Arki Techno Cons ARKITECHNO N 3/91, IRC VII				.Ltd	
DETERMINATION OF LIQ		IT AND F		CLIMIT	<b>.</b>
lient : DFCC	20 (1 411	-0)			
roject Name : G.I For 3 Nos. Important Bridges					
vpe of Sample : SPT		Date Of Tes	ting :	13.05.2013	
cation : BH-6(Yamuna River-Ambala)		Sampled by	:	Binayak Swai	n
epth : 7.5m		Tested by	:	D.Mohanty	
umber of Blows	31	34	22	24	Plastic Limit
ontainer No.	W1	W2	W3	W4	NP
ontainer Weight (gm) (W1)	33.21	34.52	35.61	36.28	
ontainer + Wt. of wet soil (gm) (W2)	82.56	93.07	97.44	97.35	
/t of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
/t. Of water (gm) (W2-W1)-(W3-W1)	4.73	4.16	11.50	10.10	
Vt. of oven dry soil (gm) (W3-W1)	44.63	54.40	50.33	50.97	
oisture Content (%)= W2-W1)-(W3-W1)]/(W3-W1) X 100	10.59	7.64	22.85	19.81	
				Result Su	ımmary
		Liquid Li	mit (WL)	18	%
		Plastic Li	mit (Wp)	NF	)
		Plasticity In	ndex (lp)	_	
			6		
65					
60					
55					
50					
45					
40					
35 5					
20					
15					
10	R	-			
5	Y				
0 10 No of Blows					100



1

000000000

1

1

С С С

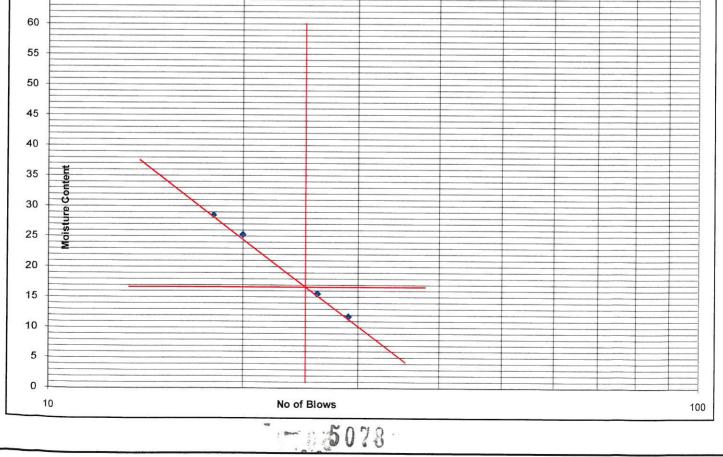
1

### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

#### IS: 2720 (Part -5)

1		IS :	2720 (Part	-5)			
Client	:	DFCC					
Project Name	:	G.I For 3 Nos. Important Bridges					
Type of Sample	:	SPT		Date Of Tes	ting :	13.05.2013	
Location	:	BH-6(Yamuna River-Ambala)		Sampled by	:	Binayak Swai	n
Depth	:	13.0m		Tested by	:	D.Mohanty	
Number of Blow	/S		29	26	20	18	Plastic Limi
Container No.			F1	F2	F3	F4	NP
Container Weig	ht (g	m) (W1)	35.55	34.12	36.52	33.29	
Container + Wt.	of	wet soil (gm) (W2)	82.82	97.42	98.42	102.64	
Wt of Container	+ N	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gr	n) (\	W2-W1)-(W3-W1)	4.98	8.50	12.47	15.39	
Wt. of oven dry	y soi	l (gm) (W3-W1)	42.29	54.80	49.42	53.96	
Moisture Conter [(W2-W1)-(W3-V		5)= /(W3-W1) X 100	11.78	15.52	25.24	28.51	-
						Result Su	immary
				Liquid Lir	nit (WL)	17	%
				Plastic Li	mit (Wp)	NF	>
				Plasticity In	idex (Ip)	_	
65							
60							
55							
50							
50							
45							





### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS : 2720 (Part -5)

			13.	2/20 (Pa	iri -5)					
Client	:	DFCC								
Project Name	:	G.I For 3 Nos. Important Bridges								
Type of Sample	:	SPT				e Of Tes		13.05.2013		
Depth	:	BH-6(Yamuna River-Ambala) 15.0m				npled by ted by		Binayak Swai D.Mohanty	in	
o opun	•	10.011			1650	led by	:	D.WOnanty		
Number of Blov	vs			34		31	24	21	Plast	ic Limit
Container No.				Y1		Y2	Y3	Y4		NP
Container Weig	ght (g	m) (W1)		32.5	2 3	3.63	34.41	35.52		
Container + Wt	. of v	vet soil (gm) (W2)		81.3	6 9	4.81	96.09	99.97		
Wt of Containe	r + W	t. of oven dry soil (gm) (W3)		77.8	4 8	8.92	85.94	87.25		
Nt. Of water (g	m) (\	V2-W1)-(W3-W1)		3.53	5 5	5.89	10.15	12.72		
	183 - pp	(gm) (W3-W1)		45.3	2 5	5.29	51.53	51.73		
Moisture Conte (W2-W1)-(W3-		)= /(W3-W1) X 100		7.78	1	0.65	19.69	24.59		
					<b></b>			Result Su		
							mit (WL)	18		%
							mit (Wp)	NF	2	
					Plas	sticity Ir	ndex (lp)		6 19	1
65 -										
60										
55										
50										
45										
40										
35 5										
30 30										
5										
25 <b>1</b> 25 <b>D</b>										
			X	-						
20										
20				1						
15										
				X	ę					
15				· ·	× _					
15				· ·	*					
15			No of Blow	'S	<b>*</b>					100

ARKITECHNO

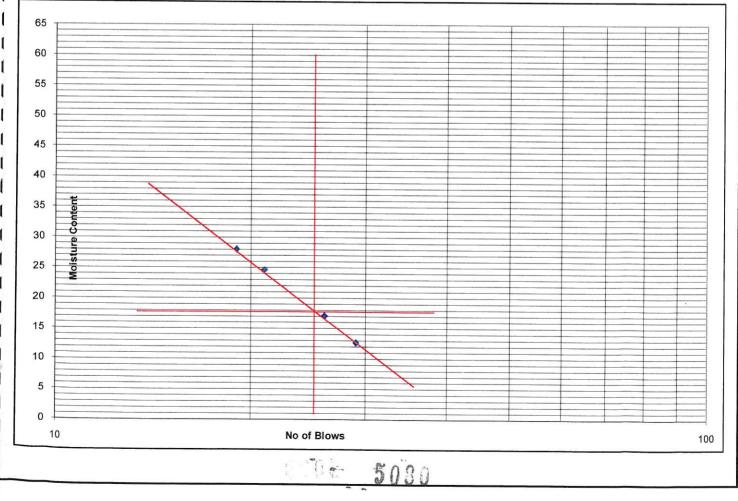
## Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

#### IS: 2720 (Part -5)

Client	÷	DFCC		-,			
Project Name	:	G.I For 3 Nos. Important Bridges					
Type of Sample	:	SPT		Date Of Tes	ting :	13.05.2013	
Location	:	BH-6(Yamuna River-Ambala)		Sampled by	:	Binayak Swai	n
Depth	:	18.0m		Tested by	:	D.Mohanty	
1							
Number of Blow	S		26	29	19	21	Plastic Limit
Container No.			G1	G2	G3	G4	NP
Container Weigh	nt (g	m) (W1)	31.25	34.25	33.15	31.2	
Container + Wt.	of v	vet soil (gm) (W2)	85.79	95.85	100.73	101.07	
Wt of Container	+ W	t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm	n) (V	V2-W1)-(W3-W1)	7.95	6.93	14.79	13.82	
Wt. of oven dry	soil	(gm) (W3-W1)	46.59	54.67	52.79	56.05	
Moisture Conten [(W2-W1)-(W3-V			17.06	12.68	28.01	24.65	
1			50			Result Su	ummary

	Result Summa	ary
Liquid Limit (WL)	18	%
Plastic Limit (Wp)	NP	
Plasticity Index (Ip)		



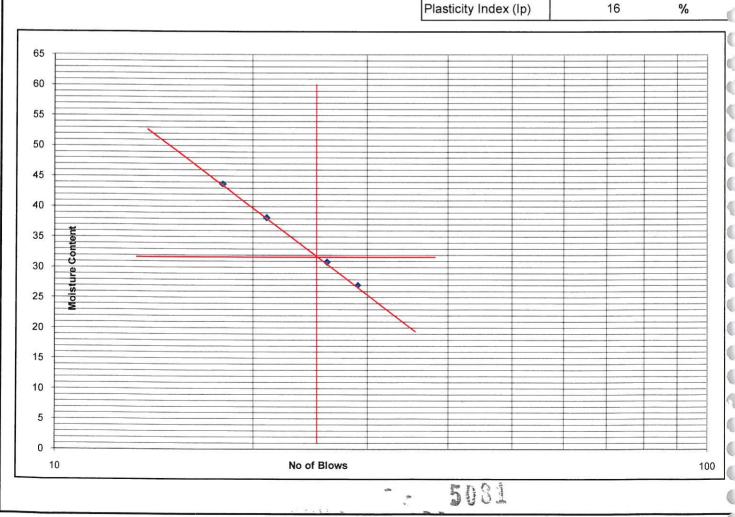
100	
1	
E.	THE REPORT
ARKI	TECHNO

### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

				-,				
Client	:	DFCC						
Project Name	:	G.I For 3 Nos. Important Bridges						
Type of Sample	:	SPT		Date Of Tes	ting :	13.05.2013		
Location	:	BH-6(Yamuna River-Ambala)		Sampled by	:	Binayak Swa	ain	
Depth	:	30.0m		Tested by	:	D.Mohanty		
Number of Blov	vs		29	26	21	18	Plast	tic Limit
Container No.			T1	T2	Т3	T4	T5	Т6
Container Weig	ght (g	ım) (W1)	32.51	36.63	34.48	35.59	31.25	30.42
Container + Wt	. of v	wet soil (gm) (W2)	90.11	105.05	105.58	109.82	83.47	97.71
Wt of Containe	r + V	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	76.14	88.26
Wt. Of water (g	m) (\	N2-W1)-(W3-W1)	12.27	16.13	19.64	22.57	7.33	9.45
Wt. of oven dr	'y soi	l (gm) (W3-W1)	45.33	52.29	51.46	51.66	44.89	57.84
Moisture Conte [(W2-W1)-(W3-		5)= /(W3-W1) X 100	27.08	30.85	38.16	43.68	16.32	16.34
						Result S	Summary	
				Liquid Li	mit (WL)	3	2	%
				Plastic Li	mit (Wp)	1	6	%



ı 🔊	Arki Tech	nno Cons	ultant	s (Indi	a) Pvt	.Ltd		
		91, IRC Vil						
ſ	DETERMINAT				PLASTIC	CLIMIT		
l Olivert		IS : 27	720 (Part	-5)				
Client I Project Name	: DFCC							
Type of Sample	: G.I For 3 Nos. Important B : SPT	nages		Date Of Tes		10.05.0010		
Location	: BH-6(Yamuna River-Amba	la)		Sampled by		13.05.2013 Binovok Swo	in	
Depth	: 33.0m			Tested by		Binayak Swa D.Mohanty	11/1	
l				i dottoù by	·	Divionanty		
Number of Blows			28	31	21	18	Plasti	c Limit
Container No.			S1	S2	S3	S4	S5	S6
Container Weight	t (gm) (W1)		31.25	32.26	34.18	30.52	35.59	36.52
Container + Wt. c	of wet soil (gm) (W2)		90.49	102.22	105.32	111.47	82.33	96.35
Wt of Container +	·Wt. of oven dry soil (gm) (	W3)	77.84	88.92	85.94	87.25	76.14	88.26
Wt. Of water (gm)	) (W2-W1)-(W3-W1)		12.65	13.30	19.38	24.22	6.19	8.09
Wt. of oven dry	soil (gm) (W3-W1)		46.59	56.66	51.76	56.73	40.55	51.74
Moisture Content [(W2-W1)-(W3-W	(%)= (1)]/(W3-W1) X 100		27.16	23.48	37.44	42.69	15.26	15.64
						Result S	ummary	1
				Liquid Lir	nit (WL)	3	11.64	%
				Plastic Li	mit (Wp)	1	5	%
				Plasticity Ir	idex (lp)	1	6	%
Г <u> </u>			·					
65								
60			-					
55								
50								
45								
+5								
40		~						
35								
30								
25 <b>5</b>			a la					
20								
15								
10								
5								
o 🚞								
10		No of Blows						100
		10 1. 2						
			50	82				-

ARKITECHNO N 3/91, IRC VI			a) Pvt	.Ltd	
			PLASTIC		
Client : DFCC	720 (Part	-5)			
Project Name : G.I For 3 Nos. Important Bridges					
Type of Sample : SPT		Date Of Tes	ting :	13.05.2013	
Location : BH-6(Yamuna River-Ambala)		Sampled by	20	Binayak Swair	n
Depth : 39.0m		Tested by	:	D.Mohanty	
Number of Blows	00		01	10	Directio Limit
Container No.	26	29	21	18	Plastic Limit
	P1	P2	P3	P4	NP
Container Weight (gm) (W1)	32.48	33.36	34.41	30.29	
Container + Wt. of wet soil (gm) (W2)	91.39	103.22	105.32	111.47	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Nt. Of water (gm) (W2-W1)-(W3-W1)	13.55	14.30	19.38	24.22	
Wt. of oven dry soil (gm) (W3-W1)	45.36	55.56	51.53	56.96	
Moisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100	29.88	25.74	37.61	42.52	
	1		·	Result Su	ummary
		Liquid Li	mit (WL)	19	
		Plastic Li	mit (Wp)	NF	o l
		Plasticity Ir	ndex (Ip)	-	
65					
60					
55					
55 50 50					
50					
50 45					
50					
50 45					
50 45 40 35 30 entrestriction 30					
50 45 40 35					
50 45 40 35 <b>t</b> <b>t</b> <b>t</b> <b>t</b> <b>t</b> <b>t</b> <b>t</b> <b>t</b>			-         -           -         -		
50 45 40 35 10 30 25 10 10 10 10 10 10 10 10 10 10					
50       45       40       35       30       25       20       15		-         -           -         -			
50       45       40       35       10       25       10       20					
50       45       40       35       30       25       00       15					
50       45       40       35       30       25       20       15       10		Image: Section of the sectio	-         -           -         -		

C



I

l

I.

# Arki Techno Consultants (India) Pvt.Ltd

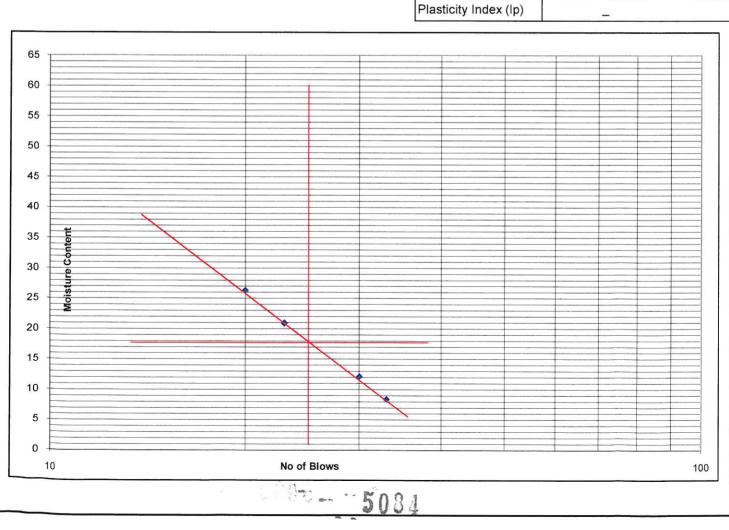
### N 3/91, IRC Village, Bhubaneswar DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client	:	DFCC					
Project Name	:	G.I For 3 Nos. Important Bridges					
Type of Sample	•	SPT		Date Of Tes	ting :	13.05.2013	
Location	:	BH-6(Yamuna River-Ambala)		Sampled by	:	Binayak Swaii	n
Depth	:	42.0m		Tested by	:	D.Mohanty	
۱							
I <sup>Number of Blov</sup>	vs		33	30	23	20	Plastic Limit
Container No.			L1	L2	L3	L4	NP
Container Weig	ıht (g	ım) (W1)	32.12	31.1	34.45	33.26	
Container + Wt	. of v	wet soil (gm) (W2)	81.69	95.96	96.72	101.48	
Wt of Container	r + V	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	12
Wt. Of water (g	m) (\	W2-W1)-(W3-W1)	3.85	7.04	10.77	14.23	
Wt. of oven dr	y soi	l (gm) (W3-W1)	45.72	57.82	51.49	53.99	CARGO, S
Moisture Conte (W2-W1)-(W3-	Sec. 3. 816.34	5)= /(W3-W1) X 100	8.42	12.18	20.92	26.35	
1						Result Su	Immary
t.				Liquid Lir	mit (WL)	18	%

Plastic Limit (Wp)

NP



			onsultants			
			C Village, Bh EE SWELL IND			
	DIFFE				.г.з.)	
Client	: DFCC	AS PE	R IS: 2720 (PA	RT - 40)		
	: G.I For 3 Nos. I	Important Bridge	s	Date Of Testing	: 13.05.2013	
Type of Sample		inportant bridget		Tested by	D.Mohanty	
_ocation	BH-6(Yamuna	River-Ambala)		Sampled by	Binayak Swain	
Depth	: 33.0m			Weight of Sample	12 Description of the Control Link Control	
SAMPLE NO.	VOLUME IN KEROSIN OIL Vk	VOLUME IN WATER Vd	SWELL (Vd-Vk)	SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%)	AVERAGE SWELL %	SPECIFIC LIMIT
1	10	12.5	2.50	25		
2	10	12.0	2.00	20	18	50%
3	10	11.0	1.00	10		
Remarks:						

Arki Techno Consultants (India) Pvt.Ltd							
	N 3/91, IRC Village, B						
DETERM	INATION OF SPECIFIC GRAVITY		TTLE METHOD				
	AS PER IS : 2386	(Part -2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing :	13.05.2013				
Location	: BH-6(Yamuna River-Ambala)	Sampled by :	Binayak Swain				
Depth	: 3.0m	Tested by :	D.Mohanty				
SI. No.	Observations	1	Remarks				
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	35.40					
3	Weight of bottle with soil and water W3 in gm	134.26					
4	Weight of bottle full of water W4 in gm	132.93					
5	Weight of dry soil (W2-W1)in gm	3.88					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.55					
7	Specific Gravity G = (5) / (6)	1.52					

( ( ( ( ( ( ( ( ( ( ( C ( ( ( ( (

(

Arki Techno Consultants (India) Pvt.Ltd							
	N 3/91, IRC Village, B INATION OF SPECIFIC GRAVITY	STATE OF STREET, STREE	BO	TTLE METHOD			
	AS PER IS : 2386	(Part -2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing	:	13.05.2013			
Location	: BH-6(Yamuna River-Ambala)	Sampled by	:	Binayak Swain			
Depth	: 4.5m	Tested by	:	D.Mohanty			
SI. No.	Observations	1		Remarks			
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	36.45					
3	Weight of bottle with soil and water W3 in gm	136.52					
4	Weight of bottle full of water W4 in gm	134.83					
5	Weight of dry soil (W2-W1)in gm	4.93					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	3.24					
7	Specific Gravity G = (5) / (6)	1.52					
	and the second	and the second second second		and the second secon			

- - 5037

Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar							
CONSULTANTE (INDIA) PVT. LTD.	INATION OF SPECIFIC GRAVITY		DTTLE METHOD				
	AS PER IS : 2386	(Part -2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing :	13.05.2013				
Location	: BH-6(Yamuna River-Ambala)	Sampled by :	Binayak Swain				
Depth	: 7.5m	Tested by :	D.Mohanty				
SI. No.	Observations	1	Remarks				
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	35.62					
3	Weight of bottle with soil and water W3 in gm	135.26					
4	Weight of bottle full of water W4 in gm	133.80					
5	Weight of dry soil (W2-W1)in gm	4.10					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.64					
7	Specific Gravity G = (5) / (6)	1.55					

Arki Techno Consultants (India) Pvt.Ltd							
ARKITECHNO CONSILIZANTE (NGIA) PVT. LTD.	N 3/91, IRC Village, B	and a second					
DETERM	INATION OF SPECIFIC GRAVITY		30	TTLE METHOD			
	AS PER IS : 2386	(Part -2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing	:	13.05.2013			
Location	: BH-6(Yamuna River-Ambala)	Sampled by	:	Binayak Swain			
Depth	: 15.5m	Tested by	:	D.Mohanty			
SI. No.	Observations	1		Remarks			
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	35.26					
3	3 Weight of bottle with soil and water W3 in gm 134.41						
4	Weight of bottle full of water W4 in gm	133.04					
5	Weight of dry soil (W2-W1)in gm	3.74					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.37					
7	Specific Gravity G = (5) / (6)	1.58					

- 5089

(

C

0

0

0

Arki Techno Consultants (India) Pvt.Ltd							
	N 3/91, IRC Village, B						
DETERM	INATION OF SPECIFIC GRAVITY AS PER IS : 2386		TTLE METHOD				
		(1 411 2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing :	13.05.2013				
Location	: BH-6(Yamuna River-Ambala)	Sampled by :	Binayak Swain				
Depth	: 30.0m	Tested by :	D.Mohanty				
SI. No.	Observations	1	Remarks				
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	36.26					
3	Weight of bottle with soil and water W3 in gm	134.28					
4	Weight of bottle full of water W4 in gm	132.56					
5	Weight of dry soil (W2-W1)in gm	4.74					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	3.02					
7	Specific Gravity G = (5) / (6)	1.57					

(

3					<b>ARKI TE</b>	TECHN	CHNO CONSULTANTS (I) PVT. LTD.	JLTANTS	S (I) PVT.	LTD.					
ARUTECHNO	01					N 3/91	N 3/91, IRC Village, Bhubaneswar	je, Bhuban	leswar						
				DETERN	<b>MINATION</b>	OF BULK E	DETERMINATION OF BULK DENSITY & MOISTURE CONTENT OF SOIL SAMPLE	MOISTURE	CONTEN	L OF SOIL (	SAMPLE				
Client		DFCC													
Project Name		G.I For 3 Nos.	G.I For 3 Nos. Important Bridges	ges											
Location		BH-6(Yamuna	BH-6(Yamuna River-Ambala)												
Si No.	BH No.	Depth in m	Type of Sample	Date of Testing	Weight of Container in gm	Diameter of Sample in cm	Length of Sample in cm	Volume of Sample in cc	Weight of Container + Wet Soil in gm	Weight of Container + Dry soil in gm	Weight of Dry soil in gm	Weight of water in gm	Moisture Content in %	Bulk Density in Dry Density in gm/cc	Dry Density gm/cc
ł	(	1.5	SPT	13.05.2013	62.34	3.8	2	79.39	195.72	187.66	125.32	8.06	6.43	1.68	1.58
2	eledn	3.0	SPT	13.05.2013	61.82	3.8	2	79,39	201.55	191.63	129.81	9.92	7.64	1.76	1.64
ю	nA-19	4.5	SPT	13.05.2013	60.71	3.8	2	79.39	202.02	191.79	131.08	10.24	7.81	1.78	1.65
4	viA sr	6.0	SPT	13.05.2013	63,49	3.8	7	79.39	204.80	194.28	130.79	10,53	8.05	1.78	1.65
5	inme,	15.0	SPT	13.05.2013	60.77	3.8	7	79,39	208.44	198.27	137,50	10.16	7.39	1.86	1.73
9	()9-H8	30.0	SPT	13.05.2013	64.84	3.8	2	79.39	221.24	196.75	131.91	24.48	18.56	1.97	1.66
<i>L</i>	3	33.0	SPT	13.05.2013	65.31	3.8	2	79.39	223.30	198.03	132.72	25.27	19.04	1.99	1.67

- 5091

011

ł ( ( ( ť ( Ć ( ( O C C O O Ó O O O 0 O O O € Ø

A
ARKITECHNO

## Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

### GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client	:	DFCC			
Project Name	:	G.I For 3 Nos. Important Bridges			
Type of Sample	;	SPT	Date of Testing	:	16.05.2013
Location	:	BH-7(Yamuna River-Ambala)	Sampled by	:	Binayak Swain
Depth	:	1.5m	Tested by	:	D.Mohanty

Weight of oven dried sample before washing (gm) :-Weight of oven dried sample after washing (gm) :-

100.00 87.57

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.84	1.84	1.84	98.16
2.00	33.36	33.36	35.20	64.80
0.425	29.56	29.56	64.76	35.24
0.075	22.81	22.81	87.57	12.43
Total	100.00			

Gravel Content (%)=

1.84

Sand Content (%) =

85.73 Silt and clay %

12.43

Remarks :-

- 5092

Arki Techno Consultants (India ) Pvt. Ltd							
ARKITECHNO			Bhubaneswar				
CDAL				$(\mathbf{D}, \mathbf{A})$			
GRAI	N SIZE ANALYS		A5 PER 15 21 20	( 4 )			
Client :	DFCC						
Project Name :	G.I For 3 Nos. Import	ant Bridges					
Type of Sample :	SPT		Date of Testing :	16.05.2013			
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain			
Depth :	3.0m		Tested by :	D.Mohanty			
Weight of oven dried	d sample before wash	ina (am) :-	100.00				
2003 1 Ali	d sample after washin		85.77				
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %			
75	0	0.00	0.00	100.00			
50	0	0.00	0.00	100.00			
37.5	0	0.00	0.00	100.00			
19	0	0.00	0.00	100.00			
4.75	2.26	2.26	2.26	97.74			
2.00	32.52	32.52	34.78	65.22			
0.425	28.62	28.62	63.40	36.60			
0.075	22.37	22.37	85.77	14.23			
Total	100.00						
Gravel Content (%)= 2.26							
Sand Content (% ) =		83.51	Silt and clay %	14.23			
Remarks :-		ΰ.					
		50	93				

ť ( ( ( ( ( ſ C ( C € C Ċ C € 0 0 0 0 Ø € 0 0 O O Ø 0 0 ٢ 

A
ARKITECHNO

# Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

### GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client	:	DFCC			
Project Name	:	G.I For 3 Nos. Important Bridges			
Type of Sample	:	SPT	Date of Testing	:	16.05.2013
Location	:	BH-7(Yamuna River-Ambala)	Sampled by	:	Binayak Swain
Depth	:	4.5m	Tested by	:	D.Mohanty

Weight of oven dried sample before washing (gm) :-Weight of oven dried sample after washing (gm) :-

100.00 86.72

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.98	1.98	1.98	98.02
2.00	33.11	33.11	35.09	64.91
0.425	29.26	29.26	64.35	35.65
0.075	22.37	22.37	86.72	13.28
Total	100.00			

Gravel Content (%)=

1.98

Sand Content (%) =

84.74 Silt and clay %

13.28

Remarks :-

CODE .. 5094

Arki Techno Consultants (India ) Pvt. Ltd				
			Bhubaneswar	
GRA	IN SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	(P-4)
Client :	DFCC			
Project Name :	G.I For 3 Nos. Impor	tant Bridges		
Type of Sample :	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	6.0m		Tested by :	D.Mohanty
Weight of oven drie	d sample before wash	ina (am) :-	100.00	
	d sample after washin		83.97	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.41	2.41	2.41	97.59
2.00	31.25	31.25	33.66	66.34
0.425	28.65	28.65	62.31	37.69
0.075	21.66	21.66	83.97	16.03
Total	100.00			
Gravel Content (%)=		2.41		
Sand Content (%) =		81.56	Silt and clay %	16.03
Remarks :-				
		5		
		0	1	
		50	03	

۲ 

é.

( ( ( ſ ¢ ( ( ¢ 0 0 0 0 0 0 0 0 0 0 O 0 O 0 0 0 

A
ARKITECHNO

## Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

### GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client	:	DFCC			
Project Name	:	G.I For 3 Nos. Important Bridges			
Type of Sample	;	SPT	Date of Testing	:	16.05.2013
Location	:	BH-7(Yamuna River-Ambala)	Sampled by	:	Binayak Swain
Depth	:	9.0m	Tested by	:	D.Mohanty

Weight of oven dried sample before washing (gm) :-Weight of oven dried sample after washing (gm) :-

100.00 82.07

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.85	2.85	2.85	97.15
2.00	31.25	31.25	34.10	65.90
0.425	27.52	27.52	61.62	38.38
0.075	20.45	20.45	82.07	17.93
Total	100.00			

Gravel Content (%)=

2.85

Sand Content (%) =

79.22 Silt and clay %

17.93

Remarks :-

ing 5096

	Arki Techno	Consulta	nts (India ) I	Pvt. Ltd
	N 3/91,	IRC Village,	Bhubaneswar	
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	) ( P- 4 )
Client :	DFCC			
Project Name :	G.I For 3 Nos. Import	tant Bridges		
Type of Sample :	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	12.0m		Tested by :	D.Mohanty
	l sample before wash I sample after washin		100.00 91.27	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0.	0.00	0.00	100.00
4.75	14.71	14.71	14.71	85.29
2.00	30.52	30.52	45.23	54.77
0.425	25.56	25.56	70.79	29.21
0.075	20.48	20.48	91.27	8.73
Total	100.00			
Gravel Content (%)= Sand Content (% ) =		<b>14.71</b> 76.56	Silt and clay %	8.73
Remarks :-				
ñ				
- 5097				

( l ( ( ( ( ( C C ( C € 0 € 0 0 0 0 0 0 0 0 0 0 0 0 0 0 

	Arki Techno		nts (India) Bhubaneswar	Pvt. Ltd
	IN SIZE ANALYS			) ( P- 4 )
Client :	DFCC			
Project Name :	G.I For 3 Nos. Impor	tant Bridges		
Type of Sample :	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	15.0m		Tested by :	D.Mohanty
	d sample before wash d sample after washin		100.00 94.80	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	16.28	16.28	16.28	83.72
2.00	31.29	31.29	47.57	52.43
0.425	26.76	26.76	74.33	25.67
0.075	20.48	20.48	94.81	5.19
Total	100.00			
Gravel Content (%)=		16.28		
Sand Content (% ) =		78.53	Silt and clay %	5.19
Remarks :-				

	Arki Techno	Consulta	nts (India ) F	Pvt. Ltd
	N 3/91,	IRC Village,	Bhubaneswar	
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	(P-4)
Client :	DFCC			
Project Name :	G.I For 3 Nos. Import	tant Bridges		
Type of Sample :	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	18.0m		Tested by :	D.Mohanty
El anticipado en entre en entre en entre e	d sample before wash I sample after washin	0.07	100.00 84.89	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	3.46	3.46	3.46	96.54
2.00	31.85	31.85	35.31	64.69
0.425	27.46	27.46	62.77	37.23
0.075	22.12	22.12	84.89	15.11
Total	100.00			
Gravel Content (%)= Sand Content (% ) =		<b>3.46</b> 81.43	Silt and clay %	15.11
Remarks :-			andalar finandina filipalar ana	
	~	- 5099		
			- 12	0

ť ( ( ( ť ( ſ ſ ( C € 0 O 0 € 0 0 0 0 0 O 0 O O O 0 0 0 ۲ 

			n <mark>ts (India</mark> ) Bhubaneswar	Pvt. Ltd
GR/	AIN SIZE ANALY			D(P-4)
Client	DFCC			
Project Name	G.I For 3 Nos. Impo	rtant Bridges		
Type of Sample	SPT		Date of Testing :	16.05.2013
Location	BH-7(Yamuna River	-Ambala)	Sampled by :	Binayak Swain
Depth :	21.0m		Tested by :	D.Mohanty
Weiaht of oven dr	ied sample before wasl	ning (am) '-	100.00	
	ied sample after washir		100.00 85.32	
<b>U</b>	and the state of t		00.32	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.81	1.81	1.81	98.19
2.00	32.59	32.59	34.40	65.60
0.425	28.36	28.36	62.76	37.24
0.075	22.56	22.56	85.32	14.68
Total	100.00			
Gravel Content (%)	=	1.81		
Sand Content (% ) =	=	83.51	Silt and clay %	14.68
Remarks :-				

(

() () ()

A	Arki Techno	Consulta	nts (India ) F	Pvt. Ltd
ARKITECHNO			Bhubaneswar	
				$(\mathbf{D}, \mathbf{A})$
GRAI		DIS OF SUIL	AS PER IS 2720	(P-4)
Client :	DFCC			
	G.I For 3 Nos. Impor	tant Bridges		
	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	24.0m		Tested by :	D.Mohanty
Weight of oven dried	sample before wash	ina (am) :-	100.00	
	sample after washin		94.17	
				<b>-</b>
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	12.44	12.44	12.44	87.56
2.00	32.74	32.74	45.18	54.82
0.425	28.21	28.21	73.39	26.61
0.075	20.78	20.78	94.17	5.83
Total	100.00			
Gravel Content (%)=		12.44		
Sand Content (% ) =		81.73	Silt and clay %	5.83
Remarks :-				
	يىسى يۇنى ئۇر	5101	~	

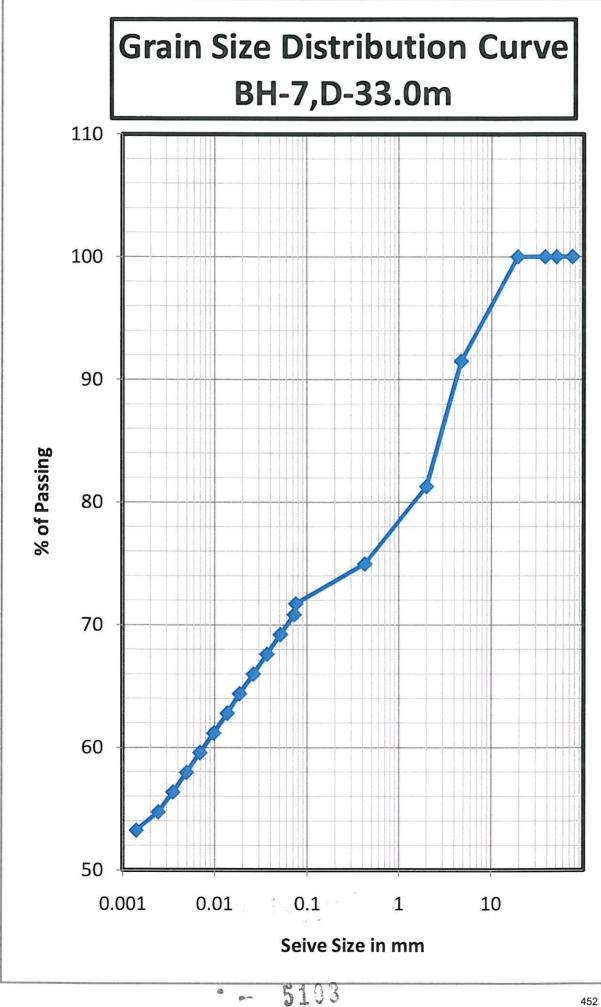
( ( ť ť ( ( ť ( ( C € 0 € O 0 € 0 0 0 0 C Ō O O O 0 0 0 0 0 

Arki Techno Consultants (India ) Pvt. Ltd				
	N 3/91,	IRC Village,	Bhubaneswar	
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	)(P-4)
Client :	DFCC			
Project Name :	G.I For 3 Nos. Impor	tant Bridges		
Type of Sample :	SPT		Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	-Ambala)	Sampled by :	Binayak Swain
Depth :	33.0m		Tested by :	D.Mohanty
Weight of oven dried	d sample before wash	ina (am) :-	100.00	
	d sample after washin		28.28	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	8.51	8.51	8.51	91.49
2.00	10.20	10.20	18.71	81.29
0.425	6.32	6.32	25.03	74.97
0.075	3.25	3.25	28.28	71.72
Total	100.00			
Gravel Content (%)=		8.51		
Sand Content (% ) =		19.77	Silt and clay %	71.72
Remarks :-				
	**	- 15102	See.	

() ()

( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (

-



C 

An.

Real Constantion	Arki Techno			Pvt. Ltd
GRAI	N 3/91,		Bhubaneswar AS PER IS 2720	)(P-4)
	G.I For 3 Nos. Impor	tant Bridges		
Type of Sample :		0	Date of Testing :	16.05.2013
Location :	BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	36.0m		Tested by :	D.Mohanty
	d sample before wash	• .• .	100.00	
veight of oven dried	d sample after washin	g (gm) :-	90.21	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	11.28	11.28	11.28	88.72
2.00	31.42	31.42	42.70	57.30
0.425	25.98	25.98	68.68	31.32
0.075	21.53	21.53	90.21	9.79
Total	100.00			
Gravel Content (%)=		11.28		
Sand Content (% ) =		78.93	Silt and clay %	9.79
Remarks :-				

- 5104

(

		, ,	Pvt. Ltd
N 3/91,	IRC Village,	Bhubaneswar	
N SIZE ANALYS	IS OF SOIL	AS PER IS 2720	(P-4)
DFCC			<u></u>
G.I For 3 Nos. Import	tant Bridges		
SPT		Date of Testing :	16.05.2013
BH-7(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
42.0m		Tested by :	D.Mohanty
sample before wash	ina (am) :-	100.00	
-			
	9 (9.1.)	91.29	
Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
0	0.00	0.00	100.00
0	0.00	0.00	100.00
0	0.00	0.00	100.00
0	0.00	0.00	100.00
3.76	3.76	3.76	96.24
34.58	34.58	38.34	61.66
29.65	29.65	67.99	32.01
23.30	23.30	91.29	8.71
100.00			
	3.76		
	87.53	Silt and clay %	8.71
	- 5105		
	~ ~		
	N 3/91, N SIZE ANALYS DFCC G.I For 3 Nos. Import SPT BH-7(Yamuna River- 42.0m sample before wash sample before wash sample after washing findividual Weight Retained in gm. 0 0 0 0 0 0 0 0 0 3.76 34.58 29.65 23.30	N 3/91, IRC Village,         N SIZE ANALYSIS OF SOIL         DFCC         G.I For 3 Nos. Important Bridges         SPT         BH-7(Yamuna River-Ambala)         42.0m         asample before washing (gm) :-         sample after washing (gm) :-         sample after washing (gm) :-         Individual Weight       Individual Wt.         Retained in gm.       Individual Wt.         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         3.76       3.76         34.58       34.58         29.65       29.65         23.30       23.30         100.00       3.76         87.53       87.53	G.I For 3 Nos. Important Bridges         SPT       Date of Testing       :         BH-7(Yamuna River-Ambala)       Sampled by       :         42.0m       Tested by       :         42.0m       100.00         asample before washing (gm) :-       100.00         asample after washing (gm) :-       100.00         asample after washing (gm) :-       100.00         Individual Weight       Individual Wt.         Retained in gm.       Cummulative Wt         Retained in gm.       0         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         0       0.00         34.58       34.58         34.58       34.58         3330       23.30         23.30       23.30         34.76         34.76

( ( ( ( ( ( ( C C ( € 0 € Ō O 0 0 0 0 0 O 0 O O Ū 0 0 € 

		•	AKKI TECHNO CON	ECHN	0 00	S	JLTANTS (INDIA) PV1	DIA) PV	T LTD				
CULTURE STATES	ON S			N	N 3/91, IRC	۲i	Village, Bhubaneswar	var					
			<b>GRAIN SIZE ANALYSIS</b>	IZE AN	ALYSIS	OF SC	SOIL - HYDROMETER METHOD	IETER ME	тнор				
Client	: DFCC								25.00				
Project Name	••	G.I For 3 Nos. Important Bridges	Bridges				Depth :	33.0m	0.0	Calibrat	tion of H	<b>Calibration of Hydrometer</b>	
Type of Sample	mple: SPT						Date of Testing:	17.05.2013	00 00				
Location	: BH-7(Yam	BH-7(Yamuna River- Ambala)	bala)				Tested by :	D.Mohanty	×0.00				
ple	y : Binayak Swain	wain								4			
(I) Perc	Percentage of 75 micron passing (from sieve analysis)	passing (from sit	ve analysis)		71.72	CALIBRA	CALIBRATION OF HYDROMETER	ETER	15.00	*			
	Mass of dry soil passing 2mm sieve taken (gm) Mass of dry soil retained on 75micron siave (gm)	2mm sieve taken	(gm)		50	(Rh)	H (cm)	He (cm)	I				
	Mass of dry soil passing 75 micron Wh (gm)	5 micron Wh (gi	TI)		35.9	25	2.4	9.95	- e		•	1	
	Specific gravity of soil grains, Gs	ins, Gs			2.64	20	4.0	11.55	2022			1	
	Top Meniscus reading on hydrometer stem	hydrometer sten	-		2.0	15	5.7	13.25					
	Bottom meniscus reading on hydrometer stem	on hydrometer s	stem		2.5	10	7.4	14.95					
A Hvd	Nieniscuss correction, Cm = + [ (VII) - (VI) ] Hvdrometer No	(IN) - (IIN) ] + = I		*	0.5	5	9.1	16.65	2		γ = -0.33	y = -0.334x + 18.27	
Volu	ometer	V (cm3)		50		2 4	10.1	10.23					
Heiç	_	(200)		30 16.5	Rh = hydrometer Reading	meter Rea	ding 12:4	19.30	0.00		Rh		
Sed Cros	Sedimentation Jar No Cross sectional area of jar (A) in cm2	r (A) in cm2		1 35.714	H = height He = Effect	corresponding ive height	H = height corresponding to Rh He = Effective height = H + 0.5*(h -V/A)		0	10	20	30	40
Time Elar (m	Elapsed Hydrometer Time Reading (Rh) (min)	Temperature (o C)	Composite Correction +/- C	Effective depth h (cm)	Rc1 = Rh + Cm	Sqrt ( h/t)	Viscosity (gm/cm2)	Factor M	Particle 'C' (cm) (8) x (10)	Rc2 = Rh + C (3) + (5)	Factor N	% Finner w.r.t Wd F (12) x (13)	% Finner w.r.t total mass (14)
1	2 3	4	5	9	7	8	6	10	11	12	13	14	15
10.30 0	0.5 24.00	29	-2.0	10.25	24.50	0.585	0.000008341	0.012352284	0.00722160	22.00	4.489	98.76	70.83
	_	29	-2.0	10.42	24.00	0.417	0.000008341	0.012352284	0.00514786	21.50	4.489	96.51	69.22
- 1	2 23.00	29	-2.0	10.59	23.50	0.297	0.000008341	0.012352284	0.00366913	21.00	4.489	94.27	67.61
		29	-2.0	10.76	23.00	0.212	0.000008341	0.012352284	0.00261485	20.50	4.489	92.02	66.00
		29	-2.0	10.92	22.50	0.151	0.000008341	0.012352284	0.00186328	20.00	4.489	89.78	64.39
5		29	-2.0	11.09	22.00	0.111	0.000008341	0.012352284	0.00137111	19.50	4.489	87.54	62.78
		29	-2.0	11.26	21.50	0.079	0.000008341	0.012352284	0.00097679	19.00	4.489	85.29	61.17
5.75		29	-2.0	11.42	21.00	0.056	0.000008341	0.012352284	0.00069580	18.50	4.489	83.05	59.56
	_	29	-2.0	11.59	20.50	0.040	0.000008341	0.012352284	0.00049559	18.00	4.489	80.80	57.95
5	_	29	-2.0	11.76	20.00	0.029	0.000008341	0.012352284	0.00035295	17.50	4.489	78.56	56.34
4		32	-2.0	11.92	19.50	0.020	0.000007821	0.011961022	0.00024338	17.00	4.489	76.31	54.73
14	1440 18.54	32	-2.0	12.08	19.04	0.012	0.000007821	0.011961022	0.000141424	16.54	4.489	74.23	53.24

( ( ( ( (( 

Arki Techno Cons N 3/91, IRC Vil		-		.Ltd	
DETERMINATION OF LIQ		IT AND F			i di ta se constante di ta se const
	720 (Part	-5)			
ent : DFCC oject Name : G.I For 3 Nos. Important Bridges					
pe of Sample : SPT		Date Of Test	ing :	16.05.2013	
cation : BH-7(Yamuna River-Ambala)		Sampled by	ing . :	Binayak Swaii	n
pth : 1.5m		Tested by		D.Mohanty	
		100100 03	•	Dimonanty	
umber of Blows	34	32	24	20	Plastic Limit
ontainer No.	F1	F2	F3	F4	
ontainer Weight (gm) (W1)	30.25	33.24	34.18	32.74	
ontainer + Wt. of wet soil (gm) (W2)	81.80	94.74	96.61	102.04	
t of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
t. Of water (gm) (W2-W1)-(W3-W1)	3.96	5.82	10.67	14.79	
/t. of oven dry soil (gm) (W3-W1)	47.59	55.68	51.76	54.51	
bisture Content (%)= V2-W1)-(W3-W1)]/(W3-W1) X 100	8.32	10.45	20.61	27.13	
				Result Su	ummary
		Liquid Lir	nit (WL)	19	%
		Plastic Lir	mit (Wp)	NF	>
		Plasticity In	idex (lp)		
65					
60					
55					
50					
45					
40					
35					
30 2					
25 5					
2					
20					
15					
10	e.				
5	R	•			
0					
0 10 No of Blows					100

i ad



1

.

## Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

lient				20 (Part	-1				
	:	DFCC							
oject Name		G.I For 3 Nos. Impo	rtant Bridges		27				
pe of Sample	1		• • • • • • • • • •		Date Of Tes	-	16.05.2013		
cation	1	BH-7(Yamuna River 3.0m	r-Ambala)		Sampled by		Binayak Swair	ı	
epth	•	5.0M			Tested by	:	D.Mohanty		
umber of Blov	vs			30	33	21	24	Plas	tic Limit
ontainer No.		e was en en		V1	V2	V3	V4		
ontainer Weig	ht (g	ım) (W1)		 31.52	32.48	33.58	34.61		
ontainer + Wt	of v	wet soil (gm) (W2)		83.85	94.27	99.16	98.09	-1 <i>5</i>	
/t of Container	r + W	Vt. of oven dry soil	(gm) (W3)	77.84	88.92	85.94	87.25		
/t. Of water (g	m) (\	W2-W1)-(W3-W1)		6.01	5.36	13.22	10.84	1271785	
Vt. of oven dr	y soi	l (gm) (W3-W1)		46.32	56.44	52.36	52.64		-
loisture Conte		5)= /(W3-W1) X 100	3	 12.97	9.49	25.24	20.59		-
<u>vvz-vv1)-(vv3-</u>	vv ()	/(003-001) × 100		 			Result Su	mmary	
					Liquid Lir	mit (WL)	19		%
					Plastic Li	mit (Wp)	NP		3 N
					Plasticity Ir	ndex (lp)	_		
			1						
65									
60									
60 55									
55									
55			Image: Section of the sectio						
55									
55									
55			Image: Section of the sectio						
55 50 45 40 35 <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b>			Image: state						
55 50 45 40 35 30 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9									
55 50 45 40 35 <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b>									
55 50 45 40 35 30 20 20 55 40 45 40 35 20 20 20 50 20 50 45 40 40 40 40 50 40 40 40 40 40 40 40 40 40 40 40 40 40									
55 50 45 40 35 30 25									
55 50 45 40 35 30 25 50 30 30 25 50 30 30 25 50 30 30 30 30 30 30 30 30 30 30 30 30 30									
55 50 45 40 35 30 25 50 90 90 90 90 90 90 90 90 90 90 90 90 90						-         -           -         -			
55 50 45 40 35 30 25 0 20 15						-         -           -         -			
55 50 45 40 35 <b>t</b> 30 <b>e</b> <b>t</b> <b>e</b> <b>e</b> <b>e</b> <b>e</b> <b>e</b> <b>e</b> <b>e</b> <b>e</b>					A PANE A				



: DFCC

Client

# Arki Techno Consultants (India) Pvt.Ltd

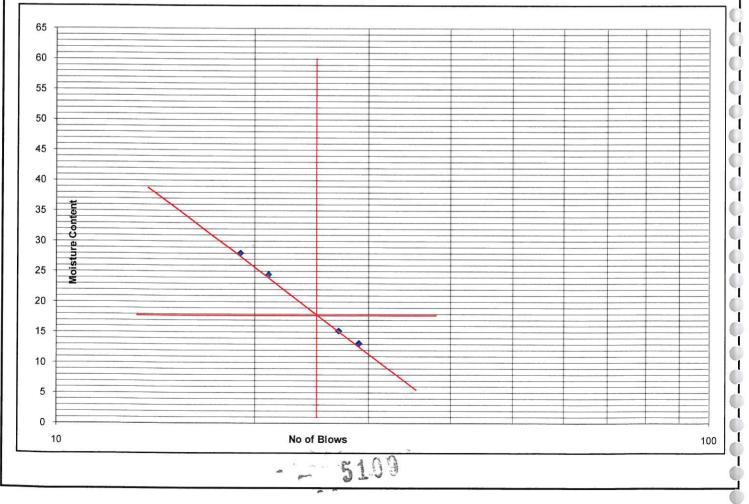
# N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

	•	5100					
Project Name	:	G.I For 3 Nos. Important Bridges					
Type of Sample	:	SPT		Date Of Tes	ting :	16.05.2013	
Location	:	BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swair	n
Depth	:	4.5m		Tested by	:	D.Mohanty	
Number of Blow	'S		29	27	19	21	Plastic Limit
Container No.			B1	B2	B3	B4	
Container Weigh	ht (g	m) (W1)	32.2	34.15	33.36	31.28	
Container + Wt.	of \	wet soil (gm) (W2)	83.85	97.26	100.68	100.94	
Wt of Container	+ W	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gr	n) (V	W2-W1)-(W3-W1)	6.01	8.35	14.74	13.69	
Wt. of oven dry	/ soi	l (gm) (W3-W1)	45.64	54.77	52.58	55.97	
Moisture Conten [(W2-W1)-(W3-V		.)= /(W3-W1) X 100	13.16	15.24	28.03	24.45	
						Result Su	Immary

	Result Summa	ary	
Liquid Limit (WL)	18	%	ć
Plastic Limit (Wp)	NP		(
Plasticity Index (Ip)	_		



-



T

I

### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

#### IS: 2720 (Part -5)

Client	1	DFCC					
Project Name	0	G.I For 3 Nos. Important Bridges					
Type of Sample	:	SPT		Date Of Test	ting :	16.05.2013	
Location	:	BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swair	n
Depth	:	6.0m		Tested by	:	D.Mohanty	
۱						· · · · · · · · ·	10
Number of Blow	'S		30	27	21	18	Plastic Limit
Container No.			K1	K2	К3	K4	*******
Container Weig	ht (g	m) (W1)	31.41	33.25	34.51	30.85	
Container + Wt.	of	wet soil (gm) (W2)	83.29	97.52	98.55	104.14	
Wt of Container	+ N	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gr	n) (\	W2-W1)-(W3-W1)	5.46	8.60	12.61	16.89	
Wt. of oven dry	/ soi	l (gm) (W3-W1)	46.43	55.67	51.43	56.40	
Moisture Conter [(W2-W1)-(W3-\		.)= /(W3-W1) X 100	11.75	15.45	24.51	29.94	
1						Result Su	immary
[				Liquid Lir	mit (WL)	18	%
l –				Plastic Lir	mit (Wp)	NF	)
1				Plasticity In	ndex (Ip)	_	
1							
65							





: DFCC

Client

### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS : 2720 (Part -5)

ype of Sample : SPT ocation : BH-7(Yamuna River-Ambala)		Date Of Test	ing :	16.05.2013	
ocation : BH-7(Yamuna River-Ambala) Pepth : 9.0m		Sampled by Tested by	:	Binayak Swain D.Mohanty	
lumber of Blows	32	29	17	20	Plastic Limit
Container No.	N1	N2	N3	N4	
container Weight (gm) (W1)	34.15	33.63	35.12	36.52	
container + Wt. of wet soil (gm) (W2)	82.53	96.78	102.63	100.98	
Vt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Vt. Of water (gm) (W2-W1)-(W3-W1)	4.70	7.87	16.69	13.72	
Nt. of oven dry soil (gm) (W3-W1)	43.69	55.29	50.82	50.73	
loisture Content (%)= W2-W1)-(W3-W1)]/(W3-W1) X 100	10.75	14.23	32.84	27.05	
				Result Sun	
		Liquid Lir		19	%
		Plastic Lir		NP	
		Plasticity In	idex (lp)		201
65					
60					
55					
50					
45					
40					
25 <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b>					
25 <b>5</b> 20 15	*				
25 <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b> <b>5</b>	e e				
25 <b>5</b> 20 15	*				
25 <b>5</b> 20 <b>1</b> 5 10 <b>1</b> 0	×				

Arki Techno Cons	ultant	s (India	a) Pvt	.Ltd		
ARKITECHNO N 3/91, IRC VI						
I DETERMINATION OF LIQ		IT AND F		LIMIT		
	720 (Part	-5)				
Client : DFCC						
<sup>o</sup> roject Name : G.I For 3 Nos. Important Bridges <sup>I</sup> Type of Sample : SPT			• MARCENT - 20			
Location : BH-7(Yamuna River-Ambala)		Date Of Test	ing :	16.05.2013	14	
(Depth : 12.0m		Sampled by	:	Binayak Swa	lin	
		Tested by	:	D.Mohanty		
Number of Blows	30	32	21	23	Plasti	c Limit
Container No.	D1	D2	D3	D4		
Container Weight (gm) (W1)	30.52	31.26	32.41	33.58		
Container + Wt. of wet soil (gm) (W2)	82.30	93.20	97.84	100.98		
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	90.15		
IWt. Of water (gm) (W2-W1)-(W3-W1)	4.46	4.28	11.90	10.83		
Wt. of oven dry soil (gm) (W3-W1)	47.32	57.66	53.53	56.57		
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	9.43	7.42	22.22	19.14		
				Result S	ummary	
		Liquid Lin	nit (WL)	1	6	%
1		Plastic Lir	nit (Wp)	N	P	
1		Plasticity In	dex (lp)		-	
1 m					0-91.1	
65						
1 60						
55						
50						
1 45						
1 40						
2						
15						
1 10						
1 5	X					
1 10 No of Blows						100
		0				······
		6				

Arki Techno Col				<b>_</b>	
ARKITECHNO ODFEALANTE IN 3/91, IRC					
	: 2720 (Part		LASIN		
Client : DFCC	. 2120 (I alt	-0)			
Project Name : G.I For 3 Nos. Important Bridges					
ype of Sample : SPT		Date Of Test	ing :	16.05.2013	
.ocation : BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swair	1
Depth : 15.0m		Tested by	:	D.Mohanty	
Number of Blows	26	28	17	21	Plastic Limit
Container No.	Z1	Z2	Z3	Z4	
Container Weight (gm) (W1)	34.15	33.63	32.74	31.1	
Container + Wt. of wet soil (gm) (W2)	84.05	95.04	101.38	102.82	
Vt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	90.15	
Vt. Of water (gm) (W2-W1)-(W3-W1)	6.21	6.13	15.44	12.67	
Wt. of oven dry soil (gm) (W3-W1)	43.69	55.29	53.20	59.05	
/loisture Content (%)= (W2-W1)-(W3-W1)]/(W3-W1) X 100	14.21	11.08	29.02	21.46	
				Result Su	mmary
		Liquid Lir	nit (WL)	15	
		Plastic Li	mit (Wp)	NP	
		Plasticity In	idex (lp)	_	
65					
60					
FE					
55					
50					
45					
40					
40					
35					
30					
25					
20 <b>S</b>				-	
20					
15					
10	X				
5					
5 0 10 No of Blo					100

-

Arki Techno Cor	nsultant	s (Indi	a) Pvt	Ltd		
ARKITECHNO N 3/91, IRC \						
DETERMINATION OF L			PLASTIC			
IS: Client : DFCC	2720 (Part	-5)				
Project Name : G.I For 3 Nos. Important Bridges						
Type of Sample : SPT		Date Of Tes	tina :	16.05.2013		
Location : BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swa	uin	
Depth : 18.0m		Tested by	:	D.Mohanty		
		_				
Number of Blows	30	33	20	23	Plasti	ic Limit
Container No.	C1	C2	C3	C4		
Container Weight (gm) (W1)	31.24	34.15	33.52	32.62		
Container + Wt. of wet soil (gm) (W2)	83.85	93.84	100.18	102.82		
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	90.15		
Wt. Of water (gm) (W2-W1)-(W3-W1)	6.02	4.92	14.23	12.67		
Wt. of oven dry soil (gm) (W3-W1)	46.60	54.77	52.42	57.53		
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	12.91	8.98	27.15	22.03		
				Result S	ummary	J
		Liquid Lir	nit (WL)	19	9	%
		Plastic Li	mit (Wp)	N	P	
		Plasticity In	dex (lp)		-	2444-00-
65						<u>+</u> ]
60						
55						
50						
50						
45						
40						
35						
30						
25						
20						
15						
	X					
10	X					
5						
0						
10 No of Blow	/S	- E- 25 - 14 - 54, - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 - 5 -				100
	511	1	WAT 1			I
The day	1.0 V 4.4	2	-			

	Arki Teo	chno Cor	nsultant	s (India	a) Pvt	.Ltd	
	N	3/91, IRC \	/illage, Bl	nubanes	war		
	DETERMINA				PLASTI	C LIMIT	
		IS :	2720 (Part	-5)			
	DFCC						
Project Name		t Bridges					
-	SPT			Date Of Test	-	16.05.2013	
ocation :	BH-7(Yamuna River-Am	ibala)		Sampled by	:	Binayak Swai	n
epth :	21.0m			Tested by	:	D.Mohanty	
lumber of Blows			26	29	21	19	Plastic Limi
ontainer No.			Q1	Q2	Q3	Q4	
Container Weight	(gm) (W1)		33.32	31.15	34.52	32.22	
Container + Wt. of	wet soil (gm) (W2)		85.72	96.98	99.01	106.80	
Vt of Container +	Wt. of oven dry soil (gm	ו) (W3)	77.84	88.92	85.94	90.15	
Vt. Of water (gm)	(W2-W1)-(W3-W1)	in handelande et de la señeral	7.88	8.06	13.07	16.65	in the second
Nt. of oven dry s	oil (gm) (W3-W1)		44.52	57.77	51.42	57.93	
loisture Content ( W2-W1)-(W3-W1	%)= )]/(W3-W1) X 100		17.71	13.95	25.41	28.75	
						Result S	ummary
				Liquid Lir	mit (WL)	19	9 %
				Plastic Li	mit (Wp)	NF	>
				T lastic El	(••p)	INF	
				Plasticity Ir			•
65							
65							
65							
60							
60							
60							
60 55 50							
60 55 50 45 40							
60 55 50 45 40 35							
60 55 50 45 40 35 30 20 20 20 20 20 20 20 20 20 20 20 20 20							
60 55 50 45 40 35 20 90							
60 55 50 45 40 35 30 20 20 20 20 20 20 20 20 20 20 20 20 20							
60 55 50 45 40 35 30 25 50 45 40 30 25 50 50 45 50 50 50 50 50 50 50 50 50 5							
60 55 50 45 40 35 30 25 <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b> <b>10</b>							

No of Blows

.

I

I

-

1	Arki Tec	hno C	onsu	Iltant	s (Indi	a) Pvt	.Ltd		
					nubanes	120			
1	DETERMINAT						LIMIT		
l			IS : 272	0 (Part	-5)				
Client :	DFCC								
Project Name :	G.I For 3 Nos. Important E	Bridges							
Type of Sample : Location	SPT				Date Of Tes	ting :	16.05.2013		
Location : Depth :	BH-7(Yamuna River-Amb 24.0m	ala)			Sampled by	:	Binayak Swa	in	
i deptini .	24.0m				Tested by	:	D.Mohanty		
Number of Blows				27	20	16	19	Plast	ic Limit
Container No.				A2	A3	A4	A5		
Container Weight (g	m) (W1)			33.63	31.41	34.52	30.74	- <u> </u>	
Container + Wt. of v				83.68	102.81	102.51	105.58		
Wt of Container + W	/t. of oven dry soil (gm)	(W3)		77.84	88.92	85.94	90.15		
Wt. Of water (gm) (V	W2-W1)-(W3-W1)			5.84	13.89	16.56	15.43		
Wt. of oven dry soil	l (gm) (W3-W1)	). 		44.21	57.51	51.42	59.41		
Moisture Content (% [(W2-W1)-(W3-W1)]				13.21	24.16	32.21	25.97		
						<u></u>	Result Si	ummarv	<u> </u>
					Liquid Lir	nit (WL)	16		%
		5			Plastic Lir	nit (Wp)	N	 >	
					Plasticity In	dex (lp)			
			Sector Sector		L			C.780	
65									
60									
55									
50									
45									
45									
40									
35	1	-							
	Y								
30									
25									
20									
20									
15									
10									
5									
0		Ne of	Players						
	0 	No of	DIOWS						100
			-	- 5 1'1	a				
				V	9				
								465	

I I 

A	
ARKITECHNO	

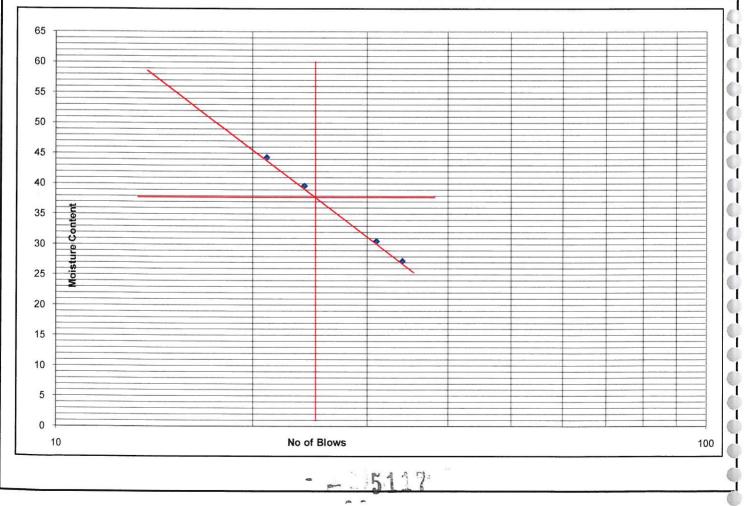
## Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

#### IS: 2720 (Part -5)

				- /				
Client	;	DFCC						
Project Name	;	G.I For 3 Nos. Important Bridges						
Type of Sample	:	SPT		Date Of Test	ting :	16.05.2013		
Location	:	BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swa	in	
Depth	:	33.0m		Tested by	;	D.Mohanty		
Number of Blow	/S		34	31	21	24	Plasti	c Limit
Container No.			U1	U2	U3	U4	U5	U6
Container Weig	ht (g	m) (W1)	31.1	30.24	33.15	34.51	35.12	36.52
Container + Wt.	of	wet soil (gm) (W2)	90.59	106.82	109.34	112.19	83.70	96.73
Wt of Container	+ W	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	90.15	76.15	87.41
Wt. Of water (gi	m) (\	W2-W1)-(W3-W1)	12.75	17.90	23.39	22.04	7.55	9.32
Wt. of oven dr	y soi	l (gm) (W3-W1)	46.74	58.68	52.79	55.64	41.03	50.89
Moisture Conter [(W2-W1)-(W3-		5)= /(W3-W1) X 100	27.28	30.51	44.31	39.62	18.41	18.32

	Result Summa	ary	
Liquid Limit (WL)	38	%	
Plastic Limit (Wp)	18	%	
Plasticity Index (Ip)	20	%	



A	-
ARKITECHNO	

I

1

1 1

1

1

1

1

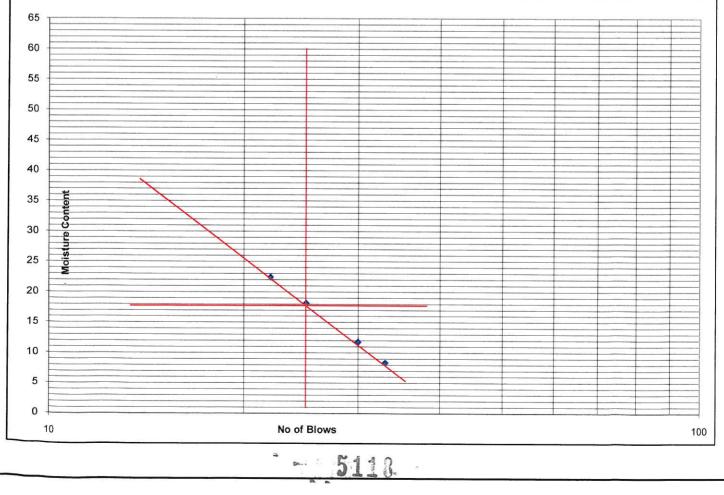
### Arki Techno Consultants (India) Pvt.Ltd N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

#### IS: 2720 (Part -5)

				,			
Client	:	DFCC					
Project Name	:	G.I For 3 Nos. Important Bridges					
Type of Sample	:	SPT	x	Date Of Test	ting :	16.05.2013	
Location	:	BH-7(Yamuna River-Ambala)		Sampled by	:	Binayak Swai	n
Depth	:	36.0m		Tested by	:	D.Mohanty	
11							
Number of Blov	vs		33	30	22	25	Plastic Limit
Container No.		G1	G2	G3	G4	NP	
Container Weig	ght (g	ım) (W1)	32.25	33.15	34.57	36.98	
Container + Wt	. of	wet soil (gm) (W2)	81.65	95.48	97.46	99.78	
Wt of Container	r + V	/t. of oven dry soil (gm) (W3)	77.84	88.92	85.94	90.15	
Wt. Of water (g	m) (\	N2-W1)-(W3-W1)	3.81	6.56	11.51	9.63	
Wt. of oven dr	y soi	l (gm) (W3-W1)	45.59	55.77	51.37	53.17	
Moisture Conter [(W2-W1)-(W3-		5)= /(W3-W1) X 100	8.36	11.76	22.41	18.12	
.1						Result Si	Immary

	Result Summa	ary	
Liquid Limit (WL)	18	%	
Plastic Limit (Wp)	NP		
Plasticity Index (Ip)	_		



	10	1				
	100	-		10.00		
AR	IC I	T	F	н	NC	1

# Arki Techno Consultants (India) Pvt.Ltd

N 3/91, IRC Village, Bhubaneswar DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

			18	5 : 272	0 (Part	-5)				
Client	:	DFCC								
Project Name	:	G.I For 3 Nos. Important	Bridges							
ype of Sample	:	SPT				Date Of Tes	ting :	16.05.2013		
_ocation	:	BH-7(Yamuna River-Amb	oala)			Sampled by	:	Binayak Swai	n	
Depth	:	42.0m				Tested by	:	D.Mohanty		
Number of Blov	vs				28	31	20	23	Plasti	c Limit
Container No.			Mar and		A1	A2	A3	A4	١	١P
Container Weig	ht (g	m) (W1)			35.52	34.12	33.26	32.2		
Container + Wt	. of	wet soil (gm) (W2)			83.95	94.71	99.84	102.34		
Nt of Containe	r + V	/t. of oven dry soil (gm)	(W3)		77.84	88.92	85.94	90.15		
Vt. Of water (g	m) (\	W2-W1)-(W3-W1)			6.11	5.79	13.89	12.19		
		l (gm) (W3-W1)			42.32	54.80	52.68	57.95		
Noisture Conte (W2-W1)-(W3-		5)= /(W3-W1) X 100			14.44	10.57	26.37	21.03		
								Result S	ummary	
						Liquid Lir	mit (WL)	18	3	%
						Plastic Li	mit (Wp)	NF	>	
						Plasticity Ir	ndex (lp)	_	8	
65										
60										
55	-									
50										
45										
40										
		1								
35 L tu 0										
30 <del>2</del>										
25 0										
20										
15				Y						
10				<b>`</b>	Y					
5										
5 0 10			No of E	Blows				mand I	<u> </u>	100

Arki Techno Consultants (India) Pvt.Ltd								
N 3/91, IRC Village, Bhubaneswar								
DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD								
AS PER IS : 2386 (Part -2)								
Client	: DFCC							
Project Name	: G.I For 3 Nos. Important Bridges							
Type of Sample	: SPT	Date Of Testing	:	16.05.2013				
Location	: BH-7(Yamuna River-Ambala)	Sampled by	:	Binayak Swain				
Depth	: 1.5m	Tested by	:	D.Mohanty				
SI. No.	Observations	1		Remarks				
1	Weight of density bottle W1 in gm	31.52						
2	Weight of bottle with dry soil in W2 gm	36.52						
3	Weight of bottle with soil and water W3 in gm	134.52						
4	Weight of bottle full of water W4 in gm	132.79						
5	Weight of dry soil (W2-W1)in gm	5.00						
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	3.27						
7	Specific Gravity G = (5) / (6)	1.53						
			<u>18</u>					

(

ç

Arki Techno Consultants (India) Pvt.Ltd									
N 3/91, IRC Village, Bhubaneswar									
DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD									
	AS PER IS : 2386 (Part -2)								
Client	:	DFCC							
Project Name	:	G.I For 3 Nos. Important Bridges							
Type of Sample	:	SPT	Date Of Testing	:	16.05.2013				
Location : BH-7(Yamuna River-Ambala) Sampled by : Binayak Swain									
Depth	:	4.5m	Tested by : D.Mohanty						
SI. No.		Observations	1		Remarks				
1		Weight of density bottle W1 in gm	31.52						
2		Weight of bottle with dry soil in W2 gm	35.52						
3	w	eight of bottle with soil and water W3 in gm	135.25						
4		Weight of bottle full of water W4 in gm	133.85						
5		Weight of dry soil (W2-W1)in gm	4.00						
6	M	/eight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.60						
7		Specific Gravity G = (5) / (6)	1.54						
	-				•				

- 5121

O O 0 O O 0 

ť ( ( ( C ( ( ( ( 0 €

6

0

O 0

Arki Techno Consultants (India) Pvt.Ltd							
DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD							
AS PER IS : 2386 (Part -2)							
Client	: DFCC						
	: G.I For 3 Nos. Important Bridges						
Type of Sample		Date Of Testing :	16.05.2013				
Location	: BH-7(Yamuna River-Ambala)	Sampled by :	Binayak Swain				
Depth	: 9.0m	Tested by :	D.Mohanty				
SI. No.	Observations	1	Remarks				
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	36.21					
3	Weight of bottle with soil and water W3 in gm	134.12					
4	Weight of bottle full of water W4 in gm	132.48					
5	Weight of dry soil (W2-W1)in gm	4.69					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	3.05					
7	Specific Gravity G = (5) / (6)	1.54					
			I				

- 5122

к.

(

A	Arki Techno Consultants (India) Pvt.Ltd							
ARKITECHNO CONSULIANTE (NDIA) PVT. LTD.								
DETERM	INATION OF SPECIFIC GRAVITY		во	TTLE METHOD				
	AS PER IS : 2386	(Part -2)						
Client	: DFCC							
Project Name	: G.I For 3 Nos. Important Bridges							
Type of Sample	pe of Sample: SPT Date Of Testing: 16.05.2013							
Location	: BH-7(Yamuna River-Ambala)	River-Ambala) Sampled by : Binayak Swain						
Depth	: 15.0m	Tested by : D.Mohanty						
Sl. No.	Observations	1		Remarks				
1	Weight of density bottle W1 in gm	31.52						
2	2 Weight of bottle with dry soil in W2 gm 35.21							
3	3 Weight of bottle with soil and water W3 in gm 136.71							
4	4 Weight of bottle full of water W4 in gm 135.28							
5	Weight of dry soil (W2-W1)in gm	3.69						
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26						
7	Specific Gravity G = (5) / (6)	1.63						

- - 5123

A	Arki Techno Consultants (India) Pvt.Ltd						
N 3/91, IRC Village, Bhubaneswar							
DETERM	DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD						
	AS PER IS : 2386	(Part -2)					
Client	: DFCC						
Project Name	: G.I For 3 Nos. Important Bridges						
Type of Sample	: SPT	Date Of Testing :	16.05.2013				
Location	: BH-7(Yamuna River-Ambala)	Sampled by :	Binayak Swain				
Depth	: 21.0m	Tested by :	D.Mohanty				
SI. No.	Observations	1	Remarks				
1	Weight of density bottle W1 in gm	31.52					
2	Weight of bottle with dry soil in W2 gm	36.14					
3	Weight of bottle with soil and water W3 in gm	135.14					
4	Weight of bottle full of water W4 in gm	133.52					
5	Weight of dry soil (W2-W1)in gm	4.62					
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	3.00					
7	Specific Gravity G = (5) / (6)	1.54					

Arki Techno Consultants (India) Pvt.Ltd								
	N 3/91, IRC Village, B							
DETERM	INATION OF SPECIFIC GRAVITY		BO	TTLE METHOD				
	AS PER IS : 2386	(Part -2)						
Client	: DFCC							
Project Name	: G.I For 3 Nos. Important Bridges							
Type of Sample	Type of Sample : SPT Date Of Testing : 16.05.2013							
Location	cation : BH-7(Yamuna River-Ambala) Sampled by : Binayak Swain							
Depth	: 36.0m Tested by : D.Mohanty							
SI. No.	Observations	1		Remarks				
1	Weight of density bottle W1 in gm	31.52						
2	2 Weight of bottle with dry soil in W2 gm 35.26							
3	3 Weight of bottle with soil and water W3 in gm 134.47							
4	4 Weight of bottle full of water W4 in gm 133.10							
5	Weight of dry soil (W2-W1)in gm	3.74						
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.37						
7	7 Specific Gravity G = (5) / (6) 1.58							

i

**- 51**25

ANNITECHNO	01						N 3/91, IRC Village, Bhubaneswar	N 3/91, IRC Village, Bhubaneswar	leswar	i					
				DETERN	DETERMINATION OF	OF BULK C	<b>JENSITY &amp;</b>	MOISTURE	BULK DENSITY & MOISTURE CONTENT OF SOIL	OF SOIL S	SAMPLE				
Client		DFCC													
Project Name		G.I For 3 Nos.	G.I For 3 Nos. Important Bridges	ges											
Location	•	BH-7(Yamuna River-Ambala)	River-Ambala)												
SI No.	BH No,	Depth in m	Type of Sample	Date of Testing	Weight of Container in gm	Diameter of Sample in cm	Length of Sample in cm	Volume of Sample in cc	Weight of Container + Wet Soil in gm	Weight of Container + Dry soil in gm	Weight of Dry soil in gm	Weight of water in gm	Moisture Content in %	Bulk Density in gm/cc	Dry Density in gm/cc
-		1.5	SPT	16.05.2013	62.34	3.8	2	79.39	199.68	190.32	127,98	9.37	7.32	1.73	1.61
e	(sis	4.5	SPT	16.05.2013	60.71	3.8	7	79.39	202.82	193.66	132.95	9.16	6.89	1.79	1.67
4	dmA-	6.0	SPT	16.05.2013	63,49	3.8	7	79.39	204.80	194.93	131.44	9.87	7.51	1.78	1.66
£	River	12.0	SPT	16.05.2013	60,77	3.8	7	79,39	210.02	200,99	140.22	9.03	6.44	1.88	1.77
Q	eunu	21.0	SPT	16.05.2013	64.84	3.8	7	79.39	214,89	204,50	139,66	10.39	7.44	1.89	1.76
1 (a)	16Y)7-	33.0	SPT	16.05.2013	65.31	3.8	7	79.39	222.50	197.73	132,42	24.78	18.71	1.98	1.67
8	НВ	36.0	SPT	16.05.2013	60.5	3.8	7	79.39	209.75	198.43	137.93	11.32	8.21	1.88	1.74
°		42,0	SPT	16.05.2013	61.31	3.8	7	79.39	212.94	199,87	138.56	13.08	9.44	1.91	1.75

Arki Techno Consultants (India ) Pvt. Ltd						
	N 3/91,	IRC Village,	Bhubaneswar	<u></u>		
GRAI	N SIZE ANALYS	IS OF SOIL	AS PER IS 2720	( P- 4 )		
Client :	DFCC					
A		tant Bridges				
Type of Sample :			Date of Testing :			
Location :	BH-8(Yamuna River-	Ambala)	Sampled by :	Binayak Swain		
Depth :	1.5m		Tested by :	D.Mohanty		
Weight of oven dried sample before washing (gm) :-100.00Weight of oven dried sample after washing (gm) :-86.26						
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %		
75	0	0.00	0.00	100.00		
50	0	0.00	0.00	100.00		
37.5	0	0.00	0.00	100.00		
19	0	0.00	0.00	100.00		
4.75	1.65	1.65	1.65	98.35		
2.00	33.69	33.69	35.34	64.66		
0.425	29.11	29.11	64.45	35.55		
0.075	21.81	21.81	86.26	13.74		
Total	100.00					
Gravel Content (%)= 1.65						
Sand Content (%) = 84.61 Silt and clay % 13.74						
Remarks :-						
	at	- 512	2			
		ja e				

Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar							
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	) ( P- 4 )			
Client :	DFCC						
Project Name :	G.I For 3 Nos. Impor	tant Bridges					
	SPT		Date of Testing :	20.05.2013			
Location :	BH-8(Yamuna River-	Ambala)	Sampled by :	Binayak Swain			
Depth :	3.0m	1	Tested by :	D.Mohanty			
Weight of oven dried	d sample before wash	ina (am) :-	100.00				
Weight of oven dried sample after washing (gm) :- 84.45							
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %			
75	0	0.00	0.00	100.00			
50	0	0.00	0.00	100.00			
37.5	0	0.00	0.00	100.00			
19	0	0.00	0.00	100.00			
4.75	1.48	1.48	1.48	98.52			
2.00	31.56	31.56	33.04	66.96			
0.425	29.41	29.41	62.45	37.55			
0.075	22.00	22.00	84.45	15.55			
Total	100.00						
Gravel Content (%)= 1.48							
Sand Content (% ) =		82.97	Silt and clay %	15.55			
Remarks :-							
Remarks							
	- d B	K490					

(

(

(

ž

No. and Theory P			nts (India ) I	Pvt. Ltd			
GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)							
	DFCC			(1 4)			
-	G.I For 3 Nos. Impor	tant Bridges					
ype of Sample :		tant bridges	Date of Testing :	20.05.2013			
	BH-8(Yamuna River-	Ambala)	Sampled by :	Binayak Swain			
	4.5m	, ,	Tested by :	D.Mohanty			
	l sample before wash I sample after washin	-	100.00 86.24				
				-			
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %			
75	0	0.00	0.00	100.00			
50	0	0.00	0.00	100.00			
37.5	0	0.00	0.00	100.00			
19	0	0.00	0.00	100.00			
4.75	1.92	1.92	1.92	98.08			
2.00	32.87	32.87	34.79	65.21			
0.425	29.79	29.79	64.58	35.42			
0.075	21.66	21.66	86.24	13.76			
Total	100.00						
and Content (%)=		<b>1.92</b> 84.32	Silt and clay %	13.76			
emarks :-		04.32	Sint and clay %	13.70			
	140-1 1	. 1512-9	y.				

( ( ť ( ( ( ( C ( ( C C 0  $\mathbb{O}$ 0 O 0 0 0 0 O 0 0 0 € 0

	Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar					
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	(P-4)		
Client : Project Name : Type of Sample : Location :	G.I For 3 Nos. Impor	-	Date of Testing : Sampled by :	20.05.2013 Binayak Swain		
Depth :	6.0m		Tested by :	D.Mohanty		
Weight of oven dried sample before washing (gm) :-100.00Weight of oven dried sample after washing (gm) :-85.45						
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %		
75	0	0.00	0.00	100.00		
50	0	0.00	0.00	100.00		
37.5	0	0.00	0.00	100.00		
19	0	0.00	0.00	100.00		
4.75	2.07	2.07	2.07	97.93		
2.00	31.52	31.52	33.59	66.41		
0.425	29.31	29.31	62.90	37.10		
0.075	22.55	22.55	85.45	14.55		
Total	100.00					
Gravel Content (%)= Sand Content (% ) =		<b>2.07</b> 83.38	Silt and clay %	14.55		
Remarks :-						
	мар Вран на + т,	5130				

Arki Techno Consultants (India ) Pvt. Ltd						
	N 3/91,	IRC Village,	Bhubaneswar			
GRAI	N SIZE ANALYS	SIS OF SOIL	AS PER IS 2720	) ( P- 4 )		
Client :	DFCC					
Project Name :	G.I For 3 Nos. Impor	tant Bridges				
Type of Sample :	SPT		Date of Testing :	20.05.2013		
Location :	BH-8(Yamuna River-	Ambala)	Sampled by :	Binayak Swain		
Depth :	10.5m		Tested by :	D.Mohanty		
Weight of oven dried	d sample before wash	ing (gm) :-	100.00			
Weight of oven dried sample after washing (gm) :- 90.43						
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %		
75	0	0.00	0.00	100.00		
50	0	0.00	0.00	100.00		
37.5	0	0.00	0.00	100.00		
19	0	0.00	0.00	100.00		
4.75	12.29	12.29	12.29	87.71		
2.00	30.52	30.52	42.81	57.19		
0.425	25.87	25.87	68.68	31.32		
0.075	21.75	21.75	90.43	9.57		
Total	100.00					
Gravel Content (%)= 12.29 Sand Content (%) = 78.14 Silt and clay % 9.57						
		78.14	Silt and clay %	9.57		
Remarks :-						
	nd gbr	5131				
		v				

( ( ( ¢ ( ( C ( ( C € € € € € 0  $\bigcirc$ 0 0 O 0 0 O O 0 0 0 

Arki Techno Consultants (India ) Pvt. Ltd					
<b>ARKITECHNO</b> N 3/91, IRC Village, Bhubaneswar					
GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)					
Client :	DFCC				
Project Name :	G.I For 3 Nos. Impor	tant Bridges			
Type of Sample :	SPT		Date of Testing :	20.05.2013	
Location :	BH-8(Yamuna River-Ambala)		Sampled by :	Binayak Swain	
Depth :	12.0m		Tested by :	D.Mohanty	
Weight of oven dried	d sample before wash	ina (am) :-	100.00		
	sample after washin	• • • •			
		3 (3) .	94.22		
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %	
75	0	0.00	0.00	100.00	
50	0	0.00	0.00	100.00	
37.5	0	0.00	0.00	100.00	
19	0	0.00	0.00	100.00	
4.75	13.48	13.48	13.48	86.52	
2.00	31.47	31.47	44.95	55.05	
0.425	26.87	26.87	71.82	28.18	
0.075	22.40	22.40	94.22	5.78	
Total	100.00				
Gravel Content (%)=		13.48			
Sand Content (% ) =		80.74	Silt and clay %	5.78	
Remarks :-					
	400 ( 1994) - 19	51.29			
		5132			

Arki Techno Consultants (India ) Pvt. Ltd				
AIKITECHNO N 3/91, IRC Village, Bhubaneswar				
GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 ( P- 4 )				
GRA	IN SIZE ANAL IS		A3 PER 13 21 20	)(P-4)
Client :	DFCC			
Project Name :	G.I For 3 Nos. Import	tant Bridges		
Type of Sample :			Date of Testing :	20.05.2013
Location :	BH-8(Yamuna River-	Ambala)	Sampled by :	Binayak Swain
Depth :	18.0m	No. 1 - 1 - 2 - 11 - 2	Tested by :	D.Mohanty
Weight of oven drie	d sample before wash	ina (am) :-	100.00	
	d sample after washin		91.44	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	14.56	14.56	14.56	85.44
2.00	30.74	30.74	45.30	54.70
0.425	27.18	27.18	72.48	27.52
0.075	18.96	18.96	91.44	8.56
Total	100.00			
Gravel Content (%)=		14.56		
		70.00		
Sand Content (% ) =		76.88	Silt and clay %	8.56
Remarks :-				
	~	Pana.	-	
		5133		
	8			

Client :	N SIZE ANALYS	IRC Village,	Bhubaneswar	
Client : Project Name :				
Project Name :		DIS OF SUIL	AS PER IS 2/20	)(P-4)
	DFCC			
vpe of Sample	G.I For 3 Nos. Impor	tant Bridges		
			Date of Testing :	20.05.2013
	BH-8(Yamuna River-Ambala)		Sampled by :	Binayak Swain
Depth :	21.0m		Tested by :	D.Mohanty
Veight of oven dried	sample before wash	ing (gm) :-	100.00	
Weight of oven dried sample after washing (gm) :-		91.02		
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	11.87	11.87	11.87	88.13
2.00	32.15	32.15	44.02	55.98
0.425	27.76	27.76	71.78	28.22
0.075	19.24	19.24	91.02	8.98
Total	100.00			
I			1	
Gravel Content (%)=		11.87		
and Content (% ) =		79.15	Silt and clay %	8.98
emarks :-				

Arki Techno Consultants (India ) Pvt. Ltd				
GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)				
Client : Project Name : Type of Sample : Location : Depth :	DFCC G.I For 3 Nos. Impor SPT BH-8(Yamuna River- 24.0m		Date of Testing : Sampled by : Tested by :	20.05.2013 Binayak Swain D.Mohanty
Weight of oven dried sample before washing (gm) :- Weight of oven dried sample after washing (gm) :-			100.00 92.67	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	12.61	12.61	12.61	87.39
2.00	32.68	32.68	45.29	54.71
0.425	27.91	27.91	73.20	26.80
0.075	19.47	19.47	92.67	7.33
Total	100.00			
Gravel Content (%)= Sand Content (% ) =		<b>12.61</b> 80.06	Silt and clay %	7.33
Remarks :-				
	-	- 5105	ίγ	

(

( ſ ( ( ſ ( ſ ſ ( C € € C C € O 0 € 0 O 0 0 O 0 O 0 0 0 0 0 ۲ 

Arki Techno Consultants (India ) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar				
GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)				
Project Name Type of Sample : Location :	DFCC G.I For 3 Nos. Impor SPT BH-8(Yamuna River 27.0m		Date of Testing : Sampled by : Tested by :	20.05.2013 Binayak Swain D.Mohanty
Weight of oven dried sample before washing (gm) :- Weight of oven dried sample after washing (gm) :-			100.00 91.78	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	12.95	12.95	12.95	87.05
2.00	31.26	31.26	44.21	55.79
0.425	26.47	26.47	70.68	29.32
0.075	21.10	21.10	91.78	8.22
Total	100.00			
Gravel Content (%)= Gand Content (% ) =		<b>12.95</b> 78.83	Silt and clay %	8.22
Remarks :-				
	and Berne Li S	513.6 -		