

REPORT ON
GEOTECHNICAL INVESTIGATIONS

FOR THE PROPOSED

Raghunandan Singh Ishwariy High School
At
Narharpur, Mukunpur, Block- Jandaha
Dist. Vaishali

Your Letter No.- BSEIDC/TECH/1960/2018-1369 Dated - 02.03.2021
[Serial No. 16]

Submitted to
The Chief Engineer
BSEIDC, Patna

March, 2021



BIHAR FOUNDATION CONSULTANTS

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**Raghunandan Singh Ishwariy High School at Narharpur,
Mukunpur, Block- Jandaha, Dist. Vaishali**



Bihar Foundation Consultants
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[A Unit : Baidyanath Foundation Consultants Pvt. Ltd.]

PN - 210304

CONTENTS

<u>Sl.No.</u>	<u>Description</u>	<u>Page No.</u>
1	Introduction	1
2	Field Work	1
3	Laboratory Test	2
4	Presentation of Test Results	2
5	Soil Stratification	2
6	Foundation Analysis	2
7	Recommendations	3-4

Appendix

[Containing Figures and Tables]

- A. Bore Holes Location Map
- B. Field Test Observations & Laboratory Test Results
- C. Graph of Grain size Analysis
- D. Triaxial shear / Direct shear strength test curves
- E. e -log p' Curves from Consolidation Tests
- F. Sample calculation of pile
- G. Copy of Work Oder

Report on Sub Soil Investigations for the Proposed
**Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur,
Block- Jandaha, Dist. Vaishali**

1. INTRODUCTION

The subsoil investigations reported herein were taken up (vide W.O. No. **BSEIDC/Tech/1960/2018-1369 Dated – 02.03.2021**
[Serial No. 16]

to find out the nature of subsoil at the site of the proposed construction and to recommend the capacity and type of its foundation. After certain tests on the soil, as detailed below, the desired recommendations have been made on **page 3** of this Report.

2. FIELD WORK

The fieldwork consisted of sinking bore holes, collecting soil samples and conducting the necessary field tests.

2.1. Boring

Taking guidance from IS: 1892, 150 mm diameter bore holes were sunk at locations shown in the bore hole location map.

2.2 Sampling

2.2.1 Undisturbed Soil Samples

Open drive samplers of 100-mm diameter and about 450-mm length were used for obtaining undisturbed samples of cohesive soils. The collection, sealing, labeling and transportation of the samples to the laboratory were done as per the IS guide-lines.

2.2.2 Disturbed Soil Samples

Disturbed soil samples were collected at suitable intervals of depth (not more than 2.5 m) and at all depths of change in the nature of the subsoil. These samples were sealed in polythene bags with proper identification labels.

2.3 Field Tests

2.3.1 Standard Penetration Tests (SPT)

These tests were conducted as per IS: 2131 – 1963. The depth interval between two consecutive tests was 1 to 1.5 m. The tests were located in between the levels at which undisturbed soil samples were collected.

Report on Sub Soil Investigations for the Proposed
**Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur,
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3. LABORATORY TESTS

Some or all of the following laboratory tests, as necessary, were done on the collected soil samples. Representative soil samples were selected for this from the different soil strata encountered during boring. The tests were performed as per the relevant Indian Standard Codes of Practice.

- (a) Natural moisture content
- (b) Bulk density
- (c) Grain size analysis (using sieves and / or hydrometer)
- (d) Specific gravity of soil solids
- (e) Atterberg's limit tests (liquid, plastic and shrinkage limits)
- (f) Shear Tests :
 - [I] Triaxial compression test (unconsolidated – undrained), generally for fine- grained soils
 - [II] Unconfined compression tests, only on cohesive soils
 - [III] Direct shear tests, generally for coarse-grained soils
- (g) Other tests as and when required.

4. PRESENTATION OF TEST RESULTS

The field and laboratory test are given in the **Appendix B**.

5. SOIL STRATIFICATION

The results of field tests in three bore hole sunk at the site [vide Location Sketch in App. A] and the results of laboratory tests conducted on the collected soil samples indicate that the soil stratification at the site is as describe below.

The sub soil in all BH's is silty clay [types CL/CI in various sequences and different depths] up to the investigated depth of 10.5 m bgl.

Ground water table was struck at about 4.60 m to 4.70 m depth below GL in March, 2020. It is subject to seasonal variations.

6. FOUNDATION ANALYSIS

The safe capacity of foundation of any type and size may be determined on the basis of the soil data given in this Report by using the standard methods of foundation design and following the relevant Indian Standard Codes.

Report on Sub Soil Investigations for the Proposed
**Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur,
 Block- Jandaha, Dist. Vaishali**

7. RECOMMENDATIONS

The design of the foundation for the proposed structure depends on the nature of both [a] the subsoil and [b] the structure.

The sub soil in all BH's is silty clay [types CL/CI in various sequences and different depths] up to the investigated depth of 10.5 m bgl.

Ground water table was struck at about 4.60 m to 4.70 m depth below GL in March, 2020. It is subject to seasonal variations.

Hence,

1. The proposed structure may be provided with shallow foundation at a depth of 1.5 m or more.
2. Alternatively, U/R piles of lengths 4.0 m to 8.0 m may be used with stem diameters of 0.25 m, 0.30 m and 0.40 m and the bulb diameters equal to 2 times the stem diameter.

By way of example, the values of safe capacities of

- (1) Shallow foundations and of
- (2) Single or double bulbed u/r piles of the above mentioned sizes and depths have been calculated (vide Samples of Calculations in Appendix F) and are tabulated below.

Table 1: Allowable Net Bearing Pressures [q_{na}] and Settlements Expected [s]

Depth (m)	Width (m)	Net allowable bearing pressure (t/m ²) for			Maximum expected settlement (mm)
		Strip footing	Square footing	Raft footing	
1.5	2.0	7.3	12.8	...	75
	3.0	5.1	9.0	...	75
	10.0	...	...	7.2	100
2.0	2.0	8.7	14.8	...	75
	3.0	6.0	10.5	...	75
	10.0	...	...	7.7	100
2.5	2.0	10.2	15.8	...	75
	3.0	6.8	11.9	...	75
	10.0	...	...	8.2	100
3.0	2.0	11.6	17.3	...	75
	3.0	7.6	13.3	...	75
	10.0	...	...	8.8	100
3.5	2.0	12.8	19.3	...	75
	3.0	8.3	14.5	...	75
	10.0	9.2	100
4.0	2.0	14.3	20.0	...	75
	3.0	9.1	16.0	...	75
	10.0	9.7	100
4.5	2.0	15.6	20.0	...	75
	3.0	9.8	17.2	...	75
	10.0	10.1	100

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Table 2. Safe Capacities of U/R Piles [Factor of safety = 2.5]

[Bulb diameter = 2.0 times the shaft diameter]

Pile length below pile Cap (m)	Safe Pile Capacity [tonnes] <i>(subject to checking for slenderness ratio)</i>					
	Stem diameter (m)					
	0.25		0.30		0.40	
	One bulb	Two bulbs	One bulb	Two bulbs	One bulb	Two bulbs
4.0	5.1	6.6	6.8	9.1	11.1	15.1
6.0	8.2	9.9	10.9	13.3	17.3	21.5
8.0	10.6	12.7	13.8	16.8	21.4	26.7

*For a preliminary checking of the slenderness ratio, the modulus of subgrade reaction (k) may be estimated from the following empirical relation given in IS: 2950-1981 (Second Revision) Table 1.
 $k \text{ (kN/m}^3\text{)} = 240 c$, where $c \text{ (kN/m}^2\text{)}$ is the value of cohesion of the soil at the concerned depth.

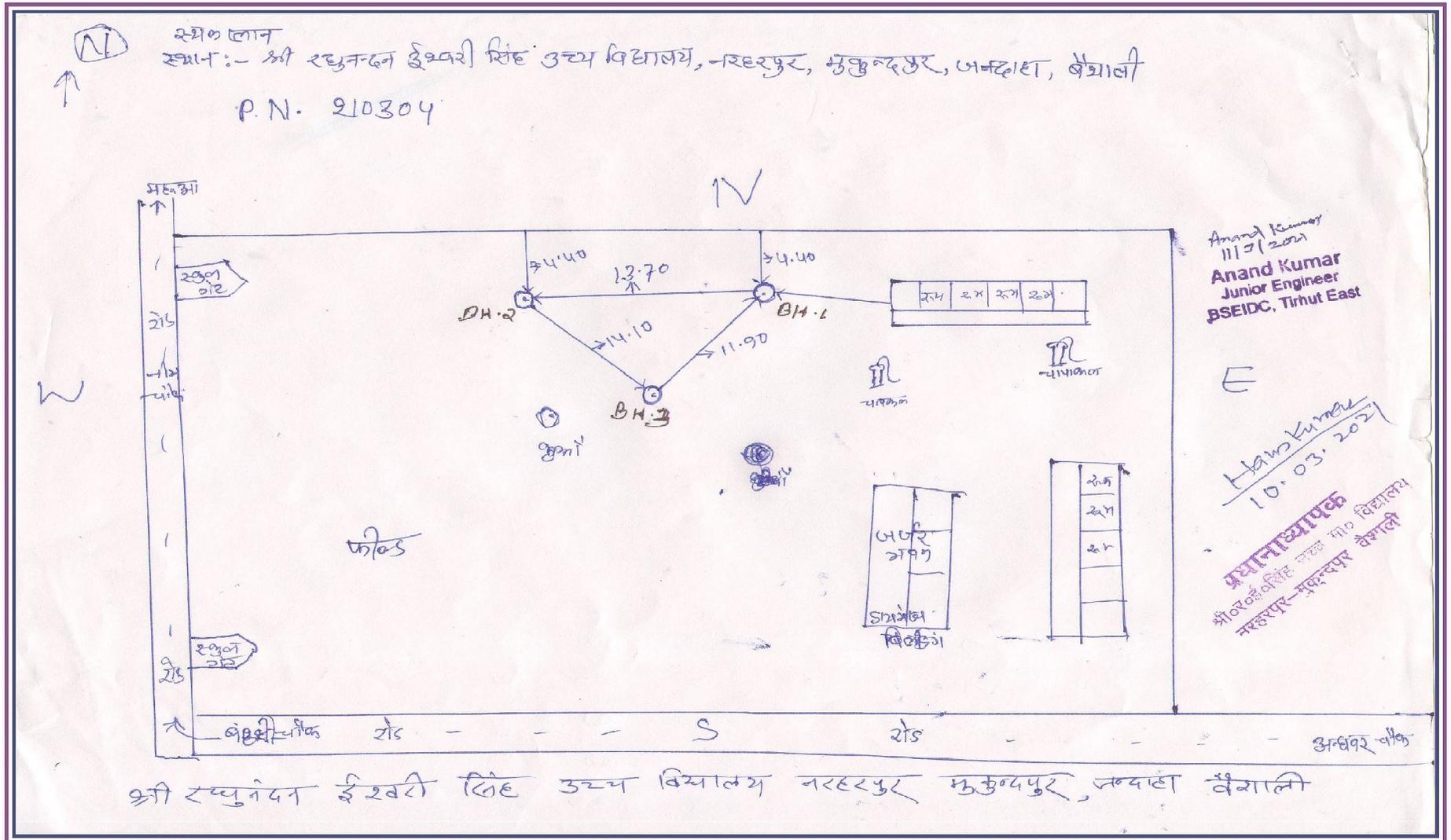
Notes :

1. If a subsoil condition much different from those reported herein is met with during foundation trenching or piling, suitable steps should be taken.
2. If concreting of piles is to be done below water table, DMC and tremie method should be adopted.
3. If u/r piles are provided, care should be taken to ensure proper formation of bulbs.
4. Shallow foundations or pile caps should be isolated from the surrounding expansive soil by layers of compacted local sand.
5. As per the provisions of the IS Code, **an appropriate number of piles must be subjected to routine load tests to check the veracity of the above recommended values of the safe capacities of piles.**

For Bihar Foundation Consultants

(Prof. C.N. Sinha, Dr.-Ing., FIE)
 Chief Consultant.

Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur, Block- Jandaha, Dist. Vaishali



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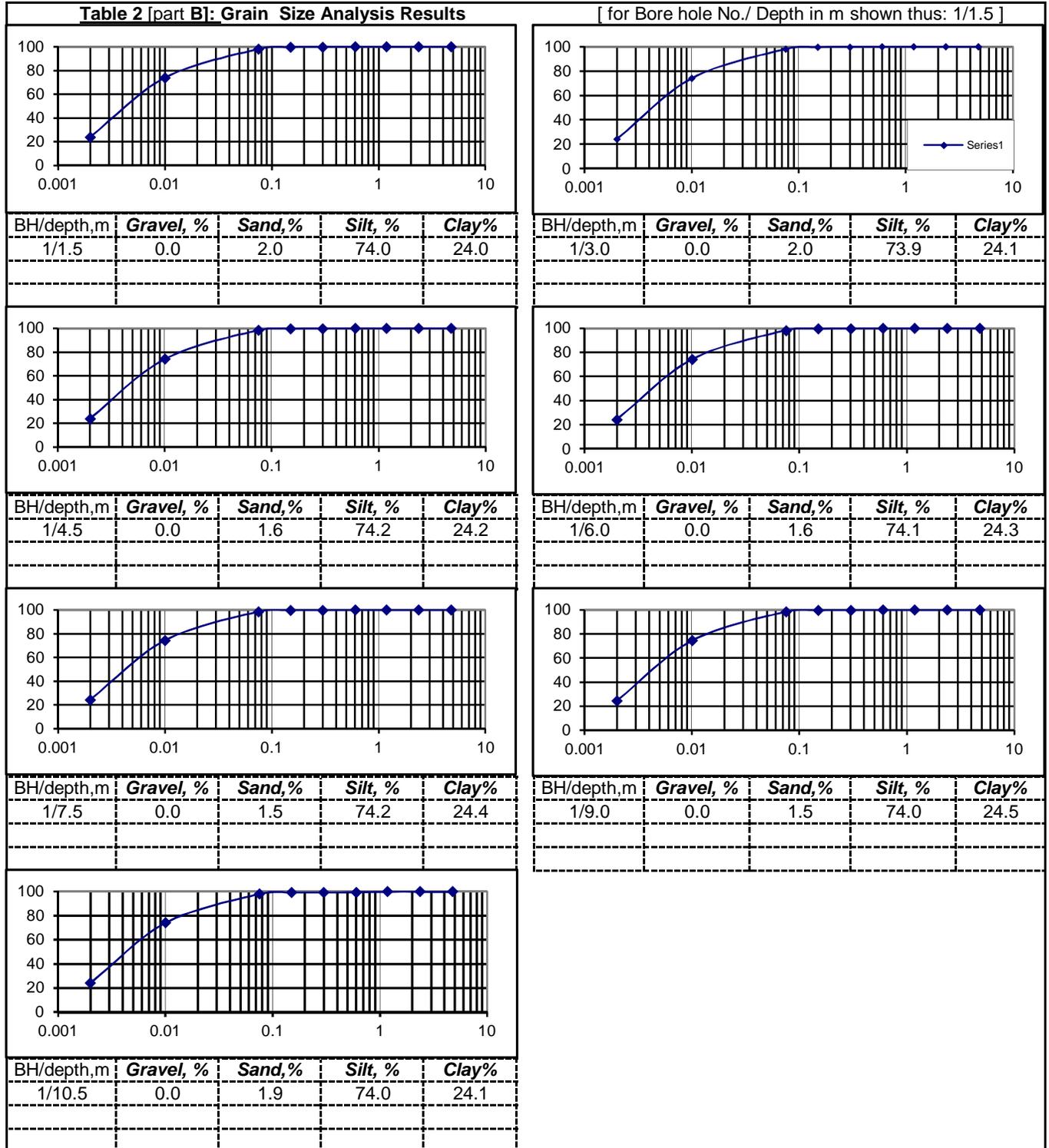
PN - 210304

Appendix - A

NAME OF WORK : Sub soil Investigation for C/O						BORING FINISH DATE : 10.03.2021				WATER TABLE : 4.60 m bgl								
Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur, Block- Jandaha, Dist. Vaishali						BORING METHOD : Rotary												
BORE HOLE NO. : 1		Site Incharge - Ashok Pandey				TERMINATION DEPTH : 10.5 m				RECORD ON : 10.03.2021								
Depth Below GL (m)	Sample No.	SPT 'N' Value observation	Visual Description of Soil with IS Classification	Depth(m)		Thickness (m)	Liquid Limit	Plastic Limit	Plasticity Indix, %	Bulk Density (gm/cm3)	Natural Moisture Content (%)	Specific Gravity	Shear Test			Compression Index (C _c)		
		Obsr.		from	to								Type of Test	Cohesion, c (kg/cm2)	Friction Angle, f°			
1.0			Greyish silty clay, CL	0.0		3.0												
1.5	S1	9						34.0	22.4	11.6	1.99	26.5	2.70		0.44	5.0		
2.5																		
3.0	S2	10			3.0						2.00	26.0	2.70		0.48	5.0	0.140	
4.0			Greyish silty clay, CI	3.0		3.0												
4.5	S3	15						37.3	24.4	12.9	2.01	25.3	2.70		0.63	5.1	0.135	
5.5																		
6.0	S4	14			6.0						2.01	25.3	2.70		0.61	5.1		
7.0			Blackish silty clay, CI	6.0		4.5												
7.5	S5	16						49.9	16.8	33.1	2.02	24.8	2.71		0.65	5.1		
8.5																		
9.0	S6	17									2.02	24.7	2.70		0.67	5.1		
10.0																		
10.5	S7	18			10.5						2.02	24.7	2.70		0.67	5.2		

NAME OF WORK : Sub soil Investigation for C/O						BORING FINISH DATE : 11.03.2021				WATER TABLE : 4.70 m bgl									
Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur, Block- Jandaha, Dist. Vaishali						BORING METHOD : Rotary													
BORE HOLE NO. : 2		Site Incharge - Ashok Pandey				TERMINATION DEPTH : 10.5 m				RECORD ON : 11.03.2021									
Depth Below GL (m)	Sample No.	SPT 'N' Value observation		Visual Description of Soil with IS Classification	Depth(m)		Thickness (m)	Liquid Limit	Plastic Limit	Plasticity Index,%	Bulk Density (gm/cm ³)	Natural Moisture Content (%)	Specific Gravity	Shear Test			Compression Index (C _c)		
		Obsr.			from	to								Type of Test	Cohesion, c (kg/cm ²)	Friction Angle, f°			
1.0				Greyish silty clay, CL	0.0		9.0												
1.5	S1	11										2.01	25.4	2.70		0.51	5.1		
2.5																			
3.0	S2	14								32.8	22.2	10.6	2.01	25.3	2.70		0.61	5.1	0.136
4.0																			
4.5	S3	13											2.01	25.4	2.70		0.59	5.1	0.137
5.5																			
6.0	S4	16								32.3	22.6	9.7	2.02	24.7	2.70		0.65	5.1	
7.0																			
7.5	S5	18											2.02	24.7	2.70		0.69	5.2	
8.5																			
9.0	S6	19						9.0		31.7	22.3	9.4	2.02	24.6	2.69		0.71	5.2	
10.0				Blackish silty clay, CI	9.0		1.5												
10.5	S7	18				10.5							2.02	24.7	2.70		0.69	5.2	

NAME OF WORK : Sub soil Investigation for C/O						BORING FINISH DATE : 11.03.2021				WATER TABLE : 4.60 m bgl										
Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur, Block- Jandaha, Dist. Vaishali						BORING METHOD : Rotary														
BORE HOLE NO. : 3		Site Incharge - Ashok Pandey				TERMINATION DEPTH : 10.5 m				RECORD ON : 11.03.2021										
Depth Below GL (m)	Sample No.	SPT 'N' Value observation	Visual Description of Soil with IS Classification		Depth(m)		Thickness (m)	Liquid Limit	Plastic Limit	Plasticity Indix, %	Bulk Density (gm/cm3)	Natural Moisture Content (%)	Specific Gravity	Shear Test			Compression Index (C _c)			
		Obsr.	from	to	Type of Test	Cohesion, c (kg/cm2)								Friction Angle, F ^o						
1.0			Greyish silty clay, CL		0.0		10.5													
1.5	S1	13								33.6	22.8	10.8	2.01	25.4	2.70		0.59	5.1		
2.5																				
3.0	S2	14											2.01	25.3	2.70		0.61	5.1		
4.0																				
4.5	S3	16									34.9	23.6	11.3	2.02	24.7	2.70		0.65	5.1	0.134
5.5																				
6.0	S4	16											2.02	24.7	2.70		0.65	5.1		
7.0																				
7.5	S5	19											2.02	24.6	2.69		0.71	5.2		
8.5																				
9.0	S6	17											2.02	24.7	2.70		0.67	5.1		
10.0																				
10.5	S7	19				10.5		31.4	22.3	9.1										



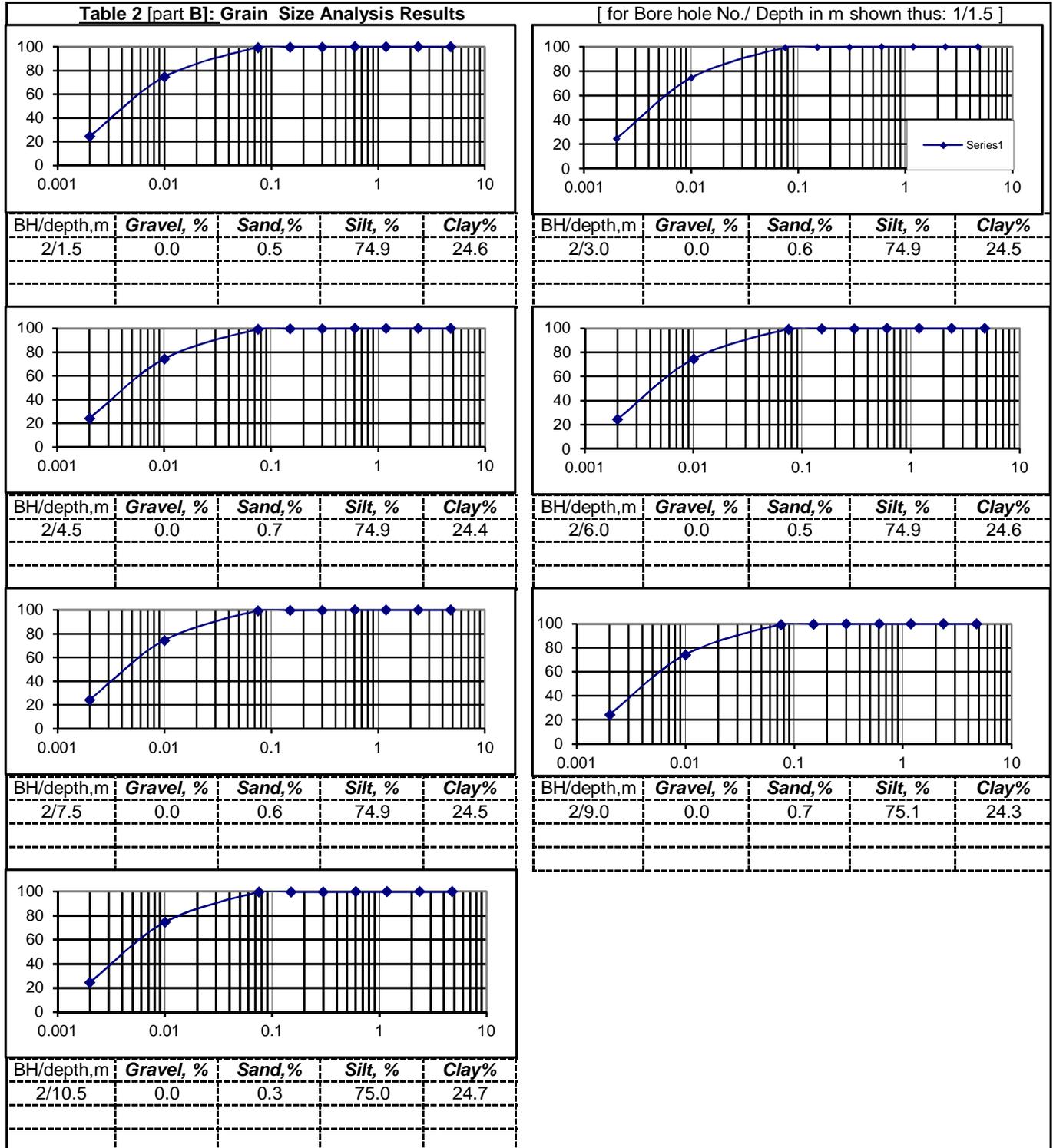
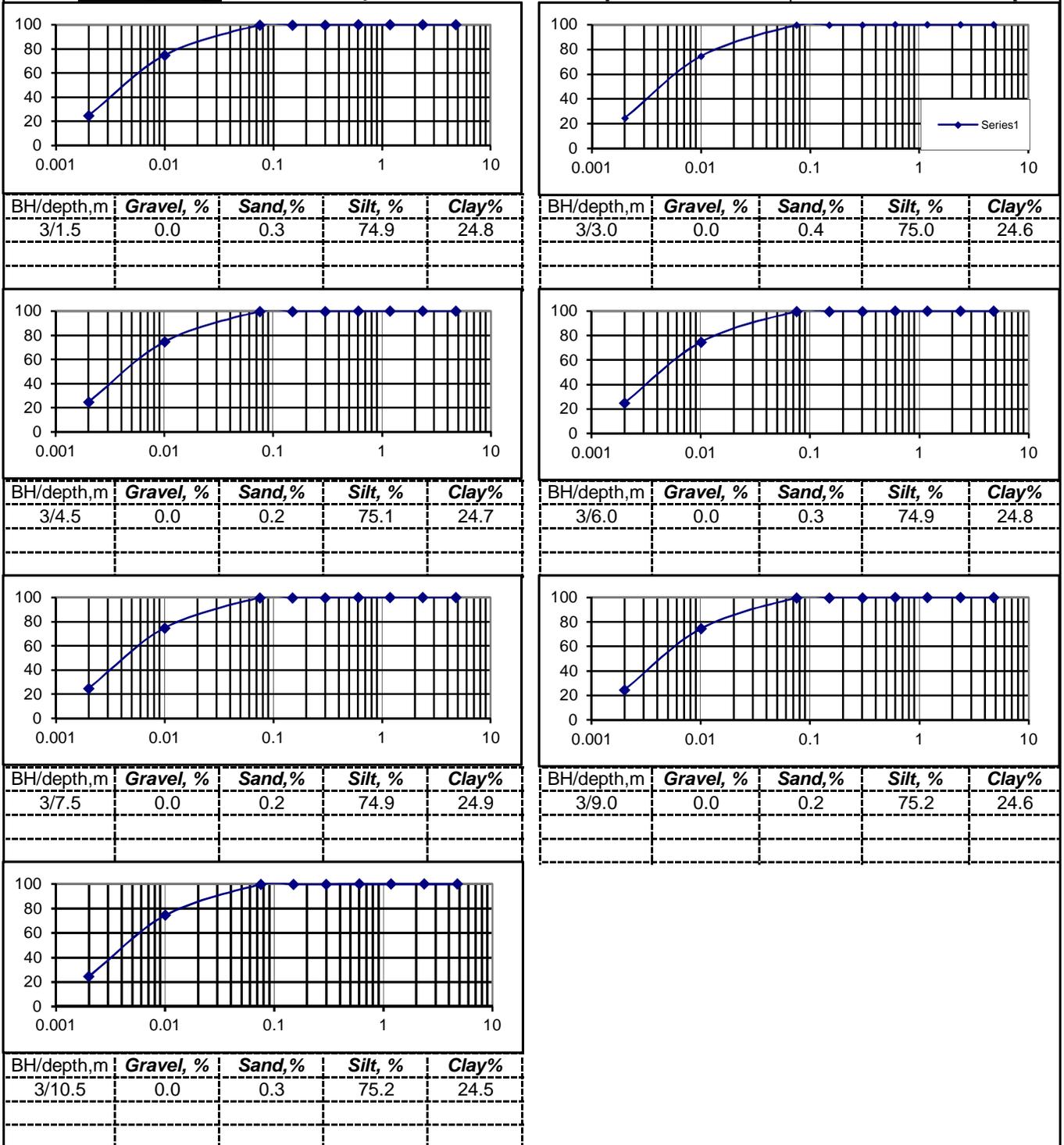
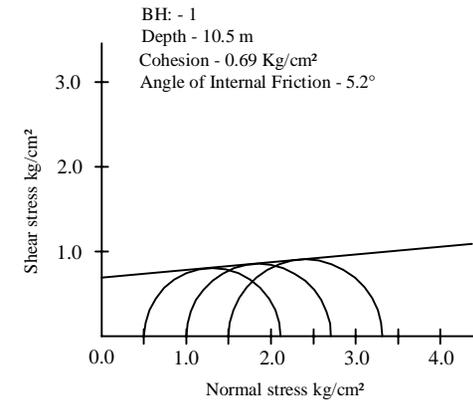
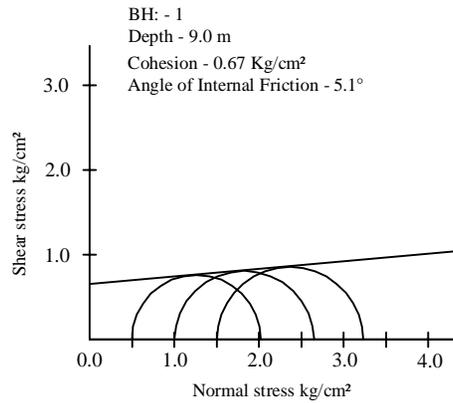
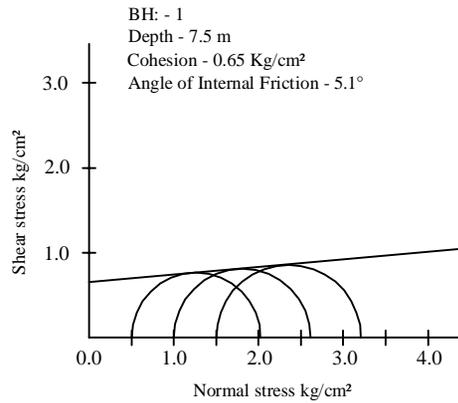
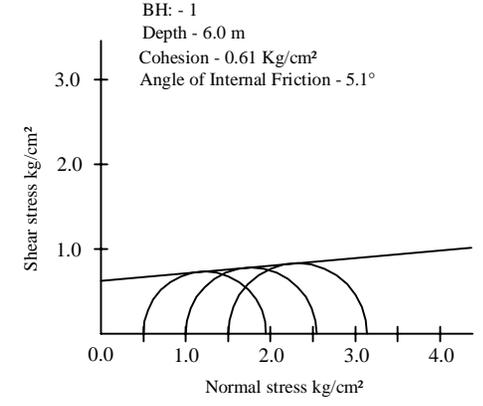
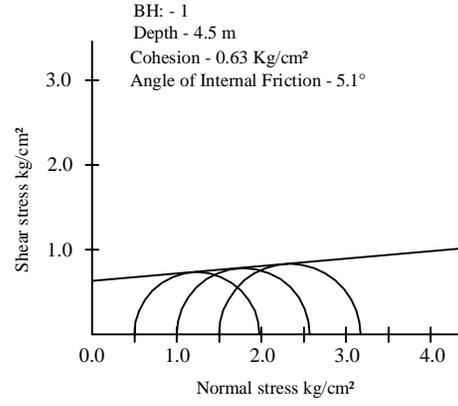
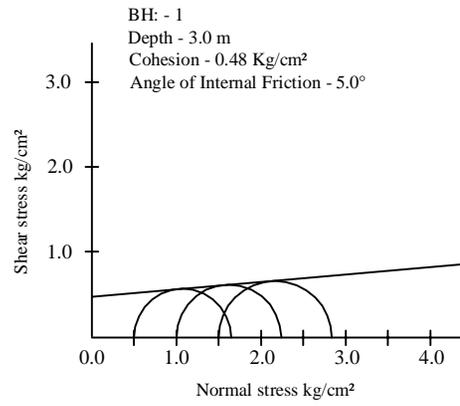
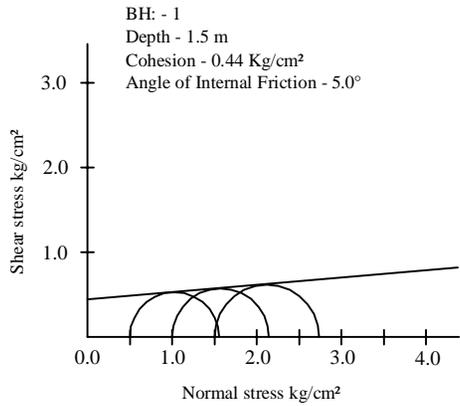


Table 2 [part B]: Grain Size Analysis Results

[for Bore hole No./ Depth in m shown thus: 1/1.5]



TRIAXIAL / DIRECT SHEAR TEST PLOTS



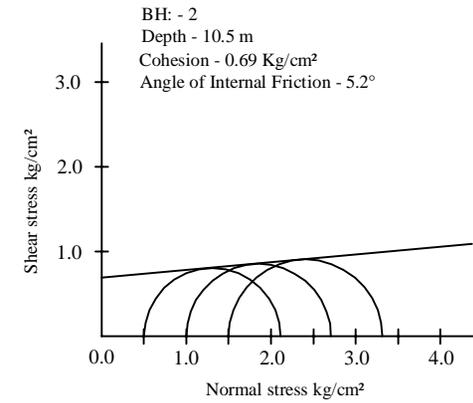
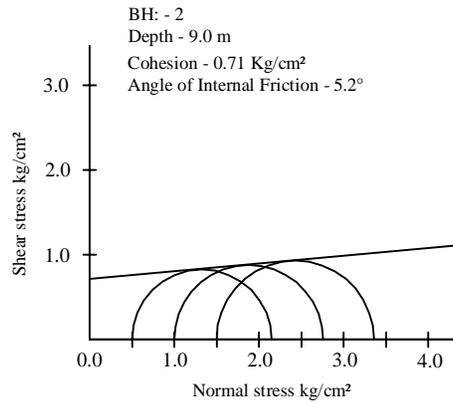
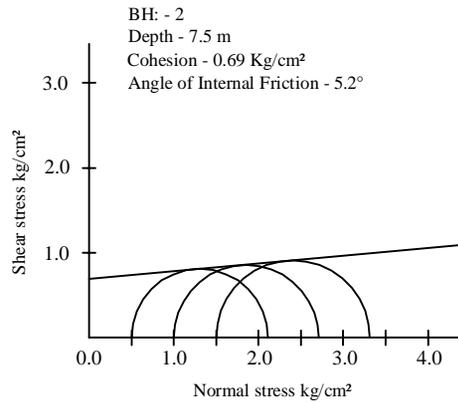
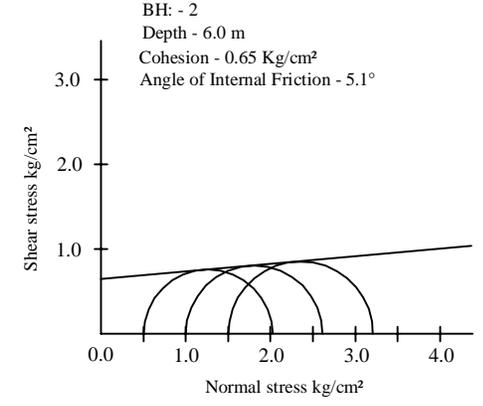
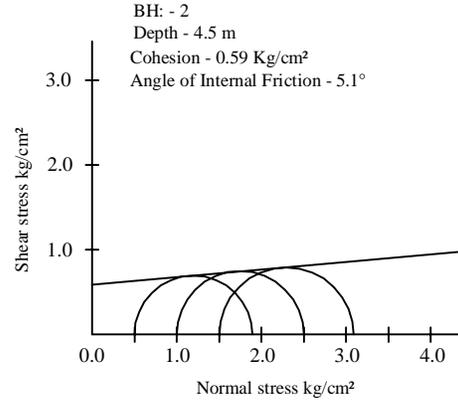
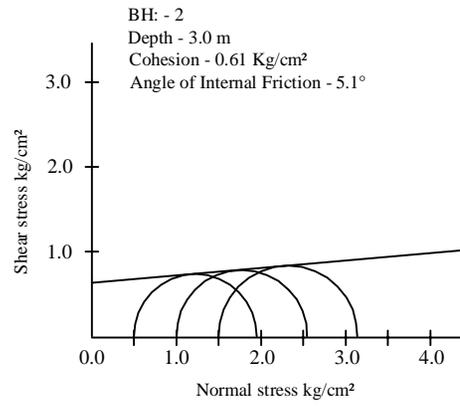
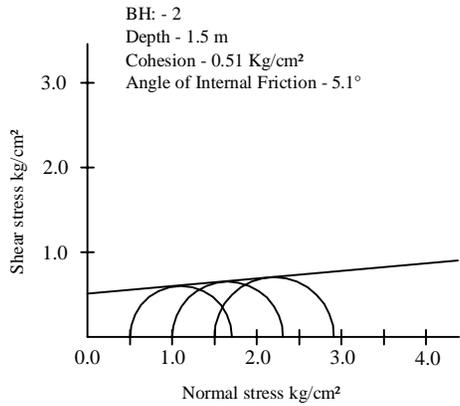
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TRIAXIAL / DIRECT SHEAR TEST PLOTS



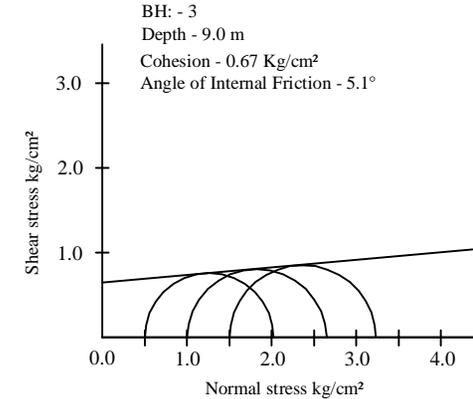
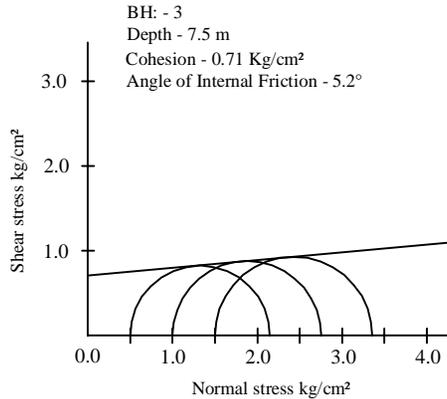
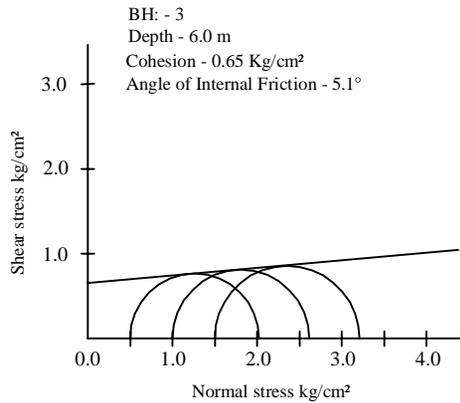
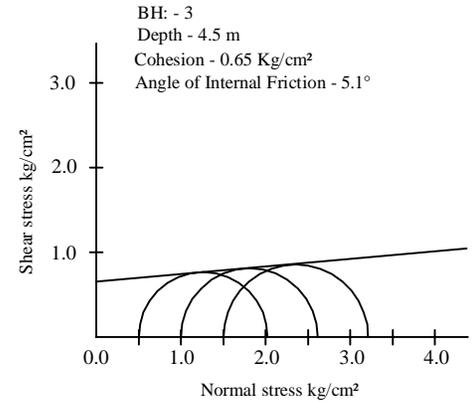
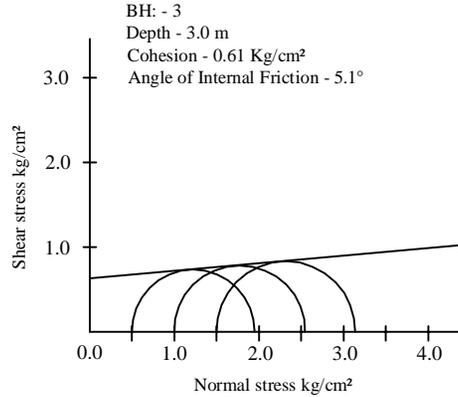
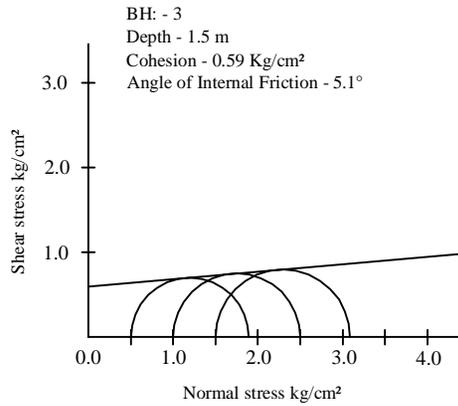
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TRIAXIAL / DIRECT SHEAR TEST PLOTS



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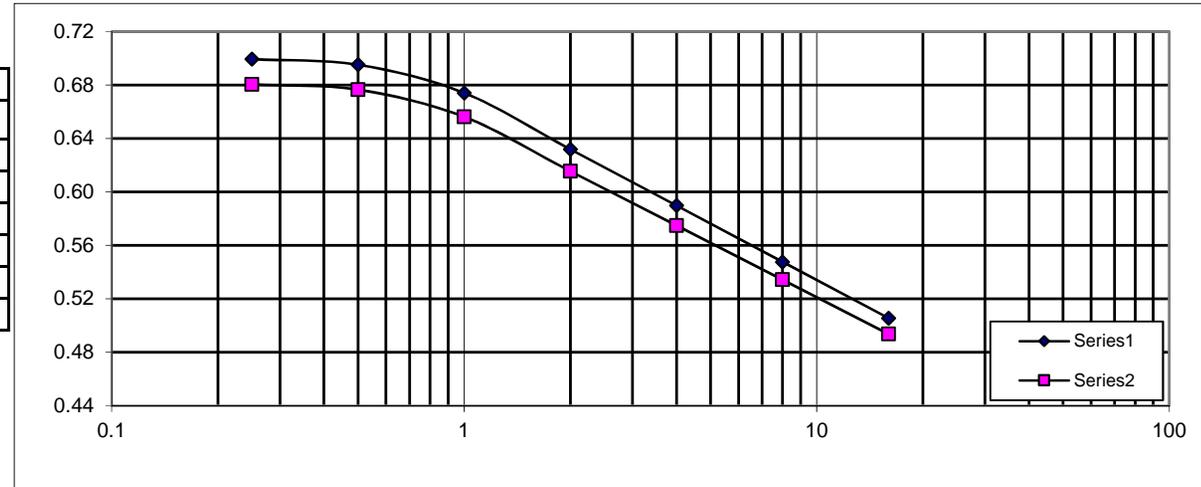
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Fig. e - log p Plots from Consolidation Tests

X-axis : Pressure, p (kg/cm²) on log scale. **Y-axis :** Void ratio, e

BH No./	Initial V.R.		
Depth (m)	C _c	e ₀	CURVE
1/3.0	0.140	0.7020	Series1
1/4.5	0.135	0.6831	Series2



BH No./	Initial V.R.		
Depth (m)	C _c	e ₀	CURVE
2/3.0	0.136	0.6831	Series1

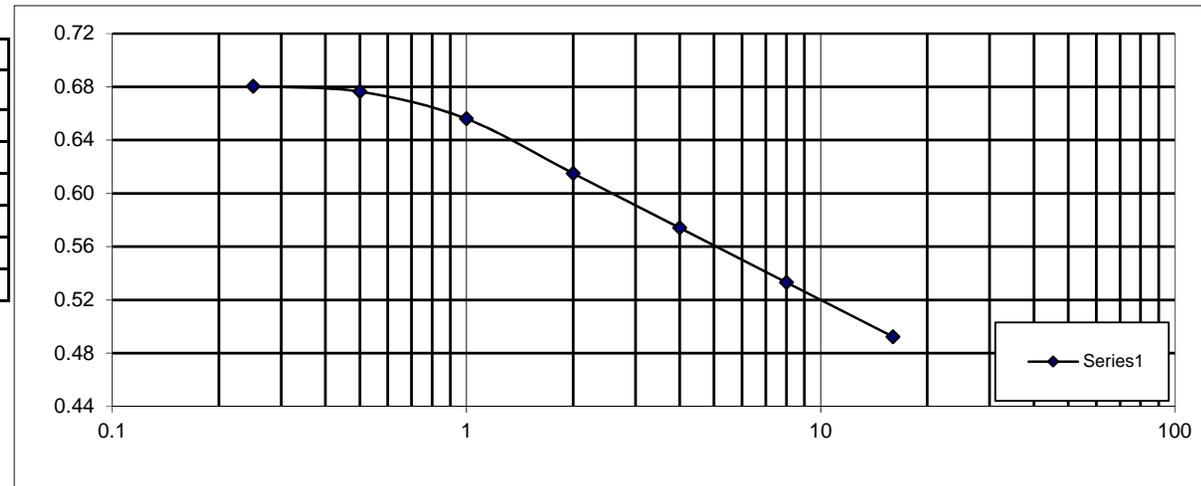
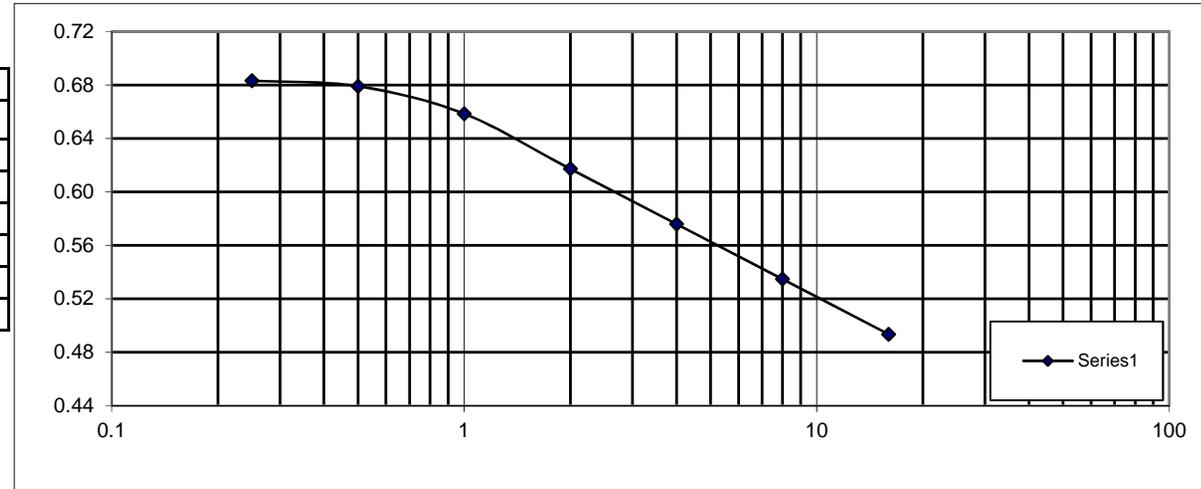


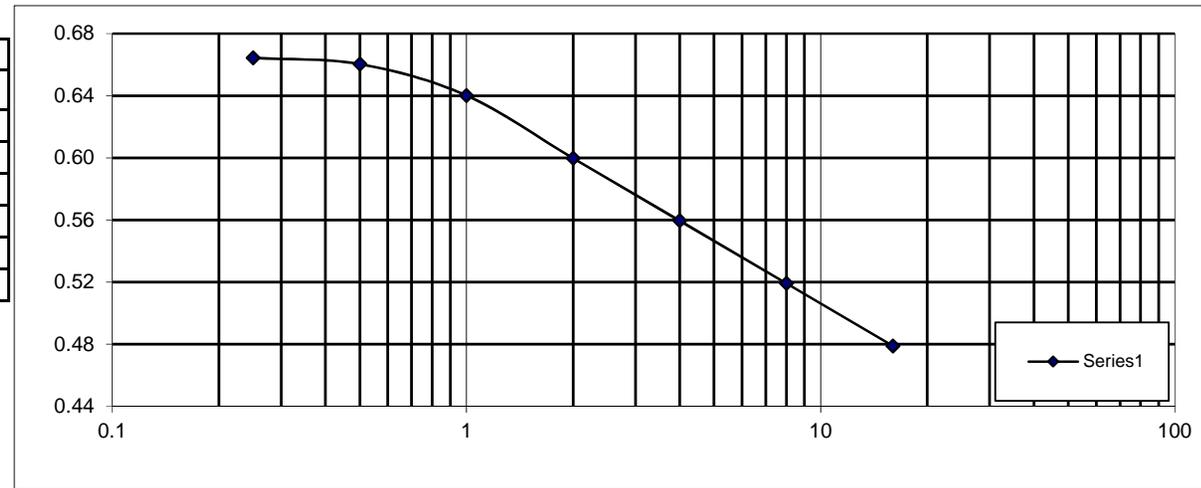
Fig. e - log p Plots from Consolidation Tests

X-axis : Pressure, p (kg/cm^2) on log scale. **Y-axis :** Void ratio, e

BH No./	Initial V.R.		
Depth (m)	C_c	e_0	CURVE
2/4.5	0.137	0.6858	Series1



BH No./	Initial V.R.		
Depth (m)	C_c	e_0	CURVE
3/4.5	0.134	0.6669	Series1



**Report on Sub Soil Investigations for the proposed
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Block- Jandaha, Dist. Vaishali**

SAMPLE CALCULATION OF BEARING CAPACITY OF SHALLOW FOUNDATION

The determination of the **net safe bearing capacity, q_{ns}** , is done on the basis of the shear failure criterion after dividing the value of the **net ultimate bearing capacity q_{nf}** , calculated as described below, by a suitable factor of safety. The **net soil pressure, q_s** , for a given permissible settlement is then calculated as explained in the next section. The lower of the two values, **q_{ns}** and **q_s** , thus determined is taken as the **allowable bearing capacity** of the soil.

1. Shear Failure Criterion :

The **net ultimate bearing capacity q_{nf}** (t/m^2) of a shallow foundation of breadth B (m) and depth D (m) is given as per IS:6403-1981 (Sec.5.1.2) by the following equation :

$$q_{nf} = c N_c s_c d_c I_c + q (N_q - 1) s_q d_q I_q + 0.5 \gamma B N_\gamma s_\gamma d_\gamma I_\gamma w$$

where c = cohesion (t/m^2)
 γ = unit weight of subsoil (t/m^3) [submerged unit weight, γ' , is taken where so applicable]
 q = effective surcharge (t/m^2) = γD
 N_c, N_γ, N_q = bearing capacity factors, which are functions of ϕ , the angle of internal friction of the soil.
 s_c, s_q, s_γ = shape factors
 d_c, d_q, d_γ = depth factors
 I_c, I_q, I_γ = inclination factors
 w = water table factor (= 0.5 to 1.0) depending on the depth, D_w of water table [vide Table below].

} related to cohesion, surcharge and density of subsoil respectively

The bearing capacity factors (N 's) are functions of ϕ , the angle of internal friction of the soil. The values of these factors are found for general shear failure by referring to standard tables. If subsoil conditions are such as to lead to local shear failure, the values of these factors are found for a reduced value of angle of internal friction (ϕ') given by the equation : $\tan \phi' = 0.67 \tan \phi$. The value of cohesion is also reduced to $c' = 0.67 c$.

The values of the other factors in the above equation for usual conditions are as tabulated below :

$s_c =$	1.3	1+0.2B/L	1	$d_c =$	1 + 0.2 (Nf) ^{0.5} D/ B	D_w at	G.L.	Fou'dn.Level
$s_q =$	1.2	1+0.2B/L	1	$d_q = d_\gamma =$	1	$w =$	0.5	1
$s_\gamma =$	0.8/0.6	1-0.4B/L	1	$d_q = d_\gamma =$	1 + 0.1(Nf) ^{0.5} D/ B			
FOR	sq//O	Rect.	STRIP	$I_c, I_q, I_\gamma =$	1 for vertical load		Interpolation	between
							these values	is linear.

In the present case, the representative values of cohesion © and angle of internal friction (ϕ) may be obtained from the soil data given earlier. Full submergence of the soil has been assumed. The **safe bearing capacity, q_{ns}** has been obtained by dividing **q_{nf}** by a **safety factor, 3**.

One example of calculation of safe bearing capacity for a certain shape, depth and width of a footing is given in **Table A** on the next page. The net safe bearing capacity for the footing is entered in the last column of Table A. Calculations for other depths and widths of footings are done similarly.

The value of net safe bearing capacity (q_{ns}) calculated for each set of values of B and D is used for calculating the consolidation settlement s as explained in Sec. 2 below.

2. Settlement Criterion for Foundation on cohesive soil.

As per IS:8009(Part I)-1976, Sec. 9.2.2.2, the settlement s (in mm) is given by the equation :

$$s = [1000 H C_c \log (1 + \Delta p / p_o)] / (1 + e_o) \lambda$$

where H = thickness (in m) of the compressible layer
 C_c = compression index of the soil
 e_o = initial void ratio at mid-height of compressible soil layer = its m/c (m) x sp. Gravity
 p_o = initial effective pressure at mid-height of the layer (t/m^2)
 Δp = pressure increment at the mid-height of the layer due to the foundation (t/m^2).
 λ = correction factor

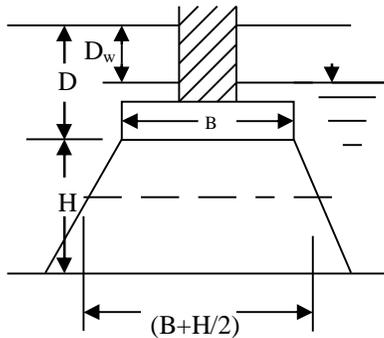
**Report on Sub Soil Investigations for the proposed
Raghunandan Singh Ishwariy High School at Narharpur, Mukunpur,
Block- Jandaha, Dist. Vaishali**

If there are different layers with different compression indices and void ratios, s is calculated for each one of these and then added together to get the settlement.

The pressure increment at any plane due to the footing load may be calculated by assuming the dispersion of load at a slope of 1 horizontal to 2 vertical. Hence the load applied over a width B of a foundation (vide the Fig. below) is spread at a depth $H/2$ below it over a width $(B + H/2)$.

A correction factor $\lambda = 0.80$ is used as per IS Code to find the corrected settlement. If this value of corrected s is within the permissible limit specified in the Code, the corresponding value of q_{ns} is also the net allowable bearing capacity q_{na} . If not, trials give the desired value of q_{na} . One example of this settlement analysis is given below the **Table B** in Sec. 3.

$$\text{If } D_w > (D + 1.5 B/2), p_o = g (D + 1.5 B/2) t/m^2, \text{ otherwise, } p_o = g D_w + (g - 1) (D - D_w + H/2) t/m^2$$



D_w = depth of water table below ground level .
 D = depth of foundation
 B = breadth of foundation
 $H = 1.5 \times B$ = thickness of compressible soil layer in the zone of influence of the loaded foundation.
 Breadth of the influence zone at the mid-plane of the compressible layer, of thickness $H = (B + H/2)$.
 In case of a rectangular or square footing a similar dispersion of load takes place along the other side of footing.

3. SAMPLE CALCULATION

Table A Calculation of Net Safe Bearing Capacity

Shape of Foundation:		F.S.=	$\gamma, t/m^3 =$		$c =$	$\phi =$	$N_c =$	$N_q =$	$N_\gamma =$	
STRIP		3	1.99		4.4	5.0	6.49	1.57	0.45	
D [m]	B [m]	dc	dq = dg	c	q	I Term	II Term	III Term	qnf	qnf /F
1.5	2	1.16	1	4.4	1.493	33.23	0.85	0.45	34.53	11.51

The net safe bearing capacity for the footing is to be seen in the last column of the above Table A. This value is checked for settlement as shown below.

Table B Calculation of Settlement

m = 0.265		$G_s = 2.7$		eo = 0.7155		Cc = 0.140		Dw = 0	
Depth	Width	qnf /F	po	H	Dp	log (1+ Dp/po)	s [mm]	λs mm	Remarks
D [m]	B [m]	t/m ²	t/m ²	m	t/m ²		mm	mm	
1.5	2.0	11.5	3.0	3.0	6.6	0.5	124.2	99.2	Not OK
1.5	2.0	7.3	3.0	3.0	4.2	0.4	93.3	74.6	OK

Hence the **net allowable bearing pressure** for a strip footing of width 2.0 m and depth 1.5 m below ground level will be 7.3 t/m².

The calculations for footings of other sizes and depths are done similarly

**Raghunandan Singh Ishwariy High School at Narharpur,
Mukunpur, Block- Jandaha, Dist. Vaishali**



**बिहार राज्य शैक्षणिक आधारभूत संरचना विकास निगम लिमिटेड
BIHAR STATE EDUCATIONAL INFRASTRUCTURE DEVELOPMENT CORPORATION LTD.**

(A Govt. of Bihar Undertaking)
ISO 9001:14001; OHSAS 18001

Shiksha Bhawan, Bihar Rashtrabhasha Parishad Campus, Acharya Shivpujan Sahay Path, Saidpur, Patna - 800 004

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E-mail : bseidc@gmail.com • Website : http://www.bseidc.in • CIN : U80301BR2010SGC015859

पत्रांक:- BSEIDC/TECH/1960/2018 — 1369

दिनांक.....02.03.2021

प्रेषक,

मुख्य अभियंता
BSEIDC Ltd, Patna

सेवा में,

बिहार फाउंडेशन कंसल्टेन्ट
गंगा दर्शन अपार्टमेंट, फ्लैट न०-403
सदाकत आश्रम के पश्चिम,
पटना- 800010

विषय:- निर्माण स्थल के मिट्टी जाँच हेतु।

प्रसंग:- भवन निर्माण विभाग का पत्र संख्या-2030, दिनांक-21.04.2006

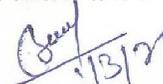
महाशय,

बिहार राज्य शैक्षणिक आधारभूत संरचना विकास निगम लि० के अधीन "जहानाबाद, अरवल, नवादा, रोहतास, कैमुर, मुंगेर, सुपौल, वैशाली, सारण, भागलपुर और दरभंगा " में विभिन्न +2 स्तरीय विद्यालय भवनों का निर्माण कार्य प्रस्तावित है। इन भवनों के निर्माण स्थलों पर मिट्टी की जाँच कराना है, जिसकी सूची (क्रम सं०-1 से 23 एवं 25 से 26 कुल 25)संलग्न है।

अतः अनुरोध है कि उपरोक्त स्थलों का तीन-तीन बिन्दुओं पर 10.5 मीटर गहराई तक प्रत्येक 1.5 मीटर गहराई में मिट्टी का नमूना संग्रह कर प्रतिवेदन समर्पित करें। साथ ही विहित प्रपत्र में मिट्टी के भार वहन क्षमता की गणना (Isolated एवं Pile Foundation के लिए अलग-अलग) भी Hard Copy एवं Soft Copy में समर्पित करें।

इस जाँच कार्य को इस तरह संपादित करें कि ट्रान्सपोर्टेशन एवं मोबलाईजेशन खर्च कम से कम हो। कार्य स्थलों पर सम्पर्क व्यक्ति, कार्य से संबंधित प्राचार्य/ संबंधित कार्यपालक अभियंता रहेंगे।

विश्वासभाजन


मुख्य अभियंता

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PN - 210304

Appendix - G1

**Raghunandan Singh Ishwariy High School at Narharpur,
Mukunpur, Block- Jandaha, Dist. Vaishali**

Bihar State Educational Infrastrucure Development Corporation Ltd.

List of Schools for Soil Test

Sl.No.	District	Block	Name of Vidyalay	Letter no. & Date of A/A	Name & Mobile no of Executive Engineer	
1	Jehanabad	Ratni Faridpur	High School, Rakasiya Dyaichak	11/भवन 08-02/2018-176 dt. 26.02.2020	Sri Binod Ranjan, 9661863636	
2	Arwal	Kurtha	Govt. High School, Kurtha		Sri Binod Ranjan, 9661863636	
3	Nawada	Hisua	High School, Pacharha		Sri Binod Ranjan, 9661863636	
4	Rohtas	Chenari	Gangotri Project High School, Chenari	11/वि.-11-48/2018 - 207 dt. 18.03.2020	Sri Ranvijay Kumar Sinha, 9934961293	
5	Kaimur	Durgawati	High School, Dhanechha	11/भवन 08-01/2017-217 dt. 20.03.2020	Sri Ranvijay Kumar Sinha, 9934961293	
6	Kaimur	Durgawati	Shatruharan High School, Kalyanpur		Sri Ranvijay Kumar Sinha, 9934961293	
7	Kaimur	Ramgarh	High School, Ramgarh		Sri Ranvijay Kumar Sinha, 9934961293	
8	Kaimur	Ramgarh	High School Rajendranagar, Deohallya		Sri Ranvijay Kumar Sinha, 9934961293	
9	Kaimur	Nuaon	Ramayan singh High School, Banka Bahuaara		Sri Ranvijay Kumar Sinha, 9934961293	
10	Kaimur	Nuaon	Sarvodya High School, Gurlyan		Sri Ranvijay Kumar Sinha, 9934961293	
11	Supaul	Chhatapur	Govt. Lalit Narayan Vidya Mandir, Balua Bazar		Sri Setish Prasad, 9523226037	
12	Munger	Dharhara	Bapu Peaveshika High School, Sundarpur		11/वि.-11-05/2019 - 219 dt. 20.03.2020 and 11/वि.-11-05/2019 -118 dt. 18.02.2021	Sri Surendra Kumar, 7903912972
13	Munger	Khargpur	Gandhi Memorial High School, Muzaffarganj			Sri Surendra Kumar, 7903912972
14	Munger	Khargpur	Inter High School, Lohachi			Sri Surendra Kumar, 7903912972
15	Munger	Jamalpur	Sardar Patel High School, Hanspuri	Sri Surendra Kumar, 7903912972		

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**Raghunandan Singh Ishwariy High School at Narharpur,
Mukunpur, Block- Jandaha, Dist. Vaishali**

Sl.No.	District	Block	Name of Vidyalay	Letter no. & Date of A/A	Name & Mobile no of Executive Engineer
16	Vaishali	Jandaha	Raghunandan Singh Ishwariy High School, Narharpur Mukunpur	11/भवन 08- 01/2019-49 dt. 15.09.2020	Sri Rajeev Ranjan, 9234271071
17	Vaishali	Jandaha	High School, Panapur Bateshwarnath		Sri Rajeev Ranjan, 9234271071
18	Vaishali	Mahnar	High School, Basudevpur Chandel		Sri Rajeev Ranjan, 9234271071
19	Vaishali	Mahnar	High School, Balak		Sri Rajeev Ranjan, 9234271071 ✓
20	Vaishali	Mahnar	High School, Gorigama		Sri Rajeev Ranjan, 9234271071
21	Saran	Marhaura	Islamia High School - cum - Inter College, Olhanpur	11/विविध 11- 05/2019-50 dt. 15.09.2020	Sri Anil Kumar, 9543014772
22	Jehanabad	Ghoshi	High School, Bairamsarai	11/भवन 08-01/2018 अंश-क - 53 dt. 21.09.2020	Sri Binod Ranjan, 9661863636
23	Bhagalpur	Narayanpur	L.N.M. +2 Balika High School, Bhramarpur	11/भवन 08-01/2020 - 56 dt. 23.09.2020	Sri Sanjeev Kumar, 9122680145
24	Patna	Phulwari Sharif	Upgraded Uchch Maadhyamik vidyalay, Gannipur, Sakraicha	11/यो 11-01/2019- 55 dt. 22.09.2020	Sri Sunil Kr. Sinha, 8544126916
25	Darbhanga	Hanuman Nagar	(+2) Devnarayan High School, Panchobh	11/भवन 08-01/2018-57 dt. 23.09.2020	Sri Anil Kr. Singh, 9801494702
26	Darbhanga	Darbhanga	(+2) Onkar High School, Supaul Bazar	11/वि.-11-01/2020 - 86 dt. 09.12.2020	Sri Anil Kr. Singh, 9801494702

Shailendra
01/03/2021
Junior Engineer

[Signature]
11/03/2021
Assistant Engineer

[Signature]
01-03-2021
Executive Engineer

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