



## NORTH EASTERN RAILWAY

**FINAL LOCATION SURVEY FOR NEW B.G RAILWAY LINE  
PROJECTS (770.00 KM.) AND FINAL LOCATION SURVEY  
FOR CONSTRUCTION OF DOUBLING/THIRD LINE/ 3RD &  
4TH LINE (252.00 KM.) OF NORTH EASTERN RAILWAY  
(TOTAL 1022.00 KM)**

**SECTION: CHITAUNI-MADHUBANI**

Chainage	Br. No	Type of Crossing	Type of Bridge	Borehole No.	Easting (m)	Northing (m)	Reduced Level (m)
29006.468	48	ROAD	RUB	BH-01	211929	2988699	104.97

**SUBMITTED BY:**

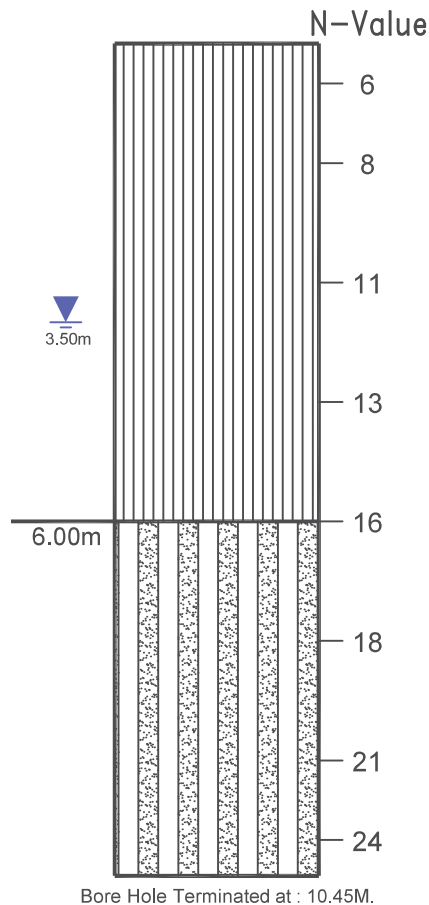


# BOREHOLE PROFILE

SECTION: CHITAUNI - MADHUBANI

IR BRIDGE NO.- BR-48

BOREHOLE NO.: BH- 01



## LEGENDS



Sandy Silt (ML)



Silty Sand (SM)



Ground Water Table



Project: FINAL LOCATION SURVEY FOR NEW B.G RAILWAY LINE PROJECTS (770.00 KM.) AND FINAL LOCATION SURVEY FOR CONSTRUCTION OF DOUBLING/THIRD LINE/ 3RD & 4TH LINE (252.00 KM.) OF NORTH EASTERN RAILWAY (TOTAL 1022.00 KM)



### CALCULATIONS FOR CORRECTED SPT (N) VALUES

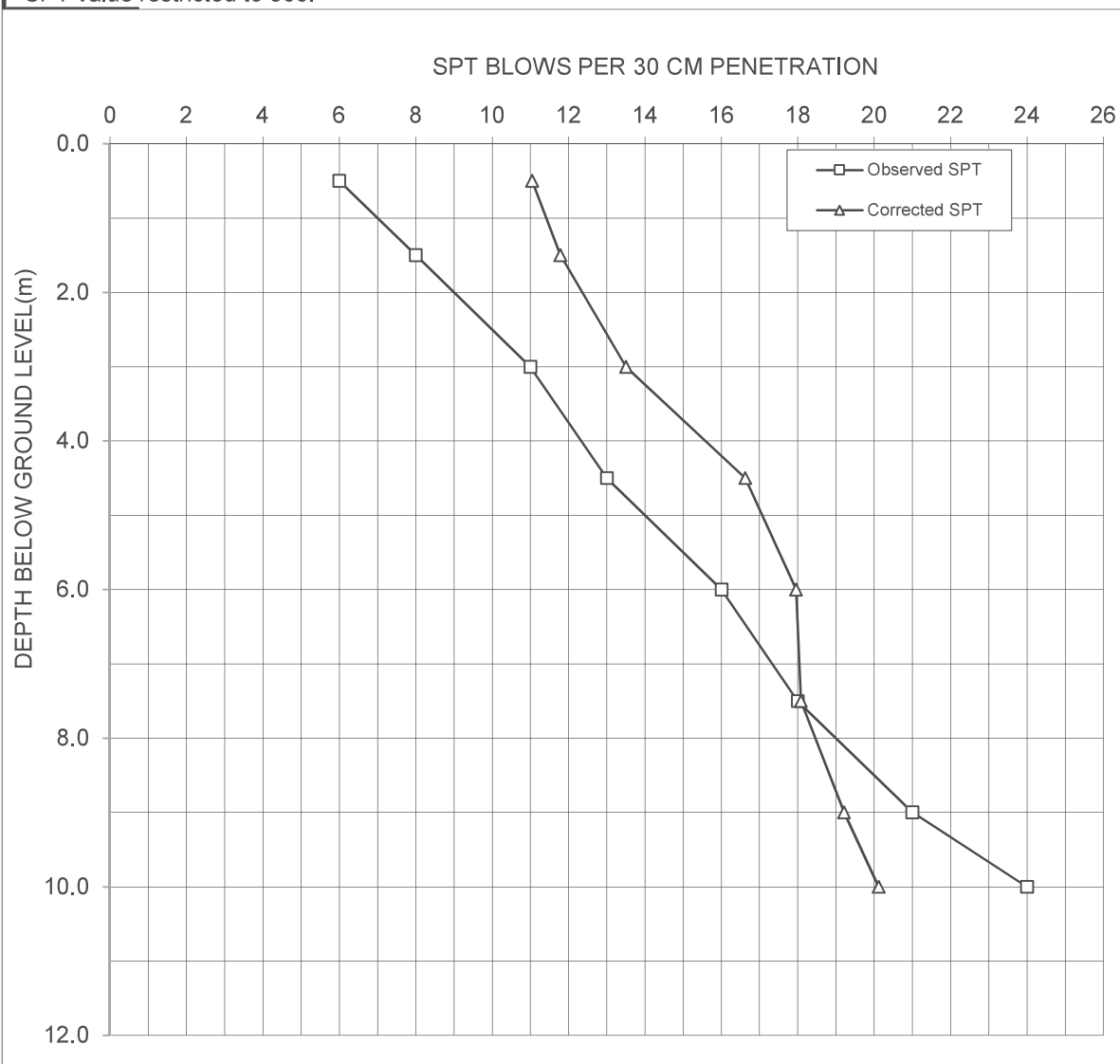
Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BOREHOLE NO. BH- 01

WATER TABLE IN METER:- 3.50 m

DEPTH OF SAMPLE	TYPE OF SOIL	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N'')
0.50	Non Plastic	6	11	11
1.50	Non Plastic	8	12	12
3.00	Non Plastic	11	14	14
4.50	Non Plastic	13	18	17
6.00	Non Plastic	16	21	18
7.50	Non Plastic	18	21	18
9.00	Non Plastic	21	23	19
10.00	Non Plastic	24	25	20

\* SPT value restricted to 300.



### Typical Computation of Liquefaction Potential as per IRC:SP: 114 / IS: 1893

Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO: 48

BOREHOLE NO.

BH-01

SECTION: CHITAUNI-MADHUBANI

Water table assumed for Calculation: 0.00 m

Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density ( $t/m^3$ )	Submerged Density ( $t/m^3$ )	Fine Content ( % )	Earthquake Zone	Peak ground acceleration $a_{max}/g$	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure ( $\sigma_o$ ), $t/m^2$	Effective overburden ( $\sigma_o$ ), $t/m^2$	Cyclic Stress ratio (CSR)	$C_N$	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected ( $N_1$ ) <sub>60</sub>	$\alpha$	$\beta$	( $N_1$ ) <sub>60cs</sub>	$CRR_M = 7.5$	Relative Density, Dr%	f	$K_o$	$K_u$	MSF	CRR	FOS	Conclusion
0.50	ML	6	1.58	0.58	62	IV	0.24	7.00	1.00	0.79	0.29	0.42	1.70	1.33	1.000	1.05	0.75	1.00	10.68	5.00	1.20	17.82	0.19	NA	NA	1.00	1.00	1.19	0.23	>1.0	Non Liquefiable
1.50	ML	8	1.58	0.58	62	IV	0.24	7.00	0.99	2.37	0.87	0.42	1.70	1.33	1.000	1.05	0.75	1.00	14.24	5.00	1.20	22.09	0.24	NA	NA	1.00	1.00	1.19	0.29	>1.0	Non Liquefiable
3.00	ML	11	1.72	0.72	67	IV	0.24	7.00	0.98	4.74	1.74	0.42	1.70	1.33	1.000	1.05	0.85	1.00	22.20	5.00	1.20	31.64	NA	NA	NA	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
4.50	ML	13	1.72	0.72	67	IV	0.24	7.00	0.97	7.32	2.82	0.39	1.70	1.33	1.000	1.05	0.95	1.00	29.32	5.00	1.20	40.18	NA	NA	NA	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
6.00	SM	16	2.01	1.01	28	IV	0.24	7.00	0.95	9.90	3.90	0.38	1.60	1.33	1.000	1.05	0.95	1.00	33.99	4.56	1.14	43.25	NA	68.99	0.66	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
7.50	SM	18	2.01	1.01	28	IV	0.24	7.00	0.94	12.92	5.42	0.35	1.36	1.33	1.000	1.05	0.95	1.00	32.45	4.56	1.14	41.50	NA	67.45	0.66	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
9.00	SM	21	2.04	1.04	32	IV	0.24	7.00	0.93	15.93	6.93	0.33	1.20	1.33	1.000	1.05	1	1.00	35.23	4.83	1.17	46.08	NA	70.23	0.65	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
10.00	SM	24	2.04	1.04	32	IV	0.24	7.00	0.91	17.97	7.97	0.32	1.12	1.33	1.000	1.05	1	1.00	37.54	4.83	1.17	48.79	NA	72.54	0.64	1.00	1.00	1.19	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP: 114 / IS 1893: 2016

$C_E$  or  $C_{HT}$  (Correction for hammer energy ratio) =  $ER/60$ , ER for Rope and pully System = 80 % , Hence  $C_E = 80/60 = 1.33$

$C_H$  or  $C_{HW}$  (Correction for hammer ) = 1.00

Borehole Diameter = 150 mm , Hence  $C_B$  or  $C_{BD}$  (Correction for Borehole diameter), = 1.05

$C_S$  or  $C_{SS}$  (Correction for Standard sampler) = 1.00

$K_o$  Correction for high overburden stress (for effective oberburden pressure > 10 T/m<sup>2</sup>) ..

$K_u$  Correction for static shear stress is required only for sloping ground

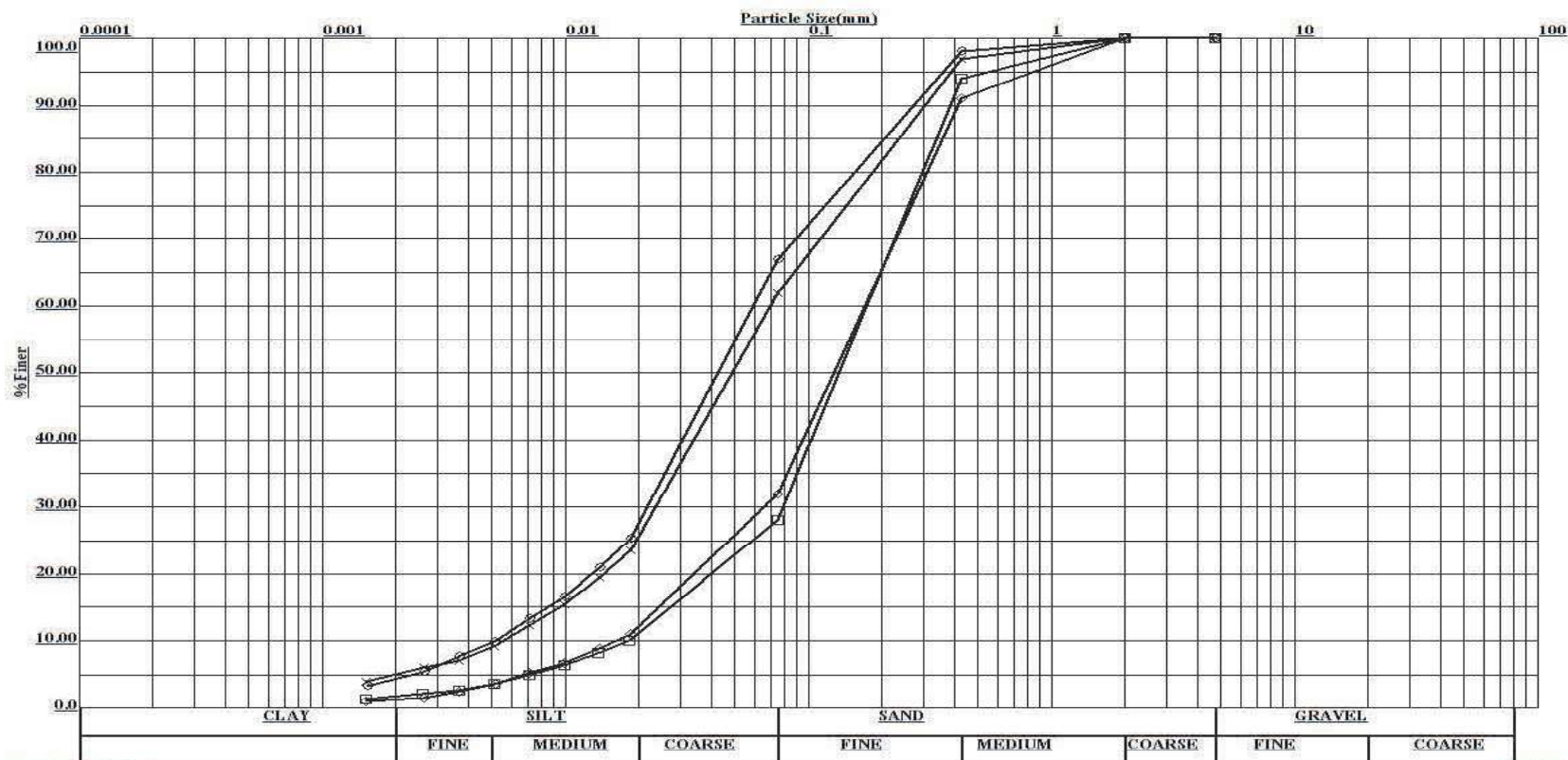


PROJECT: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO. - BR-48  
SECTION:CHITAUNI - MADHUBANI

BOREHOLE NO. -BH 01

### GRAIN SIZE ANALYSIS



Symbol	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C <sub>u</sub>	C <sub>c</sub>
×	0.0	MEDIUM DENSE ,LITE BROWN,SANDY SILT (ML)	0.00	38.00	57.00	5.00	12.41	1.40
○	2.5		0.00	33.00	63.00	4.00	11.44	1.52
□	6.0	MEDIUM DENSE ,LITE GREY, SILTY SAND(SM)	0.00	72.00	26.00	2.00	9.53	1.97
◇	9.0		0.00	68.00	31.00	1.00	10.55	1.56



**COMPUTATION OF WEIGHTED MEAN DIAMETER OF PARTICLES AND SILT FACTOR**

Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO. BR-48

BOREHOLE NO- BH-01

Section : CHITAUNI - MADHUBANI

Sl.No.	Borehole No.	Depth (m)		Description of the Soil Strata	IS Classification	Percentage Retained							Mean Particle Size (mm)							Sandy Strata		Clayey Soil				
		From	To			5.60 to 4.00	4.00 to 2.80	2.80 to 1.00	1.00 to 0.425	0.425 to 0.180	0.180 to 0.075	0.075 to 0	4.8	3.4	1.9	0.7125	0.3025	0.1275	0.0375	Mean Particle Size (dm)	Silt Factor in the layer= 1.76 x sqrt(dm)	Average Cohesion Intercept - c (kg/sqcm)	Average Angle of Internal Friction (°)	F	Silt Factor = F Ksfc = F x (1 + sqrt(c))	
1	BH-01	0.00	0.50	SANDY SILT	ML	0.0	0.0	0.0	3.0	22.0	13.0	62.0	0.00	0.00	0.00	2.14	6.66	1.66	2.325	0.128	0.629	-	-	-	-	
2		2.50	2.80	SANDY SILT	ML	0.0	0.0	0.0	2.0	21.0	10.0	67.0	0.00	0.00	0.00	1.43	6.35	1.28	2.513	0.116	0.599	-	-	-	-	
3		6.00	6.45	SILTY SAND	SM	0.0	0.0	0.0	7.0	43.0	22.0	28.0	0.00	0.00	0.00	4.99	13.01	2.81	1.050	0.219	0.823	-	-	-	-	



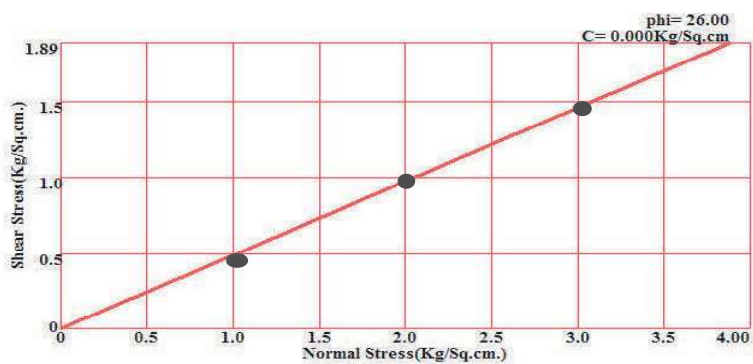
PROJECT: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO:48

BOREHOLE NO :BH-01

SECTION:CHITAUNI- MADHUBANI

TRIAxIAL & DIRECT SHEAR GRAPH



Bore Hole No.= 1(BR-48)  
Sample No.= A-1/UD1  
Depth= 2.500000M  
Type of Test= C.D.





## NORTH EASTERN RAILWAY

**FINAL LOCATION SURVEY FOR NEW B.G RAILWAY LINE  
PROJECTS (770.00 KM.) AND FINAL LOCATION SURVEY  
FOR CONSTRUCTION OF DOUBLING/THIRD LINE/ 3RD &  
4TH LINE (252.00 KM.) OF NORTH EASTERN RAILWAY  
(TOTAL 1022.00 KM)**

**SECTION: CHITAUNI-MADHUBANI**

Chainage	Br. No	Type of Crossing	Type of Bridge	Borehole No.	Easting (m)	Northing (m)	Reduced Level (m)
29361.862	49	ROAD	RUB	BH-01	212248	2988854	105.71

**SUBMITTED BY:**

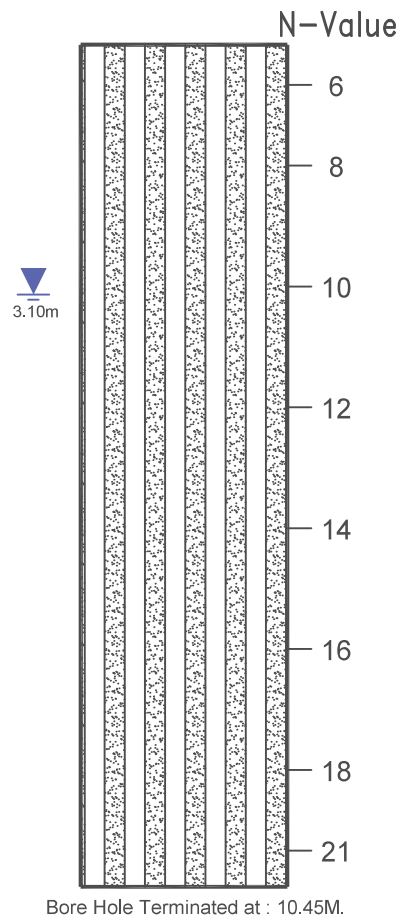


# BOREHOLE PROFILE

SECTION: CHITAUNI - MADHUBANI

IR BRIDGE NO.- BR-49

BOREHOLE NO.: BH- 01



## LEGENDS





Silty Sand (SM)



Ground Water Table



Project: FINAL LOCATION SURVEY FOR NEW B.G RAILWAY LINE PROJECTS (770.00 KM.) AND FINAL LOCATION SURVEY FOR CONSTRUCTION OF DOUBLING/THIRD LINE/ 3RD & 4TH LINE (252.00 KM.) OF NORTH EASTERN RAILWAY (TOTAL 1022.00 KM)

BRIDGE NO.49				BOREHOLE NO. BH-01				GWT: 3.10 m				DATE STARTED : 03-02-2025				<div>aarvee associates architects engineers &amp; consultants pvt. ltd.</div>																						
DATE COMPLETED : 03-02-2025												CONSOLIDATED LOGS INCLUDING LABORATORY TEST RESULTS OF SOIL																										
FIELD TEST RESULTS										LABORATORY TEST RESULTS																												
ELEVATION IN METERS	DEPTH IN METERS BELOW REFERENCE	NATURE OF SAMPLING	SAMPLE REFERENCE NO.	LEVEL OF WATER TABLE / LWL	SPT TEST RESULTS					SYMBOLIC REPRESENTATION	DESCRIPTION OF SOIL WITH I.S. CLASSIFICATION	TYPE OF TEST CONDUCTED IN THE LABORATORY	GRAIN SIZE ANALYSIS					LIQUID LIMIT (%)	PLASTIC LIMIT (%)	PLASTICITY INDEX (%)	BULK DENSITY (gm /cc)	DRY DENSITY (gm/cc)	MOISTURE CONTENT (%)	FREESWELL INDEX (%)	SPECIFIC GRAVITY	SUBMERGED DENSITY (gm /cc)	SHEAR STRENGTH CHARACTERISTICS		CONSOLIDATION CHARACTERISTICS	Chemical Analysis Result								
					DEPTH IN METERS	NO. OF BLOWS	PENETRATION (CM)	N VALUE (Recorded)	N VALUE (Corrected)				GRAVEL (%)	SAND (%)	SILT (%)	CLAY (%)	Cohesion C. (kg/cm <sup>2</sup> )										Angle of friction (Degrees)	Compression Index(Cc)		pH	Chloride, %	Sulphate, %	pH	Chloride, mg/l	Sulphate, mg/l			
-0.50	0.5	DS	1	<div>3.10 m</div> <div>▼</div>	0.00	0.50	DS	-	-	-		MEDIUM DENSE, LITE GREY, SILTY SAND (SM)	-	0	72	26	2	NON-PLASTIC			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	SPT	1	0.50		0.95	6	30	6	11	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
2.0	SPT	2	1.50		1.95	8	30	8	12	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-3.00	3.0	UDS	1		2.50	2.80	-						CD	0	68	31	1	NON-PLASTIC			1.74	-	-	-	2.54	-	0	30°	-	-	-	-	-	-	-	-		
4.0	SPT	3	3.00		3.45	10	30	10	12	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
5.0	SPT	4	4.50		4.95	12	30	12	16	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-6.00	6.0	DS	2		5.50	5.80	UDS SLIPPED						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
7.0	SPT	5	6.00		6.45	14	30	14	17	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
8.0	SPT	6	7.50		7.95	16	30	16	17	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
-9.00	9.0	DS	3		8.50	8.80	UDS SLIPPED						-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10.0	SPT	7	9.00		9.45	18	30	18	17	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
11.0	SPT	8	10.00		10.45	21	30	21	19	-			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
CLASSIFICATION OF SOIL AS PER IS : 1498 ABBREVIATION USED : DS = DISTURBED SAMPLE , SPT = STANDARD PENETRATION TEST, UDS = UNDISTURBED SAMPLE, DST = DIRECT SHEAR TEST, UC : UNCONFINED COMPRESSION TEST      UU : UNCONSOLIDATED UNDRAINED TRIAXIAL TEST * UCS BASED ON POINT LOAD TEST													Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)																									
												SECTION: CHITAUNI-MADHUBANI																										

### CALCULATIONS FOR CORRECTED SPT (N) VALUES

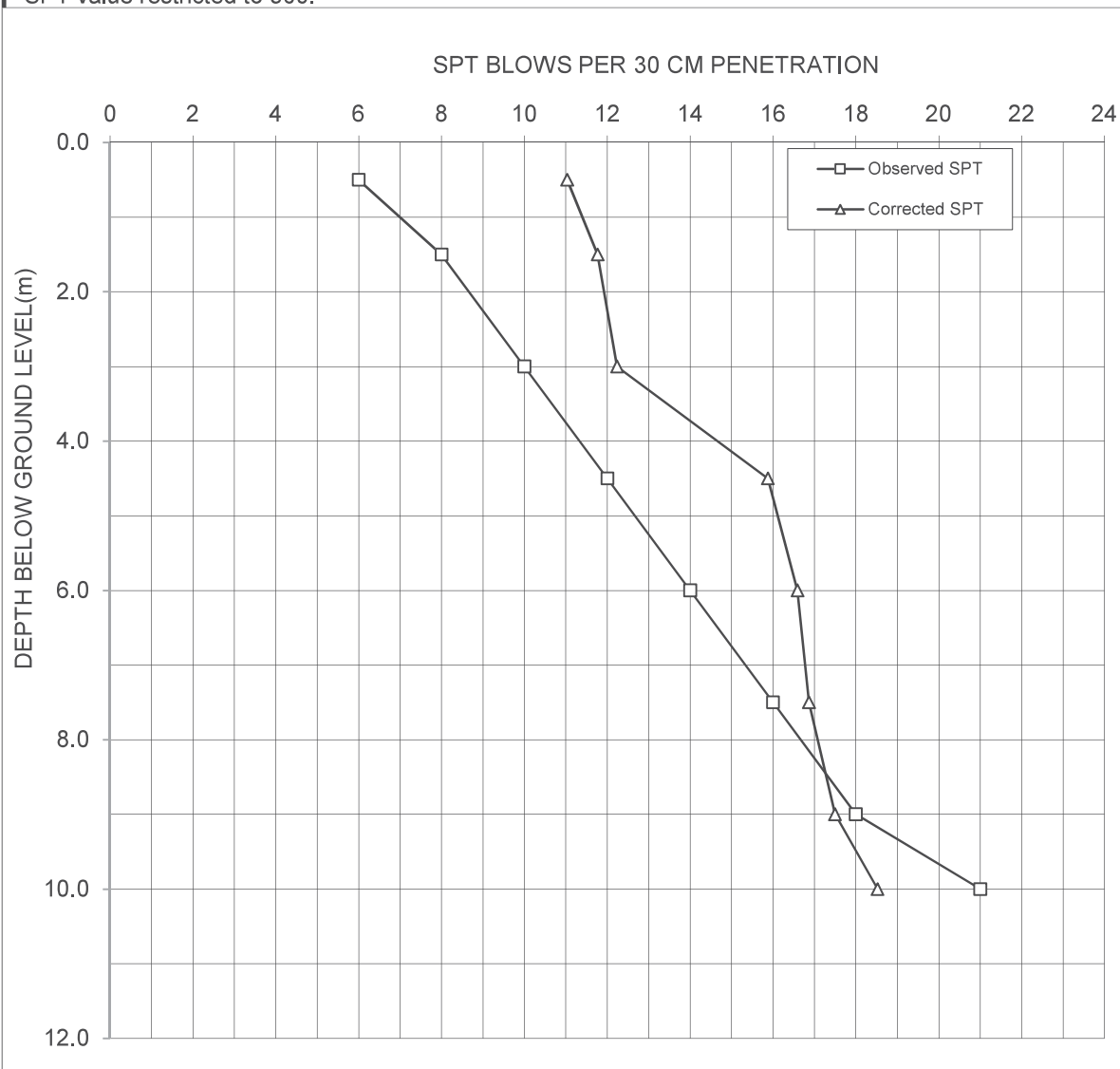
Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BOREHOLE NO. BH- 01

WATER TABLE IN METER:- 3.10 m

DEPTH OF SAMPLE	TYPE OF SOIL	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N'')
0.50	Non Plastic	6	11	11
1.50	Non Plastic	8	12	12
3.00	Non Plastic	10	12	12
4.50	Non Plastic	12	17	16
6.00	Non Plastic	14	18	17
7.50	Non Plastic	16	19	17
9.00	Non Plastic	18	20	17
10.00	Non Plastic	21	22	19

\* SPT value restricted to 300.



### Typical Computation of Liquefaction Potential as per IRC:SP: 114 / IS: 1893

Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO: 49

BOREHOLE NO.

BH-01

SECTION: CHITAUNI-MADHUBANI

Water table assumed for Calculation: 0.00 m

Depth below EGL, m	Type of Strata	Observed SPT Value	Saturated density ( $t/m^3$ )	Submerged Density ( $t/m^3$ )	Fine Content ( % )	Earthquake Zone	Peak ground acceleration $a_{max}/g$	Earth quake magnitude (Mw)	Stress reduction coefficient (rd)	Total overburden pressure ( $\sigma_o$ ), $t/m^2$	Effective overburden ( $\sigma_o$ ), $t/m^2$	Cyclic Stress ratio (CSR)	$C_N$	CE or CHT	CH or CHW	CB or CBD	CR or CRL	CS or CSS	SPT corrected ( $N_1$ ) <sub>60</sub>	$\alpha$	$\beta$	( $N_1$ ) <sub>60cs</sub>	$CRR_M = 7.5$	Relative Density, Dr%	f	$K_o$	$K_u$	MSF	CRR	FOS	Conclusion
0.50	SM	6	1.59	0.59	28	IV	0.24	7.00	1.00	0.80	0.30	0.42	1.70	1.33	1.000	1.05	0.75	1.00	10.68	4.56	1.14	16.72	0.18	21.54	0.89	1.00	1.00	1.19	0.21	0.51	Liquefiable
1.50	SM	8	1.59	0.59	28	IV	0.24	7.00	0.99	2.39	0.89	0.42	1.70	1.33	1.000	1.05	0.75	1.00	14.24	4.56	1.14	20.77	0.23	29.55	0.85	1.00	1.00	1.19	0.27	0.65	Liquefiable
3.00	SM	10	1.74	0.74	32	IV	0.24	7.00	0.98	4.77	1.77	0.41	1.70	1.33	1.000	1.05	0.85	1.00	20.18	4.83	1.17	28.46	0.39	42.90	0.79	1.00	1.00	1.19	0.46	1.12	Non Liquefiable
4.50	SM	12	1.74	0.74	32	IV	0.24	7.00	0.97	7.38	2.88	0.39	1.70	1.33	1.000	1.05	0.95	1.00	27.06	4.83	1.17	36.52	NA	58.39	0.71	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
6.00	SM	14	2.01	1.01	35	IV	0.24	7.00	0.95	9.99	3.99	0.37	1.58	1.33	1.000	1.05	0.95	1.00	29.40	5.00	1.20	40.28	NA	63.66	0.68	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
7.50	SM	16	2.01	1.01	35	IV	0.24	7.00	0.94	13.01	5.51	0.35	1.35	1.33	1.000	1.05	0.95	1.00	28.61	5.00	1.20	39.33	NA	61.87	0.69	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
9.00	SM	18	2.03	1.03	37	IV	0.24	7.00	0.93	16.02	7.02	0.33	1.19	1.33	1.000	1.05	1	1.00	30.00	5.00	1.20	41.00	NA	65.00	0.67	1.00	1.00	1.19	NA	>1.0	Non Liquefiable
10.00	SM	21	2.03	1.03	37	IV	0.24	7.00	0.91	18.05	8.05	0.32	1.11	1.33	1.000	1.05	1	1.00	32.69	5.00	1.20	44.22	NA	67.69	0.66	1.00	1.00	1.19	NA	>1.0	Non Liquefiable

Note: Values of all Parameters are as per IRC:SP: 114 / IS 1893: 2016

$C_E$  or  $C_{HT}$  (Correction for hammer energy ratio) =  $ER/60$ , ER for Rope and pully System = 80 % , Hence  $C_E = 80/60 = 1.33$

$C_H$  or  $C_{HW}$  (Correction for hammer ) = 1.00

Borehole Diameter = 150 mm , Hence  $C_B$  or  $C_{BD}$  (Correction for Borehole diameter), = 1.05

$C_S$  or  $C_{SS}$  (Correction for Standard sampler) = 1.00

$K_o$  Correction for high overburden stress (for effective oberburden pressure > 10 T/m<sup>2</sup>) ..

$K_u$  Correction for static shear stress is required only for sloping ground

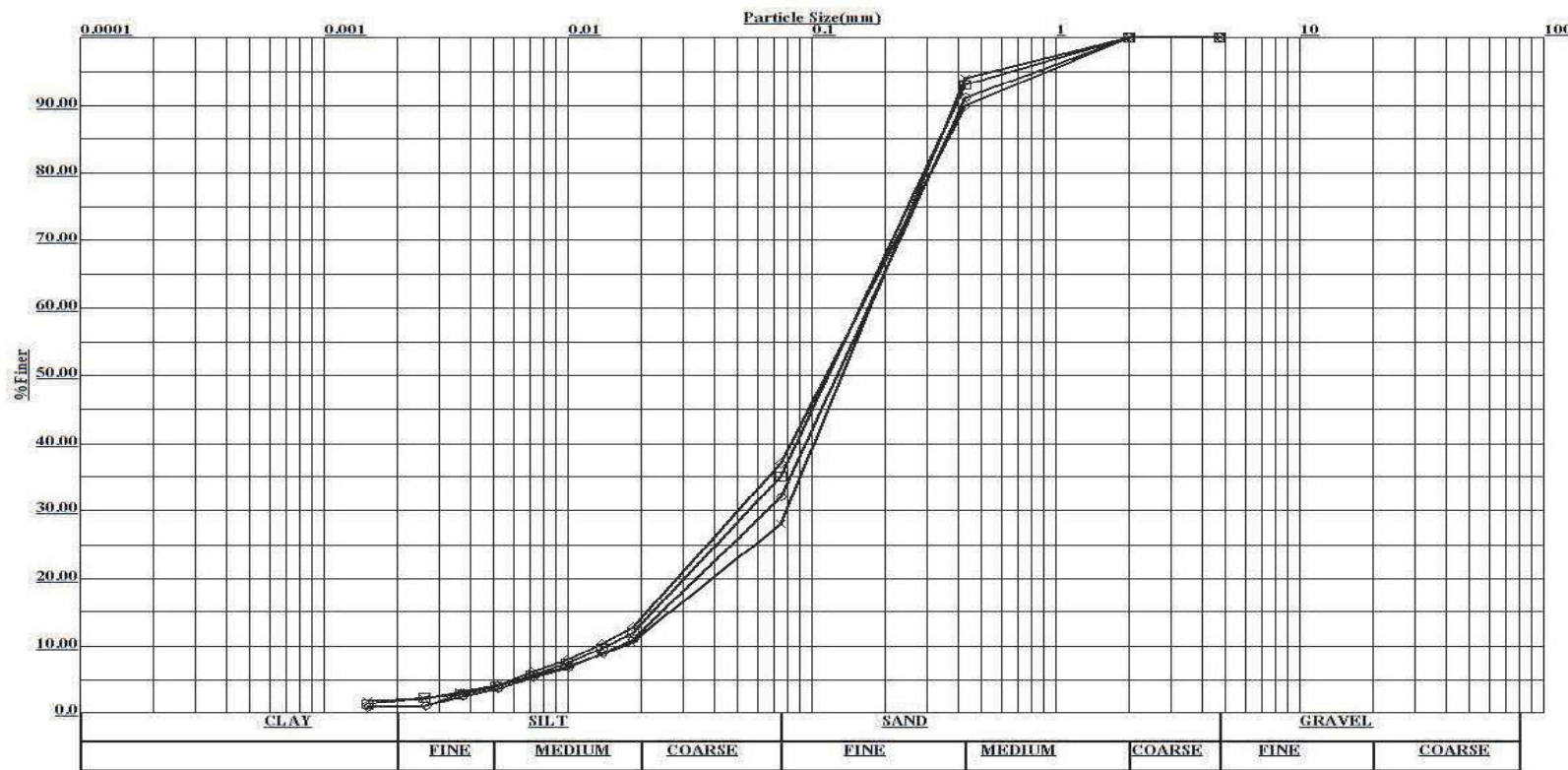


PROJECT: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO. - 49(RUB)  
SECTION:CHITAUNI TO MADHUBANI

BOREHOLE NO. -BH 01

### GRAIN SIZE ANALYSIS



Symbol	Depth, m	Soil Description	Gravel	Sand	Silt	Clay	$C_u$	$C_c$
			(%)	(%)	(%)	(%)		
×	0.0	MEDIUM DENSE, LITE GREY, SILTY SAND (SM)	0.00	72.00	26.00	2.00	10.31	2.13
○	2.5		0.00	68.00	31.00	1.00	10.56	1.56
□	6.0		0.00	65.00	33.00	2.00	11.02	1.34
◇	9.0		0.00	63.00	36.00	1.00	11.91	1.18



**COMPUTATION OF WEIGHTED MEAN DIAMETER OF PARTICLES AND SILT FACTOR**

Project: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO. BR-49				BOREHOLE NO- BH-01								Section : CHITAUNI - MADHUBANI													
Sl.No.	Borehole No.	Depth (m)		Description of the Soil Strata	IS Classification	Percentage Retained						Mean Particle Size (mm)						Sandy Strata		Clayey Soil					
		From	To			5.60 to 4.00	4.00 to 2.80	2.80 to 1.00	1.00 to 0.425	0.425 to 0.180	0.180 to 0.075	0.075 to 0	4.8	3.4	1.9	0.7125	0.3025	0.1275	0.0375	Mean Particle Size (dm)	Silt Factor in the layer= 1.76 x sqrt(dm)	Average Cohesion Intercept - c (kg/sqcm)	Average Angle of Internal Friction (°)	F	Silt Factor = $\frac{K_{sf} \times c}{F \times (1 + \sqrt{c})}$
1	BH-01	0.00	0.50	LITE GREY,SILTY SAND	SM	0.0	0.0	0.0	6.0	26.0	40.0	28.0	0.00	0.00	0.00	4.28	7.87	5.10	1.050	0.183	0.753	-	-	-	-
2		2.50	2.80	LITE GREY,SILTY SAND	SM	0.0	0.0	0.0	9.0	22.0	37.0	32.0	0.00	0.00	0.00	6.41	6.66	4.72	1.200	0.190	0.767	-	-	-	-
3		6.00	6.45	LITE GREY,SILTY SAND	SM	0.0	0.0	0.0	7.0	20.0	38.0	35.0	0.00	0.00	0.00	4.99	6.05	4.85	1.313	0.172	0.730	-	-	-	-



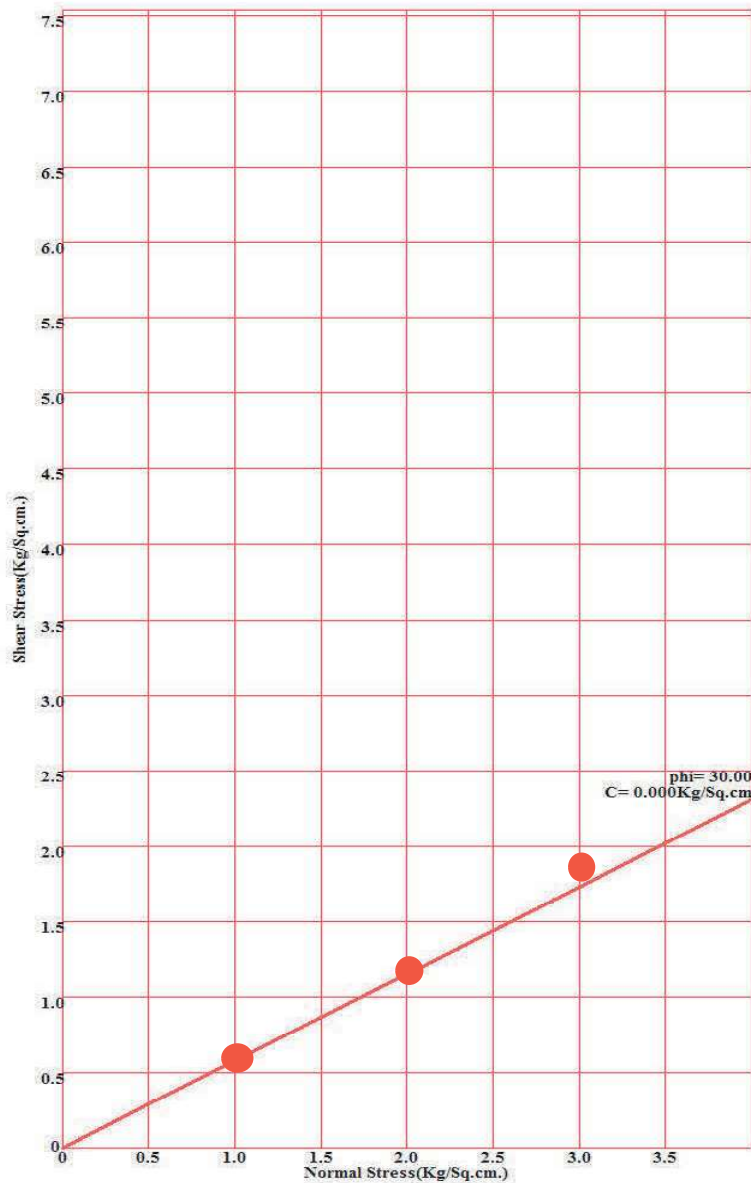
PROJECT: Final location survey for New B.G Railway line projects (770.00 km.) and Final location survey for construction of Doubling/Third line/ 3rd & 4th line (252.00 km.) of North Eastern Railway (Total 1022.00 km)

BRIDGE NO. - 49 (RUB)

BOREHOLE NO. -BH-01

SECTION:CHITAUNI TO MADHUBANI

DIRECT SHEAR GRAPH



Bore Hole No.= 1  
Sample No.= A-1/UD1  
Depth= 2.500000M  
Type of Test= C.D.