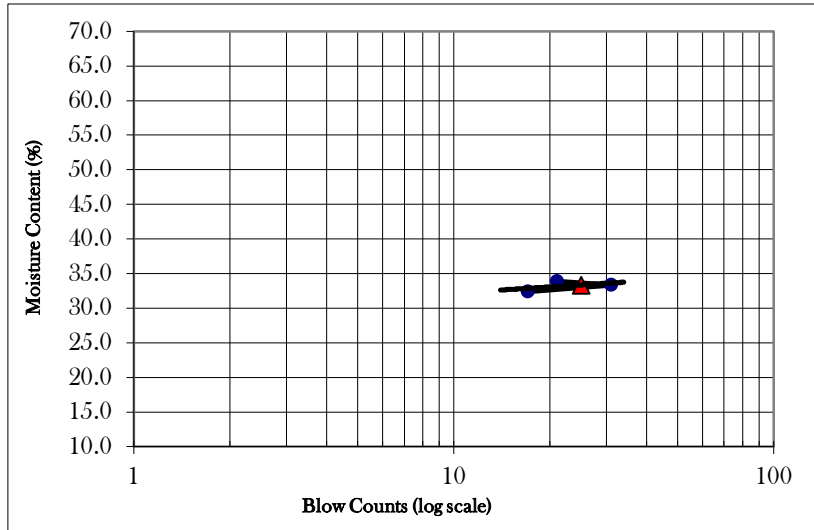
**Project Location : Khankaye Latifia Madrasha, Mirsharai**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 17/03/2018  
 Boring Number M53  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	113	Pan15	220	Cup Number	109	109
Weight of Cup (g)	25.98	29.96	36.61	Weight of Cup (g)	33.9	33.9
Weight of Wet Soil and Cup (g)	41.39	54.18	51.41	Weight of Wet Soil and Cup (g)	37.82	37.99
Weight of Dry Soil and Cup (g)	37.49	48.12	47.79	Weight of Dry Soil and Cup (g)	36.99	37.13
Moisure Content (%)	33.9	33.4	32.4	Moisure Content (%)	26.9	26.6
Blow Counts	21	31	17			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	27
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

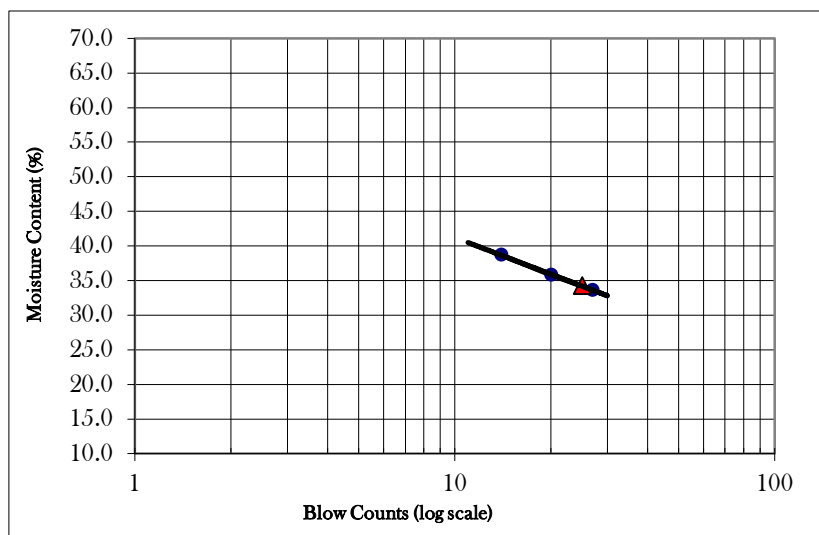
**Project Location : Khankaye Latifia Madrasha, Mirsharai**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 17/03/2018  
 Boring Number M53  
 Sample Number 12  
 Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	104	13	100P	Cup Number	203	203
Weight of Cup (g)	22.46	36.73	37.65	Weight of Cup (g)	44.91	44.91
Weight of Wet Soil and Cup (g)	32.03	46.82	48.13	Weight of Wet Soil and Cup (g)	47.37	47.35
Weight of Dry Soil and Cup (g)	29.36	44.16	45.49	Weight of Dry Soil and Cup (g)	46.87	46.87
Moisure Content (%)	38.7	35.8	33.7	Moisure Content (%)	25.5	24.5
Blow Counts	14	20	27			

### Compilation of Test Results



Liquid Limit	34
Plastic Limit	25
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Rabiul Hossain Govt. Primary School**

Sample Information:

Sample Date: 16/02/2018

Test Date: 31/03/2018

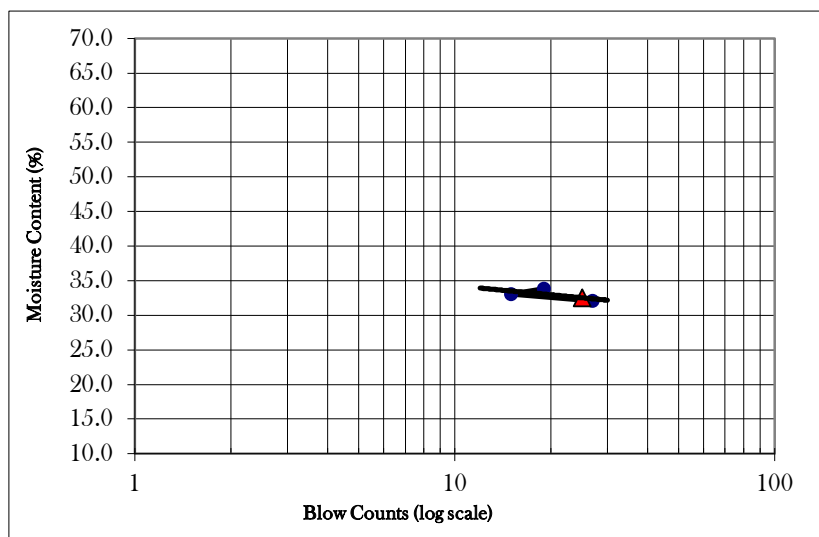
Boring Number M54

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	10	21A	2033	Cup Number	35	35
Weight of Cup (g)	36.26	37.8	38.11	Weight of Cup (g)	65.81	65.81
Weight of Wet Soil and Cup (g)	49.43	48.07	49.56	Weight of Wet Soil and Cup (g)	68.19	68.29
Weight of Dry Soil and Cup (g)	46.1	45.52	46.78	Weight of Dry Soil and Cup (g)	67.64	67.73
Moisure Content (%)	33.8	33.0	32.1	Moisure Content (%)	30.1	29.2
Blow Counts	19	15	27			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	30
Plasticity Index	3





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Rabiul Hossain Govt. Primary School**

Sample Information:

Sample Date: 16/02/2018

Test Date: 31/03/2018

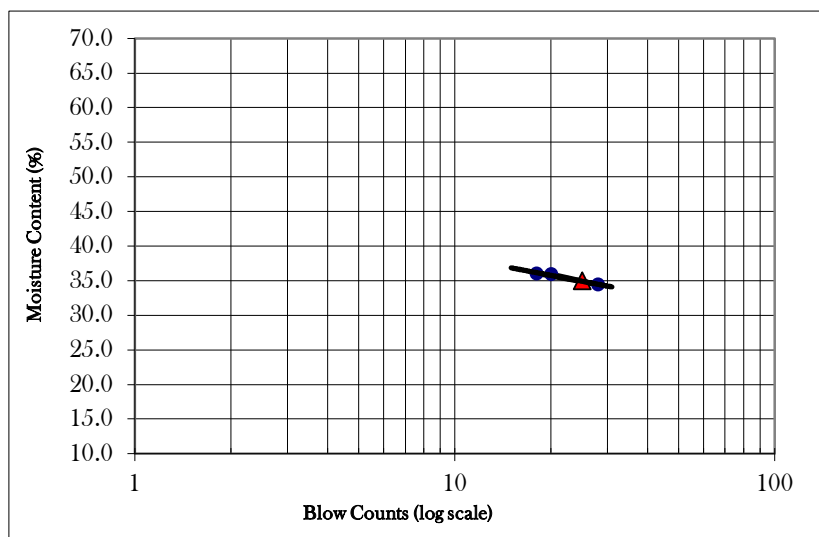
Boring Number M54

Sample Number 18

Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7	Ct-NO	Cr-01	Cup Number	Ct D-2	Ct D-2
Weight of Cup (g)	23.94	29.94	24.59	Weight of Cup (g)	22.53	22.53
Weight of Wet Soil and Cup (g)	36.05	40.05	37.65	Weight of Wet Soil and Cup (g)	25.15	24.86
Weight of Dry Soil and Cup (g)	32.85	37.46	34.19	Weight of Dry Soil and Cup (g)	24.59	24.33
Moisure Content (%)	35.9	34.4	36.0	Moisure Content (%)	27.2	29.4
Blow Counts	20	28	18			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	28
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Chairman Bari, West Moliyash**

Sample Information:

Sample Date: 17-02-18

Test Date: 06-04-18

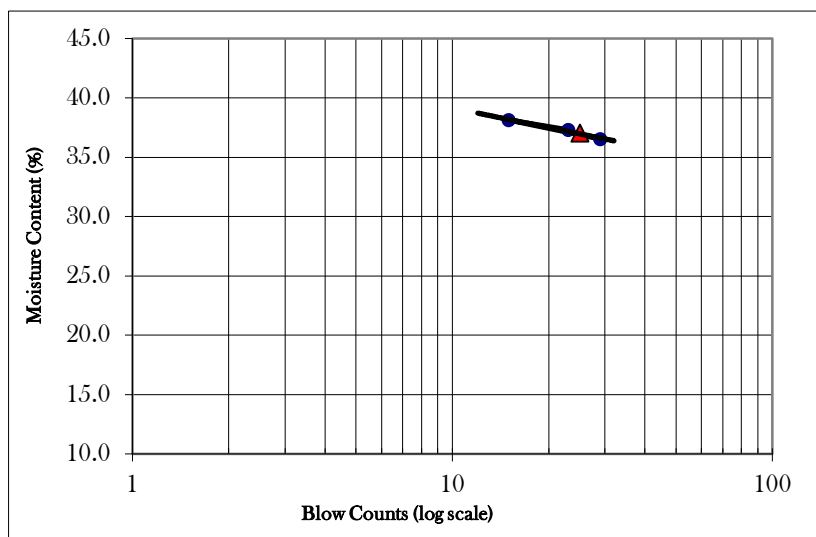
Boring Number M55

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	301	303	Cr-01	Cup Number	4	4
Weight of Cup (g)	18.38	12.55	24.55	Weight of Cup (g)	22.66	22.66
Weight of Wet Soil and Cup (g)	32.21	26.75	39.64	Weight of Wet Soil and Cup (g)	26.3	26.64
Weight of Dry Soil and Cup (g)	28.51	22.83	35.54	Weight of Dry Soil and Cup (g)	25.49	25.76
Moisure Content (%)	36.5	38.1	37.3	Moisure Content (%)	28.6	28.4
Blow Counts	29	15	23			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	29
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Chairman Bari, West Moliyash**

Sample Information:

Sample Date: 17-02-18

Test Date: 06-04-18

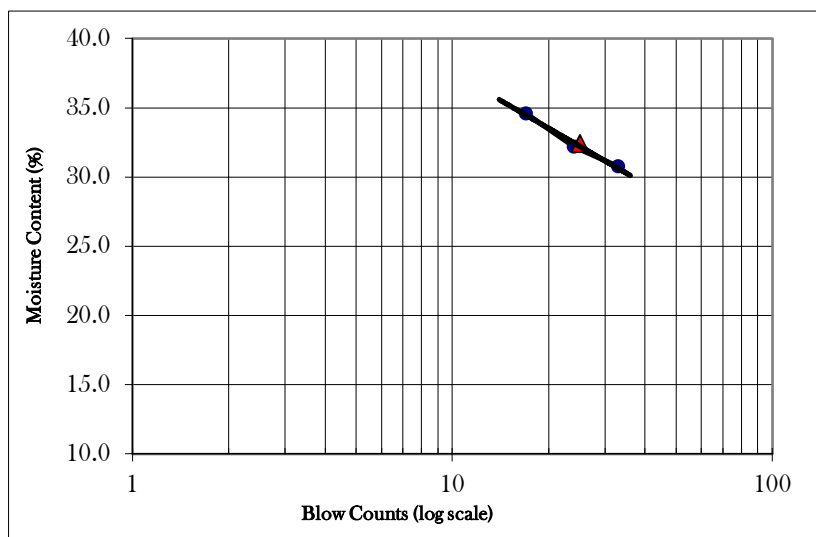
Boring Number M55

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	104	13	102	Cup Number	1011	1011
Weight of Cup (g)	22.59	36.78	22.58	Weight of Cup (g)	28.4	28.4
Weight of Wet Soil and Cup (g)	31.11	45.12	32.4	Weight of Wet Soil and Cup (g)	30.99	30.78
Weight of Dry Soil and Cup (g)	28.92	43.09	30.09	Weight of Dry Soil and Cup (g)	30.42	30.23
Moisture Content (%)	34.6	32.2	30.8	Moisture Content (%)	28.2	30.1
Blow Counts	17	24	33			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

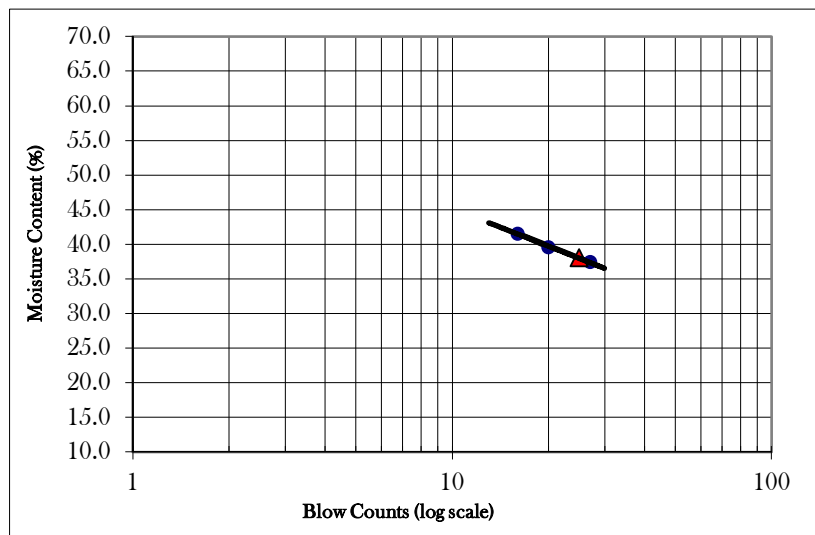
**Project Location : Hazi Badiul Alam Chowdhury Govt. Primary School, Mithanala**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 15/03/2018  
 Boring Number M56  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	16	302	201	Cup Number	106	106
Weight of Cup (g)	29.46	12.17	32.19	Weight of Cup (g)	26.87	26.87
Weight of Wet Soil and Cup (g)	40.22	23.68	46.58	Weight of Wet Soil and Cup (g)	29.11	29.91
Weight of Dry Soil and Cup (g)	37.29	20.3	42.5	Weight of Dry Soil and Cup (g)	28.6	29.23
Moisire Content (%)	37.4	41.6	39.6	Moisire Content (%)	29.5	28.8
Blow Counts	27	16	20			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	29
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

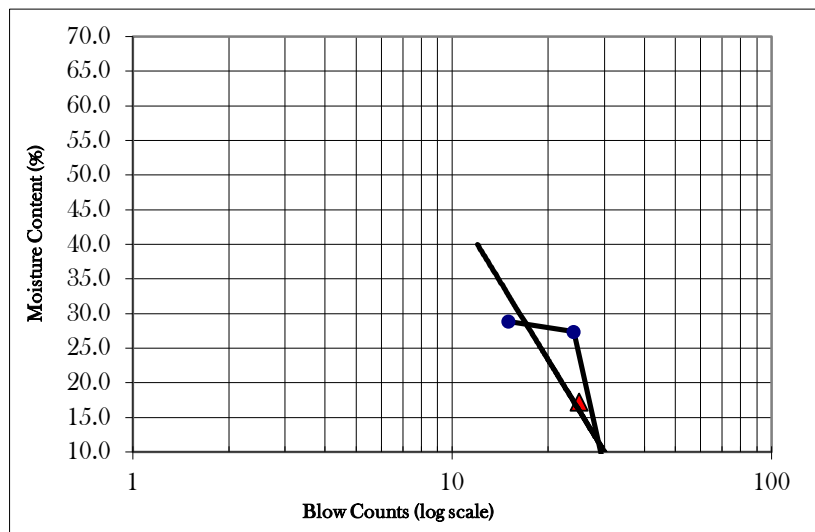
**Project Location : Hazi Badiul Alam Chowdhury Govt. Primary School, Mithanala**

Sample Information:

Sample Date: 02-03-18  
 Test Date: 15/03/2018  
 Boring Number M56  
 Sample Number 19  
 Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	211	214	111	Cup Number	Cr01	Cr01
Weight of Cup (g)	18.95	18.89	17	Weight of Cup (g)	24.55	24.55
Weight of Wet Soil and Cup (g)	35.3	36.12	29.98	Weight of Wet Soil and Cup (g)	25.97	25.67
Weight of Dry Soil and Cup (g)	31.64	32.42	29.77	Weight of Dry Soil and Cup (g)	25.75	25.61
Moisire Content (%)	28.8	27.3	1.6	Moisire Content (%)	18.3	5.7
Blow Counts	15	24	32			

### Compilation of Test Results



Liquid Limit	17
Plastic Limit	12
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Mayani Bogla Kumar Primary School, Mayani**

Sample Information:

Sample Date: 14-02-18

Test Date: 05-04-18

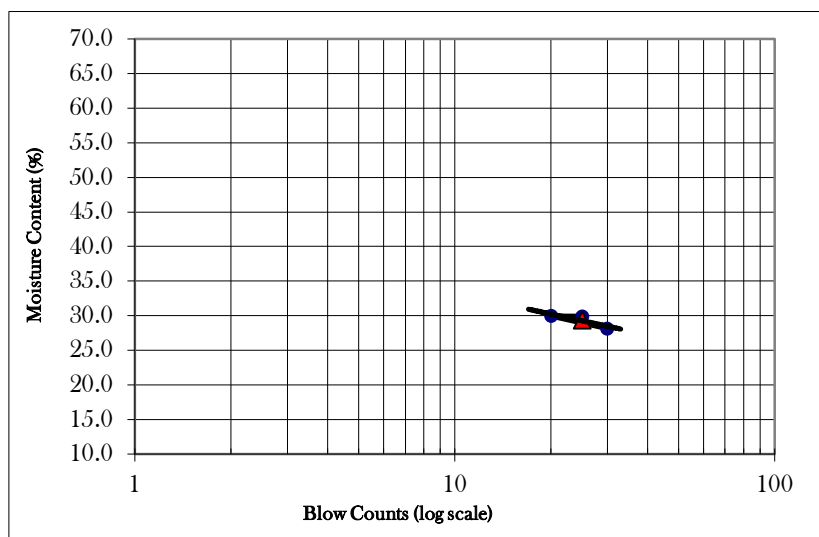
Boring Number M57

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C-300	Ct-D2	109	Cup Number	107	107
Weight of Cup (g)	24.46	22.53	33.89	Weight of Cup (g)	55.47	55.47
Weight of Wet Soil and Cup (g)	36.35	31.86	48.05	Weight of Wet Soil and Cup (g)	58.64	58.53
Weight of Dry Soil and Cup (g)	33.74	29.71	44.79	Weight of Dry Soil and Cup (g)	57.94	57.85
Moisure Content (%)	28.1	29.9	29.9	Moisure Content (%)	28.3	28.6
Blow Counts	30	20	25			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	28
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Mayani Bogla Kumar Primary School, Mayani**

Sample Information:

Sample Date: 14-02-18

Test Date: 05-04-18

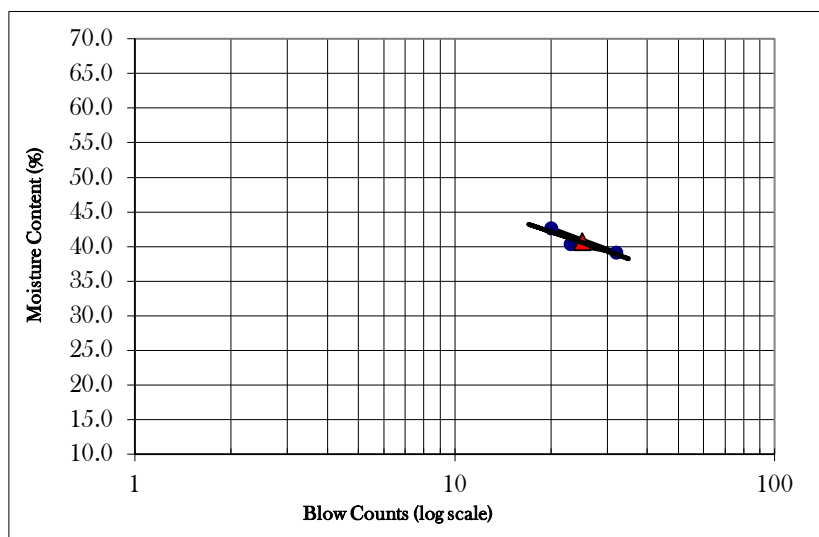
Boring Number M57

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	22	210	7P	Cup Number	108	108
Weight of Cup (g)	36.95	37.7	18.2	Weight of Cup (g)	56.34	56.34
Weight of Wet Soil and Cup (g)	61.6	55.49	41.48	Weight of Wet Soil and Cup (g)	58.56	57.81
Weight of Dry Soil and Cup (g)	54.51	50.49	34.52	Weight of Dry Soil and Cup (g)	58.1	57.56
Moisure Content (%)	40.4	39.1	42.6	Moisure Content (%)	26.1	20.5
Blow Counts	23	32	20			

### Compilation of Test Results



Liquid Limit	41
Plastic Limit	23
Plasticity Index	17



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Khoiachora Munipara, Jame Mosque**

Sample Information:

Sample Date: 06-02-18

Test Date: 06-04-18

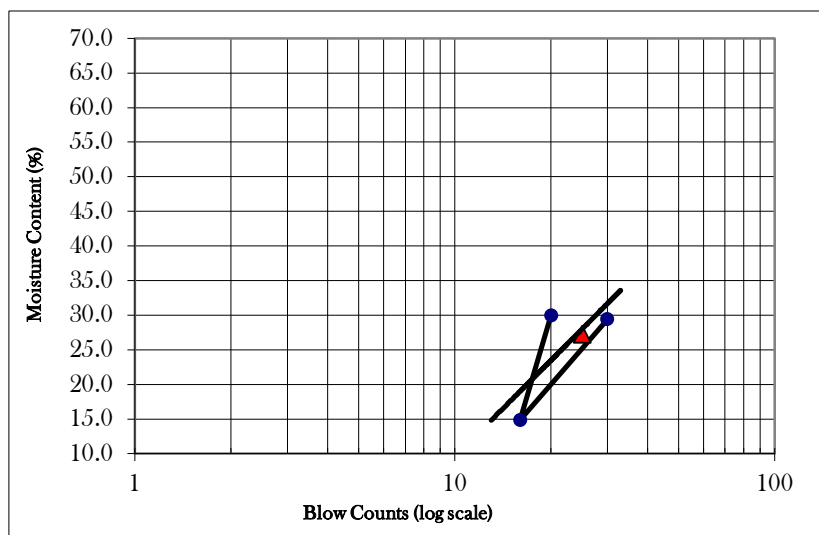
Boring Number M58

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	56	CT-2	Cup Number	12	12
Weight of Cup (g)	23.73	10	22.16	Weight of Cup (g)	27.19	27.19
Weight of Wet Soil and Cup (g)	35.75	29.41	36.97	Weight of Wet Soil and Cup (g)	29.62	29.55
Weight of Dry Soil and Cup (g)	33.02	26.9	33.56	Weight of Dry Soil and Cup (g)	29.18	29.01
Moisure Content (%)	29.4	14.9	29.9	Moisure Content (%)	22.1	29.7
Blow Counts	30	16	20			

### Compilation of Test Results



Liquid Limit	27
Plastic Limit	26
Plasticity Index	1





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

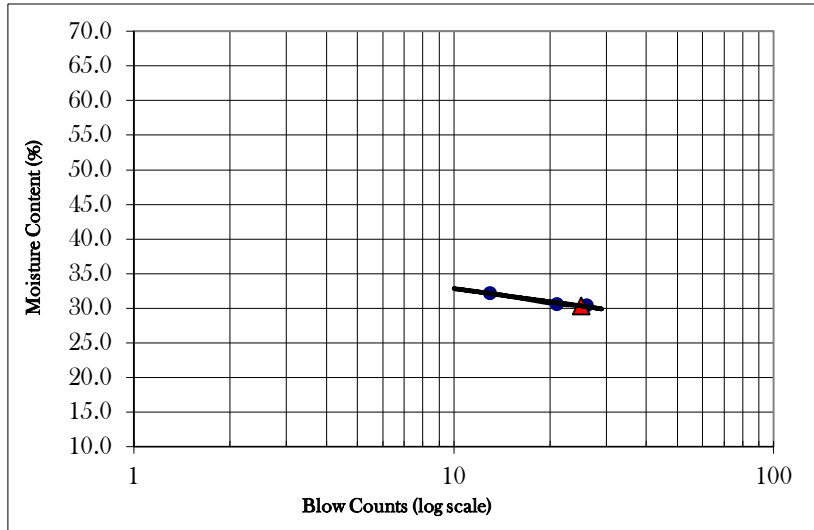
**Project Location : West Khoiachora Munipara, Jame Mosque**

Sample Information:

Sample Date: 06-02-18  
 Test Date: 06-04-18  
 Boring Number M58  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C300	2	4	Cup Number	109	109
Weight of Cup (g)	24.37	29.47	22.78	Weight of Cup (g)	33.92	33.92
Weight of Wet Soil and Cup (g)	35.09	38.32	32.95	Weight of Wet Soil and Cup (g)	36.39	35.83
Weight of Dry Soil and Cup (g)	32.48	36.25	30.58	Weight of Dry Soil and Cup (g)	35.89	35.45
Moisure Content (%)	32.2	30.5	30.4	Moisure Content (%)	25.4	24.8
Blow Counts	13	21	26			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	25
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : 3 Ghoriatola, Jame mosque, Maghadia**

Sample Information:

Sample Date: 16-02-18

Test Date: 06-04-18

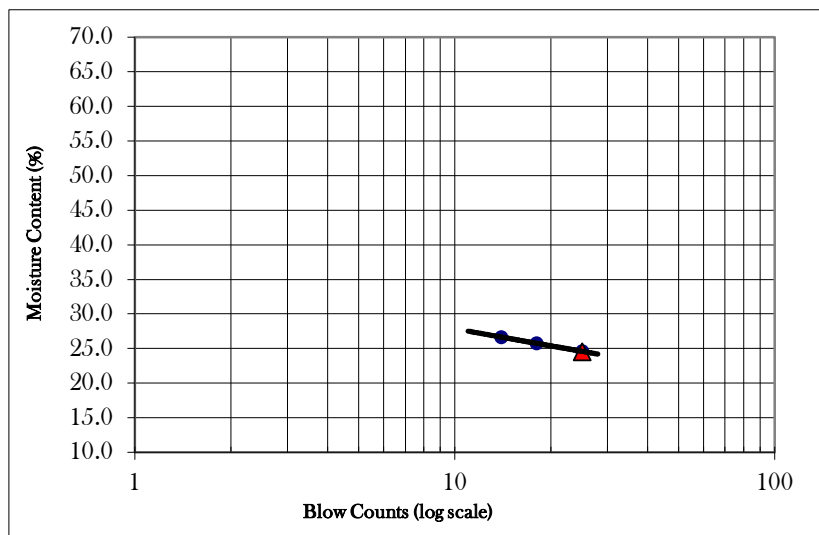
Boring Number M59

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C-300	9P	CT-5	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	24.46	24.62	21.51	Weight of Cup (g)	35.43	35.43
Weight of Wet Soil and Cup (g)	32.82	33.22	31.79	Weight of Wet Soil and Cup (g)	39.4	38.32
Weight of Dry Soil and Cup (g)	31.06	31.46	29.76	Weight of Dry Soil and Cup (g)	38.71	37.76
Moisure Content (%)	26.7	25.7	24.6	Moisure Content (%)	21.0	24.0
Blow Counts	14	18	25			

### Compilation of Test Results



Liquid Limit	25
Plastic Limit	23
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

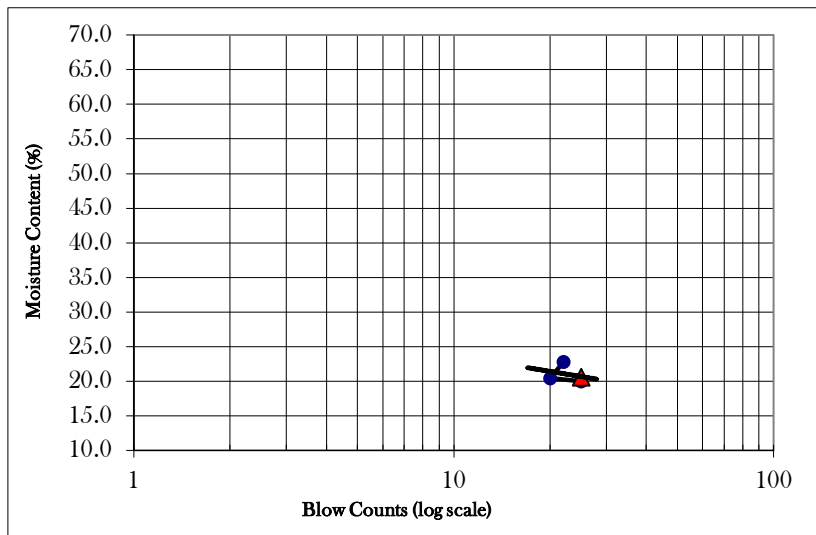
**Project Location : 3 Ghoriatola, Jame mosque, Maghadia**

Sample Information:

Sample Date: 16-02-18  
 Test Date: 06-04-18  
 Boring Number M59  
 Sample Number 15  
 Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	111	Cr01	Cup Number	107	107
Weight of Cup (g)	18.16	19.54	25.53	Weight of Cup (g)	33.25	33.25
Weight of Wet Soil and Cup (g)	35.48	38.98	46.39	Weight of Wet Soil and Cup (g)	36.6	35.2
Weight of Dry Soil and Cup (g)	32.6	35.68	42.52	Weight of Dry Soil and Cup (g)	36.14	34.9
Moisire Content (%)	19.9	20.4	22.8	Moisire Content (%)	15.9	18.2
Blow Counts	25	20	22			

### Compilation of Test Results



Liquid Limit	<u>21</u>
Plastic Limit	<u>17</u>
Plasticity Index	<u>4</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

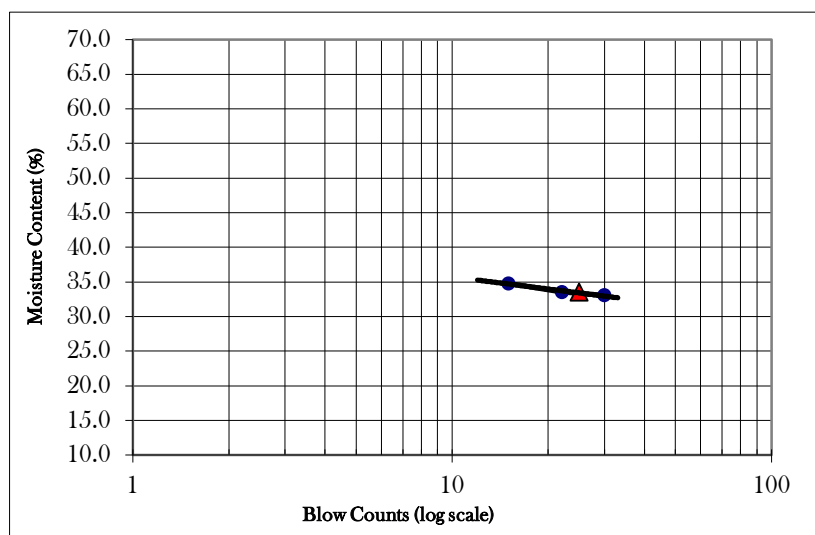
**Project Location : 90 no. Maghadia NC Govt. Primary School, Maghadia**

Sample Information:

Sample Date: 02-05-18  
 Test Date: 18/03/2018  
 Boring Number M60  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct02	2	302	Cup Number	Ct111	Ct111
Weight of Cup (g)	22.17	29.47	12.15	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	31.71	43.09	23.58	Weight of Wet Soil and Cup (g)	21.69	21.6
Weight of Dry Soil and Cup (g)	29.34	39.67	20.63	Weight of Dry Soil and Cup (g)	21.04	21.01
Moisure Content (%)	33.1	33.5	34.8	Moisure Content (%)	30.5	28.1
Blow Counts	30	22	15			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	29
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

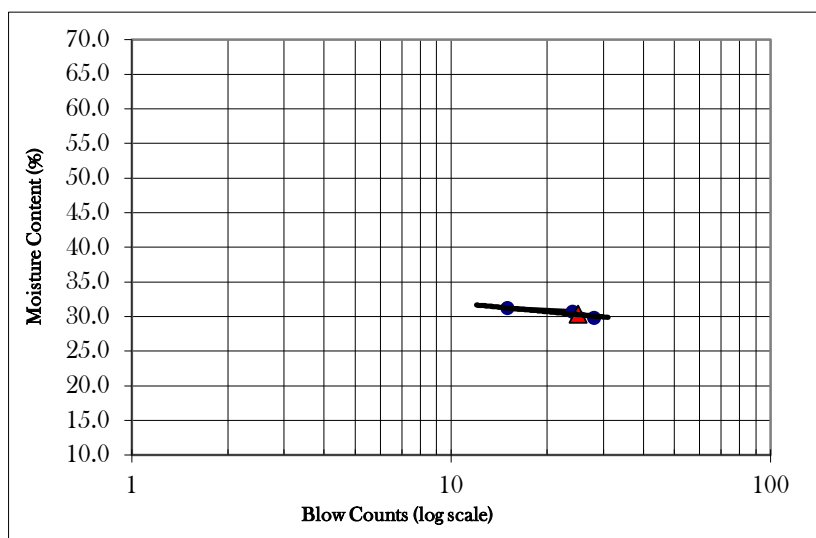
**Project Location : 90 no. Maghadia NC Govt. Primary School, Maghadia**

Sample Information:

Sample Date: 02-05-18  
 Test Date: 18/03/2018  
 Boring Number M60  
 Sample Number 17  
 Depth of Sample(m) 25.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	8	Ct60	56	Cup Number	6P	6P
Weight of Cup (g)	23.83	22.13	18.99	Weight of Cup (g)	35.28	35.28
Weight of Wet Soil and Cup (g)	33.09	30.39	27.48	Weight of Wet Soil and Cup (g)	36.66	36.91
Weight of Dry Soil and Cup (g)	30.89	28.45	25.53	Weight of Dry Soil and Cup (g)	36.39	36.55
Moisure Content (%)	31.2	30.7	29.8	Moisure Content (%)	24.3	28.3
Blow Counts	15	24	28			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

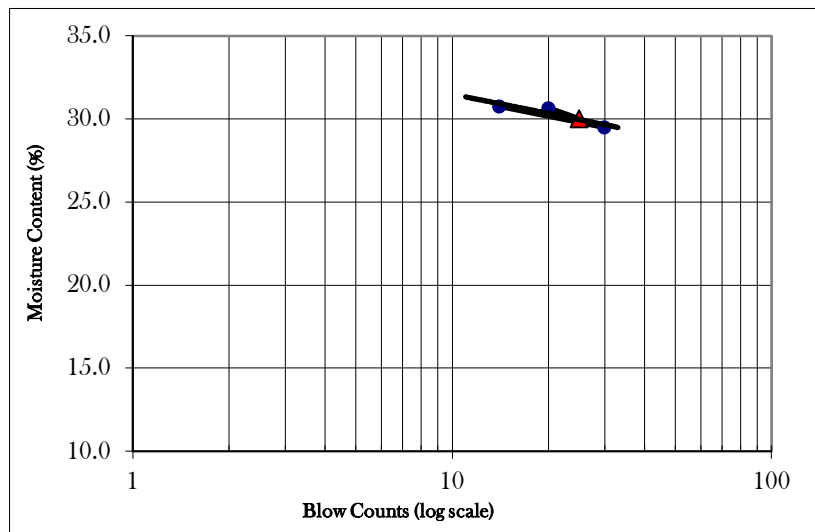
**Project Location : Sheker Taluk, Middle Maghadia**

Sample Information:

Sample Date: 02-04-18  
 Test Date: 19/03/2018  
 Boring Number M61  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	103	9P	CT-211	Cup Number	CT-09	CT-09
Weight of Cup (g)	22.61	24.6	19.14	Weight of Cup (g)	29.26	29.26
Weight of Wet Soil and Cup (g)	30.56	35.31	30.39	Weight of Wet Soil and Cup (g)	31.46	31.32
Weight of Dry Soil and Cup (g)	28.69	32.87	27.75	Weight of Dry Soil and Cup (g)	30.99	30.91
Moisure Content (%)	30.8	29.5	30.7	Moisure Content (%)	27.2	24.8
Blow Counts	14	30	20			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

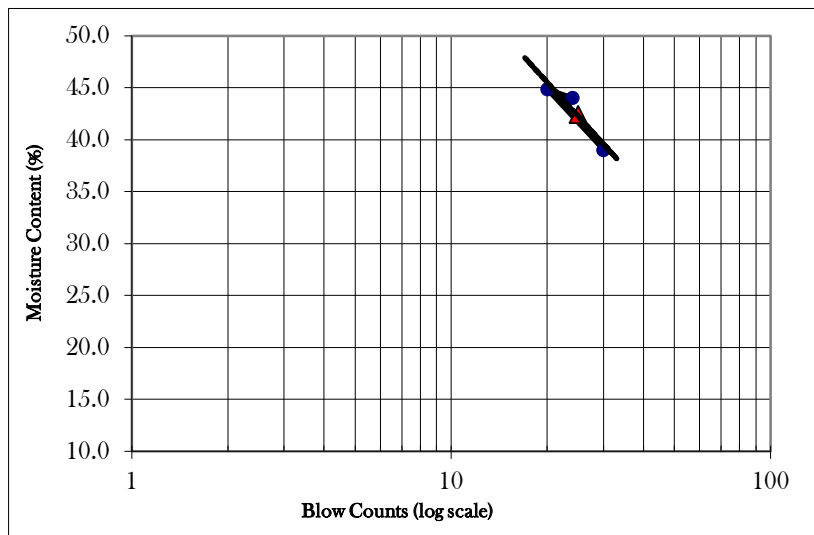
**Project Location : Sheker Taluk, Middle Maghadia**

Sample Information:

Sample Date: 02-04-18  
 Test Date: 19/03/2018  
 Boring Number M61  
 Sample Number 16  
 Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	19	111	Cup Number	15	15
Weight of Cup (g)	29.85	37.1	29.06	Weight of Cup (g)	37.25	37.25
Weight of Wet Soil and Cup (g)	39.11	43.59	37.63	Weight of Wet Soil and Cup (g)	39.33	39.26
Weight of Dry Soil and Cup (g)	36.51	41.58	35.01	Weight of Dry Soil and Cup (g)	38.91	38.97
Moisure Content (%)	39.0	44.9	44.0	Moisure Content (%)	25.3	16.9
Blow Counts	30	20	24			

### Compilation of Test Results



Liquid Limit	42
Plastic Limit	21
Plasticity Index	21



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive**

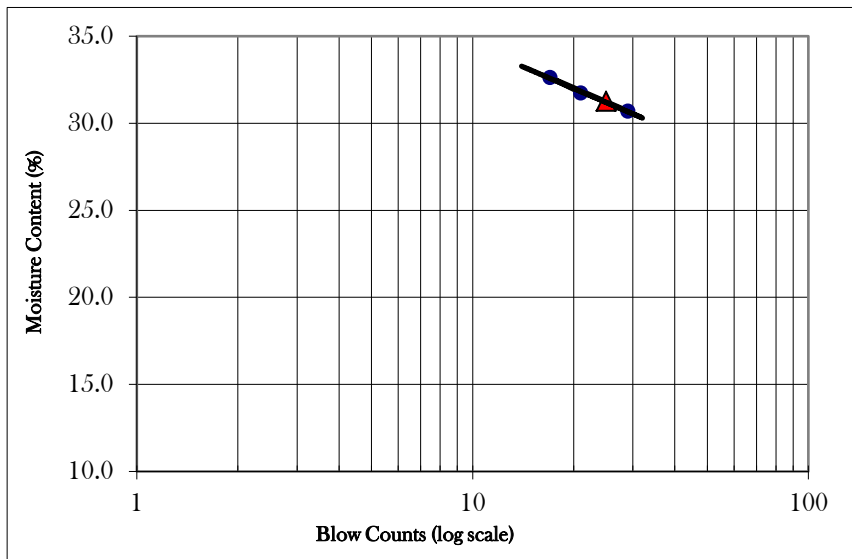
**Project Location : Kazir Taluk Govt. Primary School, Maghadia**

Sample Information:

Sample Date: 4/2/2018  
 Test Date: 19/03/2018  
 Boring Number M62  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	203	102	Can216	Cup Number	105	105
Weight of Cup (g)	44.92	22.58	36.8	Weight of Cup (g)	55.48	55.48
Weight of Wet Soil and Cup (g)	57.44	34.98	47.84	Weight of Wet Soil and Cup (g)	57.37	58.55
Weight of Dry Soil and Cup (g)	54.5	31.93	45.18	Weight of Dry Soil and Cup (g)	56.97	57.87
Moisure Content (%)	30.7	32.6	31.7	Moisure Content (%)	26.8	28.5
Blow Counts	29	17	21			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	28
Plasticity Index	4





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

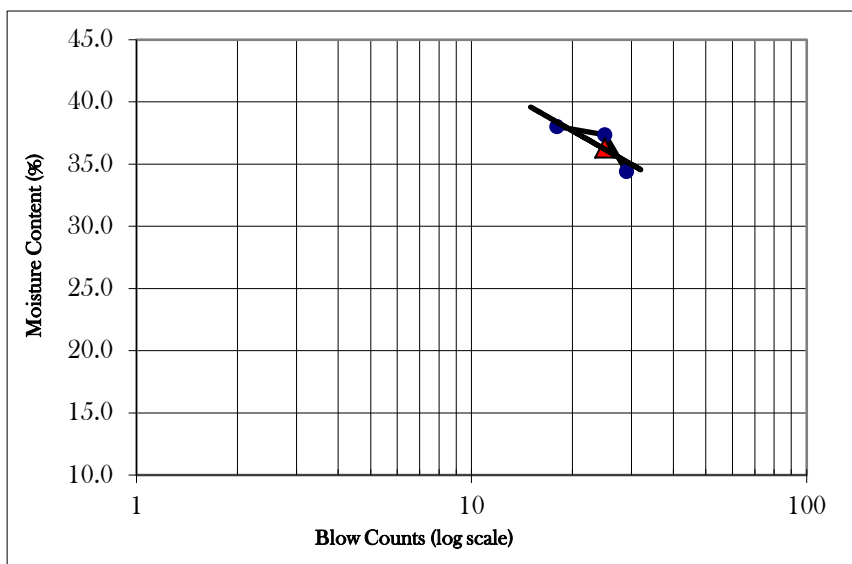
**Project Location : Kazir Taluk Govt. Primary School, Maghadia**

Sample Information:

Sample Date: 4/2/2018  
 Test Date: 19/03/2018  
 Boring Number M62  
 Sample Number 14  
 Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	301	7	Ct15	Cup Number	202	202
Weight of Cup (g)	18.36	23.95	35.63	Weight of Cup (g)	58.63	58.63
Weight of Wet Soil and Cup (g)	25.12	32.48	42.71	Weight of Wet Soil and Cup (g)	59.9	60.08
Weight of Dry Soil and Cup (g)	23.39	30.16	40.76	Weight of Dry Soil and Cup (g)	59.68	59.82
Moisure Content (%)	34.4	37.4	38.0	Moisure Content (%)	21.0	21.8
Blow Counts	29	25	18			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	21
Plasticity Index	15



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

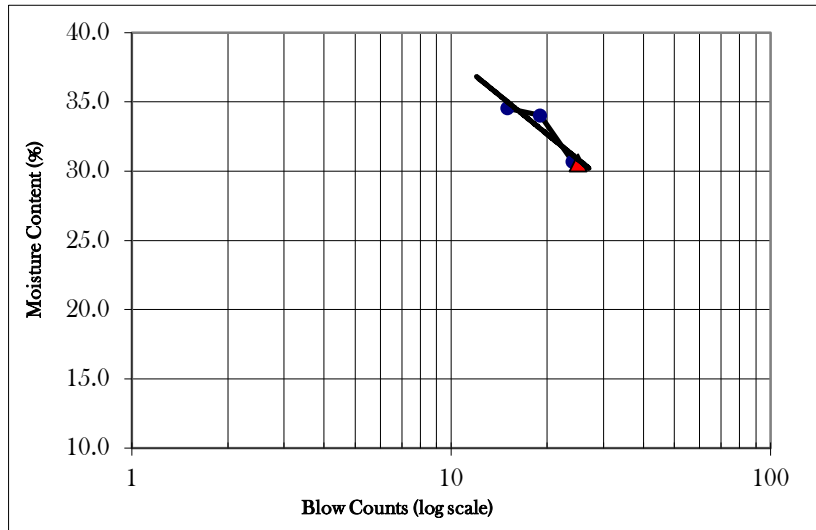
**Project Location : Komor ali Union High School, Komor Ali Union Bazar**

Sample Information:

Sample Date: 02-12-18  
 Test Date: 18/03/2018  
 Boring Number M63  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Can216	13	Cup Number	Ct15	Ct15
Weight of Cup (g)	55.49	36.81	36.8	Weight of Cup (g)	35.45	35.45
Weight of Wet Soil and Cup (g)	65.58	45.75	48.17	Weight of Wet Soil and Cup (g)	37.35	37.85
Weight of Dry Soil and Cup (g)	62.99	43.48	45.5	Weight of Dry Soil and Cup (g)	36.93	37.39
Moisure Content (%)	34.5	34.0	30.7	Moisure Content (%)	28.4	23.7
Blow Counts	15	19	24			

### Compilation of Test Results



Liquid Limit	31
Plastic Limit	26
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

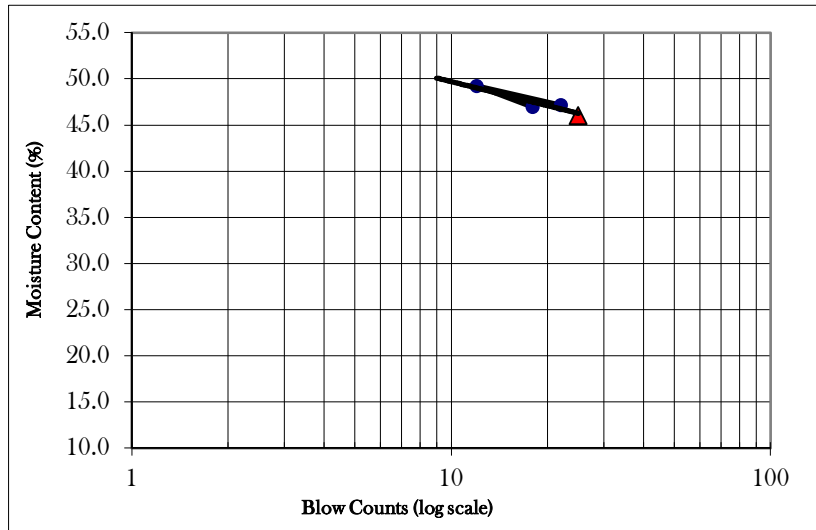
**Project Location : Komor ali Union High School, Komor Ali Union Bazar**

Sample Information:

Sample Date: 02-12-18  
 Test Date: 18/03/2018  
 Boring Number M63  
 Sample Number 15  
 Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct112	Can216	215	Cup Number	Ct NO	Ct NO
Weight of Cup (g)	14.01	36.8	59.43	Weight of Cup (g)	29.91	29.91
Weight of Wet Soil and Cup (g)	25.28	48.08	75.29	Weight of Wet Soil and Cup (g)	31.82	32.28
Weight of Dry Soil and Cup (g)	21.68	44.36	70.21	Weight of Dry Soil and Cup (g)	31.79	31.44
Moisure Content (%)	46.9	49.2	47.1	Moisure Content (%)	1.6	54.9
Blow Counts	18	12	22			

### Compilation of Test Results



Liquid Limit	46
Plastic Limit	28
Plasticity Index	18



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Katakali Beribadh, Shekerkhali**

Sample Information:

Sample Date: 13/02/2018

Test Date: 21/03/2018

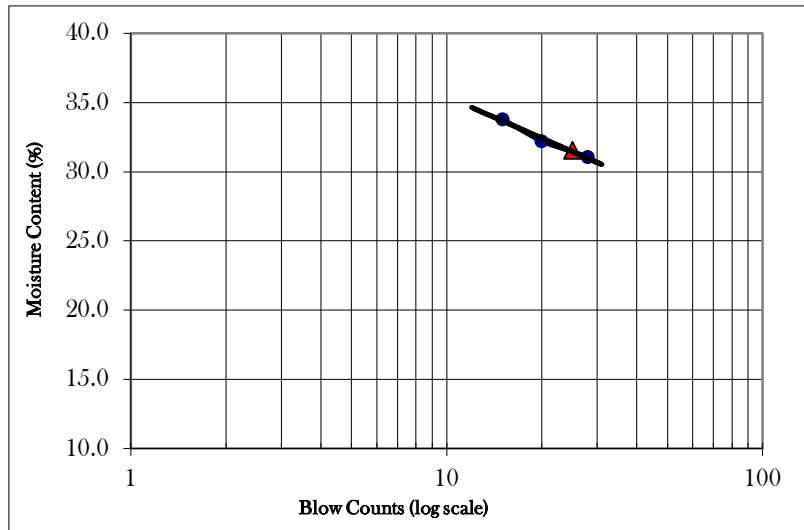
Boring Number M64

Sample Number 02

Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	112	220	202	Cup Number	203	203
Weight of Cup (g)	29.85	36.63	58.64	Weight of Cup (g)	44.94	44.94
Weight of Wet Soil and Cup (g)	38.48	48.66	71.76	Weight of Wet Soil and Cup (g)	47.76	47.86
Weight of Dry Soil and Cup (g)	36.3	45.73	68.65	Weight of Dry Soil and Cup (g)	47.16	47.23
Moisure Content (%)	33.8	32.2	31.1	Moisure Content (%)	27.0	27.5
Blow Counts	15	20	28			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	27
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Katakhalı Beribadh, Shekerkhali**

Sample Information:

Sample Date: 13/02/2018

Test Date: 21/03/2018

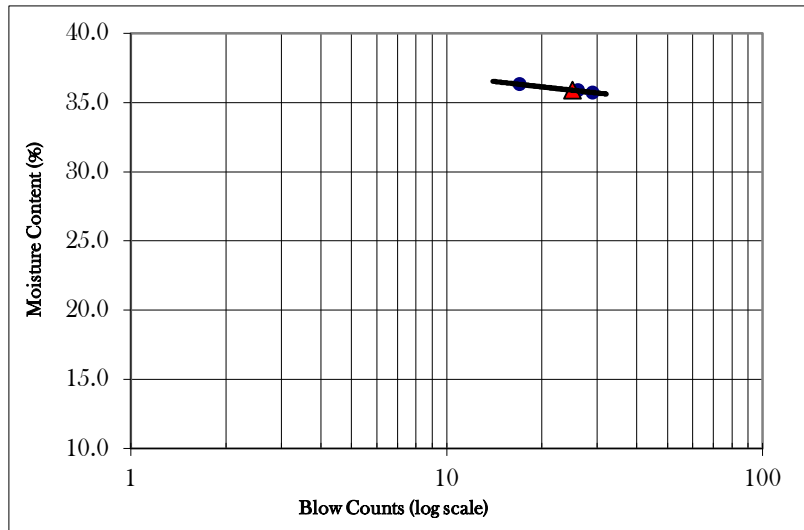
Boring Number M64

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	4	201	Cup Number	8	8
Weight of Cup (g)	116.9	113.3	160.95	Weight of Cup (g)	119.15	119.15
Weight of Wet Soil and Cup (g)	183.61	193.99	259.39	Weight of Wet Soil and Cup (g)	129.1	128.9
Weight of Dry Soil and Cup (g)	165.84	172.76	233.4	Weight of Dry Soil and Cup (g)	127.25	126.9
Moisure Content (%)	36.3	35.7	35.9	Moisure Content (%)	22.8	25.8
Blow Counts	17	29	26			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	24
Plasticity Index	12



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Baribadh, Shekerkhali**

Sample Information:

Sample Date: 11-02-18

Test Date: 05-04-18

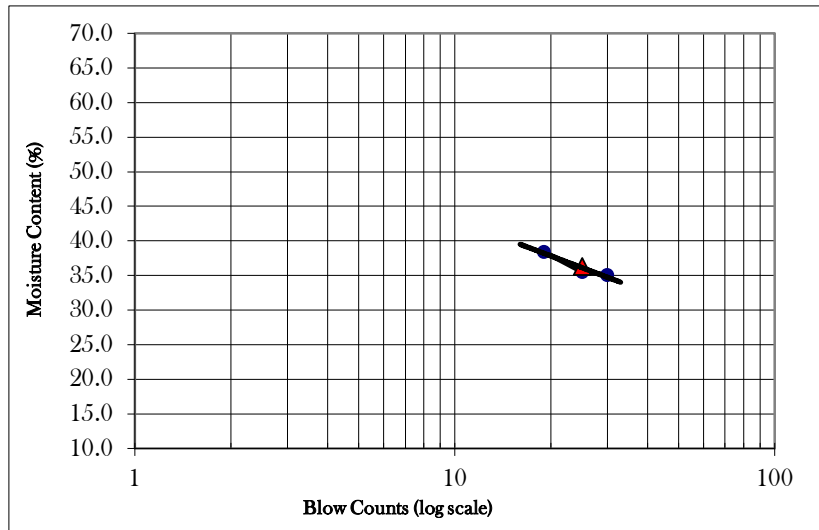
Boring Number M65

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-15	56	Cup Number	213	213
Weight of Cup (g)	23.88	35.41	19.01	Weight of Cup (g)	23.81	23.81
Weight of Wet Soil and Cup (g)	35.12	47.27	30.03	Weight of Wet Soil and Cup (g)	26.31	26.58
Weight of Dry Soil and Cup (g)	32.2	44.16	26.97	Weight of Dry Soil and Cup (g)	25.75	25.97
Moisure Content (%)	35.1	35.5	38.4	Moisure Content (%)	28.9	28.2
Blow Counts	30	25	19			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	29
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Baribadh, Shekerkhali**

Sample Information:

Sample Date: 11-02-18

Test Date: 05-04-18

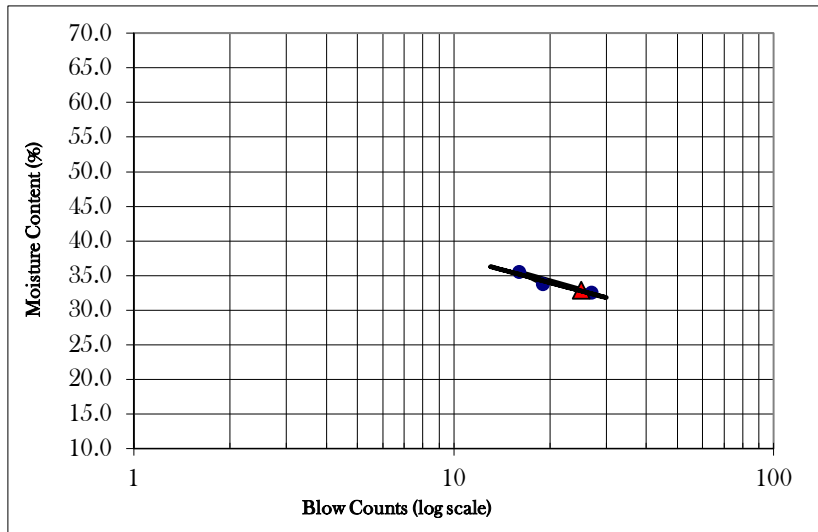
Boring Number M65

Sample Number 18

Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	56	Cr01	Cup Number	109	109
Weight of Cup (g)	19.56	19.03	24.51	Weight of Cup (g)	33.89	33.89
Weight of Wet Soil and Cup (g)	31.25	31.05	40.16	Weight of Wet Soil and Cup (g)	36.32	36.22
Weight of Dry Soil and Cup (g)	28.3	27.9	36.32	Weight of Dry Soil and Cup (g)	35.75	35.68
Moisure Content (%)	33.8	35.5	32.5	Moisure Content (%)	30.6	30.2
Blow Counts	19	16	27			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	30
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Khalpar, Ichakhali**

Sample Information:

Sample Date: 16/02/2018

Test Date: 31/03/2018

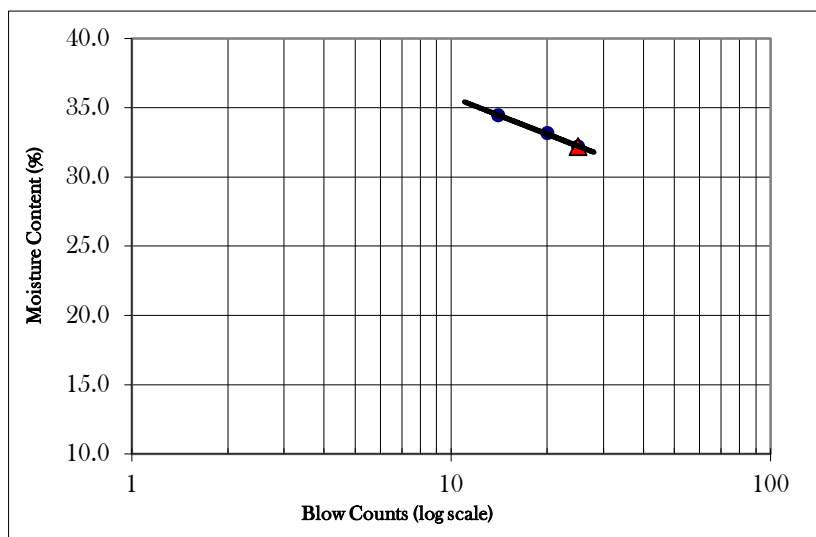
Boring Number M67

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	19	Can216	22	Cup Number	215	215
Weight of Cup (g)	37.12	36.83	36.96	Weight of Cup (g)	59.43	59.43
Weight of Wet Soil and Cup (g)	42.66	41.88	43.95	Weight of Wet Soil and Cup (g)	61.93	61.91
Weight of Dry Soil and Cup (g)	41.24	40.65	42.21	Weight of Dry Soil and Cup (g)	61.4	61.55
Moisture Content (%)	34.5	32.2	33.1	Moisture Content (%)	26.9	17.0
Blow Counts	14	25	20			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	22
Plasticity Index	10





# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Ichakhali Khalpar, Ichakhali**

Sample Information:

Sample Date: 16/02/2018

Test Date: 31/03/2018

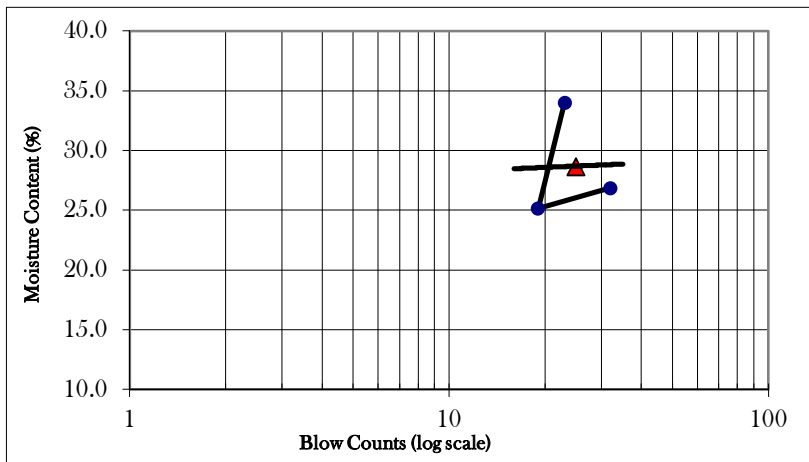
Boring Number M67

Sample Number 17

Depth of Sample(m) 25.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	214	56	109	Cup Number	7	7
Weight of Cup (g)	18.88	19.04	33.85	Weight of Cup (g)	23.93	23.93
Weight of Wet Soil and Cup (g)	29.95	31.18	45.19	Weight of Wet Soil and Cup (g)	26.1	26.19
Weight of Dry Soil and Cup (g)	27.14	28.74	42.79	Weight of Dry Soil and Cup (g)	25.66	25.68
Moisure Content (%)	34.0	25.2	26.8	Moisure Content (%)	25.4	29.1
Blow Counts	23	19	32			

## Compilation of Test Results



Liquid Limit	29
Plastic Limit	27
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

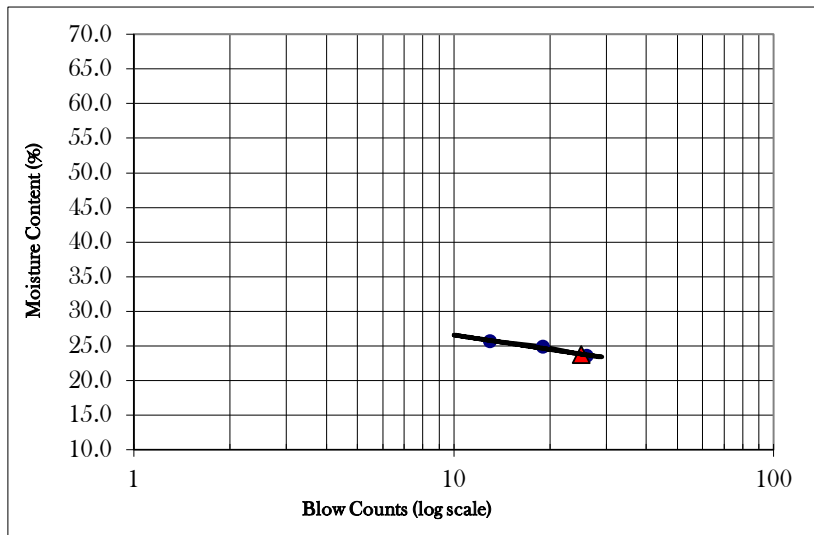
**Project Location :Shaherkhali High School, Shaherkhali**

Sample Information:

Sample Date: 13-02-18  
 Test Date: 06-05-18  
 Boring Number M68  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	2	CT-111	Cup Number	107	107
Weight of Cup (g)	29.25	29.57	18.92	Weight of Cup (g)	33.35	33.35
Weight of Wet Soil and Cup (g)	41.29	43.43	32.76	Weight of Wet Soil and Cup (g)	38.16	37.89
Weight of Dry Soil and Cup (g)	38.83	40.67	30.12	Weight of Dry Soil and Cup (g)	37.29	37.01
Moisure Content (%)	25.7	24.9	23.6	Moisure Content (%)	22.1	24.0
Blow Counts	13	19	26			

### Compilation of Test Results



Liquid Limit	24
Plastic Limit	23
Plasticity Index	1



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

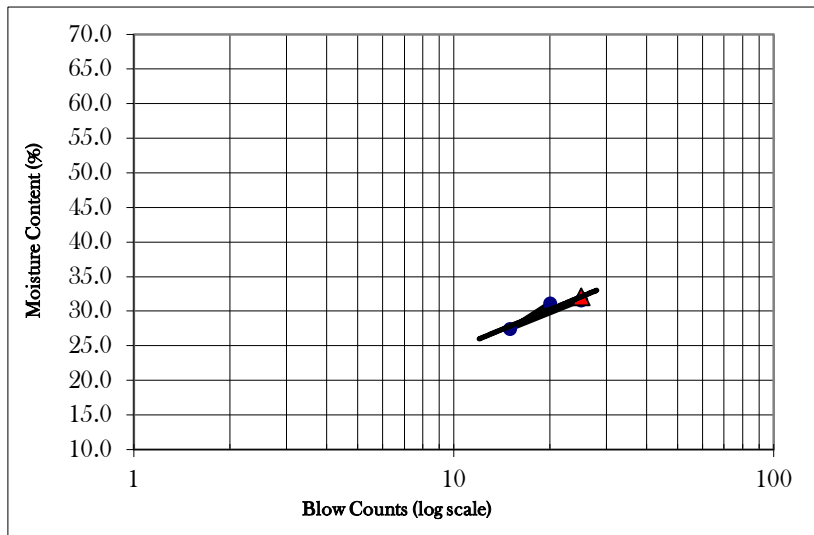
**Project Location :Shaherkhali High School, Shaherkhali**

Sample Information:

Sample Date: 13-02-18  
 Test Date: 06-05-18  
 Boring Number M68  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	105	102	214	Cup Number	Can18	Can18
Weight of Cup (g)	55.47	14.27	18.9	Weight of Cup (g)	32.74	32.74
Weight of Wet Soil and Cup (g)	63.43	28.2	29.72	Weight of Wet Soil and Cup (g)	35.15	35.51
Weight of Dry Soil and Cup (g)	61.52	25.2	27.15	Weight of Dry Soil and Cup (g)	34.6	34.9
Moisure Content (%)	31.6	27.4	31.2	Moisure Content (%)	29.6	28.2
Blow Counts	25	15	20			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	29
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

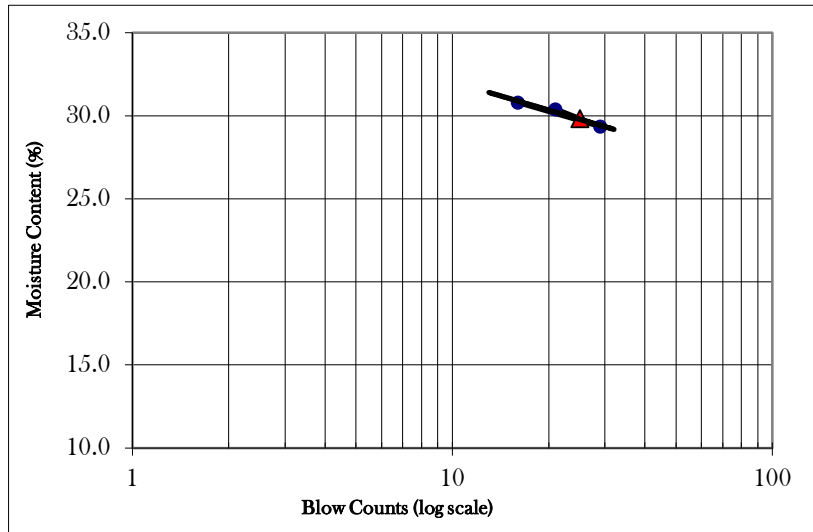
**Project Location : Dhoomkhali, Shaherkhali**

Sample Information:

Sample Date: 02-12-18  
 Test Date: 24/03/2018  
 Boring Number M69  
 Sample Number 02  
 Depth of Sample(m) 3.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct05	C300	Ct60	Cup Number	Cr01	Cr01
Weight of Cup (g)	21.52	24.34	22.11	Weight of Cup (g)	24.51	24.51
Weight of Wet Soil and Cup (g)	27.55	33.11	31.85	Weight of Wet Soil and Cup (g)	27.18	26.96
Weight of Dry Soil and Cup (g)	26.13	31.12	29.58	Weight of Dry Soil and Cup (g)	26.58	26.5
Moisure Content (%)	30.8	29.4	30.4	Moisure Content (%)	29.0	23.1
Blow Counts	16	29	21			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	26
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

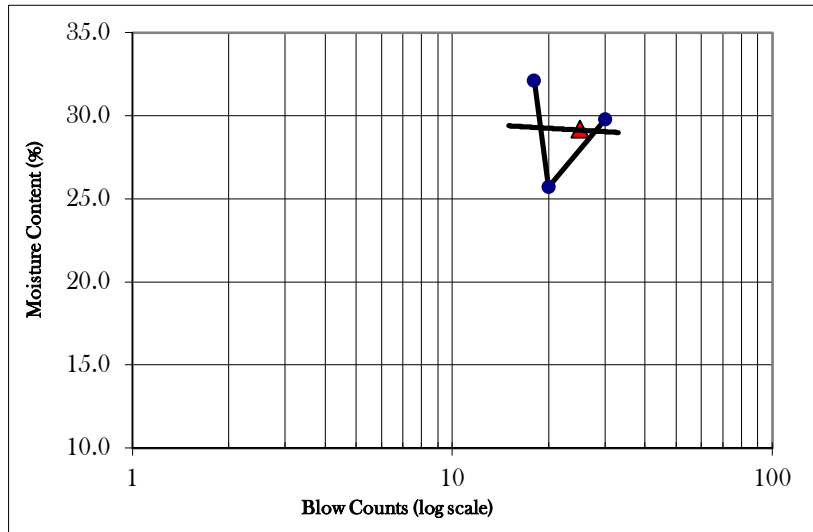
**Project Location : Dhoomkhali, Shaherkhali**

Sample Information:

Sample Date: 02-12-18  
 Test Date: 24/03/2018  
 Boring Number M69  
 Sample Number 18  
 Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	213	56	8	Cup Number	409	409
Weight of Cup (g)	23.4	19.04	23.86	Weight of Cup (g)	33.89	33.89
Weight of Wet Soil and Cup (g)	37.39	33.46	40.99	Weight of Wet Soil and Cup (g)	35.79	36.18
Weight of Dry Soil and Cup (g)	33.99	30.51	37.06	Weight of Dry Soil and Cup (g)	35.39	35.77
Moisure Content (%)	32.1	25.7	29.8	Moisure Content (%)	26.7	21.8
Blow Counts	18	20	30			

### Compilation of Test Results



Liquid Limit	29
Plastic Limit	24
Plasticity Index	5



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

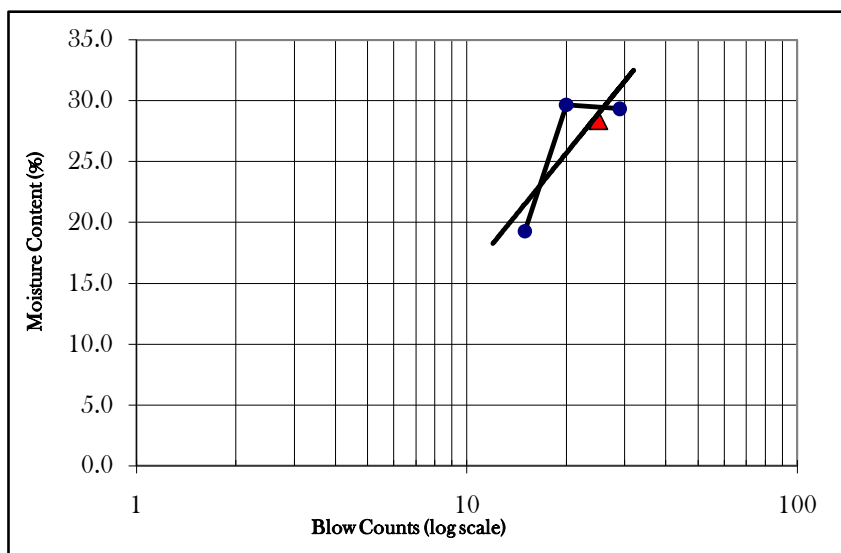
**Project Location : West Gobania, Mirsharai**

Sample Information:

Sample Date: 8/2/2018  
 Test Date: 27/3/2018  
 Boring Number M70  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct60	102	10	Cup Number	Ct111-2	Ct111-2
Weight of Cup (g)	22.09	14.24	36.25	Weight of Cup (g)	19.56	19.56
Weight of Wet Soil and Cup (g)	33.2	23.03	50.11	Weight of Wet Soil and Cup (g)	22.75	21.82
Weight of Dry Soil and Cup (g)	30.68	21.02	47.87	Weight of Dry Soil and Cup (g)	22.1	21.41
Moisure Content (%)	29.3	29.6	19.3	Moisure Content (%)	25.6	22.2
Blow Counts	29	20	15			

## Compilation of Test Results



Liquid Limit	28
Plastic Limit	24
Plasticity Index	4



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

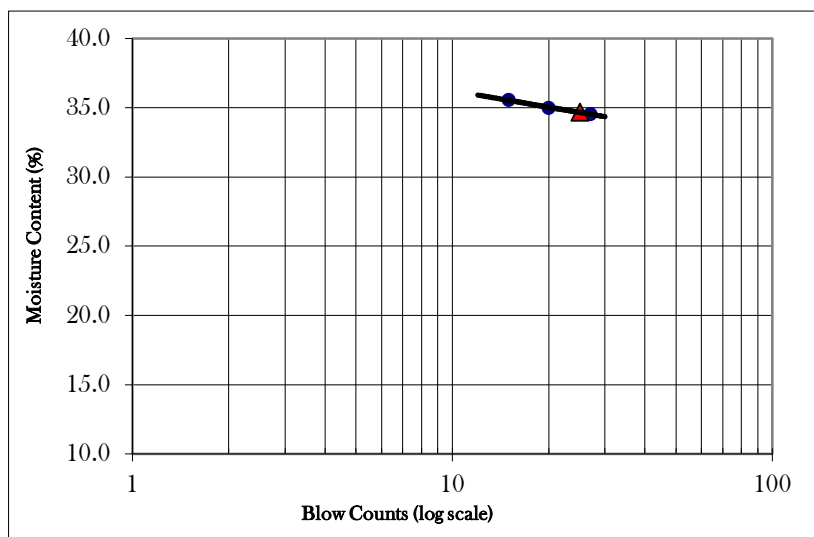
**Project Location : West Gobania, Mirsharai**

Sample Information:

Sample Date: 02-08-18  
 Test Date: 27/3/2018  
 Boring Number M70  
 Sample Number 16  
 Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	14	10	220	Cup Number	107	107
Weight of Cup (g)	36.37	36.24	36.63	Weight of Cup (g)	55.46	55.46
Weight of Wet Soil and Cup (g)	45.29	47.08	49.09	Weight of Wet Soil and Cup (g)	57.81	57.62
Weight of Dry Soil and Cup (g)	42.95	44.27	45.89	Weight of Dry Soil and Cup (g)	57.29	57.12
Moisire Content (%)	35.6	35.0	34.6	Moisire Content (%)	28.4	30.1
Blow Counts	15	20	27			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	29
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

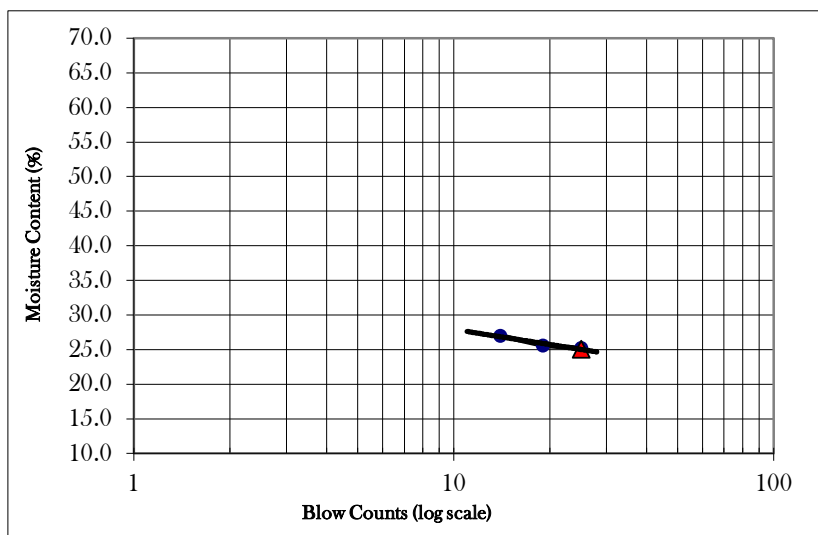
**Project Location : Khoiachora Waterfall Road, Khoiachora**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 16/3/2018  
 Boring Number M73  
 Sample Number 06  
 Depth of Sample(m) 9.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	8	7P	Ct111	Cup Number	109	109
Weight of Cup (g)	23.85	18.16	18.94	Weight of Cup (g)	33.93	33.93
Weight of Wet Soil and Cup (g)	35.28	28.23	30.82	Weight of Wet Soil and Cup (g)	36.27	36.82
Weight of Dry Soil and Cup (g)	32.85	26.18	28.43	Weight of Dry Soil and Cup (g)	35.85	36.35
Moisure Content (%)	27.0	25.6	25.2	Moisure Content (%)	21.9	19.4
Blow Counts	14	19	25			

### Compilation of Test Results



Liquid Limit	25
Plastic Limit	21
Plasticity Index	4





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

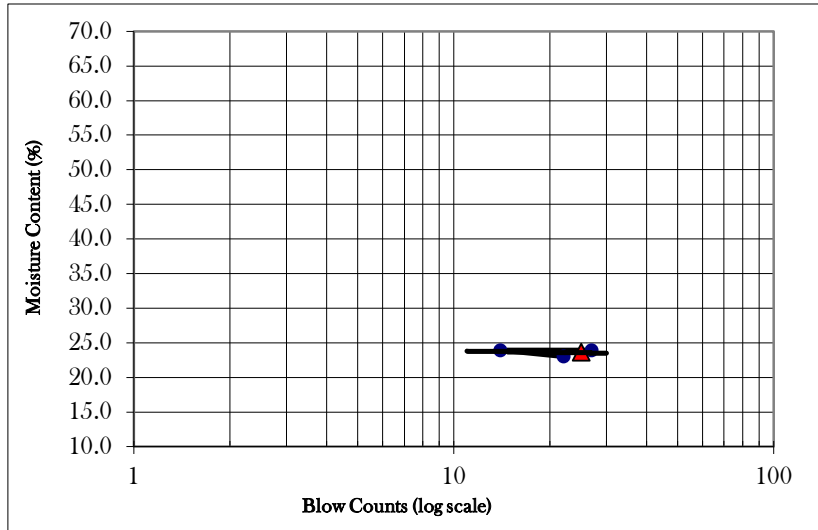
**Project Location : Khoiachora Waterfall Road, Khoiachora**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 16/3/2018  
 Boring Number M73  
 Sample Number 08  
 Depth of Sample(m) 12.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	9P	Ct02	Cup Number	301	301
Weight of Cup (g)	33.23	24.52	22.18	Weight of Cup (g)	18.5	18.5
Weight of Wet Soil and Cup (g)	46.75	38.05	36.61	Weight of Wet Soil and Cup (g)	21.31	21.77
Weight of Dry Soil and Cup (g)	44.14	35.44	33.91	Weight of Dry Soil and Cup (g)	20.85	21.24
Moisure Content (%)	23.9	23.9	23.0	Moisure Content (%)	19.6	19.3
Blow Counts	27	14	22			

### Compilation of Test Results



Liquid Limit	24
Plastic Limit	19
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

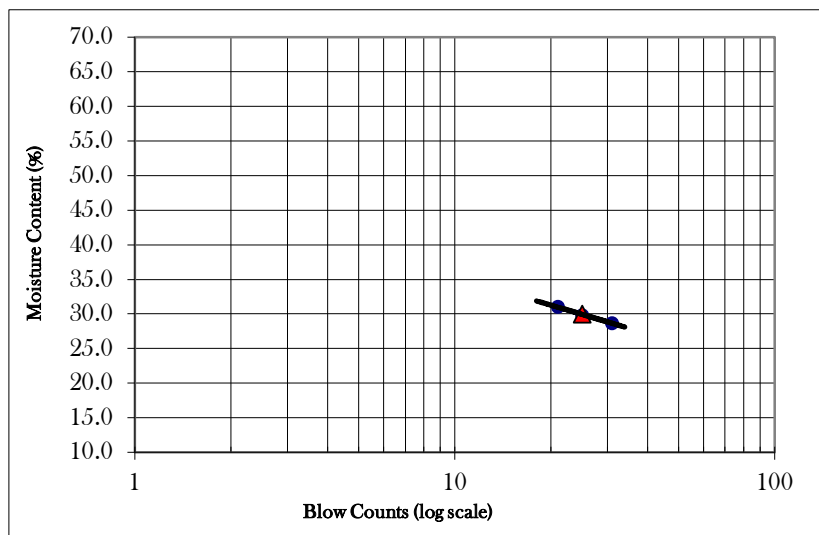
**Project Location : Said Ali Govt. Primary School**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 18/03/2018  
 Boring Number M74  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Can18	3	8	Cup Number	108	108
Weight of Cup (g)	32.77	42.11	44.26	Weight of Cup (g)	56.32	56.32
Weight of Wet Soil and Cup (g)	44.47	56.73	62.32	Weight of Wet Soil and Cup (g)	59.98	59.94
Weight of Dry Soil and Cup (g)	41.7	53.47	58.17	Weight of Dry Soil and Cup (g)	59.22	59.27
Moisure Content (%)	31.0	28.7	29.8	Moisure Content (%)	26.2	22.7
Blow Counts	21	31	25			

### Compilation of Test Results



Liquid Limit	<u>30</u>
Plastic Limit	<u>24</u>
Plasticity Index	<u>6</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

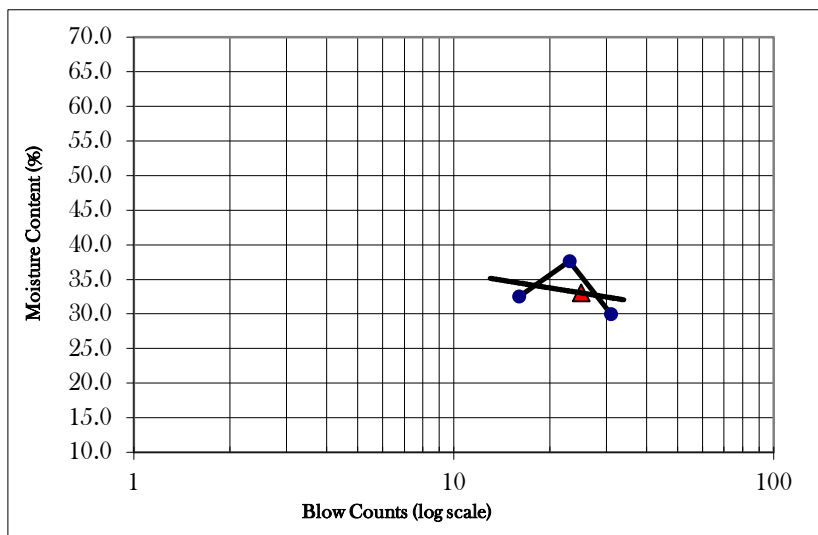
**Project Location : Said Ali Govt. Primary School**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 18/03/2018  
 Boring Number M74  
 Sample Number 19  
 Depth of Sample(m) 28.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	215	302	108	Cup Number	12	12
Weight of Cup (g)	59.41	12.17	56.28	Weight of Cup (g)	27.2	27.2
Weight of Wet Soil and Cup (g)	81.25	32.29	75.49	Weight of Wet Soil and Cup (g)	30.85	30.28
Weight of Dry Soil and Cup (g)	75.89	26.79	71.06	Weight of Dry Soil and Cup (g)	30.12	29.66
Moisure Content (%)	32.5	37.6	30.0	Moisure Content (%)	25.0	25.2
Blow Counts	16	23	31			

### Compilation of Test Results



Liquid Limit	<u>33</u>
Plastic Limit	<u>25</u>
Plasticity Index	<u>8</u>



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Majeda Huq High School, Mayani**

Sample Information:

Sample Date: 09-02-18

Test Date: 05-04-18

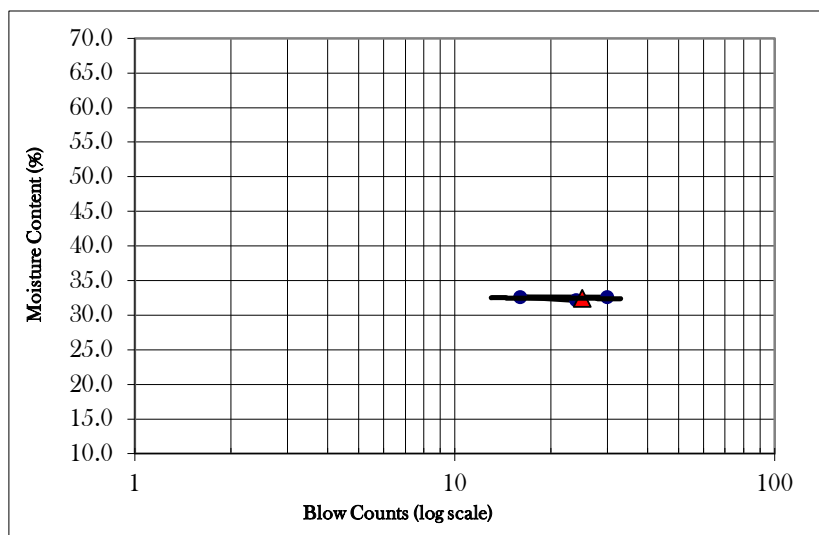
Boring Number M75

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	107	Ct-60	Pan15	Cup Number	109	109
Weight of Cup (g)	33.4	22.49	30	Weight of Cup (g)	33.9	33.9
Weight of Wet Soil and Cup (g)	49.59	32.62	43.49	Weight of Wet Soil and Cup (g)	35.7	36.14
Weight of Dry Soil and Cup (g)	45.61	30.13	40.21	Weight of Dry Soil and Cup (g)	35.34	35.65
Moisure Content (%)	32.6	32.6	32.1	Moisure Content (%)	25.0	28.0
Blow Counts	30	16	24			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	27
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

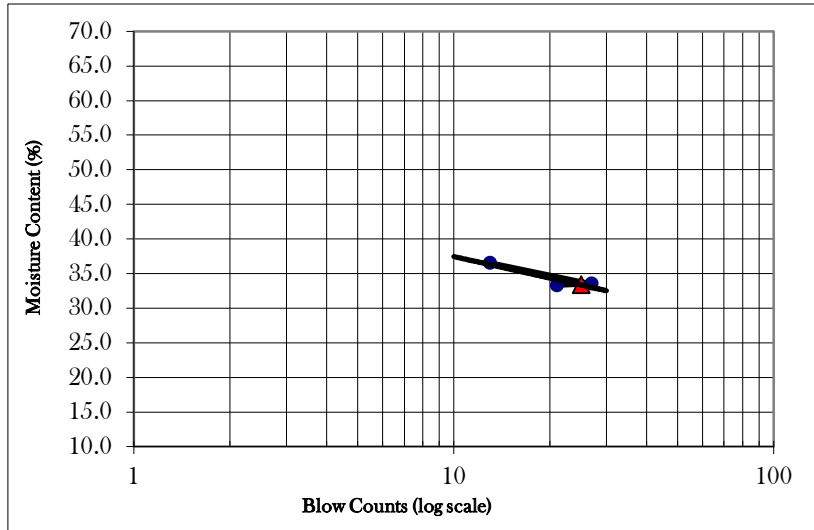
**Project Location : Majeda Huq High School, Mayani**

Sample Information:

Sample Date: 09-02-18  
 Test Date: 05-04-18  
 Boring Number M75  
 Sample Number 12  
 Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	7P	Ct112	201	Cup Number	12	12
Weight of Cup (g)	18.15	13.98	32.2	Weight of Cup (g)	27.23	27.23
Weight of Wet Soil and Cup (g)	29.99	27.08	46.41	Weight of Wet Soil and Cup (g)	29.72	29.18
Weight of Dry Soil and Cup (g)	26.82	23.79	42.86	Weight of Dry Soil and Cup (g)	29.19	28.78
Moisure Content (%)	36.6	33.5	33.3	Moisure Content (%)	27.0	25.8
Blow Counts	13	27	21			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	26
Plasticity Index	7



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

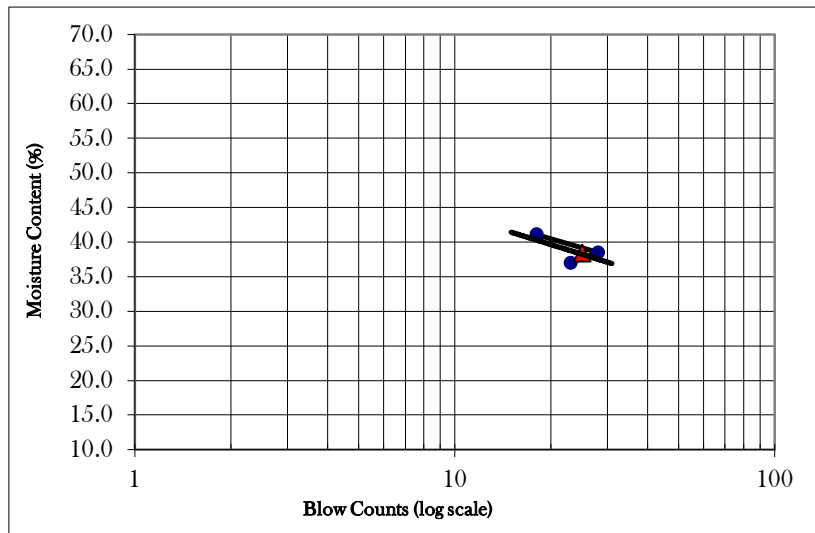
**Project Location : Shah Abdul Majid Govt. Primary School, West Mayani**

Sample Information:

Sample Date: 13-02-18  
 Test Date: 06-04-18  
 Boring Number M76  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	3	8	9	Cup Number	6P	6P
Weight of Cup (g)	42.11	44.23	41.41	Weight of Cup (g)	35.13	35.13
Weight of Wet Soil and Cup (g)	55.48	57.9	55.87	Weight of Wet Soil and Cup (g)	38.08	38.1
Weight of Dry Soil and Cup (g)	51.87	54.1	51.66	Weight of Dry Soil and Cup (g)	37.28	37.34
Moisure Content (%)	37.0	38.5	41.1	Moisure Content (%)	37.2	34.4
Blow Counts	23	28	18			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	36
Plasticity Index	2



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Shah Abdul Majid Govt. Primary School, West Mayani**

Sample Information:

Sample Date: 13-02-18

Test Date: 06-04-18

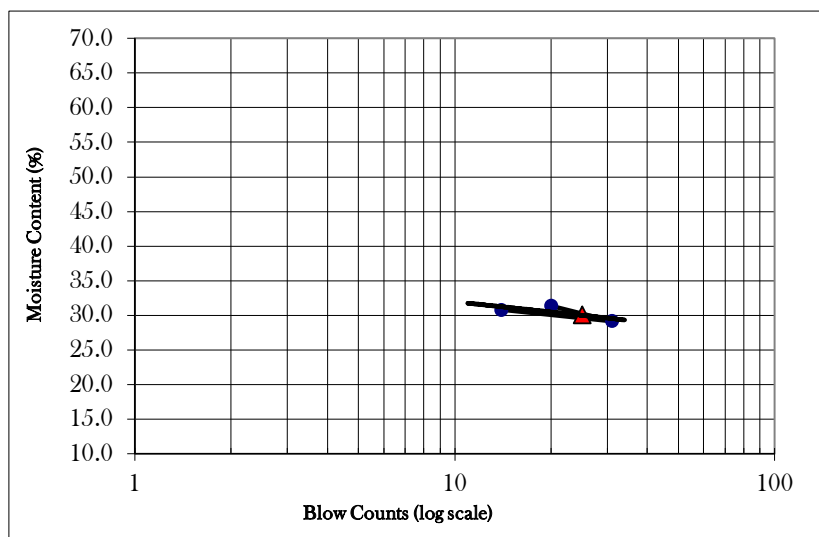
Boring Number M76

Sample Number 16

Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	103	9P	CT-211	Cup Number	CT-09	CT-09
Weight of Cup (g)	22.61	24.6	19.14	Weight of Cup (g)	29.26	29.26
Weight of Wet Soil and Cup (g)	30.56	35.42	30.37	Weight of Wet Soil and Cup (g)	31.44	31.31
Weight of Dry Soil and Cup (g)	28.69	32.98	27.69	Weight of Dry Soil and Cup (g)	30.99	30.91
Moisure Content (%)	30.8	29.1	31.3	Moisure Content (%)	26.0	24.2
Blow Counts	14	31	20			

### Compilation of Test Results



Liquid Limit	30
Plastic Limit	25
Plasticity Index	5



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Mayani Shahid Kamal Uddin Govt. Primary School**

Sample Information:

Sample Date: 14-02-18

Test Date: 05-04-18

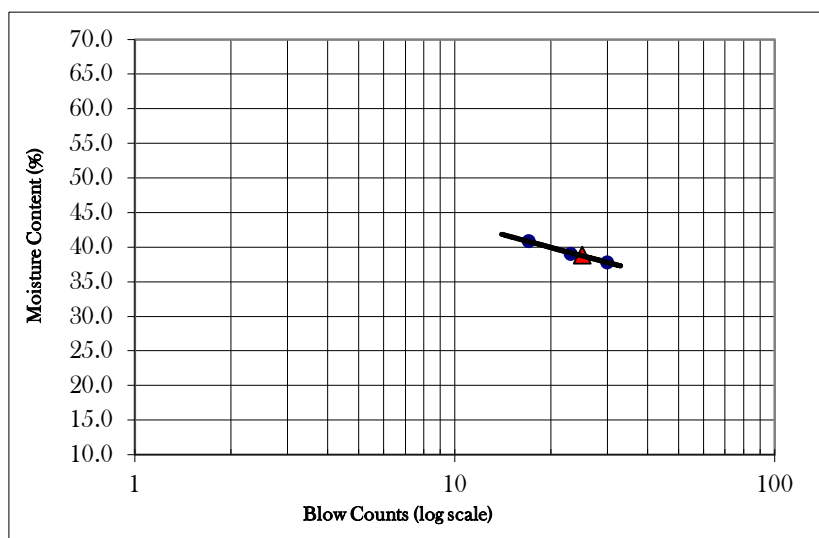
Boring Number M77

Sample Number 04

Depth of Sample(m) 6.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	CT-2	13	4	Cup Number	Ct-5	Ct-5
Weight of Cup (g)	22.18	23.73	22.68	Weight of Cup (g)	21.5	21.5
Weight of Wet Soil and Cup (g)	37	34.05	32.44	Weight of Wet Soil and Cup (g)	23.72	23.84
Weight of Dry Soil and Cup (g)	32.7	31.15	29.76	Weight of Dry Soil and Cup (g)	23.23	23.34
Moisure Content (%)	40.9	39.1	37.9	Moisure Content (%)	28.3	27.2
Blow Counts	17	23	30			

### Compilation of Test Results



Liquid Limit	39
Plastic Limit	28
Plasticity Index	11





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Mayani Shahid Kamal Uddin Govt. Primary School**

Sample Information:

Sample Date: 14-02-18

Test Date: 05-04-18

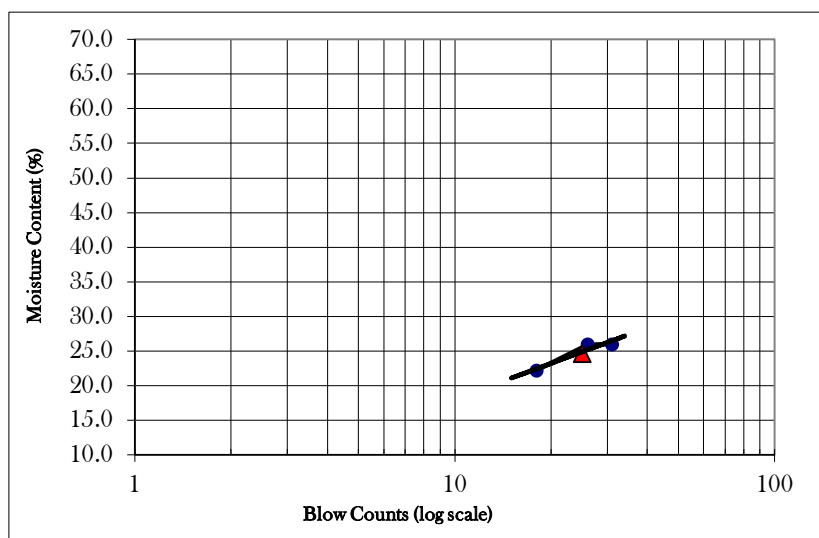
Boring Number M77

Sample Number 14

Depth of Sample(m) 21.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C300	Ct02	7P	Cup Number	12	12
Weight of Cup (g)	24.33	22.55	18.17	Weight of Cup (g)	27.23	27.23
Weight of Wet Soil and Cup (g)	33.81	32.41	25.16	Weight of Wet Soil and Cup (g)	28.6	28.68
Weight of Dry Soil and Cup (g)	32.09	30.38	23.72	Weight of Dry Soil and Cup (g)	28.38	28.45
Moisire Content (%)	22.2	25.9	25.9	Moisire Content (%)	19.1	18.9
Blow Counts	18	26	31			

### Compilation of Test Results



Liquid Limit	25
Plastic Limit	19
Plasticity Index	6
	*



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

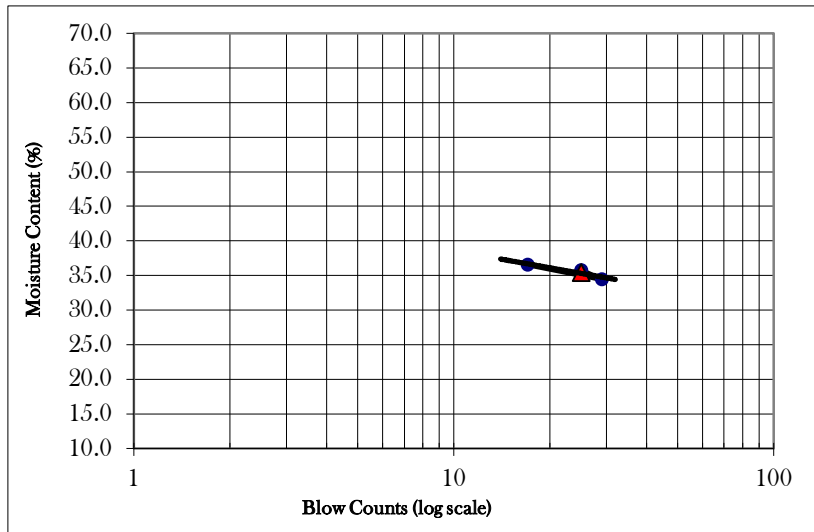
**Project Location : 13 no. Mayani Union Complex Building**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 18/03/2018  
 Boring Number M78  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	303	56	7P	Cup Number	8	8
Weight of Cup (g)	12.52	19.04	18.17	Weight of Cup (g)	23.88	23.88
Weight of Wet Soil and Cup (g)	22.46	31.3	28.63	Weight of Wet Soil and Cup (g)	26.44	26.48
Weight of Dry Soil and Cup (g)	19.84	28.16	25.83	Weight of Dry Soil and Cup (g)	25.8	25.88
Moisure Content (%)	35.8	34.4	36.6	Moisure Content (%)	33.3	30.0
Blow Counts	25	29	17			

### Compilation of Test Results



Liquid Limit	35
Plastic Limit	32
Plasticity Index	3



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

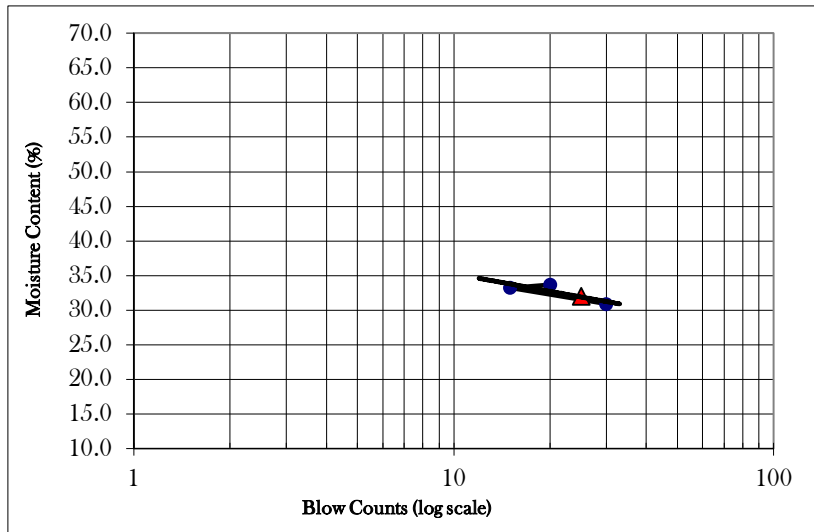
**Project Location : 13 no. Mayani Union Complex Building**

Sample Information:

Sample Date: 02-06-18  
 Test Date: 18/03/2018  
 Boring Number M78  
 Sample Number 16  
 Depth of Sample(m) 24.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	13	12	201	Cup Number	C300	C300
Weight of Cup (g)	23.75	27.24	32.2	Weight of Cup (g)	24.38	24.38
Weight of Wet Soil and Cup (g)	36.81	39.51	46.62	Weight of Wet Soil and Cup (g)	27.17	26.86
Weight of Dry Soil and Cup (g)	33.73	36.45	42.99	Weight of Dry Soil and Cup (g)	26.66	26.41
Moisure Content (%)	30.9	33.2	33.6	Moisure Content (%)	22.4	22.2
Blow Counts	30	15	20			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	22
Plasticity Index	10



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Wahedpur Molla para Mosque**

Sample Information:

Sample Date: 11-02-18

Test Date: 06-04-18

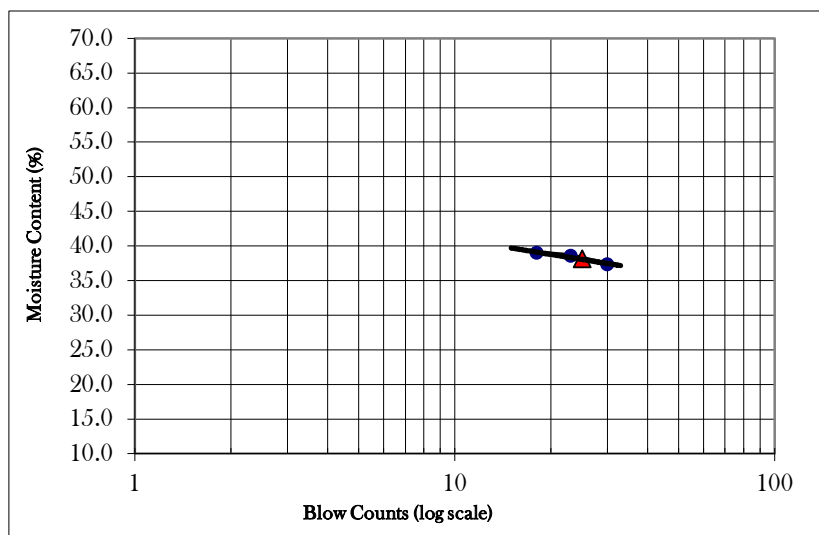
Boring Number M79

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct-60	210	13	Cup Number	CT-NO	CT-NO
Weight of Cup (g)	22.22	37.73	23.73	Weight of Cup (g)	29.93	29.93
Weight of Wet Soil and Cup (g)	35.41	51.99	42.89	Weight of Wet Soil and Cup (g)	33.79	33.08
Weight of Dry Soil and Cup (g)	31.71	48.02	37.68	Weight of Dry Soil and Cup (g)	33.06	32.45
Moisure Content (%)	39.0	38.6	37.3	Moisure Content (%)	23.3	25.0
Blow Counts	18	23	30			

### Compilation of Test Results



Liquid Limit	38
Plastic Limit	24
Plasticity Index	14



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : West Wahedpur Molla para Mosque**

Sample Information:

Sample Date: 11-02-18

Test Date: 06-04-18

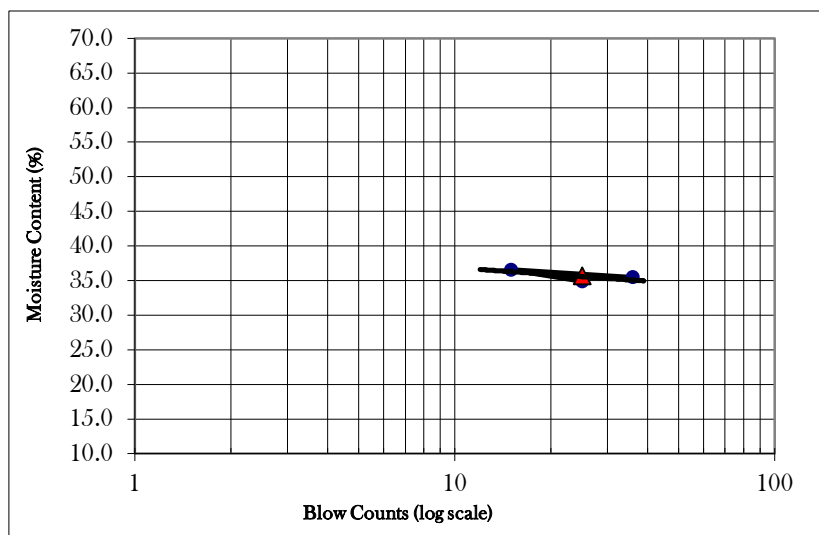
Boring Number M79

Sample Number 15

Depth of Sample(m) 22.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	111	109	107	Cup Number	300	300
Weight of Cup (g)	94.5	169.35	166.25	Weight of Cup (g)	121.9	121.9
Weight of Wet Soil and Cup (g)	147.91	219.21	214.39	Weight of Wet Soil and Cup (g)	131.21	128.98
Weight of Dry Soil and Cup (g)	134.09	205.86	201.79	Weight of Dry Soil and Cup (g)	129.21	127.45
Moisure Content (%)	34.9	36.6	35.5	Moisure Content (%)	27.4	27.6
Blow Counts	25	15	36			

### Compilation of Test Results



Liquid Limit	36
Plastic Limit	27
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Beltola, Wahedpur**

Sample Information:

Sample Date: 09-02-18

Test Date: 05-04-18

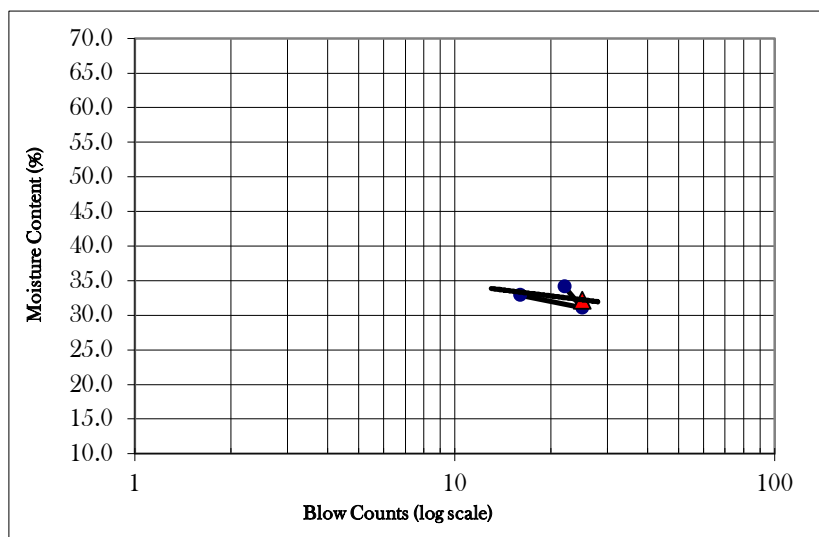
Boring Number M80

Sample Number 01

Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	17	3	8	Cup Number	C-300	C-300
Weight of Cup (g)	29.25	42.1	44.25	Weight of Cup (g)	24.47	24.47
Weight of Wet Soil and Cup (g)	40.16	54.75	57.25	Weight of Wet Soil and Cup (g)	27.68	26.99
Weight of Dry Soil and Cup (g)	37.46	51.75	53.94	Weight of Dry Soil and Cup (g)	27.04	26.51
Moisure Content (%)	32.9	31.1	34.2	Moisure Content (%)	24.9	23.5
Blow Counts	16	25	22			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	24
Plasticity Index	8



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive**

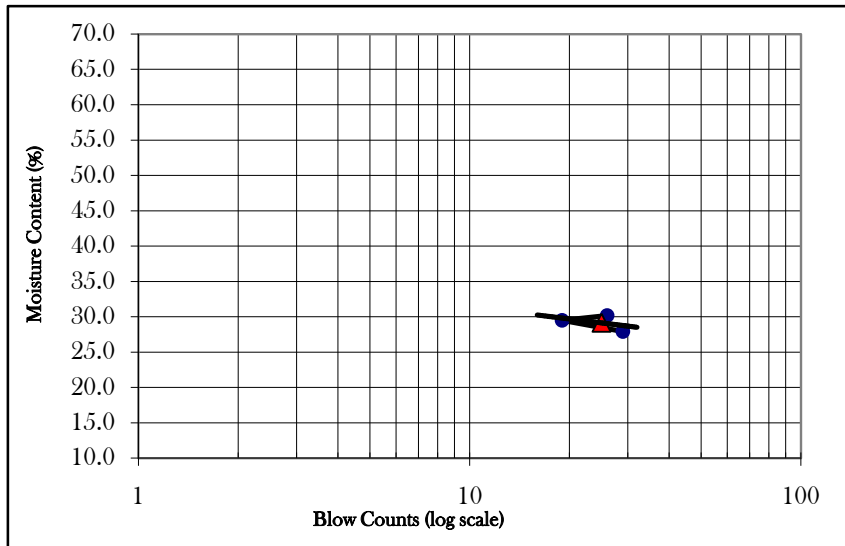
**Project Location : Sheker Taluk, Wahedpur**

Sample Information:

Sample Date: 2/10/2018  
 Test Date: 4/5/2018  
 Boring Number M81  
 Sample Number 01  
 Depth of Sample(m) 1.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	C-300	Ct-D2	109	Cup Number	107	107
Weight of Cup (g)	24.46	22.53	33.89	Weight of Cup (g)	55.47	55.47
Weight of Wet Soil and Cup (g)	36.42	31.92	48.12	Weight of Wet Soil and Cup (g)	58.71	58.58
Weight of Dry Soil and Cup (g)	33.81	29.78	44.82	Weight of Dry Soil and Cup (g)	57.99	57.89
Moisure Content (%)	27.9	29.5	30.2	Moisure Content (%)	28.6	28.5
Blow Counts	29	19	26			

## Compilation of Test Results



Liquid Limit	<u>29</u>
Plastic Limit	<u>29</u>
Plasticity Index	<u>1</u>



# Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive**

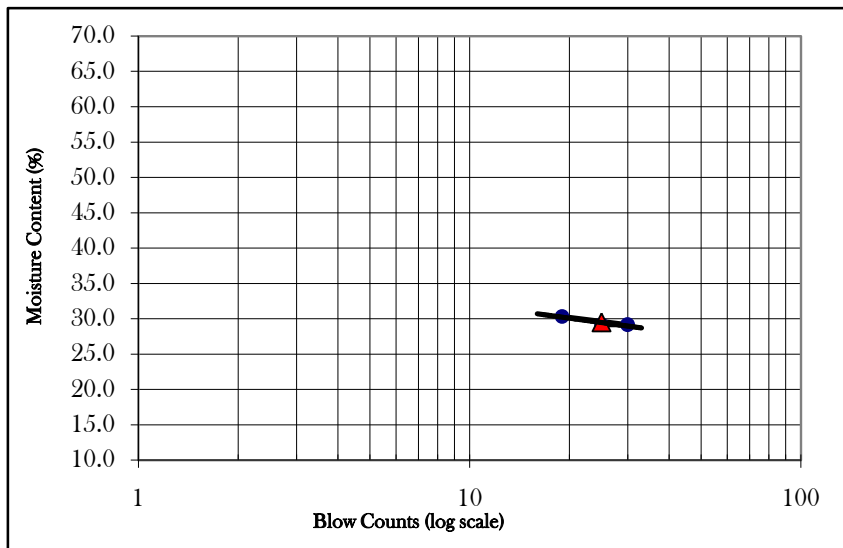
**Project Location : Sheker Taluk, Wahedpur**

Sample Information:

Sample Date: 2/10/2018  
 Test Date: 4/5/2018  
 Boring Number M81  
 Sample Number 03  
 Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	56	5P	220	Cup Number	Ct-15	Ct-15
Weight of Cup (g)	19	23.9	36.63	Weight of Cup (g)	35.43	35.43
Weight of Wet Soil and Cup (g)	33.56	36.97	50.67	Weight of Wet Soil and Cup (g)	38.61	38.66
Weight of Dry Soil and Cup (g)	30.17	34.02	47.5	Weight of Dry Soil and Cup (g)	37.94	37.98
Moisure Content (%)	30.3	29.2	29.2	Moisure Content (%)	26.7	26.7
Blow Counts	19	30	25			

## Compilation of Test Results



Liquid Limit	<u>30</u>
Plastic Limit	<u>27</u>
Plasticity Index	<u>3</u>





## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jafrabad Govt. Primary School, Wahedpur**

Sample Information:

Sample Date: 10-02-18

Test Date: 05-04-18

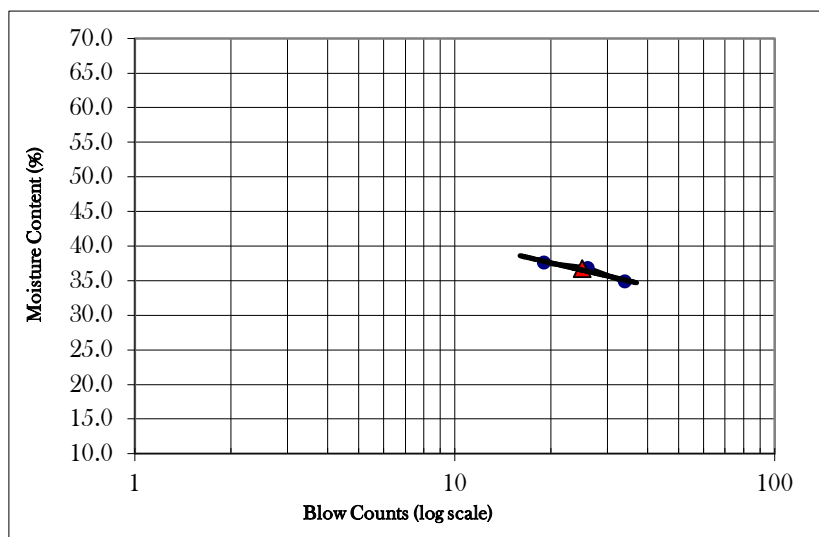
Boring Number M83

Sample Number 03

Depth of Sample(m) 4.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	9	102	C-111	Cup Number	8	8
Weight of Cup (g)	41.44	22.57	29.09	Weight of Cup (g)	24.05	24.05
Weight of Wet Soil and Cup (g)	51.47	33.31	39.23	Weight of Wet Soil and Cup (g)	26.93	26.68
Weight of Dry Soil and Cup (g)	48.73	30.42	36.61	Weight of Dry Soil and Cup (g)	26.29	26.12
Moisure Content (%)	37.6	36.8	34.8	Moisure Content (%)	28.6	27.1
Blow Counts	19	26	34			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	28
Plasticity Index	9



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

**Project Location : Jafrabad Govt. Primary School, Wahedpur**

Sample Information:

Sample Date: 10-02-18

Test Date: 05-04-18

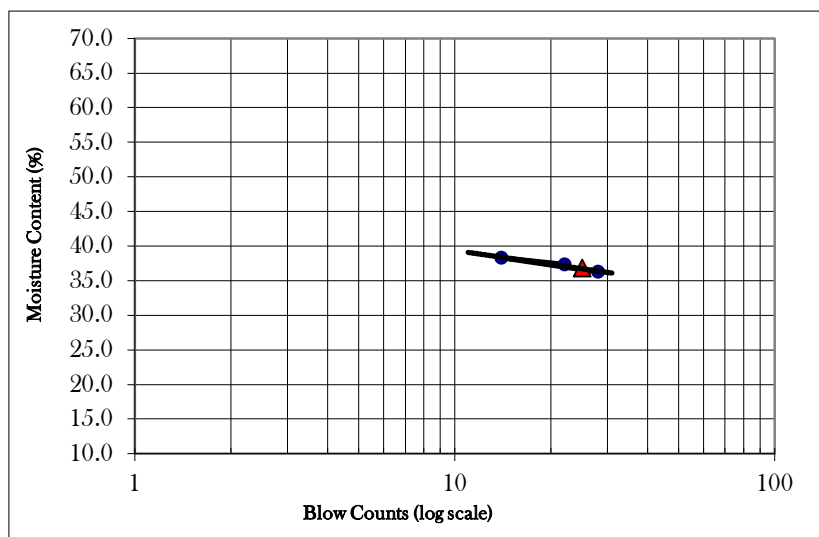
Boring Number M83

Sample Number 12

Depth of Sample(m) 18.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	301	303	Cr-01	Cup Number	4	4
Weight of Cup (g)	18.38	12.55	24.55	Weight of Cup (g)	22.66	22.66
Weight of Wet Soil and Cup (g)	32.29	26.81	39.71	Weight of Wet Soil and Cup (g)	26.36	26.7
Weight of Dry Soil and Cup (g)	28.59	22.86	35.59	Weight of Dry Soil and Cup (g)	25.52	25.79
Moisure Content (%)	36.2	38.3	37.3	Moisure Content (%)	29.4	29.1
Blow Counts	28	14	22			

### Compilation of Test Results



Liquid Limit	37
Plastic Limit	29
Plasticity Index	8



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

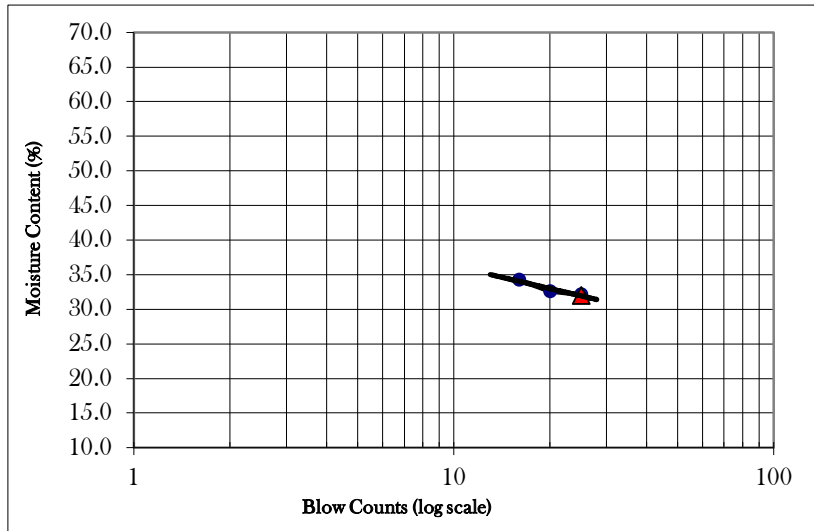
**Project Location : South Baliadi Govt. Primary School**

Sample Information:

Sample Date: 10-02-18  
 Test Date: 05-04-18  
 Boring Number M84  
 Sample Number 11  
 Depth of Sample(m) 16.5

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	5P	CT-5	102	Cup Number	CT15	CT15
Weight of Cup (g)	23.95	21.5	14.26	Weight of Cup (g)	35.42	35.42
Weight of Wet Soil and Cup (g)	33.91	33.38	27.83	Weight of Wet Soil and Cup (g)	38.52	38.33
Weight of Dry Soil and Cup (g)	31.37	30.46	24.53	Weight of Dry Soil and Cup (g)	37.88	37.72
Moisure Content (%)	34.2	32.6	32.1	Moisure Content (%)	26.0	26.5
Blow Counts	16	20	25			

### Compilation of Test Results



Liquid Limit	32
Plastic Limit	26
Plasticity Index	6



## Environmental & Geospatial Solutions (EGS)

Laboratory Test Results of Atterberg Limits of Soil (ASTM Designation:D4318)

**Client : Urban Development Directorate (UDD)**

**Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan**

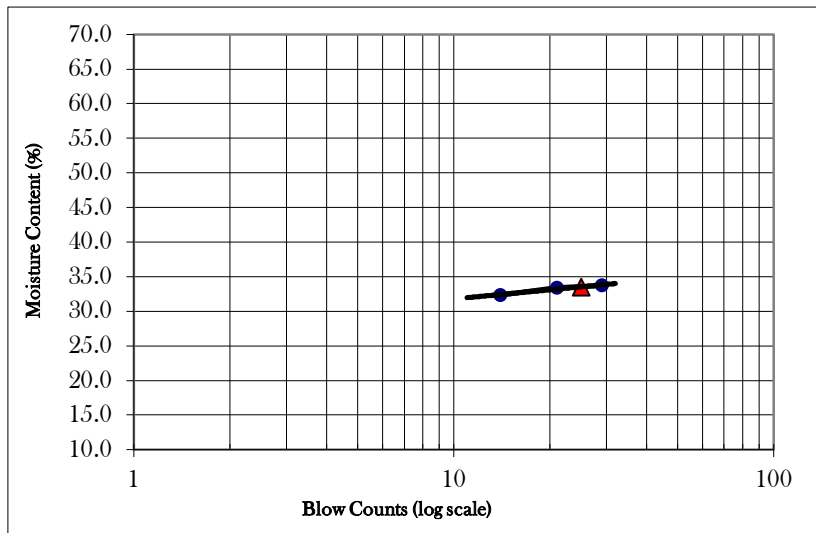
**Project Location : South Baliadi Govt. Primary School**

Sample Information:

Sample Date: 10-02-18  
 Test Date: 05-04-18  
 Boring Number M84  
 Sample Number 18  
 Depth of Sample(m) 27.0

Determination of Liquid Limit				Determination of Plastic Limit		
Cup Number	Ct02	2	302	Cup Number	Ct111	Ct111
Weight of Cup (g)	22.17	29.47	12.15	Weight of Cup (g)	18.91	18.91
Weight of Wet Soil and Cup (g)	31.81	43.13	23.61	Weight of Wet Soil and Cup (g)	21.75	21.66
Weight of Dry Soil and Cup (g)	29.38	39.71	20.81	Weight of Dry Soil and Cup (g)	21.09	21.06
Moisure Content (%)	33.7	33.4	32.3	Moisure Content (%)	30.3	27.9
Blow Counts	29	21	14			

### Compilation of Test Results



Liquid Limit	33
Plastic Limit	29
Plasticity Index	4

# D Direct Shear Test



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

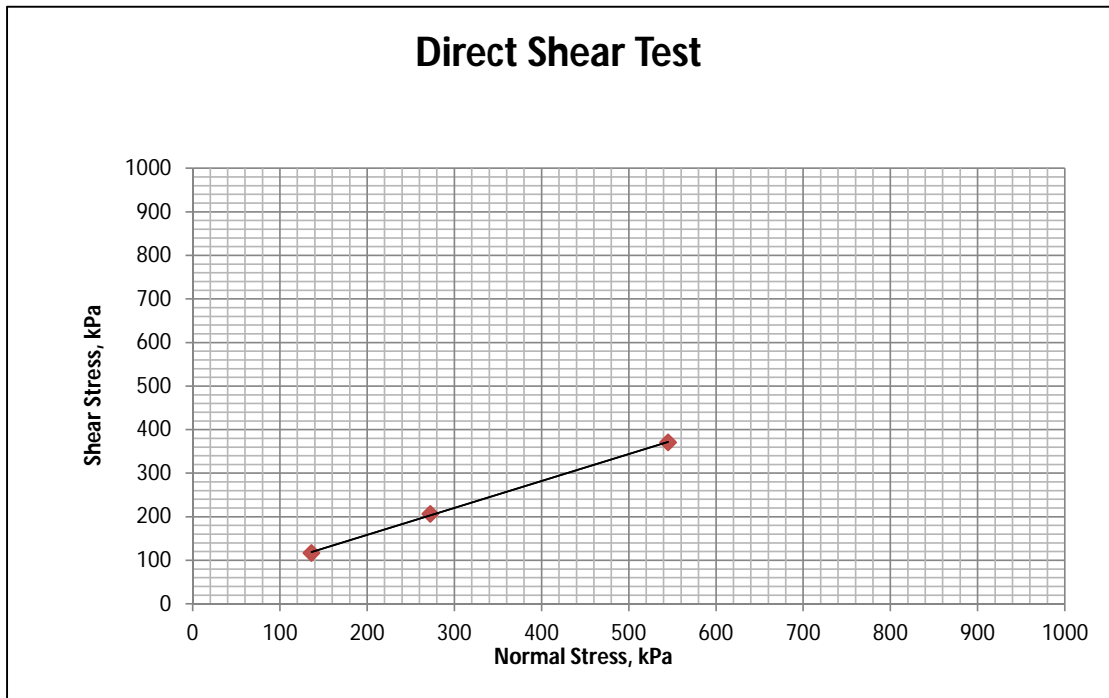
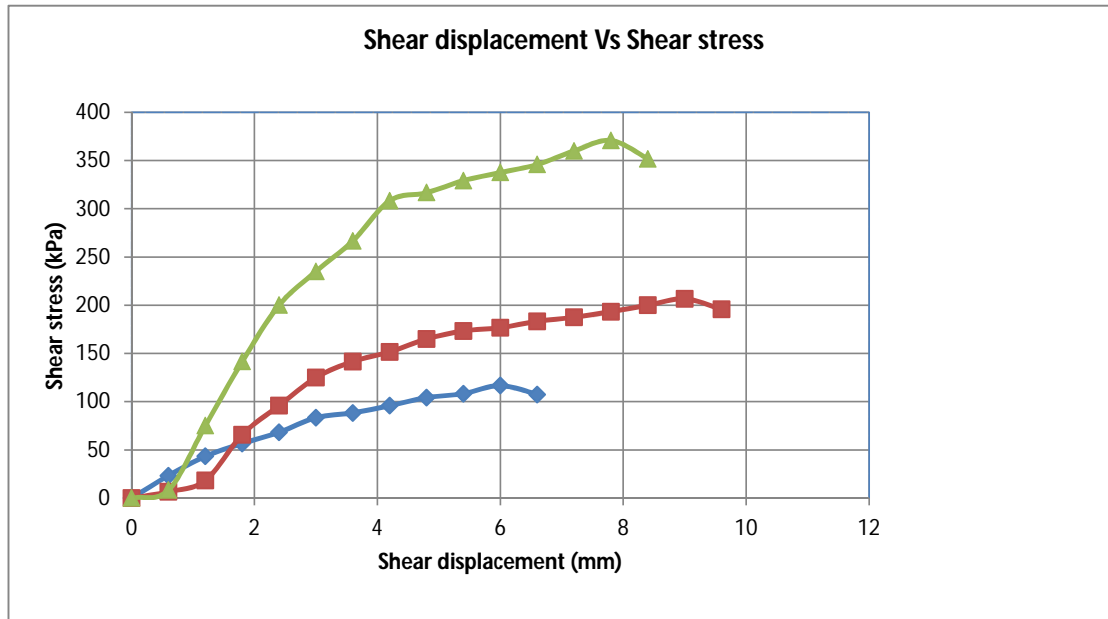
Project Location : West Joar Rashidia Govt. Primary School

Bore Hole No : M 01

Sample No. : D12

Depth (m) 18.00

Test Date : 29/4/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project Location : West Joar Rashidia Govt. Primary

Project :Mirsharai Upazilla Development Plan

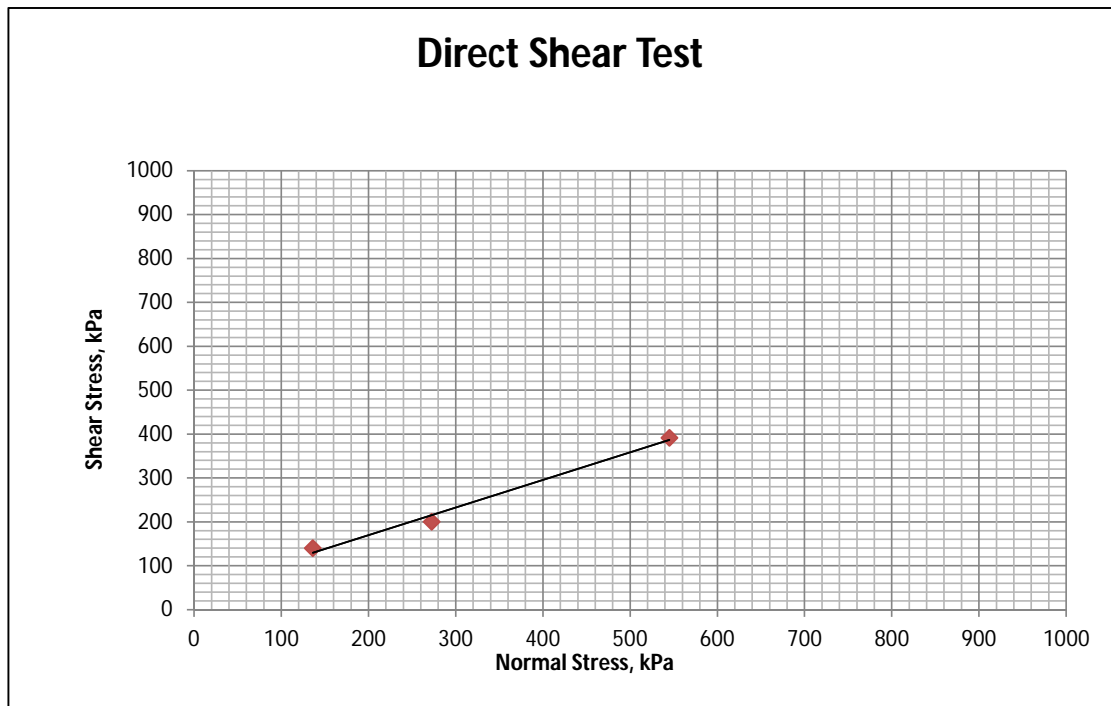
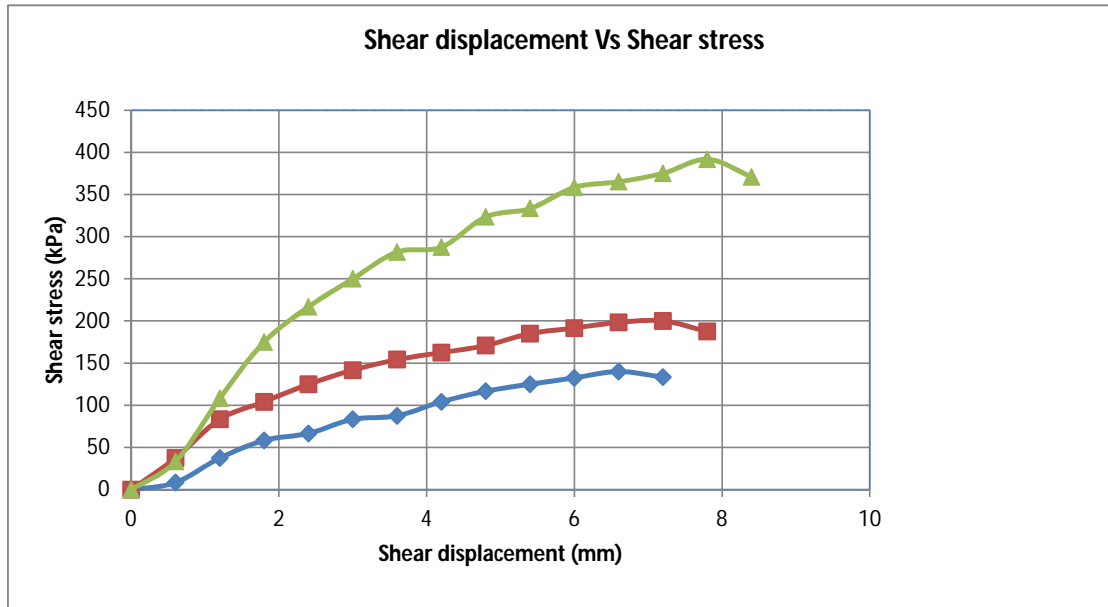
School

Bore Hole No : M 01

Sample No. : D18

Depth (m) 27.00

Test Date : 29/4/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

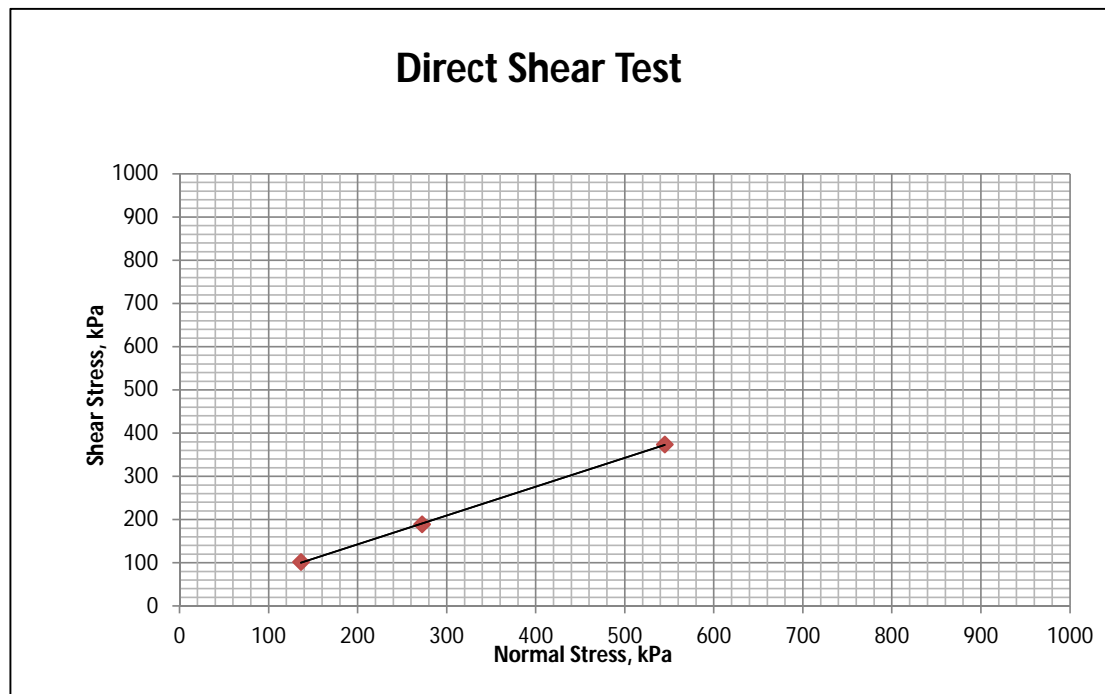
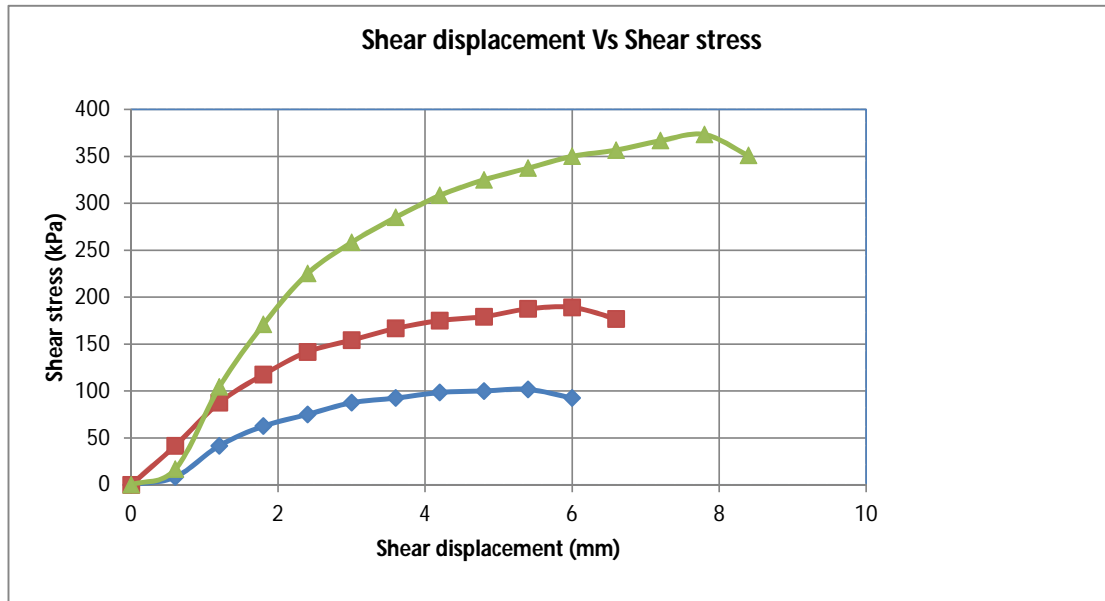
Project Location : Choturua, Ward-1, Korerhat

Bore Hole No : M 02

Sample No. : D10

Depth (m) 15.00

Test Date : 29/4/2018



Result: Friction angle: 34°





## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

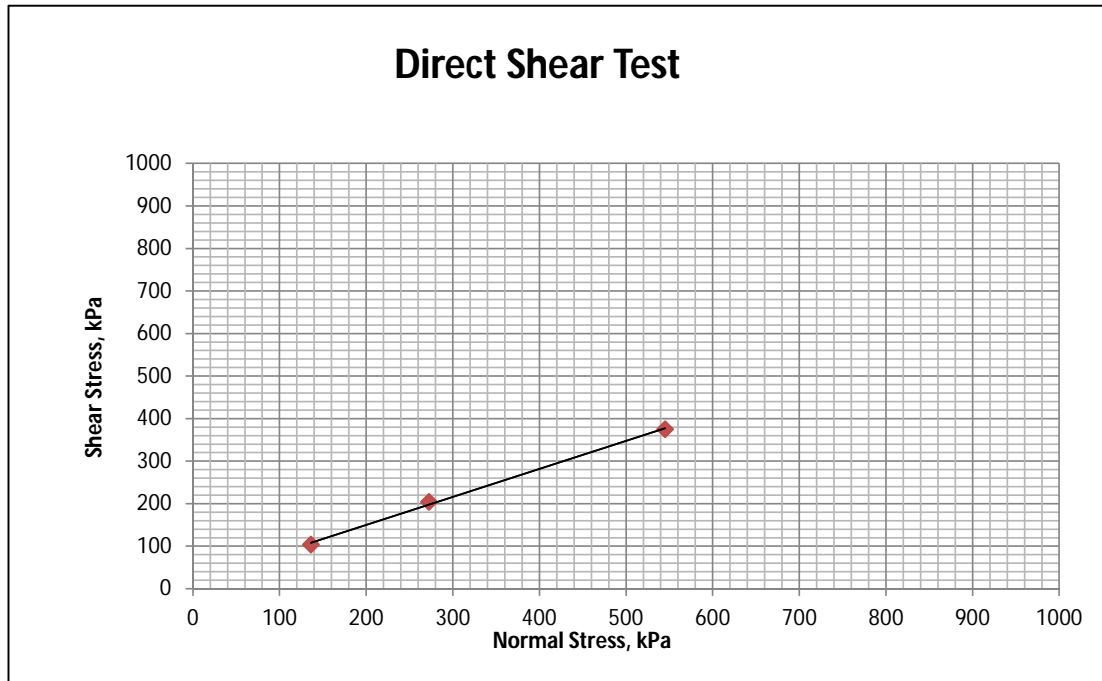
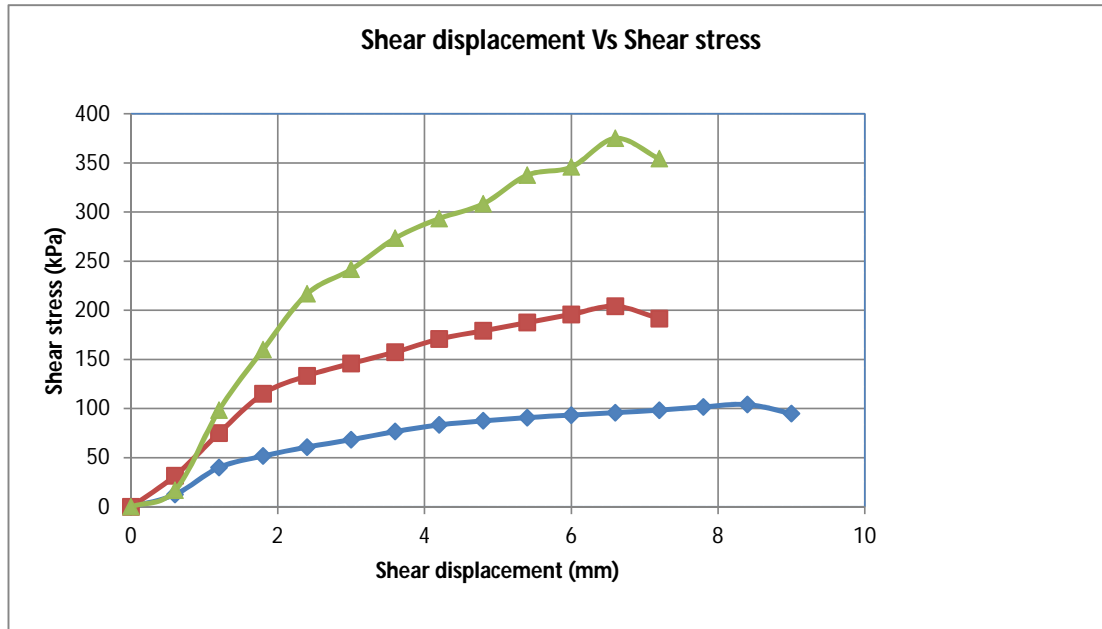
Project Location : Choturua, Ward-1, Korerhat

Bore Hole No : M 02

Sample No. : D19

Depth (m) 28.50

Test Date : 20/6/2016



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location : Giamara gram, Bagan road,

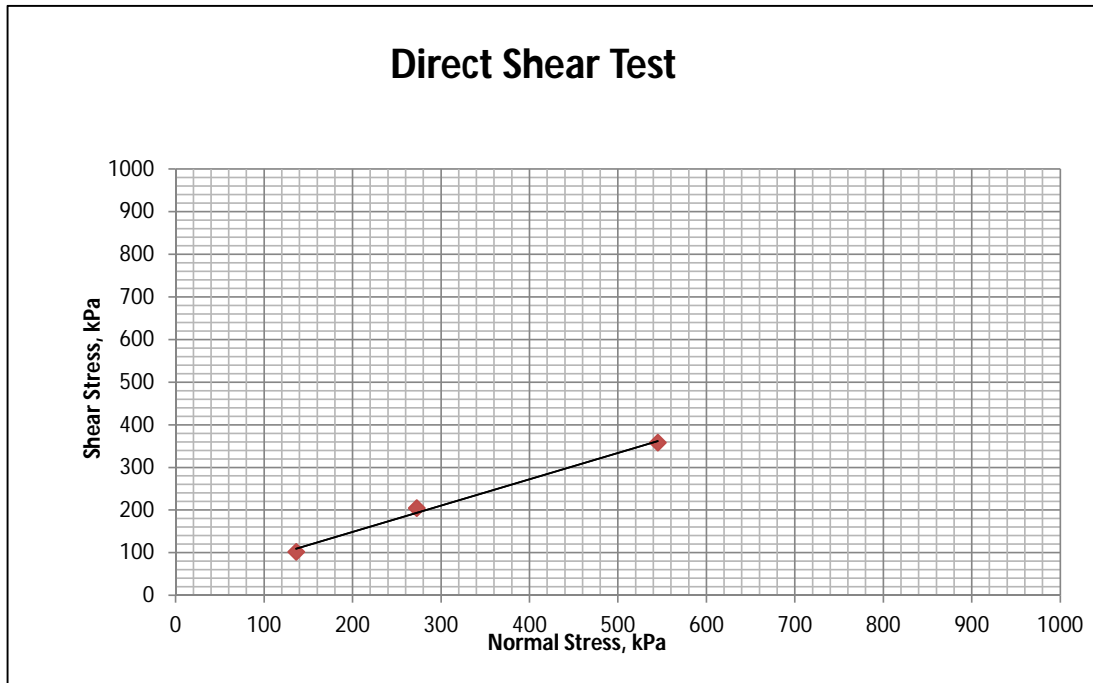
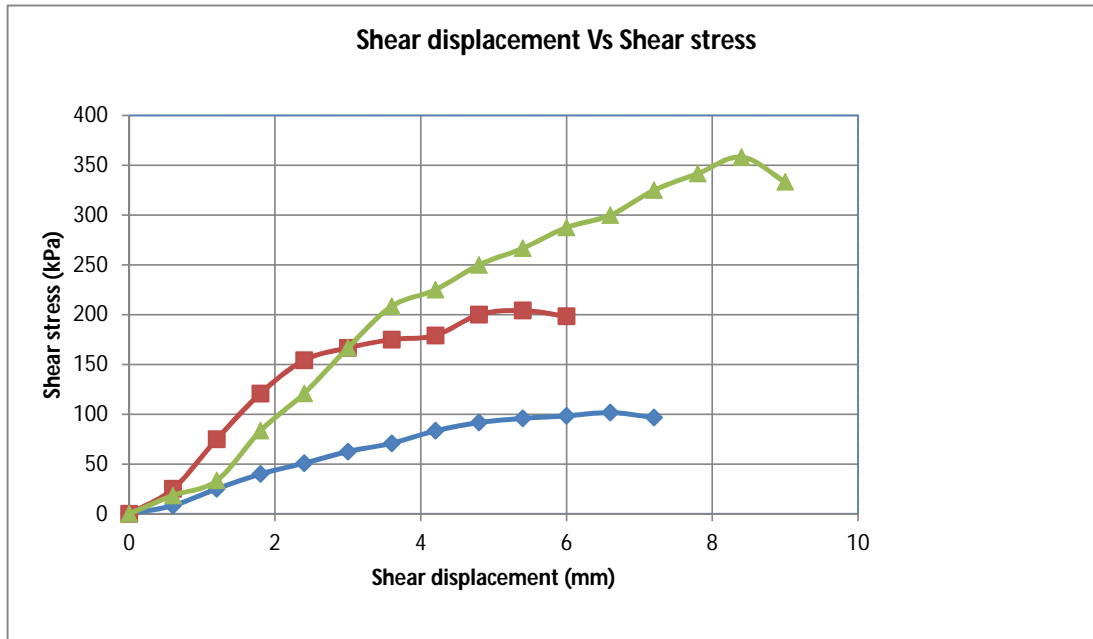
Korerhat

Bore Hole No : M 03

Sample No. : D8

Depth (m) 12.00

Test Date : 30/4/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

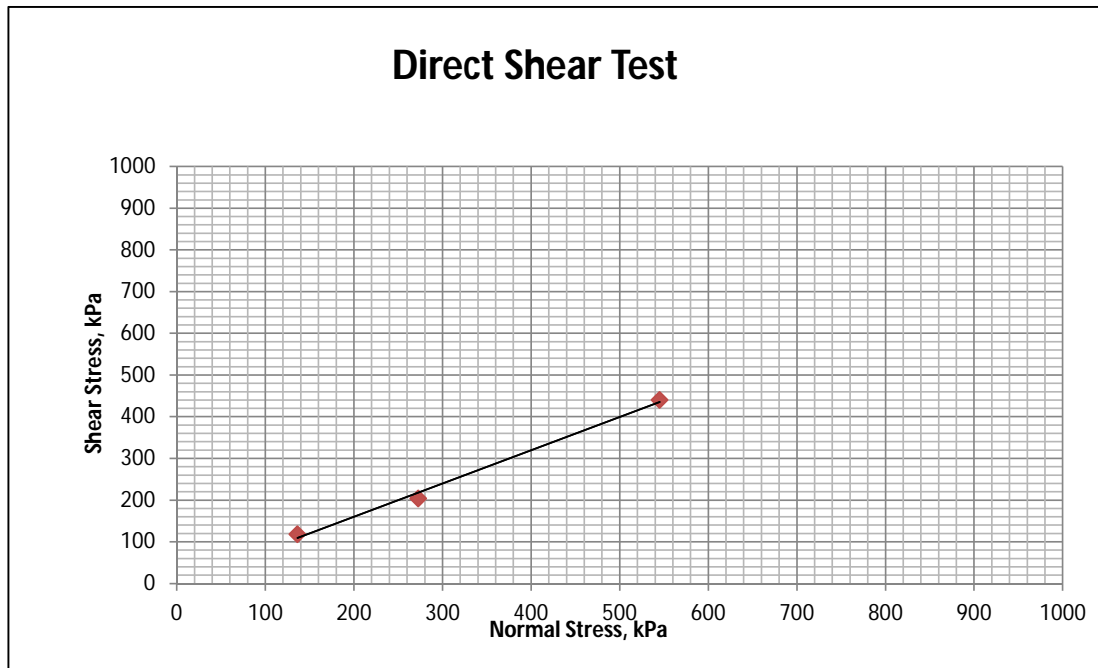
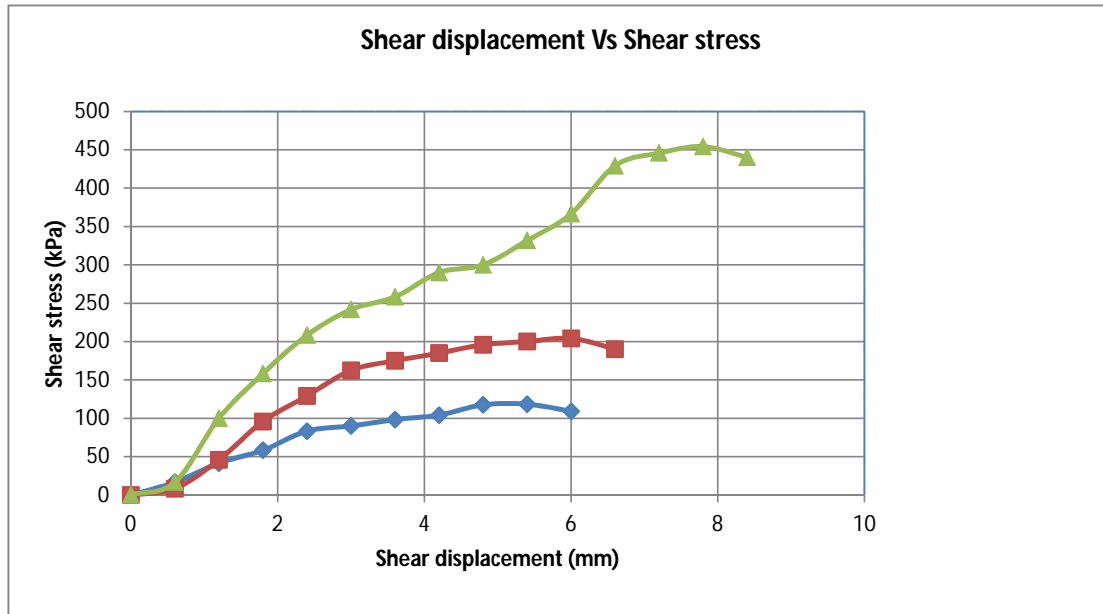
Project Location : Giamara gram, Bagan road,  
Korerhat

Bore Hole No : M 03

Sample No. : D13

Depth (m) 19.50

Test Date : 30/4/2018



Result: Friction angle: 39°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

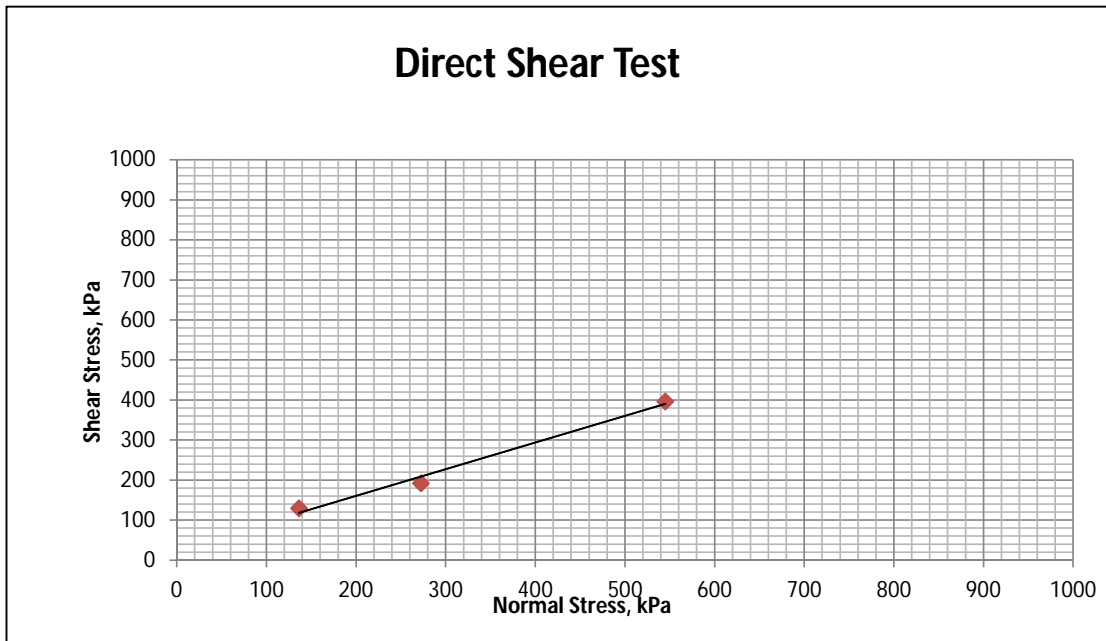
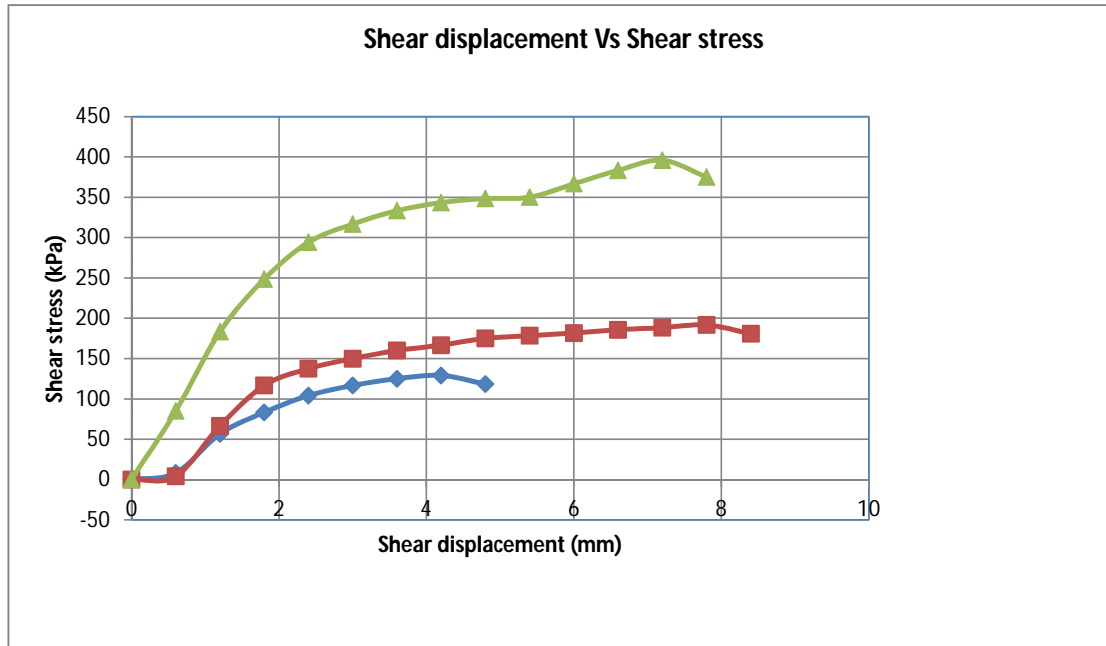
Project Location : Bisshowtila Jame mosque,  
Olinogor, Korerhat

Bore Hole No : M 04

Sample No. : D7

Depth (m) 10.50

Test Date : 30/4/2018



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

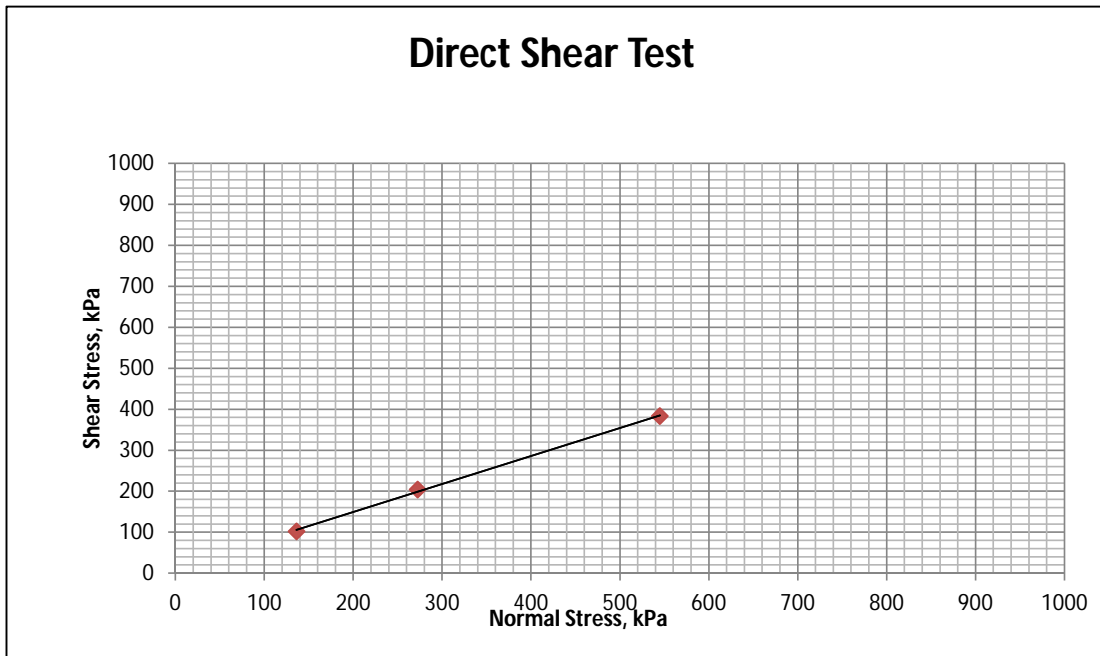
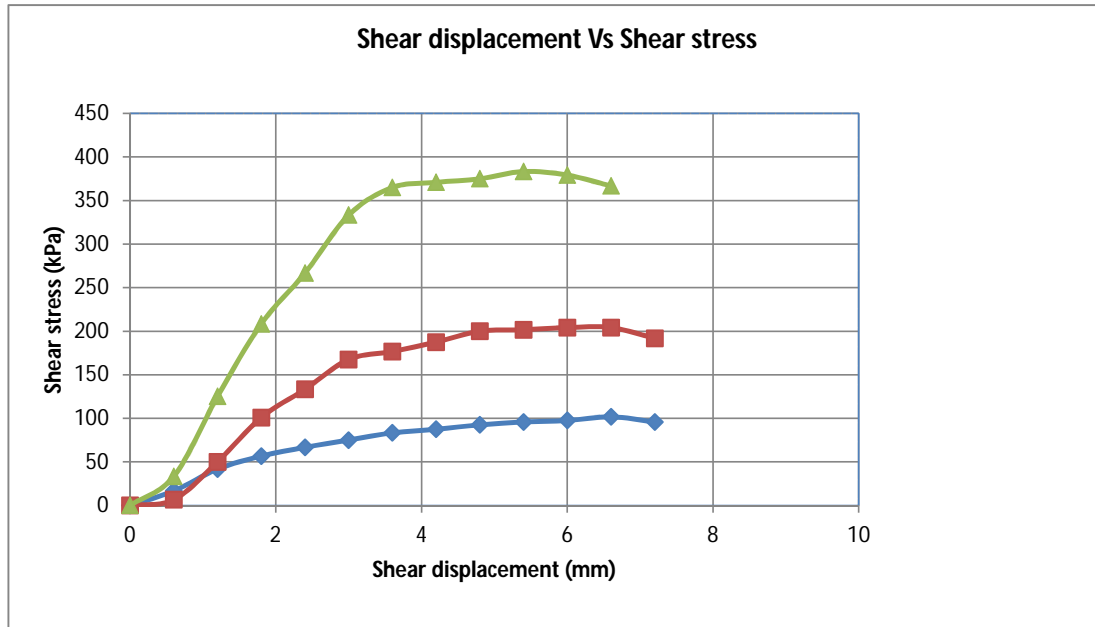
Project Location : Kuttapara Bridge, Sarail,  
Brahmanbaria

Bore Hole No : M 07

Sample No. : D10

Depth (m) 15.00

Test Date : 30/4/2018



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

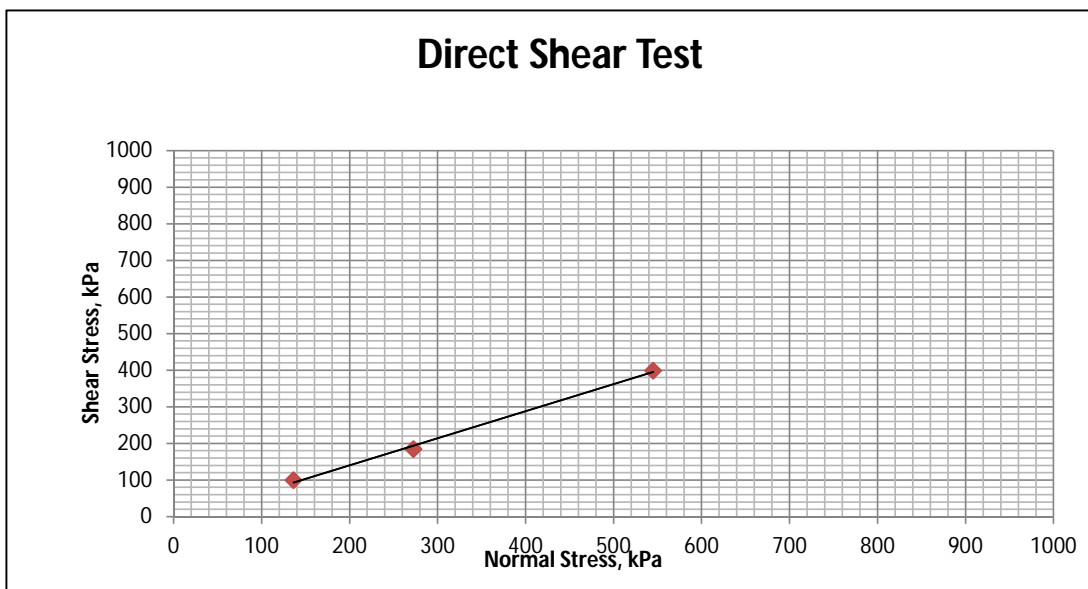
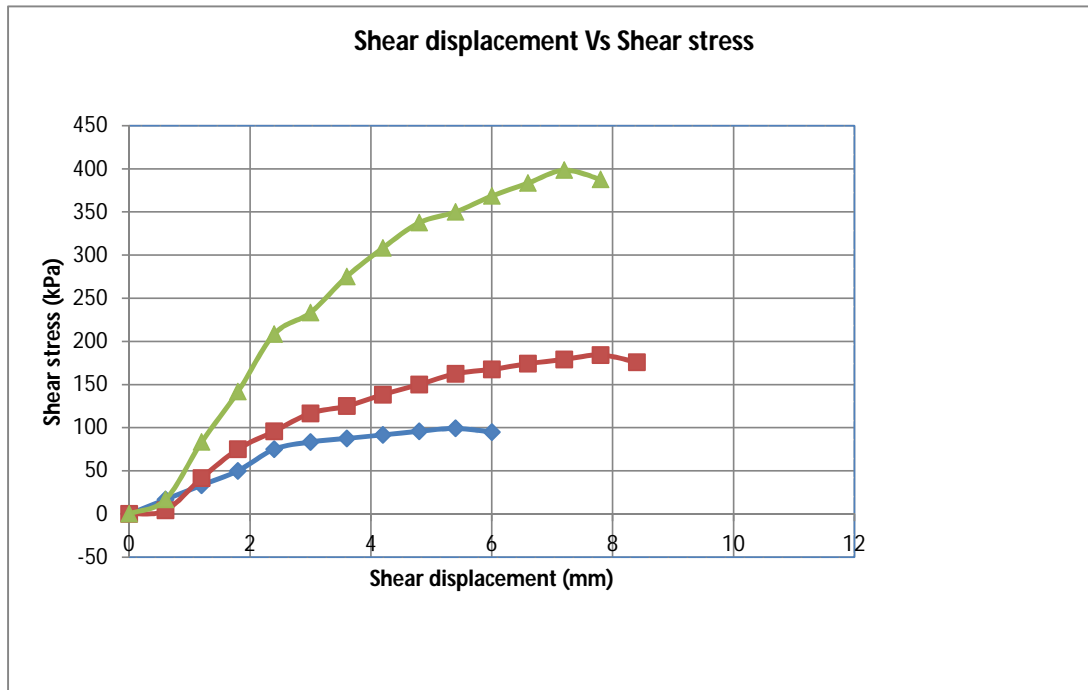
Project Location : East Mehedi Nagar (Forest Office)

Bore Hole No : M 09

Sample No. : D8

Depth (m) 12.00

Test Date : 30/4/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

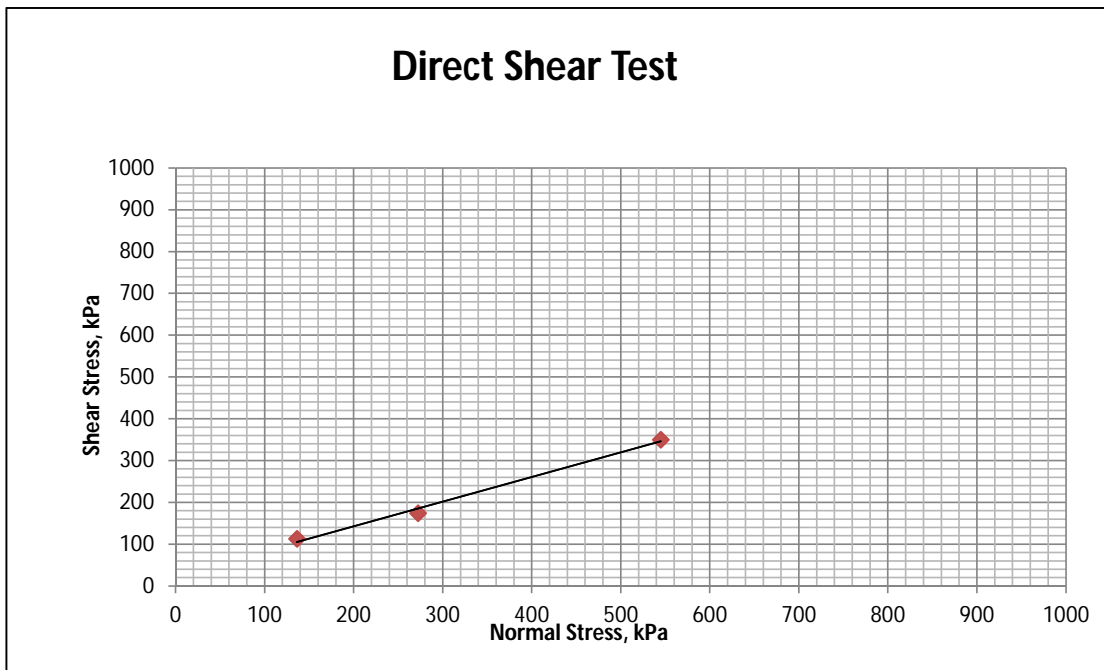
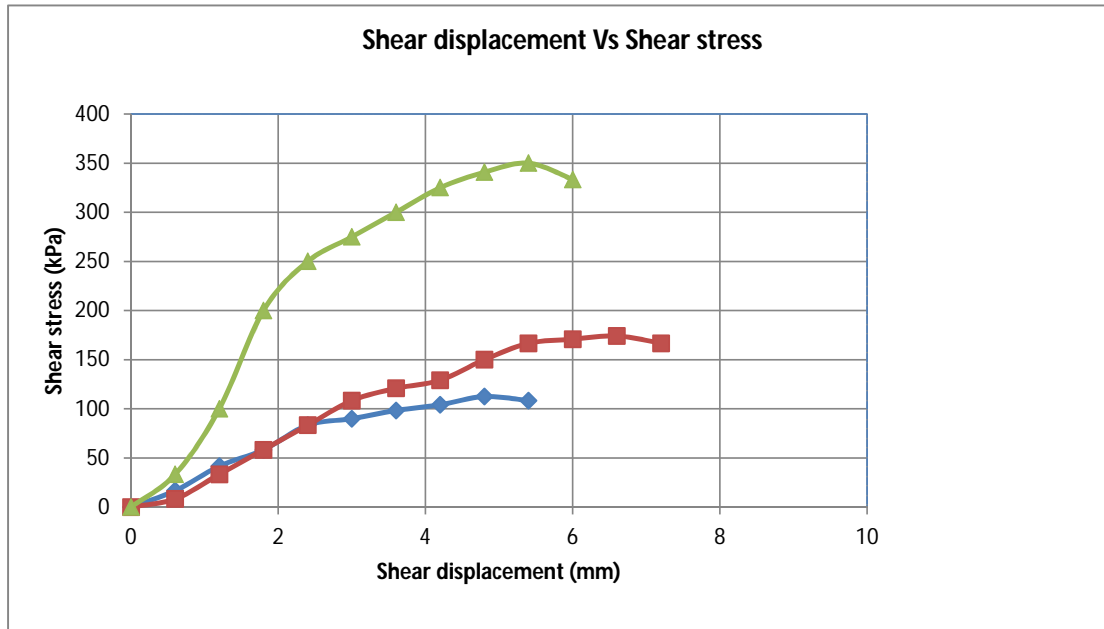
Project Location : Imampur Titabot tola Furkania  
Madrasha

Bore Hole No : M 11

Sample No. : D6

Depth (m) 9.00

Test Date : 30/4/2018



Result: Friction angle: 31°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

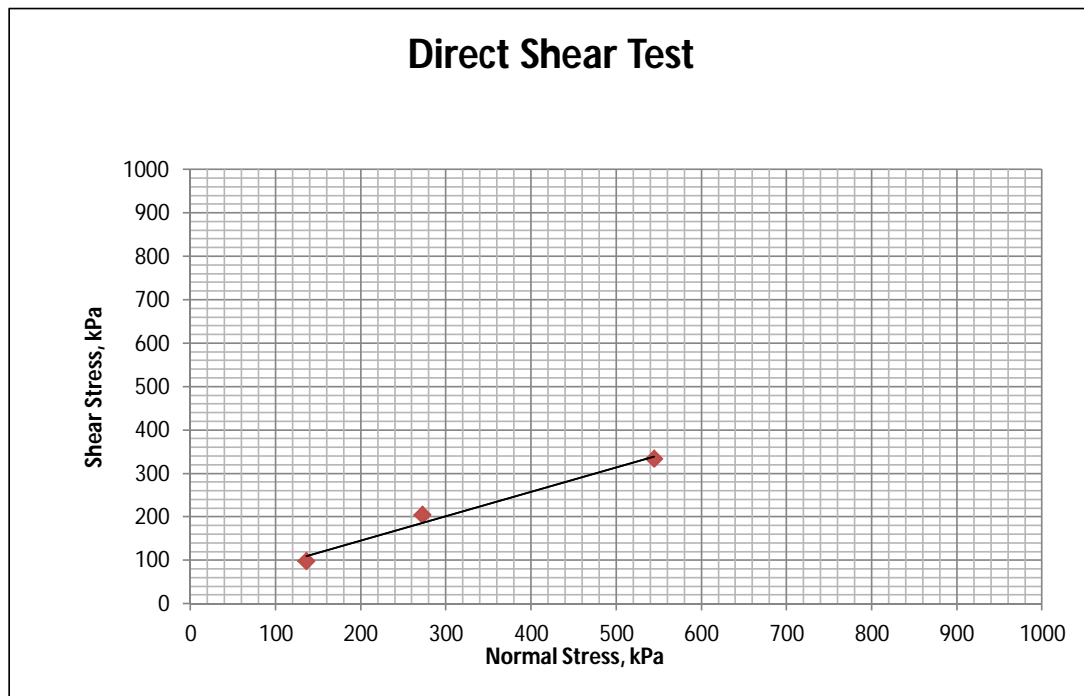
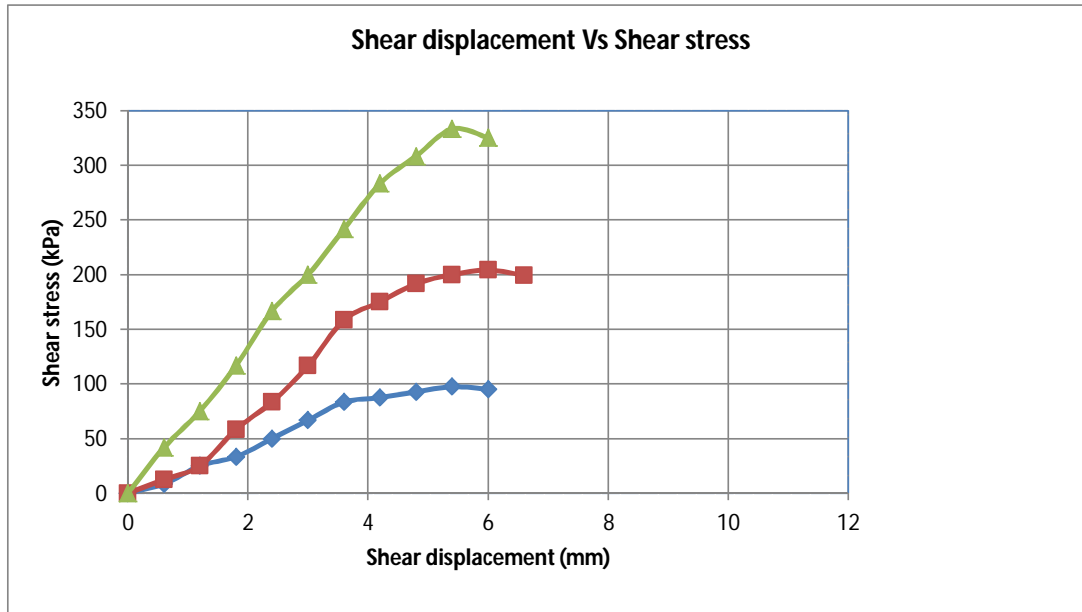
Project Location :Bono Chowdhury Jame Mosque,  
Mobarokguna, Dhoom

Bore Hole No : M 12

Sample No. : D12

Depth (m) 18.00

Test Date : 1/5/2018



Result: Friction angle: 30°





## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Banglabazar, Shantor road, Dhoom

Bore Hole No : M 13

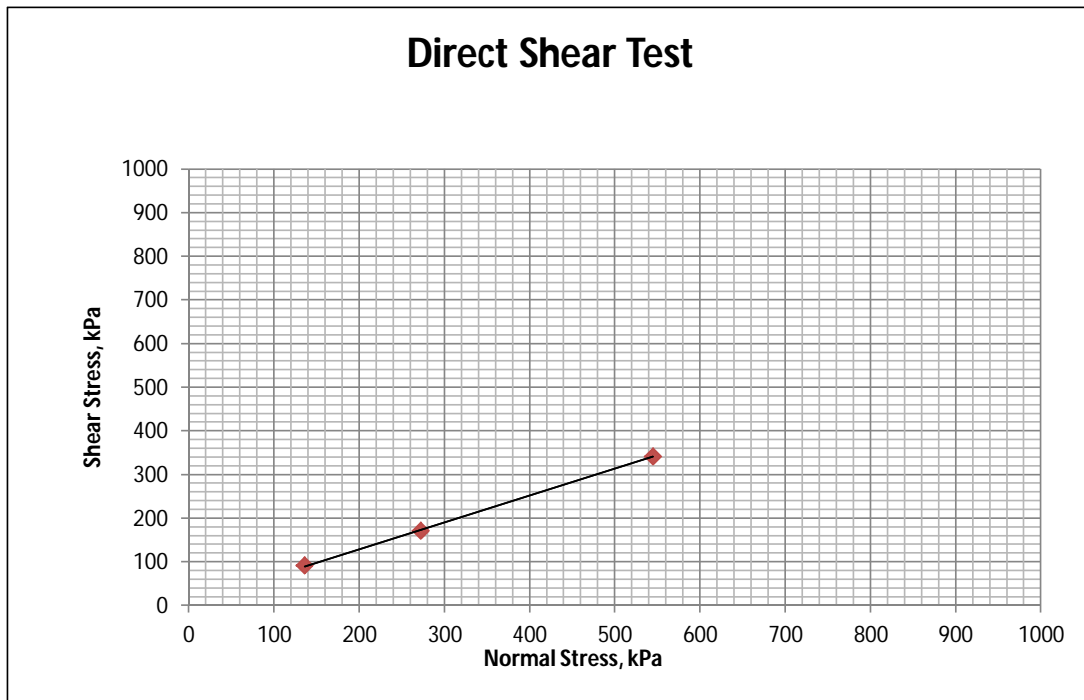
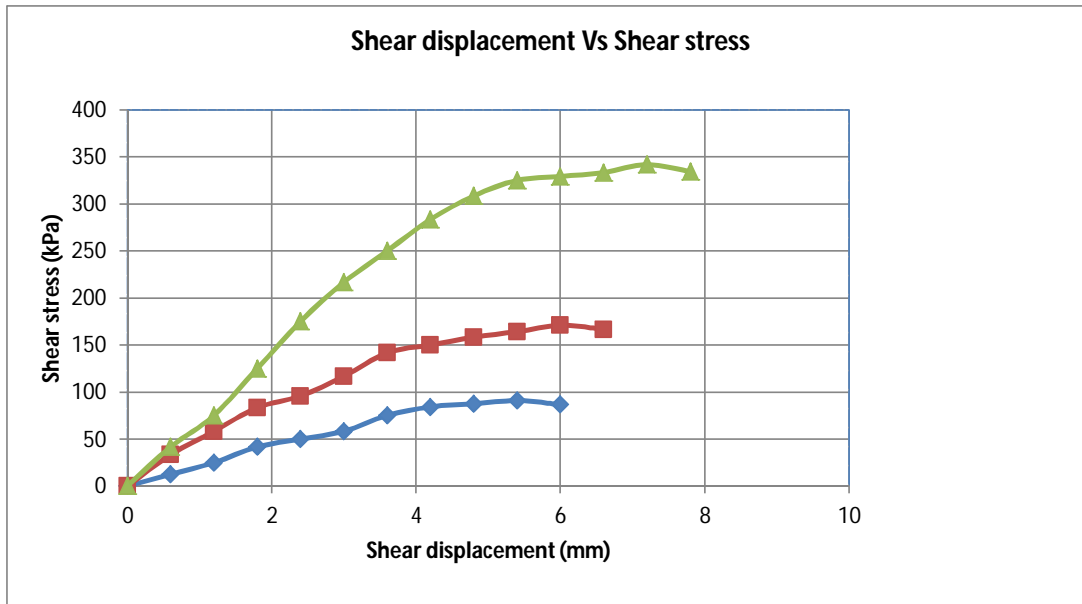
Sample No. :

D6

Depth (m)

9.00

Test Date : 1/5/2018



Result: Friction angle: 31°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :163 no. FayeZullah master Govt.

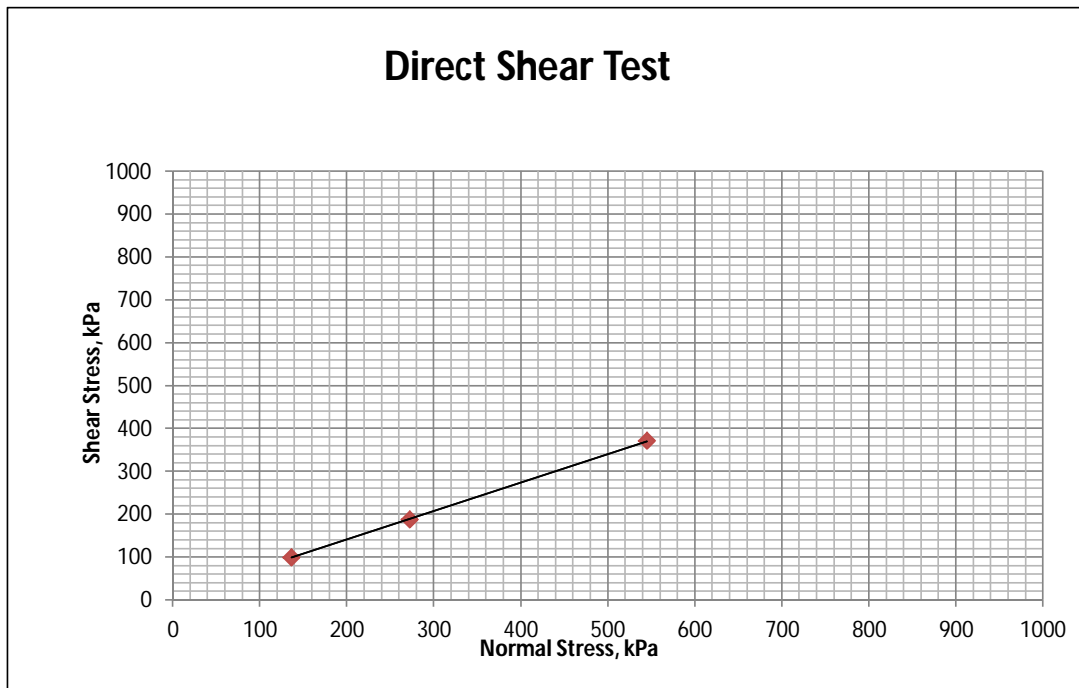
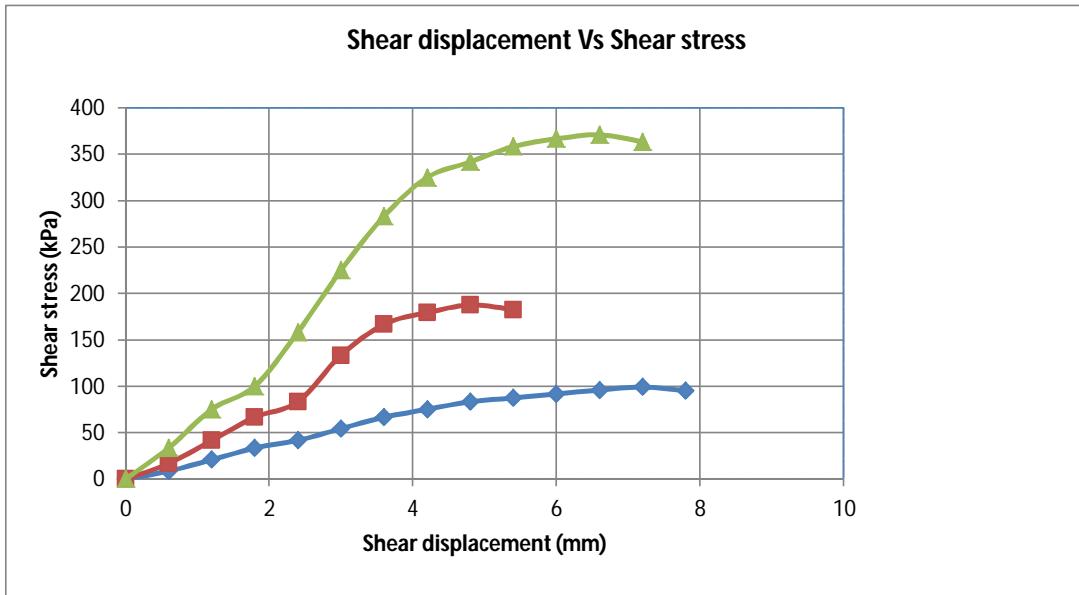
Primary School

Bore Hole No : M 14

Sample No. : D5

Depth (m) 7.50

Test Date : 1/5/2018



Result: Friction angle: 34°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Alhaz Bodiul alam Chowdhury

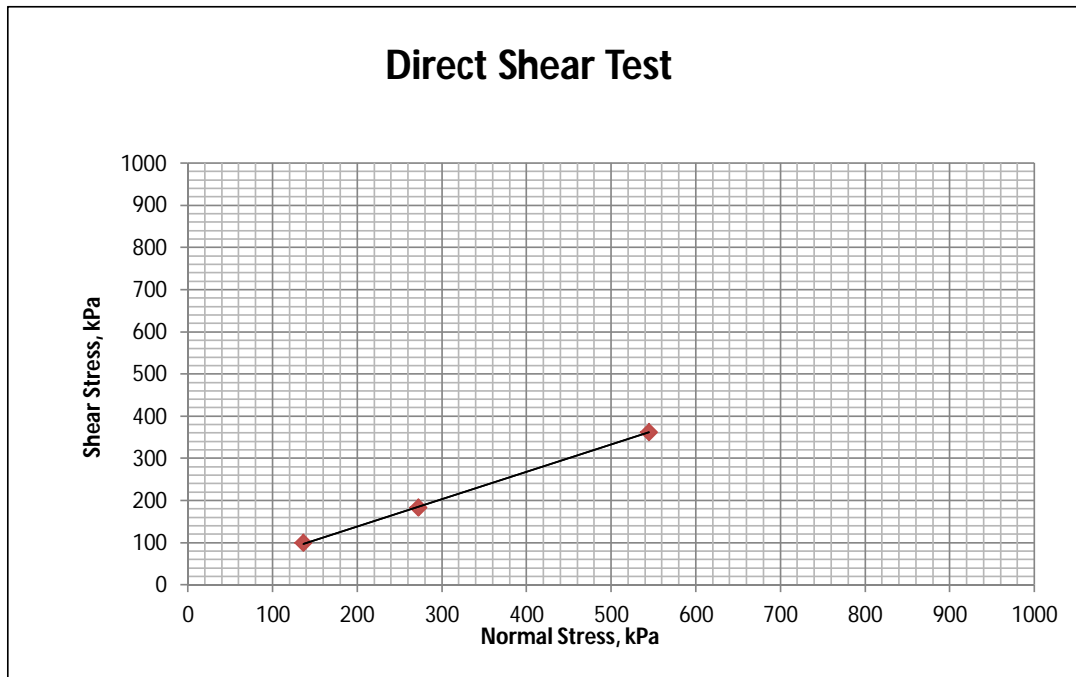
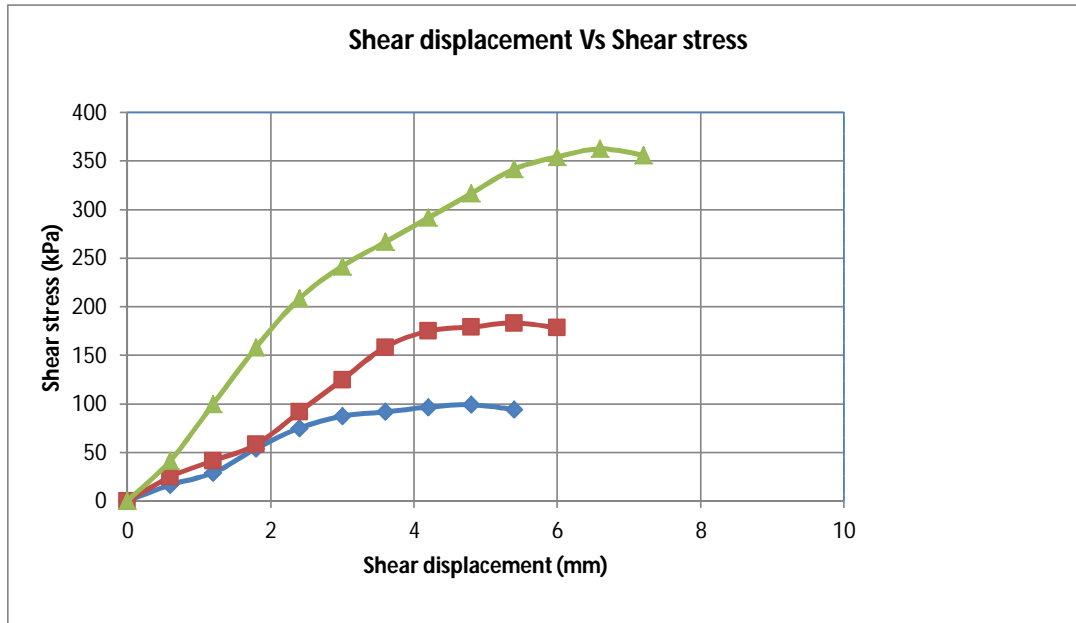
Govt. Primary School

Bore Hole No : M 15

Sample No. : D6

Depth (m) 9.00

Test Date : 1/5/2018



Result: Friction angle: 32°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Alhaz Bodiul alam Chowdhury

Govt. Primary School

Bore Hole No : M 15

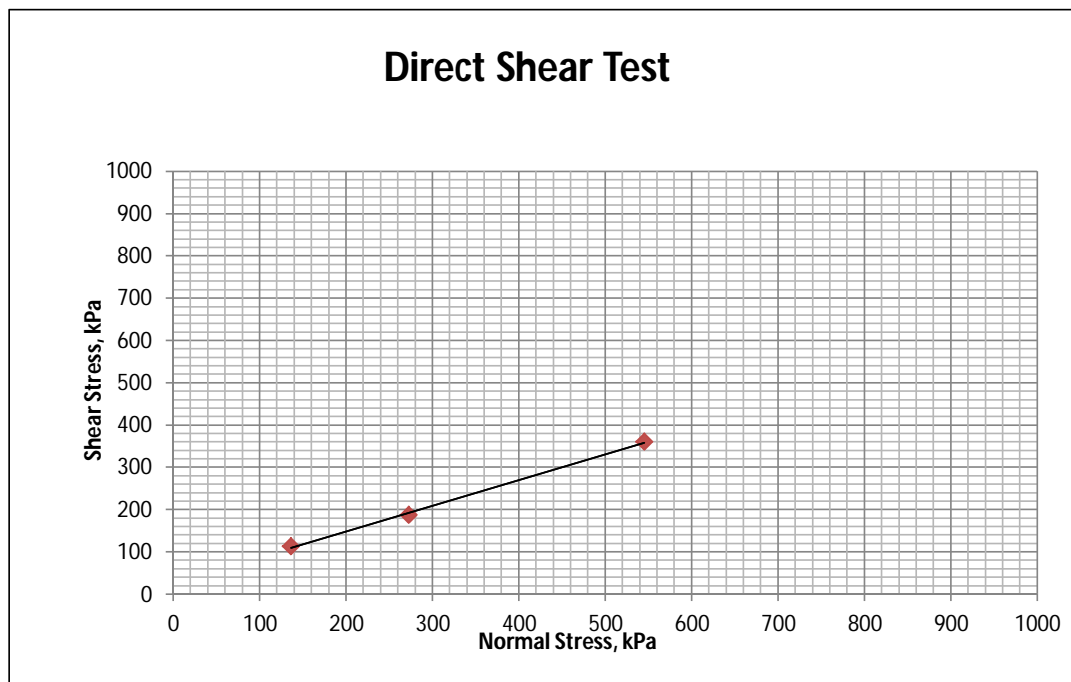
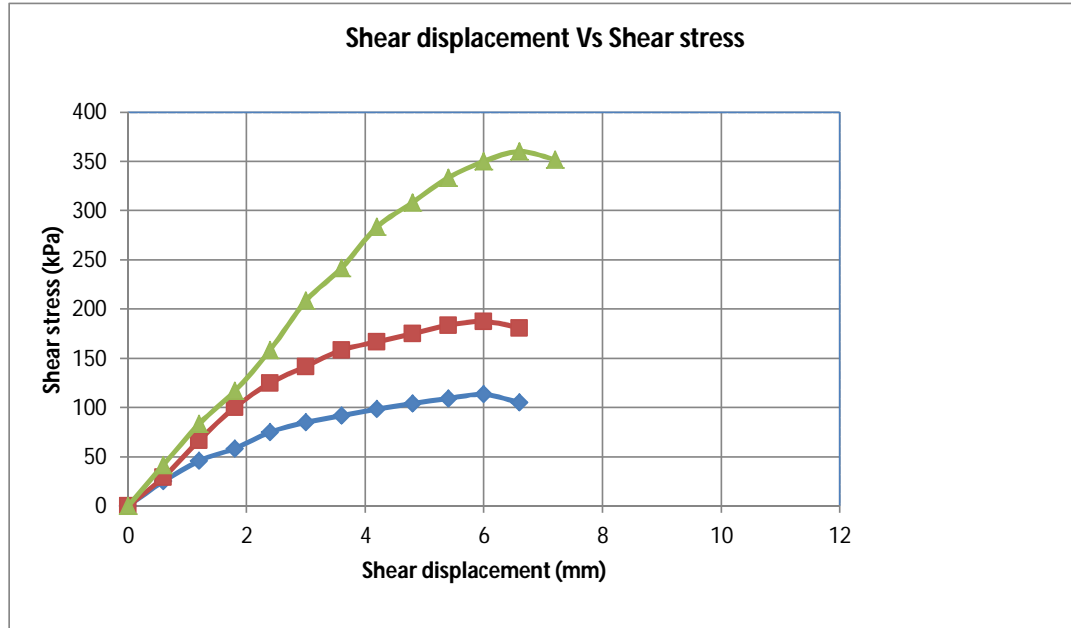
Sample No. :

D10

Depth (m)

15.00

Test Date : 1/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

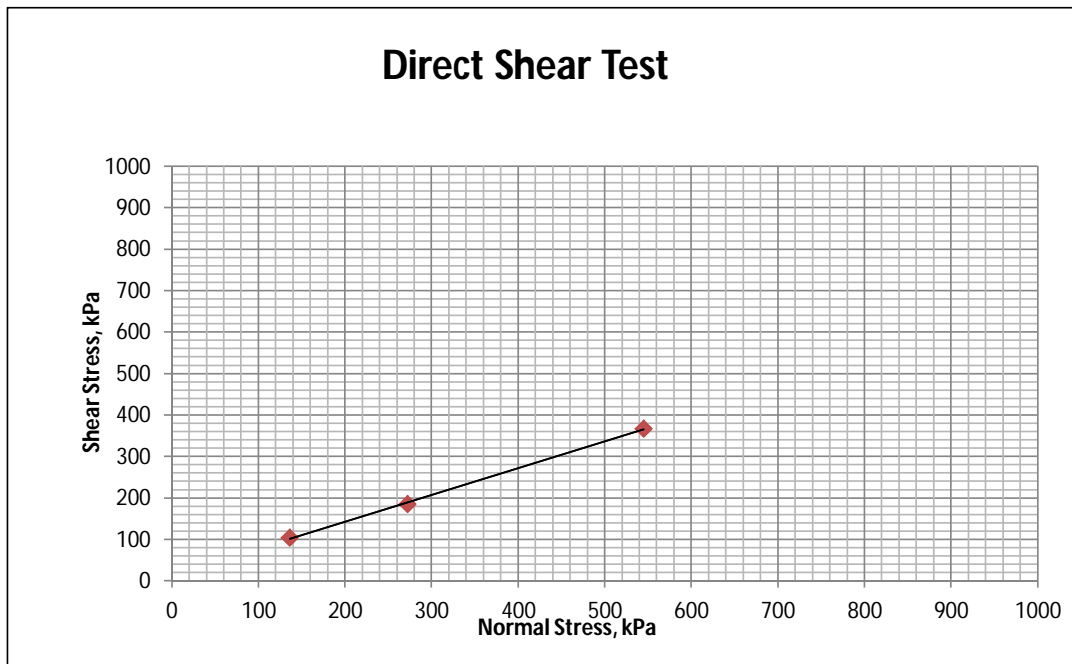
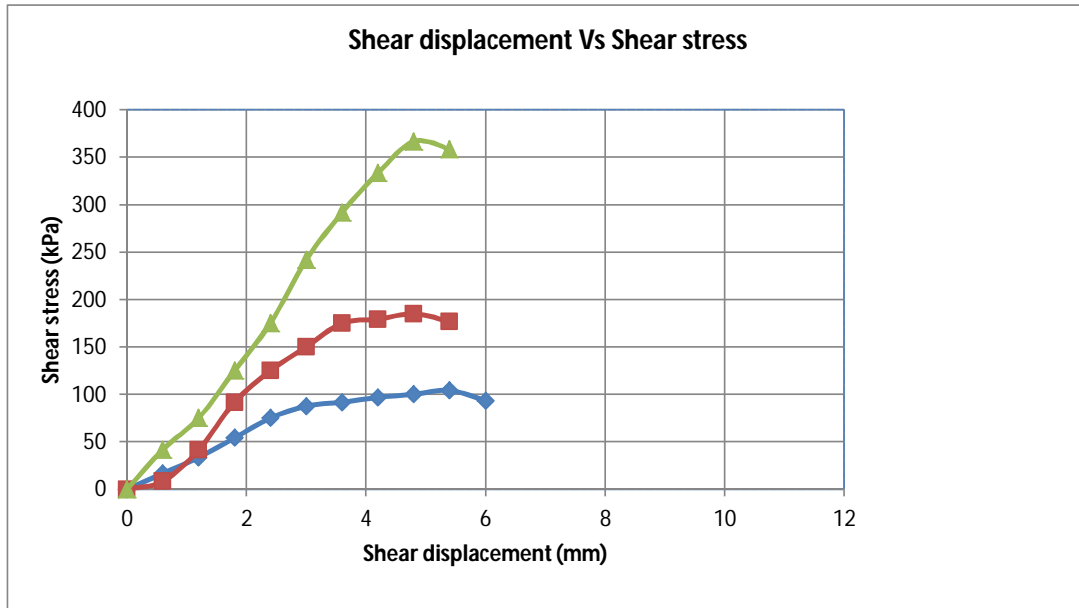
Project Location :Khil murari, ward no. 5, Zorargonj

Bore Hole No : M 16

Sample No. : D4

Depth (m) 6.00

Test Date : 2/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

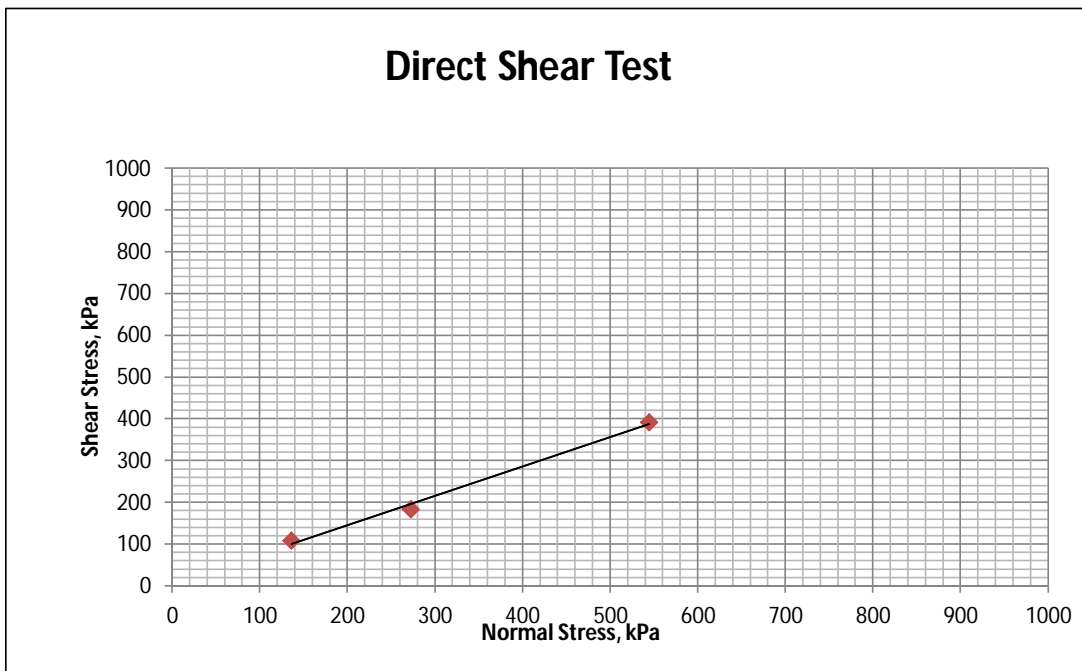
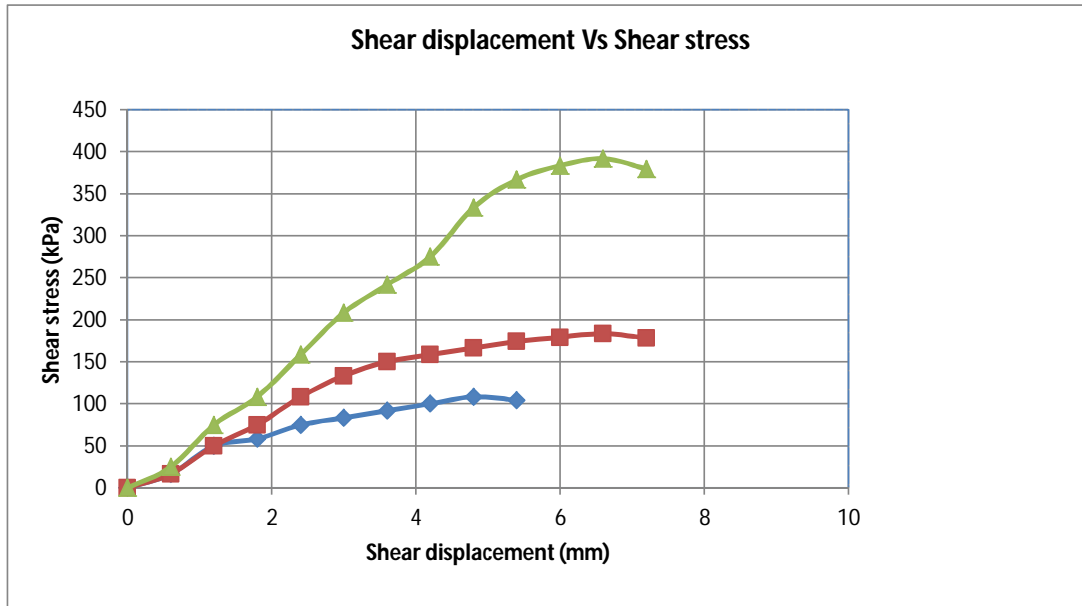
Project Location :Shonapahar, murari, Zorargonj

Bore Hole No : M 17

Sample No. : D8

Depth (m) 12.00

Test Date : 2/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Guccho gram M.A. Haider  
Primary School, Osmanpur

Bore Hole No : M 18

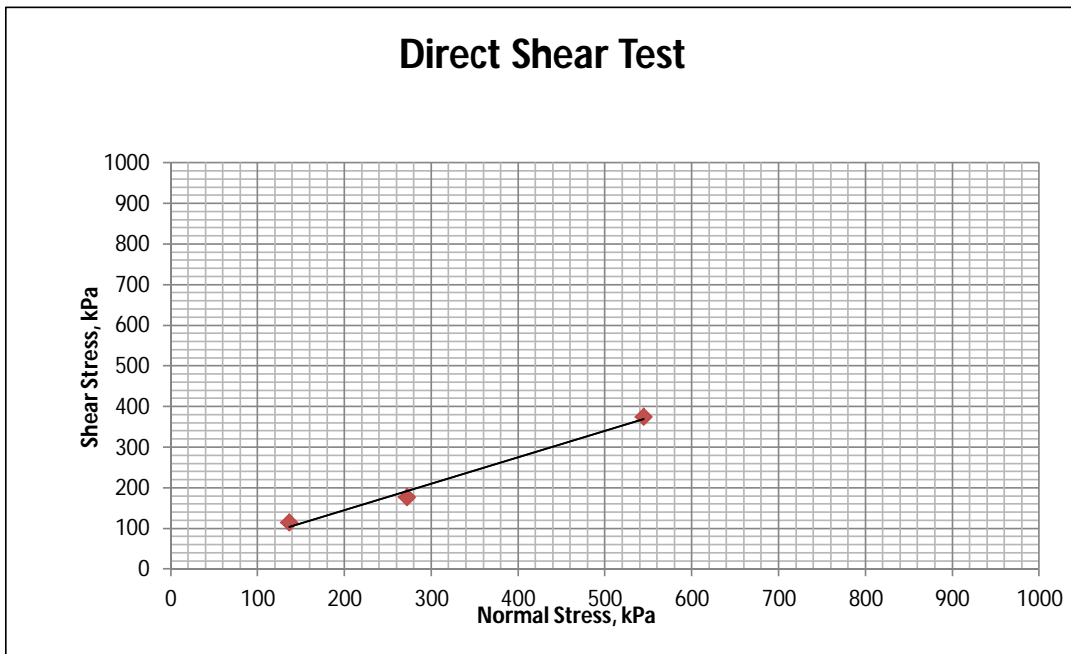
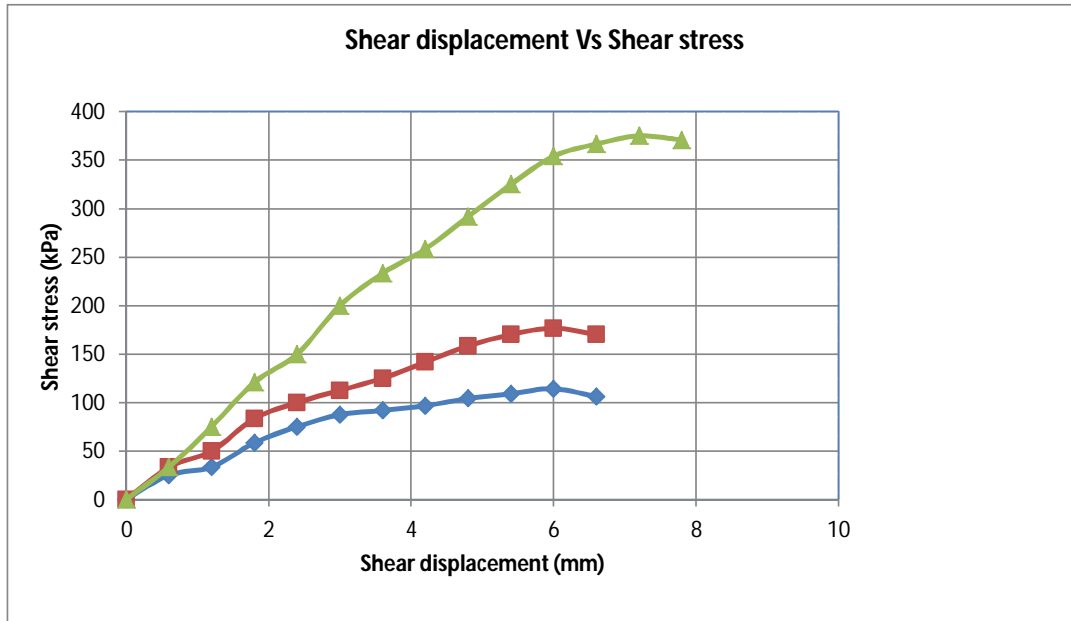
Sample No. :

D8

Depth (m)

12.00

Test Date : 2/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Bashkhali, Veribadh, Muhuri

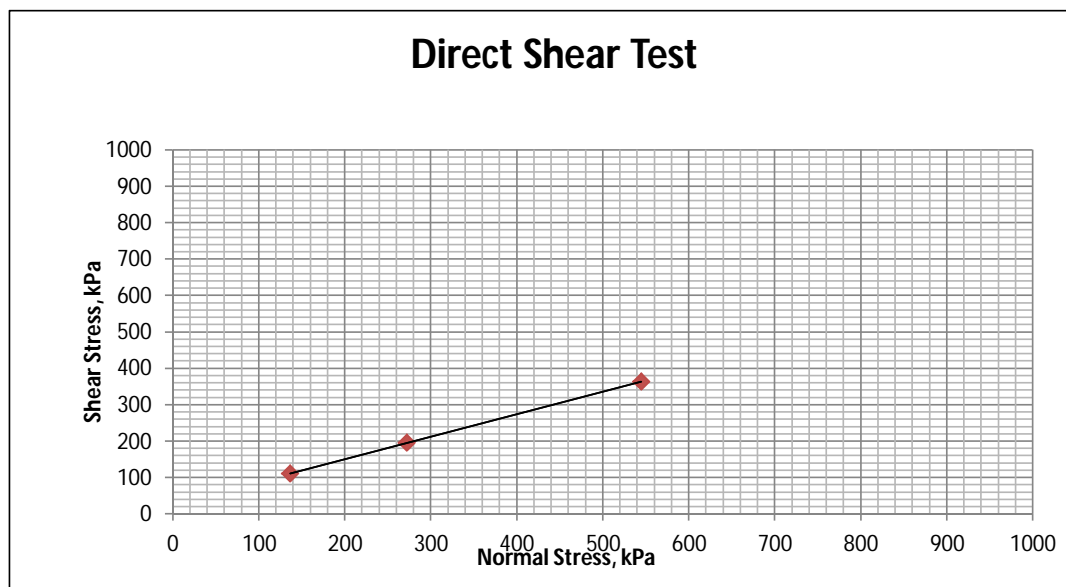
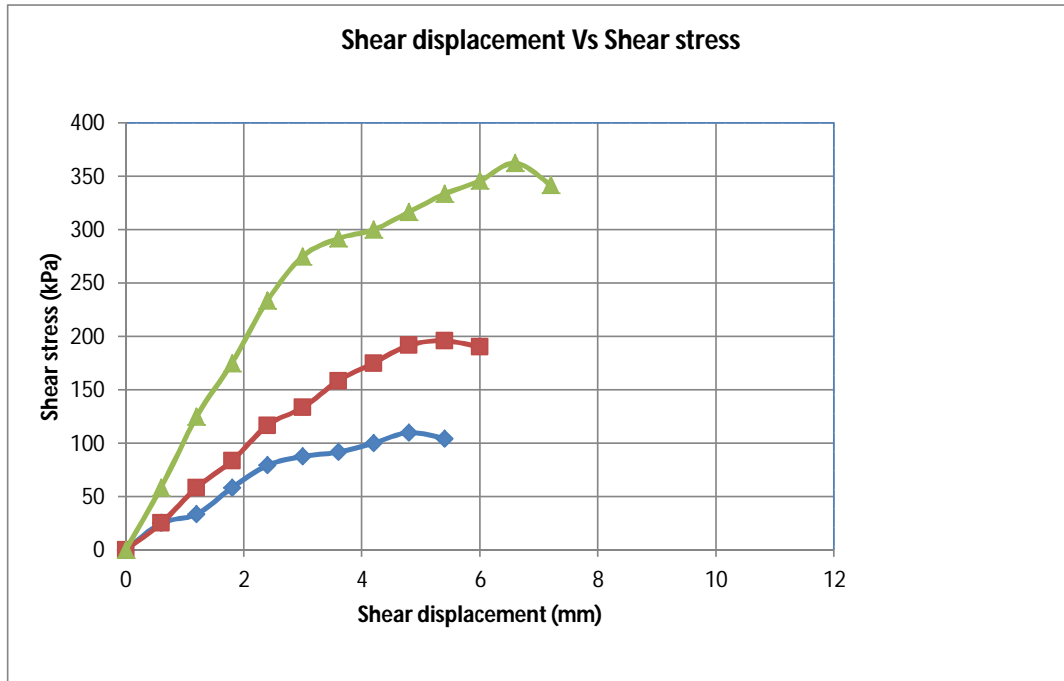
Project, Osmanpur

Bore Hole No : M 19

Sample No. : D12

Depth (m) 18.00

Test Date : 2/5/2018



Result: Friction angle: 32°





## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :39 no. East Shahedpur Govt.  
Primary School, Azampur

Bore Hole No : M 20

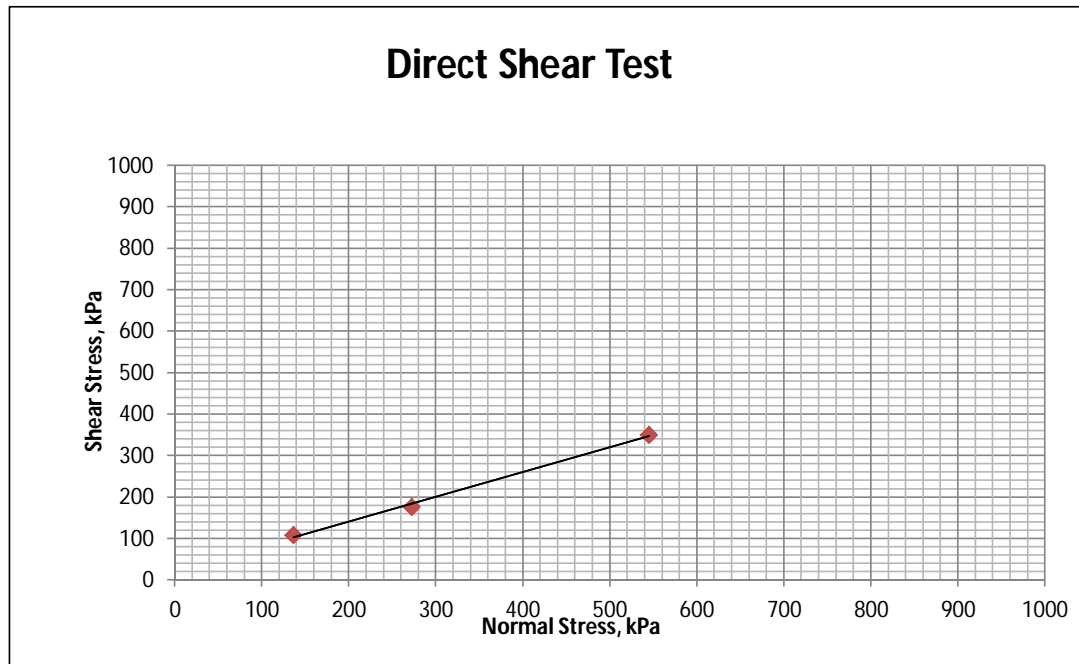
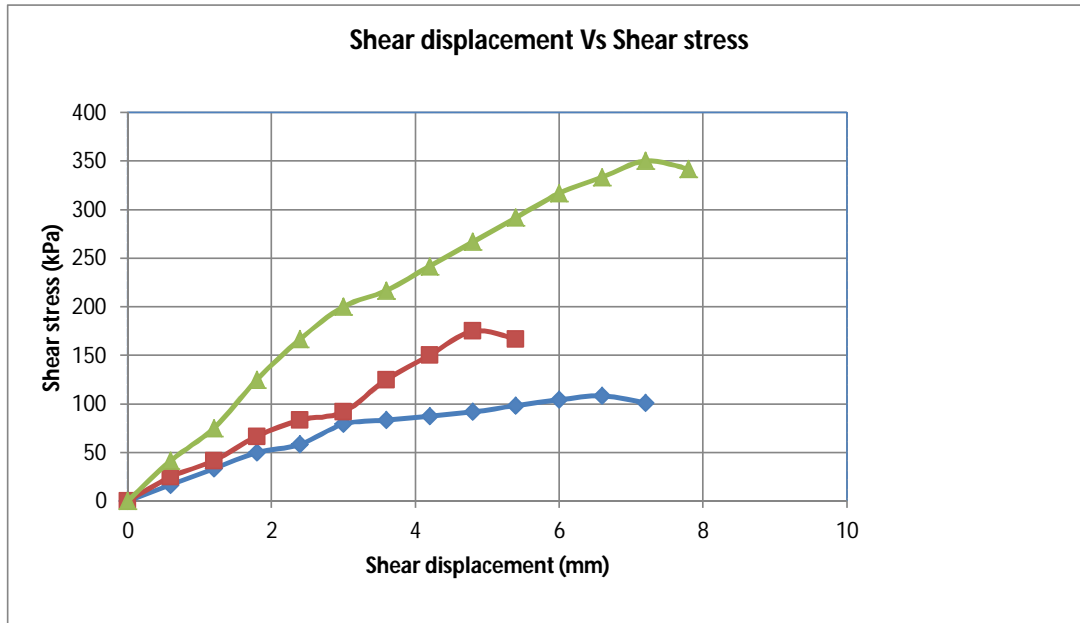
Sample No. :

D10

Depth (m)

15.00

Test Date : 2/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

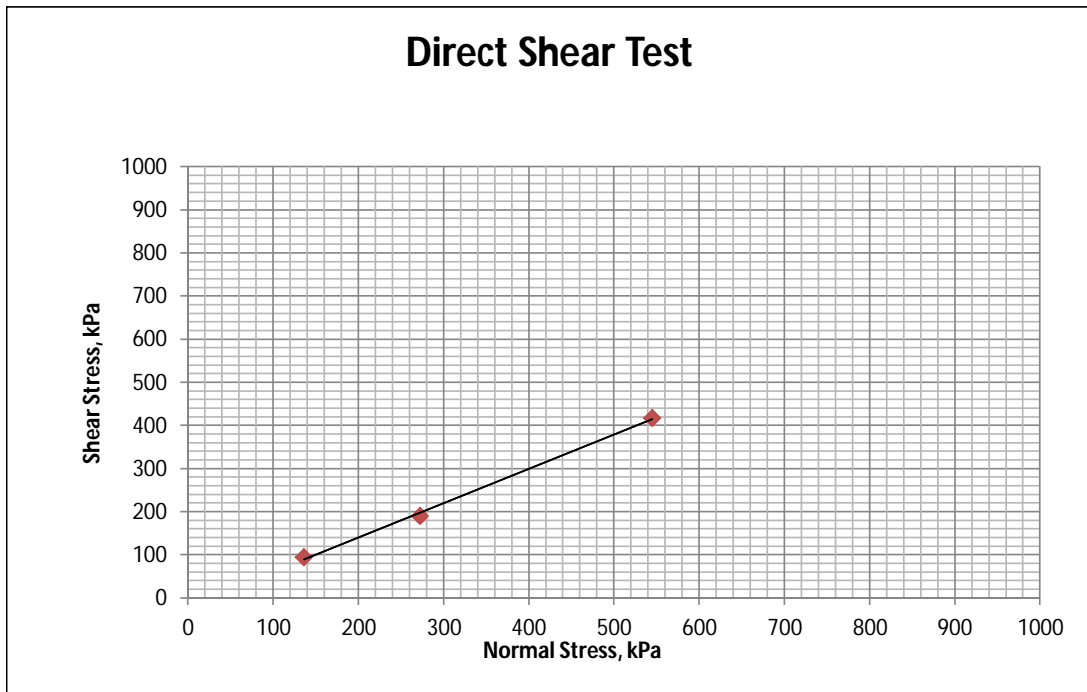
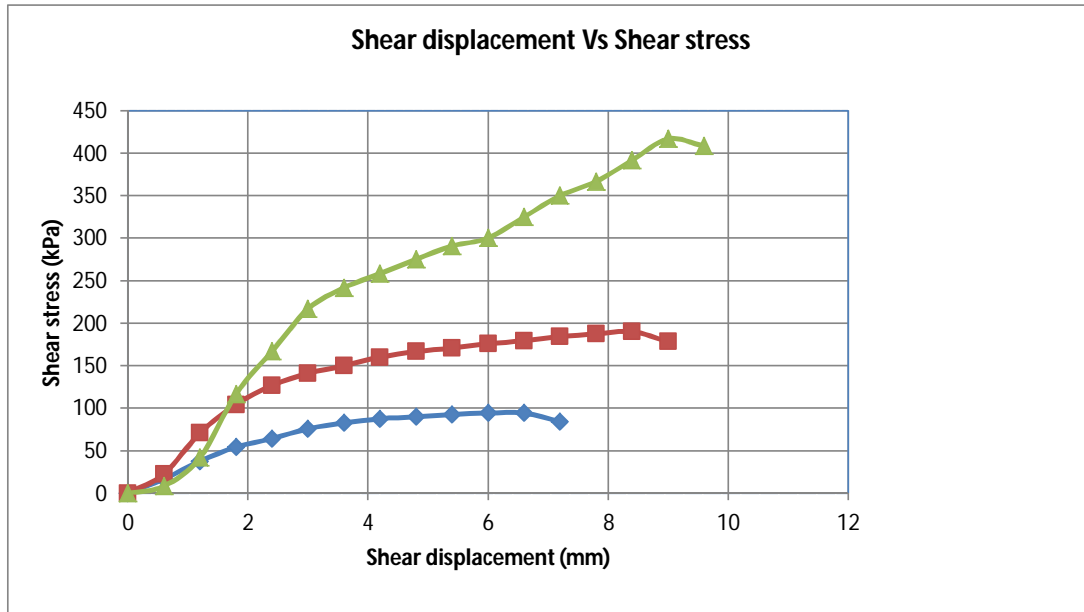
Project Location : East Moregang Jame Mosque,  
Osmanpur

Bore Hole No : M 21

Sample No. : D10

Depth (m) 15.00

Test Date : 3/5/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

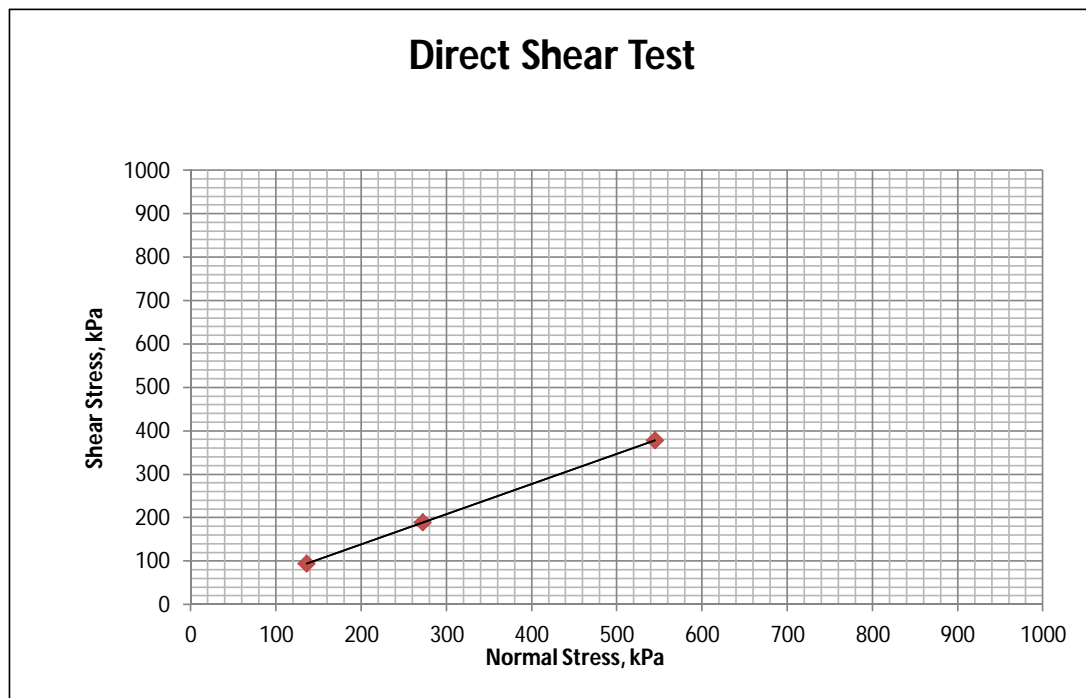
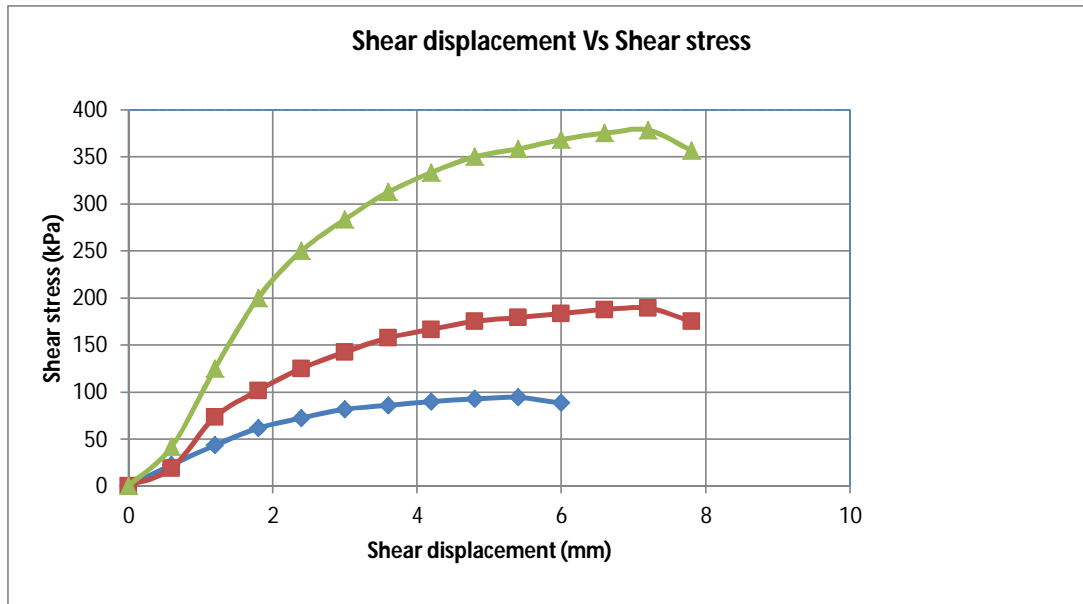
Project Location : Patacoat, Azampur, Osmanpur

Bore Hole No : M 22

Sample No. : D14

Depth (m) 21.00

Test Date : 3/5/2018



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

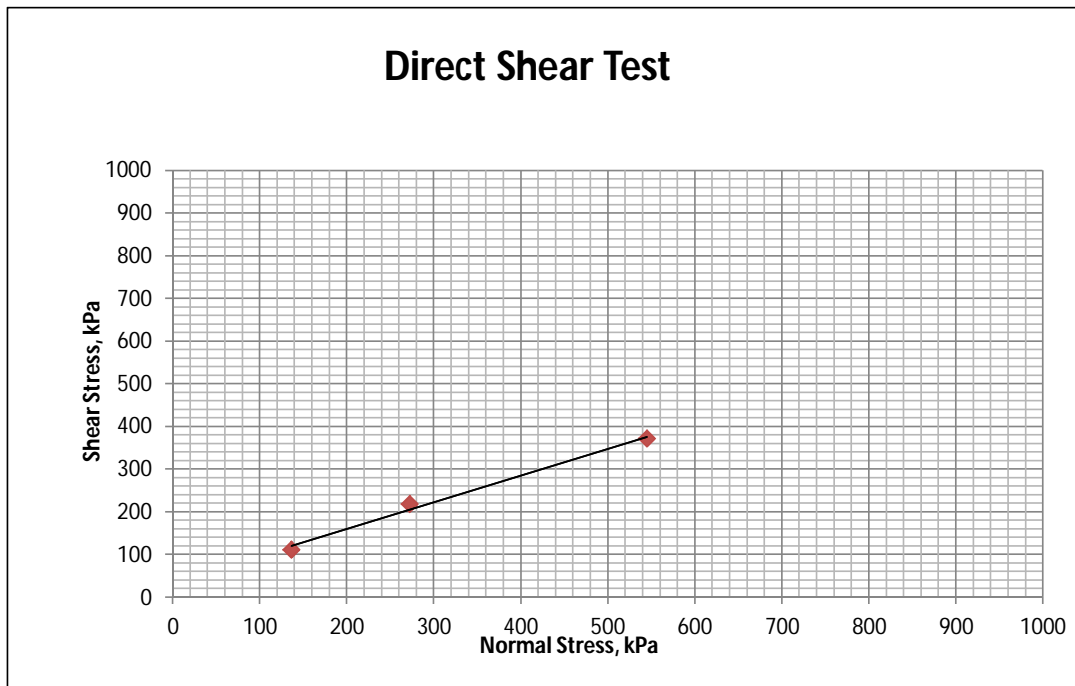
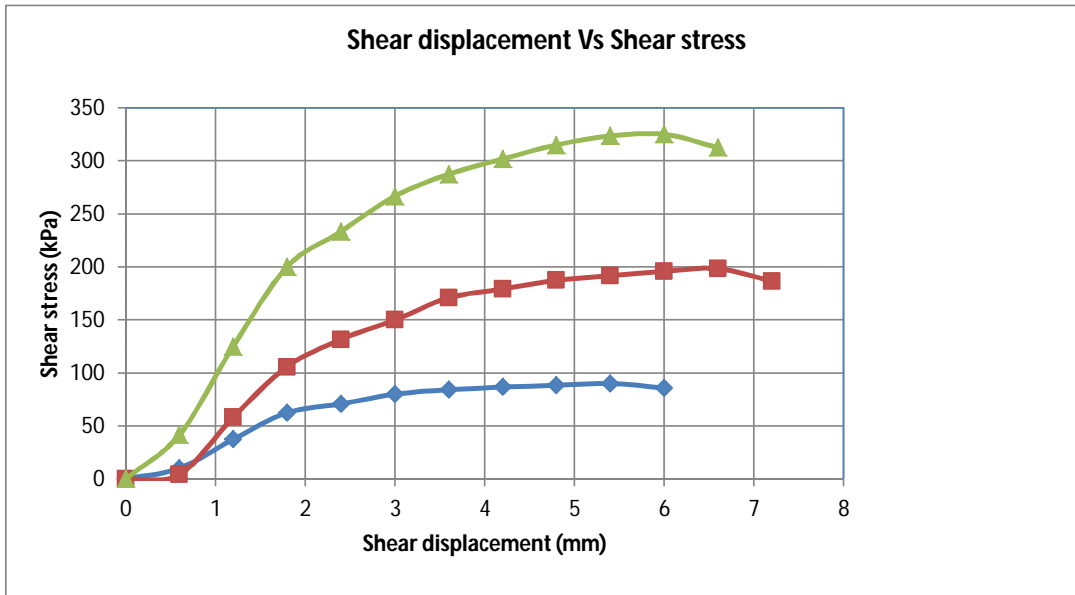
Project Location : Patacoat, Azampur, Osmanpur

Bore Hole No : M 22

Sample No. : D7

Depth (m) 10.50

Test Date : 3/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : 68 north durgapur Primary

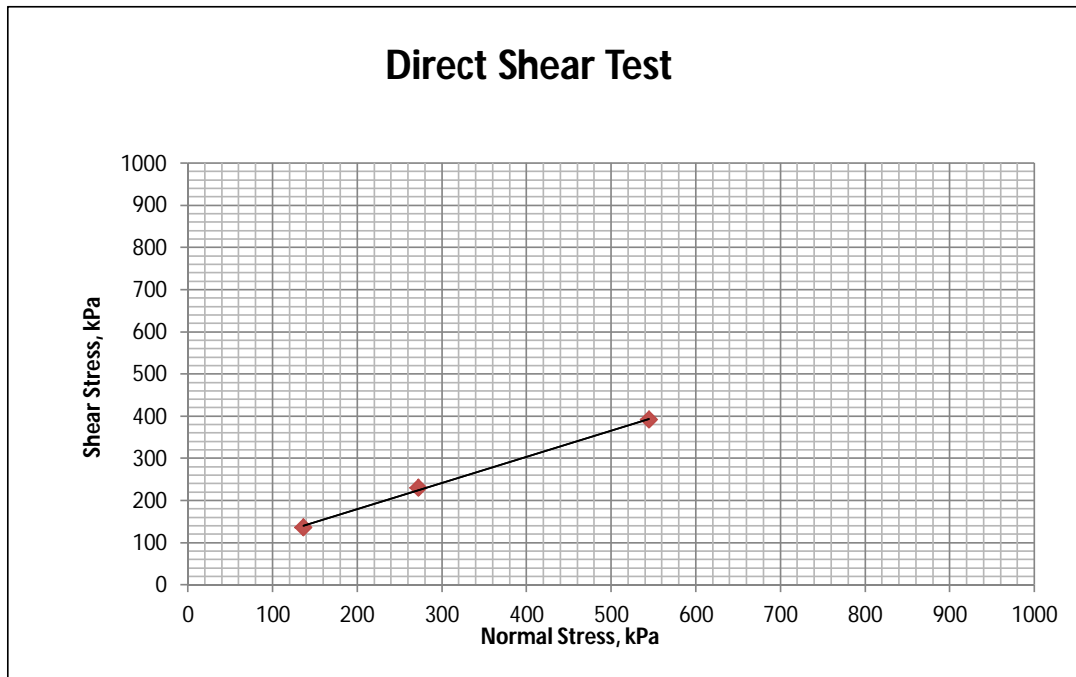
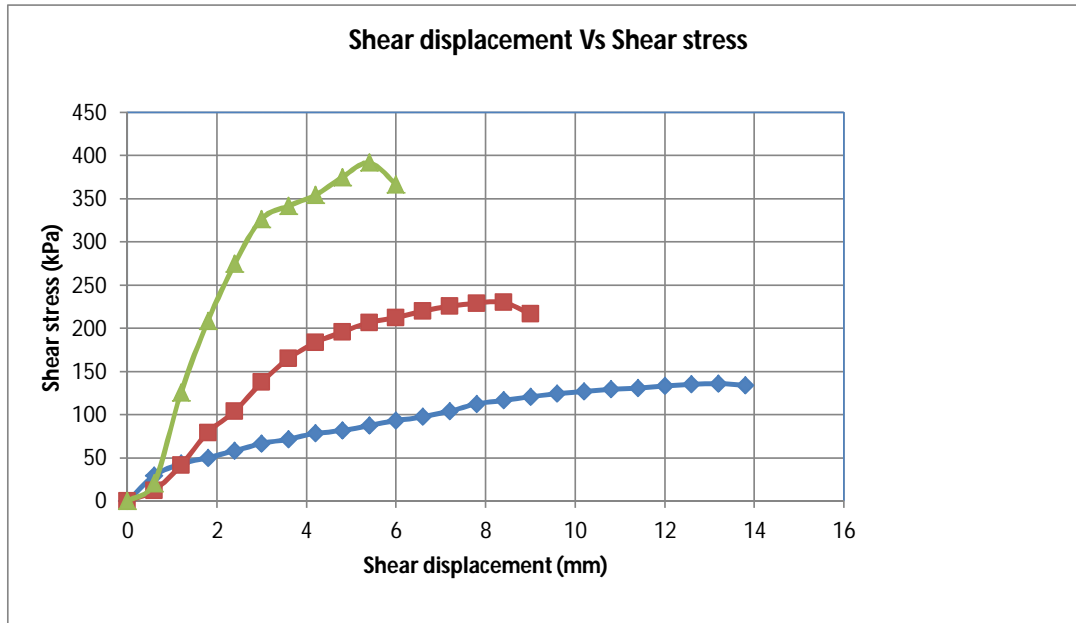
School, Varoddaj hat

Bore Hole No : M 23

Sample No. : D7

Depth (m) 10.50

Test Date : 3/5/2018



Result: Friction angle: 32°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

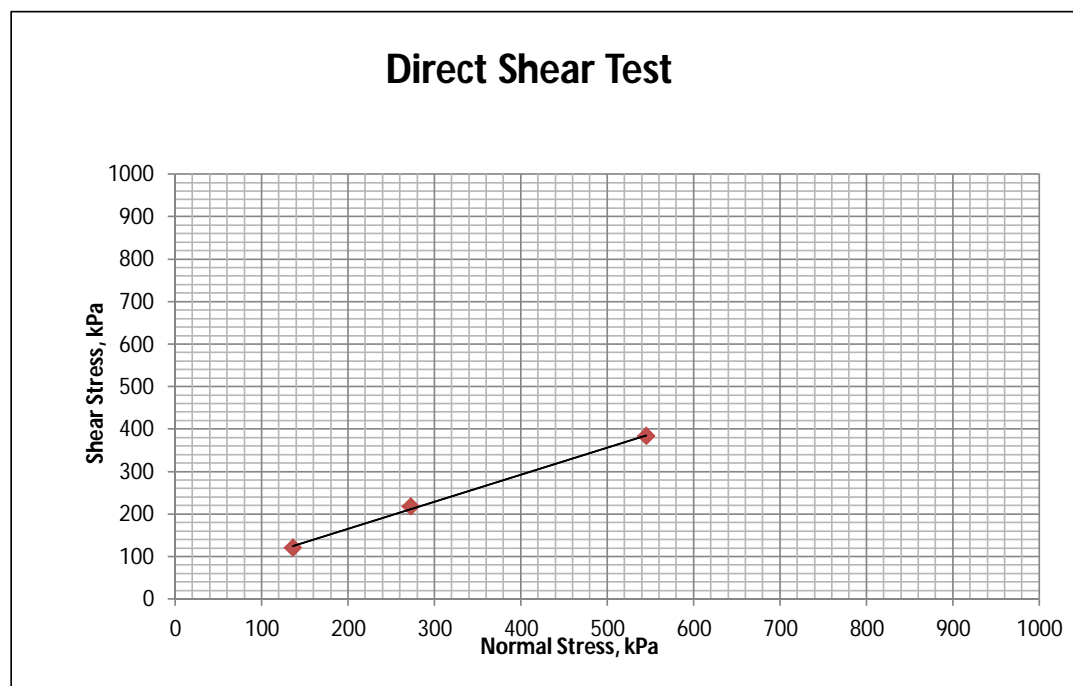
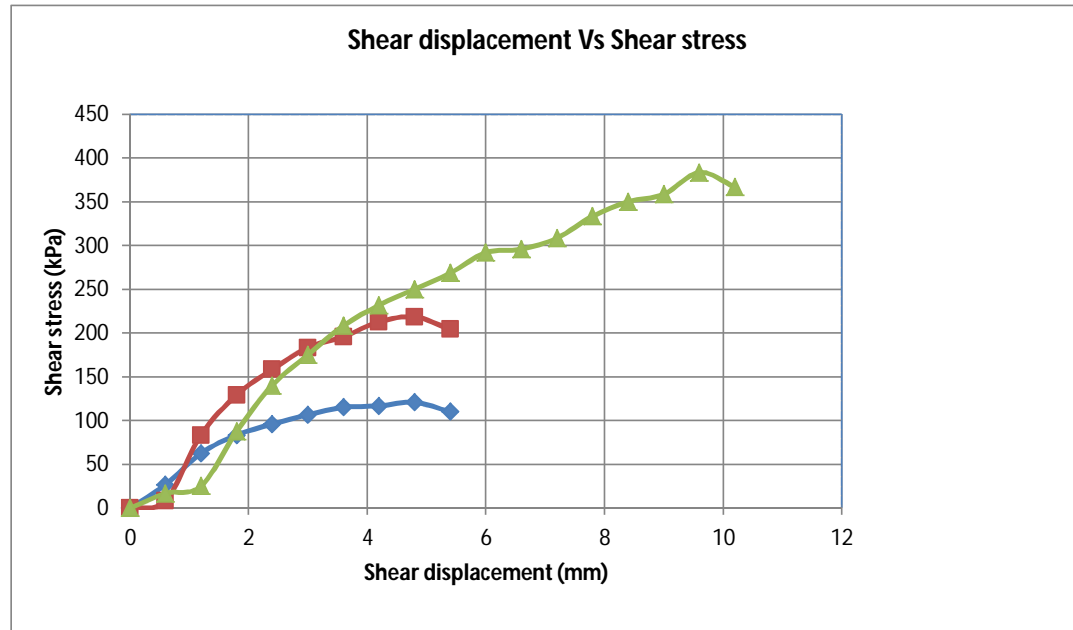
Project Location : Tetuiana Nath Para, Durgapur

Bore Hole No : M 26

Sample No. : D7

Depth (m) 10.50

Test Date : 3/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project Location : Abdus Sattar Bhuiyar Hat Govt.

Project : Mirsharai Upazilla Development Plan

Primary school, Kata chora

Bore Hole No : M 27

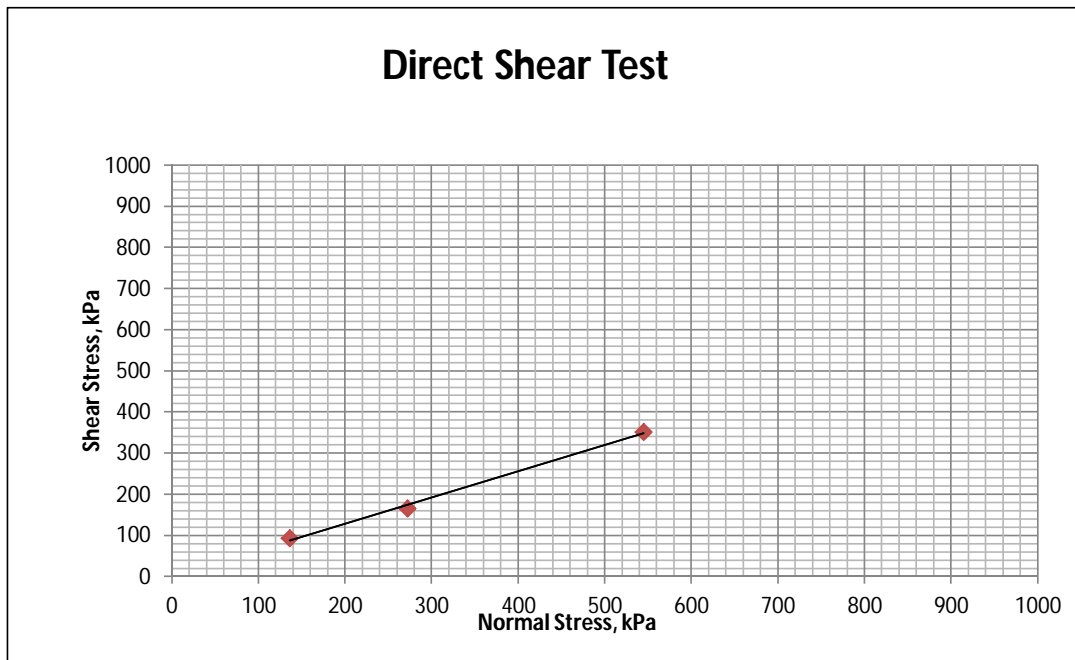
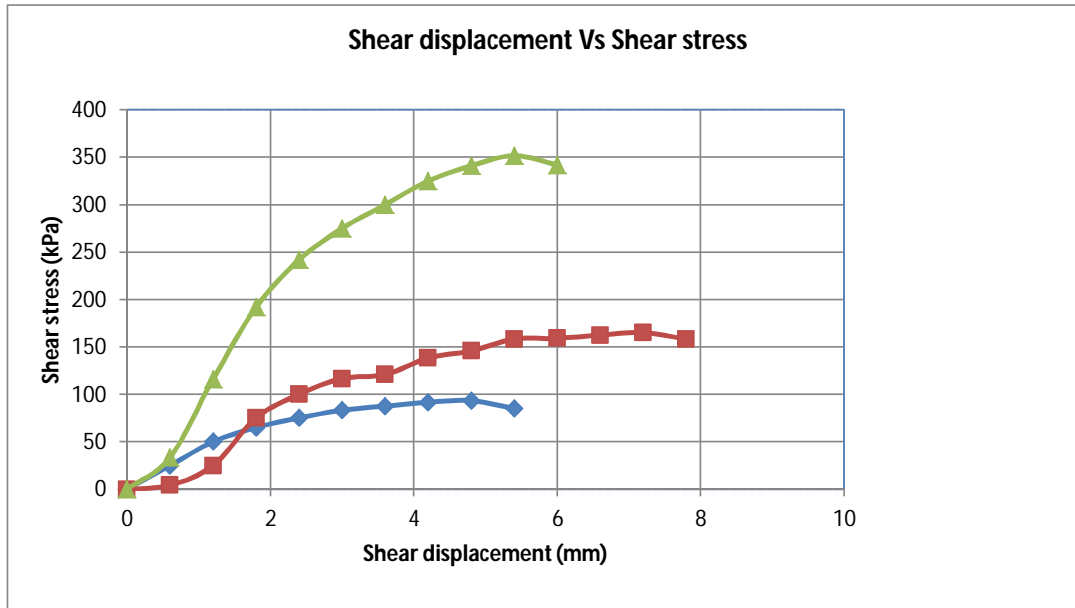
Sample No. :

D10

Depth (m)

15.00

Test Date : 5/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

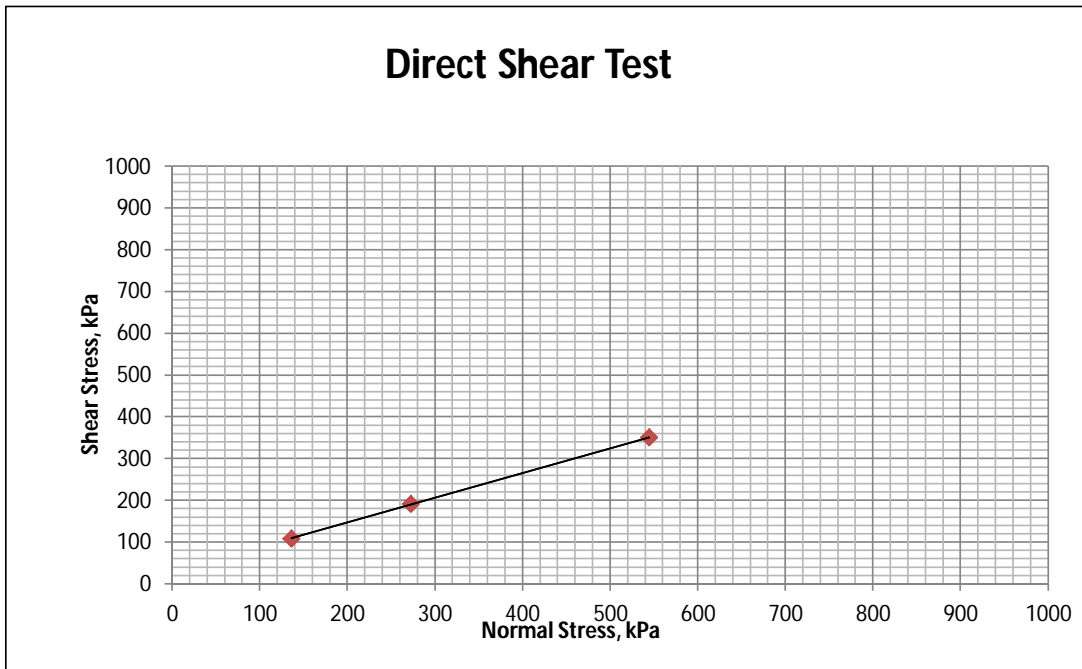
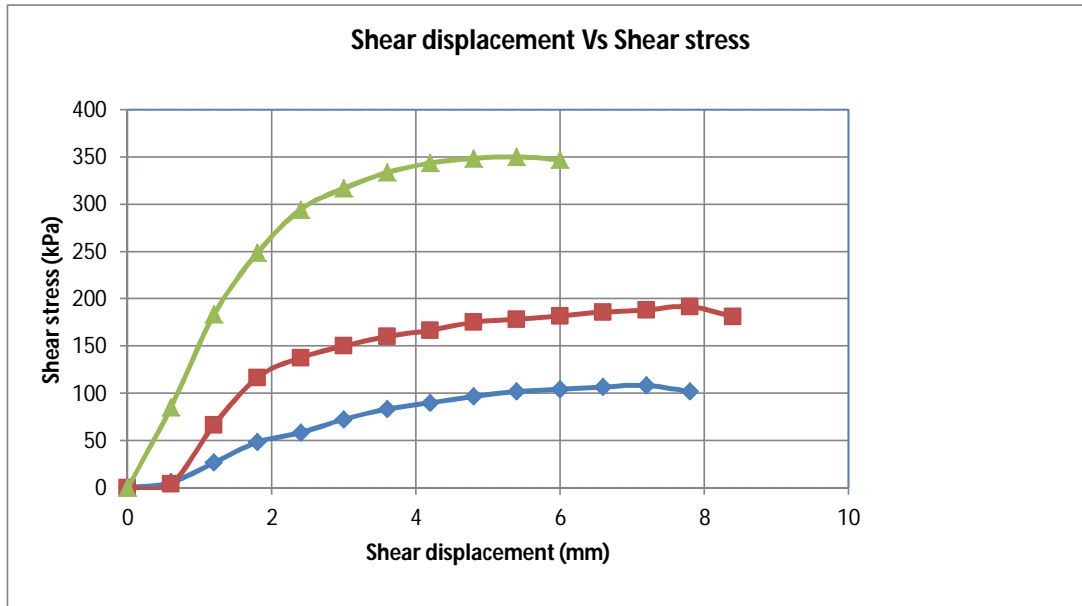
Project Location :Bamon Shundor Govt. Primary School, Kata Chora

Bore Hole No : M 28

Sample No. : D8

Depth (m) 12.00

Test Date : 5/5/2018



Result: Friction angle: 31°





## DIRECT SHEAR TEST ASTM D 3080

Client :Urban Development Directorate (UDD)

Project Location : Ahmed Ali Miar Hat Govt

Project :Mirsharai Upazilla Development Plan

Primary School, Kata Chora

Bore Hole No : M 29

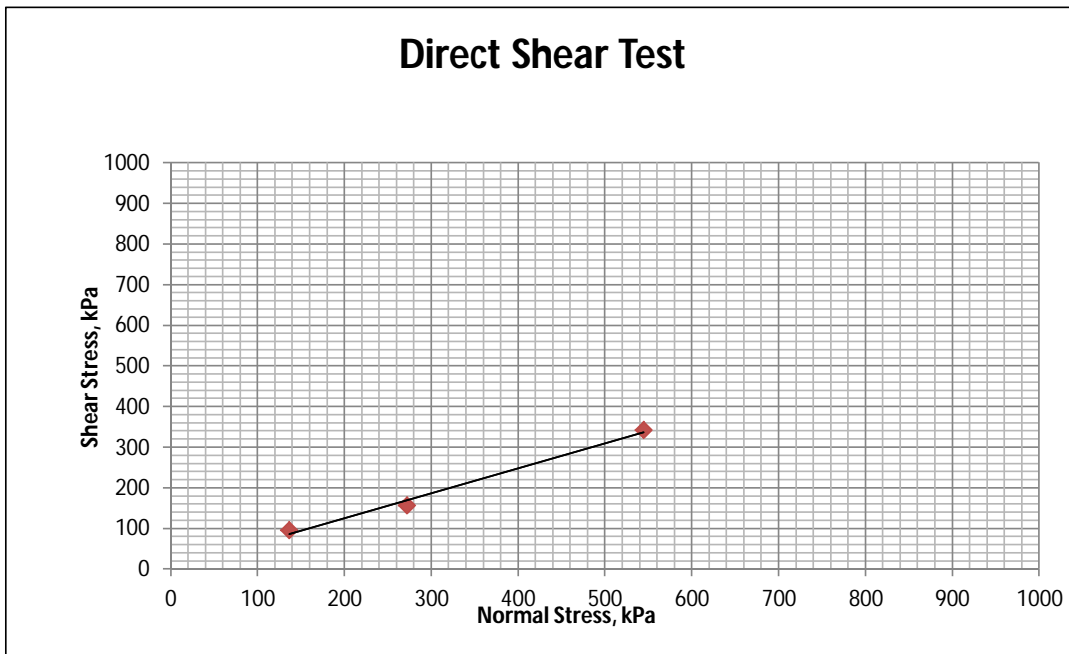
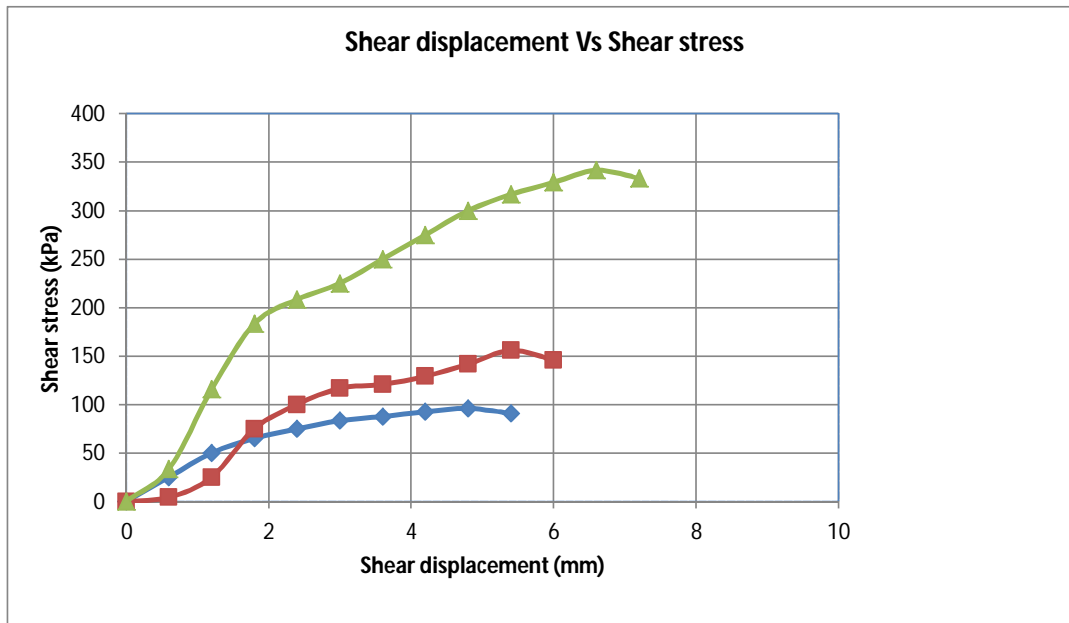
Sample No. :

D6

Depth (m)

9.00

Test Date : 5/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Char shorot Sharbojonin

Charnatia Durga Mondir, Ichakhali

Bore Hole No : M 31

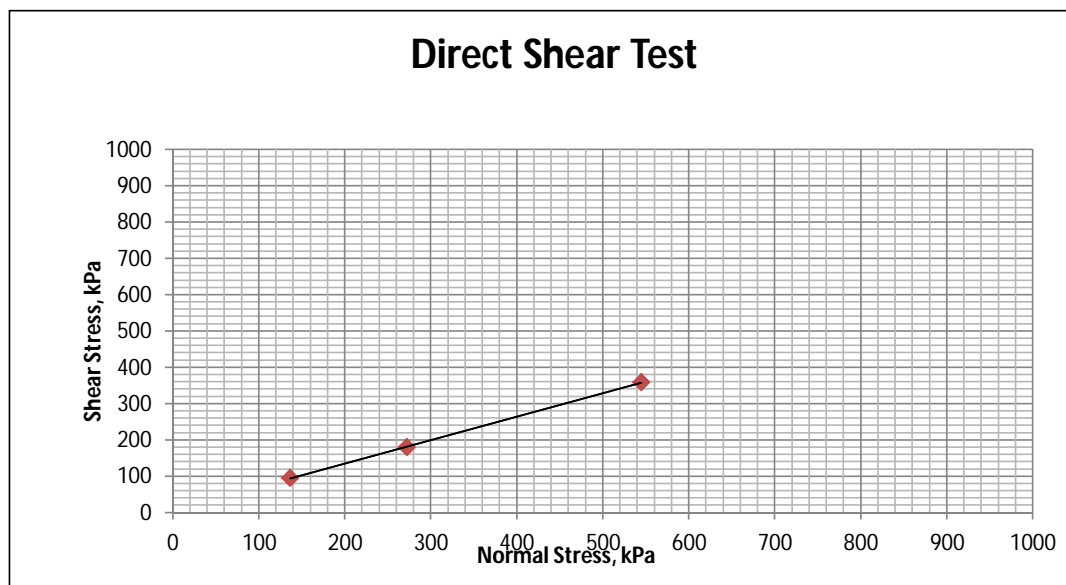
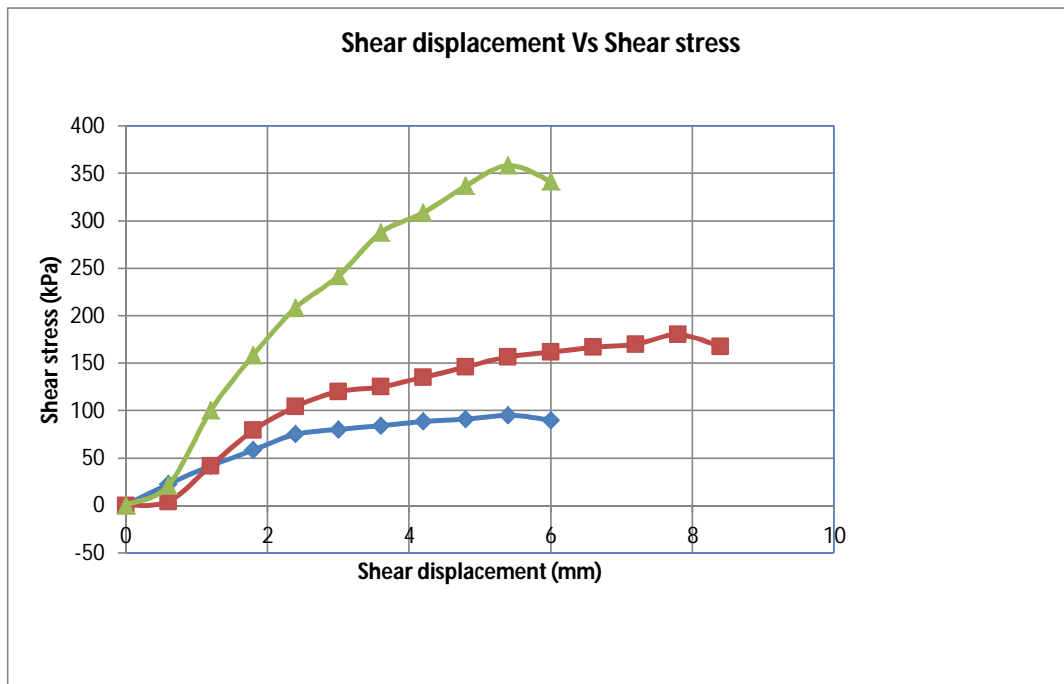
Sample No. :

D8

Depth (m)

12.00

Test Date : 5/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Char shorot Sharbojonin

Charnatia Durga Mondir, Ichakhali

Bore Hole No : M 31

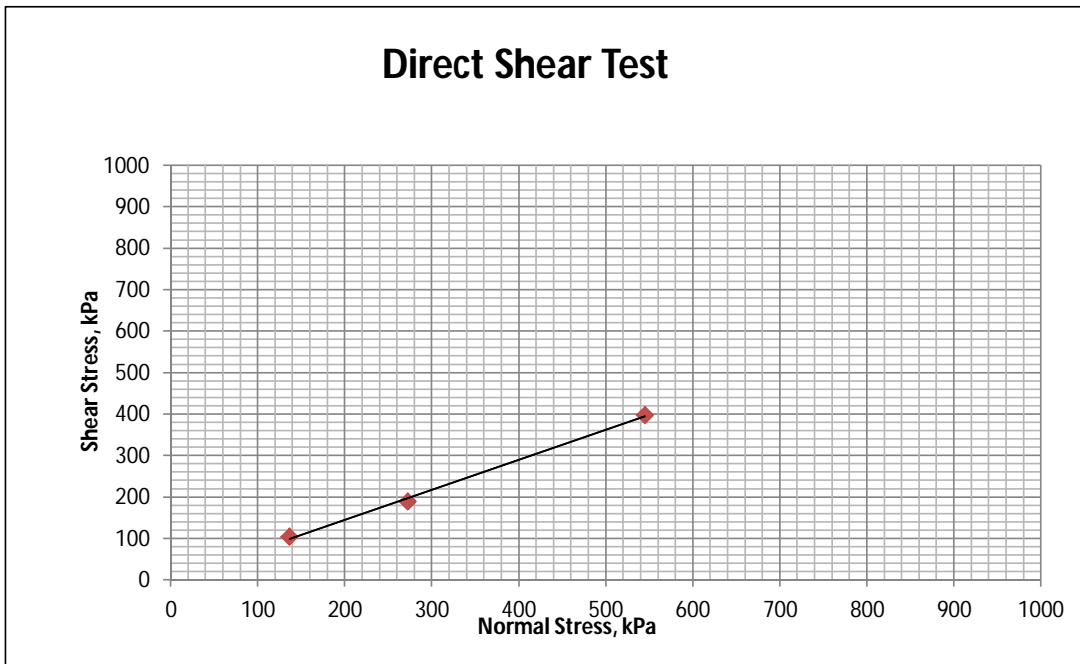
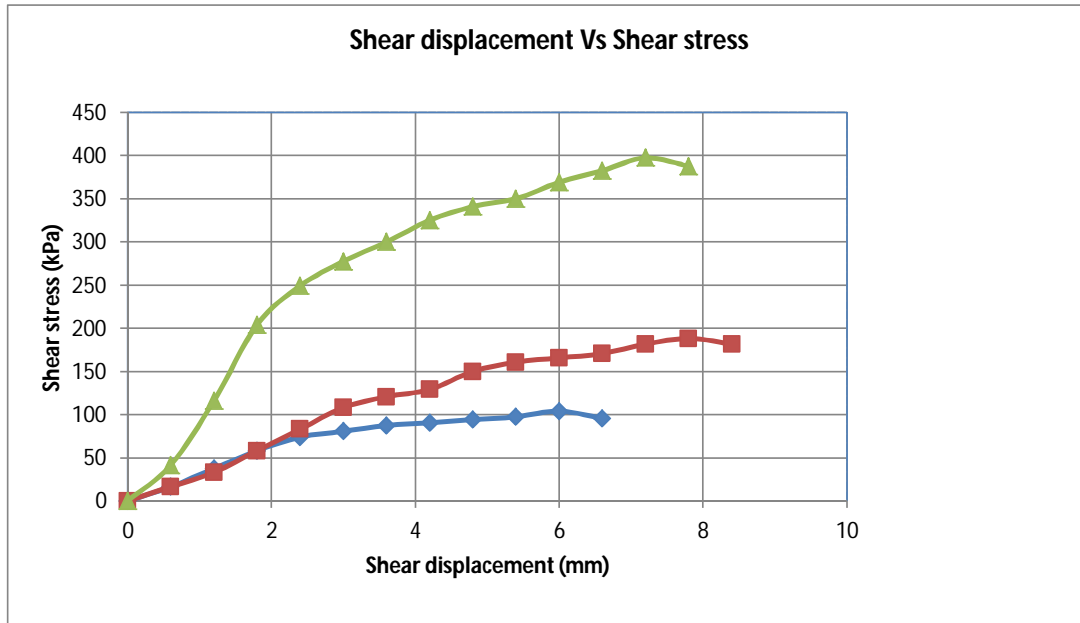
Sample No. :

D12

Depth (m)

18.00

Test Date : 5/5/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

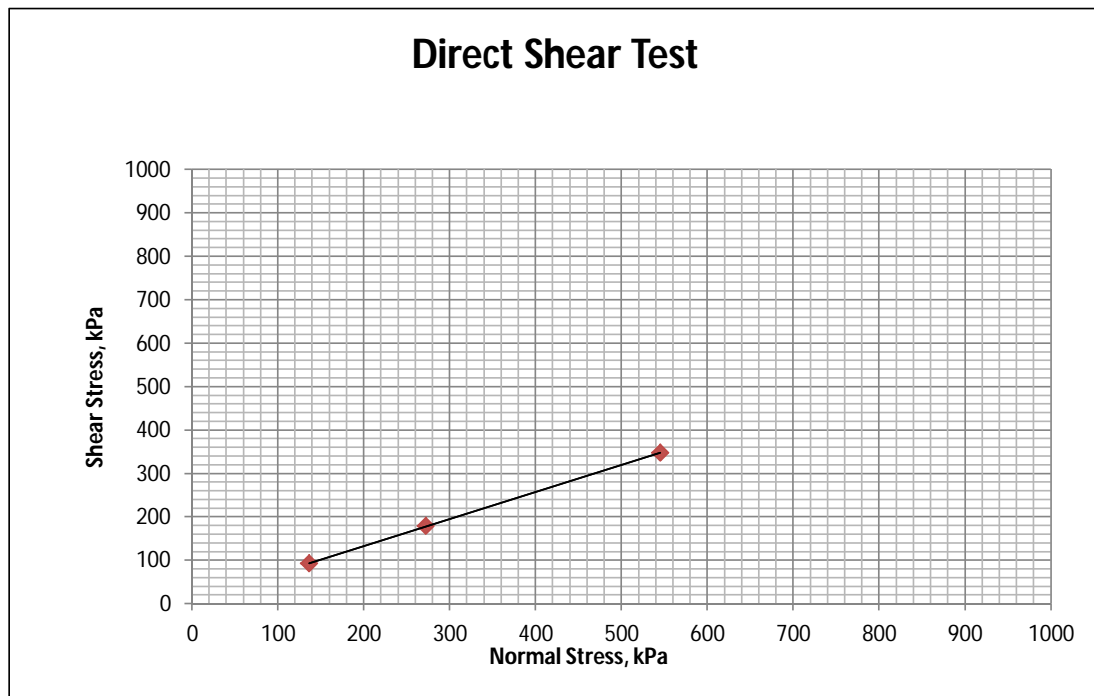
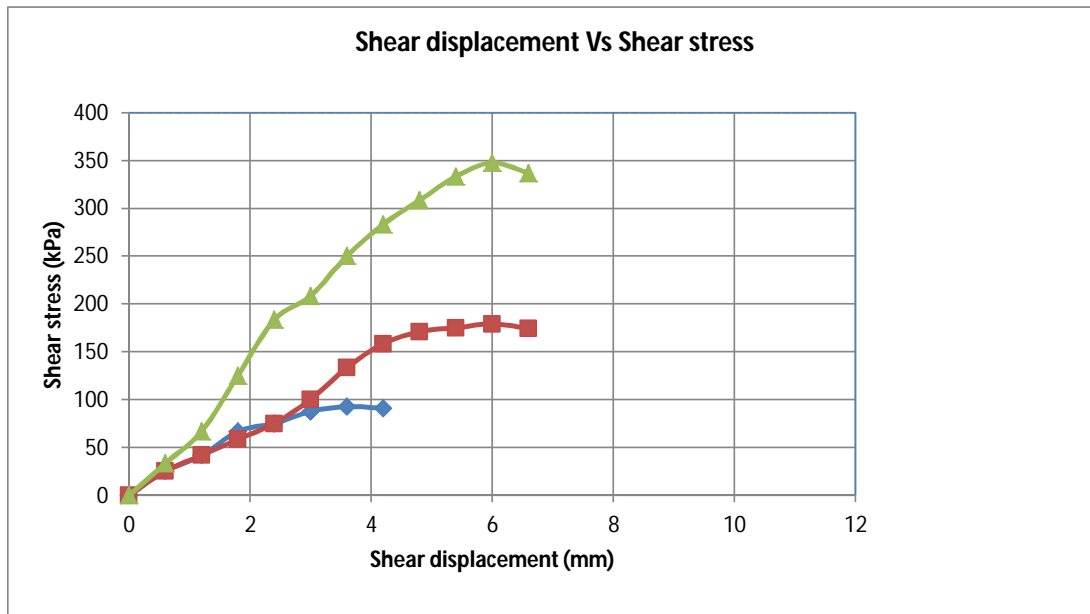
Project Location : Muhuri Project, Sluice Gate,  
Ichakhali

Bore Hole No : M 33

Sample No. : D8

Depth (m) 12.00

Test Date : 6/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

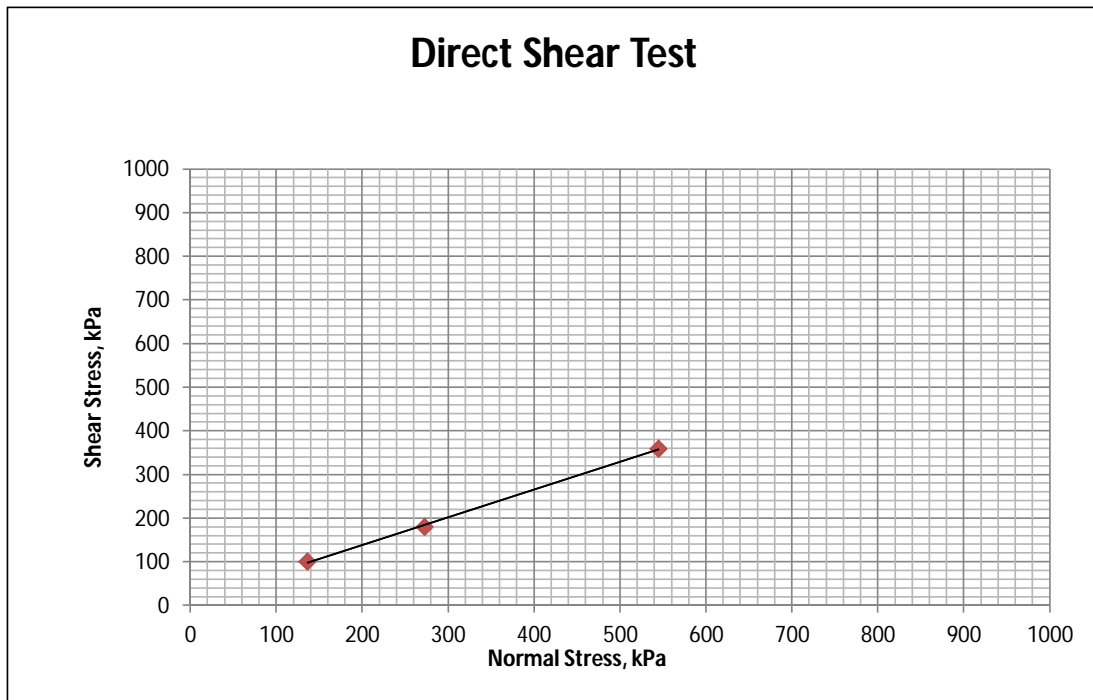
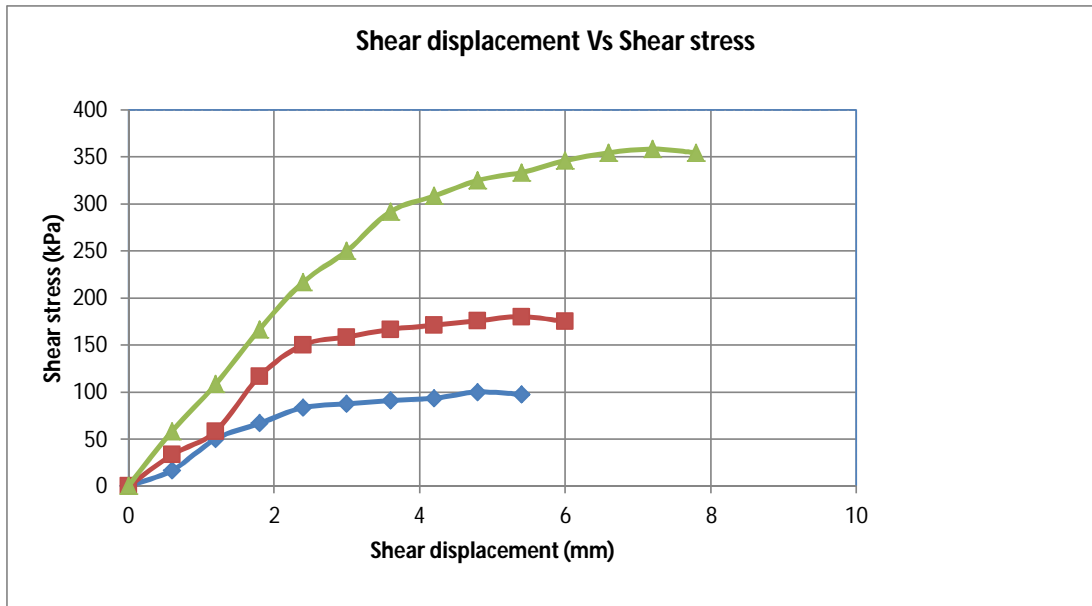
Project Location : Bamonshundor Forrest Bit Office,  
Shaherkhali

Bore Hole No : M 34

Sample No. : D8

Depth (m) 12.00

Test Date : 6/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

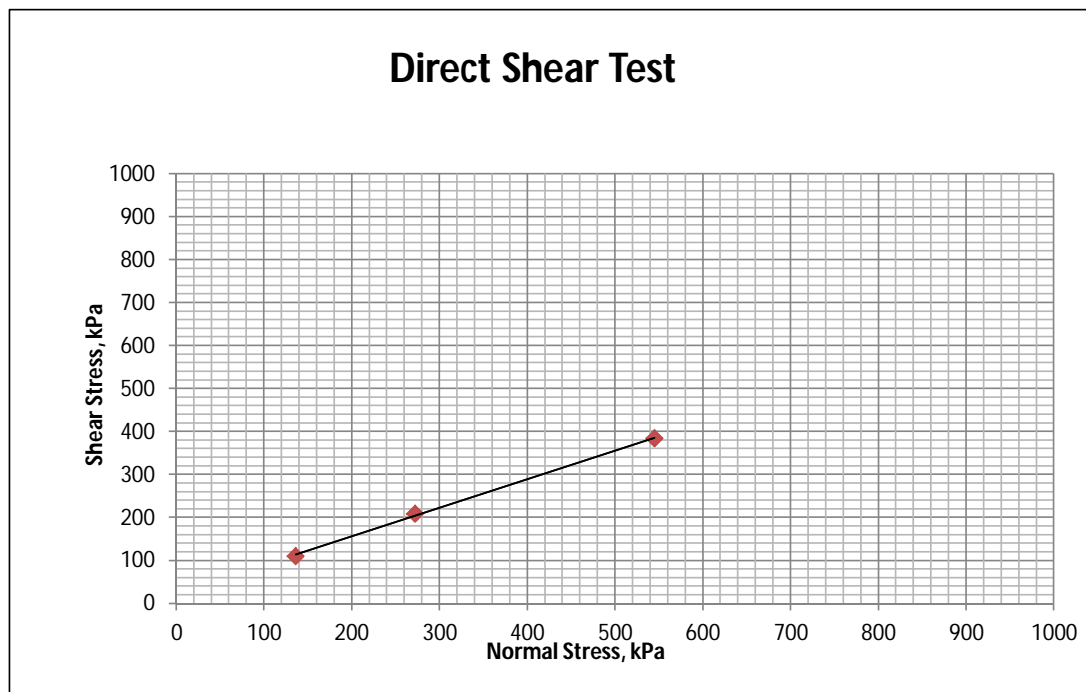
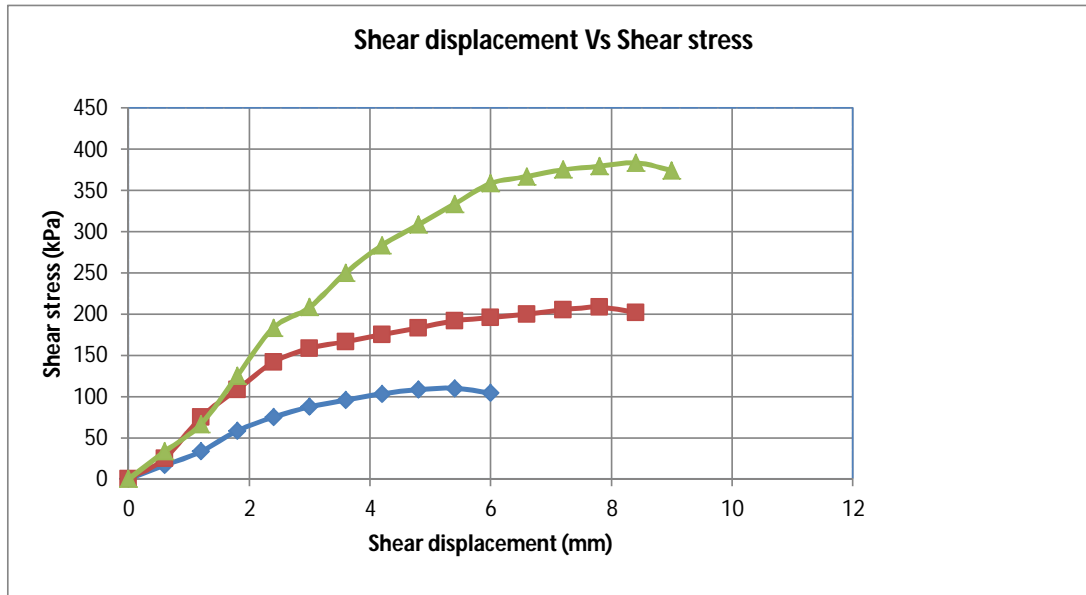
Project Location : Bamonshundor Forrest Bit Office,  
Shaherkhali

Bore Hole No : M 34

Sample No. : D17

Depth (m) 25.50

Test Date : 6/5/2018



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

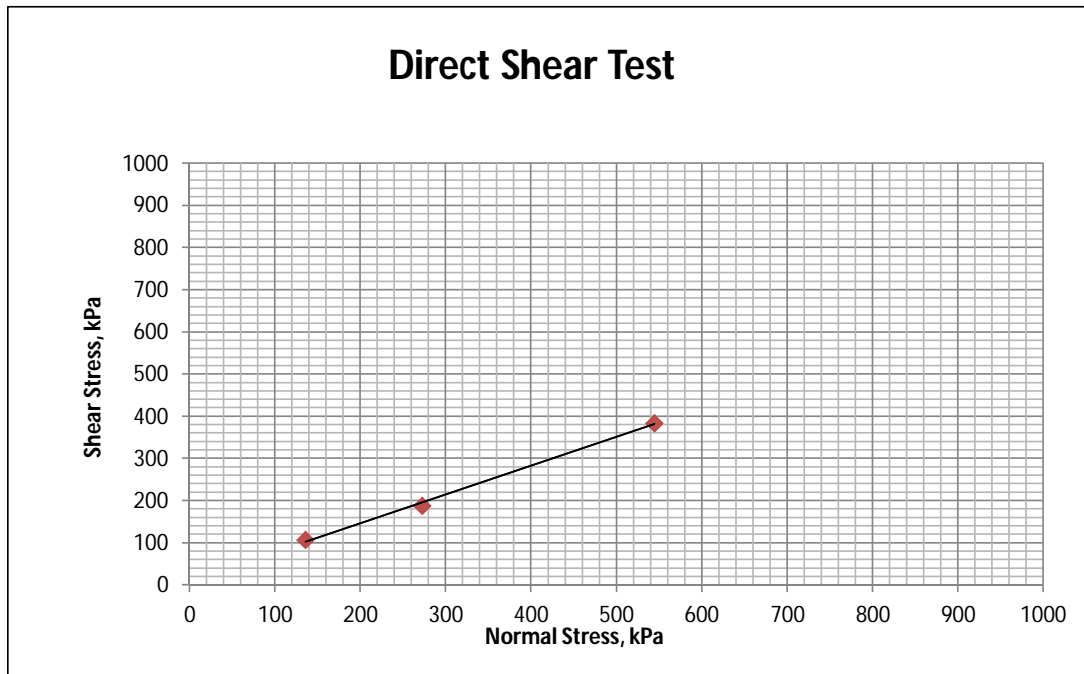
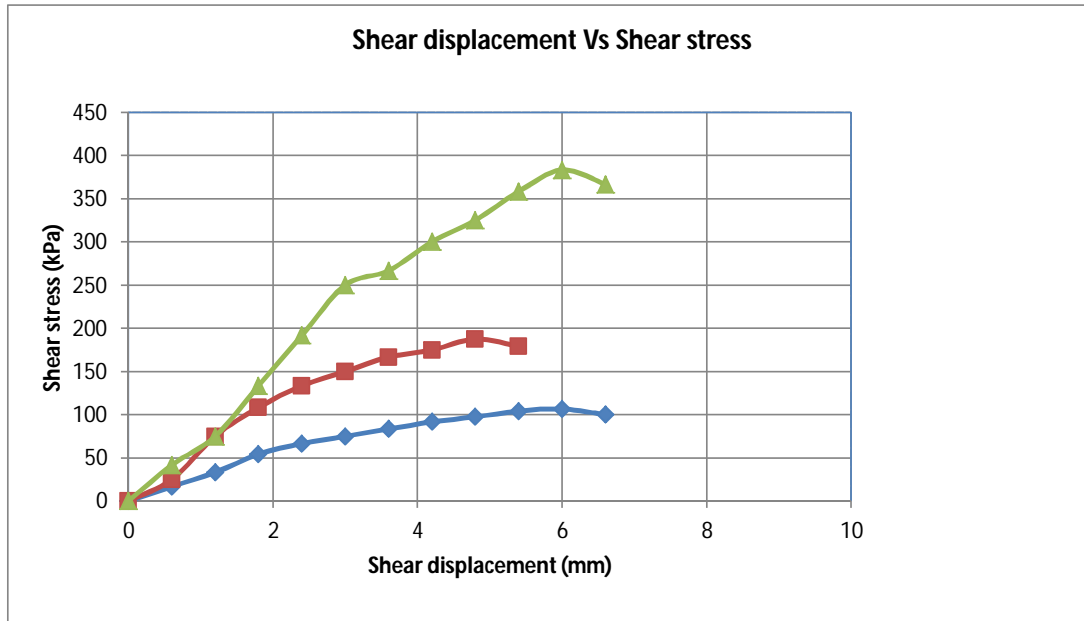
Project Location : Chunumijertek, Ichakhali

Bore Hole No : M 36

Sample No. : D12

Depth (m) 18.00

Test Date : 6/5/2018



Result: Friction angle: 34°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

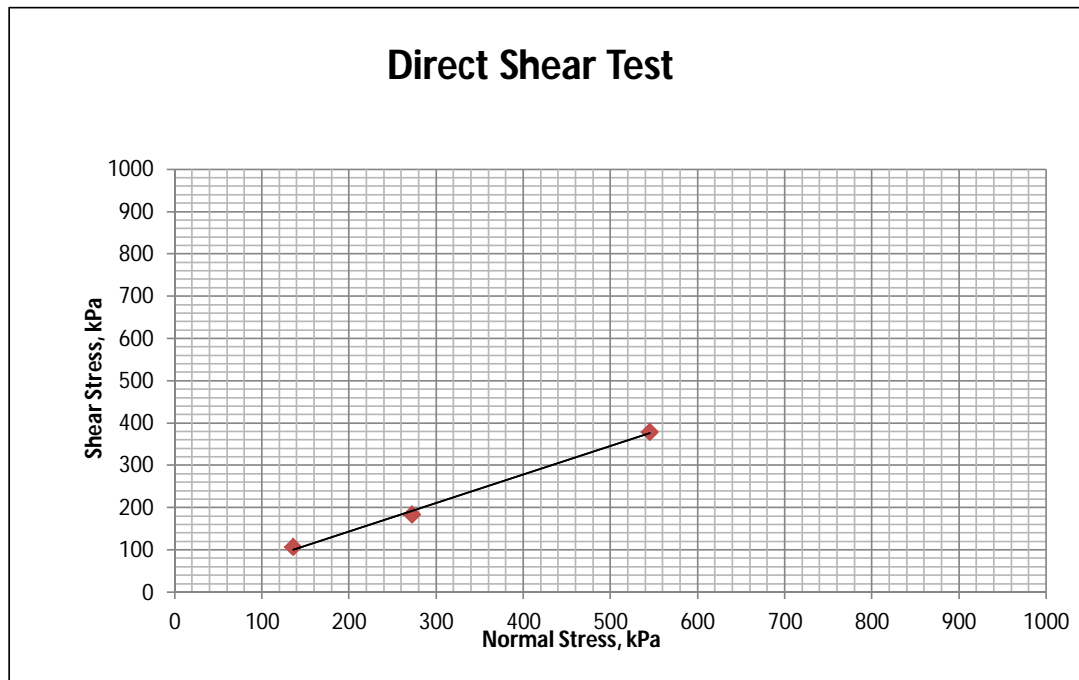
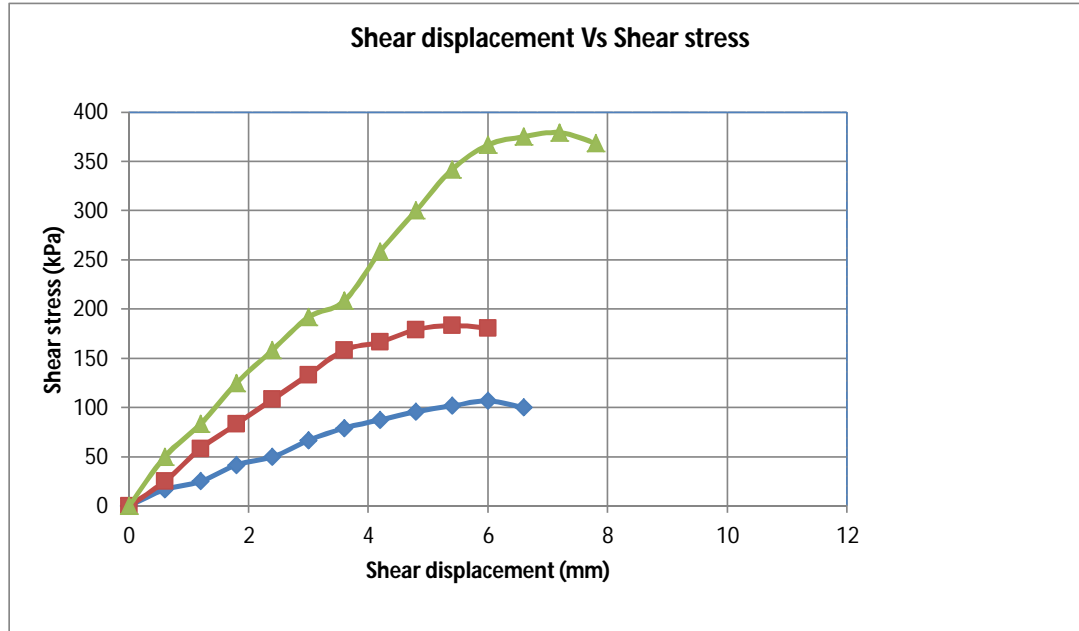
Project Location : 94 no. Hasim Nagar Govt. Primary School

Bore Hole No : M 37

Sample No. : D8

Depth (m) 12.00

Test Date : 7/5/2018



Result: Friction angle: 34°





## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Lodiakhali, Ichakhali

Bore Hole No : M 39

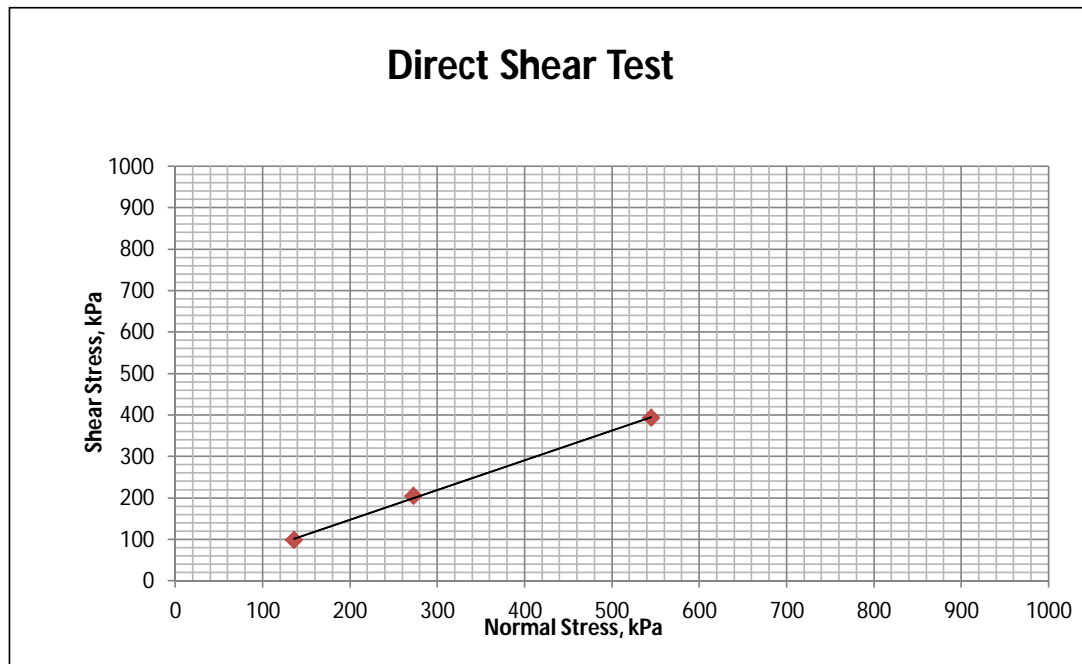
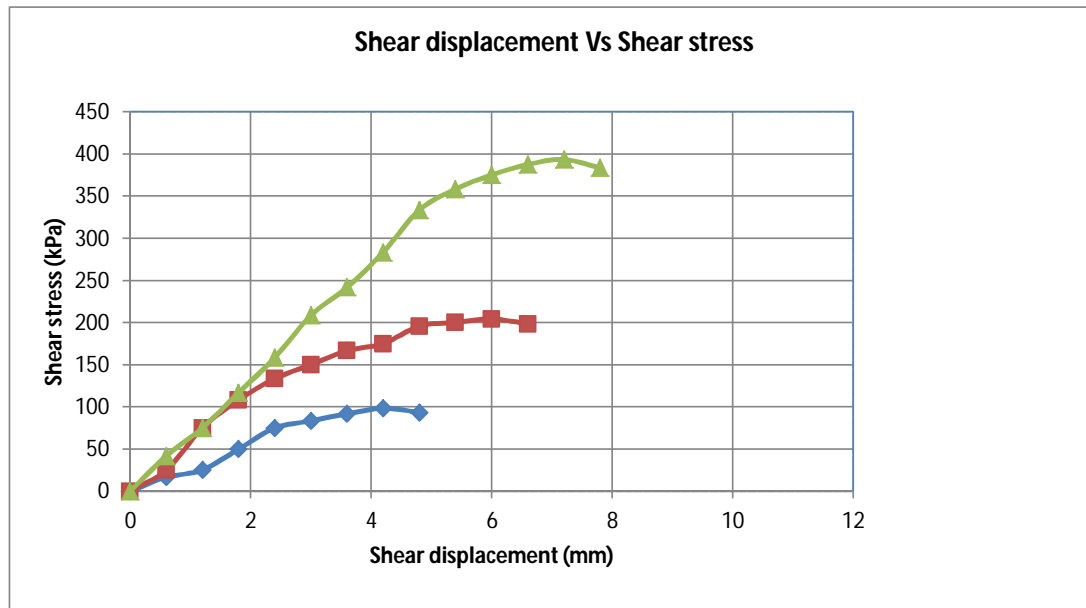
Sample No. :

D17

Depth (m)

25.50

Test Date : 7/5/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Ichakhali Economic Zone,

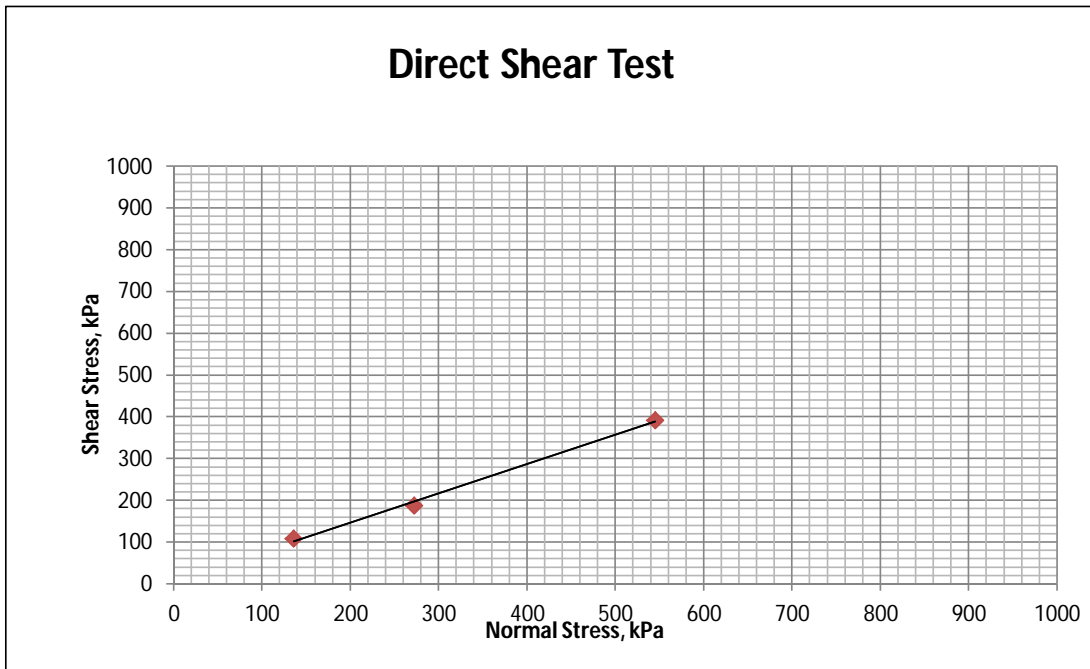
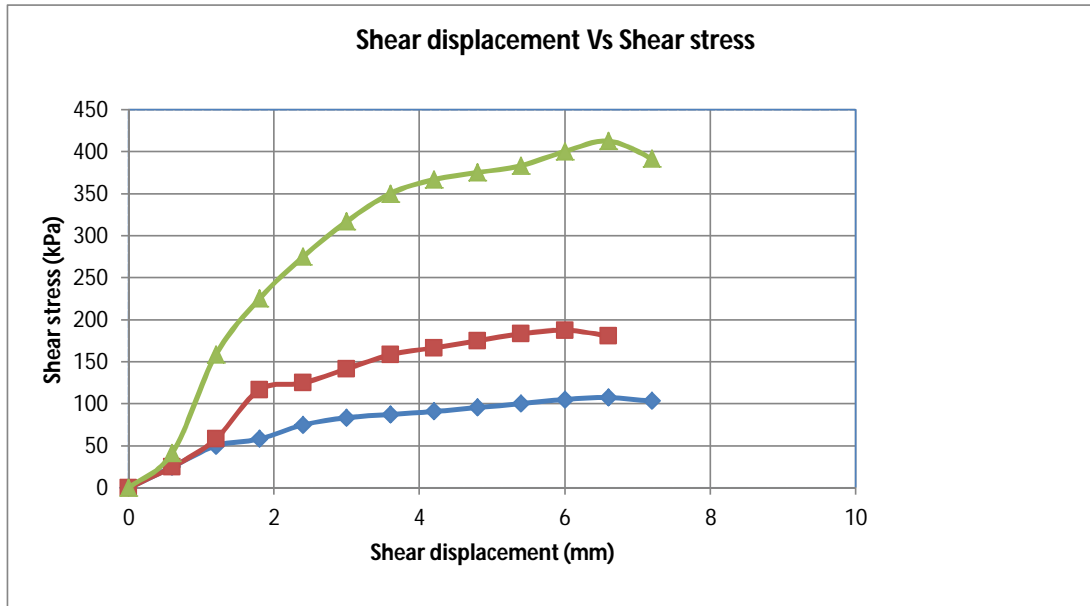
Ichakhali

Bore Hole No : M 41

Sample No. : D6

Depth (m) 9.00

Test Date : 7/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Ichakhali Economic Zone,

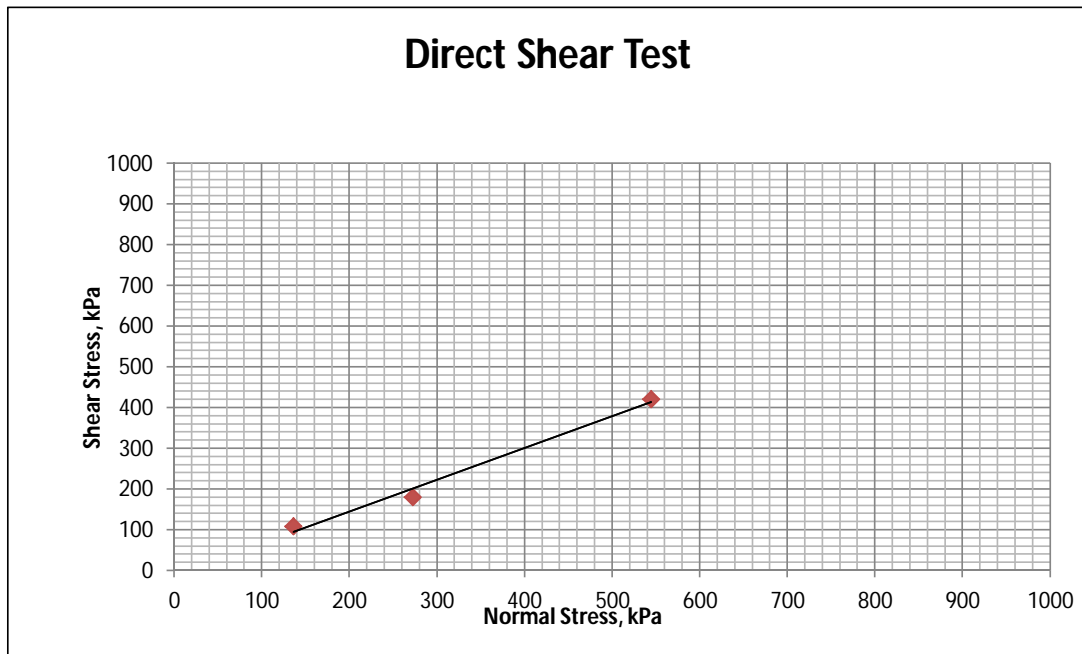
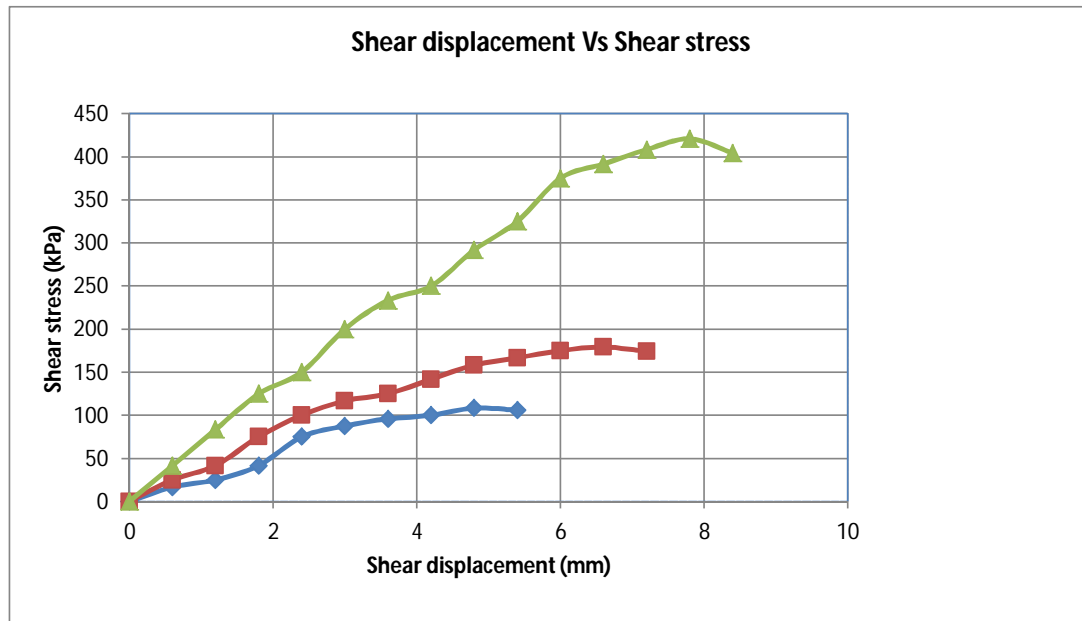
Ichakhali

Bore Hole No : M 41

Sample No. : D16

Depth (m) 24.00

Test Date : 7/5/2018



Result: Friction angle: 38°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Kazigram gov. Primary School,

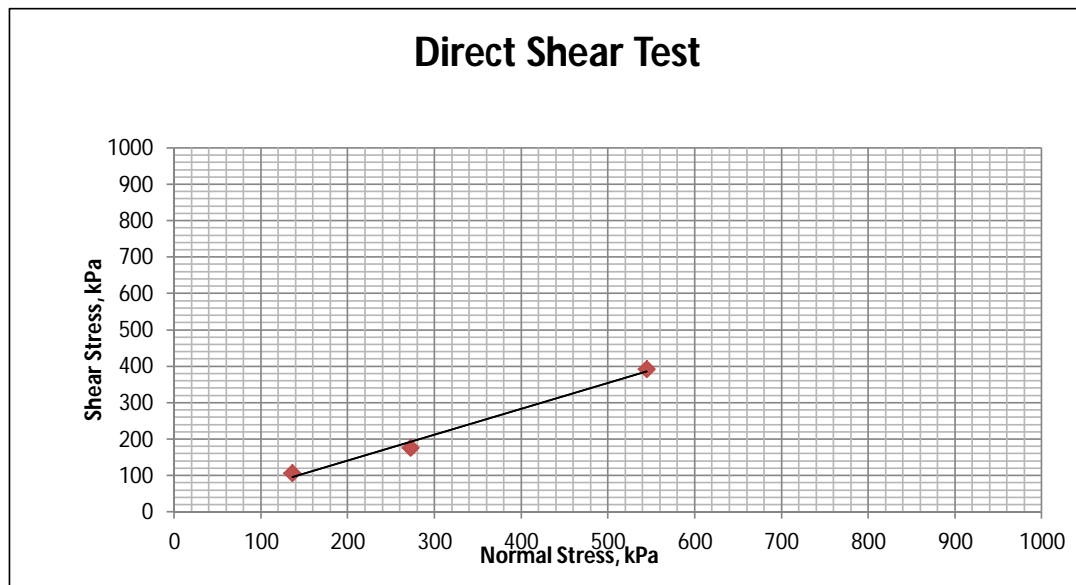
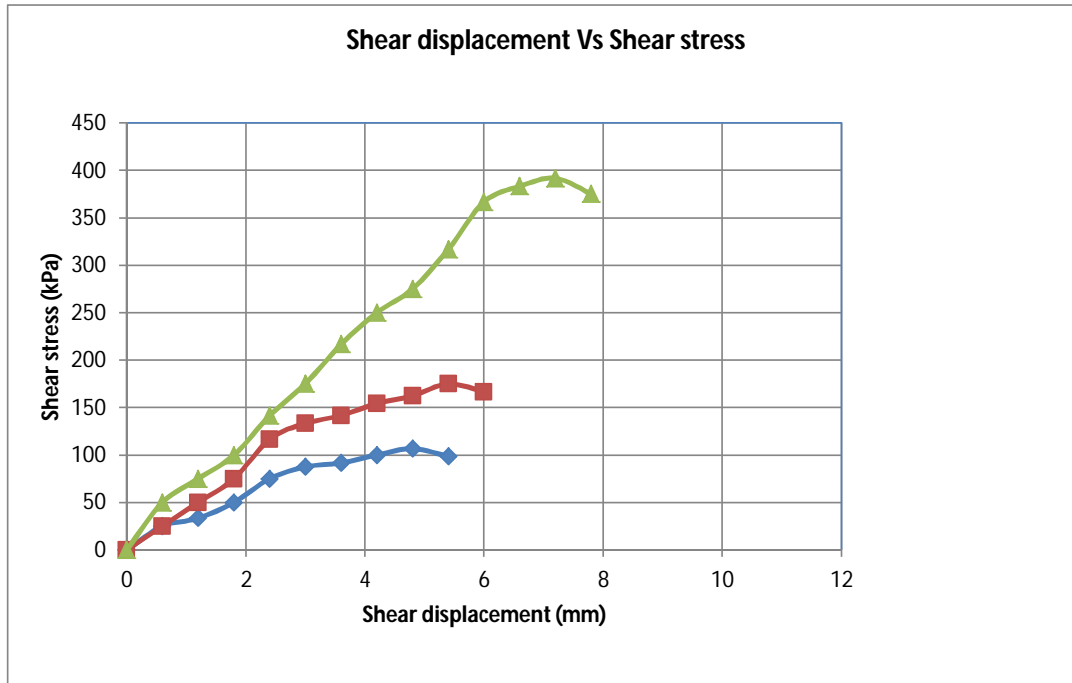
Ichakhali

Bore Hole No : M 42

Sample No. : D12

Depth (m) 18.00

Test Date : 8/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

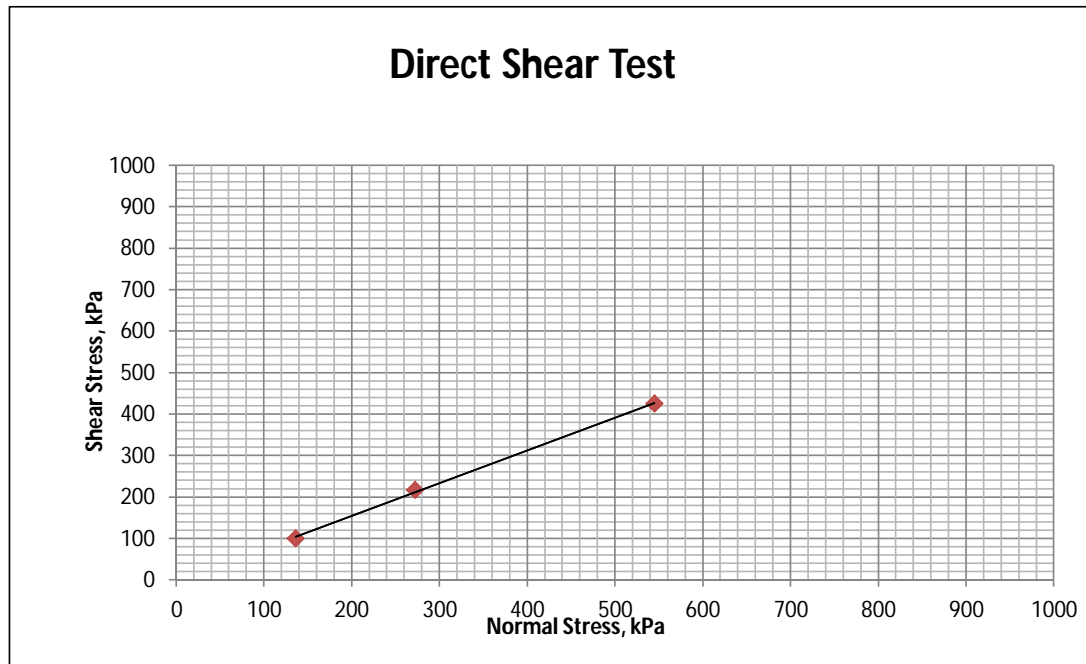
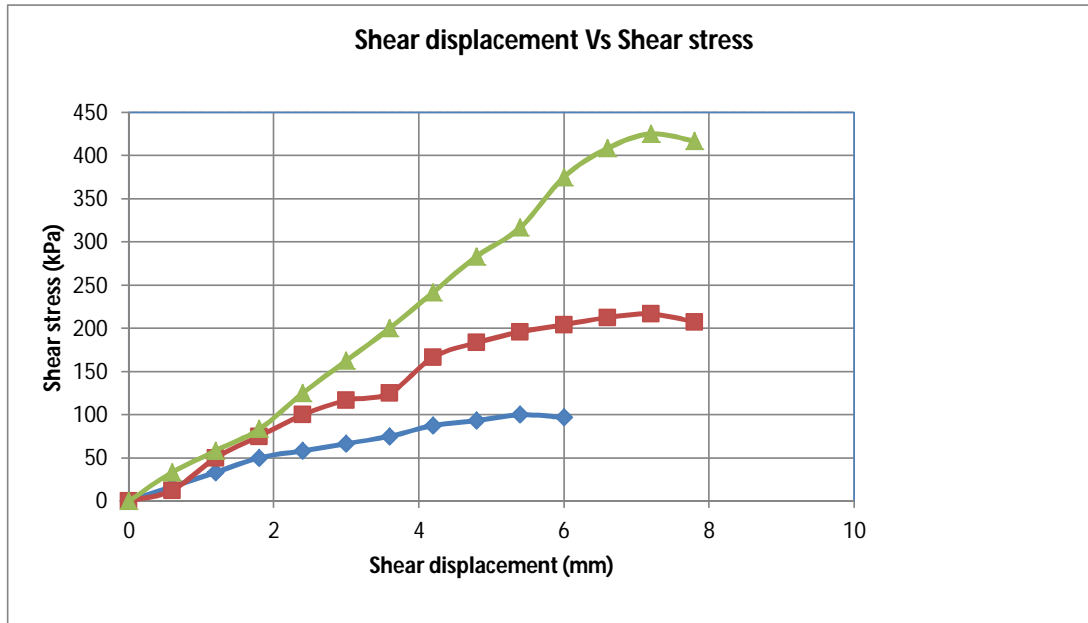
Project Location :Mohamaya Eco Park, Durgapur

Bore Hole No : M 45

Sample No. : D6

Depth (m) 9.00

Test Date : 8/5/2018



Result: Friction angle: 38°





# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

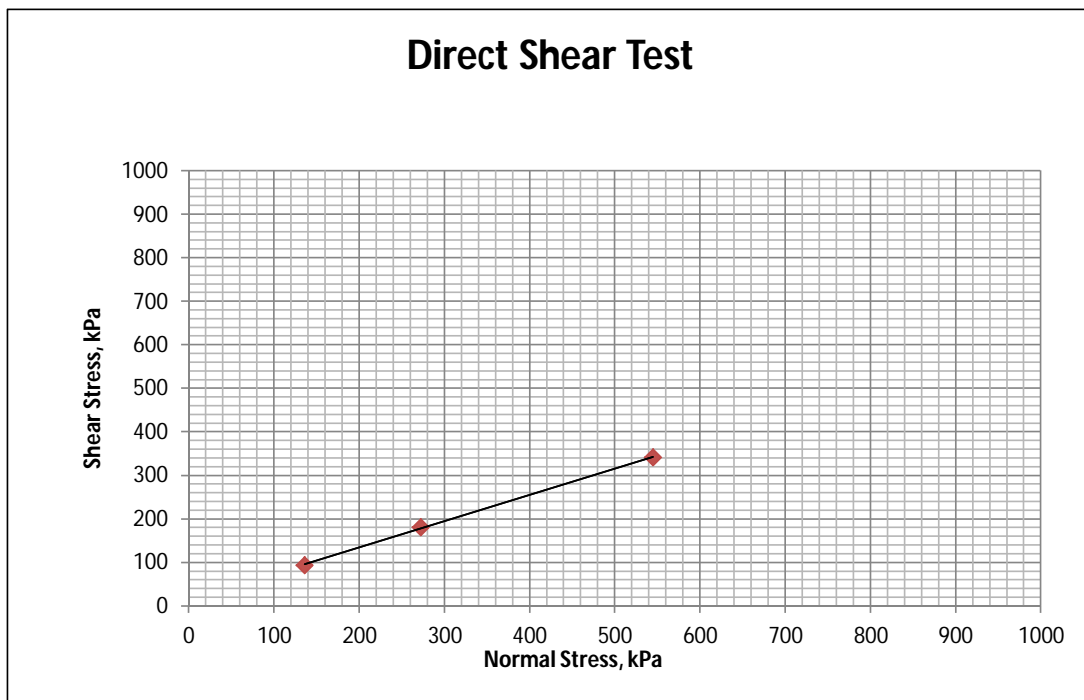
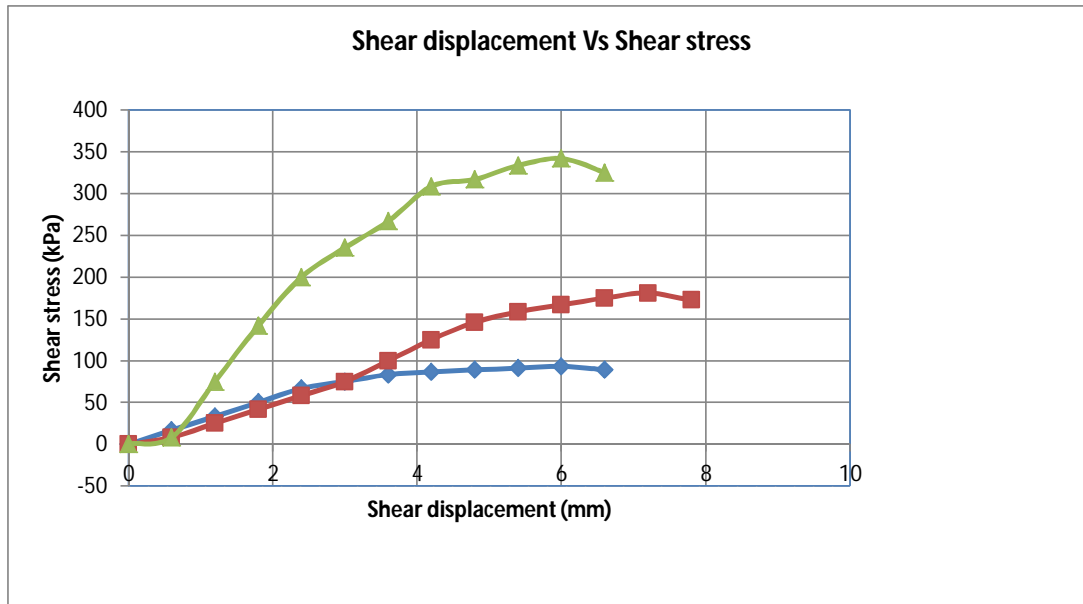
Project Location : Ora Kazi Mijibari Jame Mosque,  
Mirshorai

Bore Hole No : M 49

Sample No. : D8

Depth (m) 12.00

Test Date : 9/5/2018



Result: Friction angle: 31°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

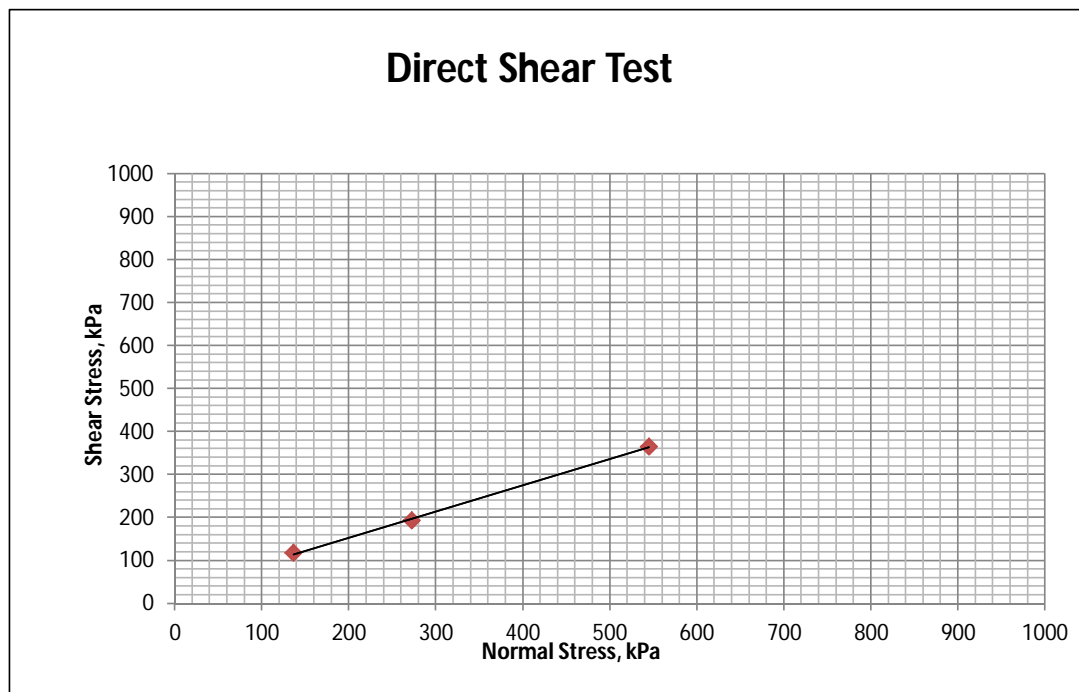
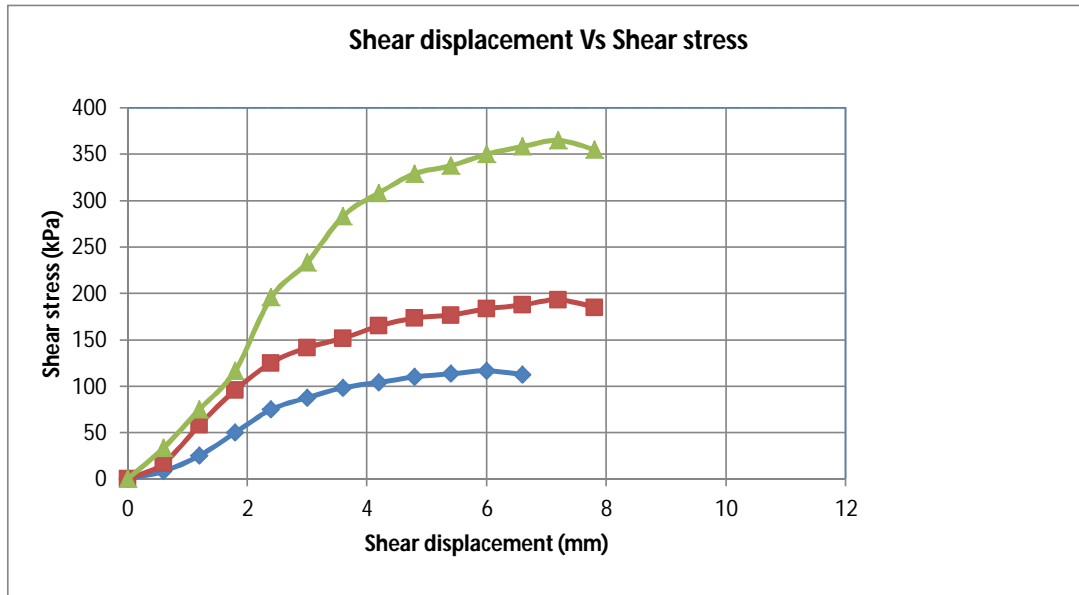
Project Location : Mirsharai Degree College,  
Mirsharai

Bore Hole No : M 50

Sample No. : D7

Depth (m) 10.50

Test Date : 9/5/2018



Result: Friction angle: 32°





## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Hamid Ali Jame Mosque, East

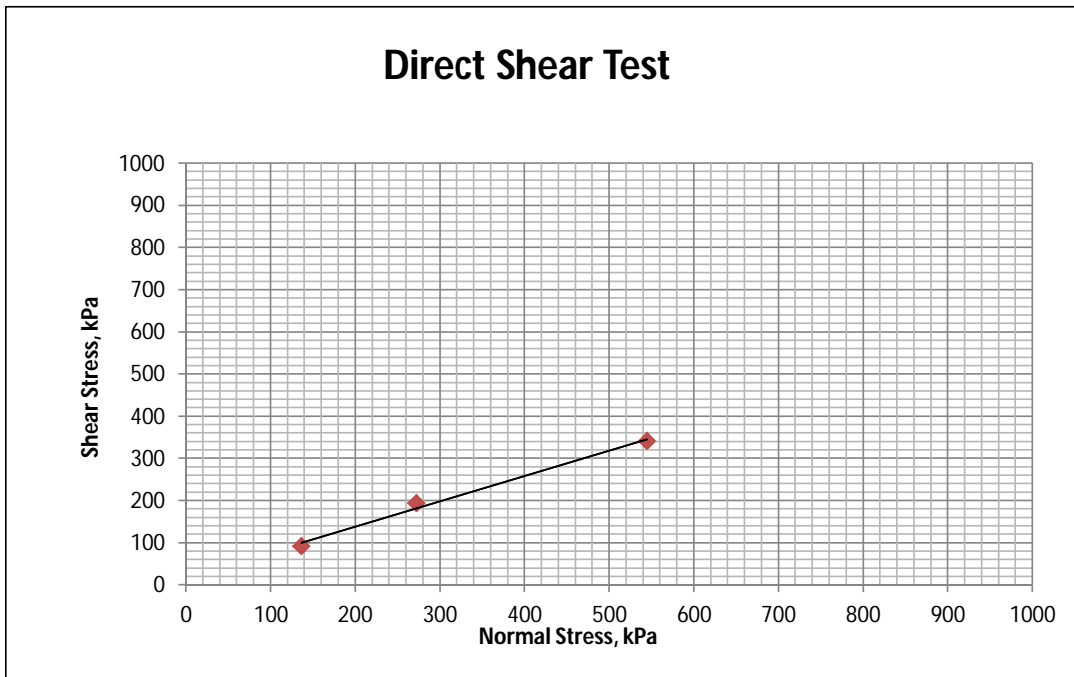
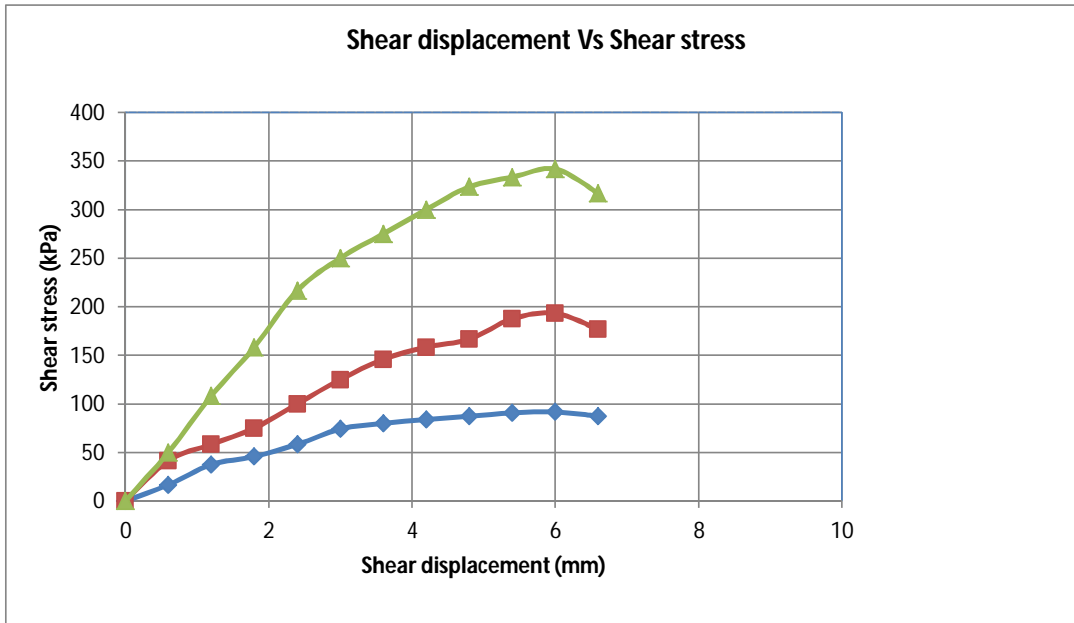
Khoiachora

Bore Hole No : M 52

Sample No. : D8

Depth (m) 12.00

Test Date : 9/5/2018



Result: Friction angle: 31°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

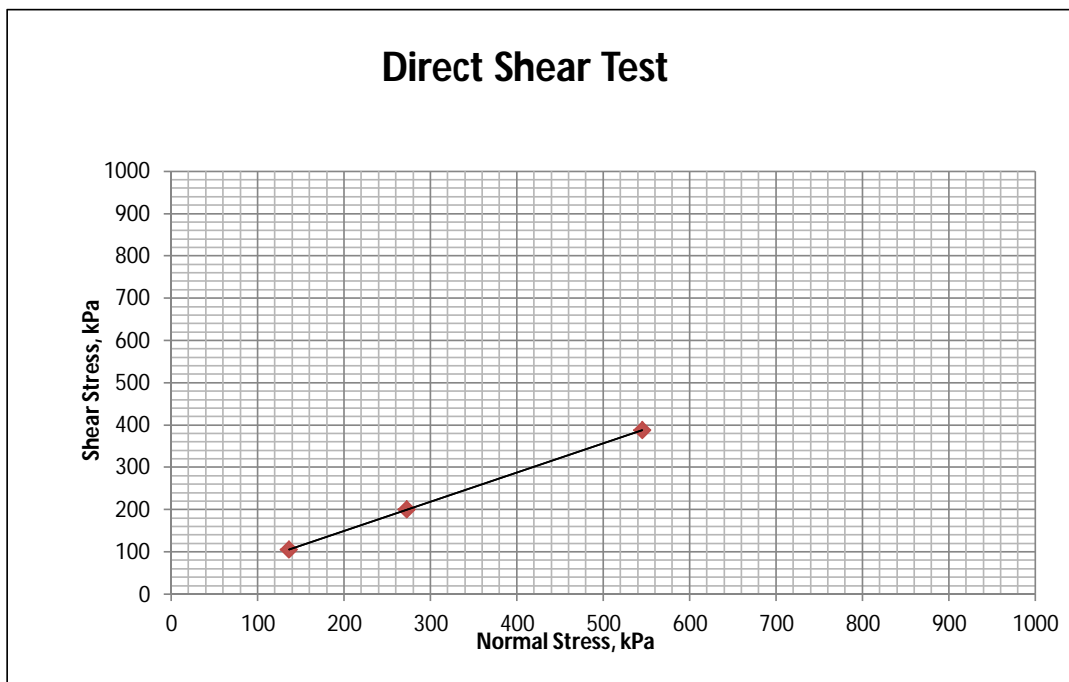
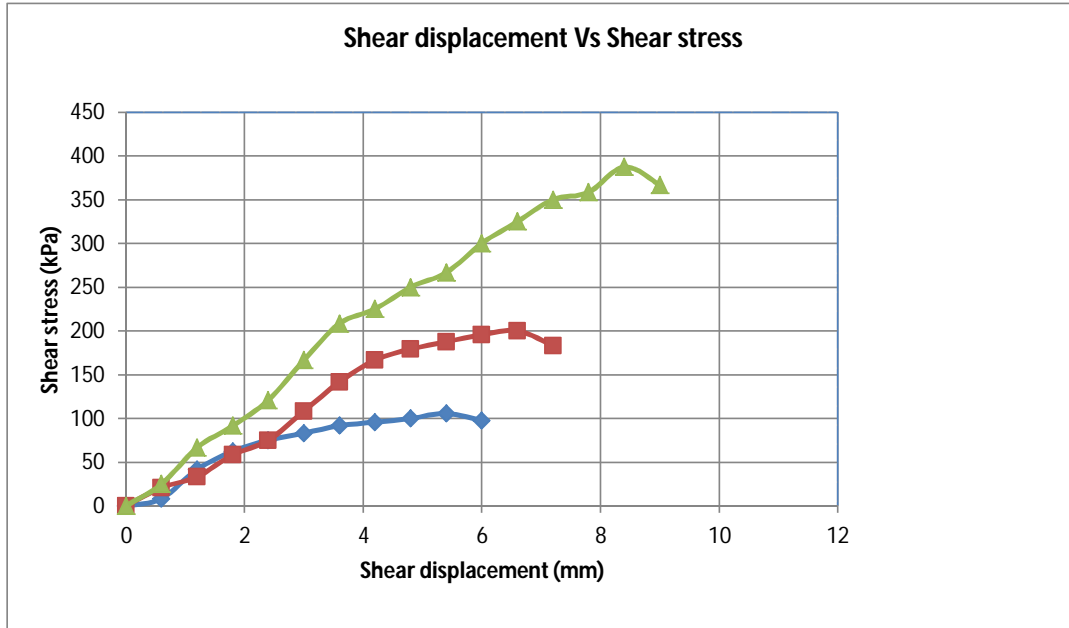
Project Location :Hamid Ali Jame Mosque, East  
Khoiachora

Bore Hole No : M 52

Sample No. : D17

Depth (m) 25.50

Test Date : 9/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

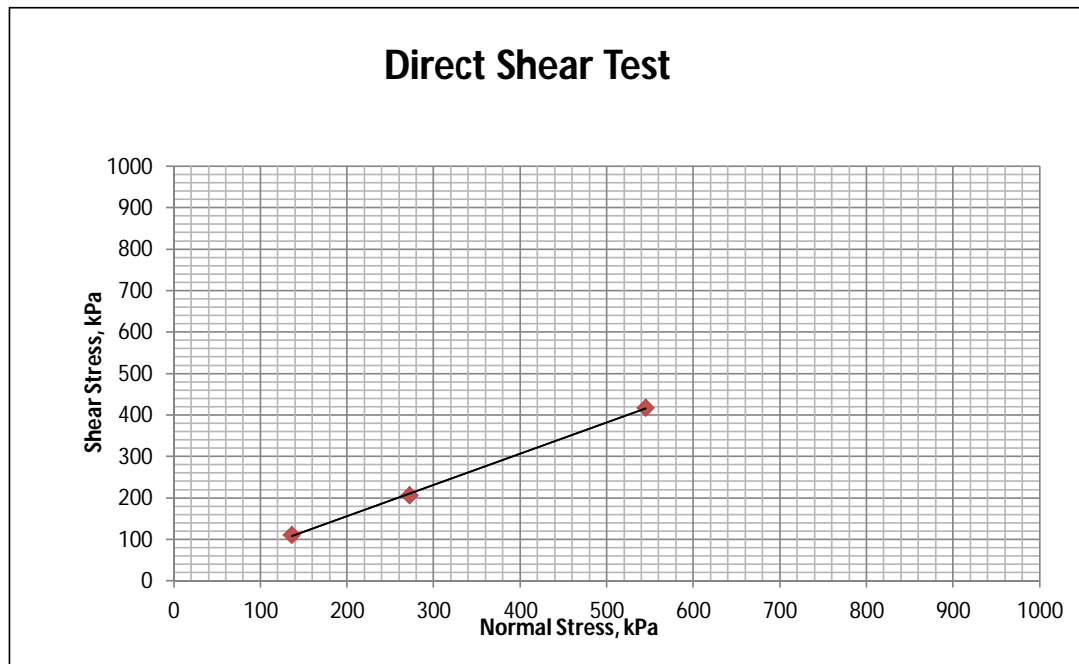
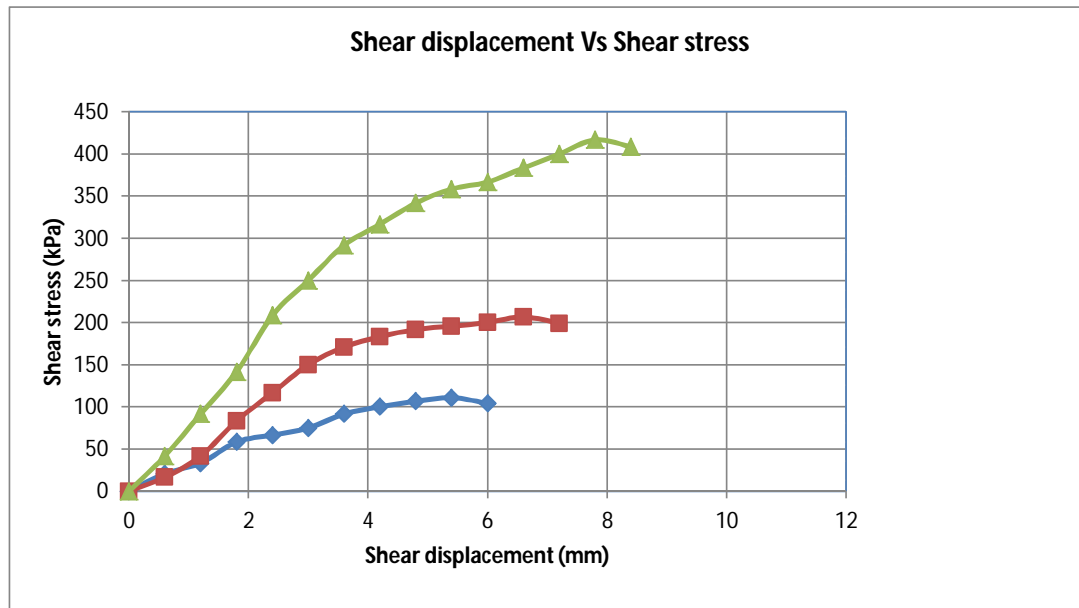
Project Location : Rabiul Hossain Govt. Primary School

Bore Hole No : M 54

Sample No. : D10

Depth (m) 15.00

Test Date : 10/5/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Chairman Bari, West Moliyash

Bore Hole No : M 55

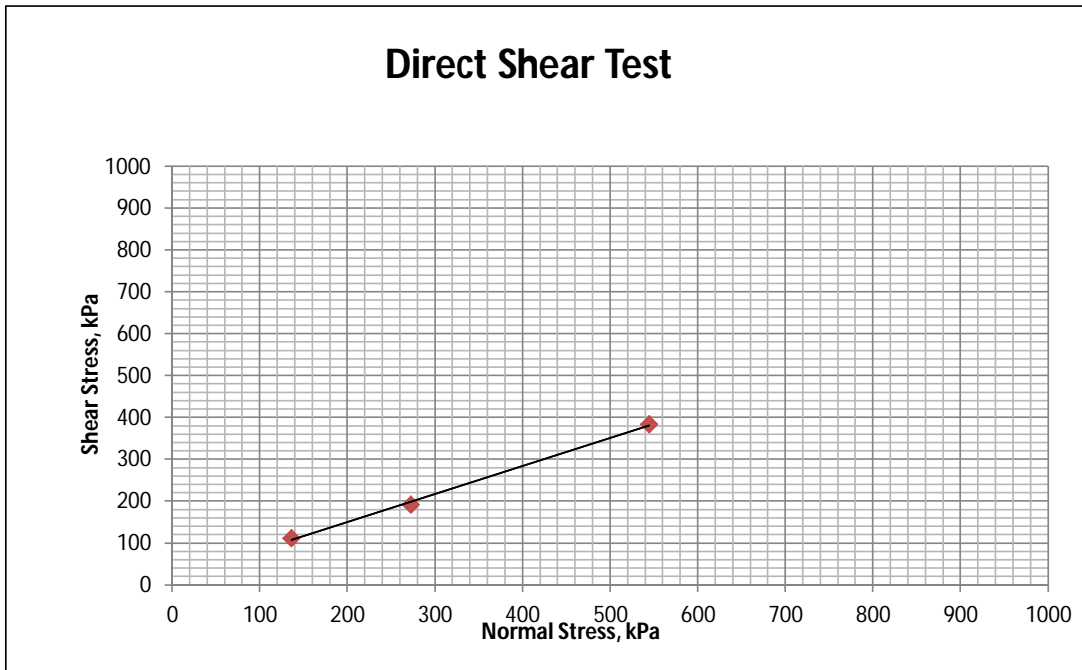
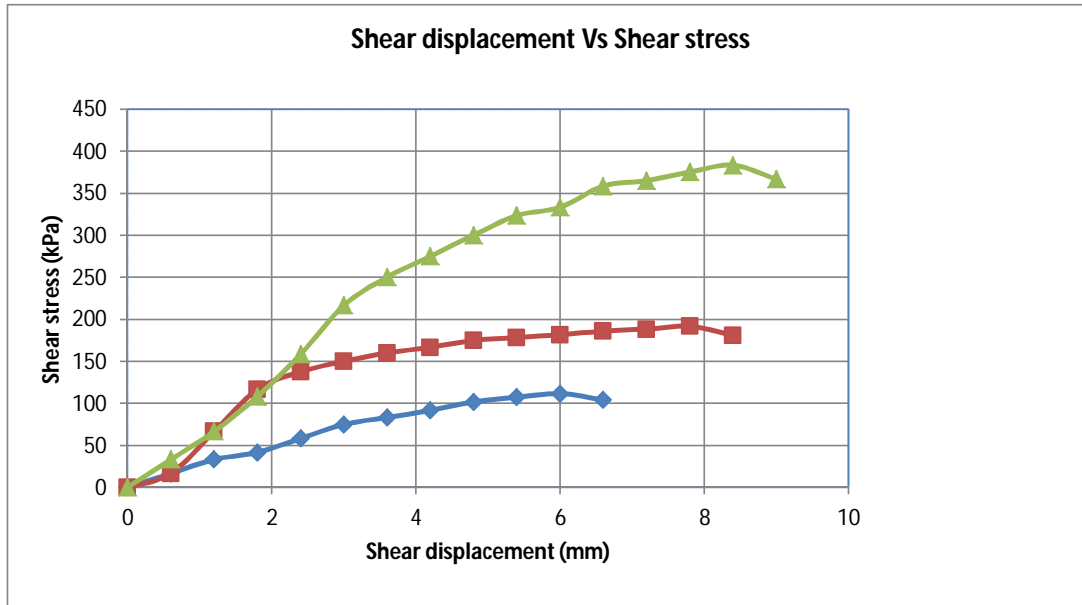
Sample No. :

D6

Depth (m)

9.00

Test Date : 10/5/2018



Result: Friction angle: 34°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

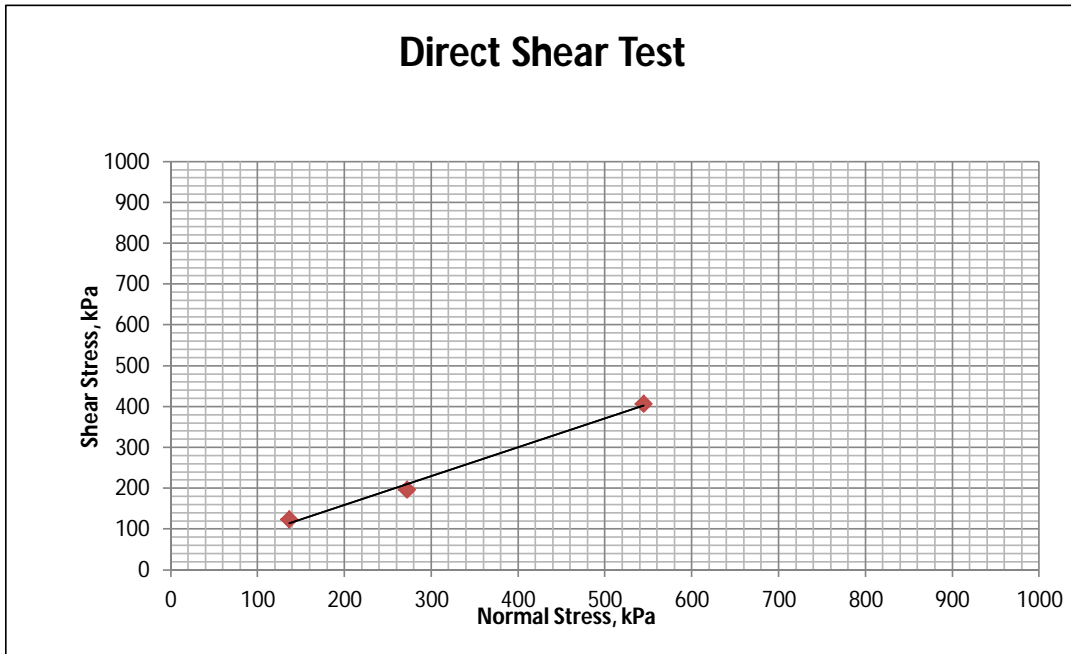
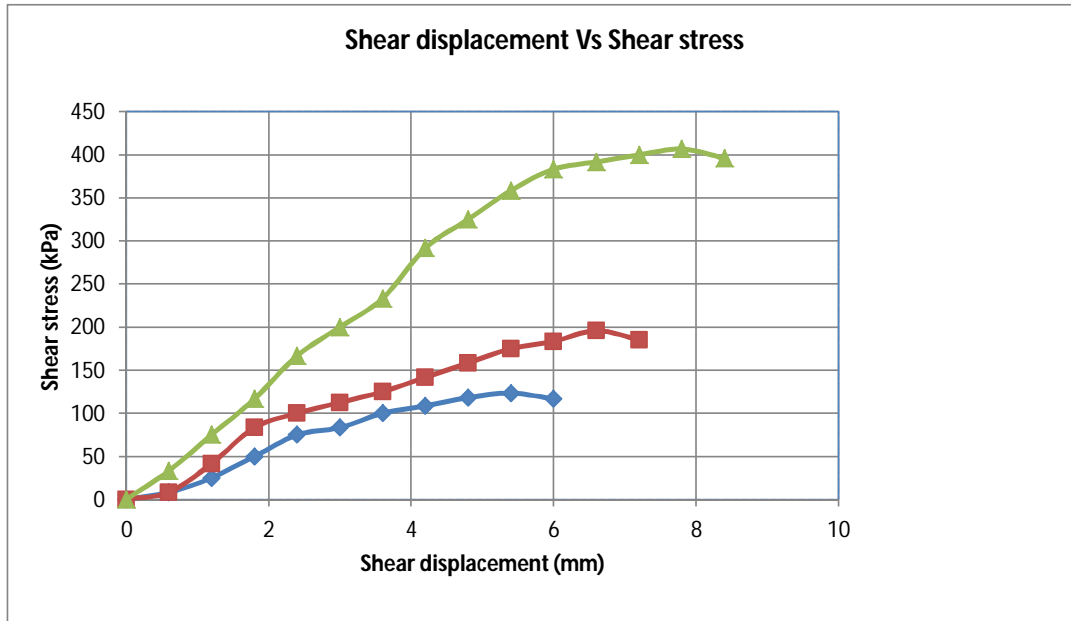
Project Location :Mayani Bogla Kumar Primary School, Mayani

Bore Hole No : M 57

Sample No. : D12

Depth (m) 18.00

Test Date : 10/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

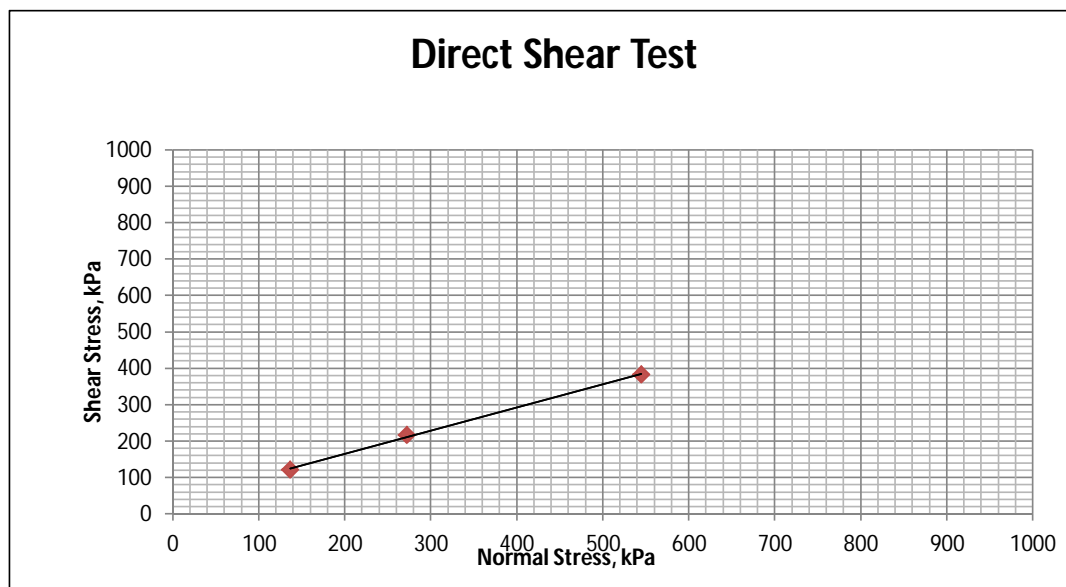
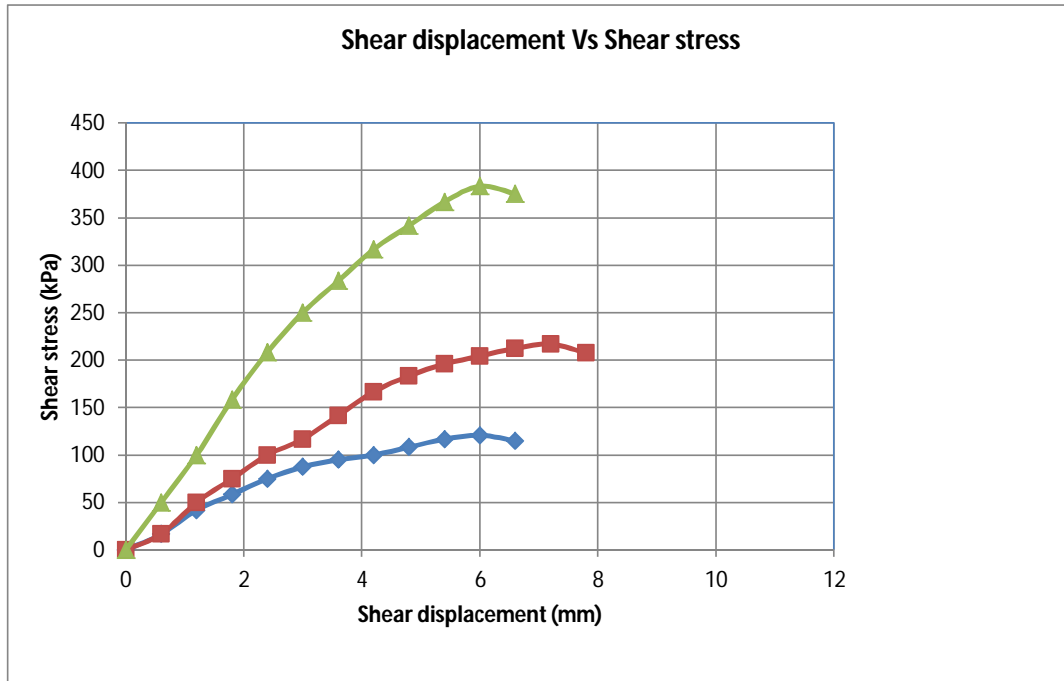
Project Location : 3 Ghoriatola, Jame mosque,  
Maghadia

Bore Hole No : M 59

Sample No. : D10

Depth (m) 15.00

Test Date : 10/5/2018



Result: Friction angle: 32°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

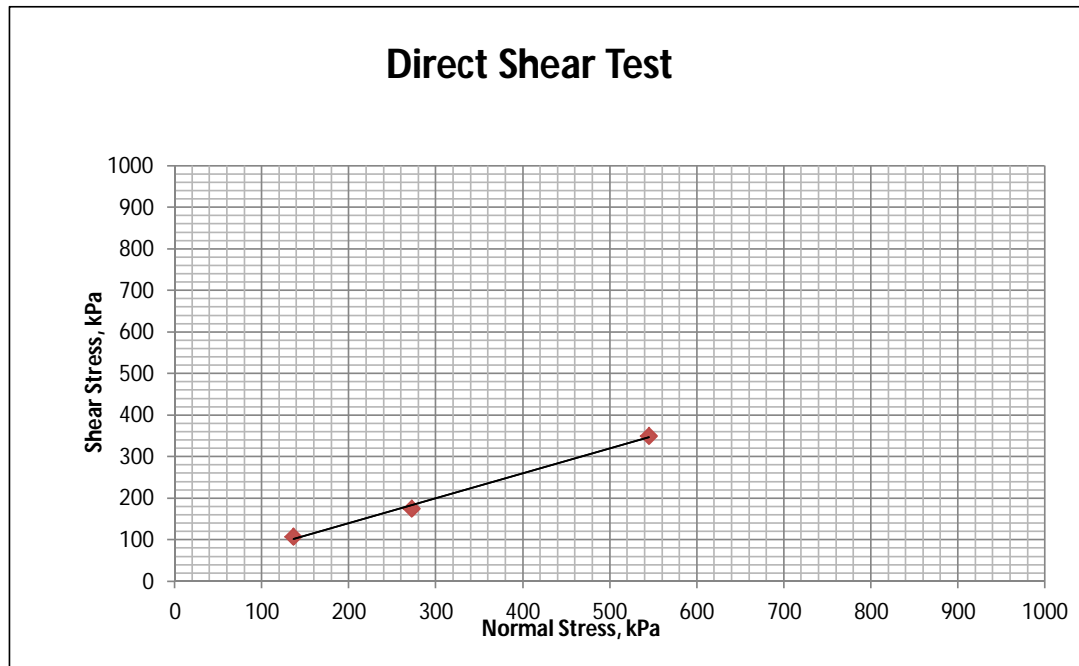
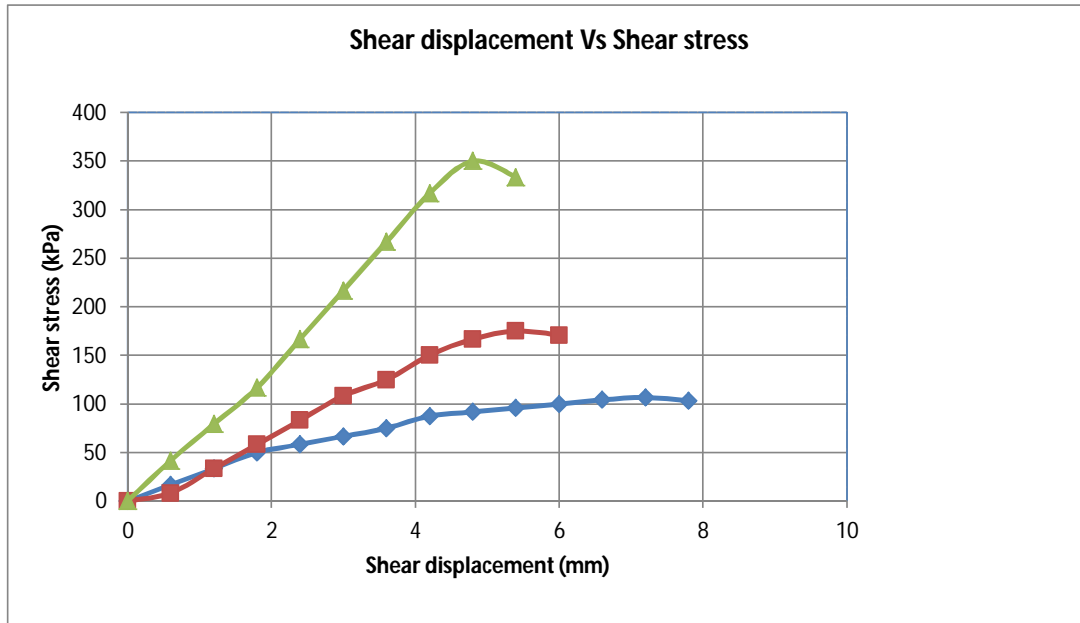
Project Location :Sheker Taluk, Middle Maghadia

Bore Hole No : M 61

Sample No. : D10

Depth (m) 15.00

Test Date : 10/5/2018



Result: Friction angle: 31°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : Dhoomkhali, Shaherkhali

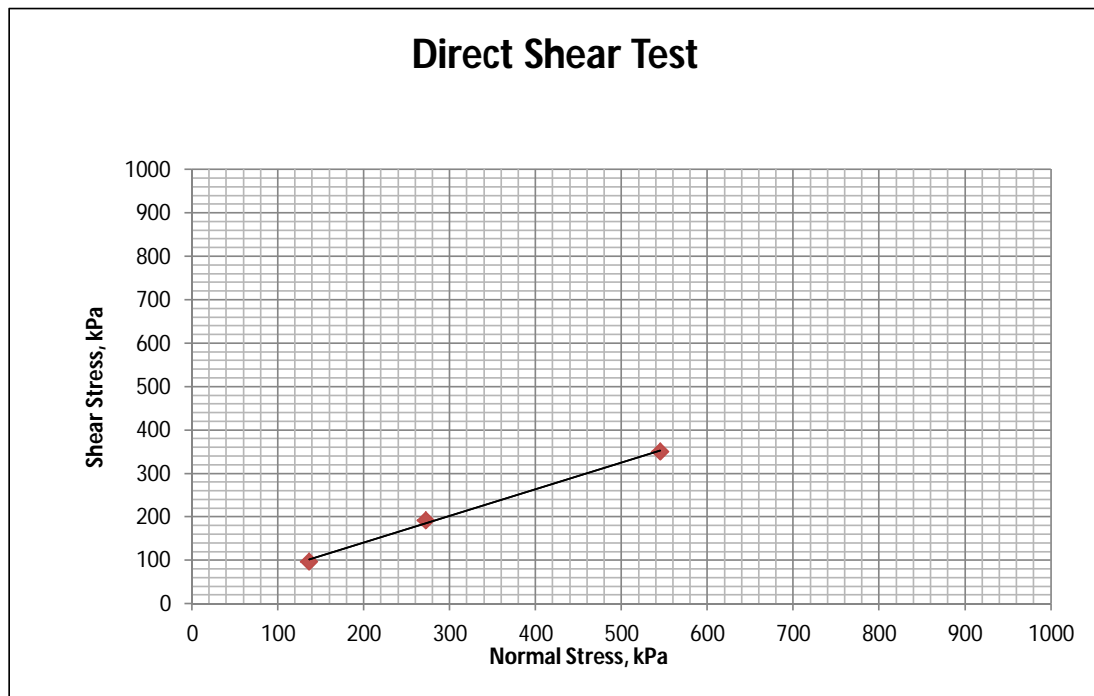
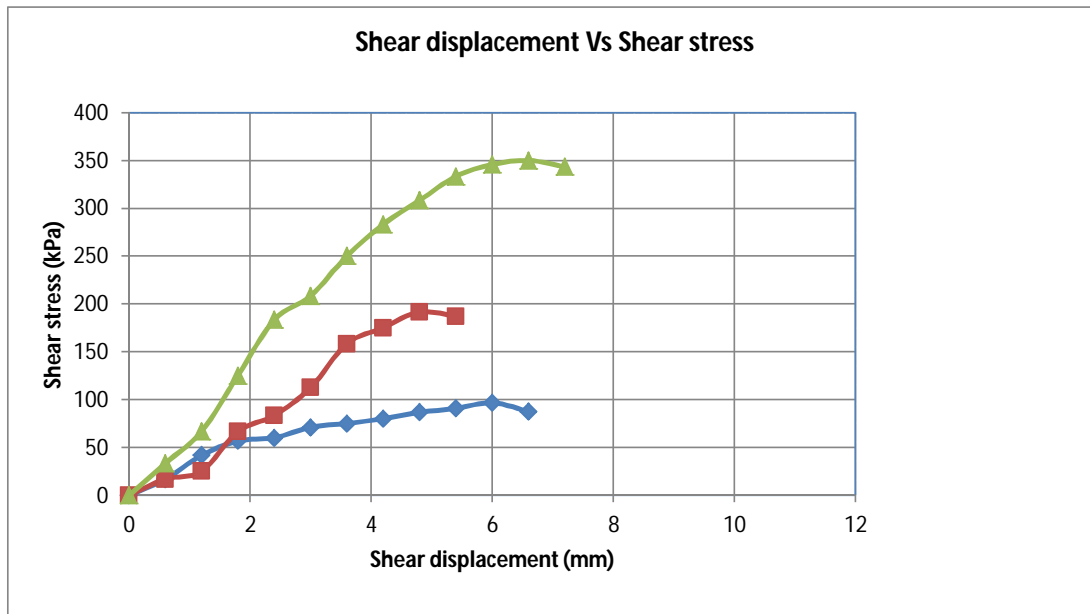
Bore Hole No : M 69

Sample No. : D6

Depth (m)

9.00

Test Date : 12/5/2018



Result: Friction angle: 32°





# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

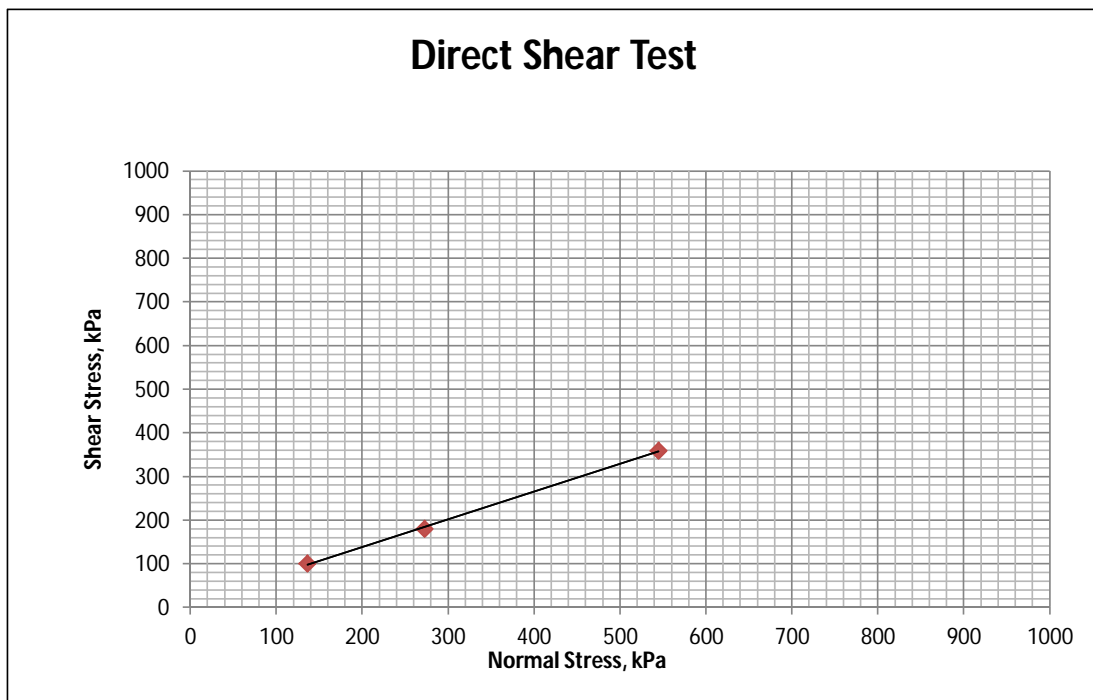
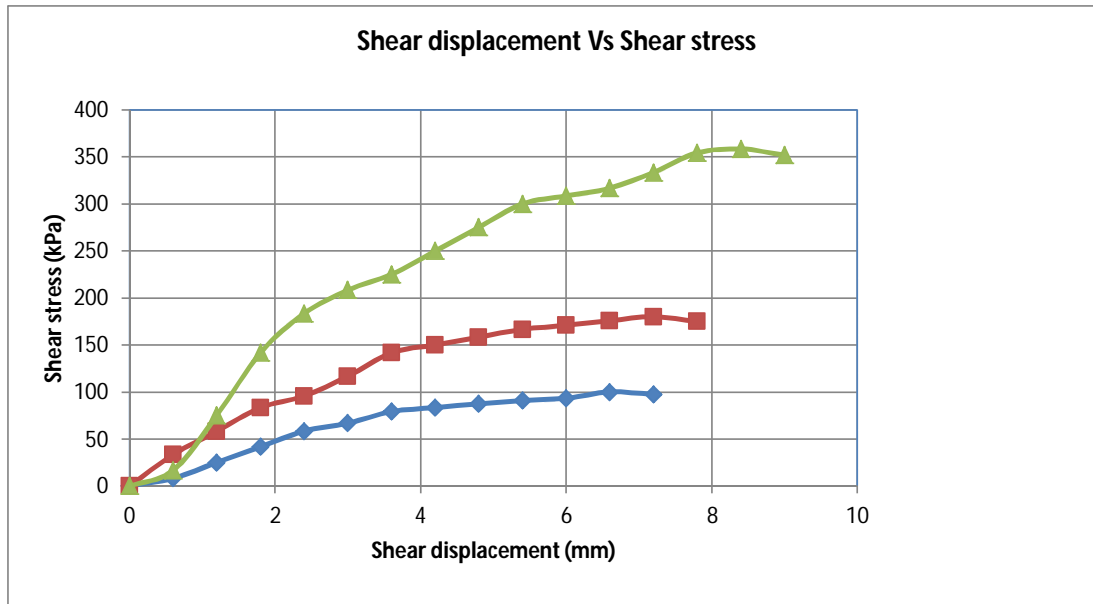
Project Location :West Gobania, Mirsharai

Bore Hole No : M 70

Sample No. : D9

Depth (m) 13.50

Test Date : 12/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

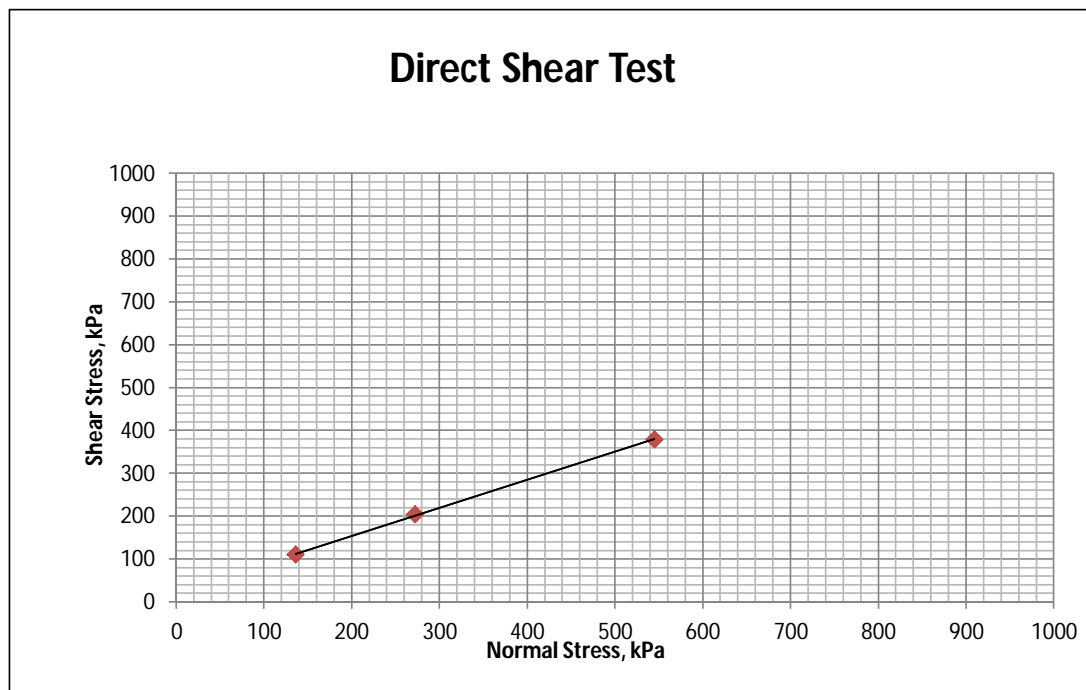
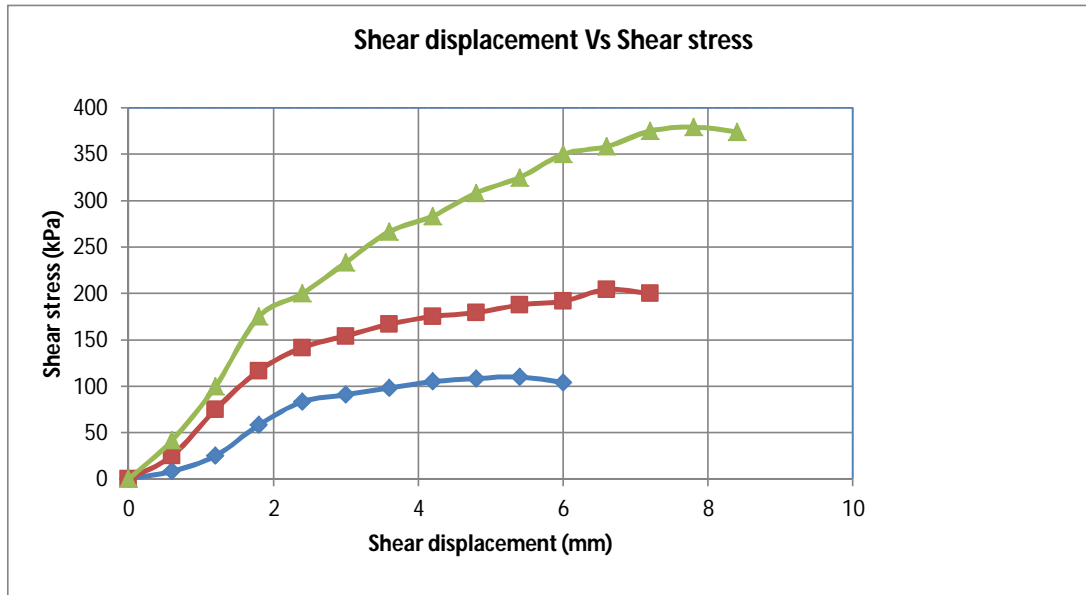
Project Location :Ichakhali Khalpar, Ichakhali

Bore Hole No : M 67

Sample No. : D10

Depth (m) 15.00

Test Date : 12/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

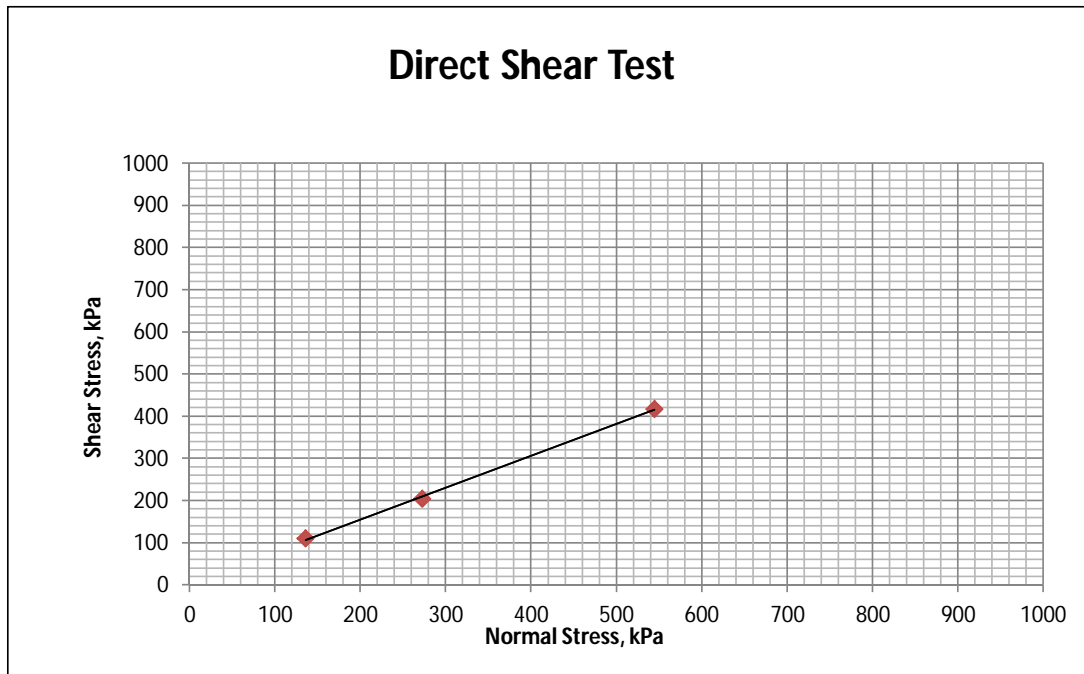
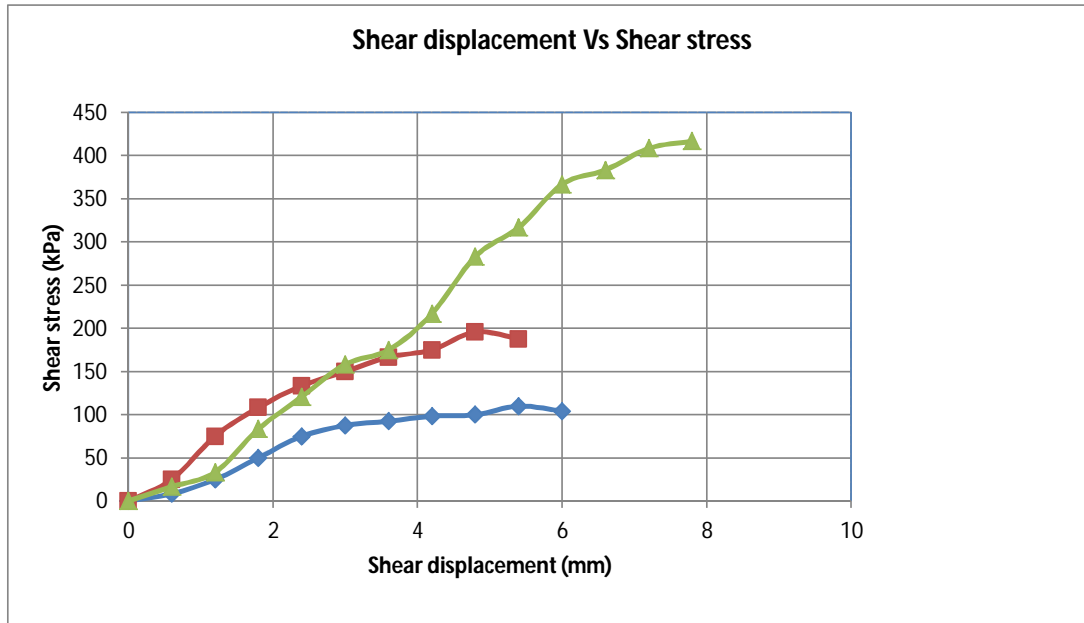
Project Location :Shonaichora, Khoiachora

Bore Hole No : M 71

Sample No. : D10

Depth (m) 15.00

Test Date : 12/5/2018



Result: Friction angle: 37°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

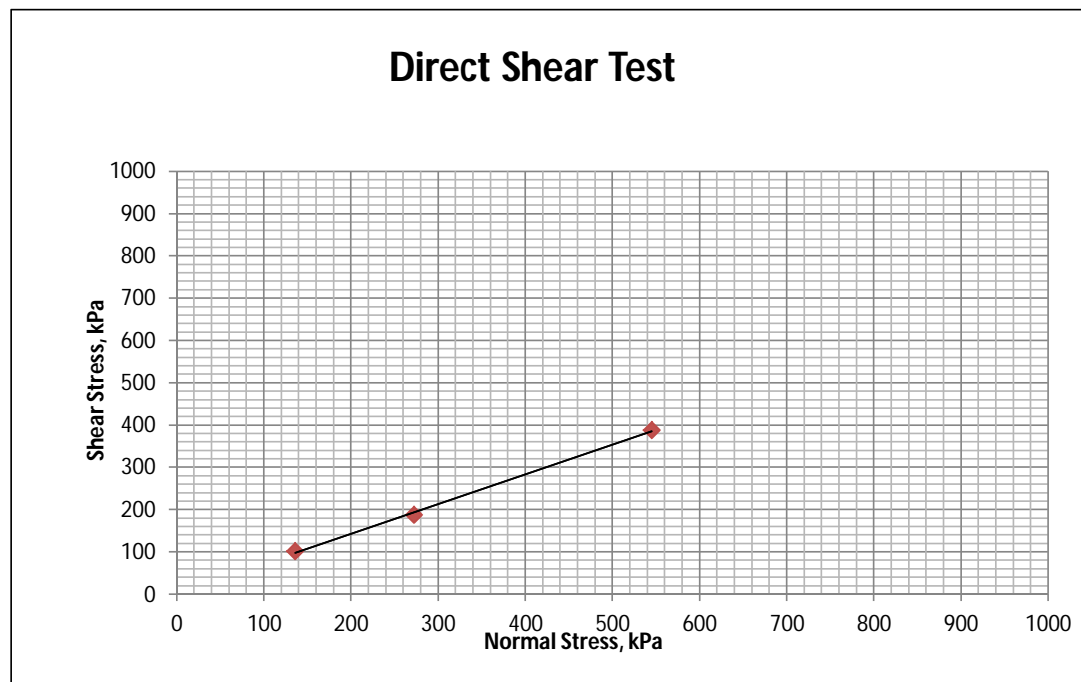
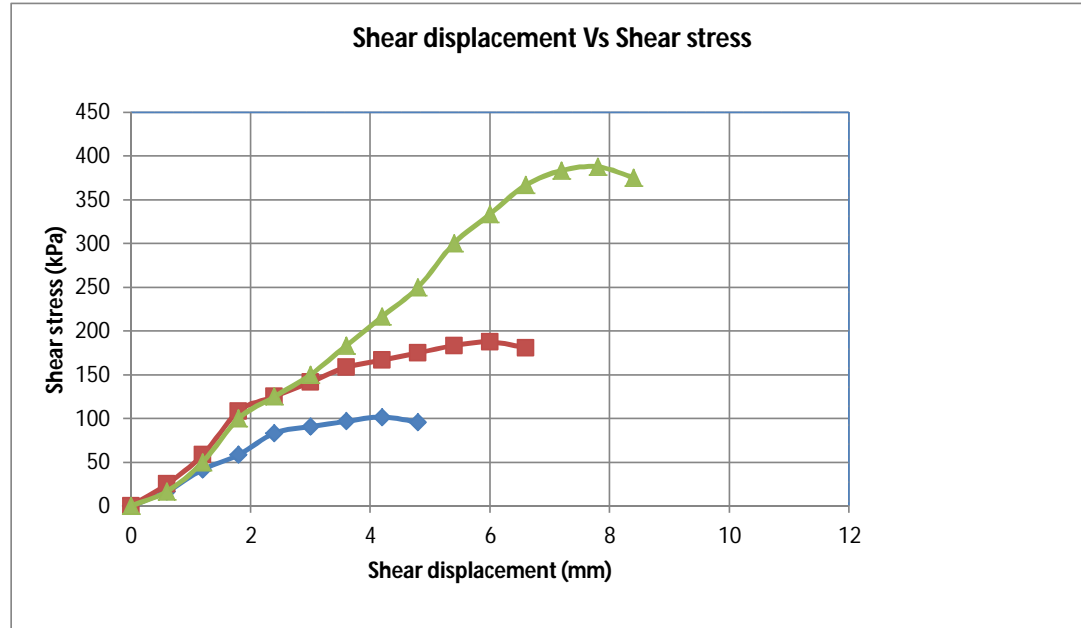
Project Location :Said Ali Govt. Primary School

Bore Hole No : M 74

Sample No. : D10

Depth (m) 15.00

Test Date : 12/5/2018



Result: Friction angle: 35°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

Project Location : West Mayani Shahid Kamal Uddin

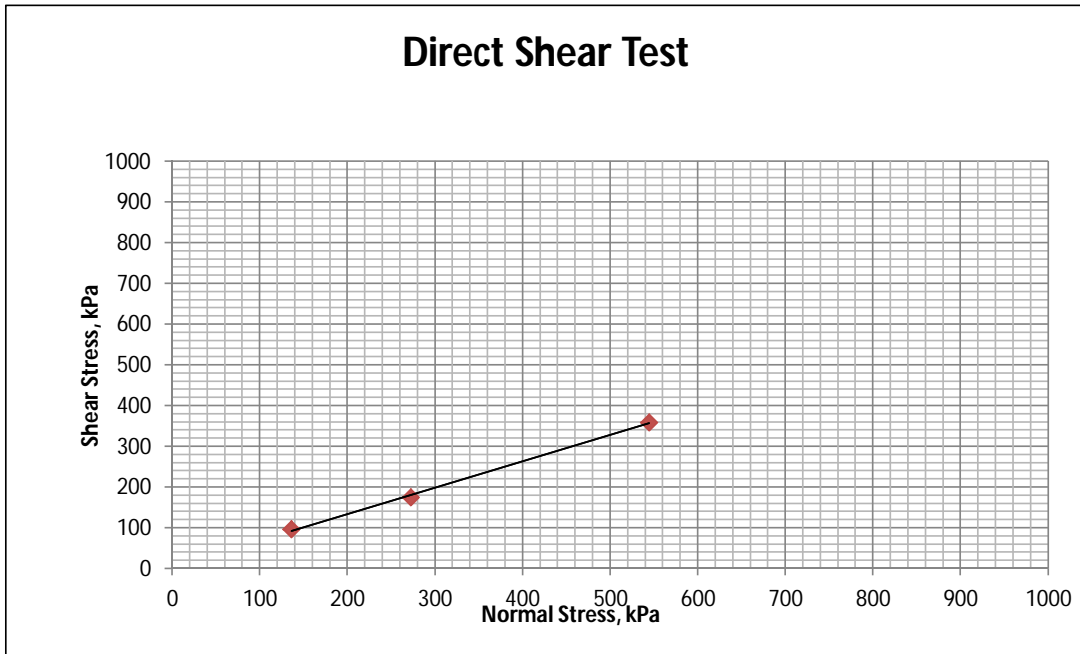
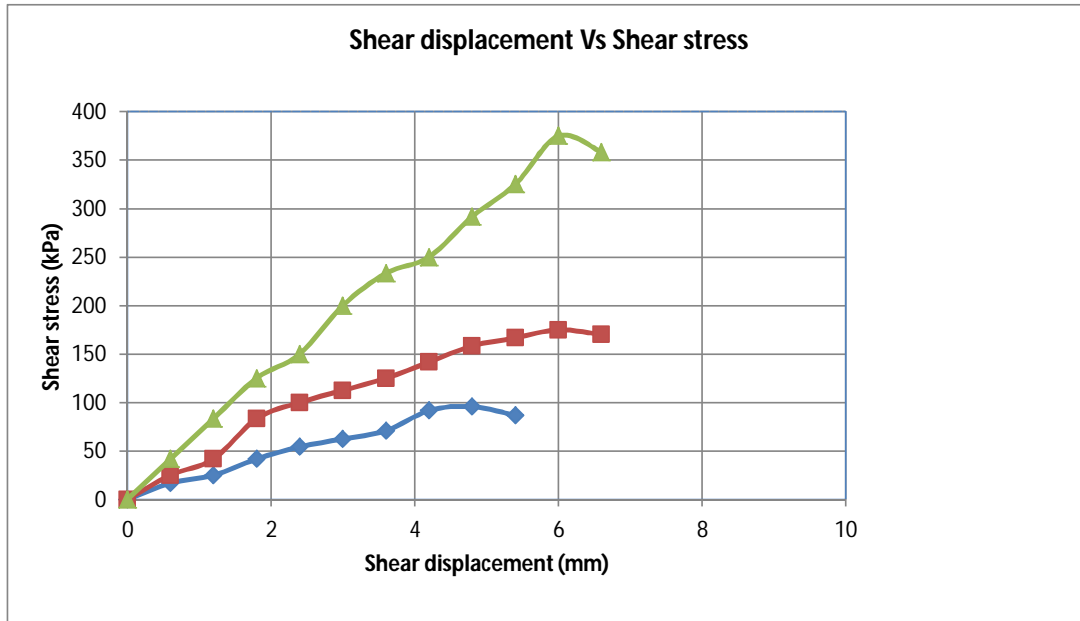
Govt. Primary School

Bore Hole No : M 77

Sample No. : D10

Depth (m) 15.00

Test Date : 13/5/2018



Result: Friction angle: 33°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

Project Location :Beltola, Wahedpur

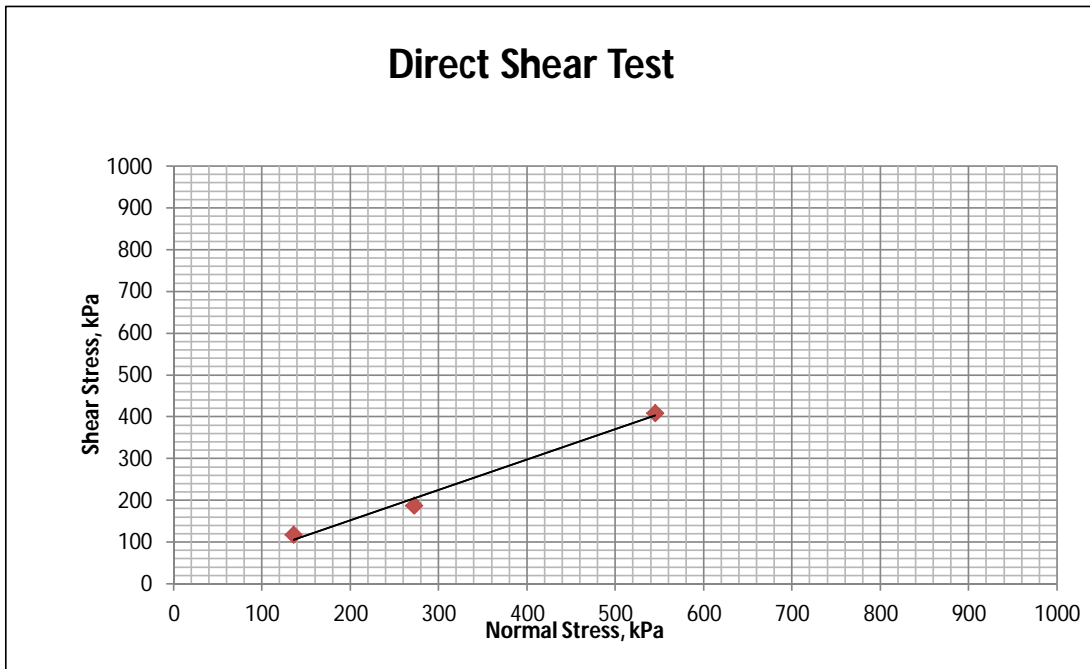
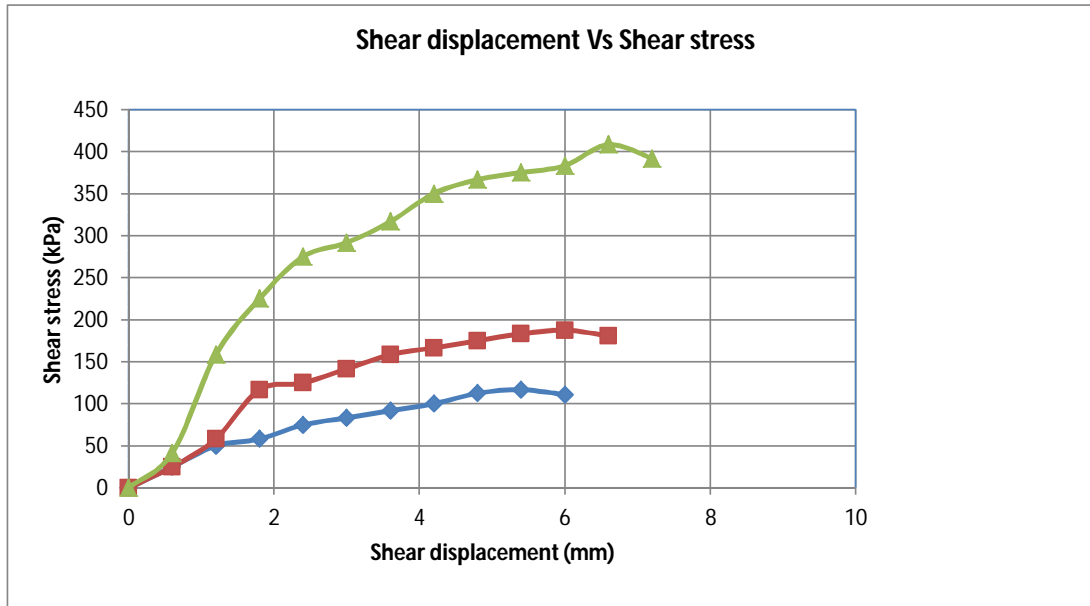
Bore Hole No : M 80

Sample No. : D12

Depth (m)

18.00

Test Date : 13/5/2018



Result: Friction angle: 36°



## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

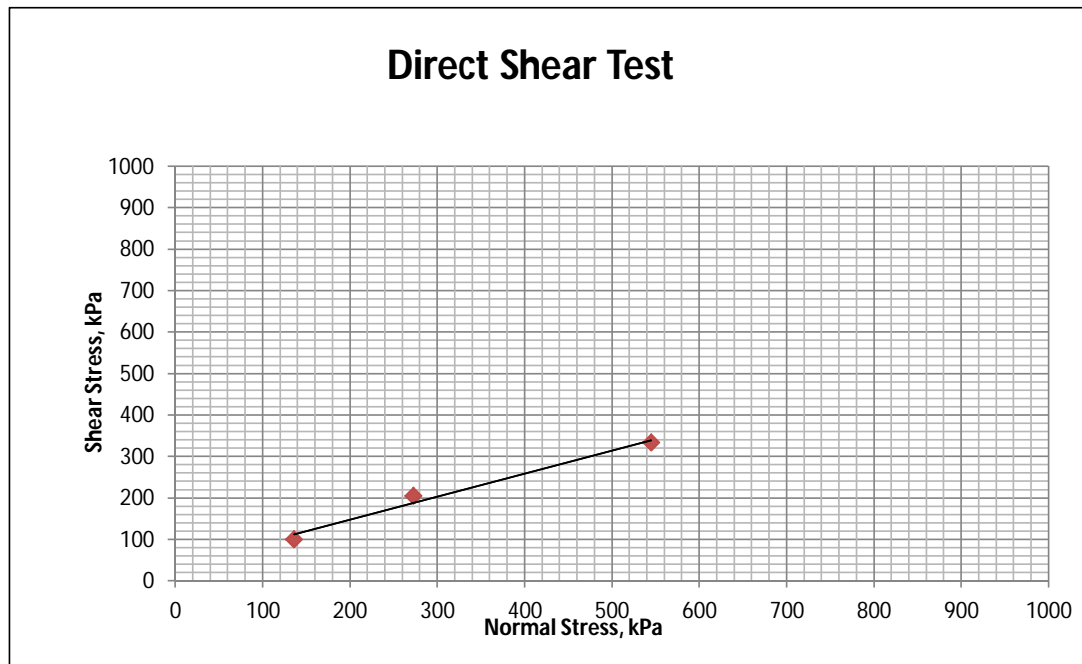
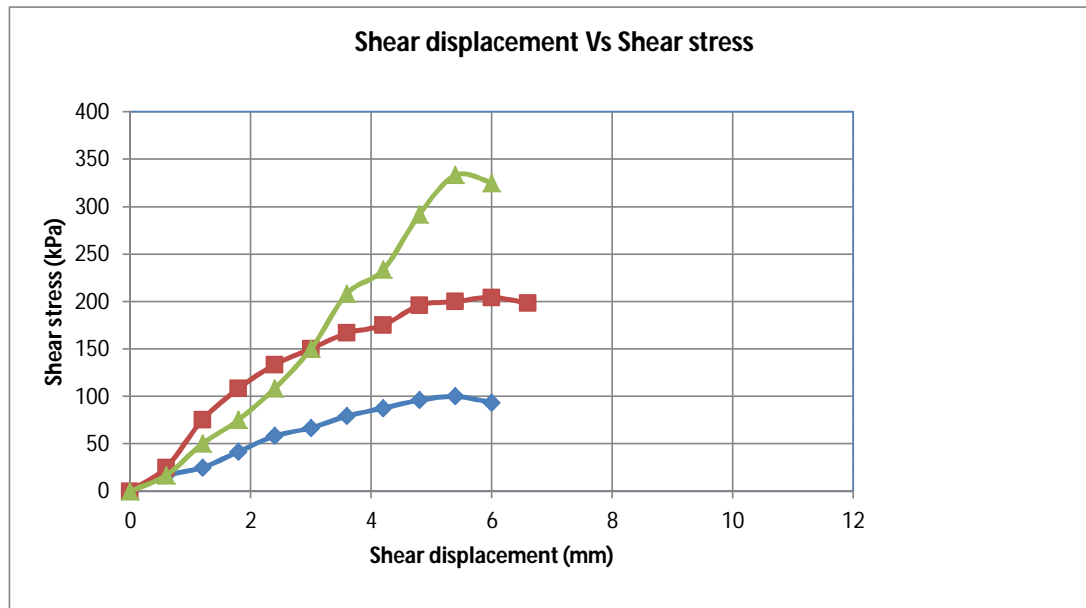
Project Location :Beltola, Wahedpur

Bore Hole No : M 80

Sample No. : D8

Depth (m) 12.00

Test Date : 13/5/2018



Result: Friction angle: 29°



# Environmental & Geospatial Solutions (EGS)

## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project : Mirsharai Upazilla Development Plan

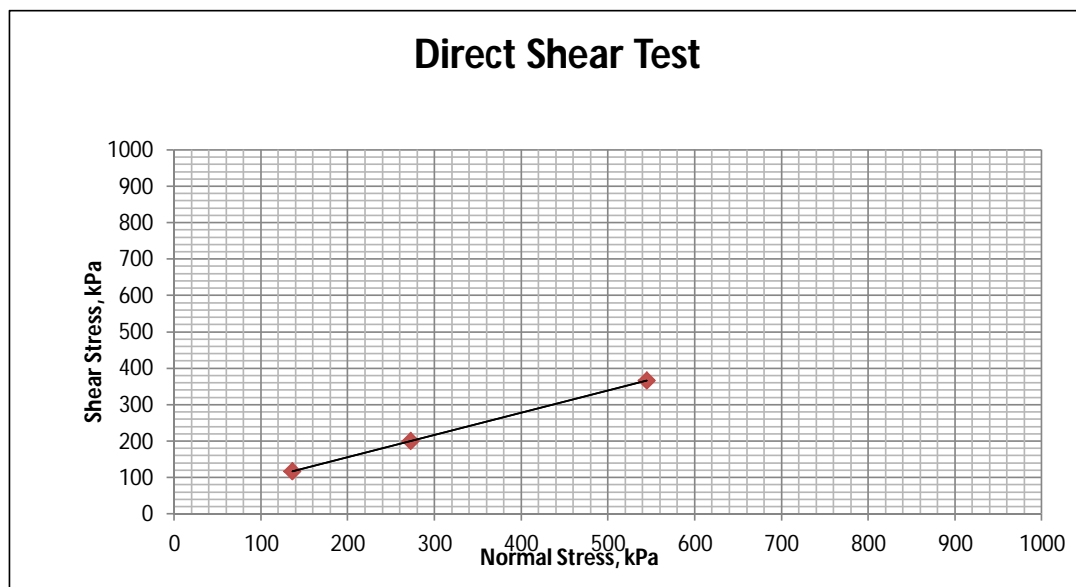
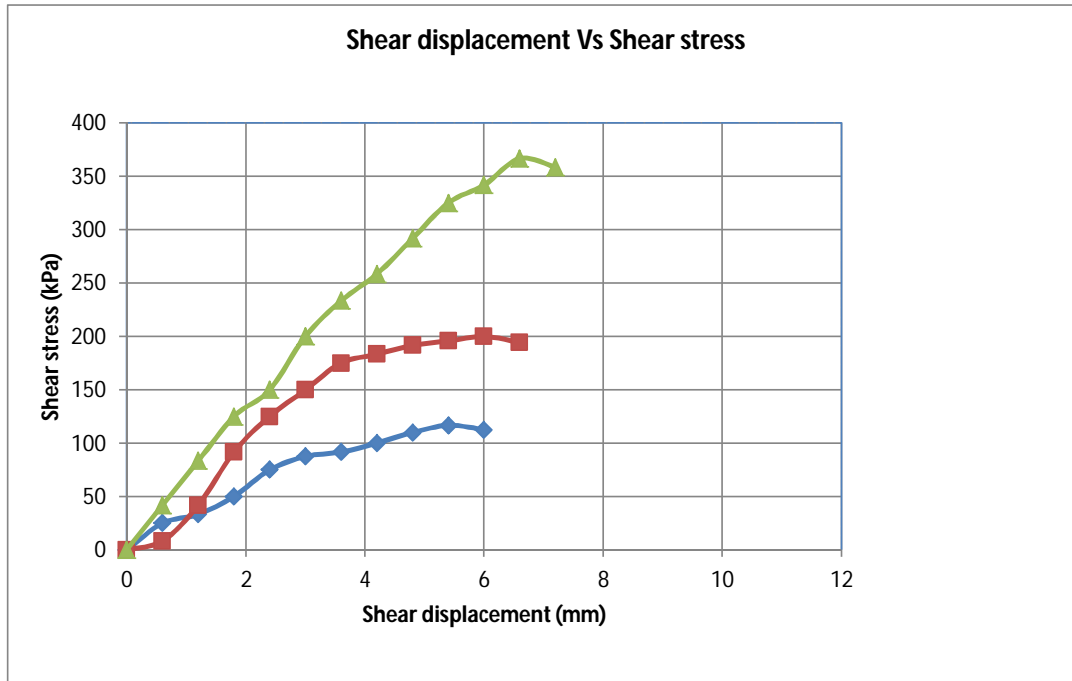
Project Location : Jafrabad Govt. Primary School,  
Wahedpur

Bore Hole No : M 83

Sample No. : D8

Depth (m) 12.00

Test Date : 13/5/2018



Result: Friction angle: 32°





## DIRECT SHEAR TEST ASTM D 3080

Client : Urban Development Directorate (UDD)

Project :Mirsharai Upazilla Development Plan

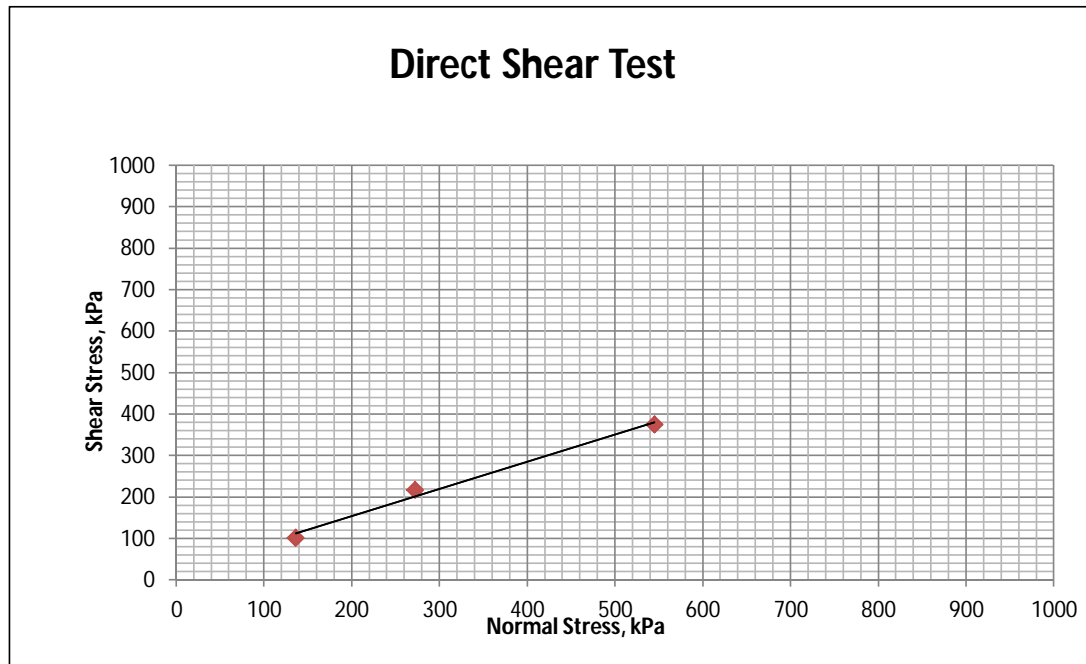
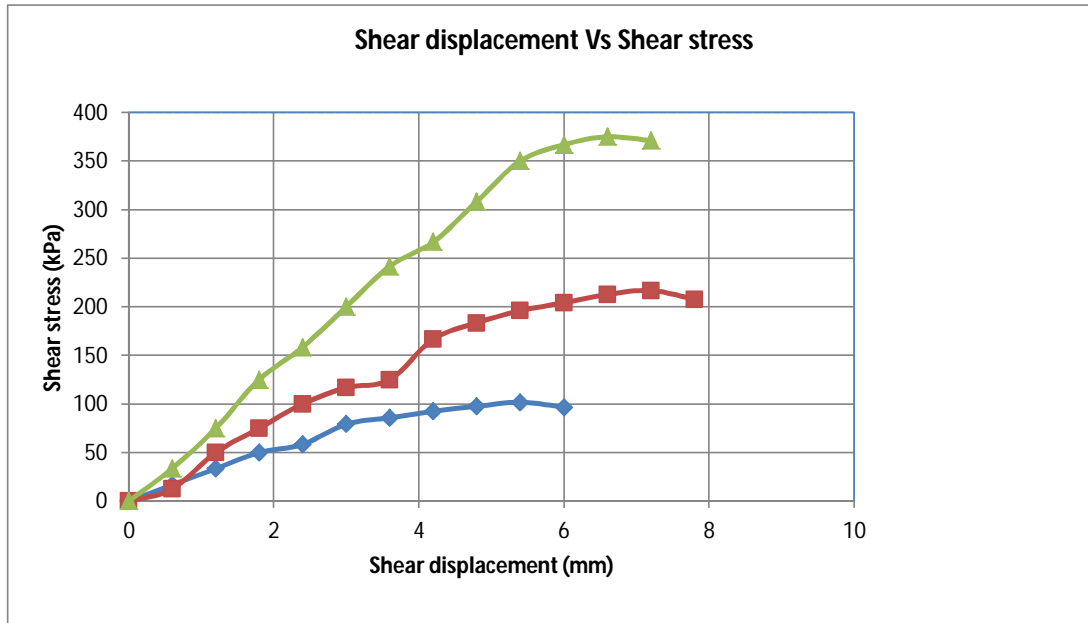
Project Location :Hait kandi High School

Bore Hole No : M 85

Sample No. : D7

Depth (m) 10.50

Test Date : 13/5/2018

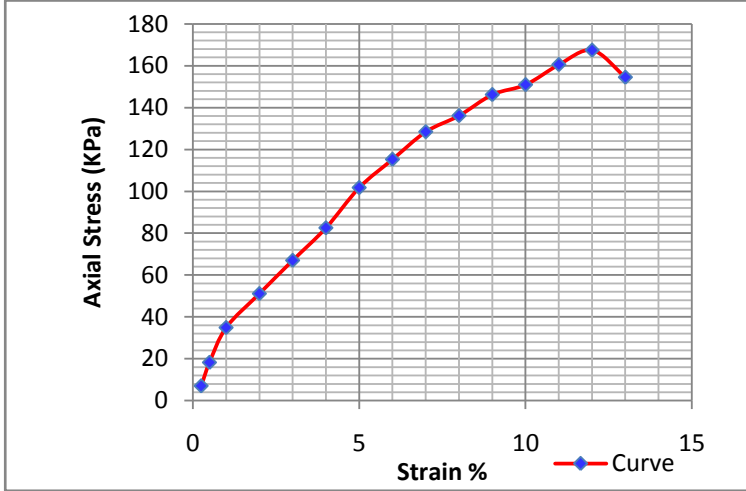


Result: Friction angle: 33°

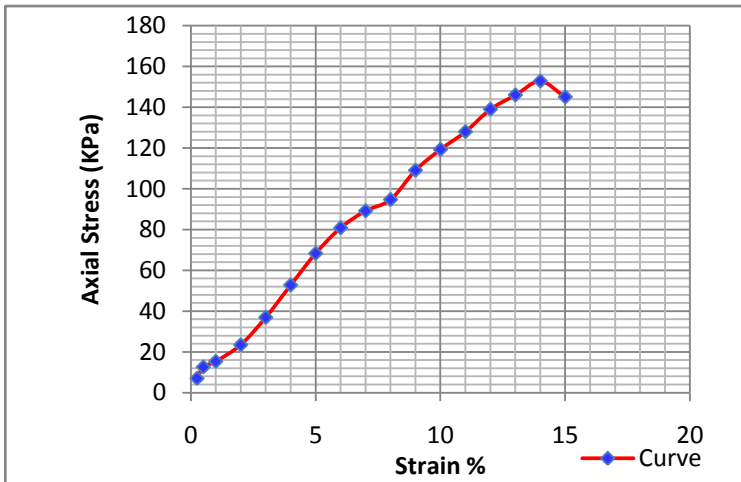
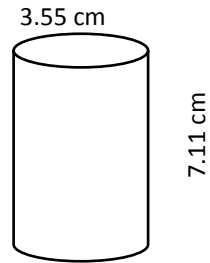
# E Unconfined Compression strength Determination

Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Choturua, Ward-1, Korerhat & Giamara gram, Bagan road, Korerhat

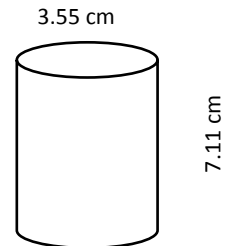
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M02
Sample No.	UD-2
Depth (m)	3.5 to 4.05
Description of soil	clayey SILT
qu (Kpa)	167.50
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.91
$\gamma_{Dry}$ (gm/cc)	1.48
% Moisture	28.82
Cohesion (Kpa)	83.75

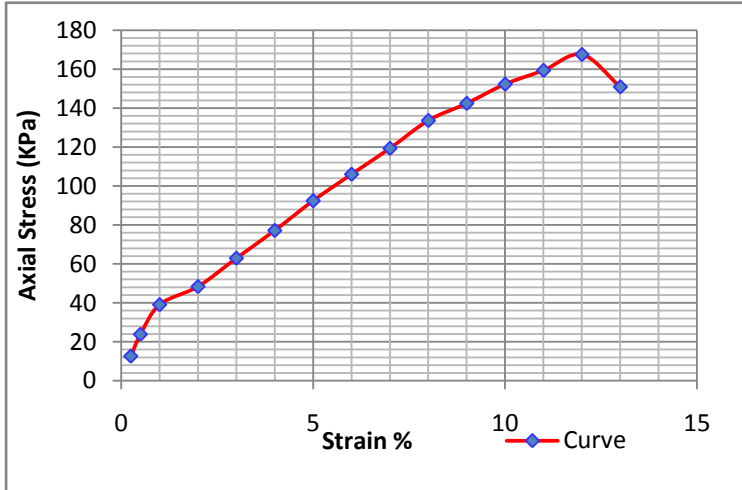


Bore hole No.	BH-M03
Sample No.	UD-2
Depth (m)	3.5 to 4.05
Description of soil	clayey SILT
qu (Kpa)	152.78
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.90
$\gamma_{Dry}$ (gm/cc)	1.47
% Moisture	29.70
Cohesion (Kpa)	76.39

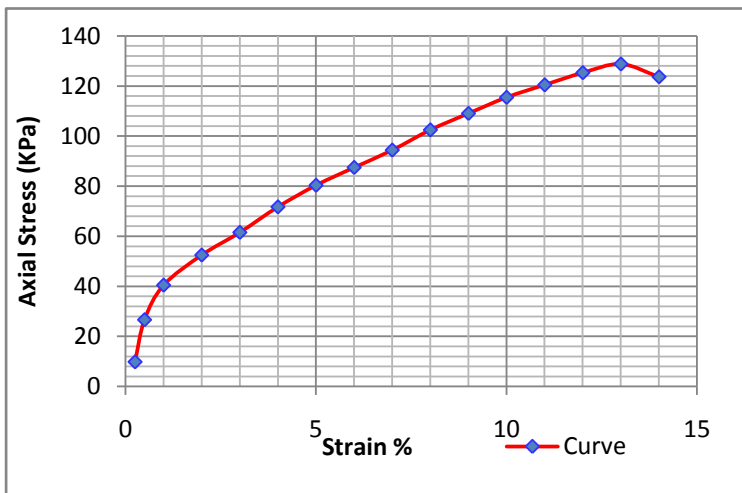
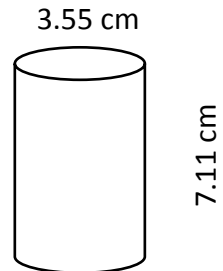


Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Bisshowtila Jame mosque, Olinogor, Korerhat & Khil hinguli Govt. Primary School

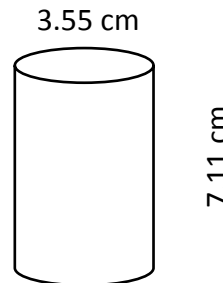
**UNCONFINED COMPRESSION STRENGTH TEST**



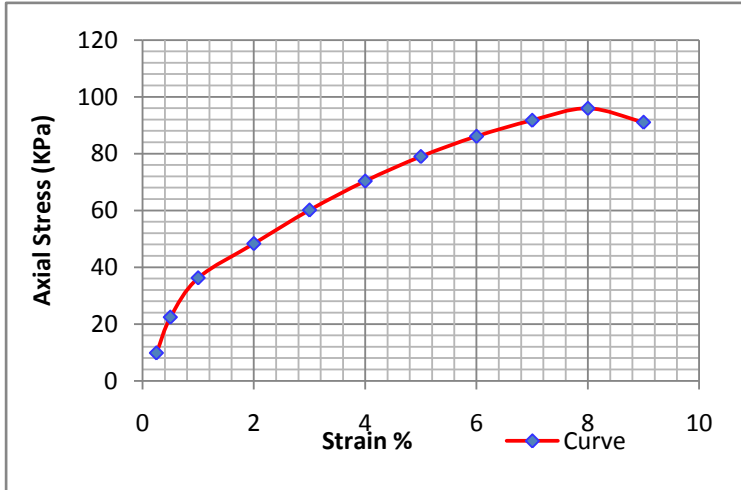
Bore hole No.	BH-M04
Sample No.	UD-1
Depth (m)	2.00 to 2.55m
Description of soil	Clayey SILT
qu (Kpa)	167.50
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	2.10
$\gamma_{Dry}$ (gm/cc)	1.64
% Moisture	27.81
Cohesion (Kpa)	83.75



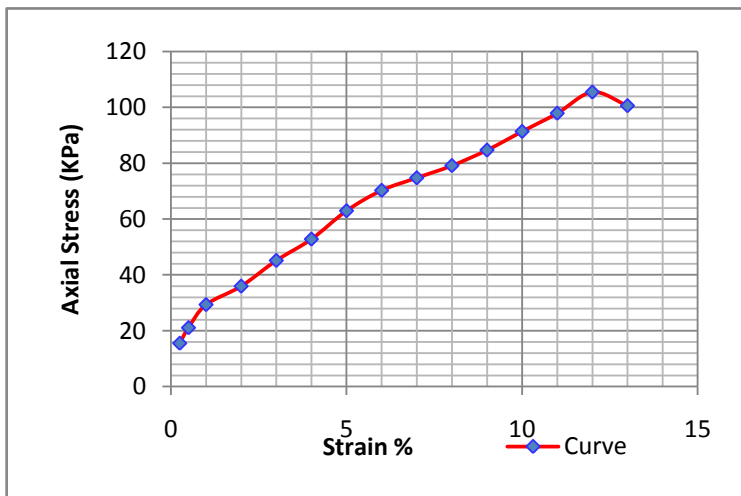
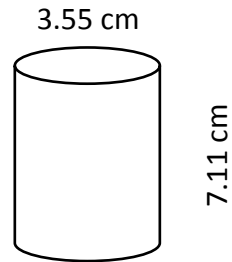
Bore hole No.	BH-M07
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	128.80
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	2.08
$\gamma_{Dry}$ (gm/cc)	1.74
% Moisture	19.71
Cohesion (Kpa)	64.40



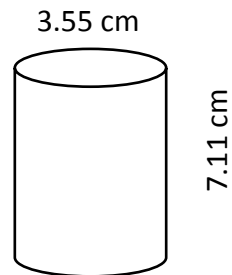
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M08
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	86.15
% Strain	9.0
$\gamma_{wet}$ (gm/cc)	1.67
$\gamma_{Dry}$ (gm/cc)	1.38
% Moisture	21.76
Cohesion (Kpa)	43.08

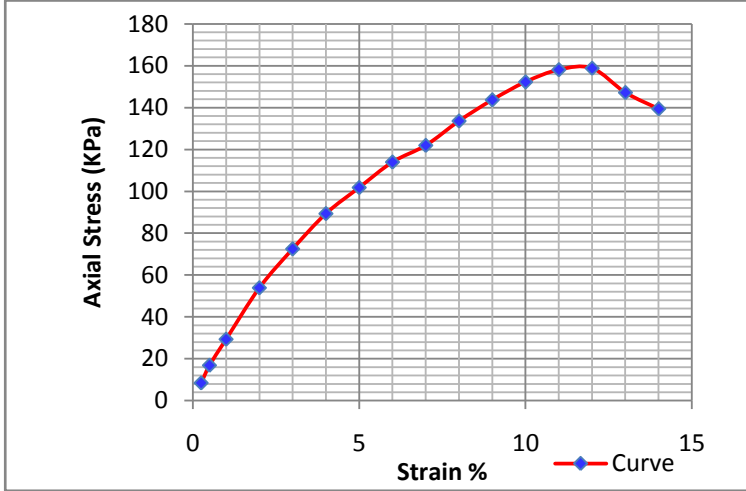


Bore hole No.	BH-M09
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	105.47
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.82
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	21.02
Cohesion (Kpa)	52.73

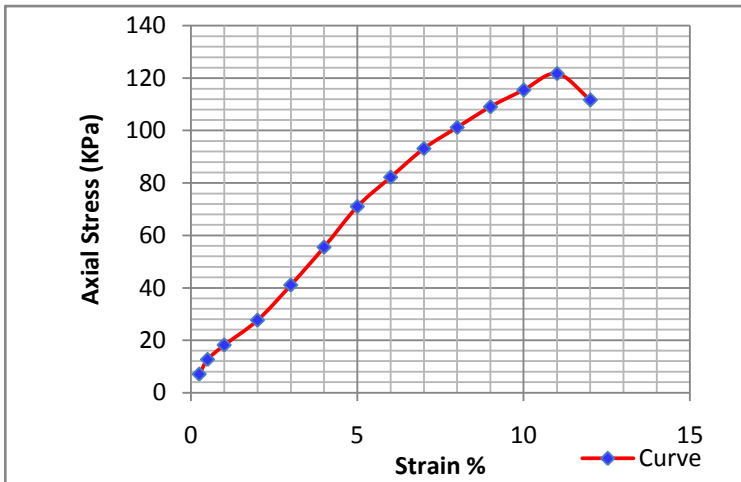
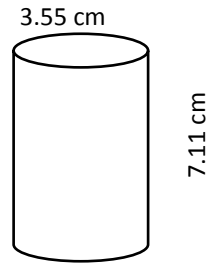


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: West Hinguli, Gonokchora & Imampur Titabot tola Furkania Madrasha

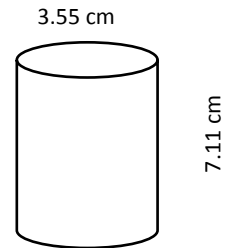
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M10
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	158.82
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.96
$\gamma_{Dry}$ (gm/cc)	1.52
% Moisture	29.06
Cohesion (Kpa)	79.41

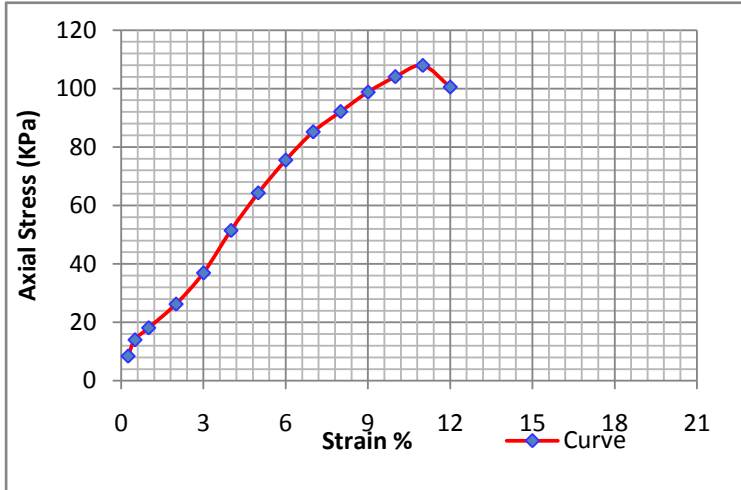


Bore hole No.	BH-M11
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	clayey SILT
qu (Kpa)	121.72
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.89
$\gamma_{Dry}$ (gm/cc)	1.55
% Moisture	22.03
Cohesion (Kpa)	60.86

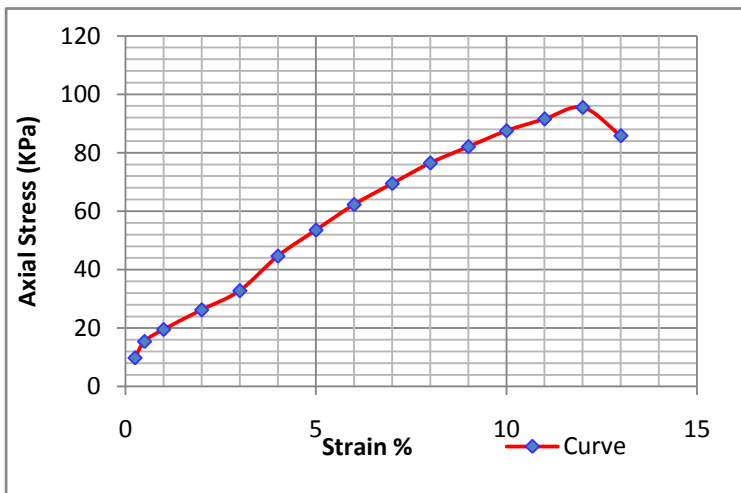
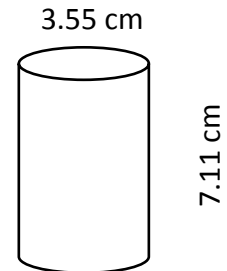


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom & Banglabazar, Shantor road, Dhoom

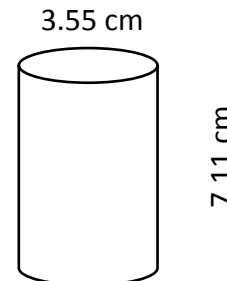
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M12
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	107.92
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.95
$\gamma_{Dry}$ (gm/cc)	1.65
% Moisture	18.28
Cohesion (Kpa)	53.96

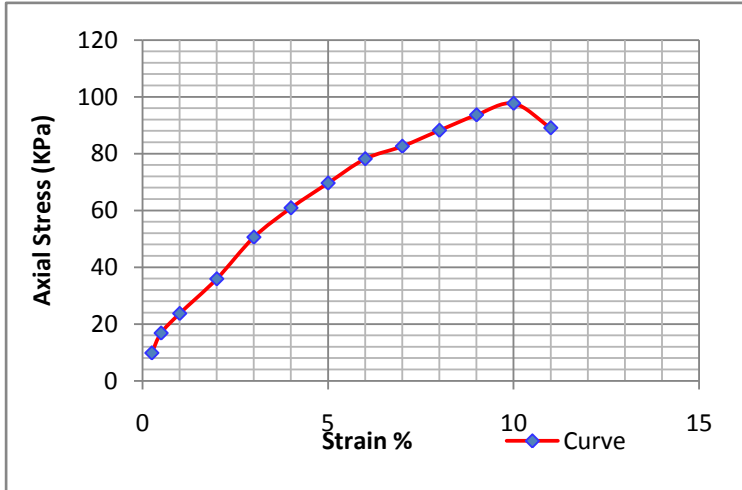


Bore hole No.	BH-M13
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	95.54
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.66
$\gamma_{Dry}$ (gm/cc)	1.42
% Moisture	17.04
Cohesion (Kpa)	47.77

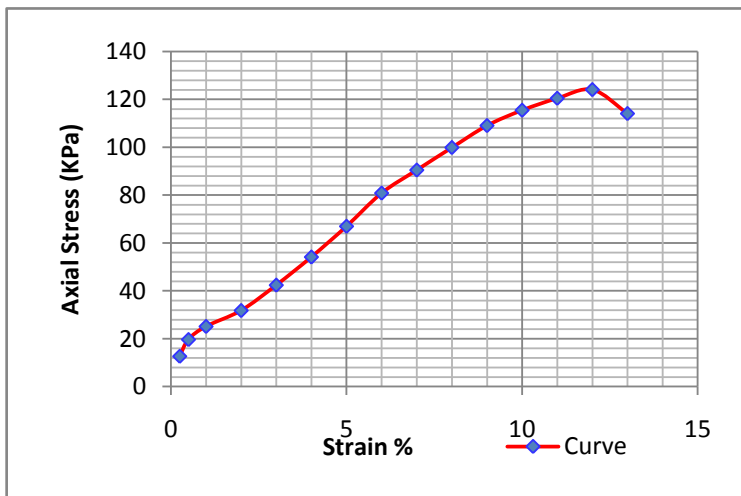
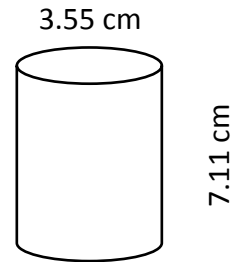


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: 163 no. Fayeuzallah master Govt. Primary School & Alhaz Bodiul alam Chowdhury Govt. Primary School

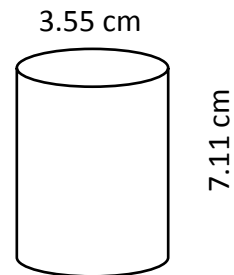
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M14
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	97.71
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.37
$\gamma_{Dry}$ (gm/cc)	1.06
% Moisture	28.37
Cohesion (Kpa)	48.86



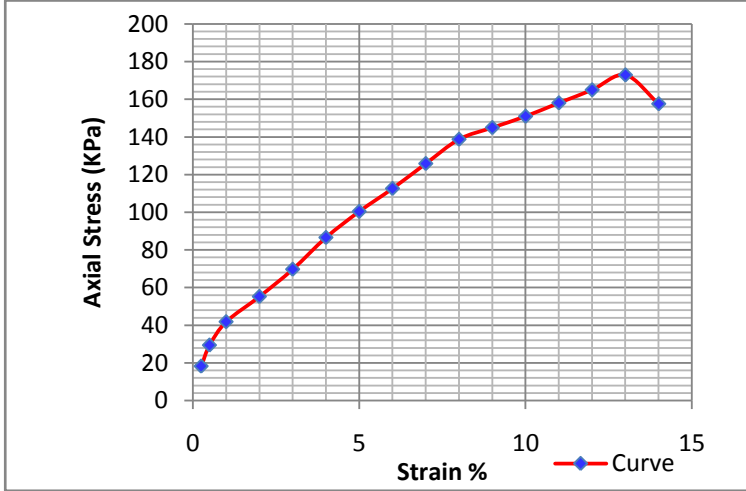
Bore hole No.	BH-M15
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	124.08
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.91
$\gamma_{Dry}$ (gm/cc)	1.61
% Moisture	19.10
Cohesion (Kpa)	62.04



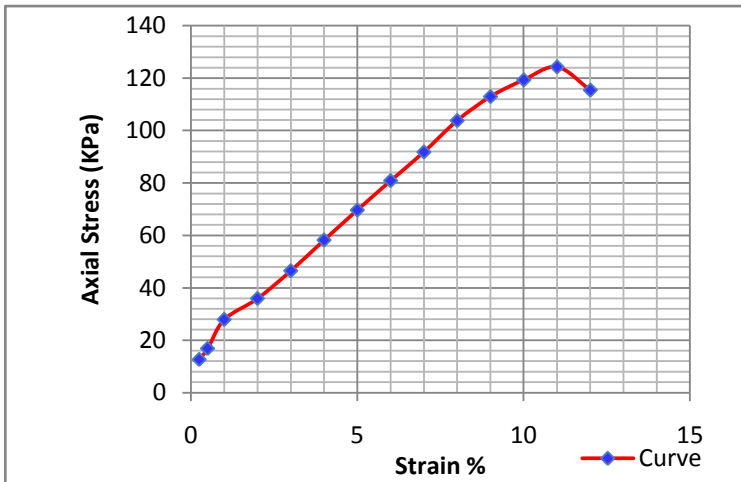
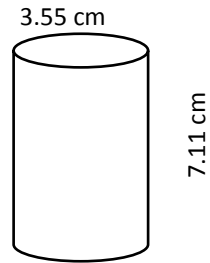


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Khil murari, ward no. 5, Zorargonj & Gucho gram M.A. Haider Primary School, Osmanpur

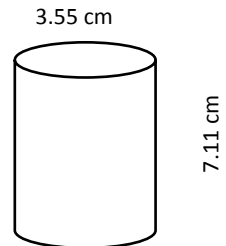
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M16
Sample No.	UD-1
Depth (m)	2.0 to 2.55
Description of soil	clayey SILT
qu (Kpa)	172.96
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.74
$\gamma_{Dry}$ (gm/cc)	1.44
% Moisture	21.05
Cohesion (Kpa)	86.48

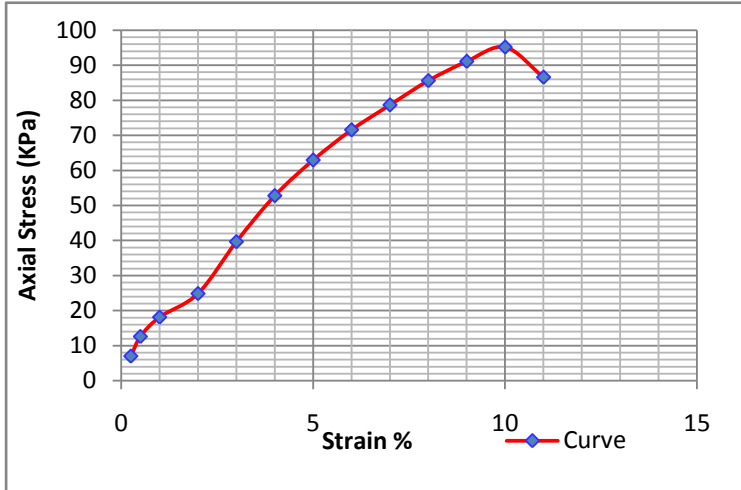


Bore hole No.	BH-M18
Sample No.	UD-1
Depth (m)	2.0 to 2.55
Description of soil	clayey SILT
qu (Kpa)	124.23
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.46
$\gamma_{Dry}$ (gm/cc)	1.16
% Moisture	25.66
Cohesion (Kpa)	62.12

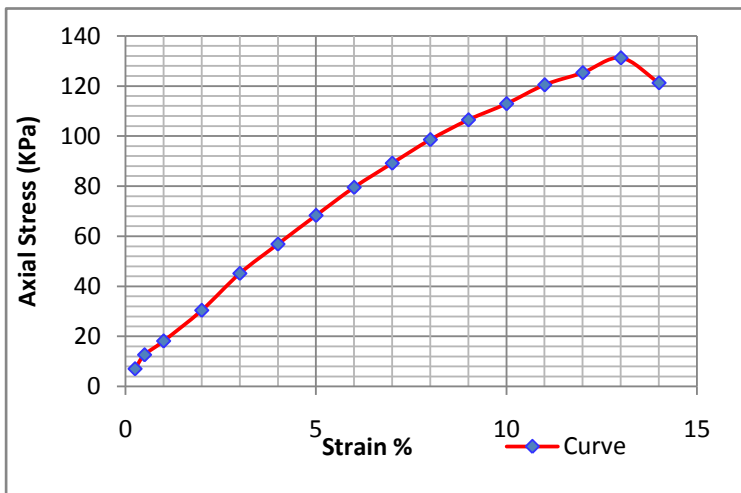
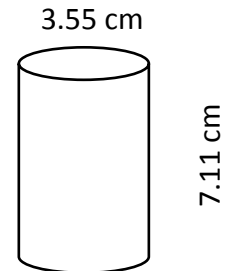


Project :Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Bashkhali, Veribadh, Muhuri Project, Osmanpur & 39 no. East Shahedpur Govt. Primary School, Azampur

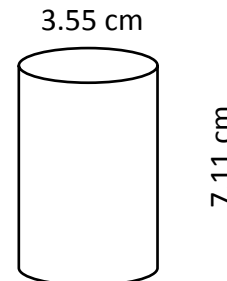
**UNCONFINED COMPRESSION STRENGTH TEST**



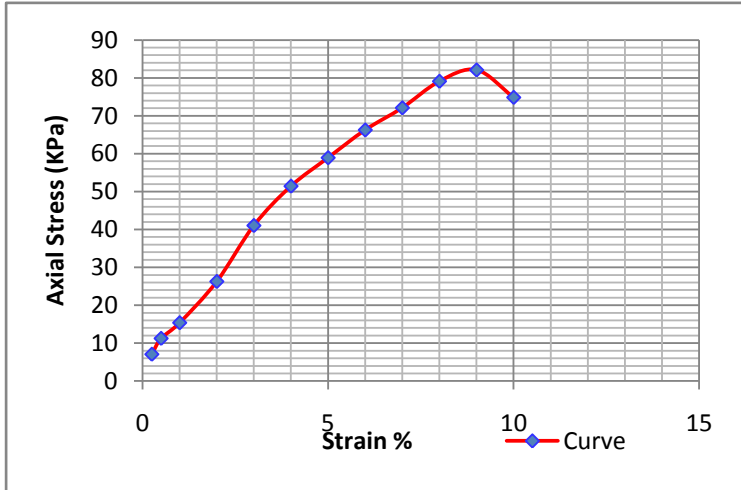
Bore hole No.	BH-M19
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	95.17
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.92
$\gamma_{Dry}$ (gm/cc)	1.61
% Moisture	19.70
Cohesion (Kpa)	47.59



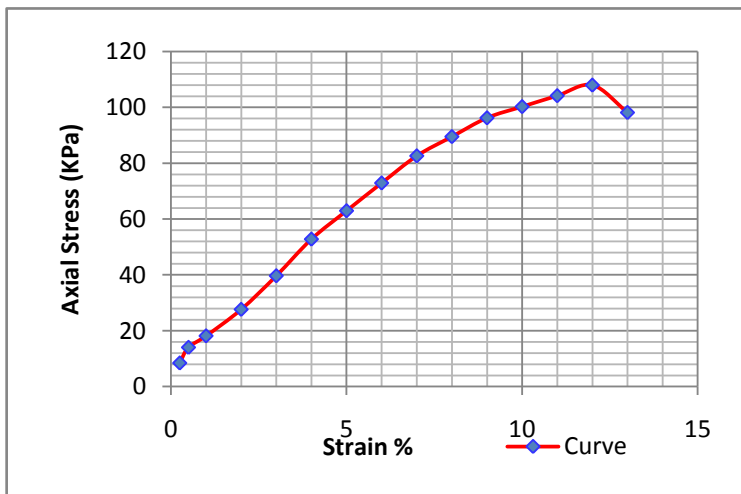
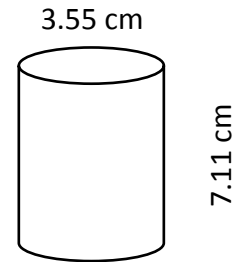
Bore hole No.	BH-M20
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	131.25
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.86
$\gamma_{Dry}$ (gm/cc)	1.56
% Moisture	19.66
Cohesion (Kpa)	65.63



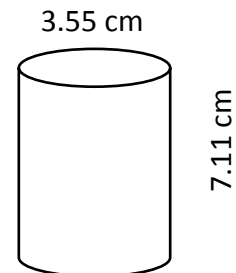
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M21
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	82.12
% Strain	9.0
$\gamma_{wet}$ (gm/cc)	1.96
$\gamma_{Dry}$ (gm/cc)	1.58
% Moisture	23.71
Cohesion (Kpa)	41.06

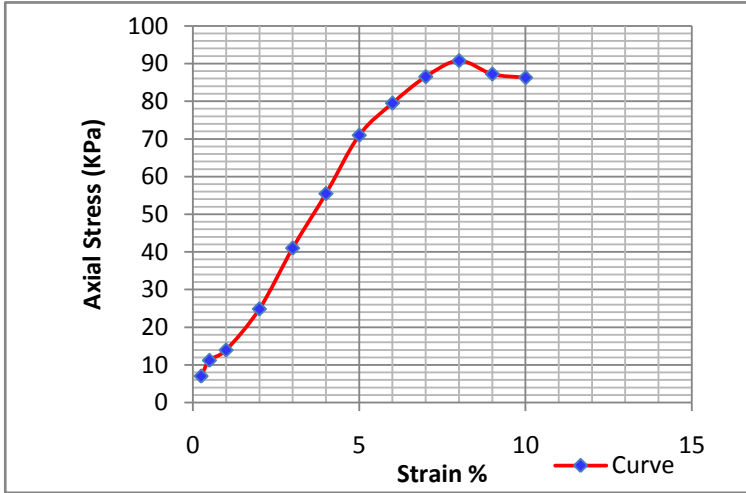


Bore hole No.	BH-M22
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	107.95
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.55
$\gamma_{Dry}$ (gm/cc)	1.30
% Moisture	19.38
Cohesion (Kpa)	53.97

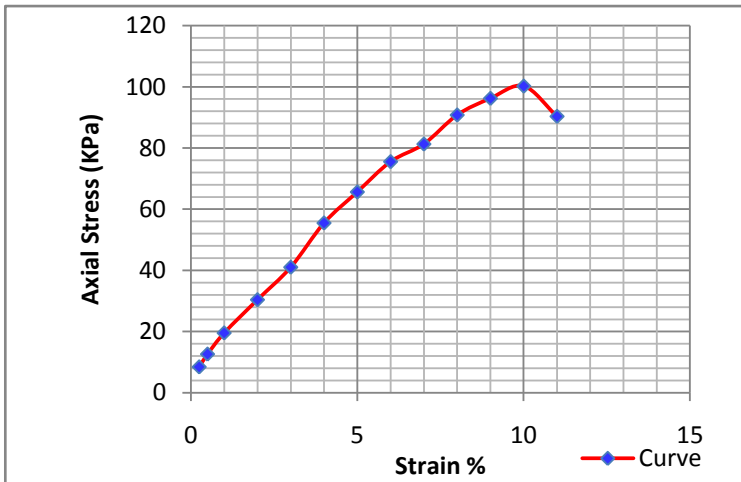
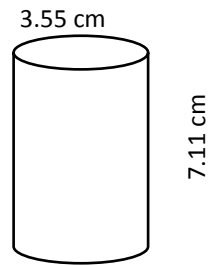


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: 68 north durgapur Primary School, Varoddaj hat & East Raypur Baitul Aman Jame Mosque, Durgapur

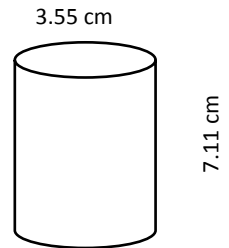
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M23
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	90.80
% Strain	8.0
$\gamma_{wet}$ (gm/cc)	1.88
$\gamma_{Dry}$ (gm/cc)	1.45
% Moisture	29.23
Cohesion (Kpa)	45.40

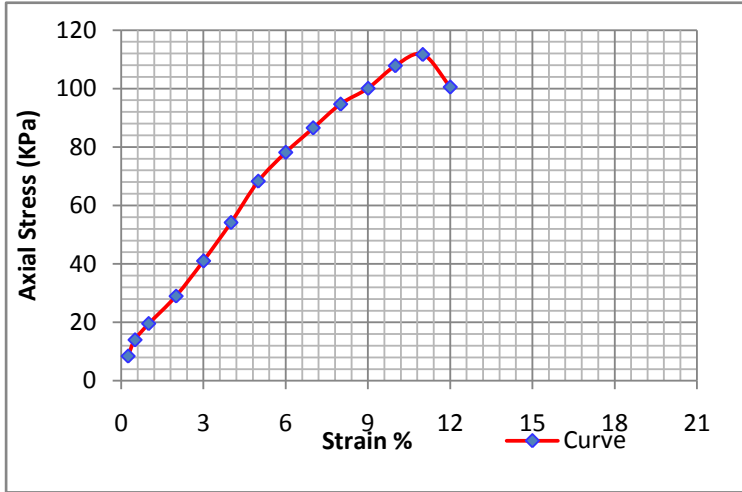


Bore hole No.	BH-M24
Sample No.	UD-2
Depth (m)	3.5 to 4.05
Description of soil	clayey SILT
qu (Kpa)	100.25
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.78
$\gamma_{Dry}$ (gm/cc)	1.45
% Moisture	22.86
Cohesion (Kpa)	50.12

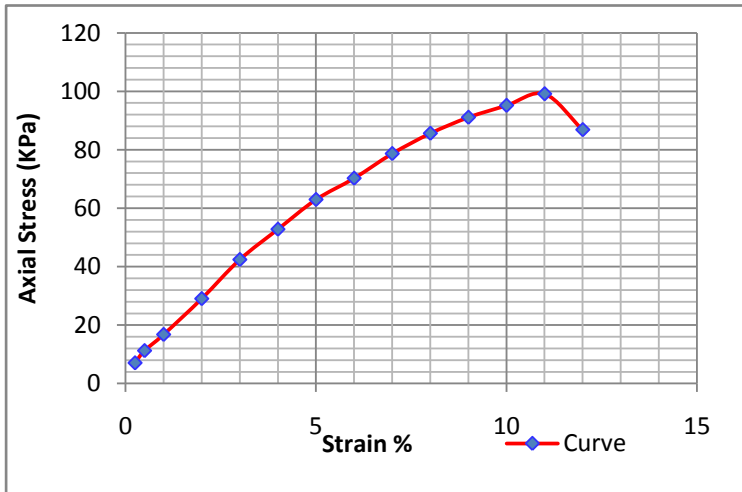
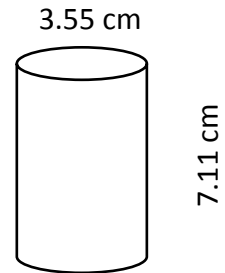


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Jaforer Poultry Farm, Choitonner Hat, Durgapur & Bamon Shundor Govt. Primary School, Kata Chora

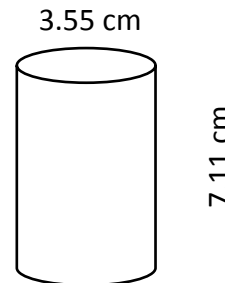
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M25
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	111.68
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.97
$\gamma_{Dry}$ (gm/cc)	1.64
% Moisture	20.63
Cohesion (Kpa)	55.84

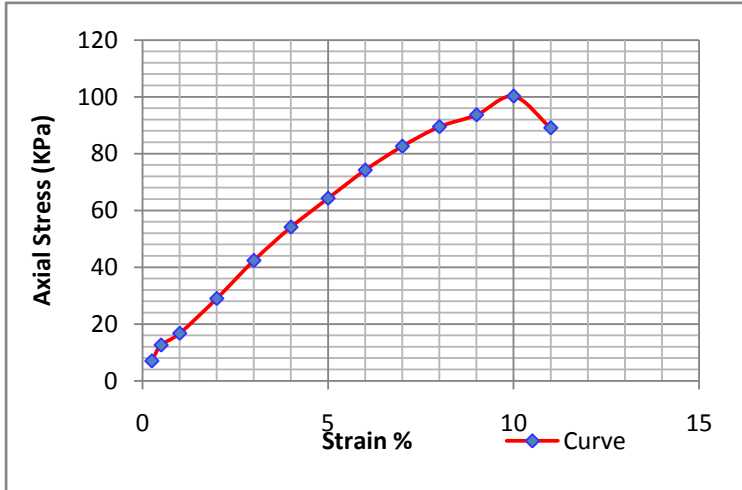


Bore hole No.	BH-M28
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	99.13
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.82
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	21.29
Cohesion (Kpa)	49.57

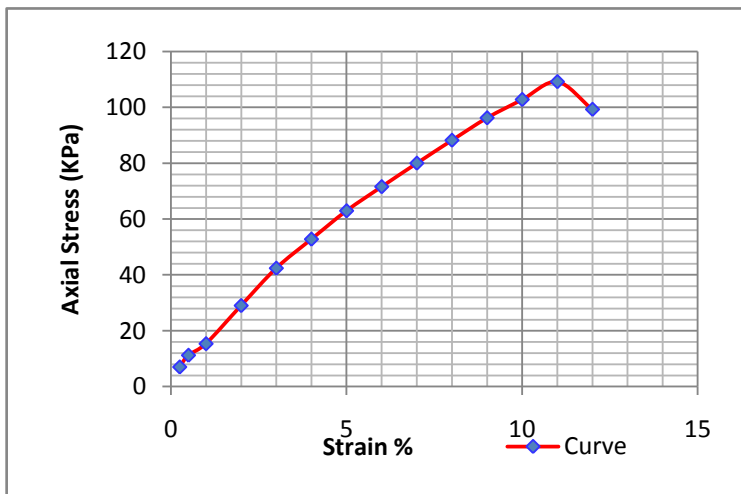
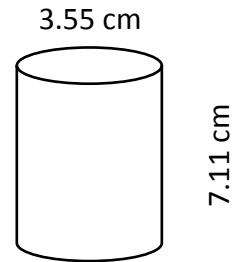


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Ahmed Ali Miar Hat Govt Primary School, Kata Chora & Gudaimmar tek, Ichakhali

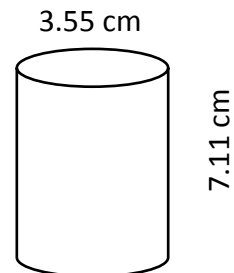
### UNCONFINED COMPRESSION STRENGTH TEST



Bore hole No.	BH-M29
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	100.25
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.72
$\gamma_{Dry}$ (gm/cc)	1.42
% Moisture	21.13
Cohesion (Kpa)	50.12

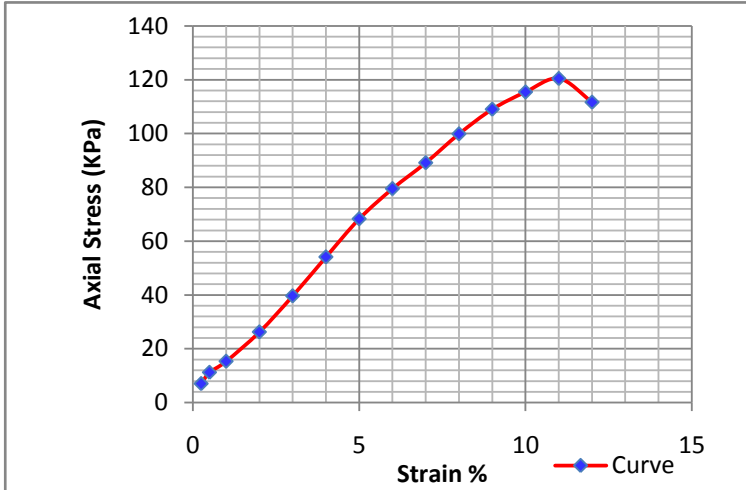


Bore hole No.	BH-M30
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	109.17
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.83
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	22.51
Cohesion (Kpa)	54.59

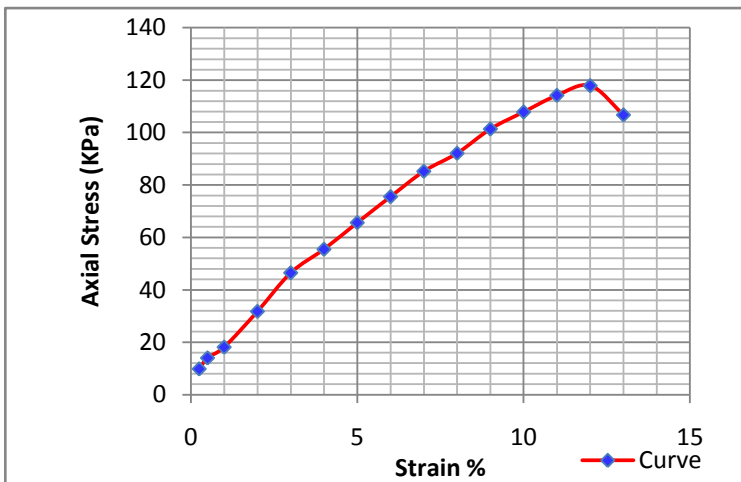
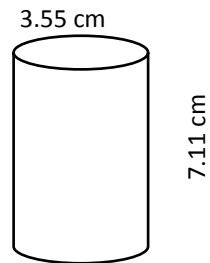


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Jobayeda Islam Nurani Islamia madrasha & Muhuri Project, Sluice Gate, Ichakhali

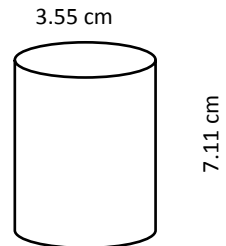
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M32
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	120.47
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.84
$\gamma_{Dry}$ (gm/cc)	1.44
% Moisture	27.89
Cohesion (Kpa)	60.23

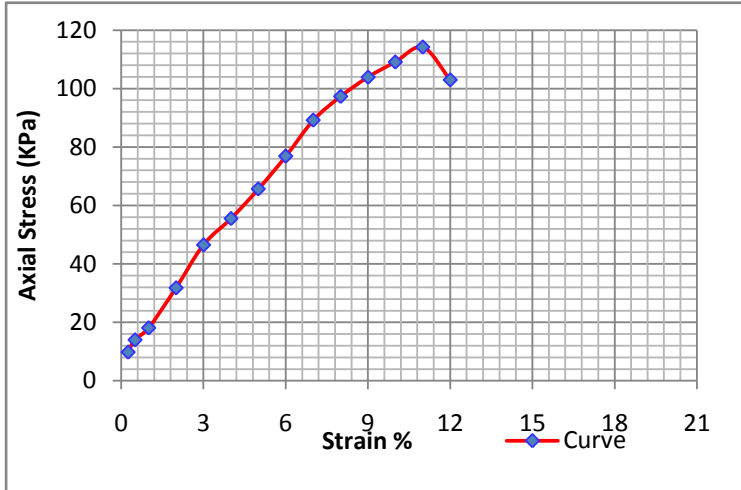


Bore hole No.	BH-M33
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	117.87
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.86
$\gamma_{Dry}$ (gm/cc)	1.51
% Moisture	23.50
Cohesion (Kpa)	58.94

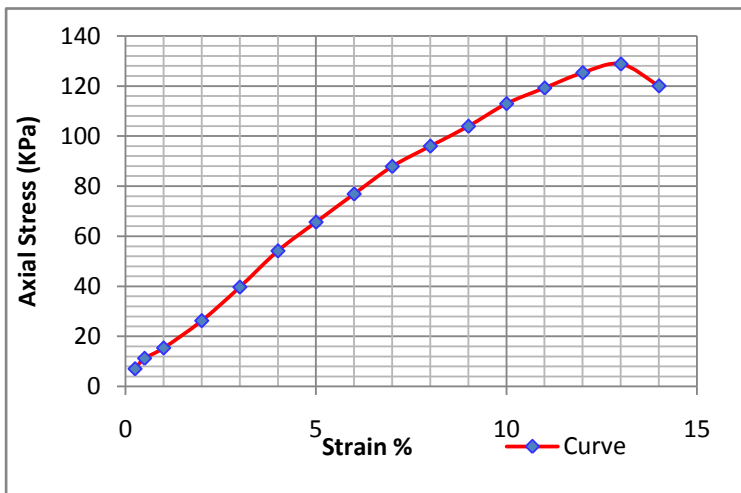
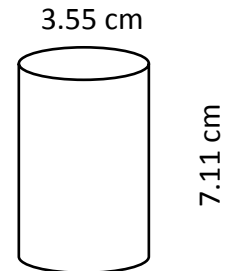


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Bamonshundor Forrest Bit Office, Shaherkhali & Chunumijer tek, Ichakhali

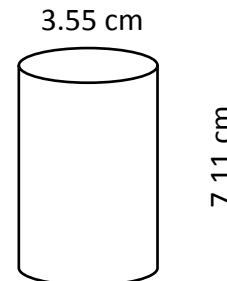
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M34
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	114.19
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.81
$\gamma_{Dry}$ (gm/cc)	1.46
% Moisture	23.66
Cohesion (Kpa)	57.10



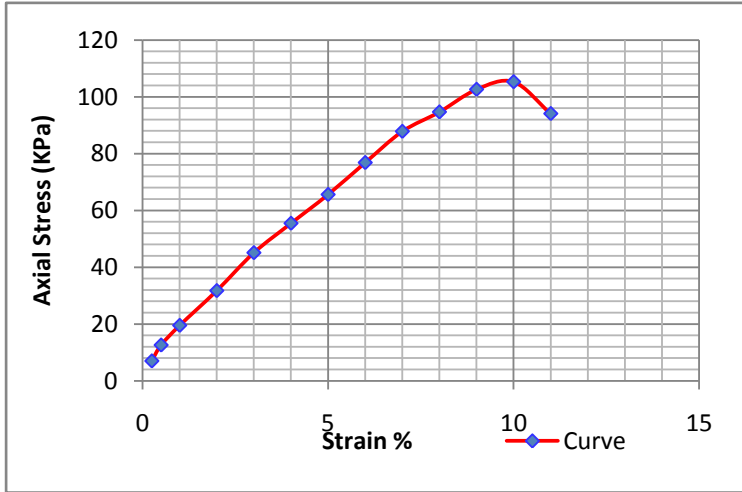
Bore hole No.	BH-M36
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	128.80
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.78
$\gamma_{Dry}$ (gm/cc)	1.43
% Moisture	24.02
Cohesion (Kpa)	64.40



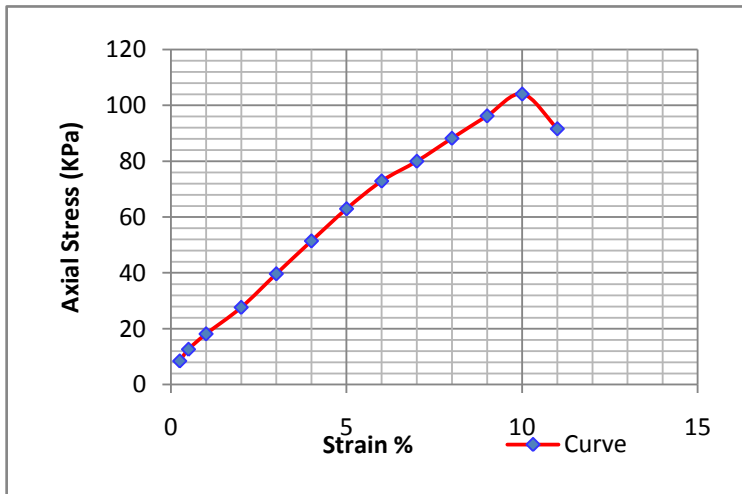
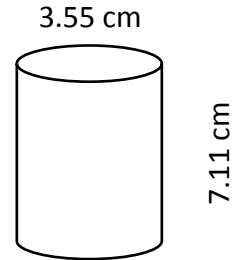


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: 94 no. Hasim Nagar Govt. Primary School & Ichakhali Economic Zone Office, Ichakhali

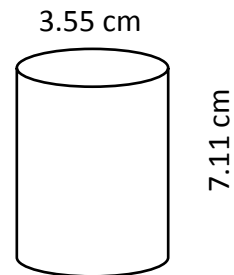
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M37
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	105.32
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.71
$\gamma_{Dry}$ (gm/cc)	1.38
% Moisture	23.31
Cohesion (Kpa)	52.66

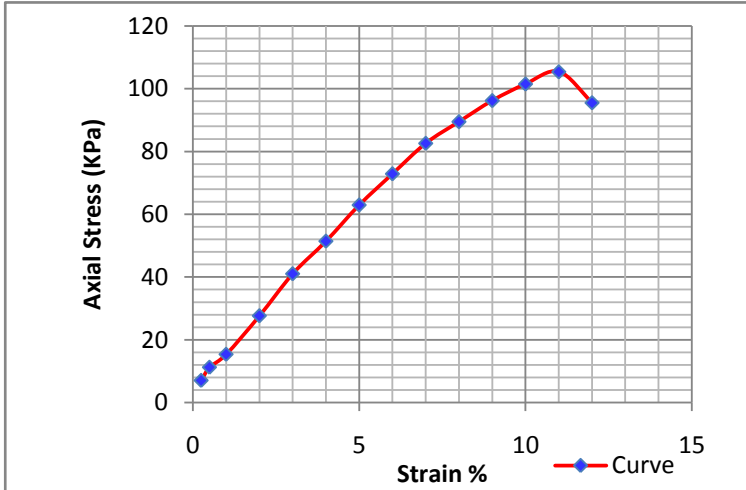


Bore hole No.	BH-M38
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	104.06
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.91
$\gamma_{Dry}$ (gm/cc)	1.57
% Moisture	21.32
Cohesion (Kpa)	52.03

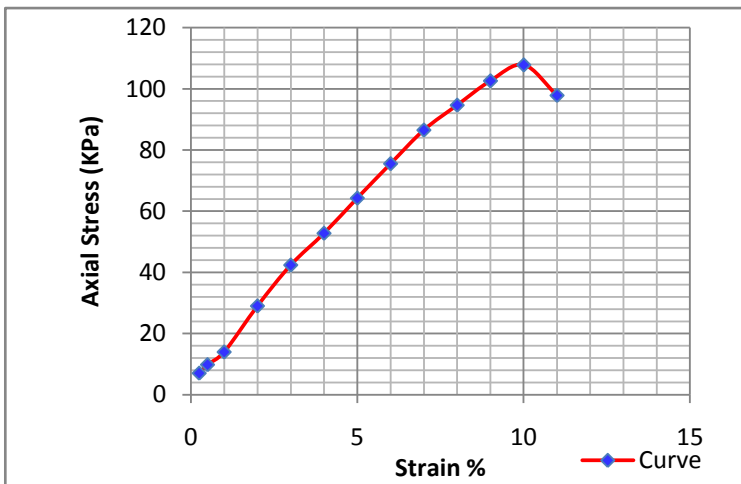
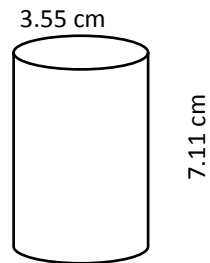


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Lodiakhali, Ichakhali & Sony Mijer tek, Tekerhat Bazar, Ichakhali

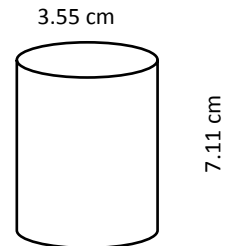
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M39
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	clayey SILT
qu (Kpa)	105.41
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.83
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	22.14
Cohesion (Kpa)	52.70

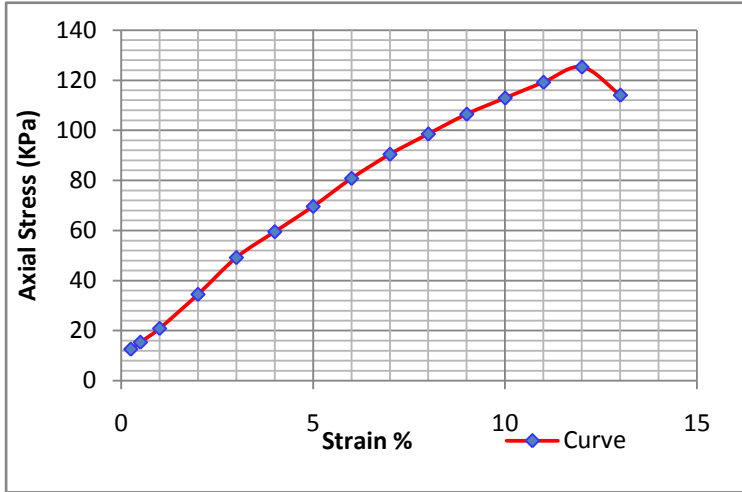


Bore hole No.	BH-M40
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	107.86
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.67
$\gamma_{Dry}$ (gm/cc)	1.36
% Moisture	22.70
Cohesion (Kpa)	53.93

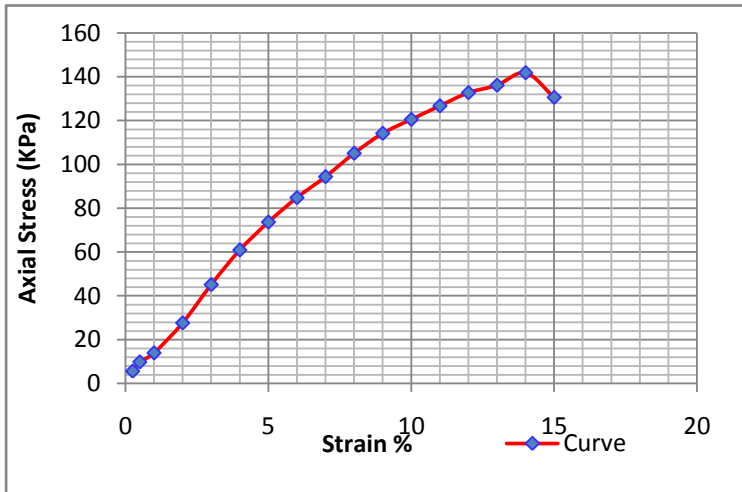
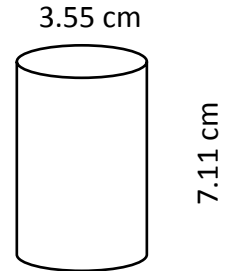


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Kazigram govt. Primary School, Ichakhali & Rajamiar Farm, Char Shorot, Ichakhali

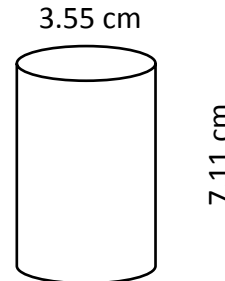
**UNCONFINED COMPRESSION STRENGTH TEST**



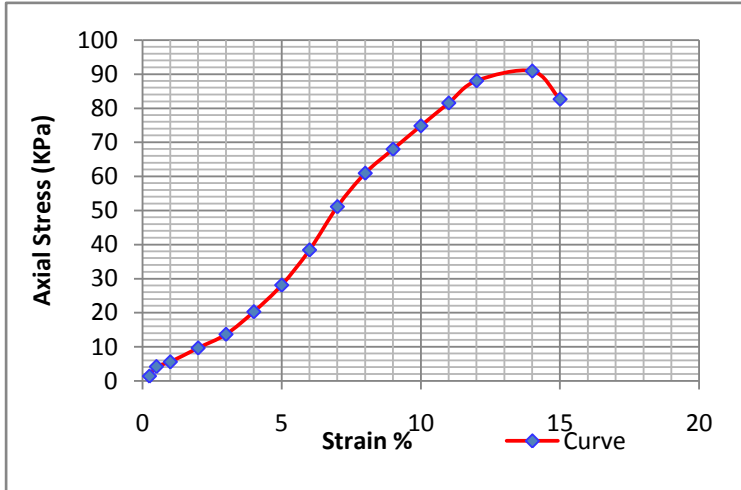
Bore hole No.	BH-M42
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	125.32
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.87
$\gamma_{Dry}$ (gm/cc)	1.48
% Moisture	26.40
Cohesion (Kpa)	62.66



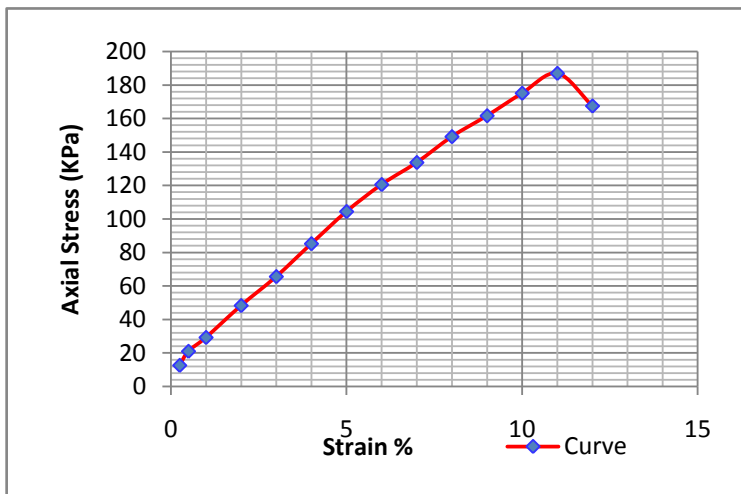
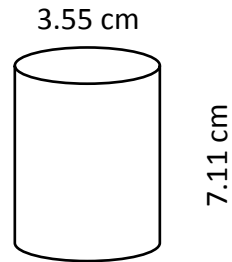
Bore hole No.	BH-M43
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	141.87
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	2.00
$\gamma_{Dry}$ (gm/cc)	1.55
% Moisture	28.86
Cohesion (Kpa)	70.93



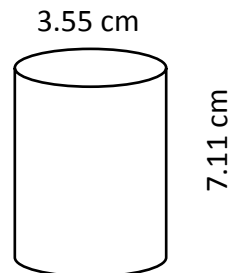
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M44
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	90.94
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.77
$\gamma_{Dry}$ (gm/cc)	1.30
% Moisture	36.82
Cohesion (Kpa)	45.47

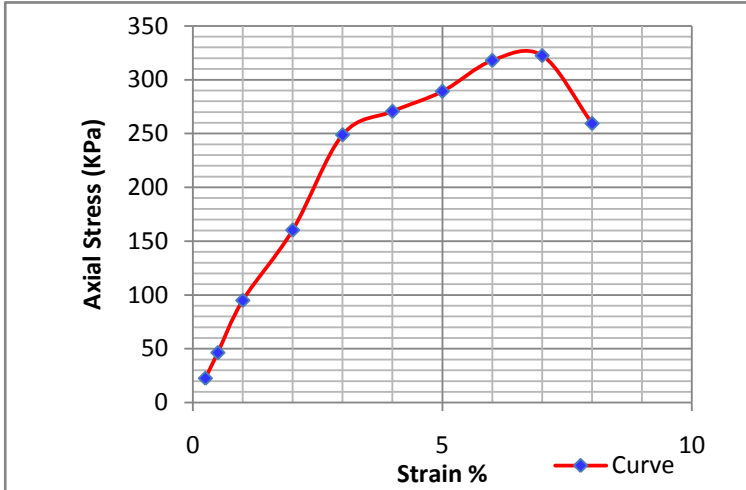


Bore hole No.	BH-M47
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	186.98
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.97
$\gamma_{Dry}$ (gm/cc)	1.55
% Moisture	26.89
Cohesion (Kpa)	93.49

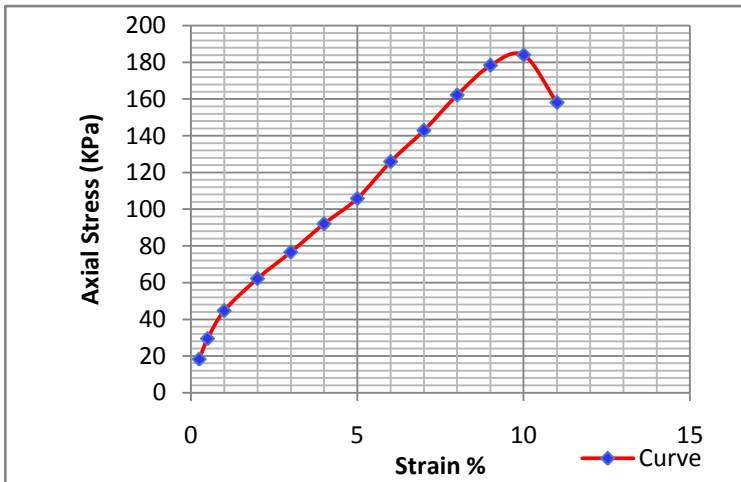
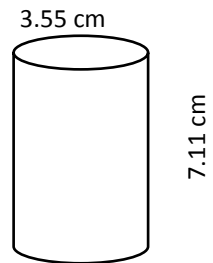


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: East Ambaria, Mirshorai & Hamid Ali Jame Mosque, East Khoiachora

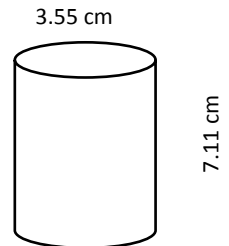
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M48
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	322.58
% Strain	7.0
$\gamma_{wet}$ (gm/cc)	2.15
$\gamma_{Dry}$ (gm/cc)	1.84
% Moisture	16.90
Cohesion (Kpa)	161.29

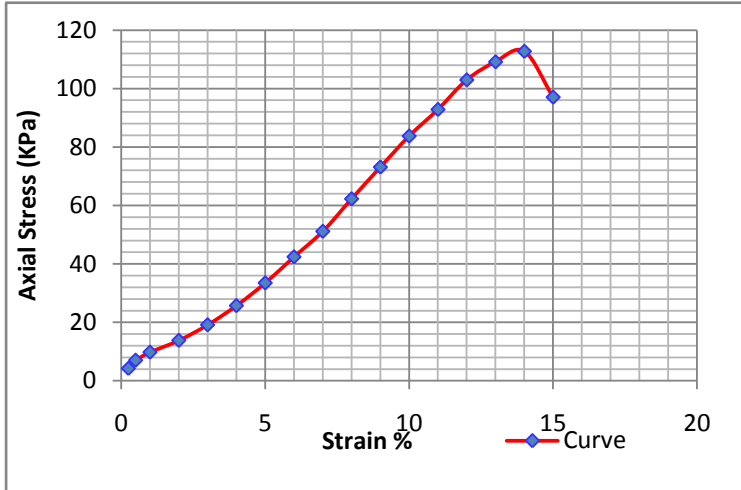


Bore hole No.	BH-M52
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	184.00
% Strain	10.0
$\gamma_{wet}$ (gm/cc)	1.98
$\gamma_{Dry}$ (gm/cc)	1.69
% Moisture	17.47
Cohesion (Kpa)	92.00

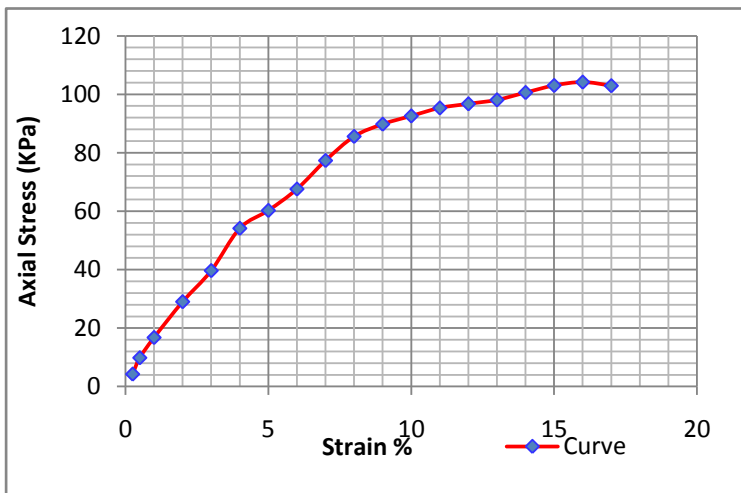
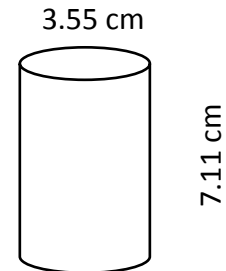


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Chairman Bari, West Moliyash & Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali

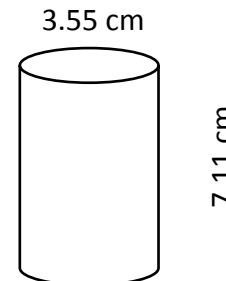
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M55
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	112.77
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.78
$\gamma_{Dry}$ (gm/cc)	1.43
% Moisture	23.86
Cohesion (Kpa)	56.38

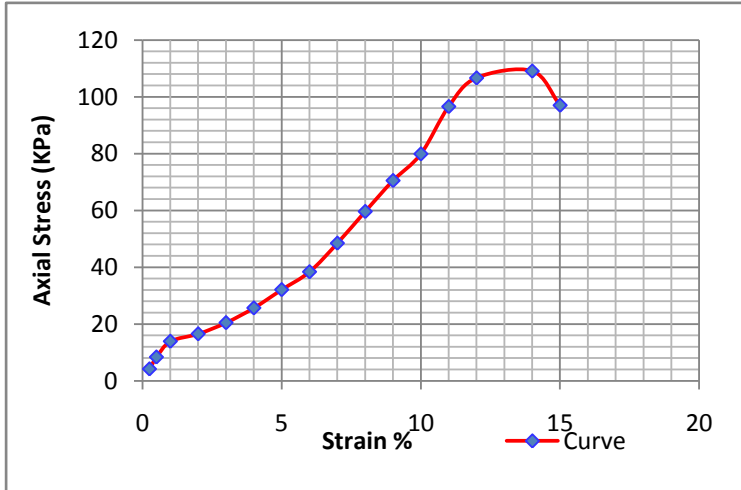


Bore hole No.	BH-M31
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	clayey Silt
qu (Kpa)	104.22
% Strain	16.0
$\gamma_{wet}$ (gm/cc)	1.94
$\gamma_{Dry}$ (gm/cc)	1.48
% Moisture	30.96
Cohesion (Kpa)	52.11

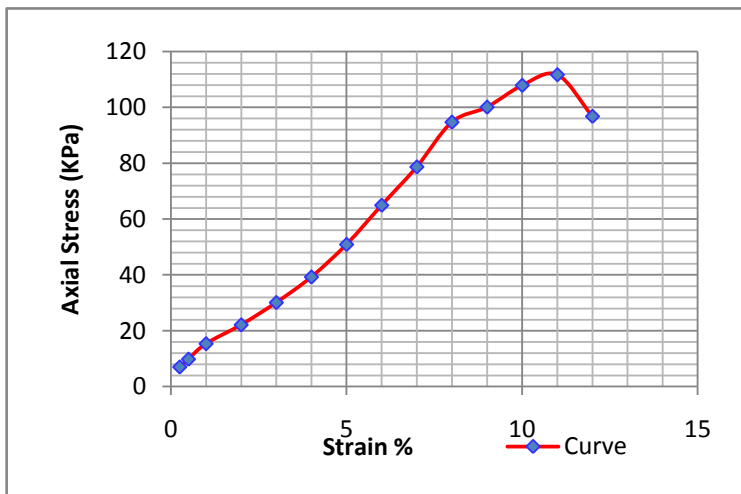
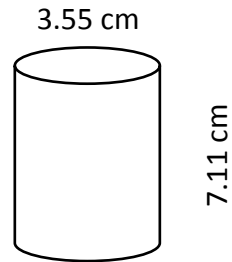


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Mayani Bogla Kumar Primary School, Mayani & West Khoiachora Munipara, Jame Mosque

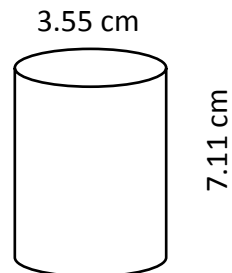
### UNCONFINED COMPRESSION STRENGTH TEST



Bore hole No.	BH-M57
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	109.13
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.86
$\gamma_{Dry}$ (gm/cc)	1.35
% Moisture	37.89
Cohesion (Kpa)	54.57

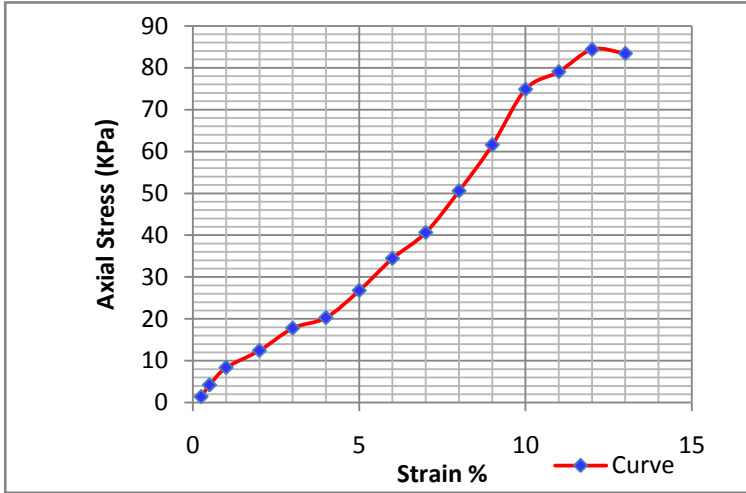


Bore hole No.	BH-M58
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	111.68
% Strain	11.0
$\gamma_{wet}$ (gm/cc)	1.85
$\gamma_{Dry}$ (gm/cc)	1.52
% Moisture	22.20
Cohesion (Kpa)	55.84

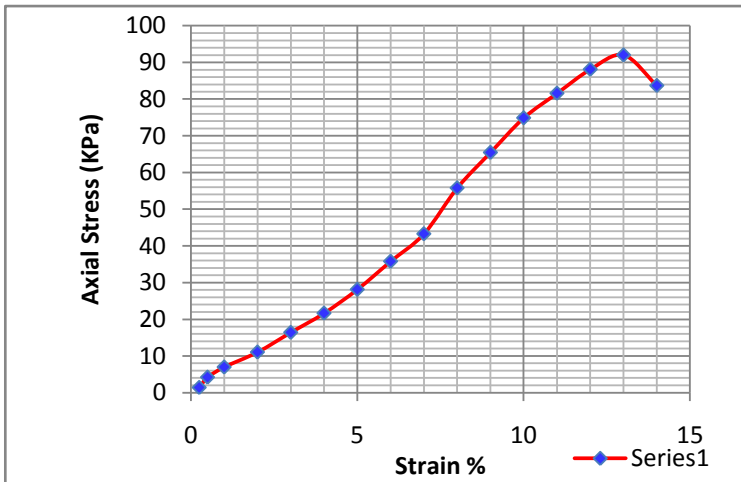
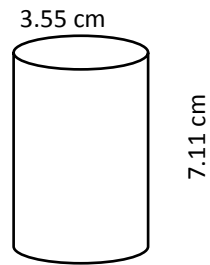


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: 3 Ghoriatola, Jame mosque, Maghadia & 90 no. Maghadia NC Govt. Primary School, Maghadia

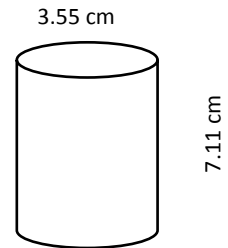
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M59
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	clayey SILT
qu (Kpa)	84.37
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.90
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	26.75
Cohesion (Kpa)	42.19



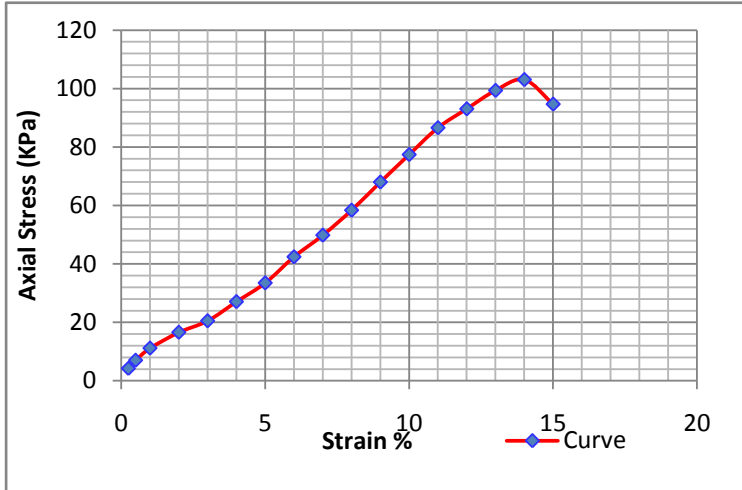
Bore hole No.	BH-M60
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	92.00
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.88
$\gamma_{Dry}$ (gm/cc)	1.56
% Moisture	20.08
Cohesion (Kpa)	46.00



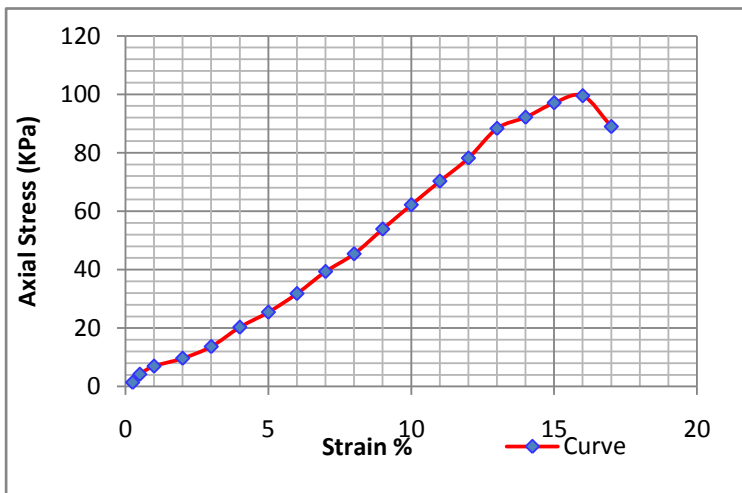
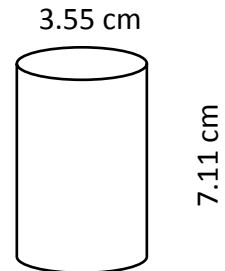


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Kazir Taluk Govt. Primary School, Maghadia & Komor ali Union High School, Komor Ali Union Bazar

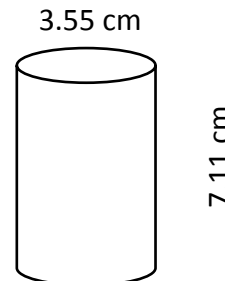
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M62
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	103.07
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.83
$\gamma_{Dry}$ (gm/cc)	1.41
% Moisture	29.65
Cohesion (Kpa)	51.53

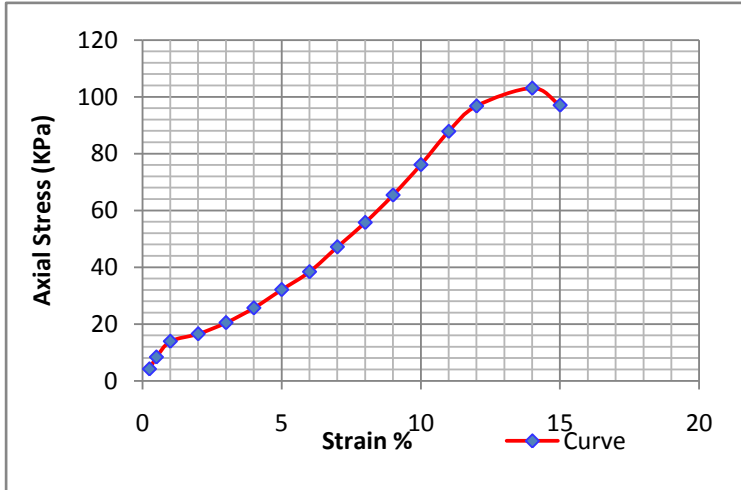


Bore hole No.	BH-M63
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	99.49
% Strain	16.0
$\gamma_{wet}$ (gm/cc)	1.66
$\gamma_{Dry}$ (gm/cc)	1.35
% Moisture	23.22
Cohesion (Kpa)	49.74

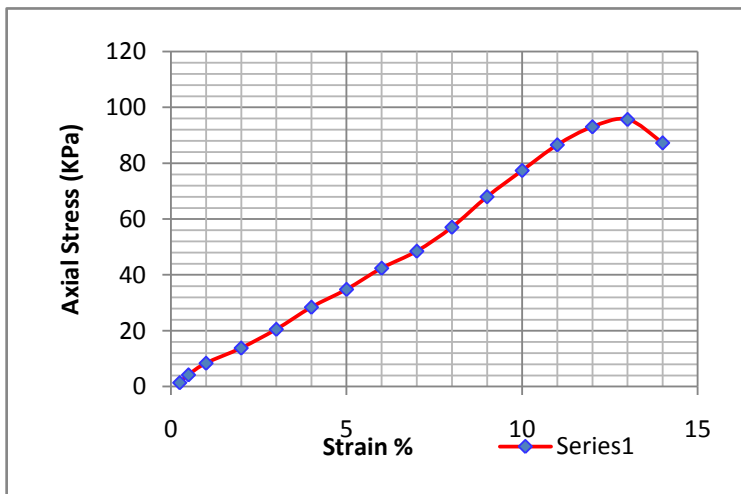
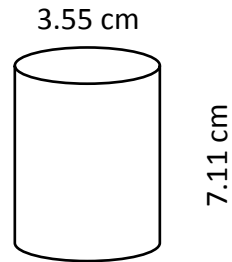


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Katakali Beribadh, Shekerkhalai & Ichakhali Khalpar, Ichakhali

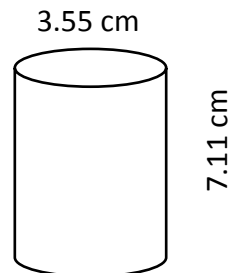
### UNCONFINED COMPRESSION STRENGTH TEST



Bore hole No.	BH-M64
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	103.07
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	2.00
$\gamma_{Dry}$ (gm/cc)	1.68
% Moisture	19.02
Cohesion (Kpa)	51.53

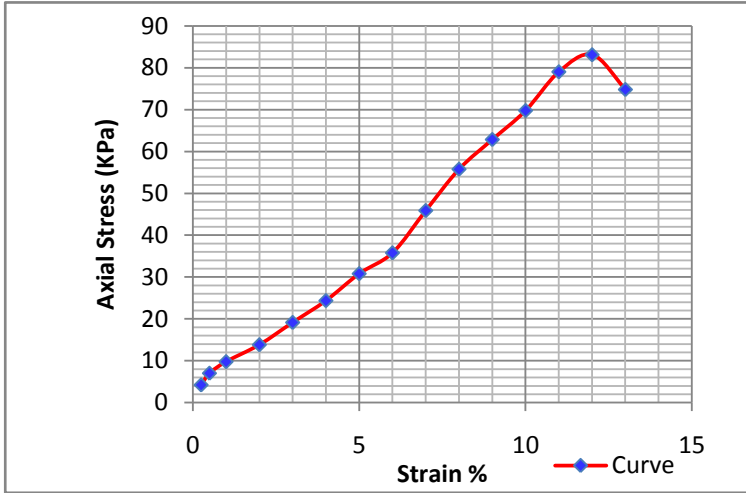


Bore hole No.	BH-M67
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	95.68
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.80
$\gamma_{Dry}$ (gm/cc)	1.45
% Moisture	23.70
Cohesion (Kpa)	47.84

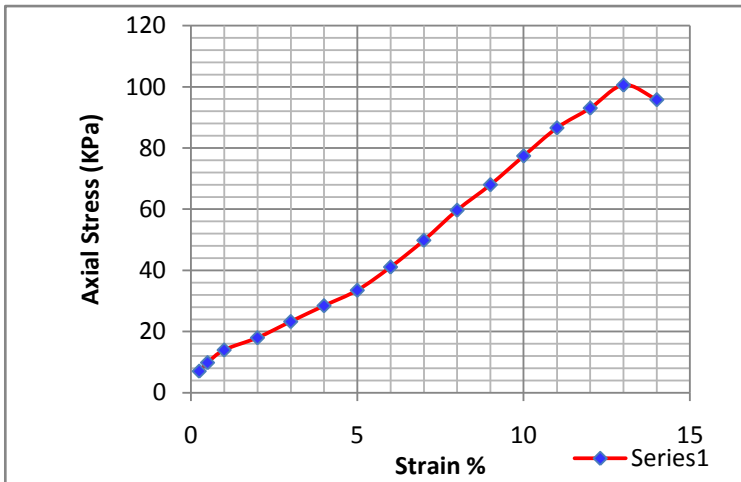
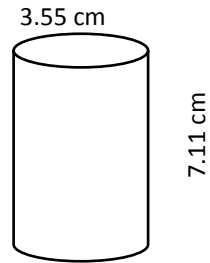


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Shaherkhali High School, Shaherkhali & Dhoomkhali, Shaherkhali

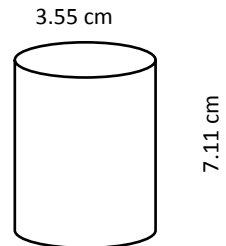
**UNCONFINED COMPRESSION STRENGTH TEST**



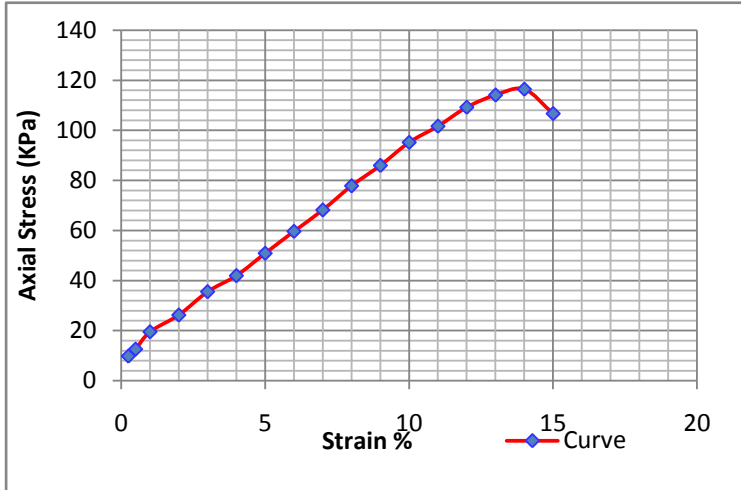
Bore hole No.	BH-M68
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	83.13
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	1.94
$\gamma_{Dry}$ (gm/cc)	1.47
% Moisture	32.11
Cohesion (Kpa)	41.57



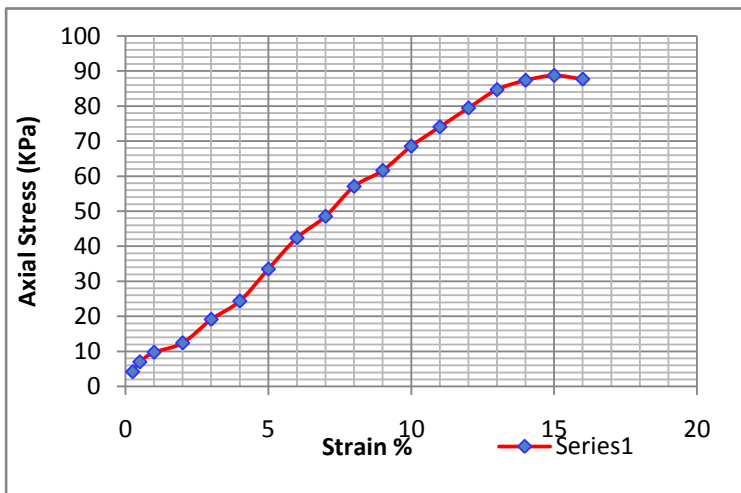
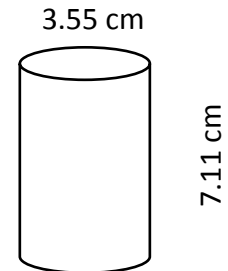
Bore hole No.	BH-M69
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	100.59
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.81
$\gamma_{Dry}$ (gm/cc)	1.50
% Moisture	21.08
Cohesion (Kpa)	50.29



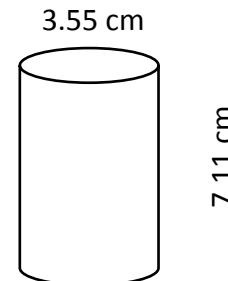
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M70
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	116.41
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.85
$\gamma_{Dry}$ (gm/cc)	1.44
% Moisture	28.93
Cohesion (Kpa)	58.20

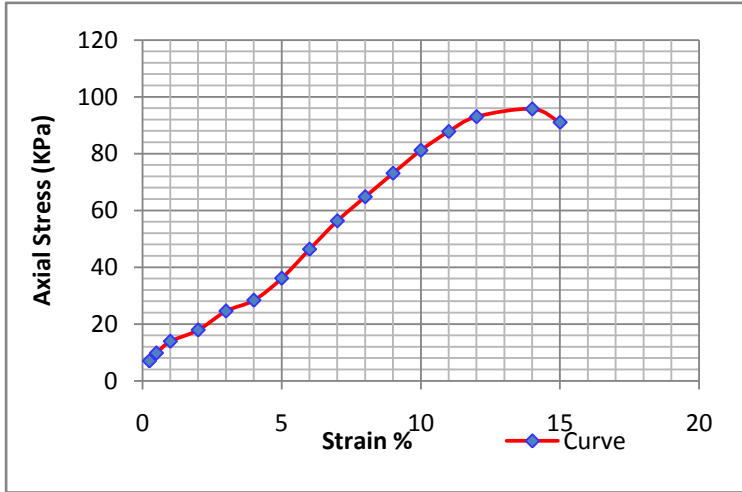


Bore hole No.	BH-M74
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	87.64
% Strain	16.0
$\gamma_{wet}$ (gm/cc)	1.92
$\gamma_{Dry}$ (gm/cc)	1.43
% Moisture	34.16
Cohesion (Kpa)	43.82

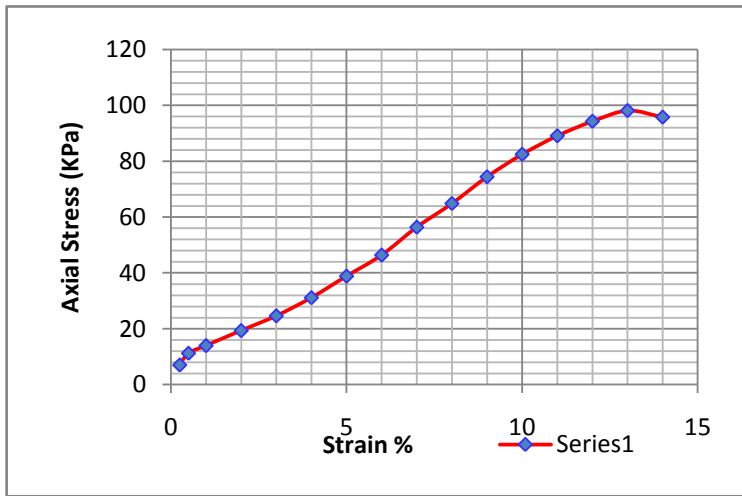
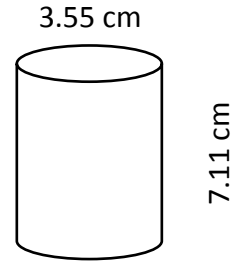


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Majeda Huq High School, Mayani & Shah Abdul Majid Govt. Primary School, West Mayani

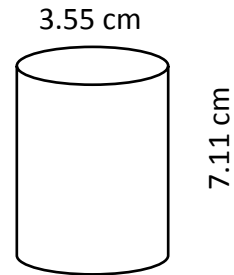
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M75
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	95.79
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.92
$\gamma_{Dry}$ (gm/cc)	1.56
% Moisture	22.91
Cohesion (Kpa)	47.90

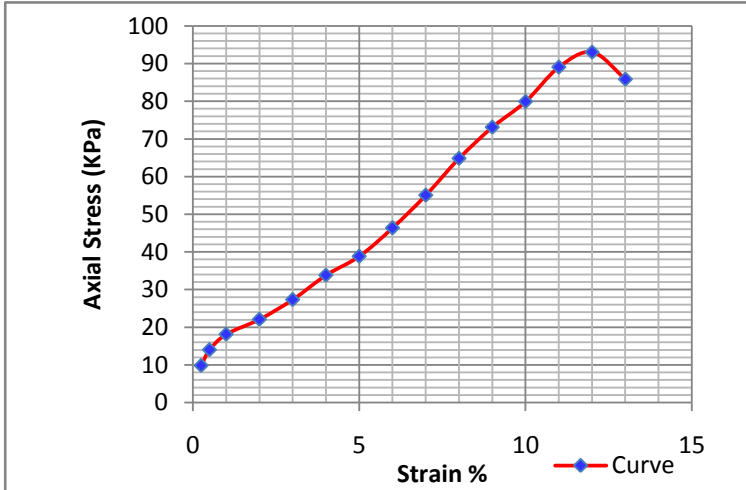


Bore hole No.	BH-M76
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	98.13
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.87
$\gamma_{Dry}$ (gm/cc)	1.44
% Moisture	30.15
Cohesion (Kpa)	49.07

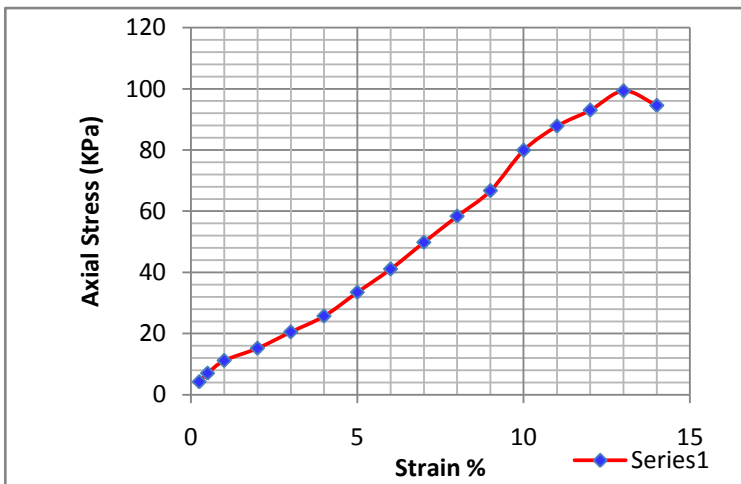
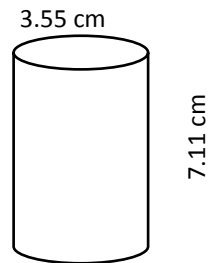


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: West Mayani Shahid Kamal Uddin Govt. Primary School & 13 no. Mayani Union Complex Building

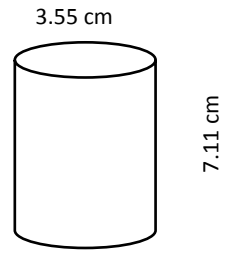
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M77
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	93.06
% Strain	12.0
$\gamma_{wet}$ (gm/cc)	2.00
$\gamma_{Dry}$ (gm/cc)	1.64
% Moisture	21.51
Cohesion (Kpa)	46.53

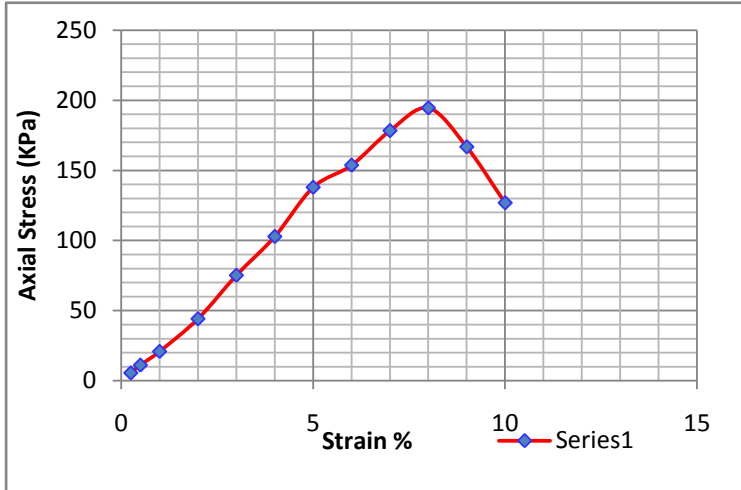


Bore hole No.	BH-M78
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey SILT
qu (Kpa)	99.36
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.87
$\gamma_{Dry}$ (gm/cc)	1.46
% Moisture	28.00
Cohesion (Kpa)	49.68

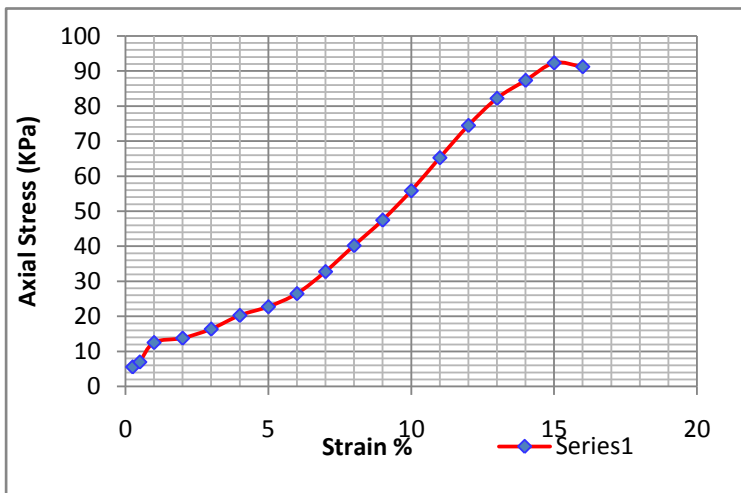
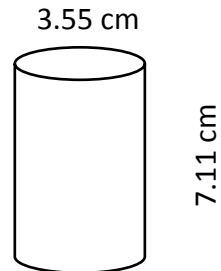


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Sheker Taluk, Wahedpur & Jafrabad Govt. Primary School, Wahedpur

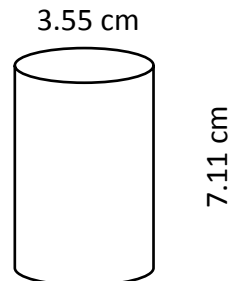
### UNCONFINED COMPRESSION STRENGTH TEST



Bore hole No.	BH-M81
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Description of soil	Clayey SILT
qu (Kpa)	194.58
% Strain	8.0
$\gamma_{wet}$ (gm/cc)	2.06
$\gamma_{Dry}$ (gm/cc)	1.66
% Moisture	24.18
Cohesion (Kpa)	97.29

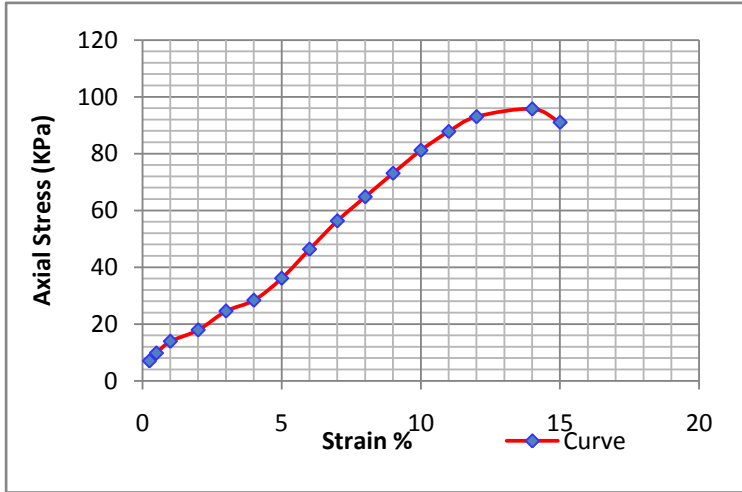


Bore hole No.	BH-M83
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	clayey Silt
qu (Kpa)	91.19
% Strain	16.0
$\gamma_{wet}$ (gm/cc)	1.86
$\gamma_{Dry}$ (gm/cc)	1.43
% Moisture	30.42
Cohesion (Kpa)	45.60

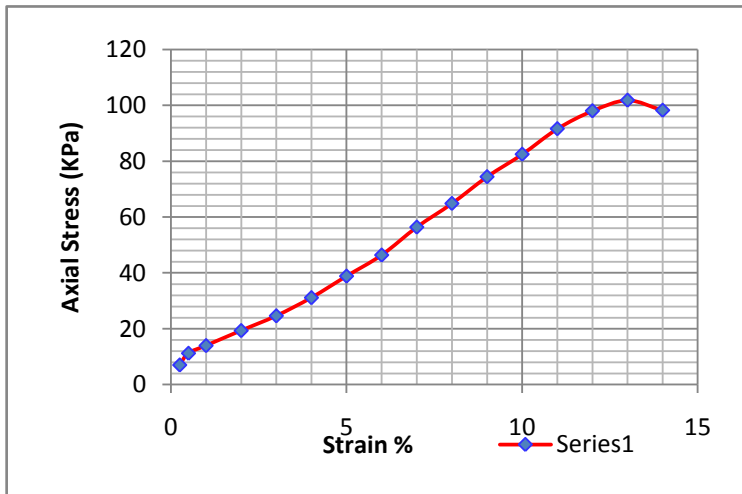
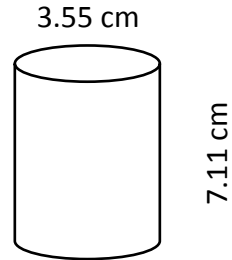


Project : Preparation of Development Plan for Mirsharai Upazila, Chittagong District: Risk Sensitive Landuse Plan  
 Location: Khoiachora Waterfall Road, Khoiachora & Ora Kazi Mijibari Jame Mosque, Mirshorai

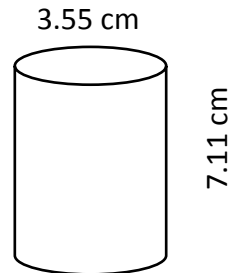
**UNCONFINED COMPRESSION STRENGTH TEST**



Bore hole No.	BH-M73
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	95.79
% Strain	14.0
$\gamma_{wet}$ (gm/cc)	1.85
$\gamma_{Dry}$ (gm/cc)	1.55
% Moisture	19.32
Cohesion (Kpa)	47.90



Bore hole No.	BH-M49
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Description of soil	Clayey SILT
qu (Kpa)	101.81
% Strain	13.0
$\gamma_{wet}$ (gm/cc)	1.91
$\gamma_{Dry}$ (gm/cc)	1.52
% Moisture	25.83
Cohesion (Kpa)	50.91



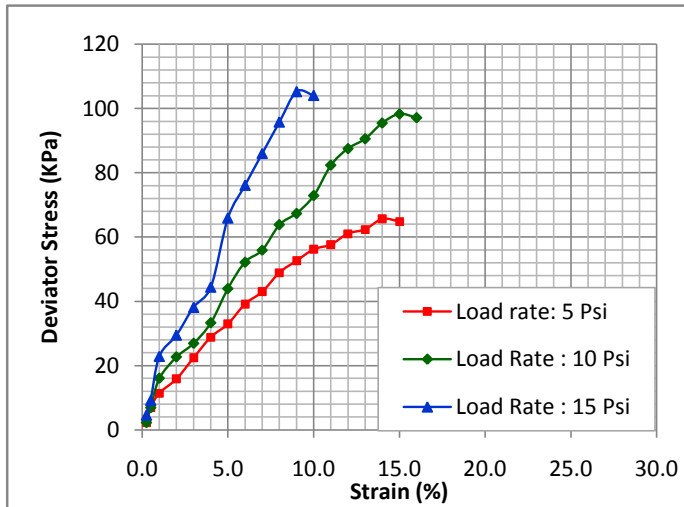


# F Triaxial Test(Undrained Unconsolidated)

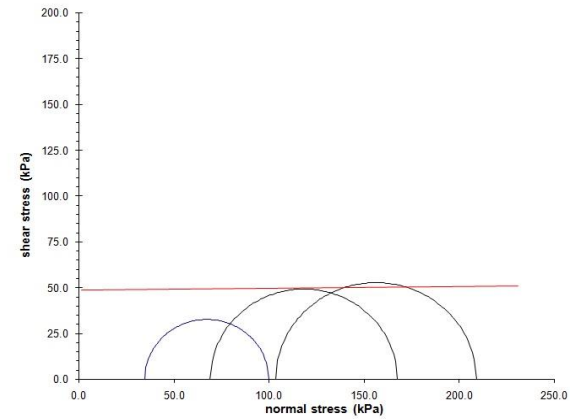
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: West Joar Rashidia Govt. Primary School**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



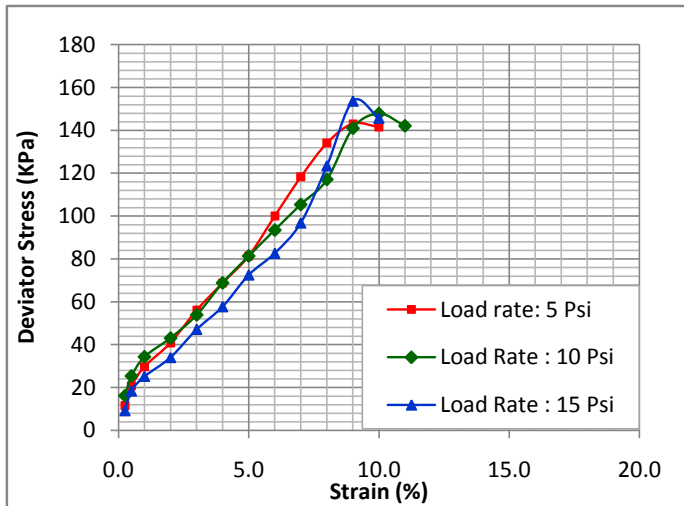
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	33.27	1.40
—◆—	32.66	1.40
—▲—	33.59	1.40

Borehole No.	BH-M01
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	48
Angle of Friction (Degree)	0

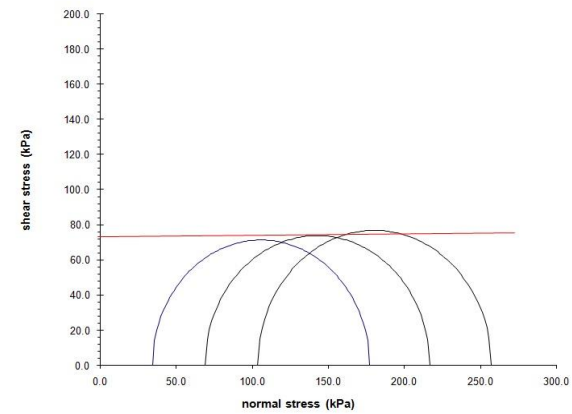
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Choturua, Ward-1, Korerhat**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



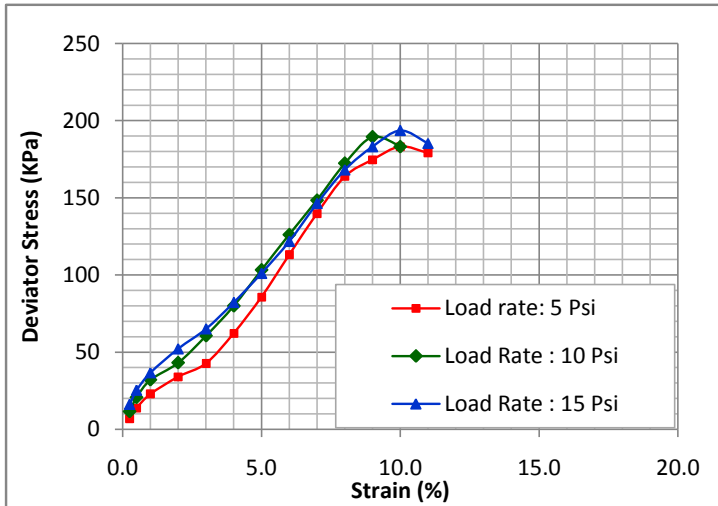
Symbol	Moisture Content (%)	Dry density (g/cc)
■	19.00	1.87
◆	18.47	1.82
▲	18.43	1.82

Borehole No.	BH-M02
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	73
Angle of Friction (degree)	0

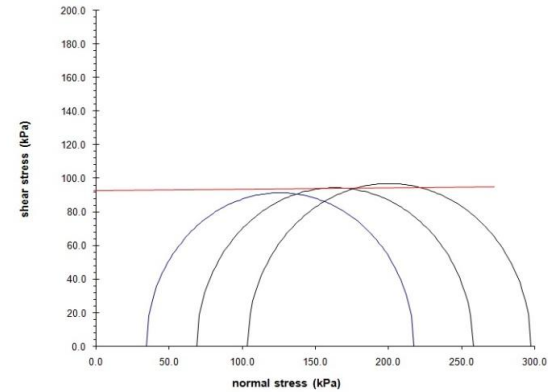
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Giamara gram, Bagan road, Korerhat**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



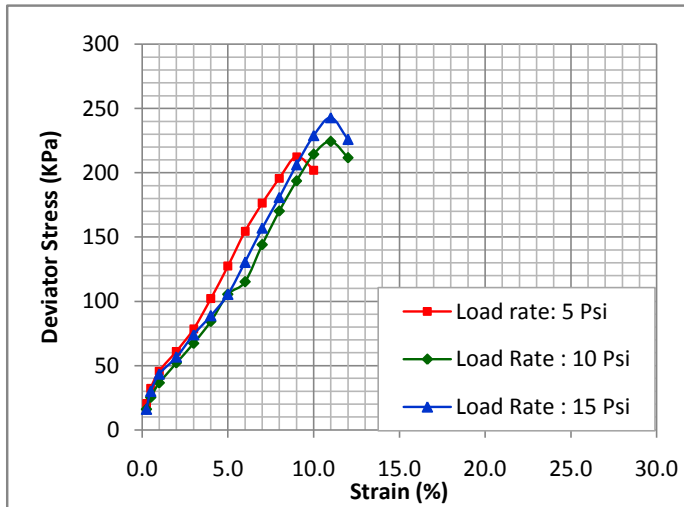
Symbol	Moisture Content (%)	Dry density (g/cc)
■	14.87	1.75
◆	17.54	1.85
▲	17.09	1.85

Borehole No.	BH-M03
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	93
Angle of Friction (degree)	0

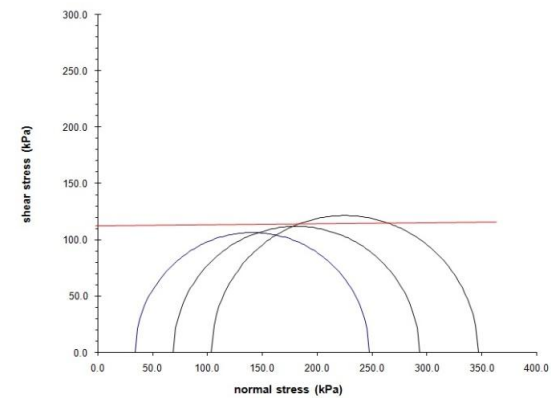
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Poshchim olinogor, Korerhat**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



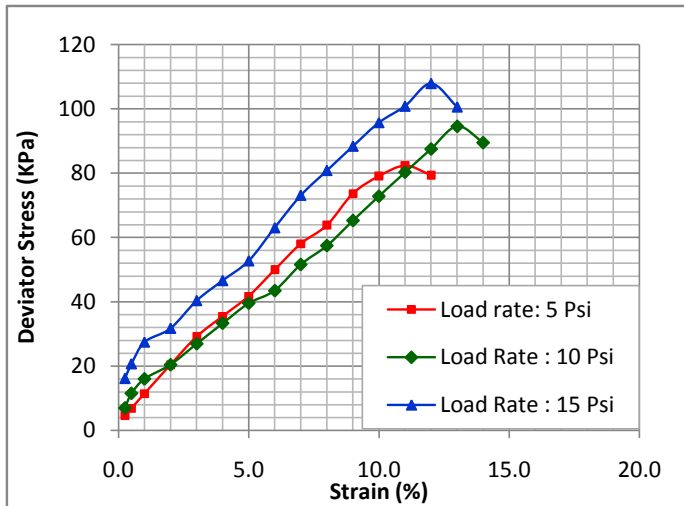
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	16.50	1.75
—◆—	16.50	1.75
—▲—	16.83	1.75

Borehole No.	BH-M05
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	112
Angle of Friction (Degree)	0

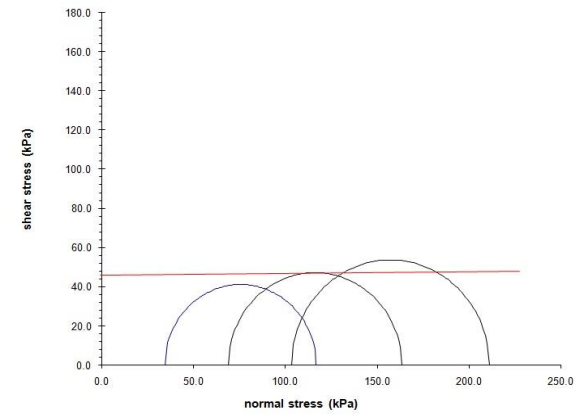
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Ajomnogor Community Clinic, Hinguli**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



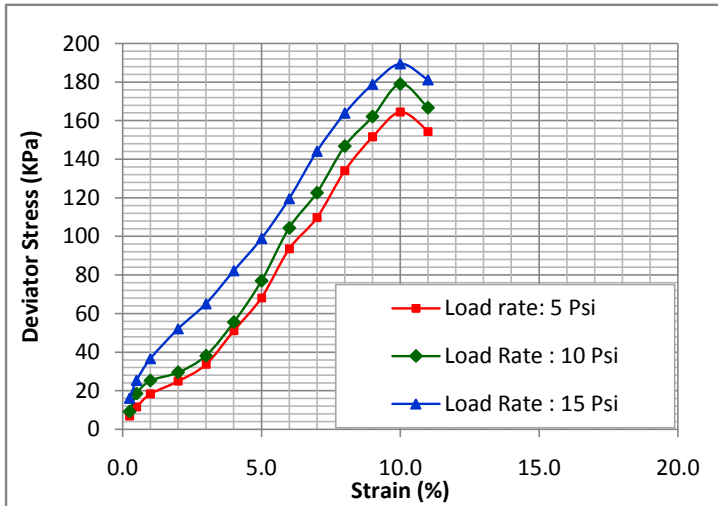
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	23.53	1.73
—◆—	15.84	2.03
—▲—	15.86	2.03

Borehole No.	BH-M06
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	46.5
Angle of Friction (degree)	0

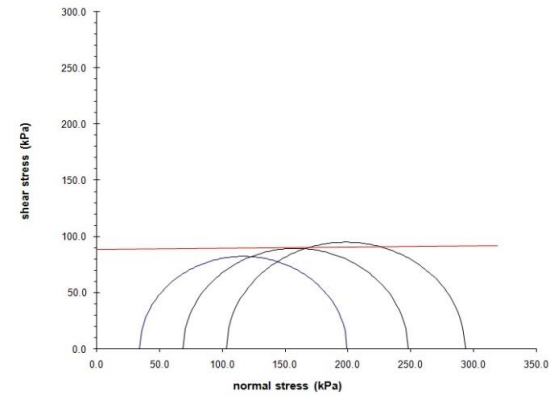
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: East Mehedi Nagar (Forrest Office)**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



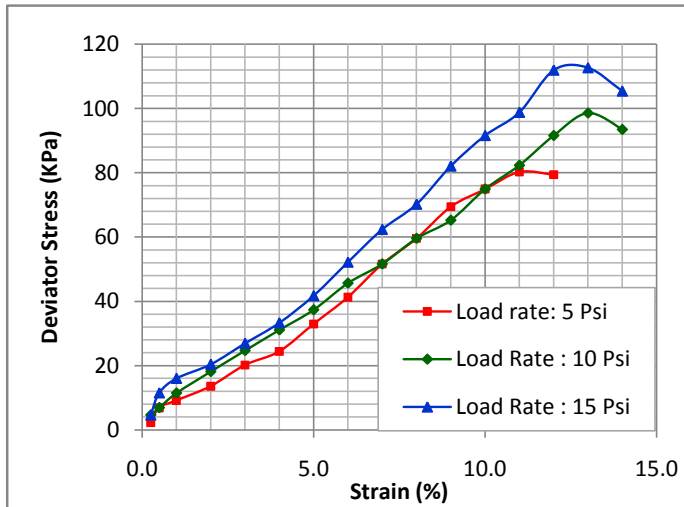
Symbol	Moisture Content (%)	Dry density (g/cc)
■	19.43	1.66
◆	19.20	1.78
▲	19.20	1.78

Borehole No.	BH-M09
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	88
Angle of Friction (degree)	0

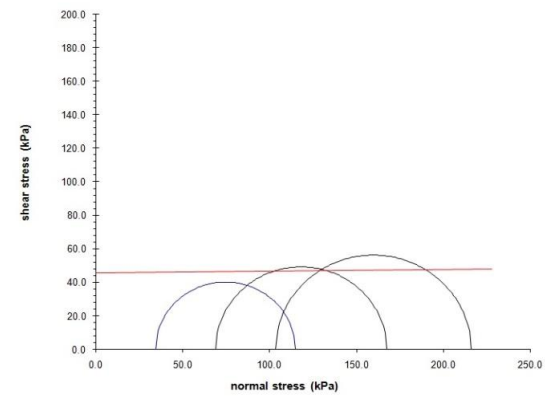
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Imampur Titabot tola Furkania Madrasha**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	21.34	1.72
—◆—	21.13	1.73
—▲—	21.13	1.73

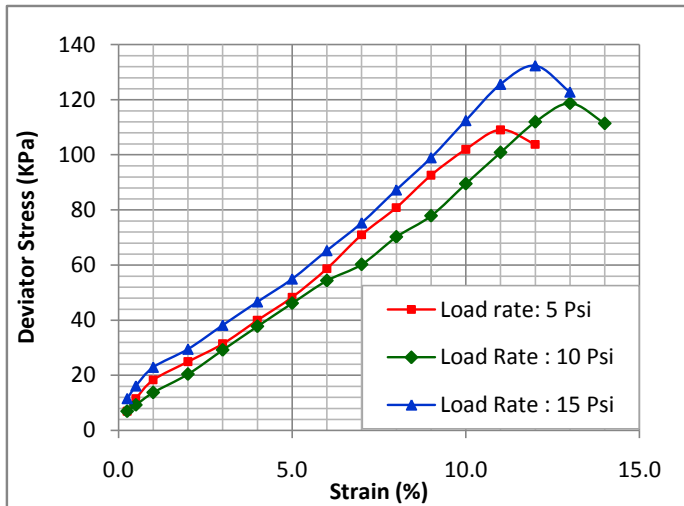
Borehole No.	BH-M11
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	46
Angle of Friction (Degree)	0



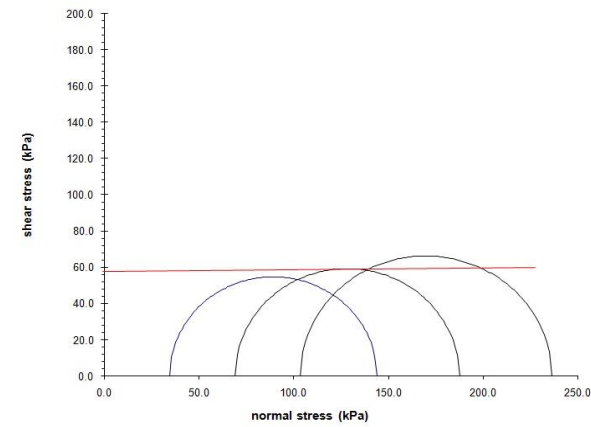
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Bono Chowdhury Jame Mosque, Mobarokguna, Dhoom**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



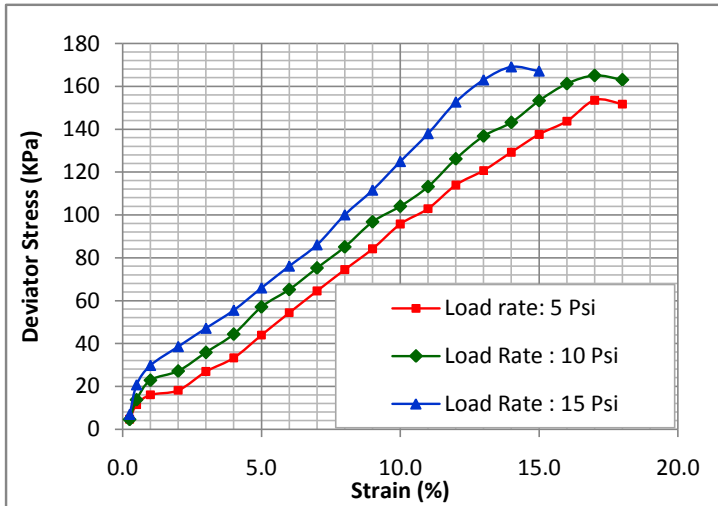
Symbol	Moisture Content (%)	Dry density (g/cc)
■	27.66	1.64
◆	15.84	2.03
▲	27.05	1.66

Borehole No.	BH-M12
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	57.5
Angle of Friction (degree)	0

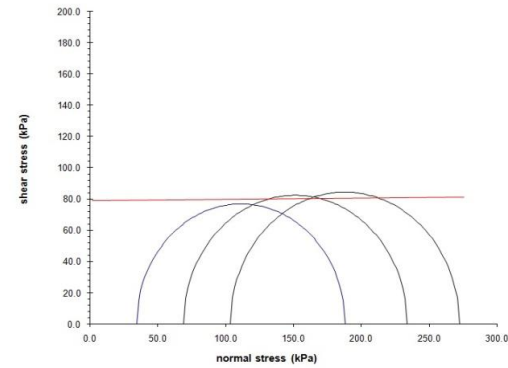
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Patacoat, Azampur, Osmanpur**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



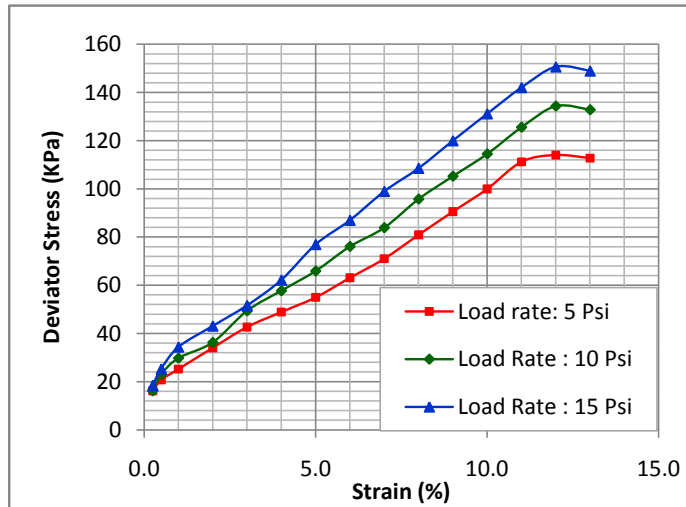
Symbol	Moisture Content (%)	Dry density (g/cc)
■	28.36	1.47
◆	28.75	1.53
▲	28.32	1.54

Borehole No.	BH-M22
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	89
Angle of Friction (degree)	0

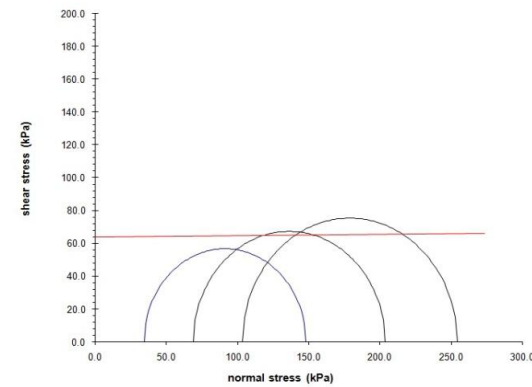
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: East Raypur Baitul Aman Jame Mosque, Durgapur**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



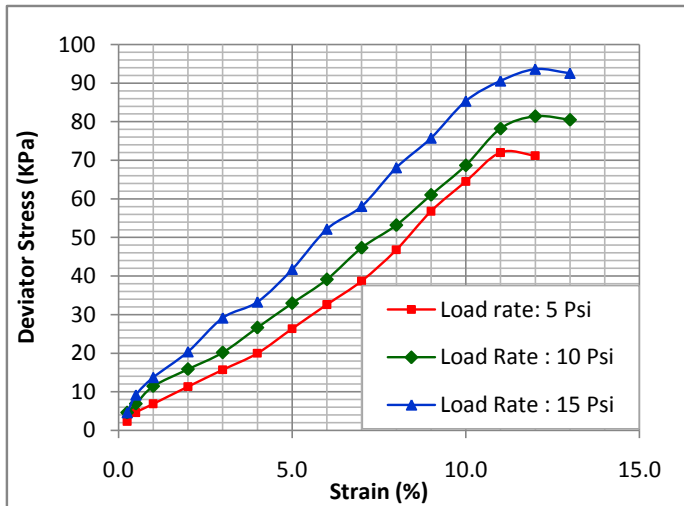
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	17.25	1.87
—◆—	17.43	1.88
—▲—	17.42	1.88

Borehole No.	BH-M24
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	64
Angle of Friction (Degree)	0

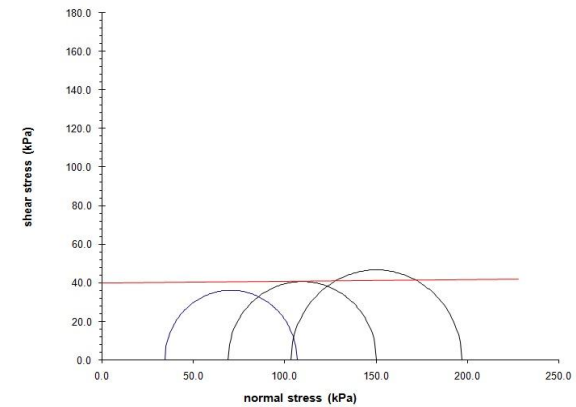
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Tetuiana Nath Para, Durgapur**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



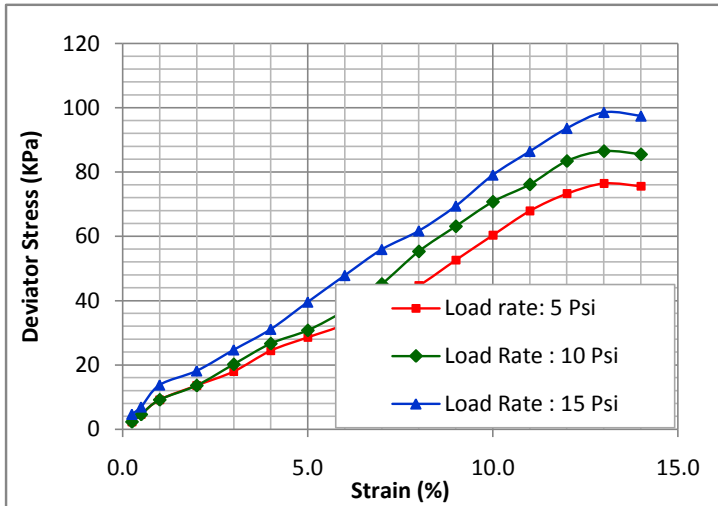
Symbol	Moisture Content (%)	Dry density (g/cc)
■	27.94	1.58
◆	26.94	1.60
▲	28.51	1.58

Borehole No.	BH-M26
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	40
Angle of Friction (degree)	0

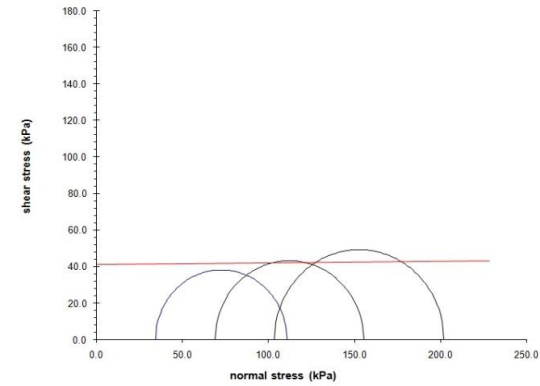
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Abdus Sattar Bhuiyar Hat Govt. Primary school, Kata chora**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



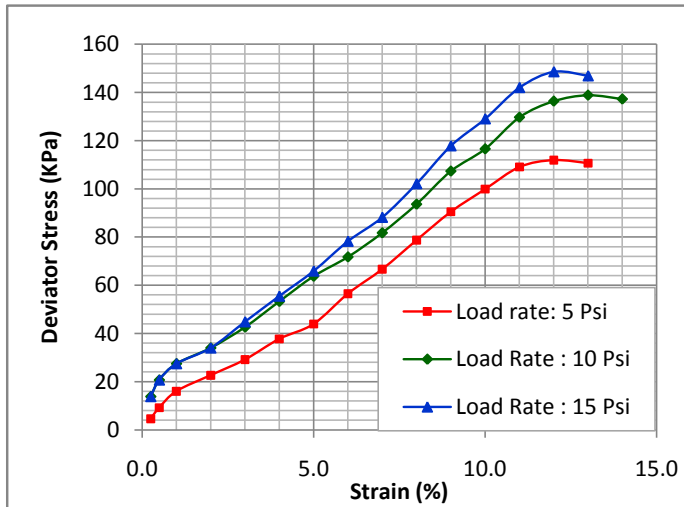
Symbol	Moisture Content (%)	Dry density (g/cc)
■	26.86	1.57
◆	24.47	1.60
▲	26.71	1.58

Borehole No.	BH-M27
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	41
Angle of Friction (degree)	0

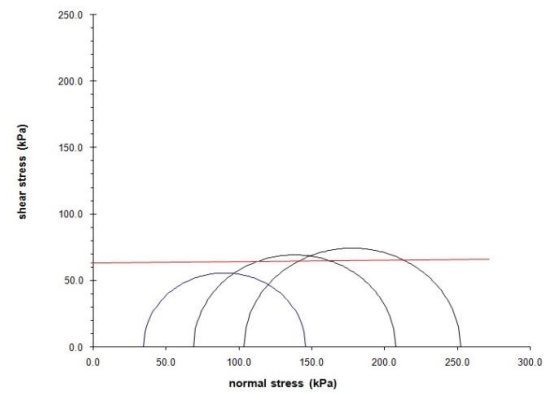
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Ahmed Ali Miar Hat Govt Primary School, Kata Chora**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



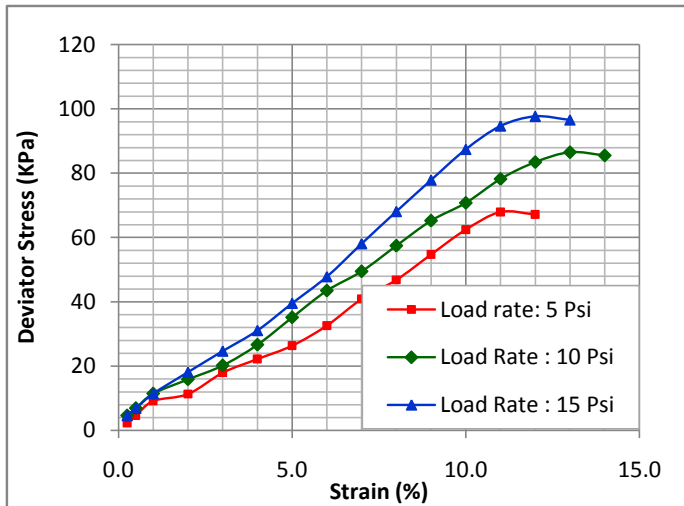
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	26.44	1.48
—◆—	22.45	1.71
—▲—	23.20	1.73

Borehole No.	BH-M29
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	63
Angle of Friction (Degree)	0

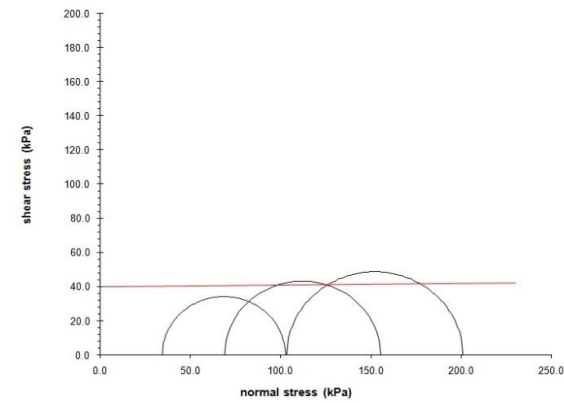
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Char shorot Sharbojonin Charnatia Durga Mondir, Ichakhali**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



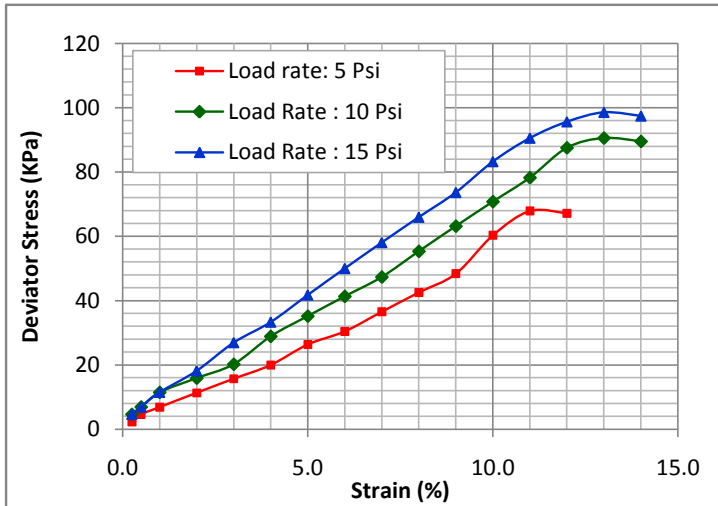
Symbol	Moisture Content (%)	Dry density (g/cc)
■	31.61	1.44
◆	31.30	1.46
▲	28.71	1.49

Borehole No.	BH-M31
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	40
Angle of Friction (degree)	0

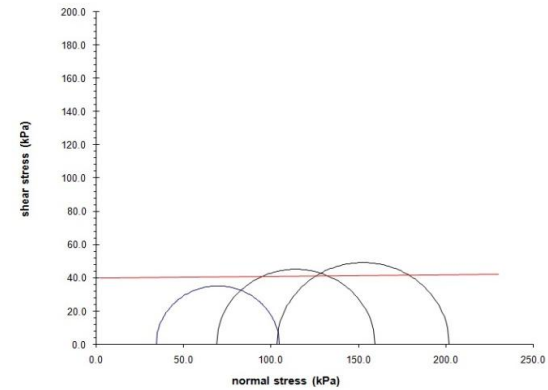
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Vanguni Bazar Baitunnur Jame Mmosque, Ichakhali**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



Symbol	Moisture Content (%)	Dry density (g/cc)
■	19.28	1.64
◆	19.25	1.70
▲	18.25	1.64

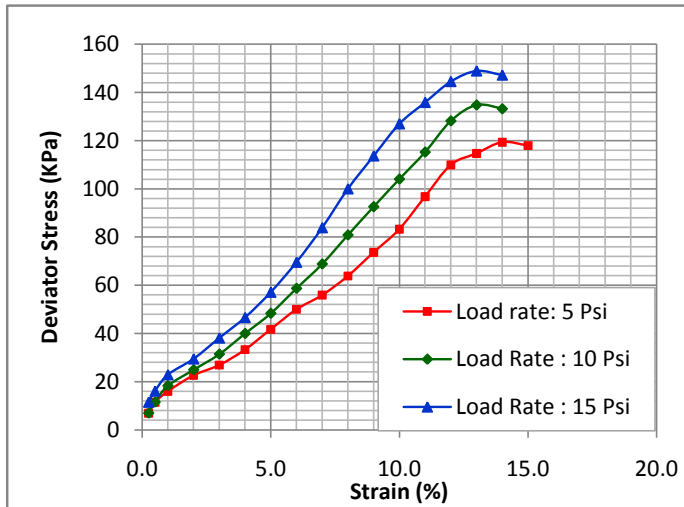
Borehole No.	BH-M35
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	40
Angle of Friction (degree)	0



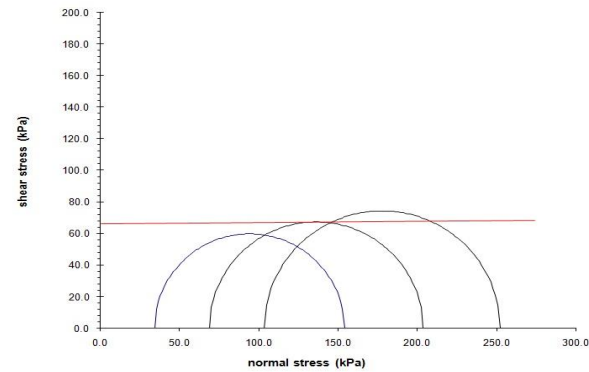
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: 94 no. Hasim Nagar Govt. Primary School**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	25.68	1.49
—◆—	25.27	1.60
—▲—	25.33	1.60

Borehole No.	BH-M37
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	66
Angle of Friction (Degree)	0

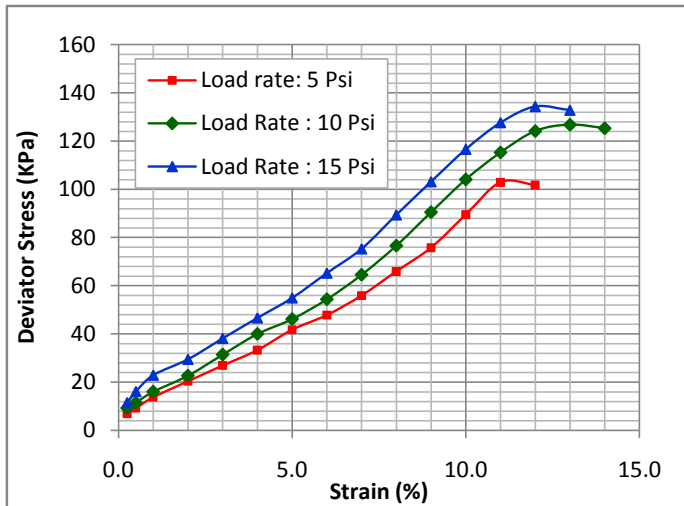
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**

**Location: Lodiakhali, Ichakhali**

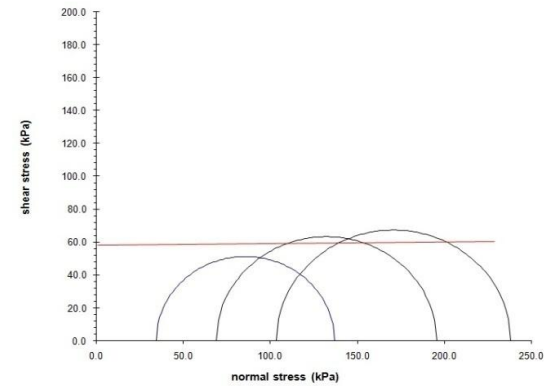
**Triaxial Compression Test**

( Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



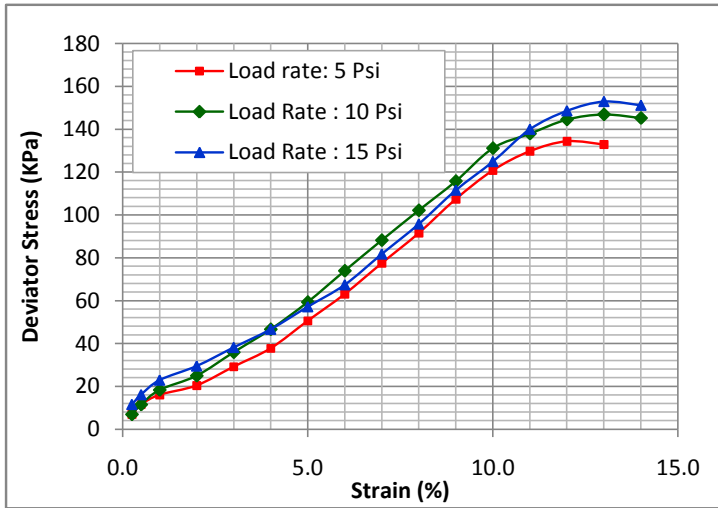
Symbol	Moisture Content (%)	Dry density (g/cc)
■	17.38	1.80
◆	17.03	1.78
▲	17.77	1.77

Borehole No.	BH-M39
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	58
Angle of Friction (degree)	0

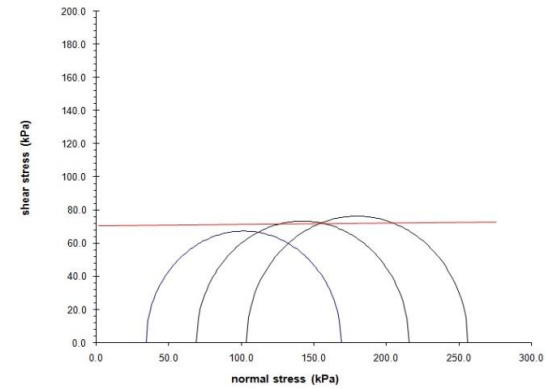
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Ichakhali Economic Zone, Ichakhali**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



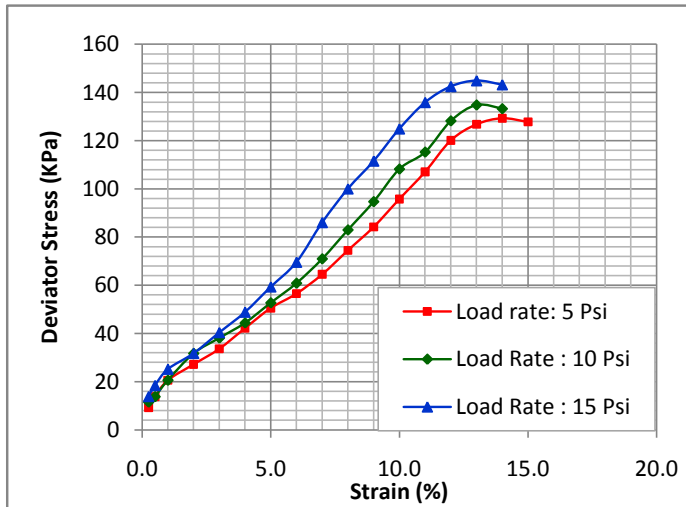
Symbol	Moisture Content (%)	Dry density (g/cc)
■	18.44	1.63
◆	20.87	1.61
▲	20.69	1.58

Borehole No.	BH-M41
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	70
Angle of Friction (degree)	0

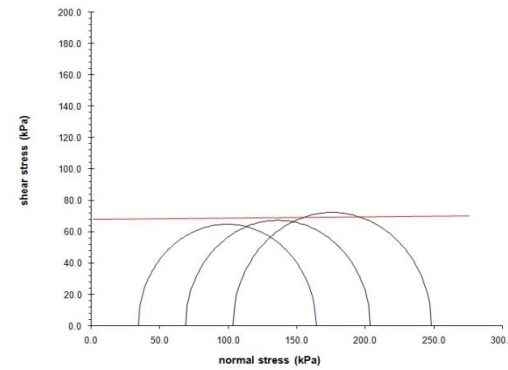
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Rajamiar Farm, Char Shorot, Ichakhali**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



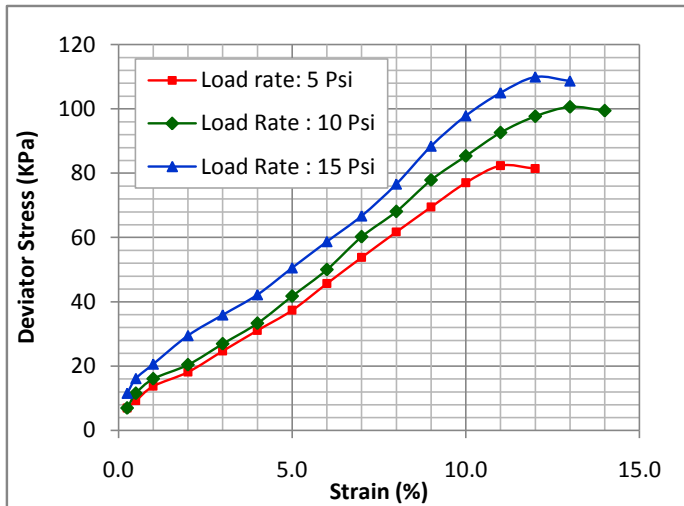
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	25.87	1.66
—◆—	25.27	1.60
—▲—	25.16	1.64

Borehole No.	BH-M43
Sample No.	UD-02
Depth (m)	3.50 to 4.05
Cohesion (KPa)	68
Angle of Friction (Degree)	0

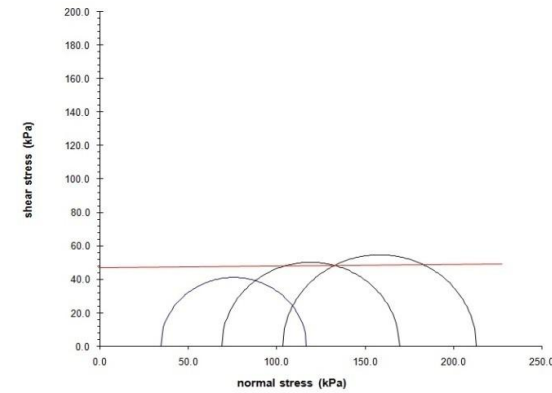
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: South Talbaria, Mirshorai**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



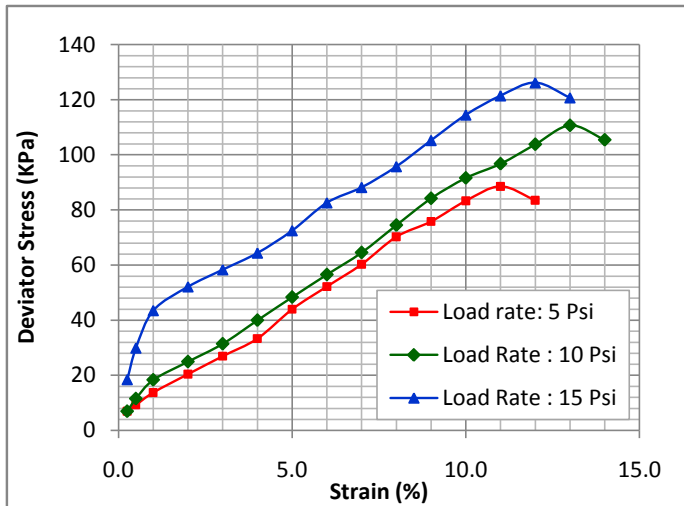
Symbol	Moisture Content (%)	Dry density (g/cc)
■	23.38	1.76
◆	22.34	1.76
▲	22.17	1.76

Borehole No.	BH-M47
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	48
Angle of Friction (degree)	0

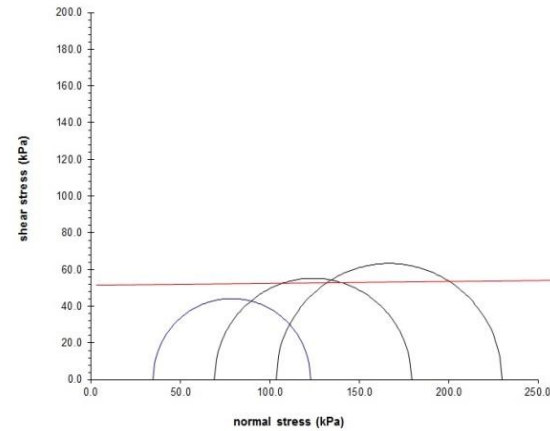
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Hamid Ali Jame Mosque, East Khoiachora**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



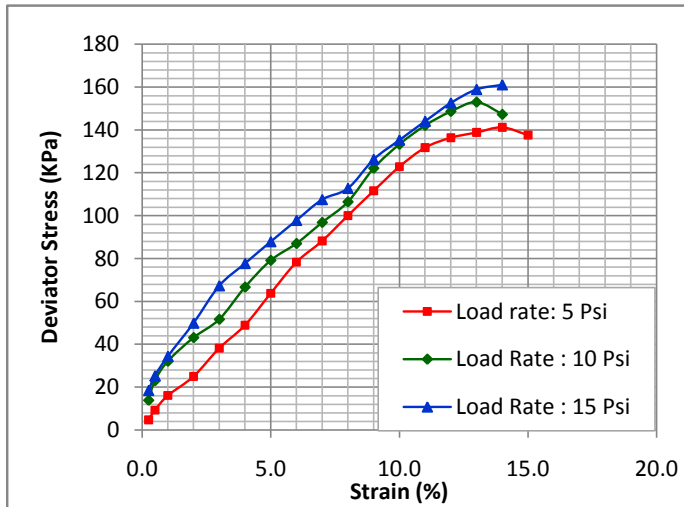
Symbol	Moisture Content (%)	Dry density (g/cc)
■	25.25	1.60
◆	24.89	1.65
▲	24.90	1.65

Borehole No.	BH-M52
Sample No.	UD-02
Depth (m)	3.50 to 4.05
Cohesion (KPa)	53
Angle of Friction (degree)	0

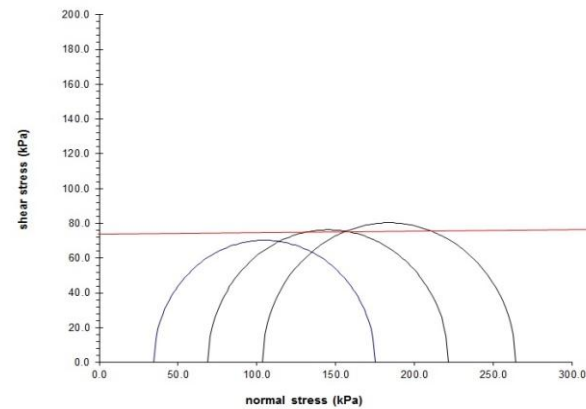
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Chairman Bari, West Moliyash**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



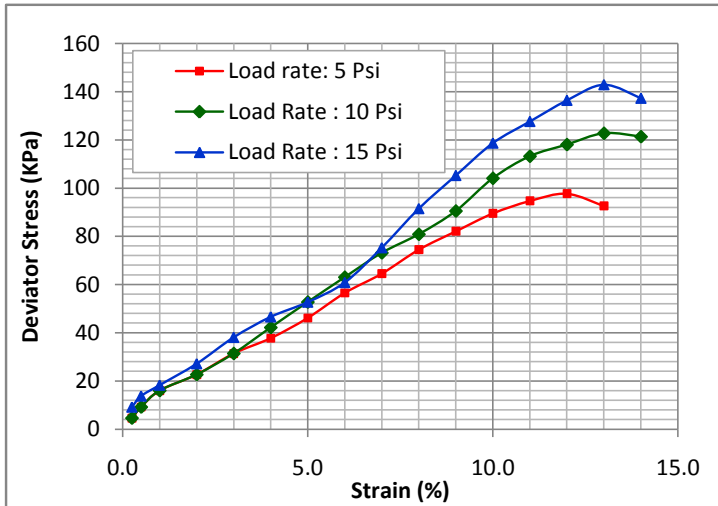
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	33.26	1.37
—◆—	34.32	1.39
—▲—	34.29	1.39

Borehole No.	BH-M55
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Cohesion (KPa)	73
Angle of Friction (Degree)	0

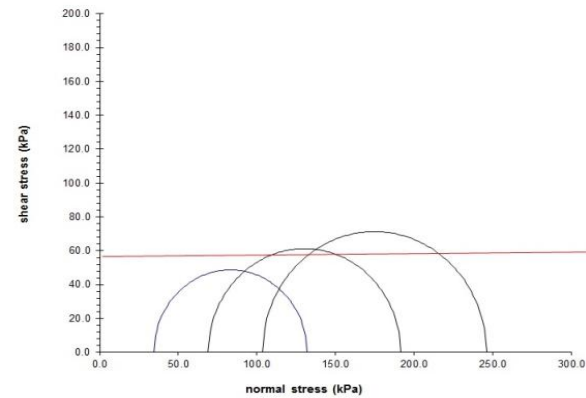
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: 90 no. Maghadia NC Govt. Primary School, Maghadia**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



Symbol	Moisture Content (%)	Dry density (g/cc)
■	28.25	1.36
◆	27.75	1.35
▲	28.15	1.36

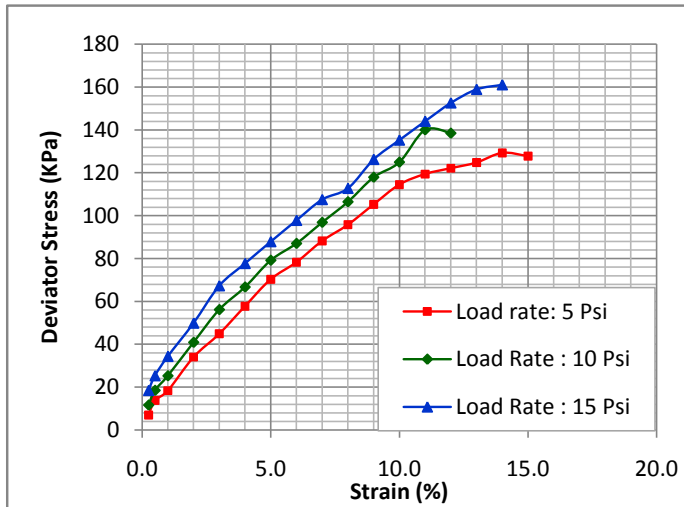
Borehole No.	BH-M60
Sample No.	UD-02
Depth (m)	3.50 to 4.05
Cohesion (KPa)	56
Angle of Friction (degree)	0



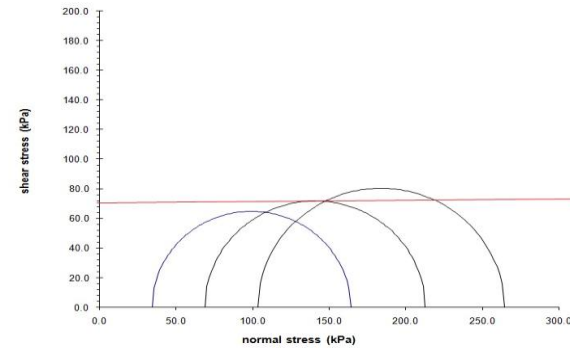
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Kazir Taluk Govt. Primary School, Maghadia**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



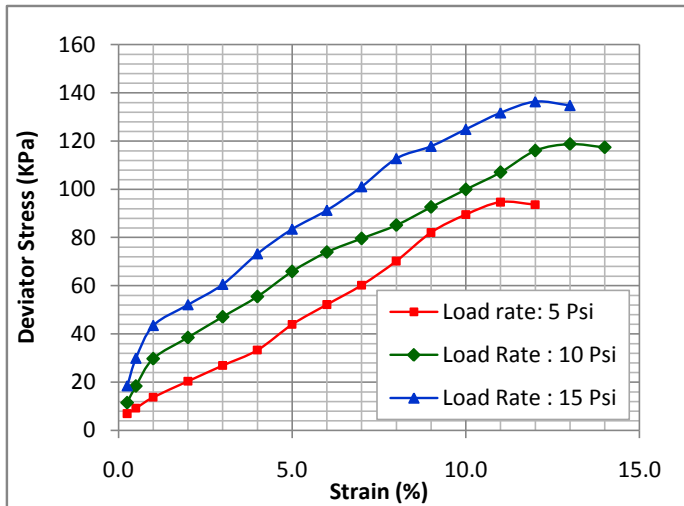
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	33.26	1.37
—◆—	34.32	1.39
—▲—	34.29	1.39

Borehole No.	BH-M62
Sample No.	UD-1
Depth (m)	2.00 to 2.55
Cohesion (KPa)	70
Angle of Friction (Degree)	0

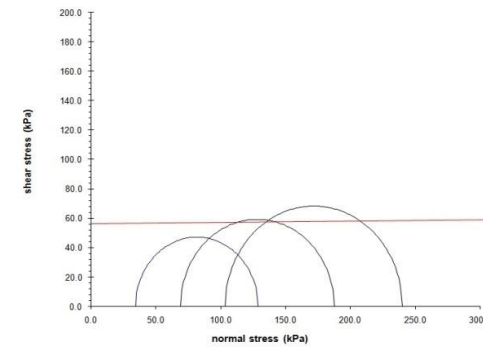
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Komor ali Union High School, Komor Ali Union Bazar**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



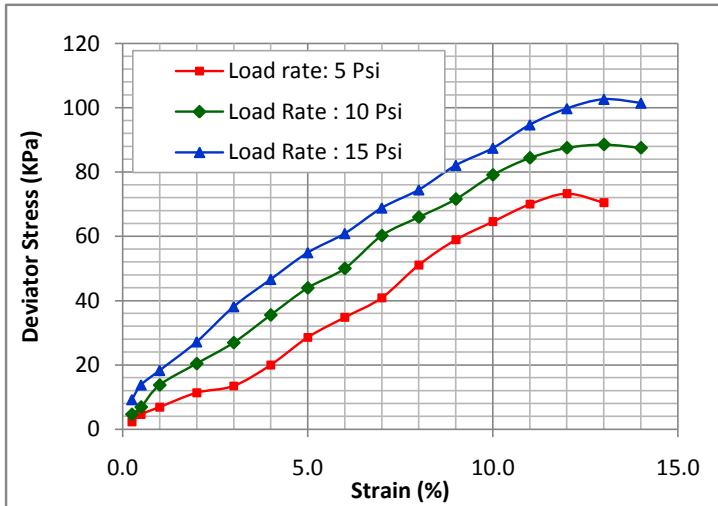
Symbol	Moisture Content (%)	Dry density (g/cc)
■	25.25	1.60
◆	24.89	1.65
▲	24.90	1.65

Borehole No.	BH-M63
Sample No.	UD-02
Depth (m)	3.50 to 4.05
Cohesion (KPa)	56
Angle of Friction (degree)	0

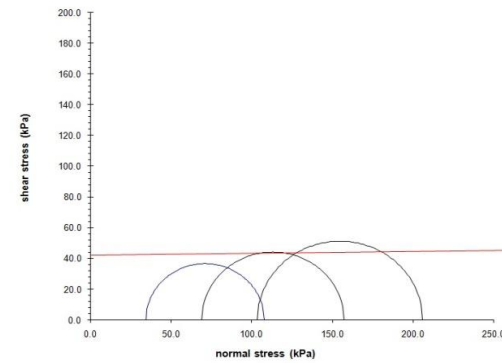
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Ichakhali Khalpar, Ichakhali**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



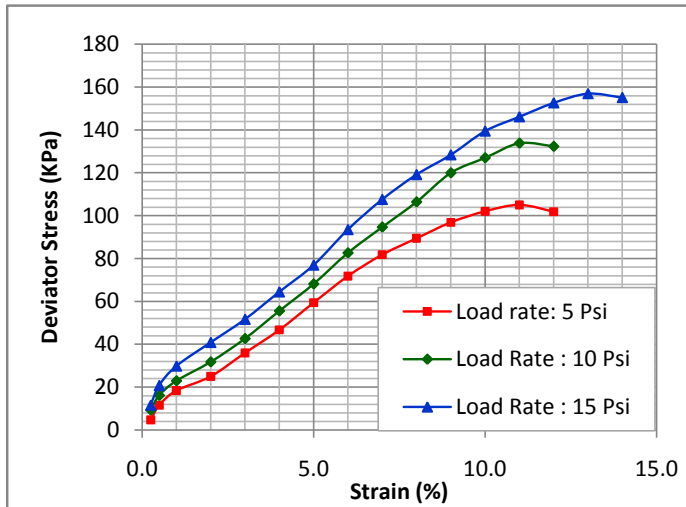
Symbol	Moisture Content (%)	Dry density (g/cc)
■	28.25	1.36
◆	27.75	1.35
▲	28.15	1.36

Borehole No.	BH-M67
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (kPa)	43
Angle of Friction (degree)	0

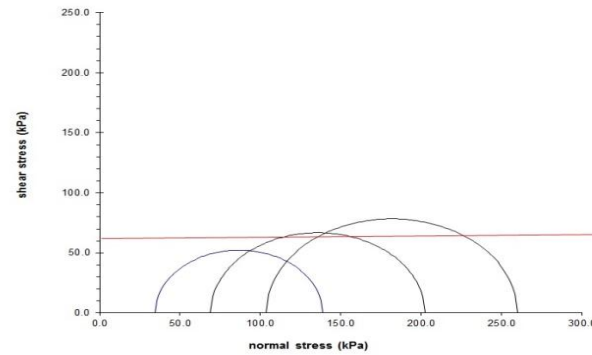
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Said Ali Govt. Primary School**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



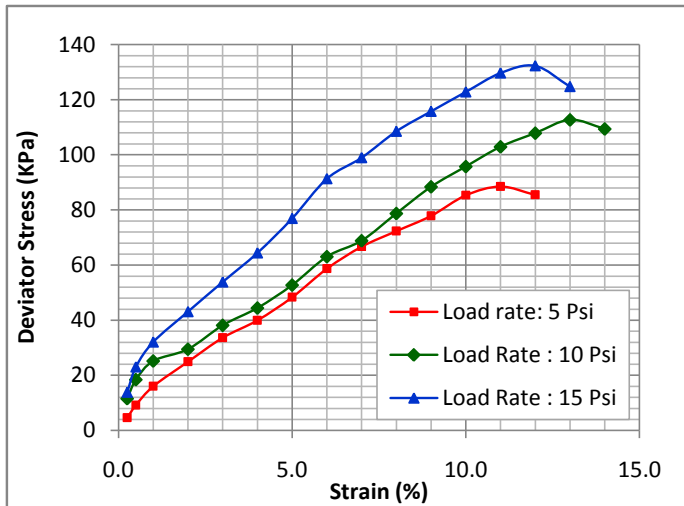
Symbol	Moisture Content (%)	Dry density (g/cc)
—■—	33.26	1.37
—◆—	34.32	1.39
—▲—	34.29	1.39

Borehole No.	BH-M74
Sample No.	UD-2
Depth (m)	3.50 to 4.05
Cohesion (KPa)	63
Angle of Friction (Degree)	0

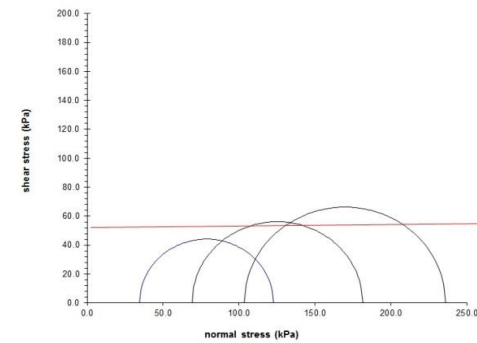
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Shah Abdul Majid Govt. Primary School, West Mayani**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



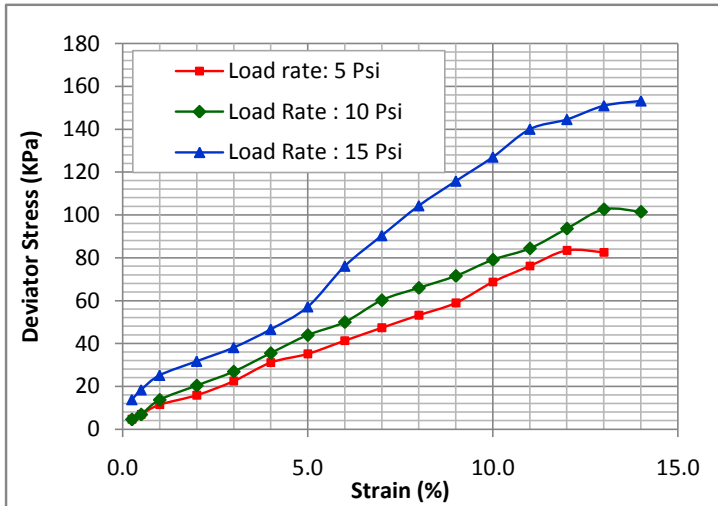
Symbol	Moisture Content (%)	Dry density (g/cc)
■	25.25	1.60
◆	24.89	1.65
▲	24.90	1.65

Borehole No.	BH-M76
Sample No.	UD-01
Depth (m)	2.0 to 2.55
Cohesion (KPa)	52
Angle of Friction (degree)	0

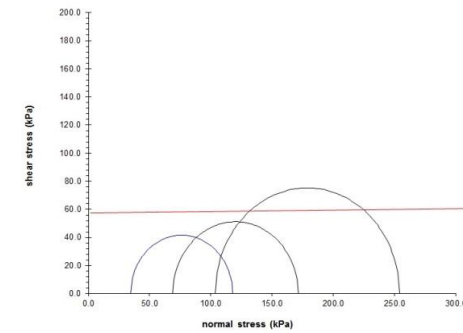
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: West Mayani Shahid Kamal Uddin Govt. Primary School**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHR'S STRESS DIAGRAM**



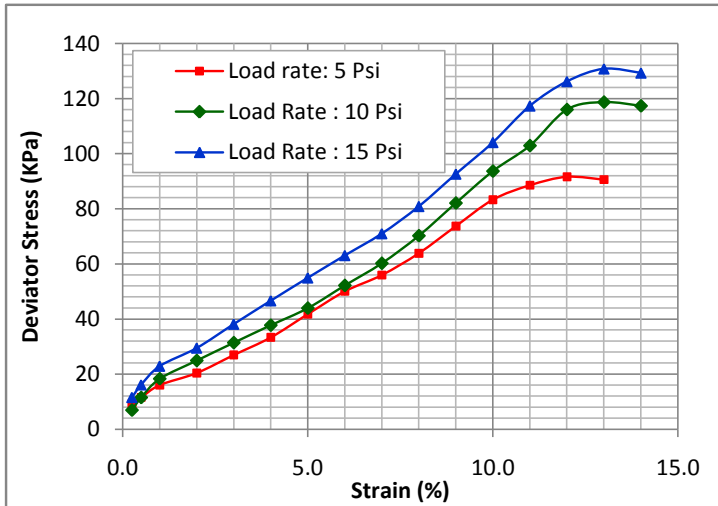
Symbol	Moisture Content (%)	Dry density (g/cc)
■	28.25	1.36
◆	27.75	1.35
▲	28.15	1.36

Borehole No.	BH-M77
Sample No.	UD-02
Depth (m)	3.50 to 4.05
Cohesion (KPa)	58
Angle of Friction (degree)	0

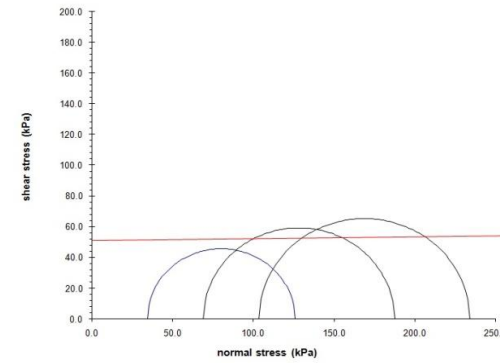
**Project : Preparation of Development Plan of Mirsharai Upazilla, Chittagong District: Risk Sensitive Landuse Plan**  
**Location: Sheker Taluk, Wahedpur**

**Triaxial Compression Test**  
(Unconsolidated Undrained)

**STRESS-STRAIN DIAGRAM**



**MOHRS STRESS DIAGRAM**



Symbol	Moisture Content (%)	Dry density (g/cc)
■	18.69	1.63
◆	20.88	1.61
▲	20.74	1.58

Borehole No.	BH-M81
Sample No.	UD-01
Depth (m)	2.00 to 2.55
Cohesion (KPa)	70
Angle of Friction (degree)	0