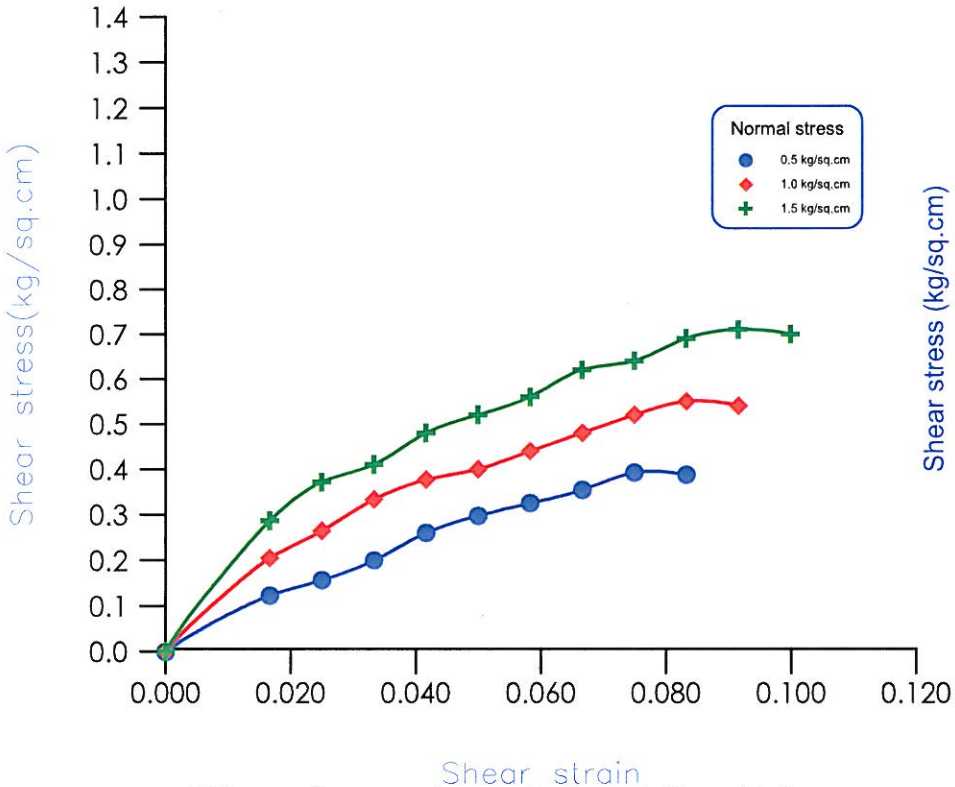
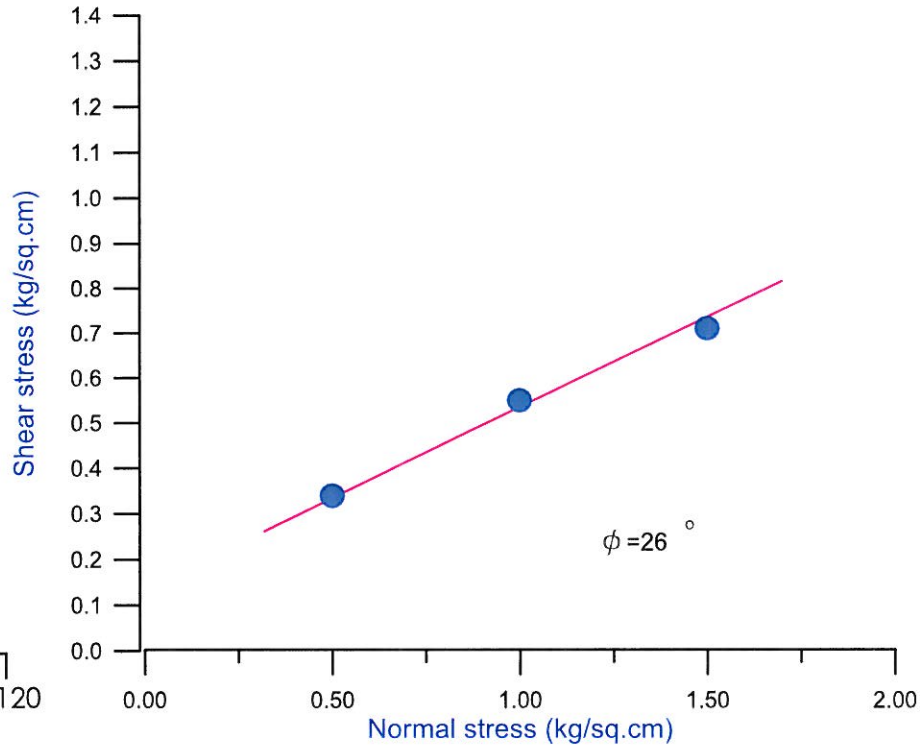
BH-1
Depth-5.50m



(Shear stress - shear strain relationship)



(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

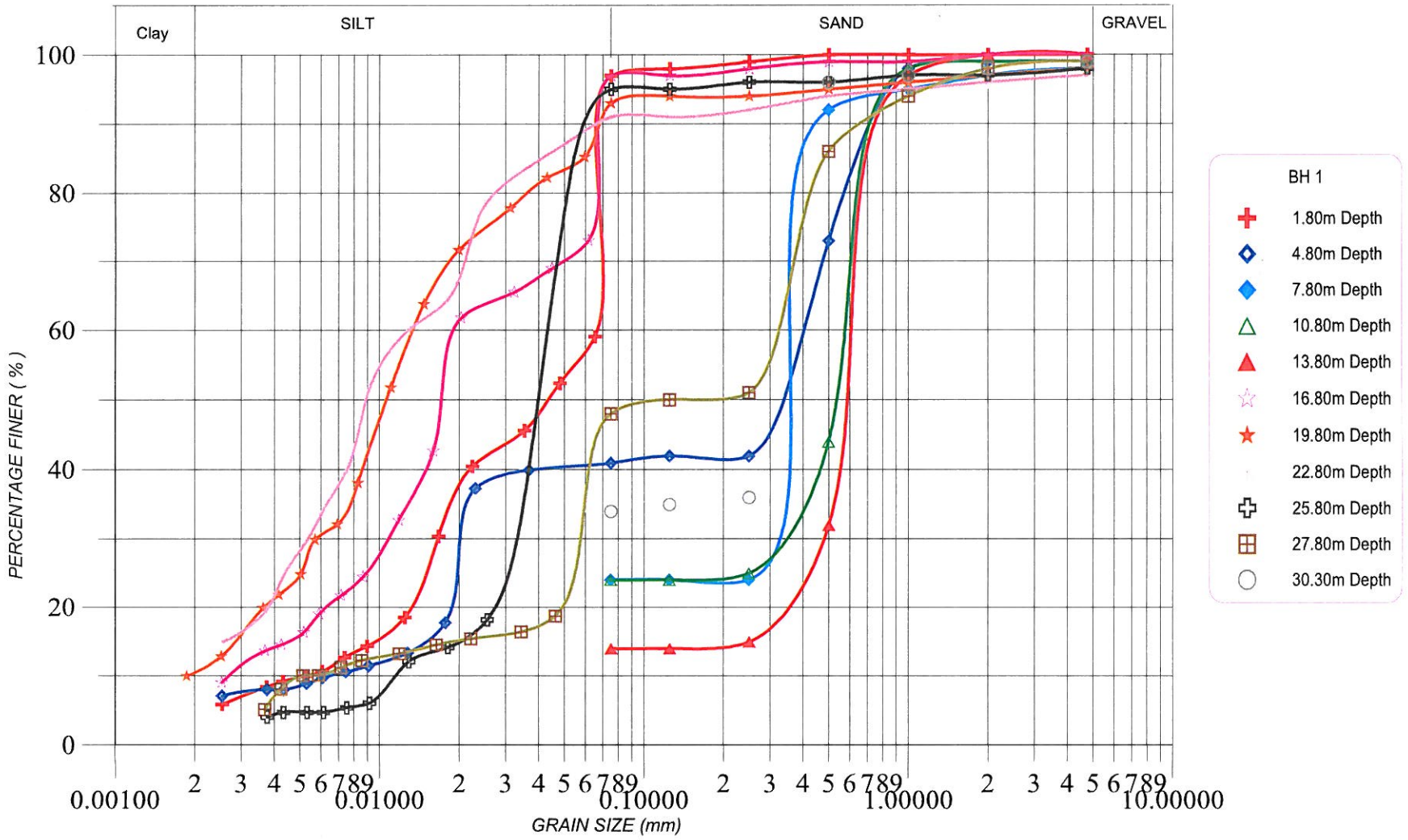
FIG- DS-AP1

Soil Engineering Consultants

BR 251@210/21-23

Job:1813

GRAIN SIZE DRISTRIBUTION CURVE

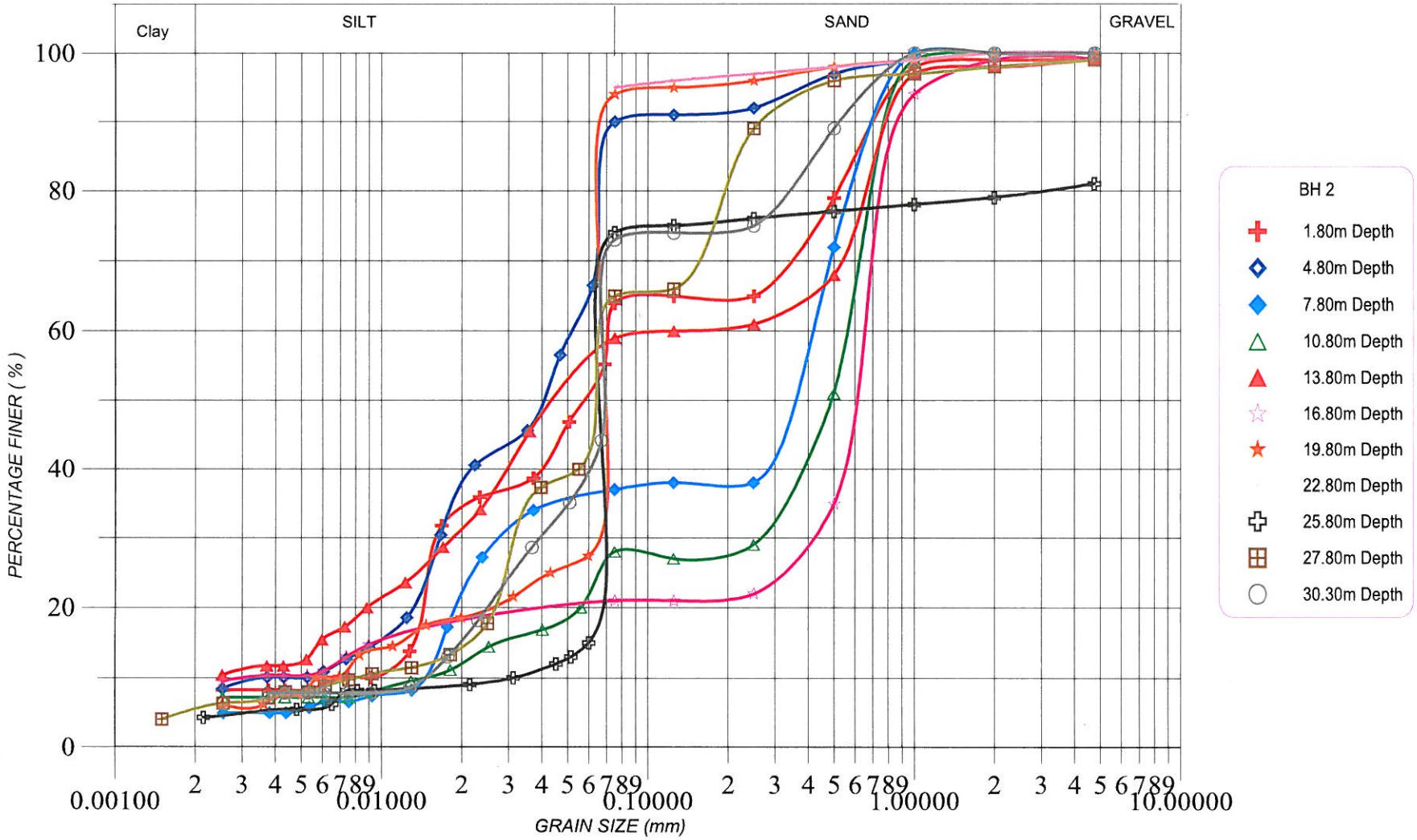


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AP1

0083

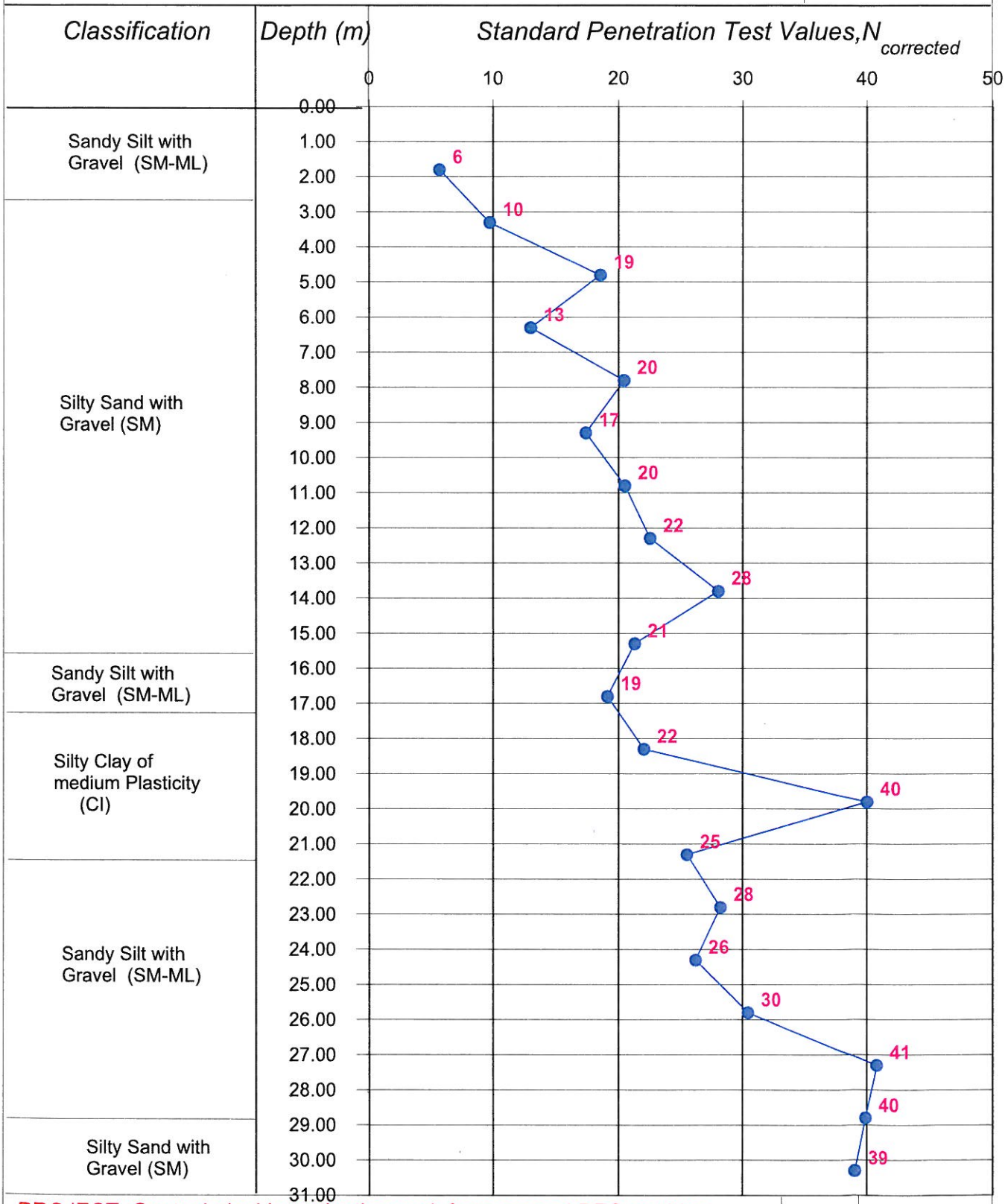
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AP2

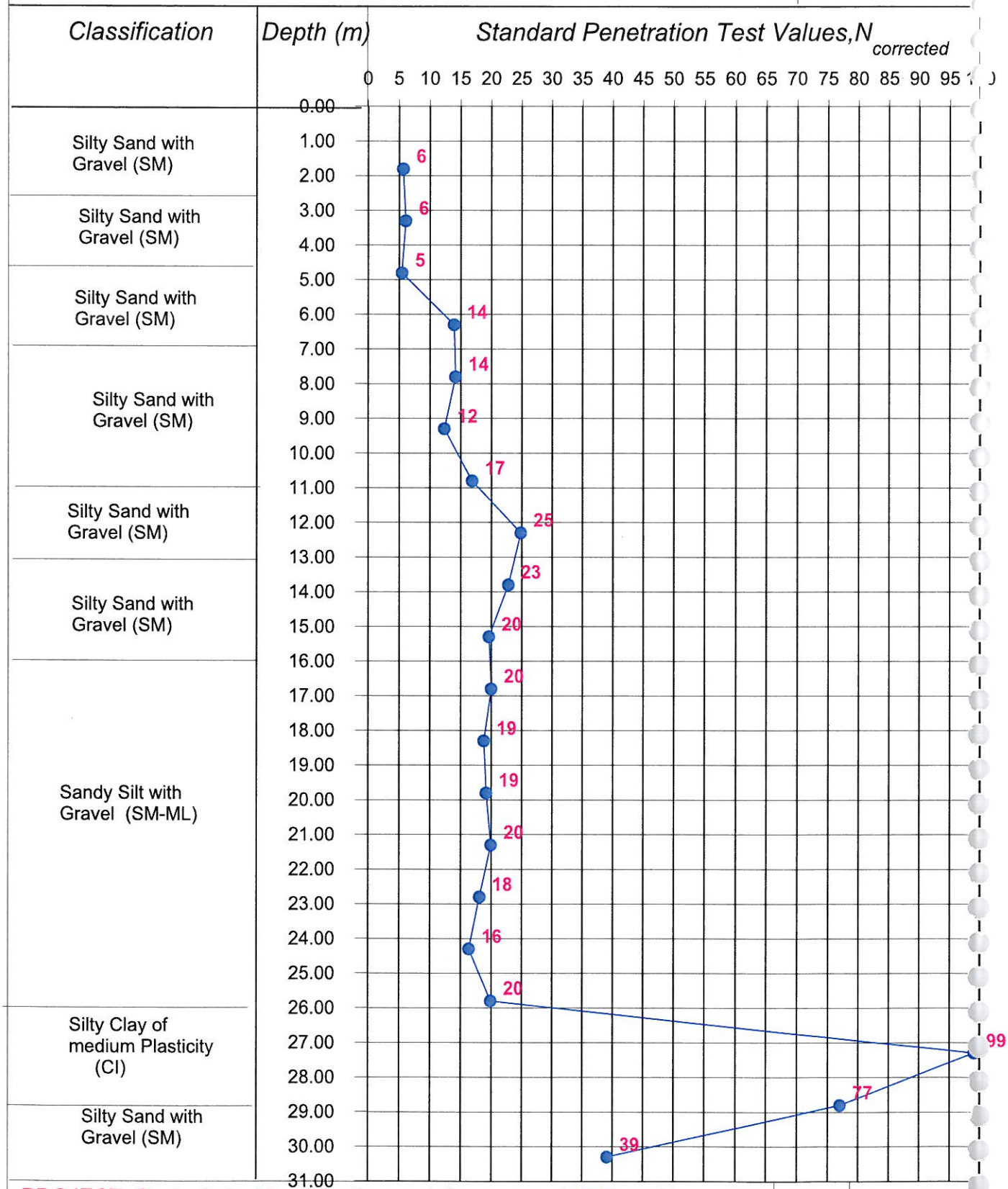
SOIL ENGINEERING CONSULTANTS | BR 251@210/21-23 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-2 | Fig: SP-AP2

0085

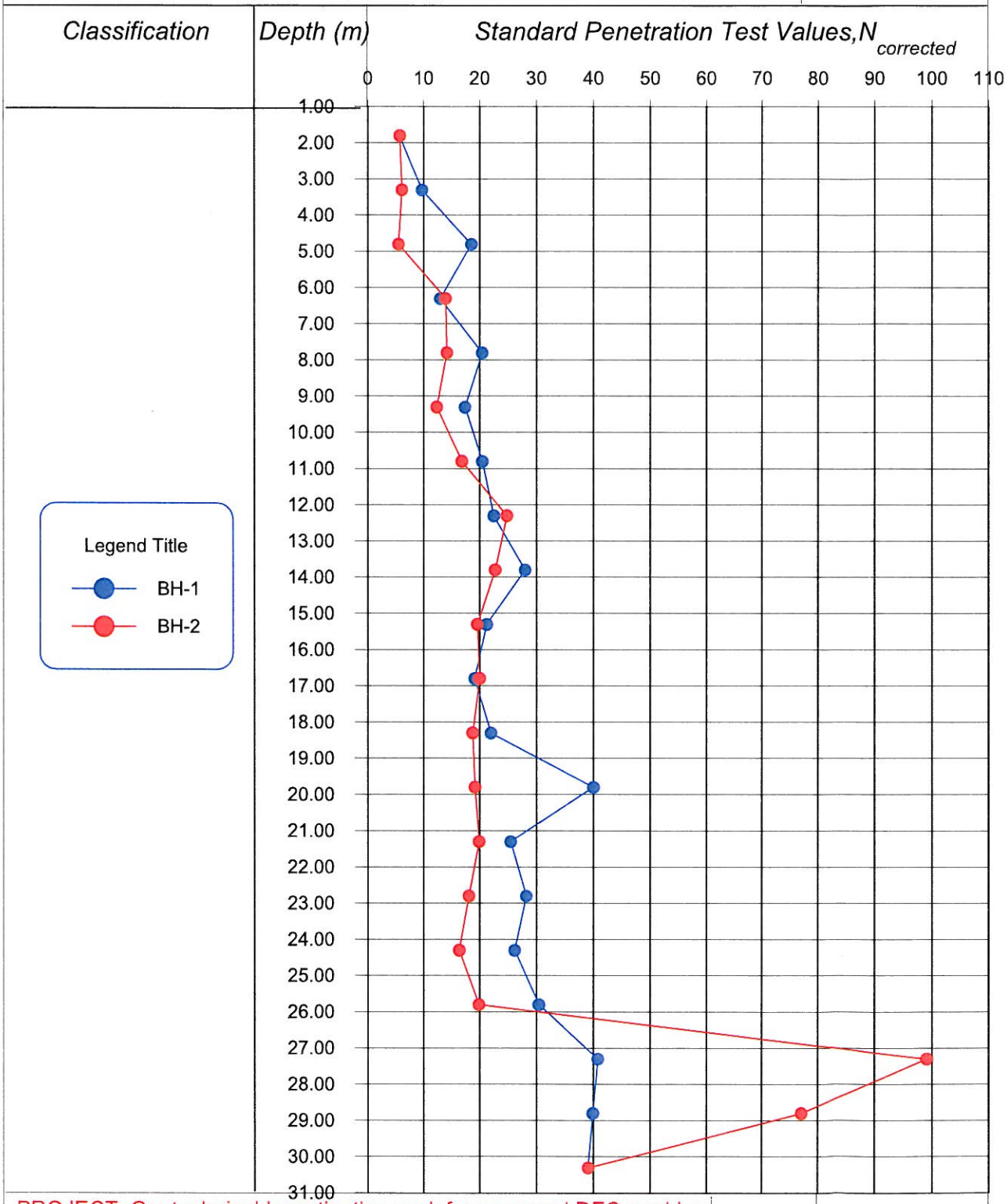
SOIL ENGINEERING CONSULTANTS | BR 251@210/21-23 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-2 | Fig: SP -AP1

0086

SOIL ENGINEERING CONSULTANTS | BR-251@ 210/21-23 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 1&2 | Fig: ASP-AP

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

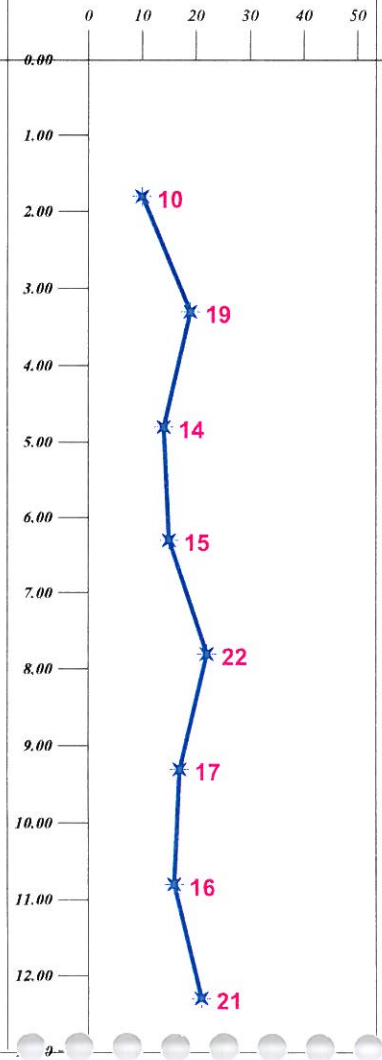
Project No. 1813 Bridge : 252 RL: 271.315

Location:211/4-5
BH No.: 1
Depth : 12.00
Depth of Water table :9.10 m

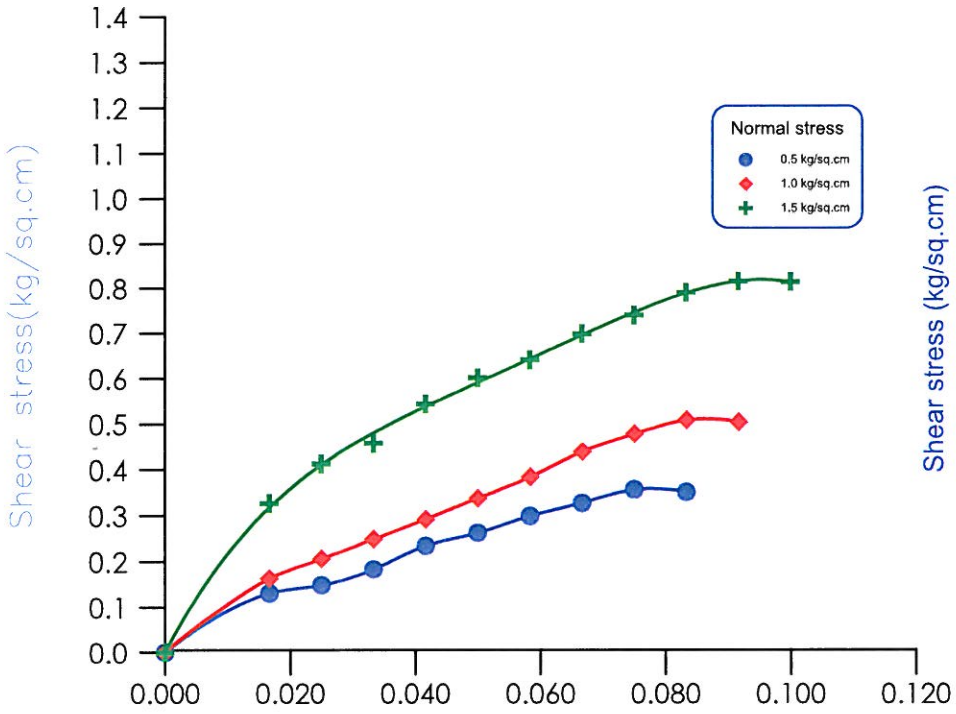
Date of start : 17/06/2008
Date of finish : 18/06/2008

SOIL ENGINEERING CONSULTANTS

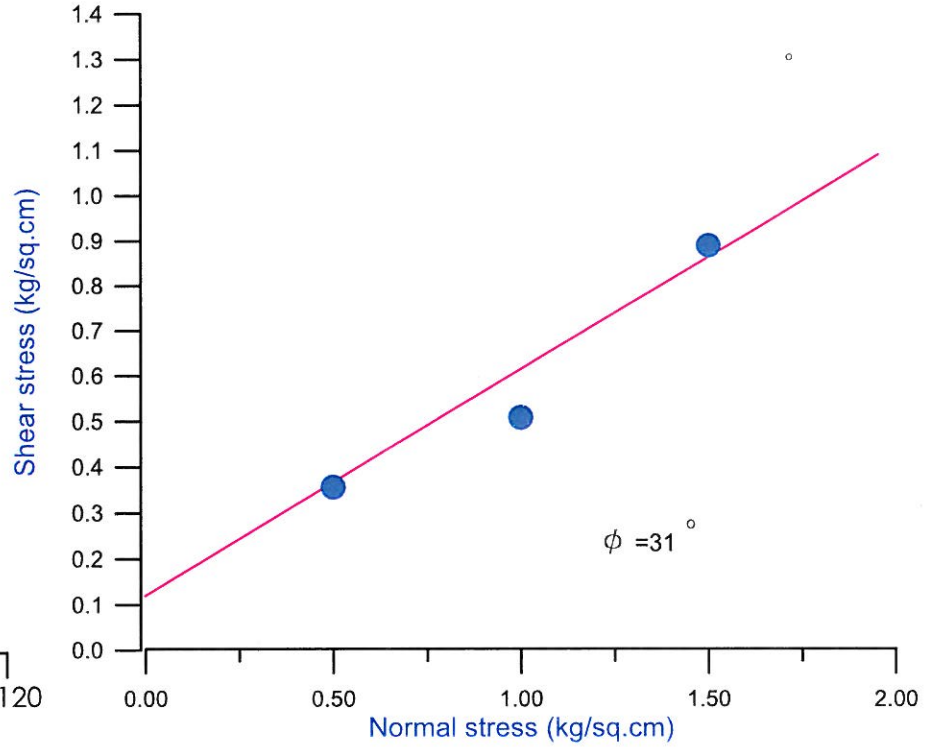
Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%)			Density (gm/cc)		W/C	Limits (%)		Sp.Gr	Shear Parameters			Cc
				Gravel	Sand	Silt/clay	r(wet)	r(dry)	W(%)	L.L	P . L		Type of test	C(kg/sq.cm)	phi(degrees)	
271.315																
269.515	1.80	SPT		0	16	84				Non	Plastic					
268.815	2.50	UDS					1.8	1.58	13.62			2.65	DST	0.15	30	
268.015	3.30	SPT		0	33	67				Non	Plastic					
266.515	4.80	SPT		0	29	71				Non	Plastic					
265.815	5.50	UDS	Sandy Silt with Gravel (SM-ML)				1.82	1.54	18.18				DST	0.1	31	
265.015	6.30	SPT		0	46	54				Non	Plastic					
263.515	7.80	SPT		0	42	58				Non	Plastic					
262.815	8.50	UDS					1.82	1.48	22.64			2.64	DST	0.15	30	
262.015	9.30	SPT		0	2	98				Non	Plastic					
260.515	10.80	SPT		0	3	97				Non	Plastic					
259.015	12.30	SPT		0	33	67				Non	Plastic					



BH1
Depth-5.50m



(Shear stress - shear strain relationship)



(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-Q

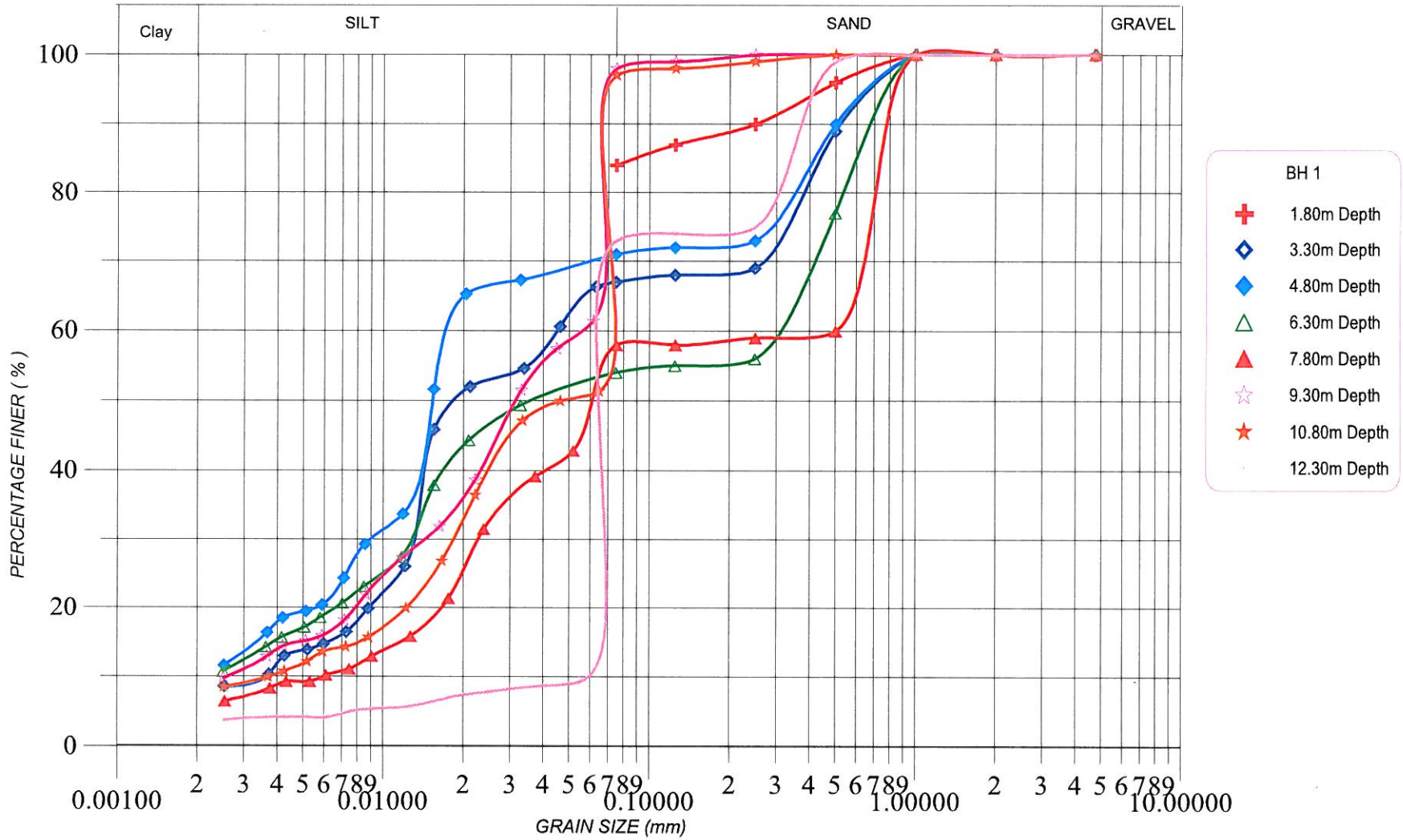
6800

Soil Engineering Consultants

BR 252 @211/4-5

Job:1659

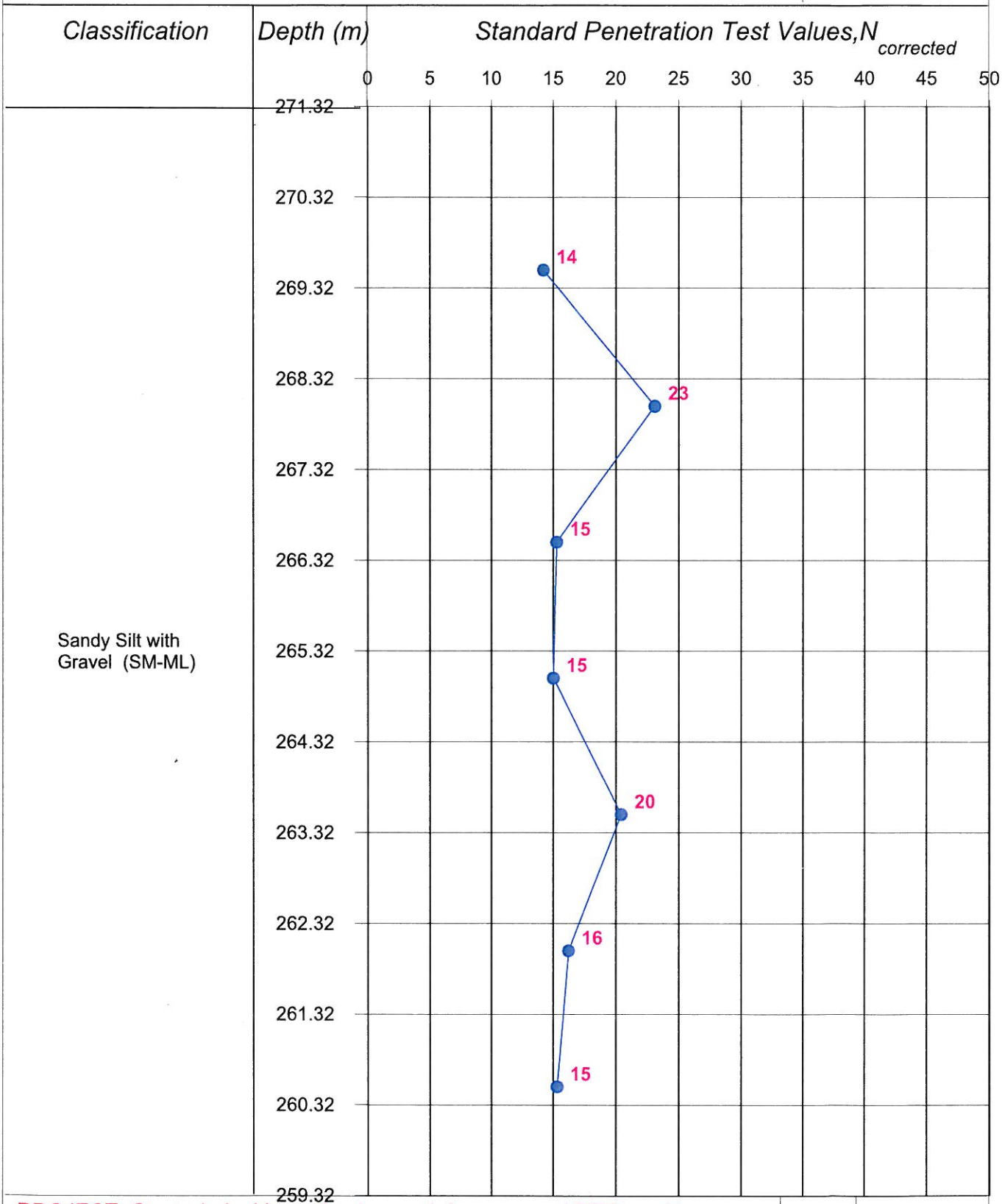
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AQ

SOIL ENGINEERING CONSULTANTS | BR 252 @211/4-5 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AQ

0091

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 252-A RL: 271.913

Location:211/13-14
BH No.: 1
Depth : 12.00
Depth of Water table :8.70 m

Date of start : 16/06/2008
Date of finish : 16/06/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
271.913																	
270.113	1.80	SPT		14	1	44	55				Non	Plastic					
269.413	2.50	UDS						1.82	1.60	13.86			2.654	DST	0.15	31	
268.613	3.30	SPT		16	0	45	55				Non	Plastic					
267.113	4.80	SPT		31	0	40	60				Non	Plastic					
266.413	5.50	UDS	Sandy Silt with Gravel (SM-ML)					1.86	1.56	19.42				DST	0.1	32	
265.613	6.30	SPT		22	0	25	75				Non	Plastic					
264.113	7.80	SPT		27	0	25	75				Non	Plastic					
262.613	9.30	SPT		11	0	40	60				Non	Plastic					
261.113	10.80	SPT		14	0	44	56				Non	Plastic					
259.613	12.30	SPT		13	1	11	88				Non	Plastic					

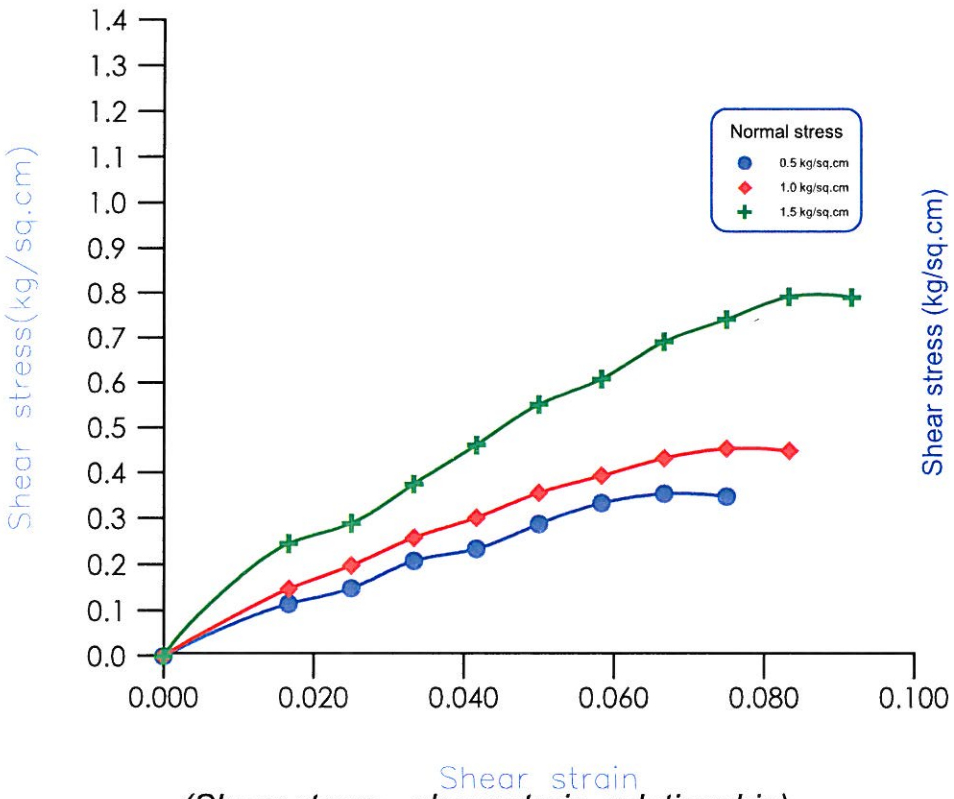
S.P.T Plot: Observed; 0 10 20 30 40 50; 0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00

Soil Engineering Consltants

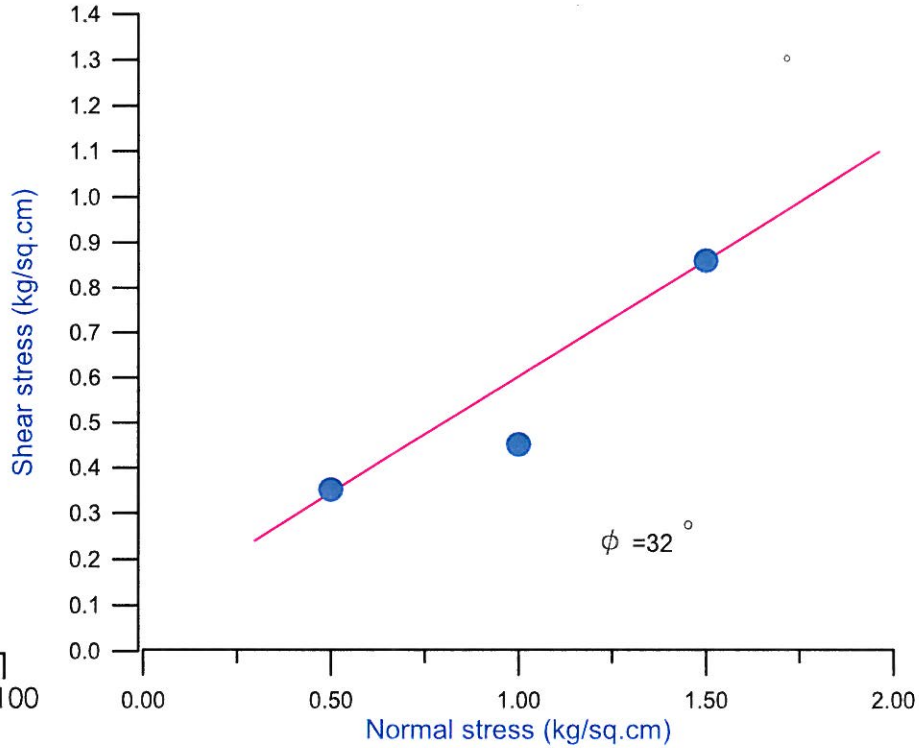
BR 252A @211/13-14

Job.1813

BH-1
Depth-5.50m



(Shear stress - shear strain relationship)

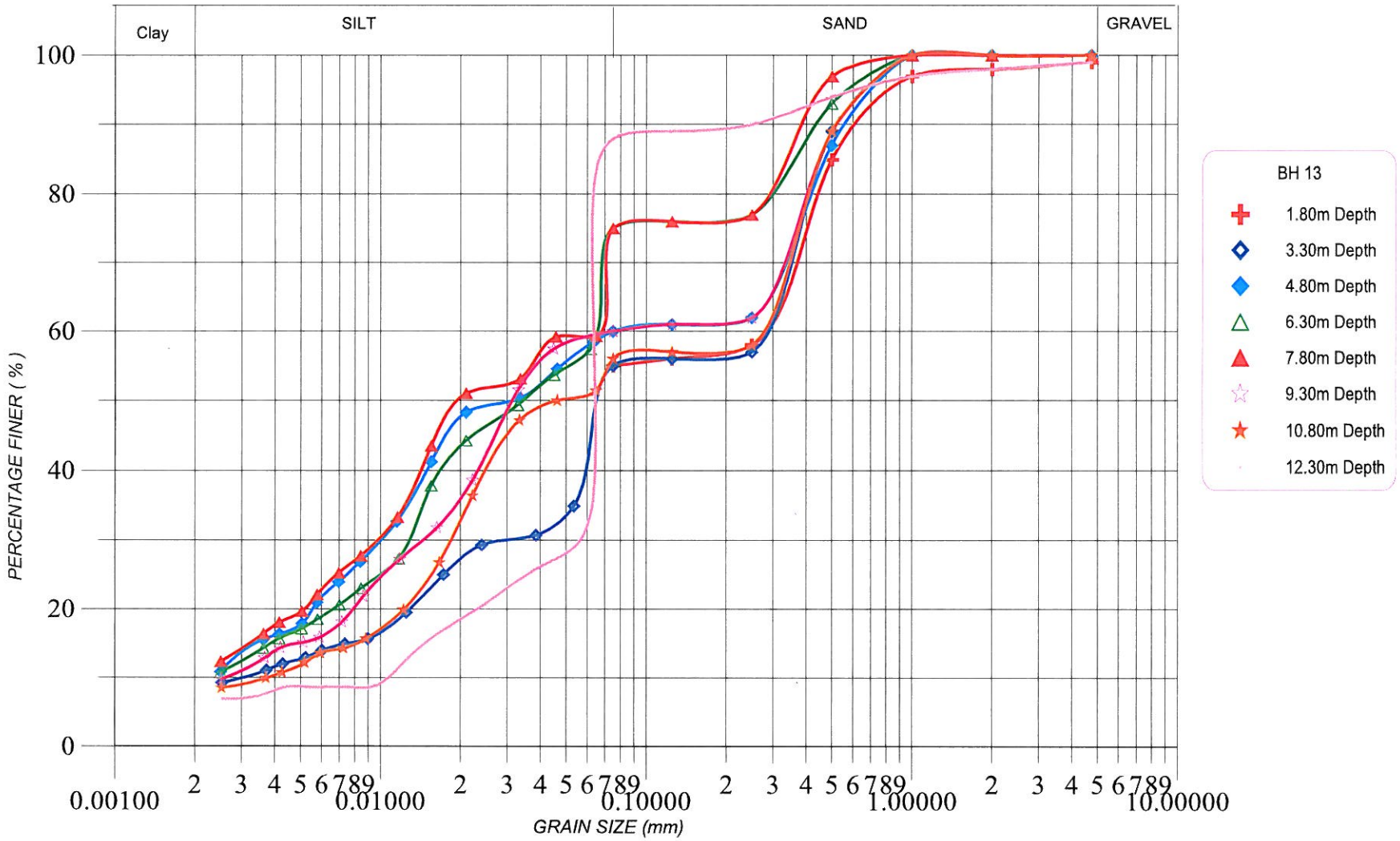


(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-AR

GRAIN SIZE DRISTRIBUTION CURVE

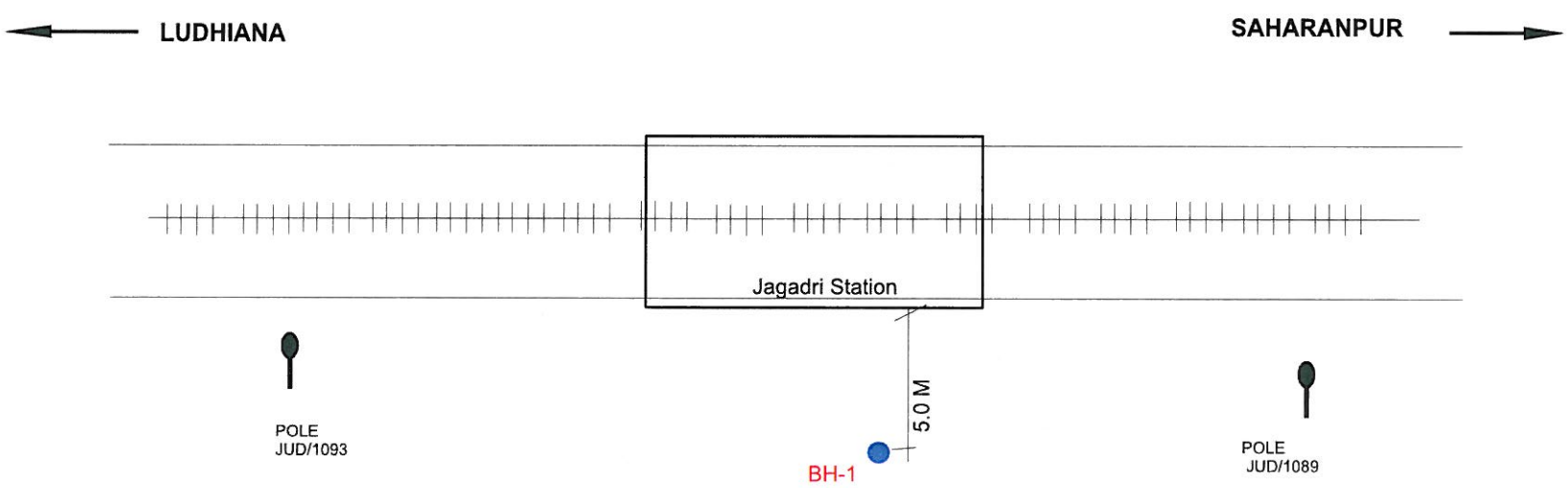


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AR

SOIL ENGINEERING CONSULTANTS

Job No: 1813

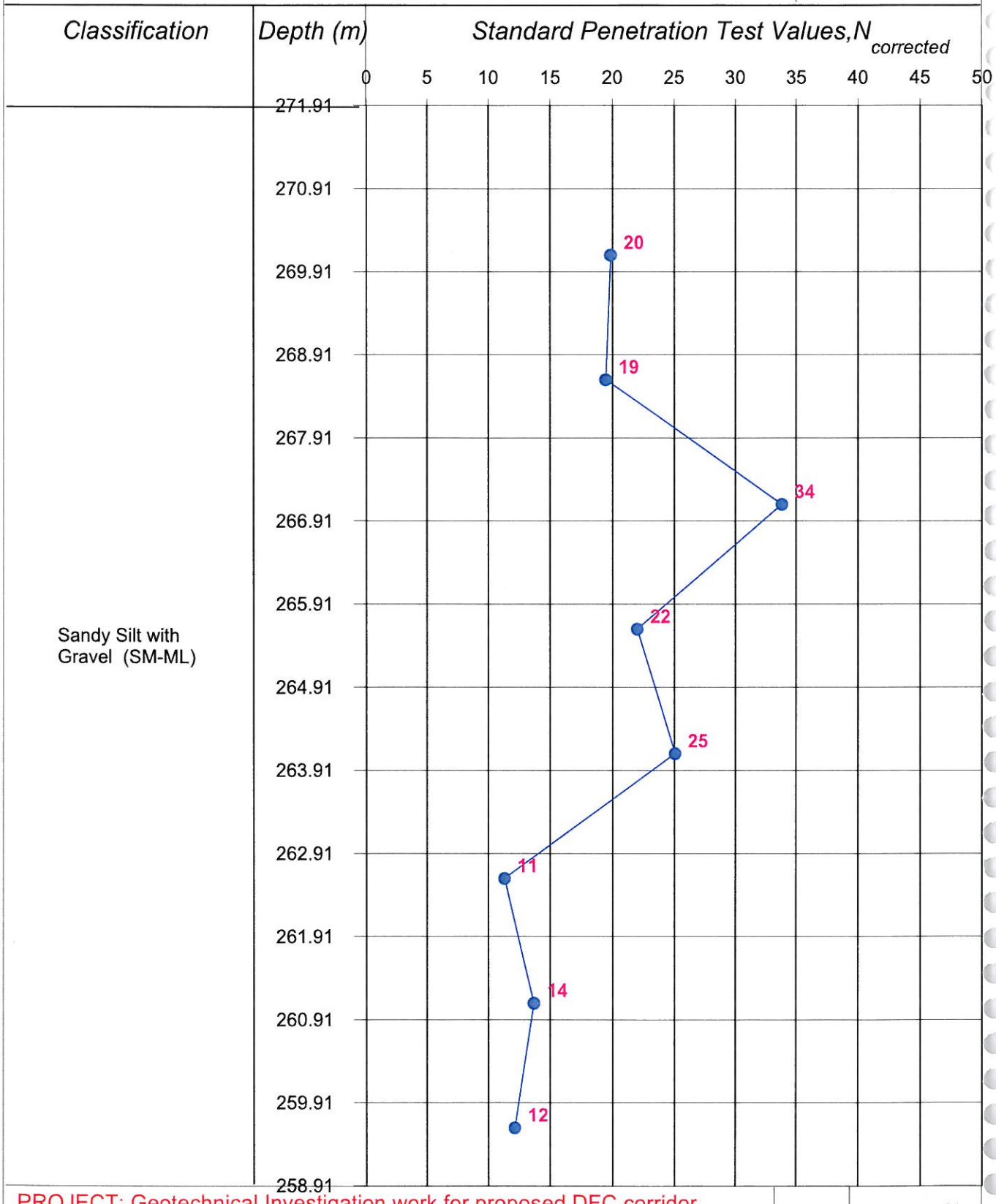


BR 252a@ 211/13-14

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-AQ

SOIL ENGINEERING CONSULTANTS | BR 252A @211/13-14 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AR

0096

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

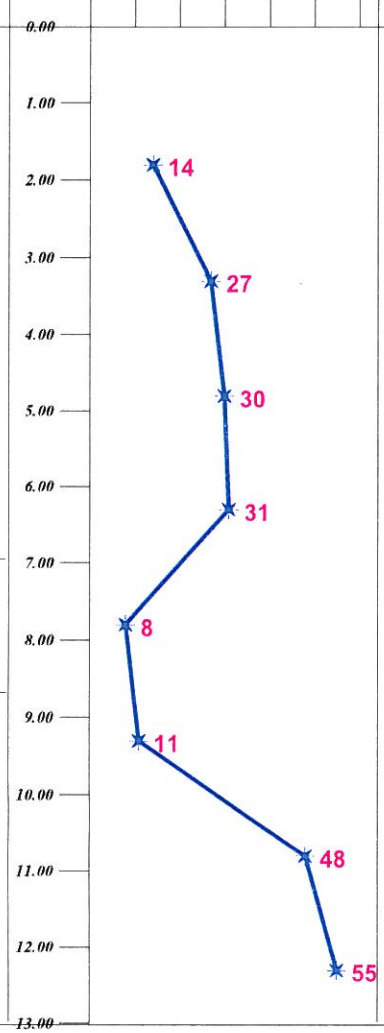
Project No. 1813 Bridge : 252-B RL: 273.345

Location : 211/41-43
BH No.: 1
Depth : 12.00
Depth of Water table : Not met.

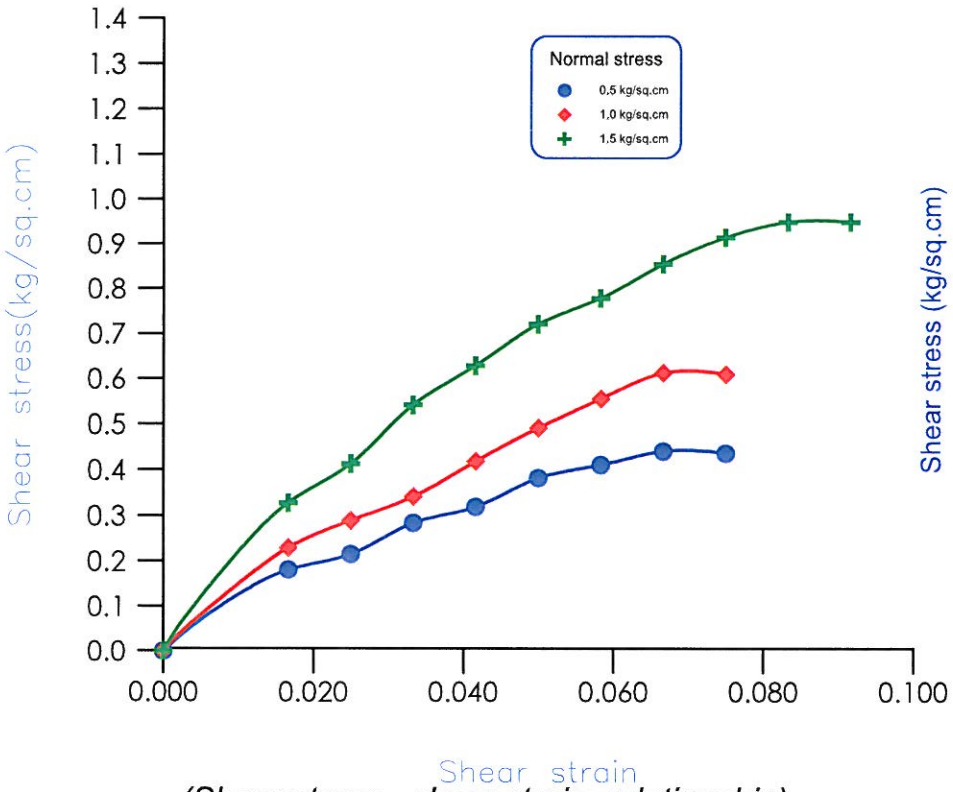
Date of start : 23/06/2008
Date of finish : 23/06/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
273.345																
271.545	1.80	SPT		0	42	58				Non	Plastic					
270.845	2.50	UDS					1.83	1.61	13.87			2.66	DST	0.1	31	
270.045	3.30	SPT	Sandy Silt with Gravel (SM-ML)	0	13	87				Non	Plastic					
268.545	4.80	SPT		1	35	64				Non	Plastic					
267.845	5.50	UDS					1.94	1.66	16.73				DST	0.15	32	
267.045	6.30	SPT		1	24	75				Non	Plastic					
265.545	7.80	SPT	Silty Clay of medium plasticity (CI)	0	35	65				50	25					
264.045	9.30	SPT		0	34	66				Non	Plastic					
262.545	10.80	SPT	Sandy Silt with Gravel (SM-ML)	0	45	55				Non	Plastic					
261.045	12.30	SPT		0	35	65				Non	Plastic					

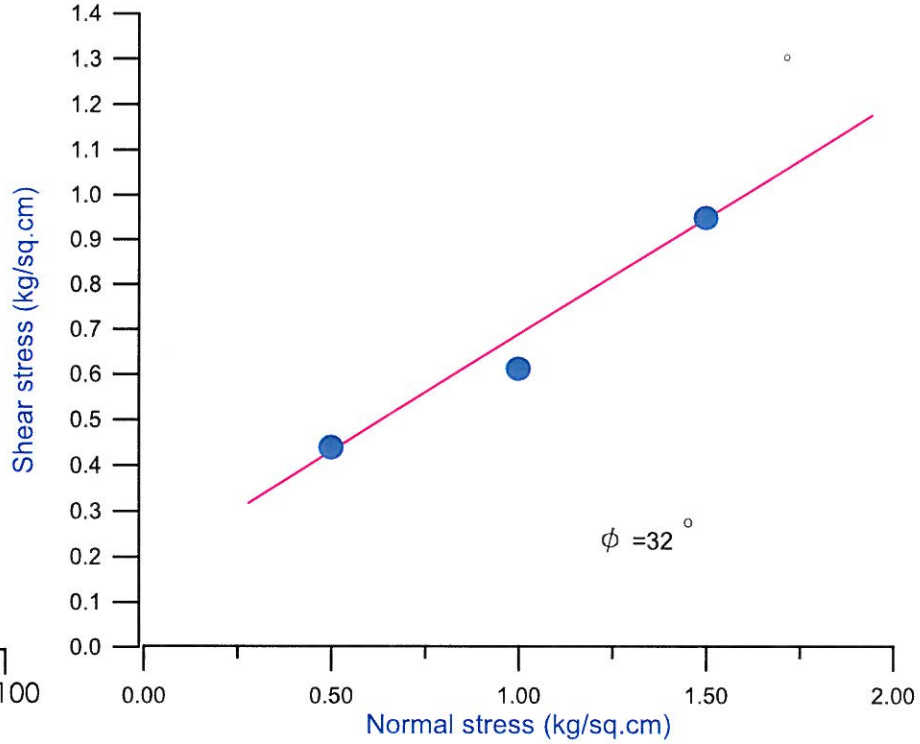
S.P.T Plot — Observed



BH-1
Depth-5.50m



(Shear stress - shear strain relationship)

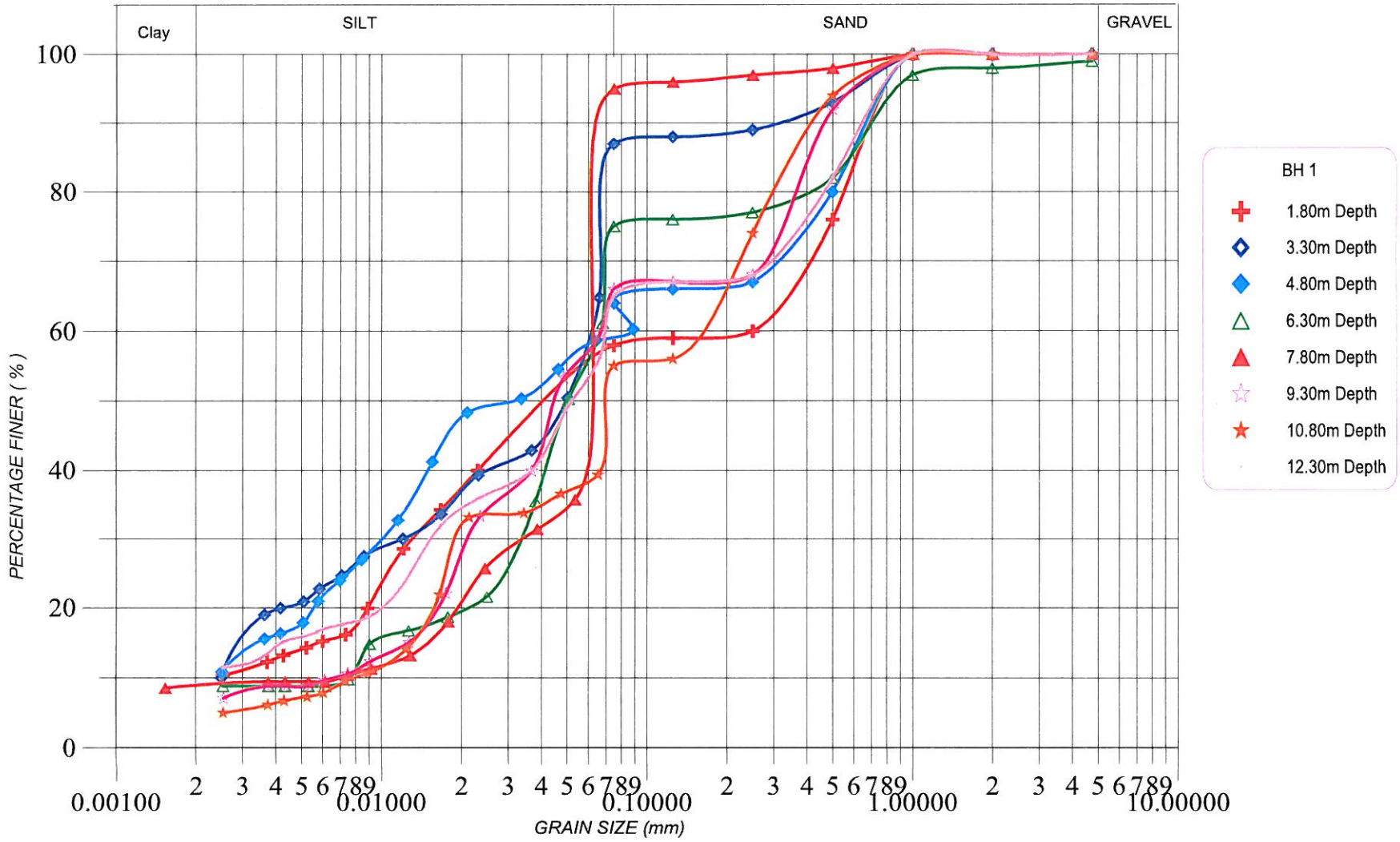


(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-AS

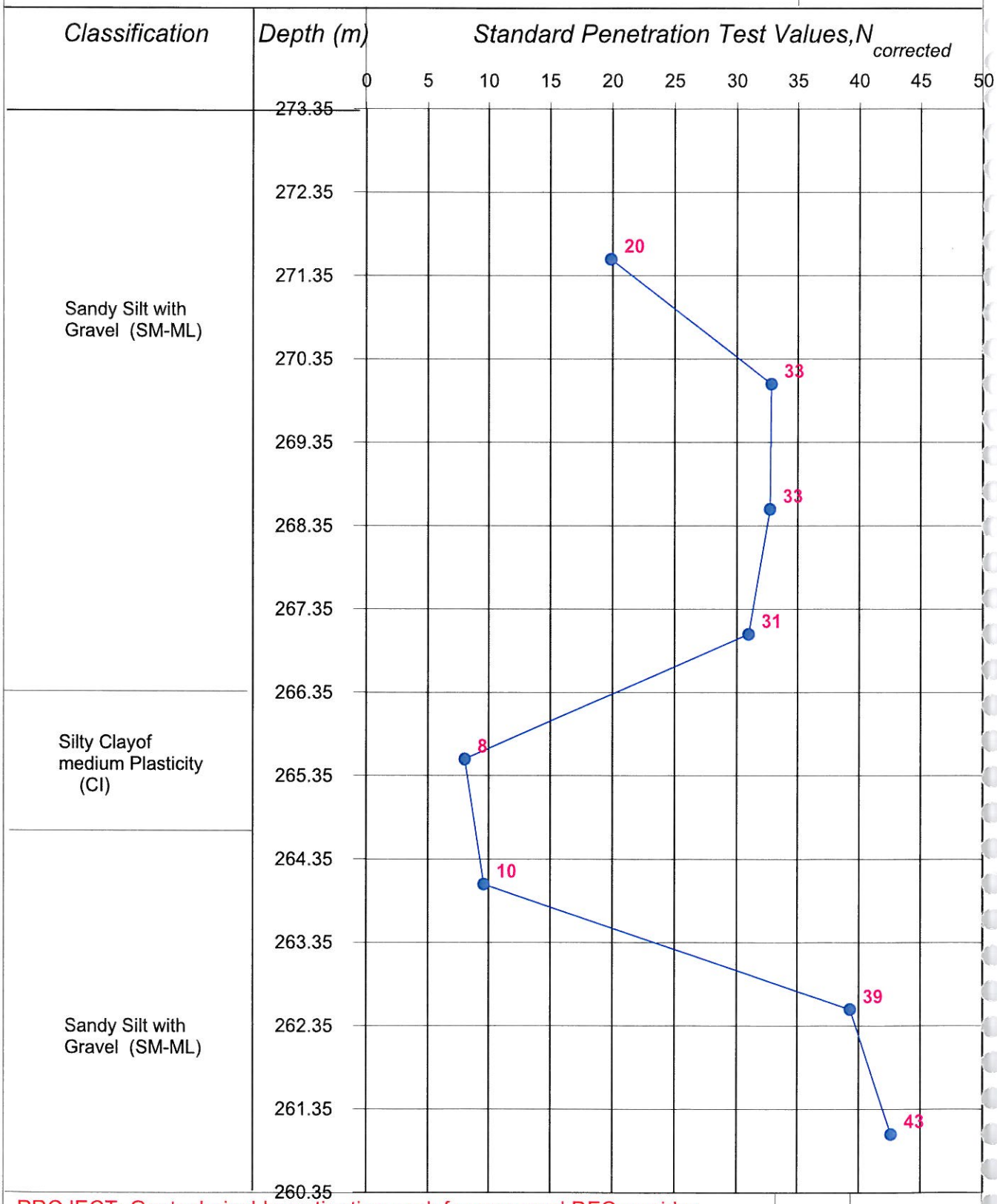
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AS

SOIL ENGINEERING CONSULTANTS | BR 252B @211/41-43 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AS

0100

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

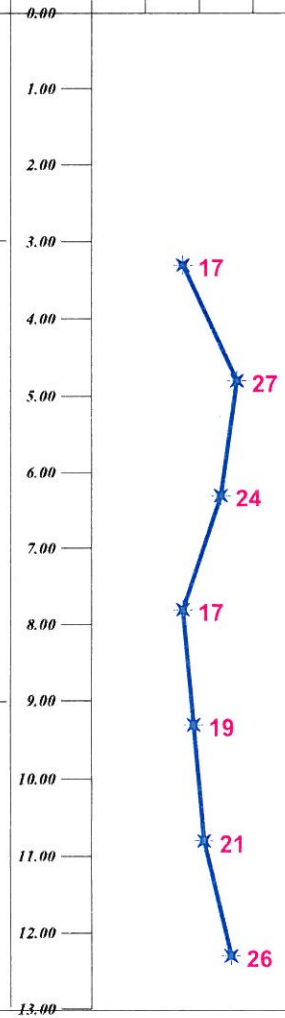
Project No. 1813 Bridge : 253

Location: 212/33-35 RL: 272.123
BH No.: 1
Depth : 12.00
Depth of Water table :6.00

Date of start :24/06/2008
Date of finish :24/06/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
272.123																
			Filledup Soil													
268.823	3.30	SPT		0	5	95				Non	Plastic					
267.323	4.80	SPT		1	25	74				Non	Plastic					
266.623	5.50	UDS	Sandy Silt with Gravel (SM-ML)				1.96	1.66	17.94				DST		31	
265.823	6.30	SPT		0	43	57				Non	Plastic					
264.323	7.80	SPT		0	49	51				Non	Plastic					
263.623	8.50	UDS					1.9	1.58	20.11				DST		31	
262.823	9.30	SPT		1	23	76				Non	Plastic					
261.323	10.80	SPT	Silty Sand with Gravel (SM)	0	46	54				Non	Plastic					
259.823	12.30	SPT		2	6	92				Non	Plastic					

S.P.T Plot — Observed

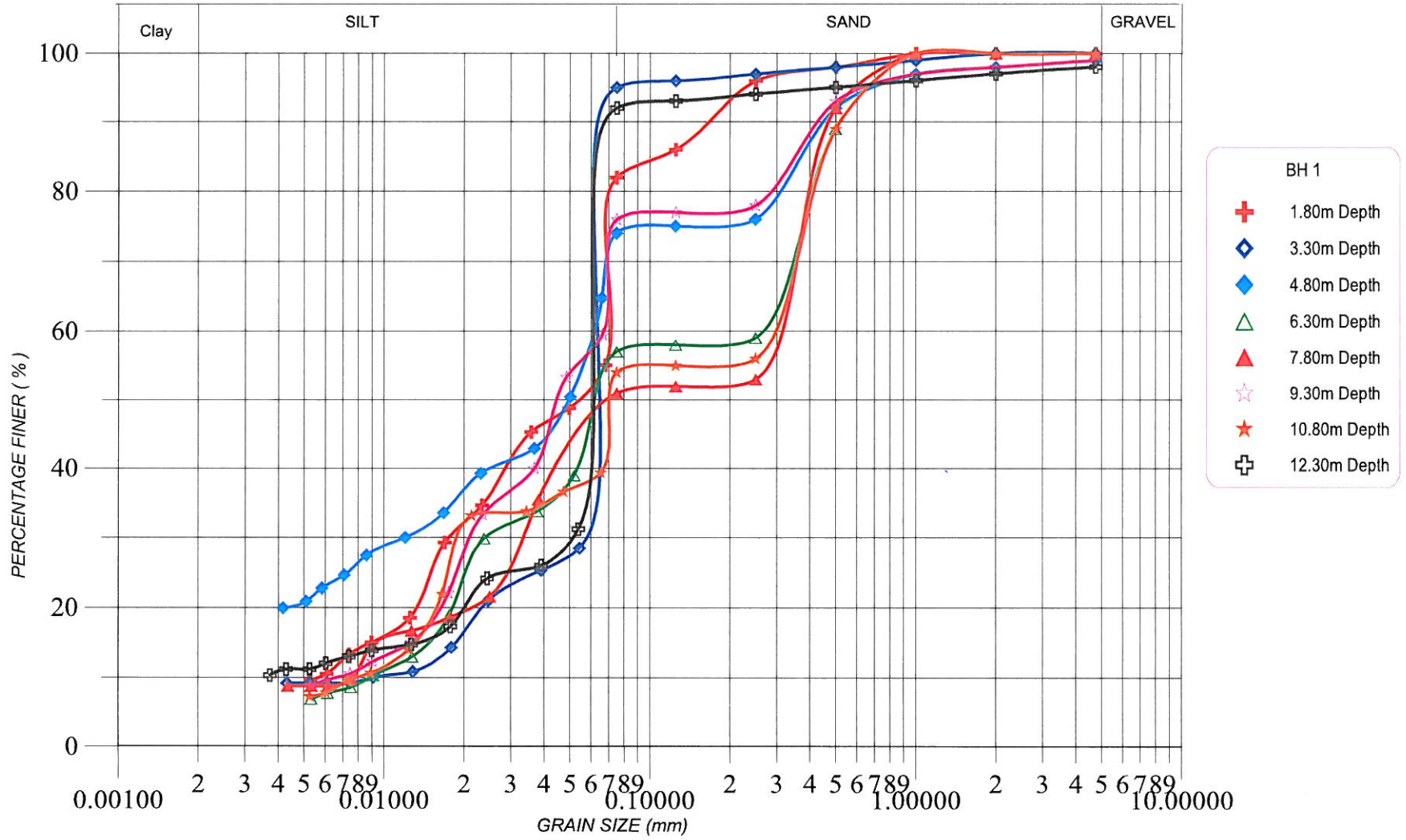


Soil Engineering Consultants

BR 253 @212/33-35

Job:1813

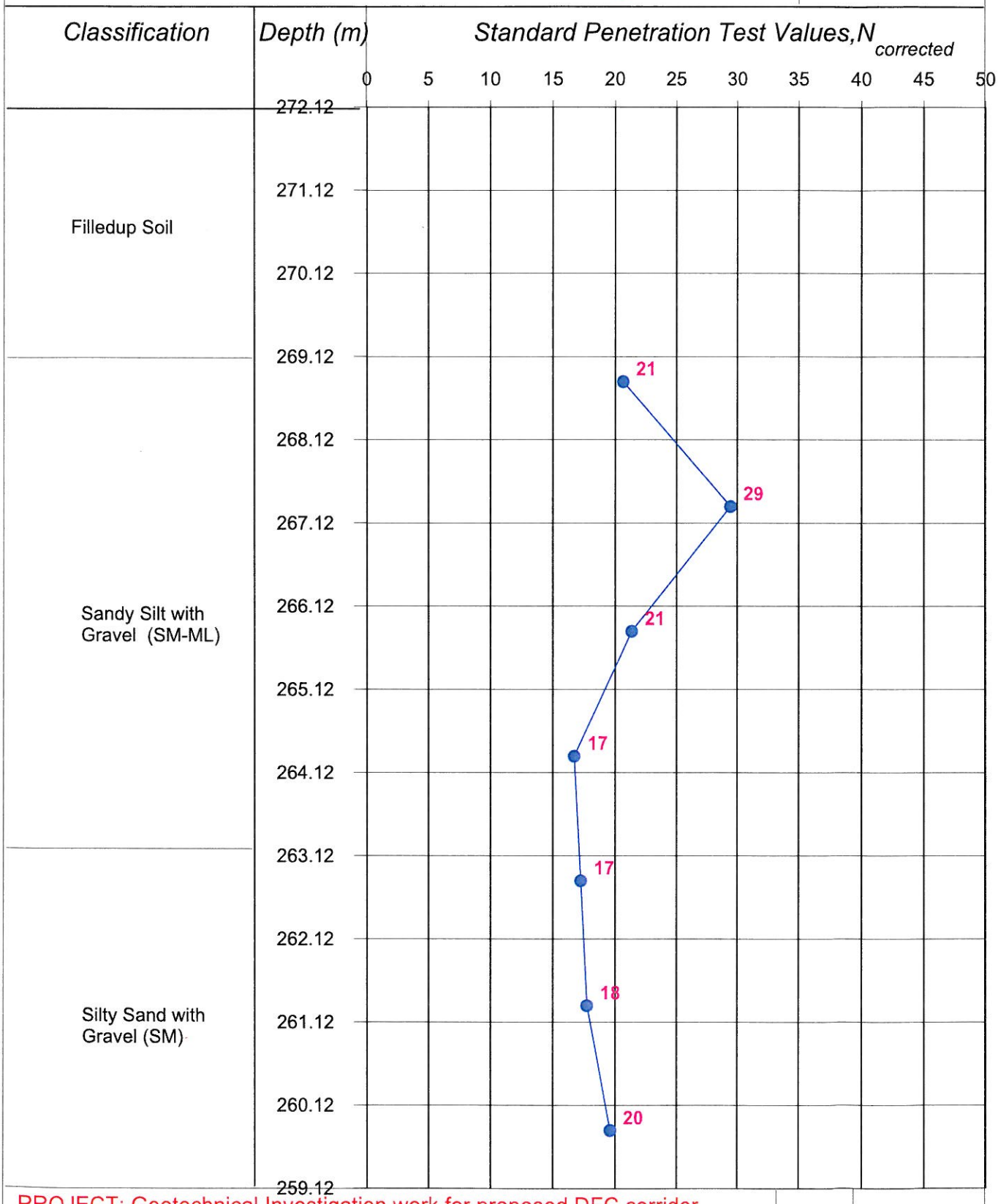
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AT

SOIL ENGINEERING CONSULTANTS | BR 253 @212/33-35 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AT

0103

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 254 RL: 272.971

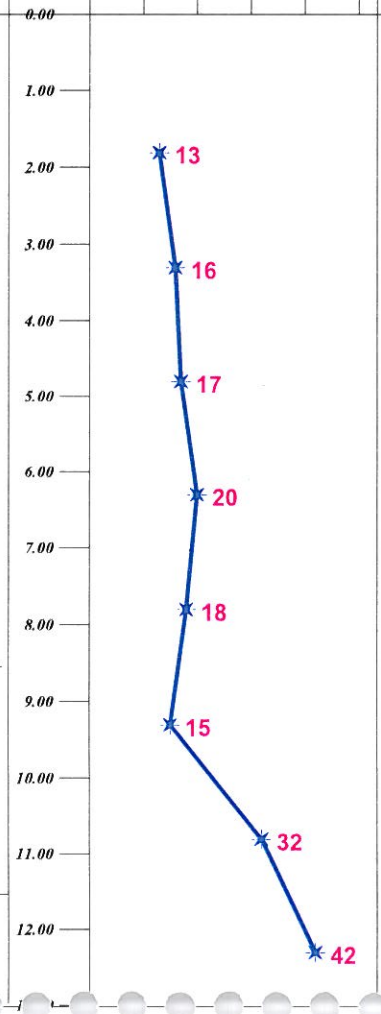
Location:213/7-9
BH No.: 1
Depth : 12.00
Depth of Water table :6.50 m

Date of start : 25/06/2008
Date of finish : 25/06/2008

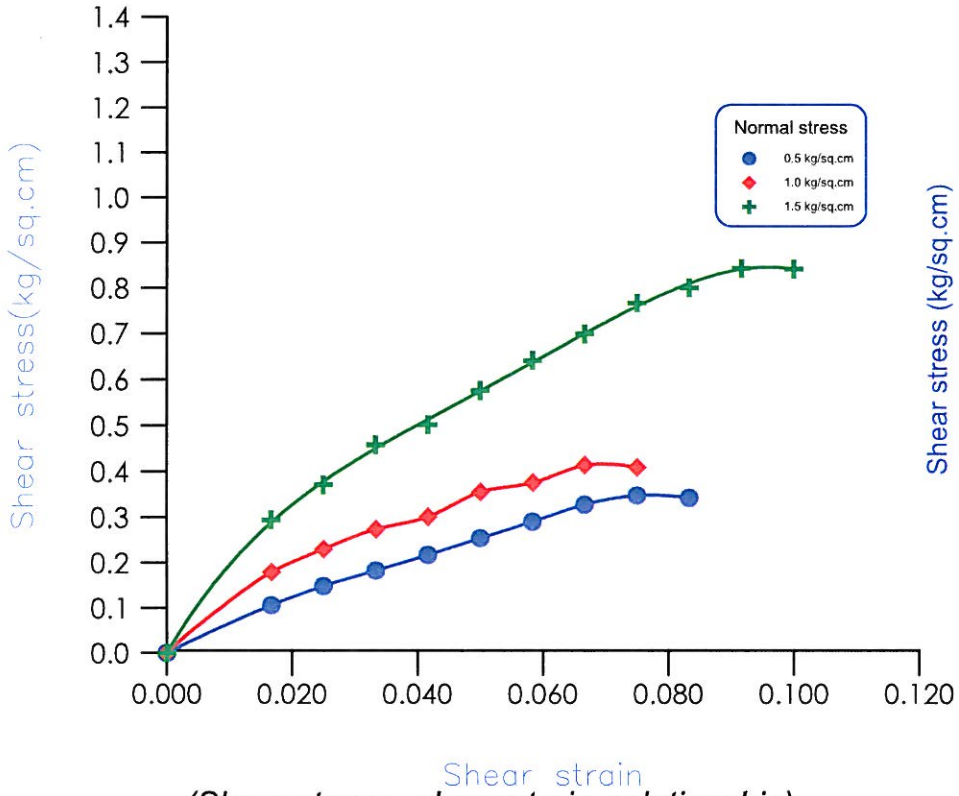
SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%)			Density (gm/cc)		W/C	Limits (%)		Sp.Gr	Shear Parameters			Cc
				Gravel	Sand	Silt/clay	r(wet)	r(dry)	W(%)	L.L	P . L		Type of test	C(kg/sq.cm)	phi(degrees)	
272.971																
271.171	1.80	SPT		1	10	89				Non	Plastic					
270.471	2.50	UDS					1.8	1.54	16.68			2.65	DST	0.1	31	
269.671	3.30	SPT	Sandy Silt with Gravel (SM-ML)	1	11	88				Non	Plastic					
268.171	4.80	SPT		0	25	75				Non	Plastic					
267.471	5.50	UDS					1.84	1.56	17.93				DST	0.1	31	
266.671	6.30	SPT		0	46	54				Non	Plastic					
265.171	7.80	SPT		0	34	66				Non	Plastic					
263.671	9.30	SPT	Silty Sand with Gravel (SM)	0	66	34				Non	Plastic					
262.171	10.80	SPT		0	61	39				Non	Plastic					
260.671	12.30	SPT	Sandy Silt with Gravel (SM-ML)	0	15	85				Non	Plastic					

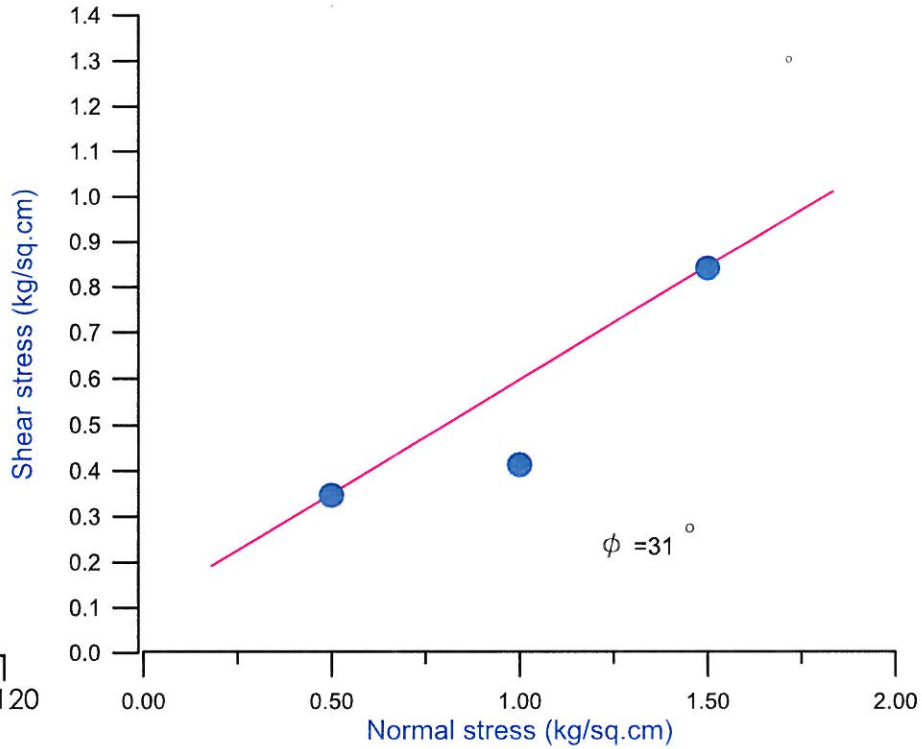
S.P.T Plot — Observed



BH-1
Depth-2.50m



(Shear stress - shear strain relationship)



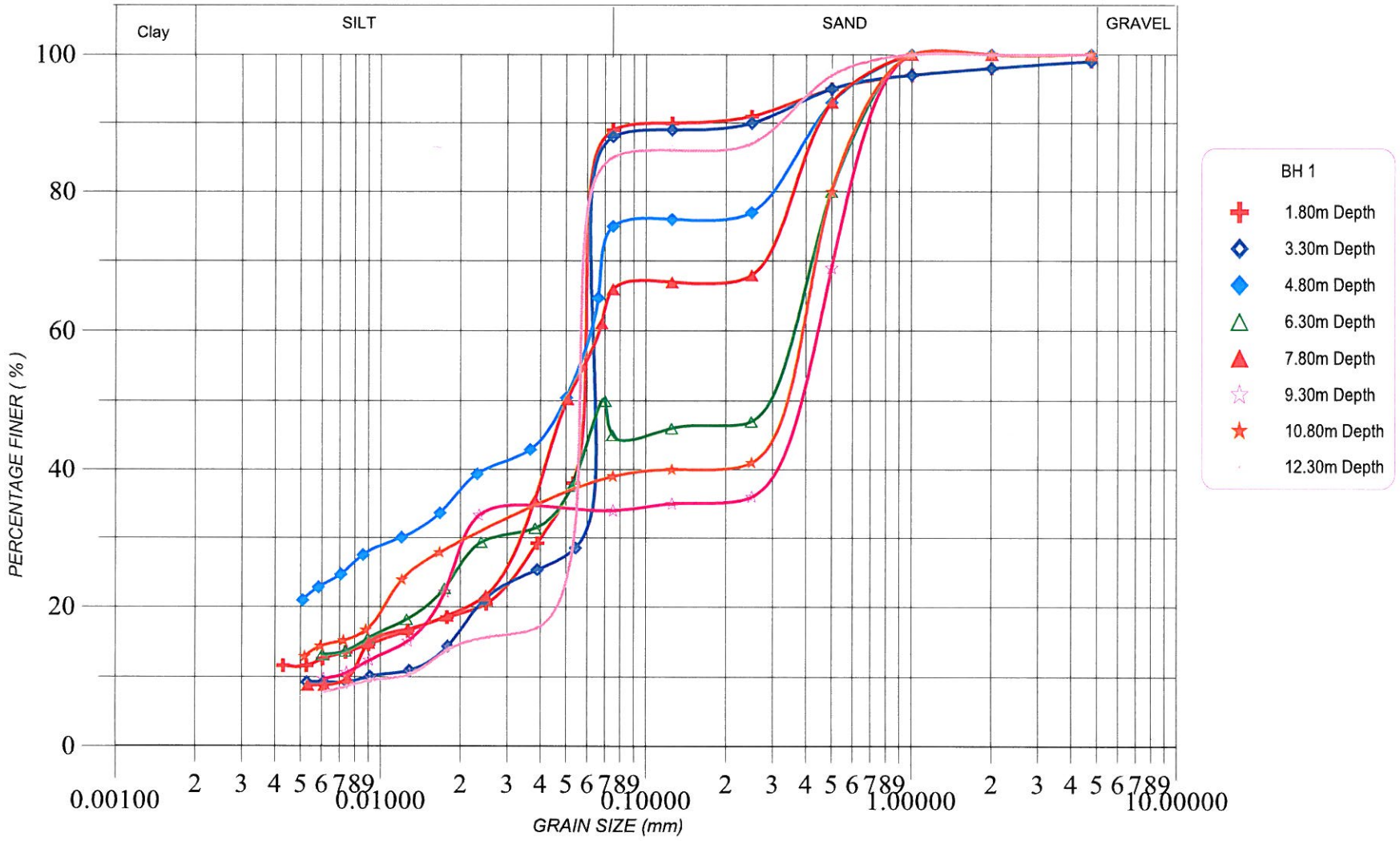
(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-AT

0109

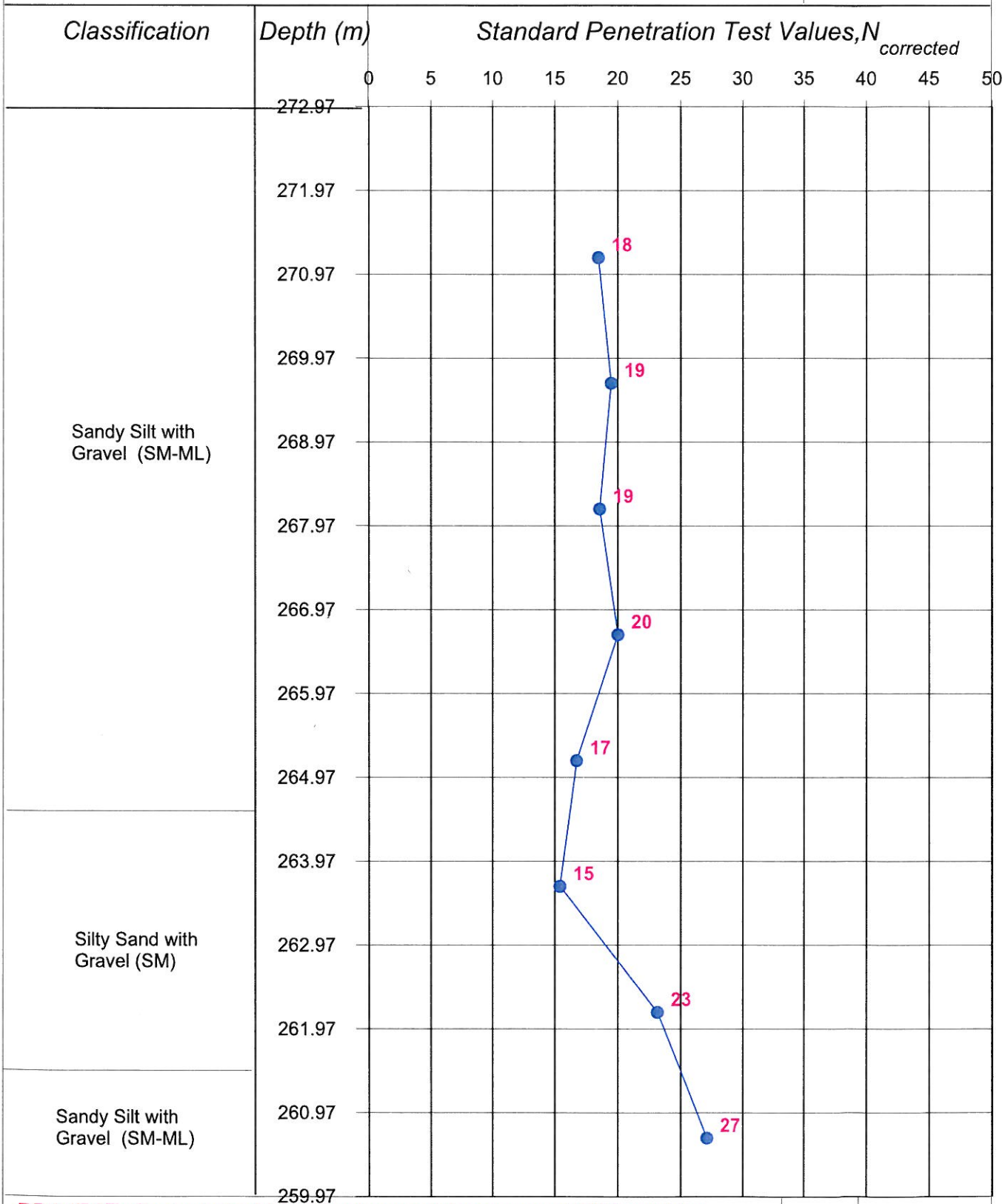
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AU

SOIL ENGINEERING CONSULTANTS | BR 254@ 213/7-9 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AU

0107

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 255 RL: 274.448

Location:214/21-23
BH No.: 1
Depth : 12.00
Depth of Water table :Not Met

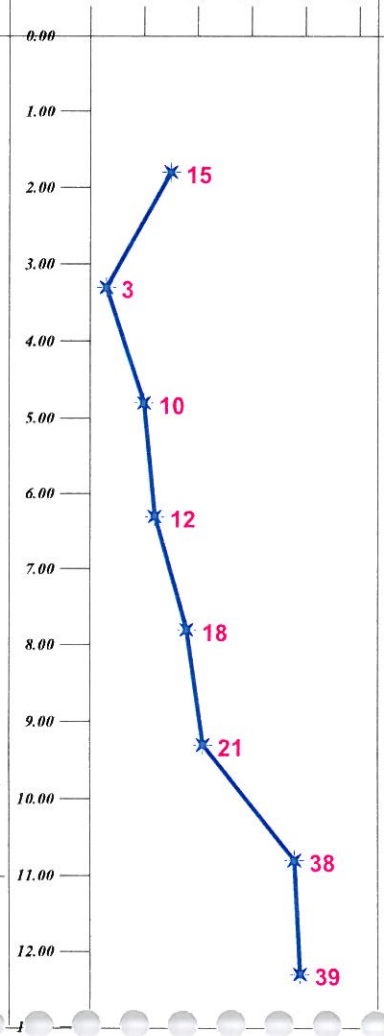
Date of start : 12/06/2008
Date of finish : 12/06/2008

SOIL ENGINEERING CONSULTANTS

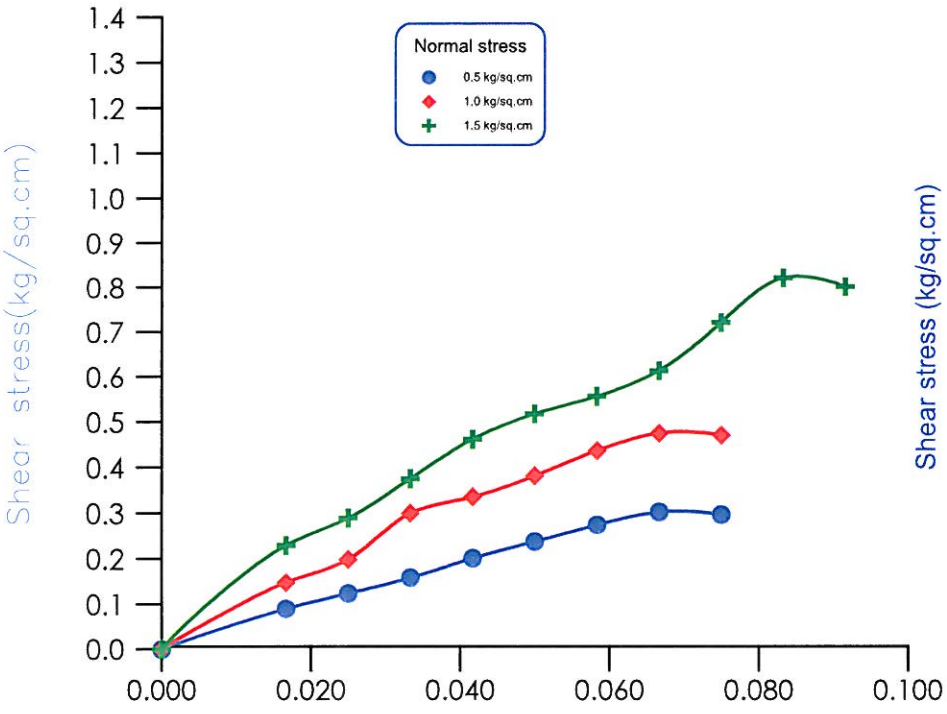
0108

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%)			Density (gm/cc)		W/C	Limits (%)		Sp.Gr	Shear Parameters			Cc
				Gravel	Sand	Silt/clay	r(wet)	r(dry)	W(%)	L.L	P . L		Type of test	C(kg/sq.cm)	phi(degrees)	
274.448																
272.648	1.80	SPT		1	22	77				Non	Plastic					
271.948	2.50	UDS					1.71	1.44	18.86			2.66	DST	0.1	29	
271.148	3.30	SPT		0	14	86				Non	Plastic					
269.648	4.80	SPT	Sandy Silt with Gravel (SM-ML)	0	19	81				Non	Plastic					
268.948	5.50	UDS					1.8	1.51	19.11				DST	0.15	30	
268.148	6.30	SPT		0	38	62				Non	Plastic					
266.648	7.80	SPT		0	45	55				Non	Plastic					
265.948	8.50	UDS					1.86	1.55	19.64				DST	0.1	31	
265.148	9.30	SPT		0	44	56				Non	Plastic					
263.648	10.80	SPT	Silty Sand with Gravel (SM)	0	56	44				Non	Plastic					
262.948	11.50	UDS	Sandy Silt with Gravel (SM-ML)													
262.148	12.30	SPT		0	40	60				Non	Plastic					

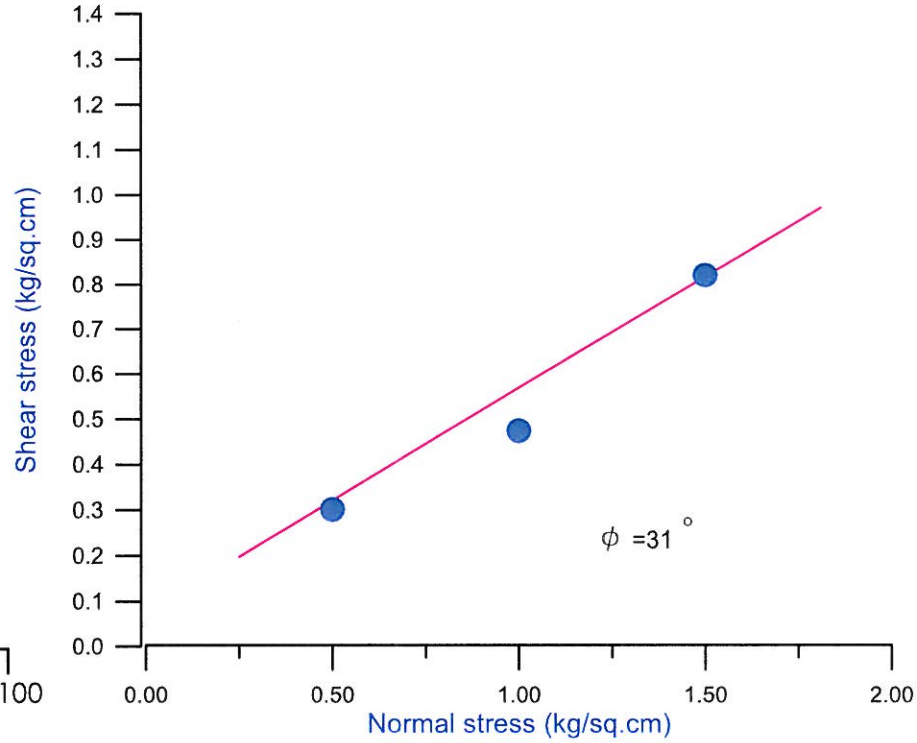
S.P.T Plot



BH-1
Depth-8.50m



(Shear stress - shear strain relationship)



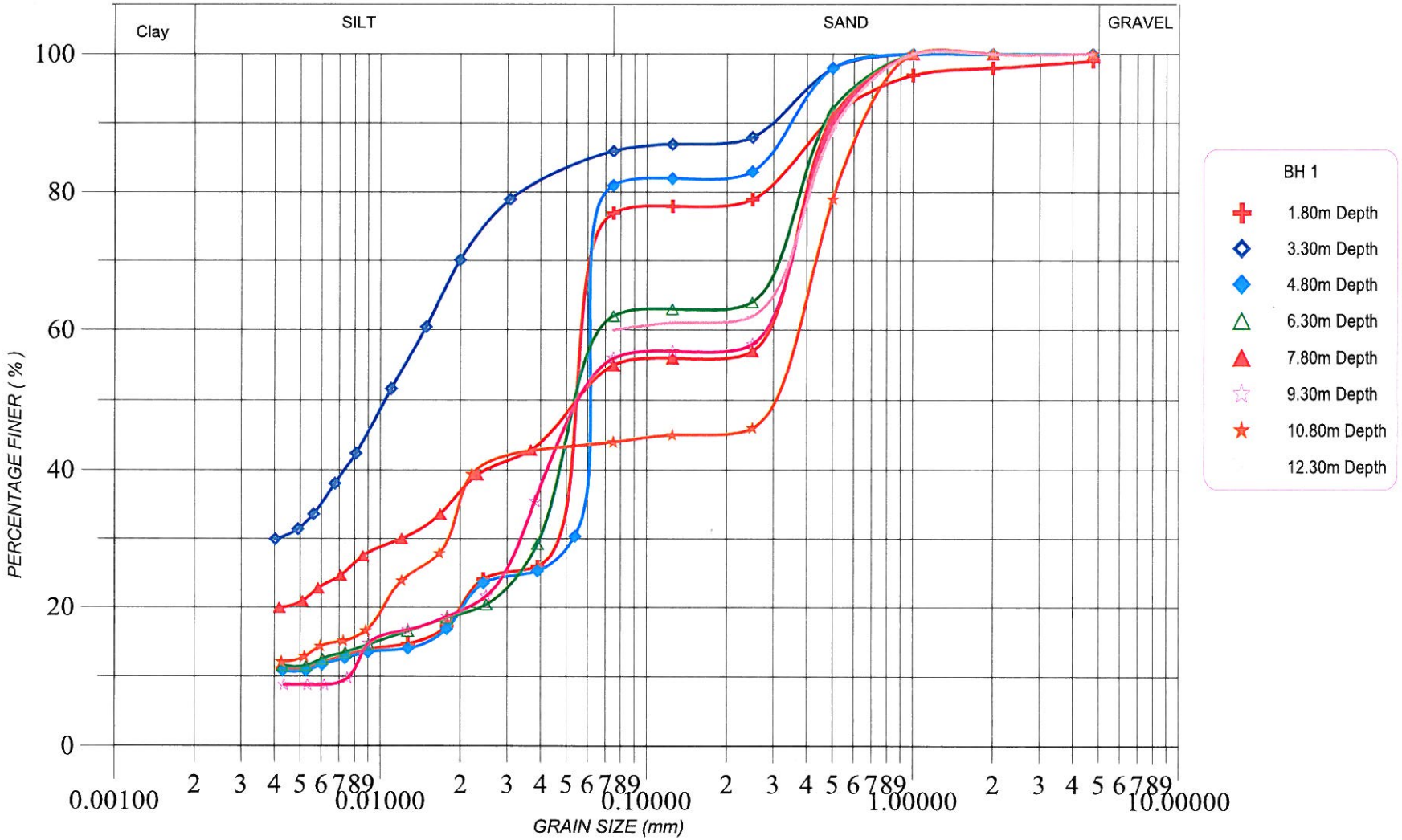
(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-AW

0110

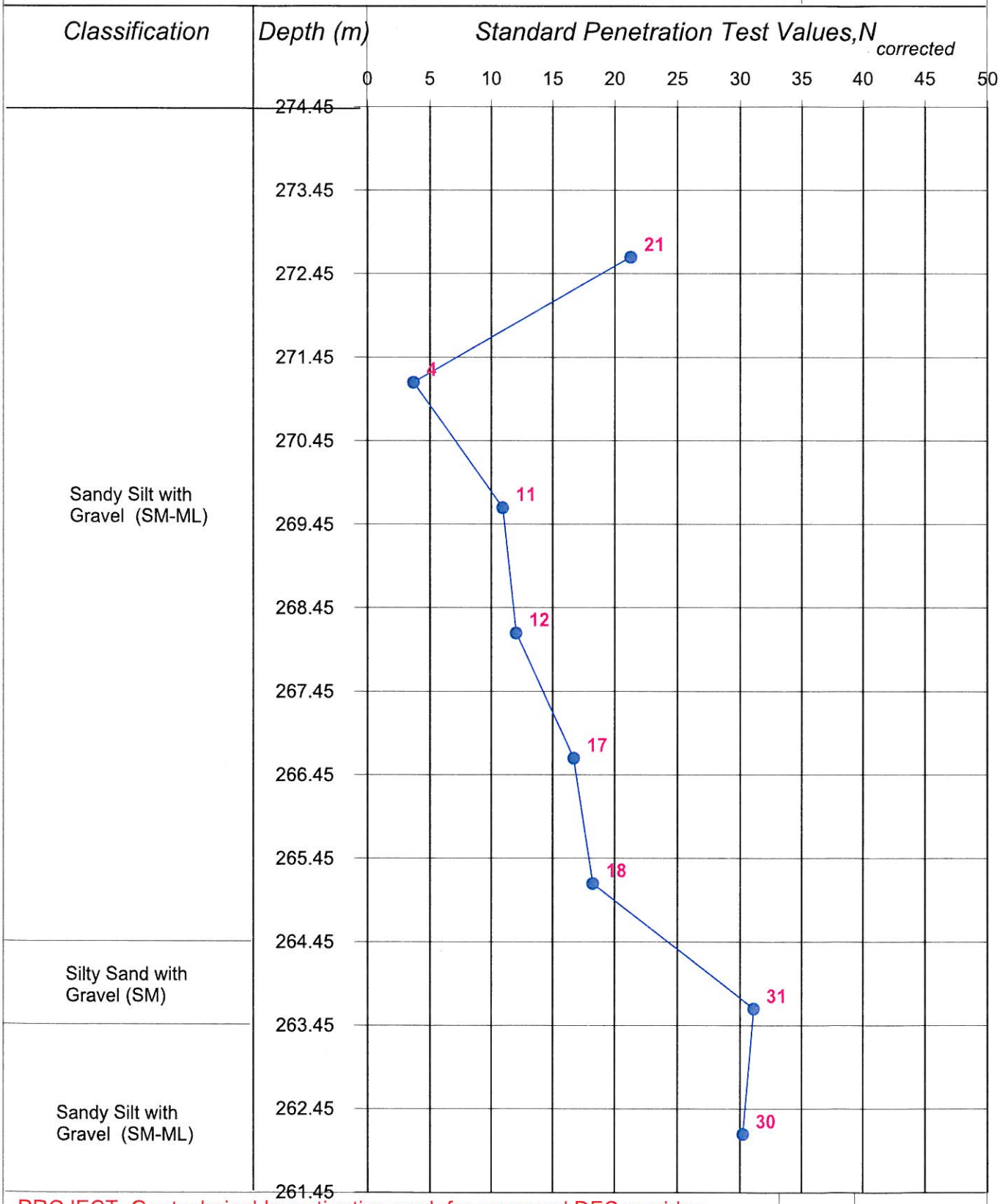
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AW

SOIL ENGINEERING CONSULTANTS | BR 255@ 214/21-23 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AW

0111

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 256 RL: 275.892

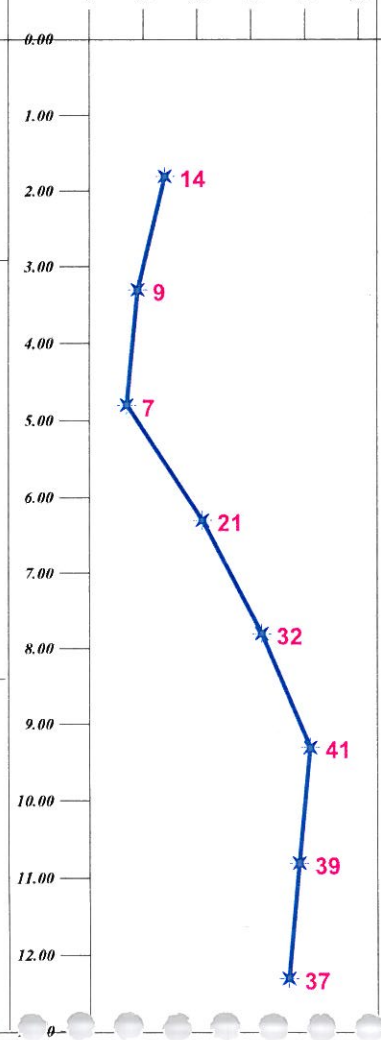
Location: 216/6-7
BH No.: 1
Depth : 12.00
Depth of Water table :Not Met

Date of start : 09/06/2008
Date of finish : 09/06/2008

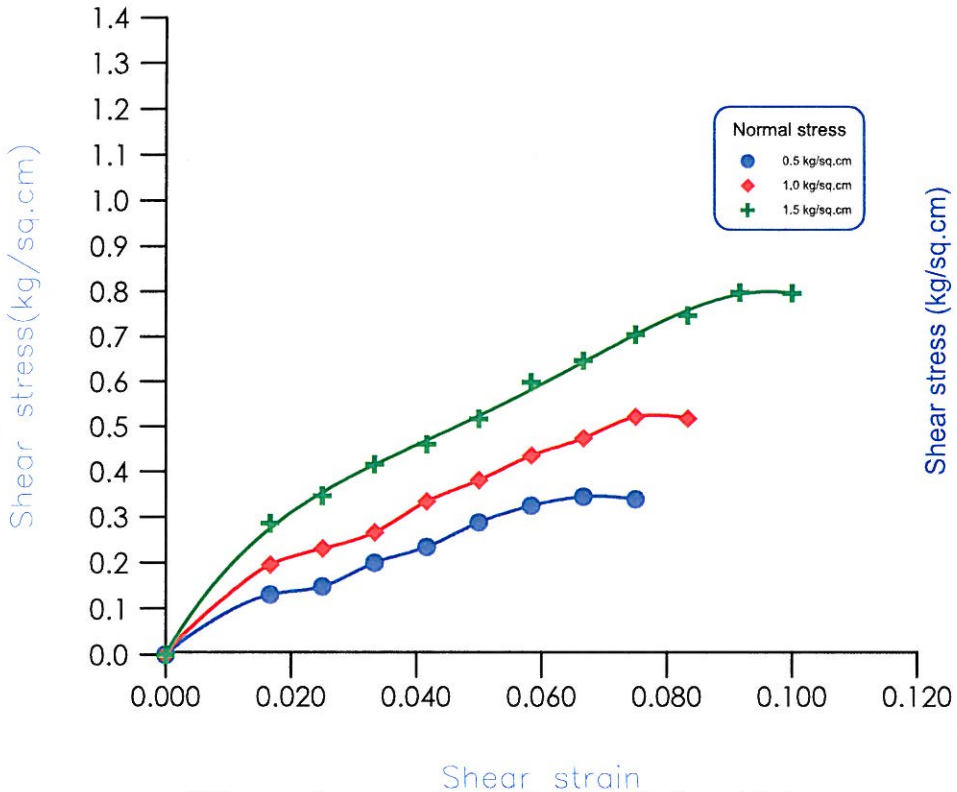
SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%)			Density (gm/cc)		W/C	Limits (%)		Sp.Gr	Shear Parameters			Cc
				Gravel	Sand	Silt/clay	r(wet)	r(dry)	W(%)	L.L	P . L		Type of test	C(kg/sq.cm)	phi(degrees)	
275.892																
274.092	1.80	SPT	Sandy Silt with Gravel (SM-ML)	2	7	91				Non	Plastic					
273.392	2.50	UDS					1.76	1.55	13.89			2.66	DST		30	
272.592	3.30	SPT		1	6	93				45	24					
271.092	4.80	SPT		0	3	97										
270.392	5.50	UDS	Silty Clay of medium Plasticity (CI)				1.77	1.51	16.94			2.68	UU	0.64	6	0.073
269.592	6.30	SPT		0	2	98				45	24					
268.092	7.80	SPT		0	35	65				Non	Plastic					
266.592	9.30	SPT		1	73	26				Non	Plastic					
265.092	10.80	SPT	Silty Sand with Gravel (SM)	0	64	36				Non	Plastic					
263.592	12.30	SPT		0	65	35				Non	Plastic					

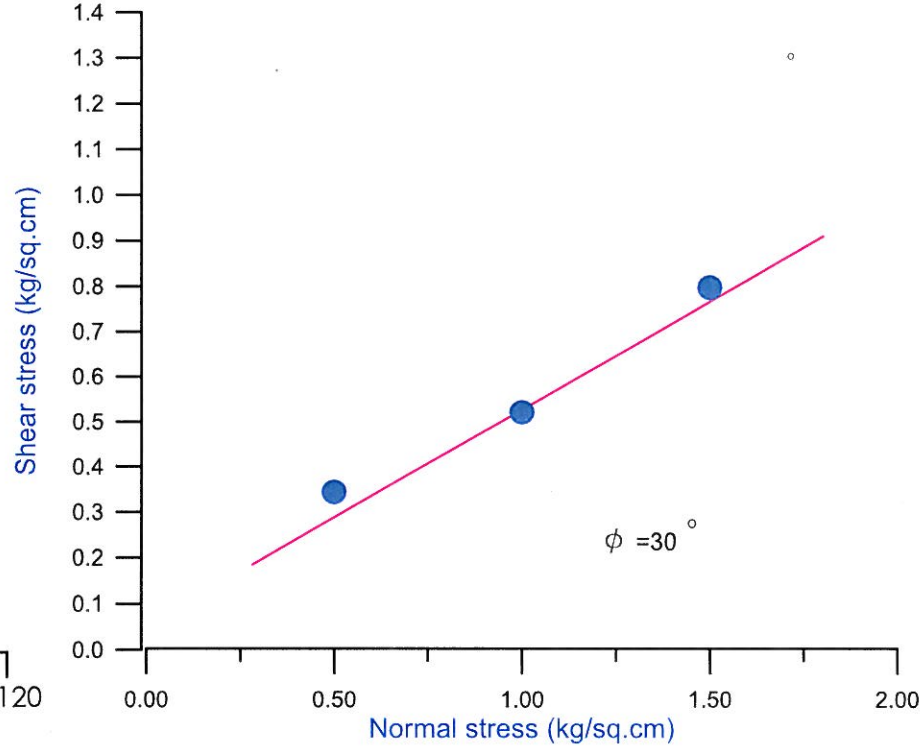
S.P.T Plot — Observed



BH-1
Depth-2.50m



(Shear stress - shear strain relationship)



(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-AV

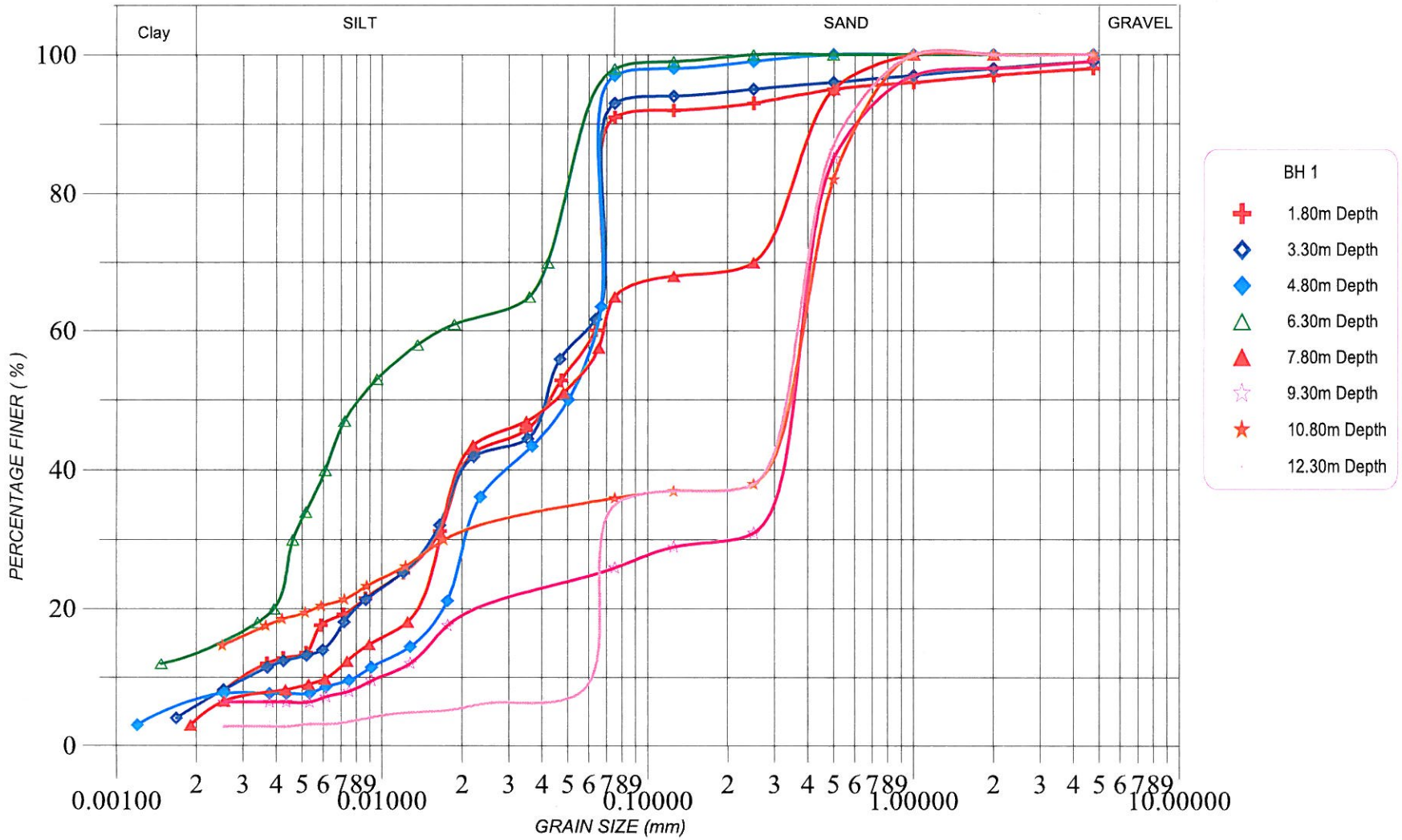
0113

Soil Engineering Consultants

BR 256@216/3-4

Job:1813

GRAIN SIZE DRISTRIBUTION CURVE

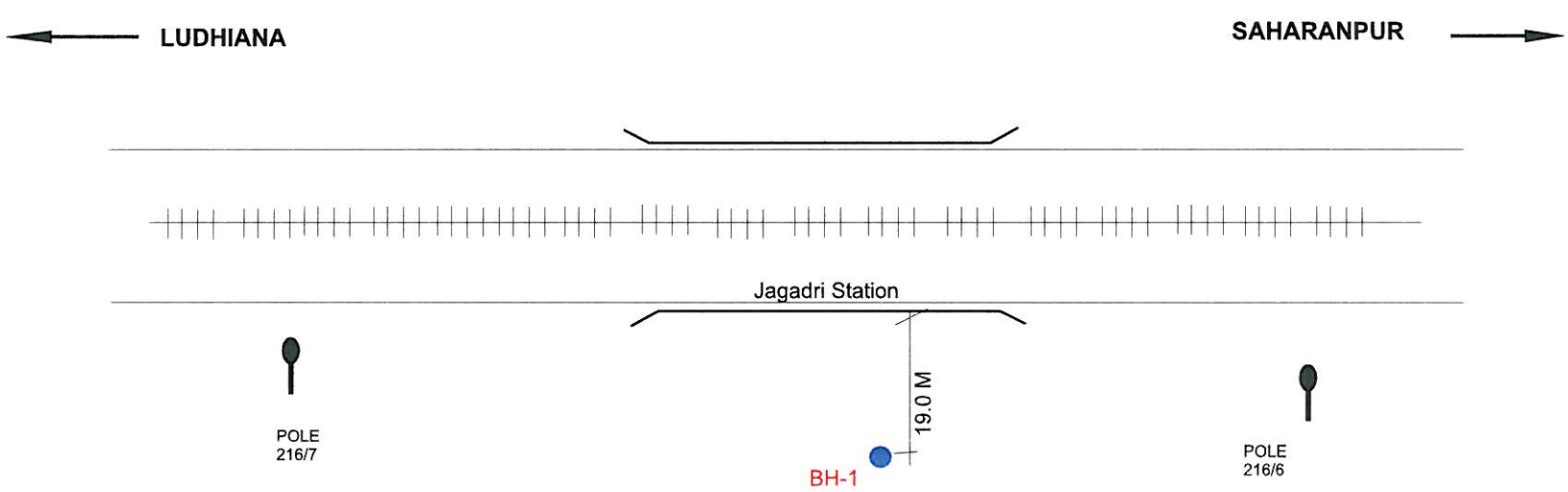


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AV

SOIL ENGINEERING CONSULTANTS

Job No: 1813

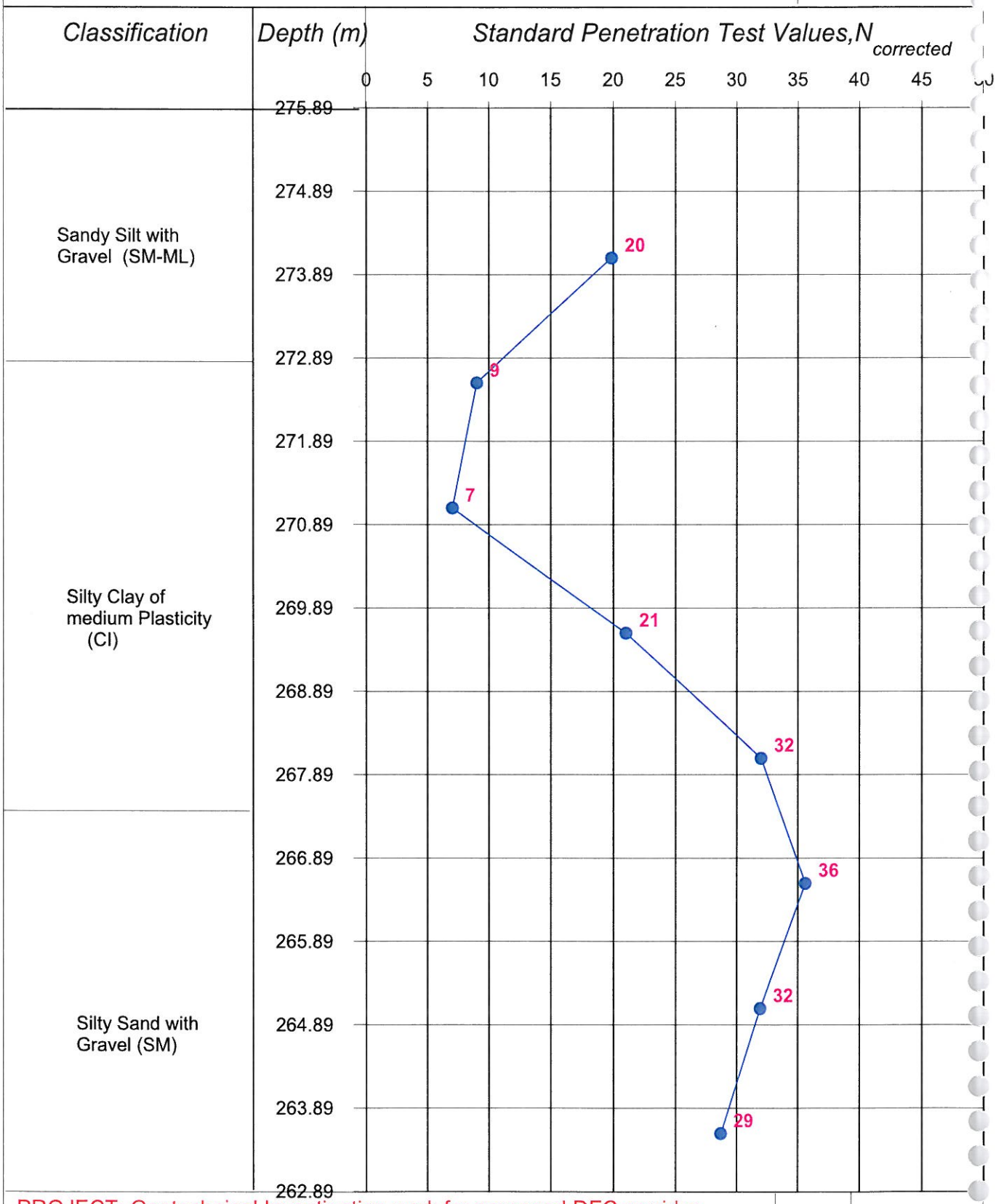


BR 256@ 216/6-7

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-AV

SOIL ENGINEERING CONSULTANTS | BR 256@216/3-4 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AV

0116

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 257 RL: 276.081

Location: 216/11-13
BH No.: 1
Depth : 12.00
Depth of Water table :Not Met

Date of start : 08/06/2008

Date of finish : 08/06/2008

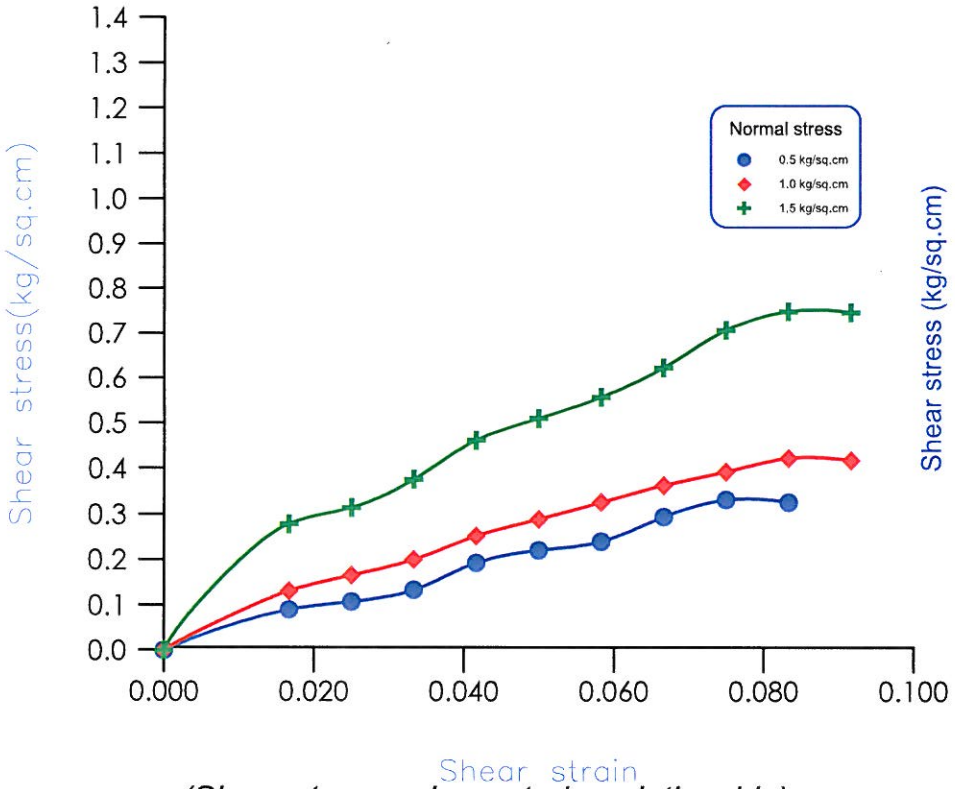
Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
276.081																	
274.281	1.80	SPT		8	0	3	97				Non	Plastic					
273.581	2.50	UDS	Sandy Silt with Gravel (SM-ML)					1.7	1.49	14.23			2.66	DST		29	
272.781	3.30	SPT		6	0	3	97				Non	Plastic					
271.281	4.80	SPT		12	0	2	98				Non	Plastic					
270.581	5.50	UDS	Silty Clay of medium Plasticity (CI)					1.76	1.47	19.89				UU	0.69	4	0.071
269.781	6.30	SPT		14	0	6	94				48	25					
268.281	7.80	SPT		40	0	54	46				Non	Plastic					
266.781	9.30	SPT	Silty Sand with Gravel (SM)	35	0	55	45				Non	Plastic					
265.281	10.80	SPT		36	0	72	28				Non	Plastic					
263.781	12.30	SPT		45	1	64	35				Non	Plastic					

0 10 20 30 40 50

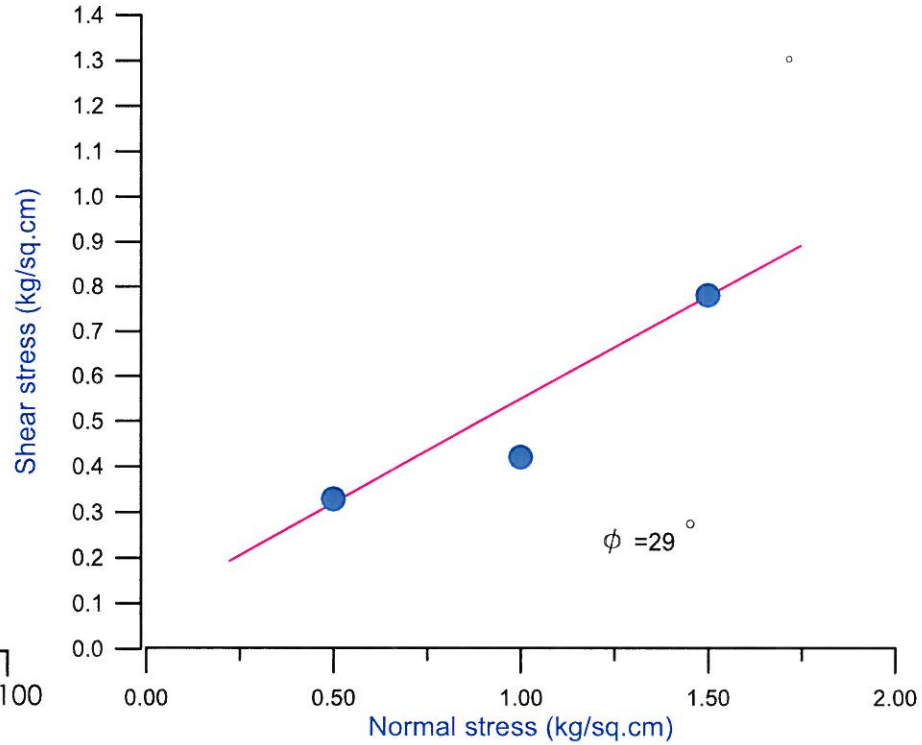
0.00 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 11.00 12.00 13.00

0127

BH-1
Depth-2.50m



(Shear stress - shear strain relationship)

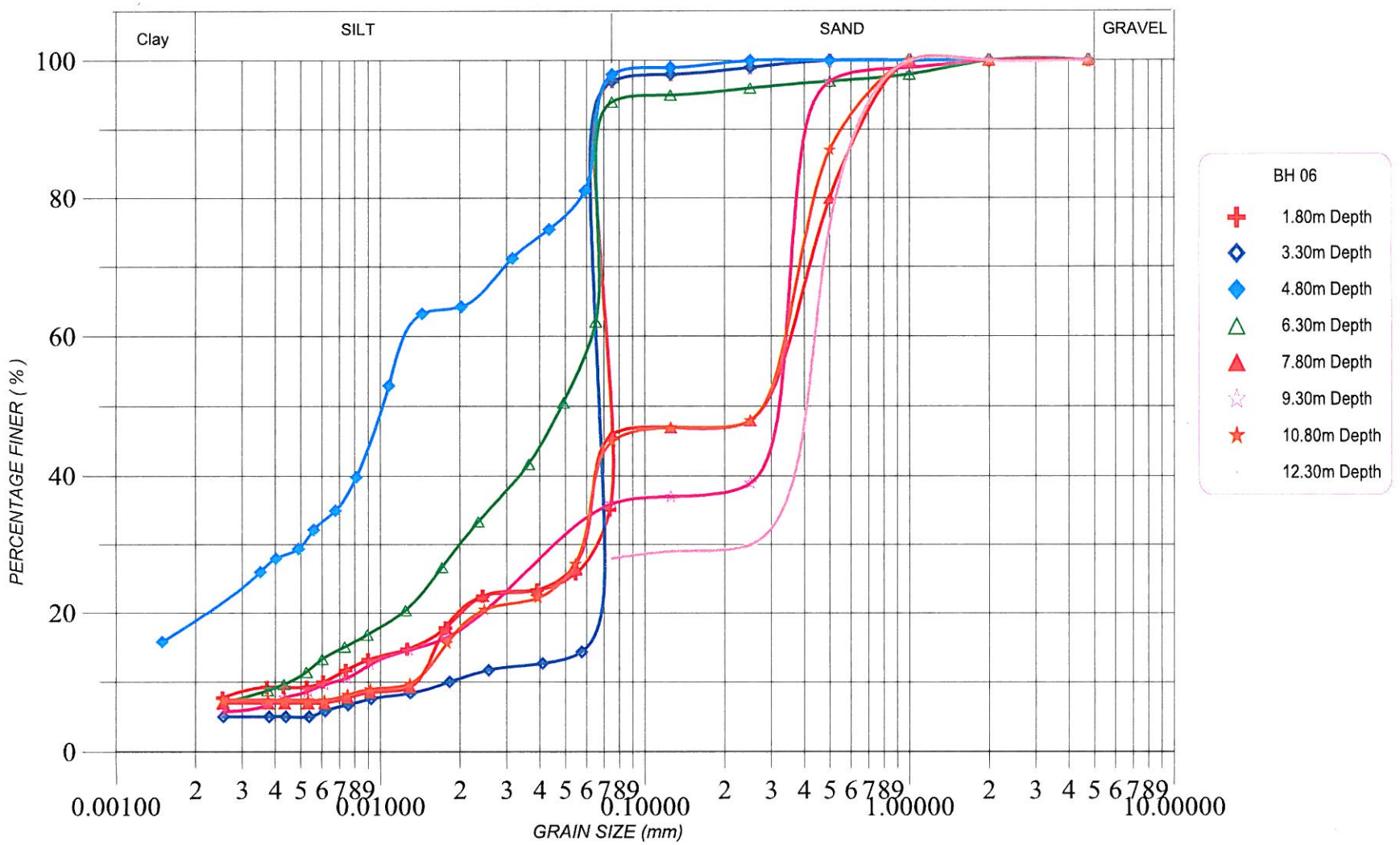


(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

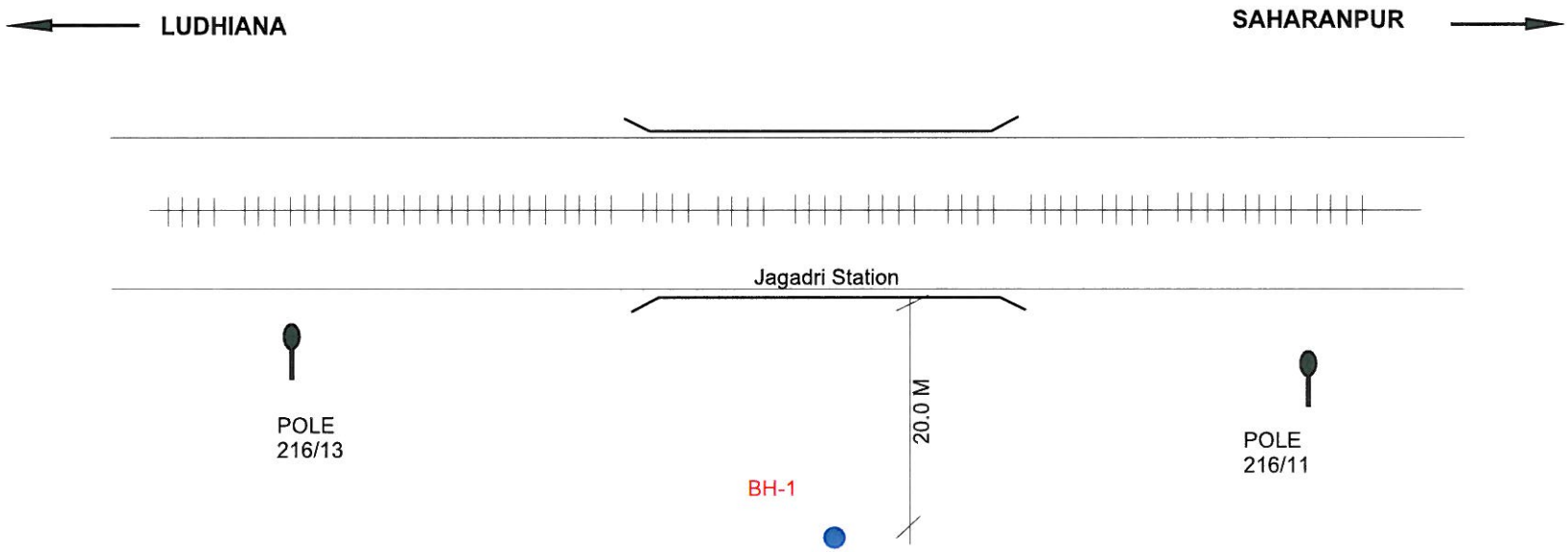
FIG- DS-AZ

GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-AZ

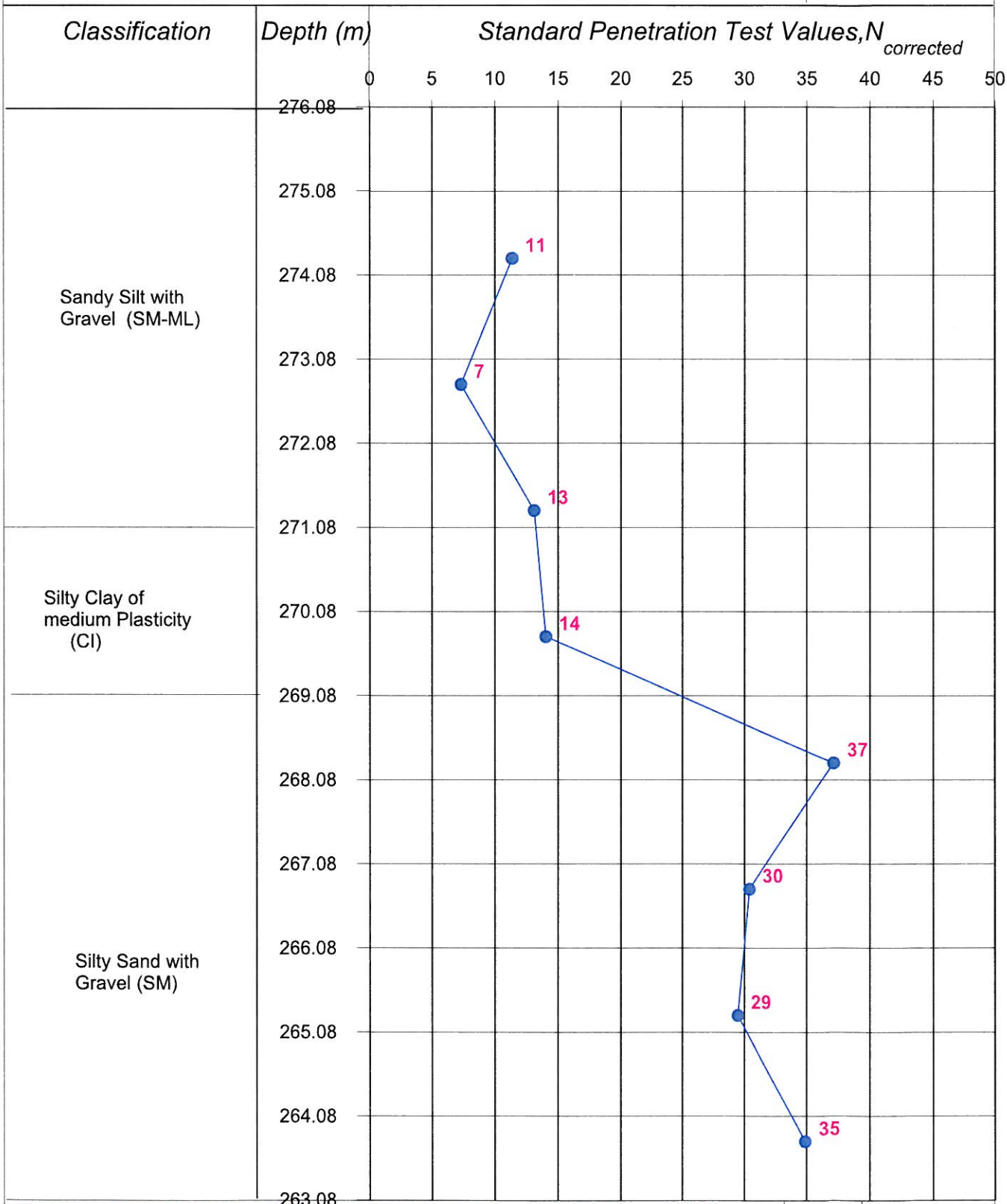


BR 257@ 216/11-13

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-AZ

SOIL ENGINEERING CONSULTANTS | BR 257@216/11-13 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP -AZ

0121

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

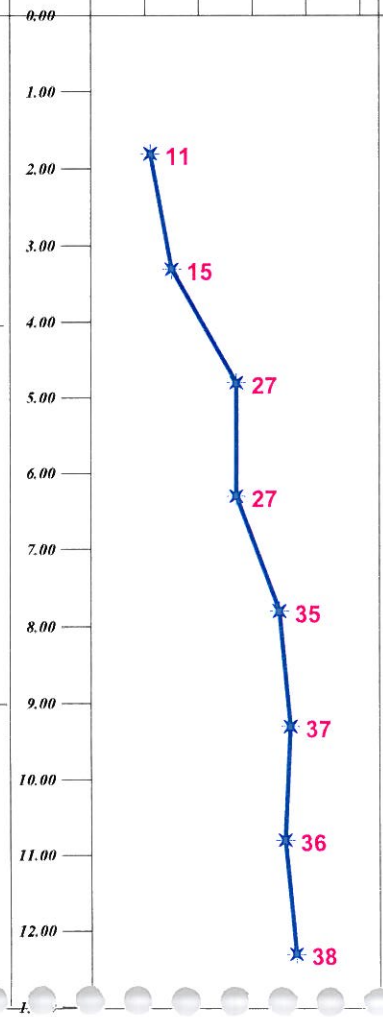
Project No. 1813 Bridge : 258 RL: 276.005

Location: 218/9-11
BH No.: 1
Depth : 12.00
Depth of Water table :Not Met

Date of start : 11/06/2008
Date of finish : 11/06/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	Grain size (%)			Density (gm/cc)		W/C	Limits (%)		Sp.Gr	Shear Parameters			Cc
				Gravel	Sand	Silt/clay	r(wet)	r(dry)	W(%)	L.L	P . L		Type of test	C(kg/sq.cm)	phi(degrees)	
276.005																
274.205	1.80	SPT	Silty Clay of medium Plasticity (CI)	0	3	97				52	26					
273.505	2.50	UDS					1.8	1.57	14.83			2.69	UU	0.68	3	0.078
272.705	3.30	SPT		0	3	97				48	28					
271.205	4.80	SPT	Sandy Silt with Gravel (SM-ML)	0	23	77				Non	Plastic					
270.505	5.50	UDS					1.87	1.62	15.11			2.68	DST	0.1	31	
269.705	6.30	SPT		0	39	61				Non	Plastic					
268.205	7.80	SPT		0	36	64				Non	Plastic					
267.505	8.50	UDS					1.93	1.67	15.45				DST	0.1	32	
266.705	9.30	SPT	Silty Sand with Gravel (SM)	0	52	48				Non	Plastic					
265.205	10.80	SPT		0	76	24				Non	Plastic					
263.705	12.30	SPT		1	56	43				Non	Plastic					

S.P.T Plot



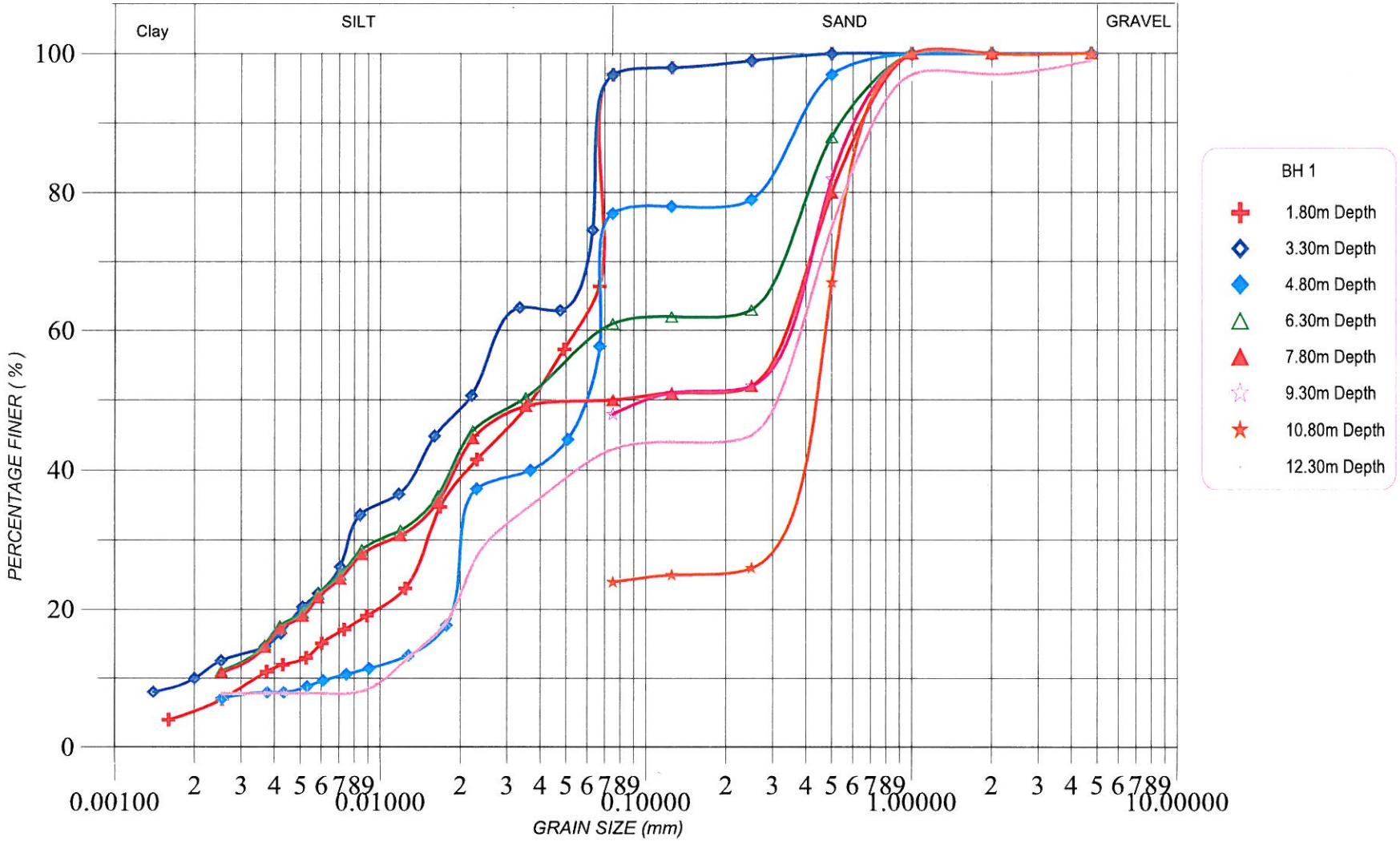
0129

Soil Engineering Consultants

BR 258@218/9-11

Job:1813

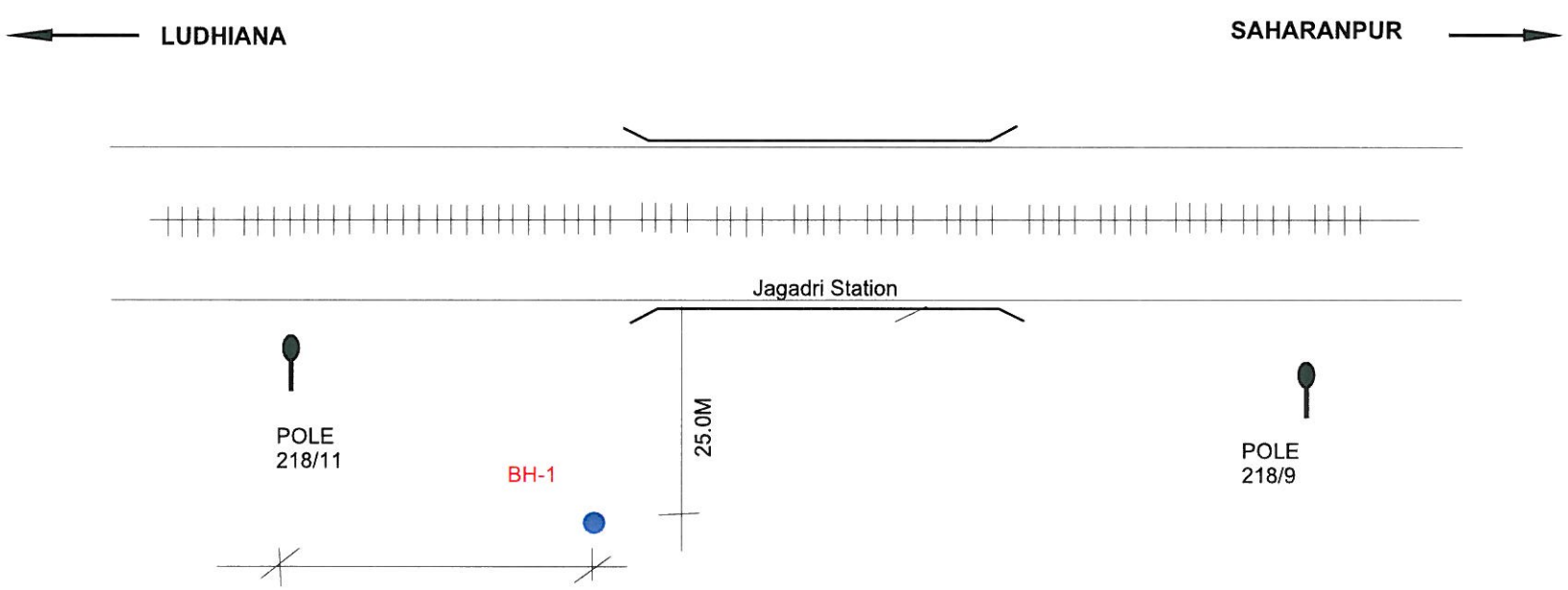
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BB

0123

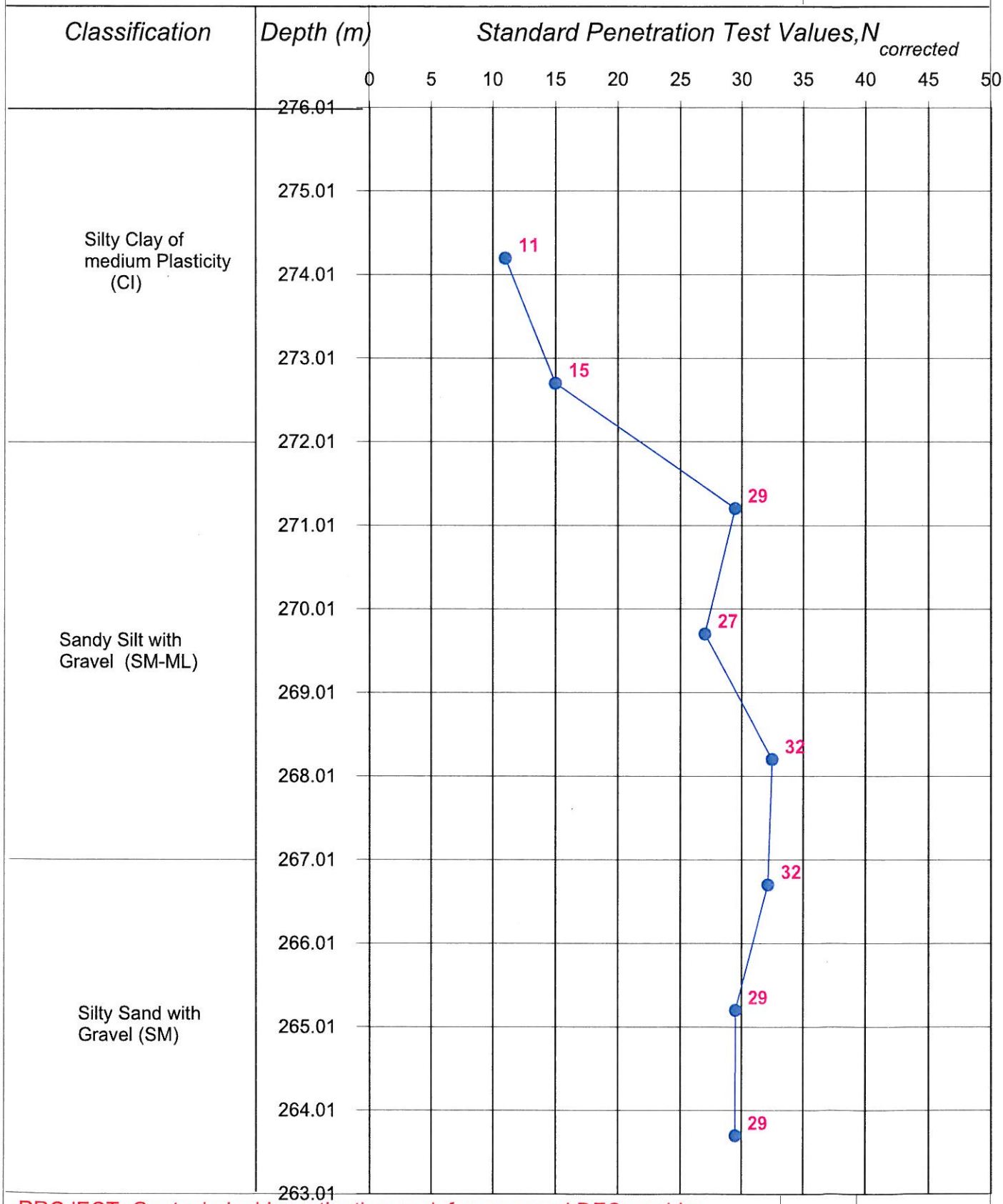


BR 258@ 218/9-11

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-BB

SOIL ENGINEERING CONSULTANTS BR 258@218/9-11 Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP-BB

0125

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 259 RL:276.863

Location: 219/17-19
BH No.: 1
Depth : 30.00 m
Depth of Water table : 19.50 m.

Date of start : 14/04/2008
Date of finish : 15/04/2008

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
276.863																	
276.363	0.50	DS	Sandy silt with Gravel (SM- ML)	18	2	5	93				Non	Plastic					
275.063	1.80	SPT			1	4	95				Non	Plastic					
274.363	2.50	UDS						1.76	1.67	5.15				DST	0.15	29	
273.563	3.30	SPT		12	0	18	82				Non	Plastic					
			Silty Sand (SM)														
272.063	4.80	SPT		13	0	58	42				Non	Plastic					
271.363	5.50	UDS						1.8	1.66	8.50				DST		29	
270.563	6.30	SPT	Sandy silt with Gravel (SM- ML)	21	0	28	72				Non	Plastic					
269.063	7.80	SPT		22	0	38	62				Non	Plastic					
268.363	8.50	UDS						1.83	1.67	9.27			2.67	DST		30	
267.563	9.30	SPT		31	2	42	56				Non	Plastic					
			Silty Sand (SM)														
266.063	10.80	SPT		35	6	61	33				Non	Plastic					
265.363	11.50	UDS	Sandy silt with Gravel (SM- ML)					1.88	1.70	10.70				DST		31	
264.563	12.30	SPT		44	1	26	73				Non	Plastic					
263.063	13.80	SPT		51	0	71	29				Non	Plastic					
262.363	14.50	UDS						1.94	1.60	16.94			2.67	DST		31	
261.563	15.30	SPT		54	2	54	44				Non	Plastic					
260.063	16.80	SPT	Silty Sand (SM)	57	1	66	33				Non	Plastic					
258.563	18.30	SPT		27	0	70	30				Non	Plastic					
257.063	19.80	SPT		29	0	74	26				Non	Plastic					
			Sandy Silt with Gravel (SM-ML)														
255.563	21.30	SPT		35	2	37	61				Non	Plastic					
			Silty Sand (SM)														
254.063	22.80	SPT		48	0	80	20				Non	Plastic					
			Sandy Silt with Gravel (SM-ML)														
252.563	24.30	SPT		48	1	41	58				Non	Plastic					
			Silty Sand (SM)														
251.063	25.80	SPT		44	1	62	37				Non	Plastic					
249.563	27.30	SPT	Sandy Silt with Gravel (SM-ML)	40	0	49	51				Non	Plastic					
248.063	28.80	SPT		44	10	10	80				Non	Plastic					
246.563	30.30	SPT		50	2	8	90				Non	Plastic					

0129

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 259 RL: 275.314

Location: 219/17-19
BH No.: 2
Depth : 30.00 m
Depth of Water table : 19.20M

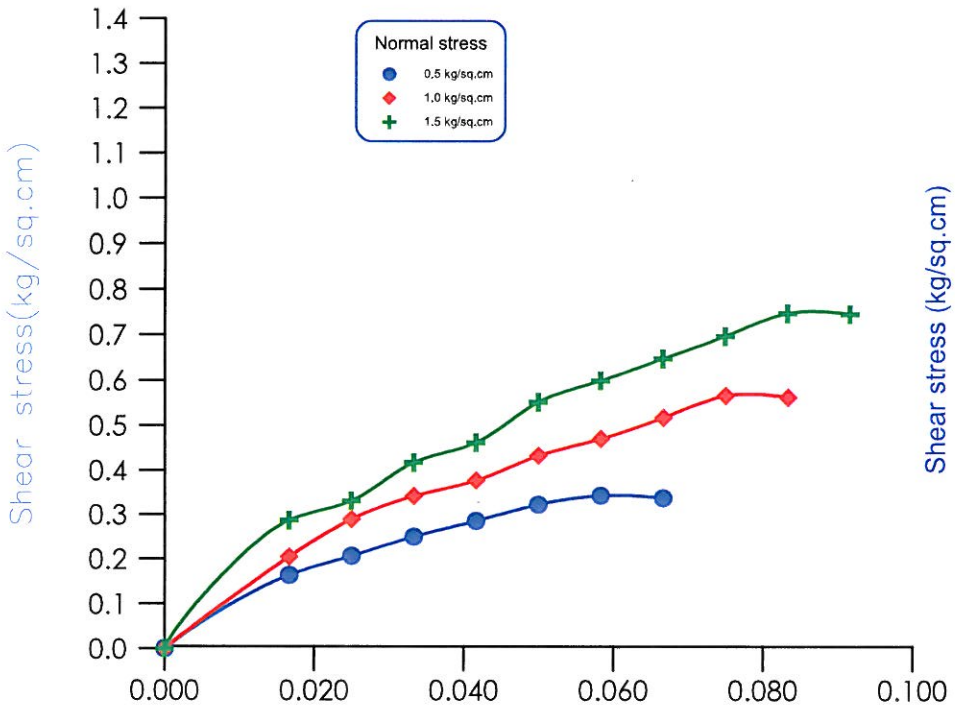
Date of start : 12/04/2008
Date of finish : 13/04/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
275.314																	
274.814	0.50	DS	Silty clay of Medium plasticity (CI)	6	3	12	85										
273.514	1.80	SPT			10	30	60				44	22					
272.514	2.80	UDS						1.76	1.57	11.89				DST	0.15	29	
272.014	3.30	SPT	Sandy Silt (SM-ML)	14	0	33	67				Non	Plastic					
270.514	4.80	SPT		9	0	40	60				Non	Plastic					
269.814	5.50	UDS						1.79	1.59	12.46			2.67	DST	0.15	29	
269.014	6.30	SPT	Silty Sand (SM)	18	0	39	61				Non	Plastic					
267.514	7.80	SPT		14	0	54	46				Non	Plastic					
266.814	8.50	UDS						1.8	1.59	13.22				DST		30	
266.014	9.30	SPT		27	0	41	59				Non	Plastic					
264.514	10.80	SPT		22	2	48	50				Non	Plastic					
263.814	11.50	UDS	Sandy silt with Gravel (SM-ML)					1.88	1.65	13.68				DST	0.1	30	
263.014	12.30	SPT		35	2	39	59				Non	Plastic					
261.514	13.80	SPT		34	5	27	68				Non	Plastic					
260.814	14.50	UDS						1.88	1.61	16.96			2.67	DST	0.1	31	
260.014	15.30	SPT		42	10	40	50				Non	Plastic					
258.514	16.80	SPT		34	1	80	19				Non	Plastic					
257.814	17.50	UDS						1.86	1.54	20.90				DST		30	
257.014	18.30	SPT		37	0	75	25				Non	Plastic					
255.514	19.80	SPT		65	1	73	26				Non	Plastic					
254.014	21.30	SPT		33	0	66	34				Non	Plastic					
252.514	22.80	SPT	Silty Sand with Gravel (SM)	40	1	89	10				Non	Plastic					
251.014	24.30	SPT		62	1	56	43				Non	Plastic					
249.514	25.80	SPT		53	2	81	17				Non	Plastic					
248.014	27.30	SPT		47	3	73	24				Non	Plastic					
246.514	28.80	SPT		58	8	77	15				Non	Plastic					
245.014	30.30	SPT	Silty clay of Medium plasticity (CI)	47	2	7	91				42	22					

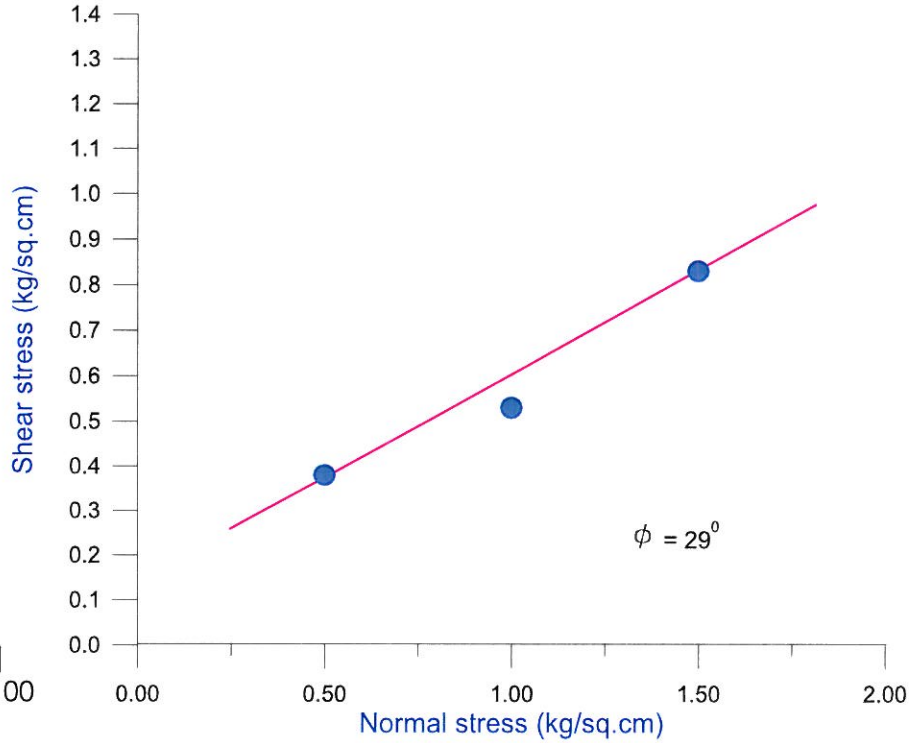
0127

0128

BH-1
DEPTH = 2.50 m.



(Shear stress - shear strain relationship)

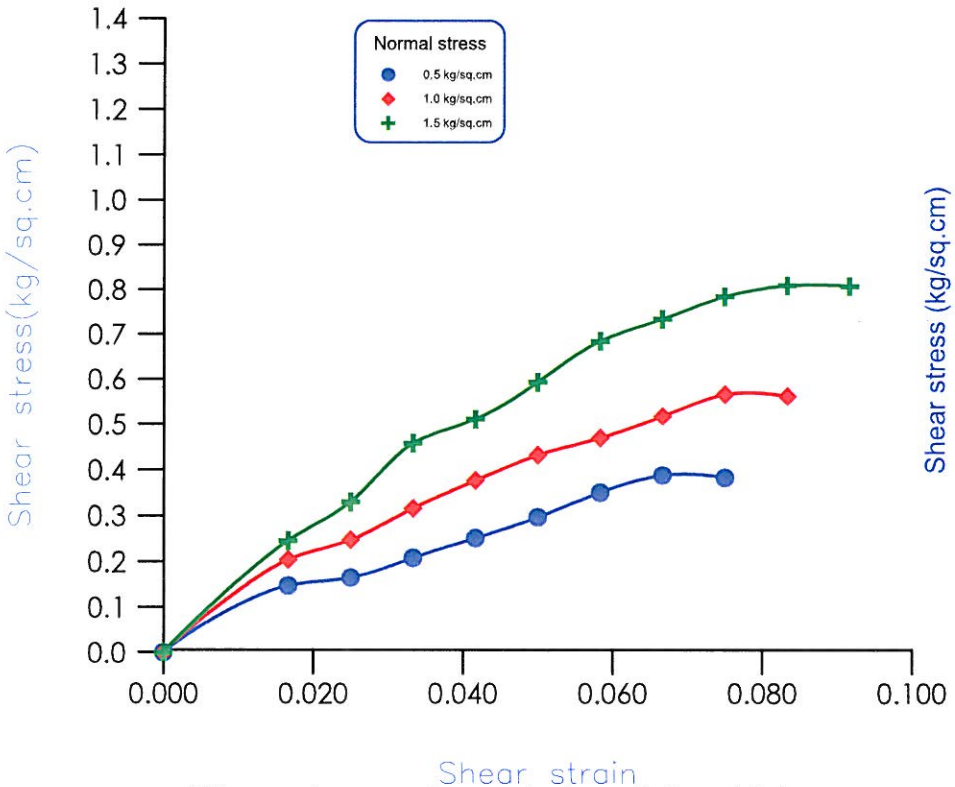


(Shear stress - Normal stress relationship)

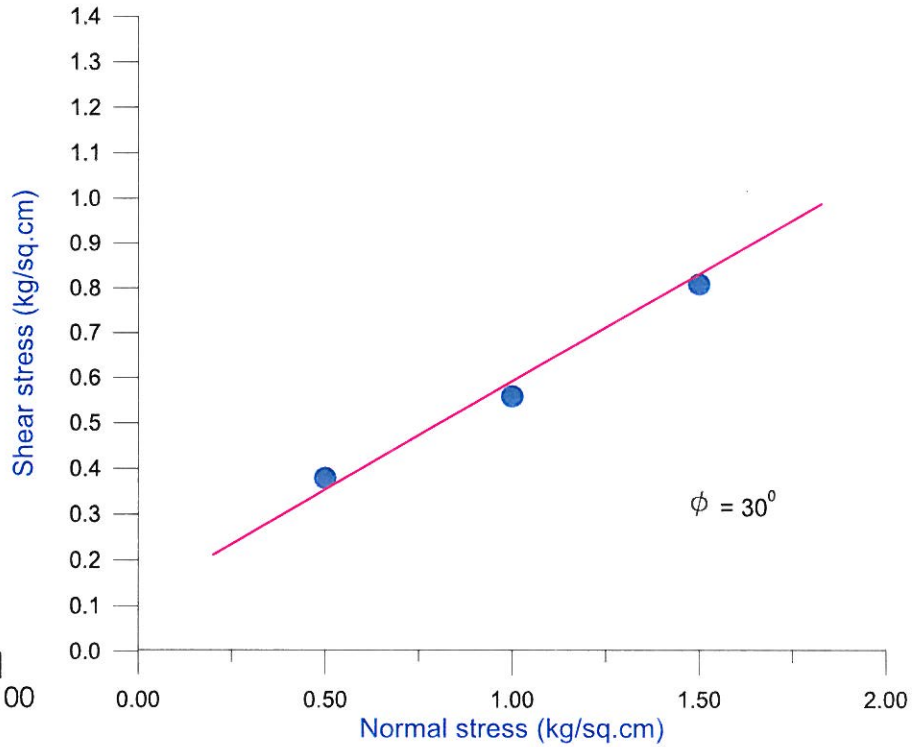
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BD 1

BH-2
DEPTH = 8.50 m.



(Shear stress - shear strain relationship)



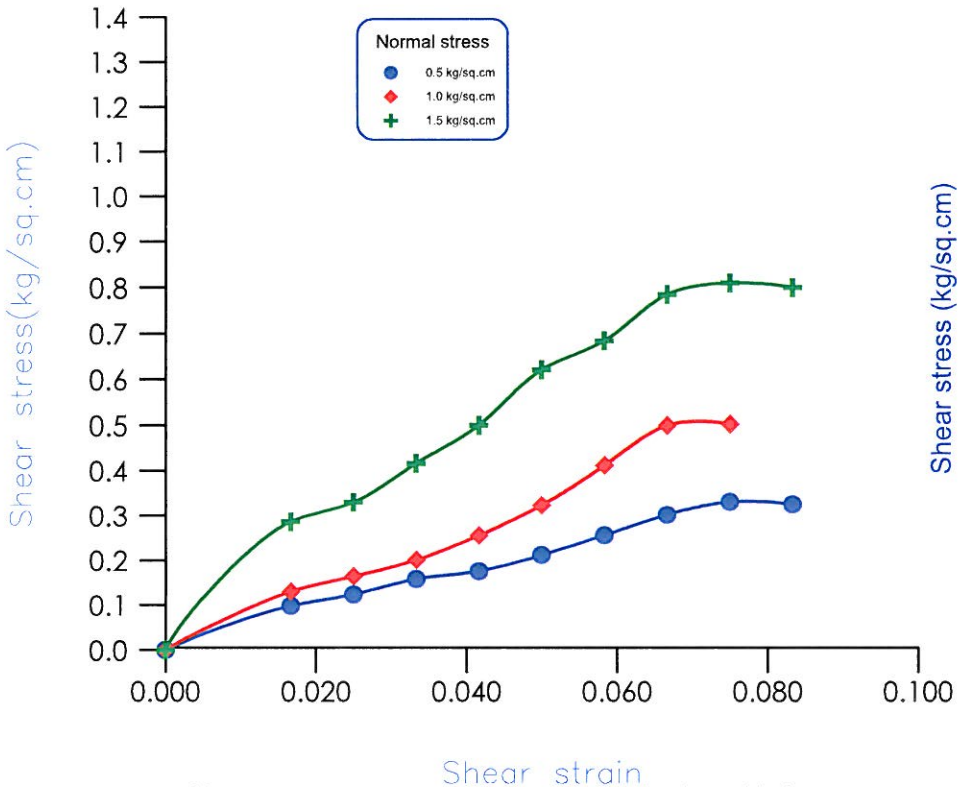
(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur.

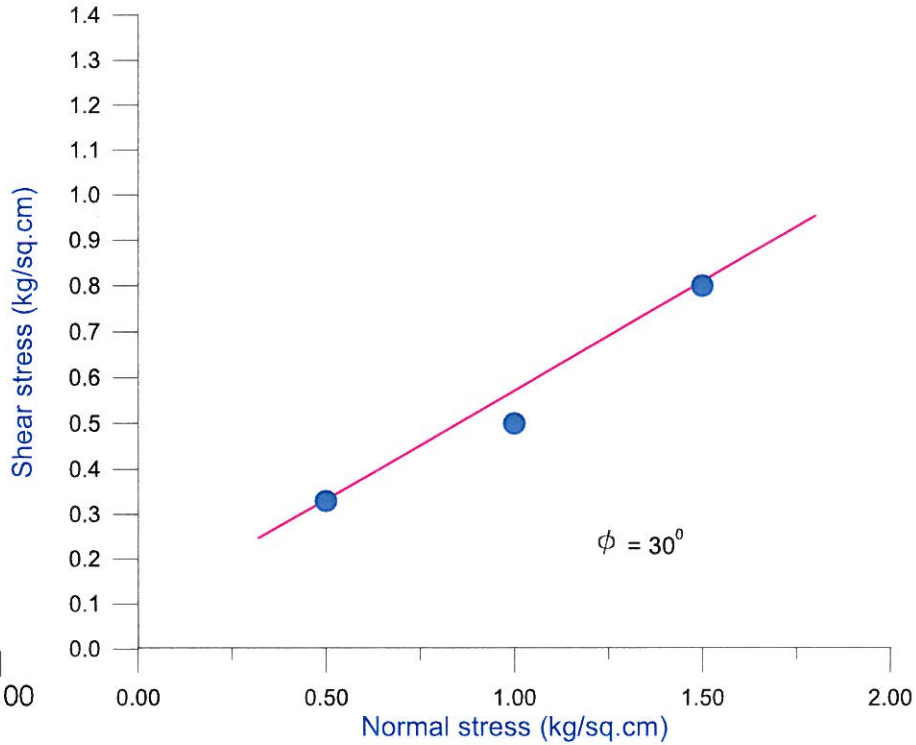
FIG- DS- BD2

0126

BH-2
DEPTH = 8.50 m.



(Shear stress - shear strain relationship)

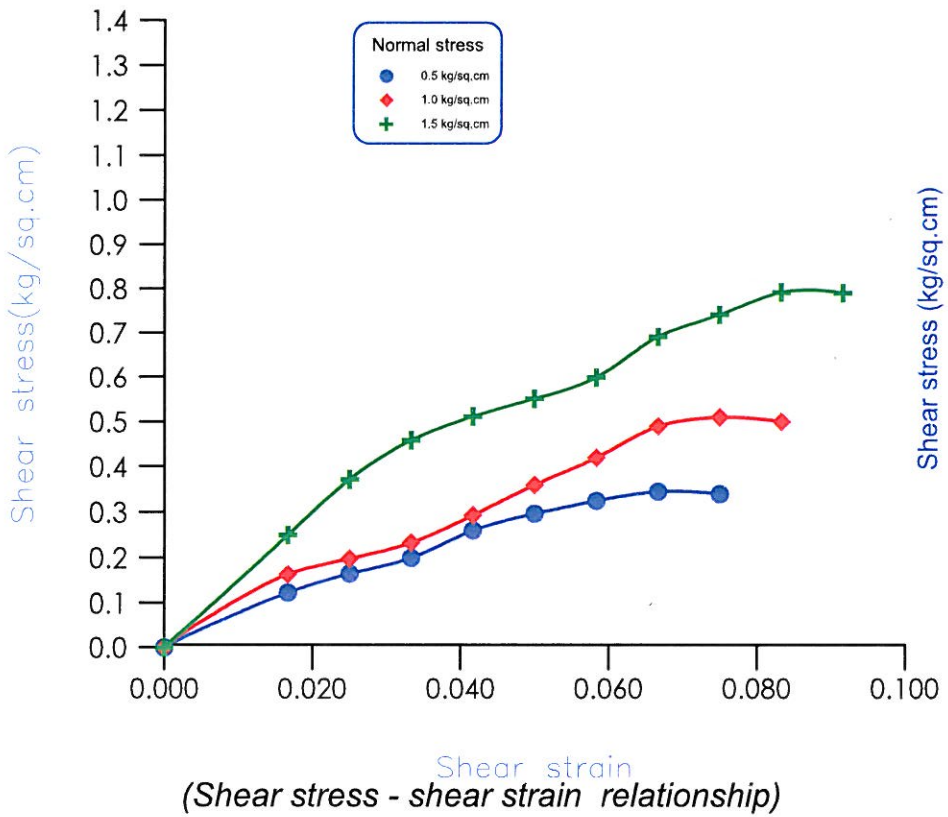


(Shear stress - Normal stress relationship)

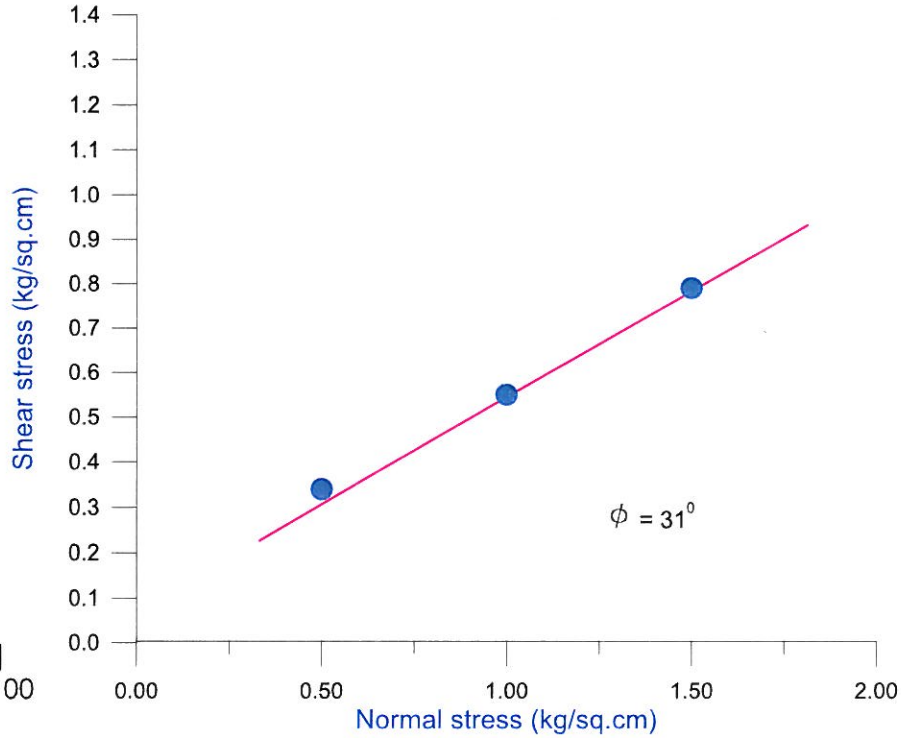
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BD3

BH-2
DEPTH = 14.50 m.



(Shear stress - shear strain relationship)



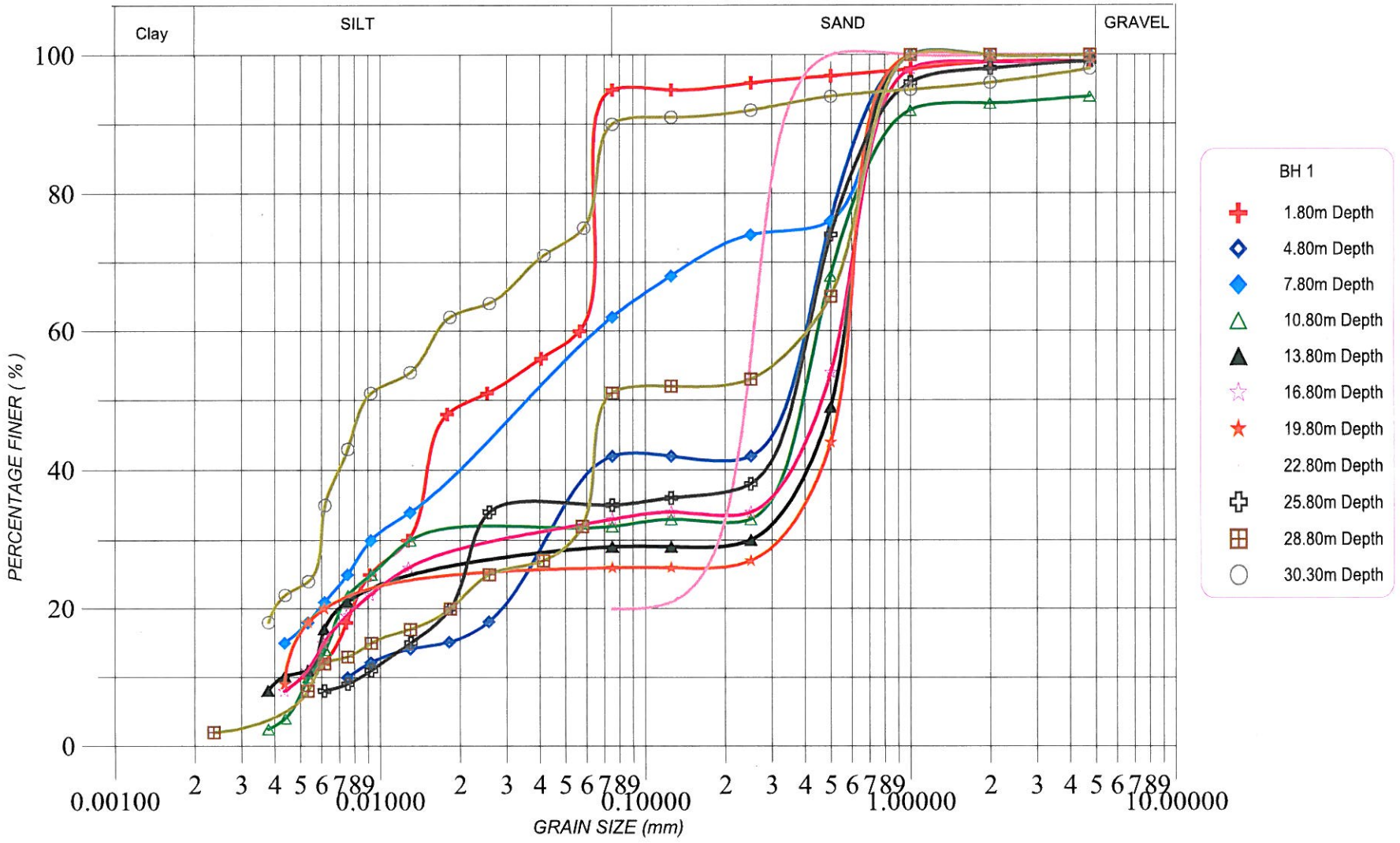
(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BD4

0134

GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BD1

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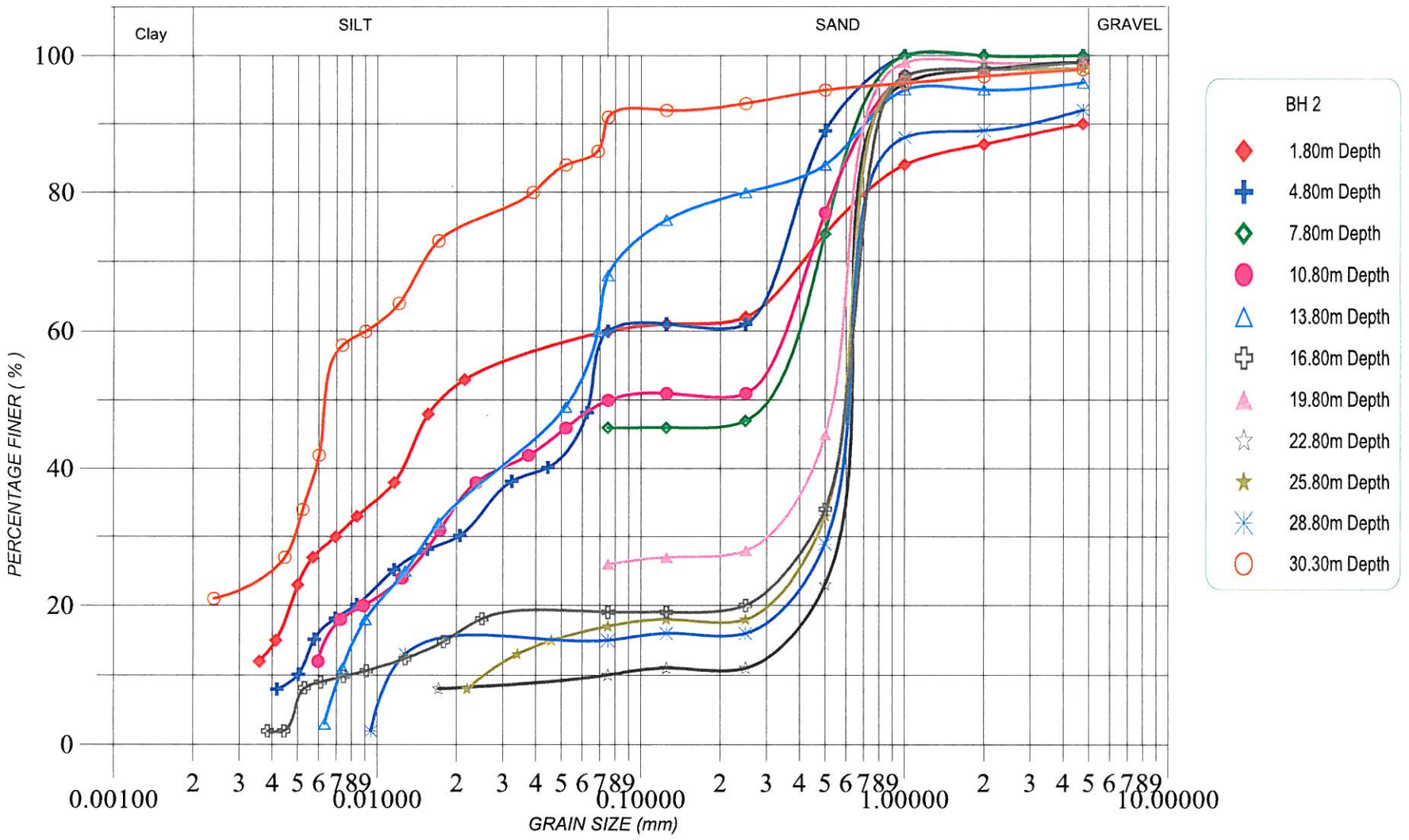
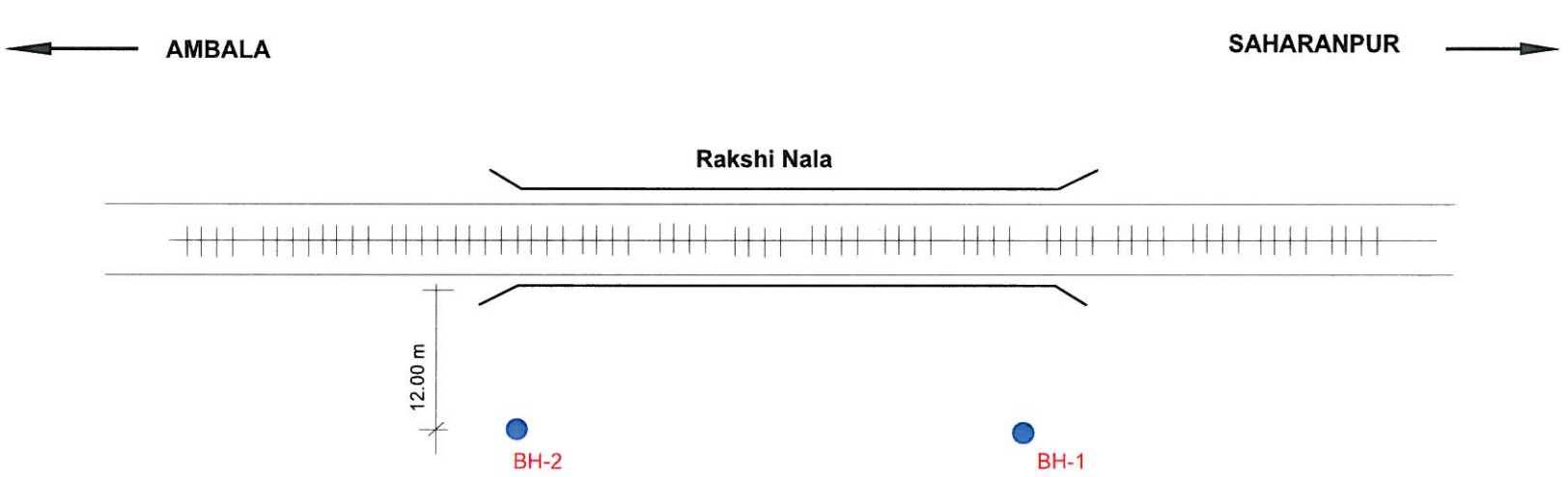
GRAIN SIZE DRISTRIBUTION CURVE

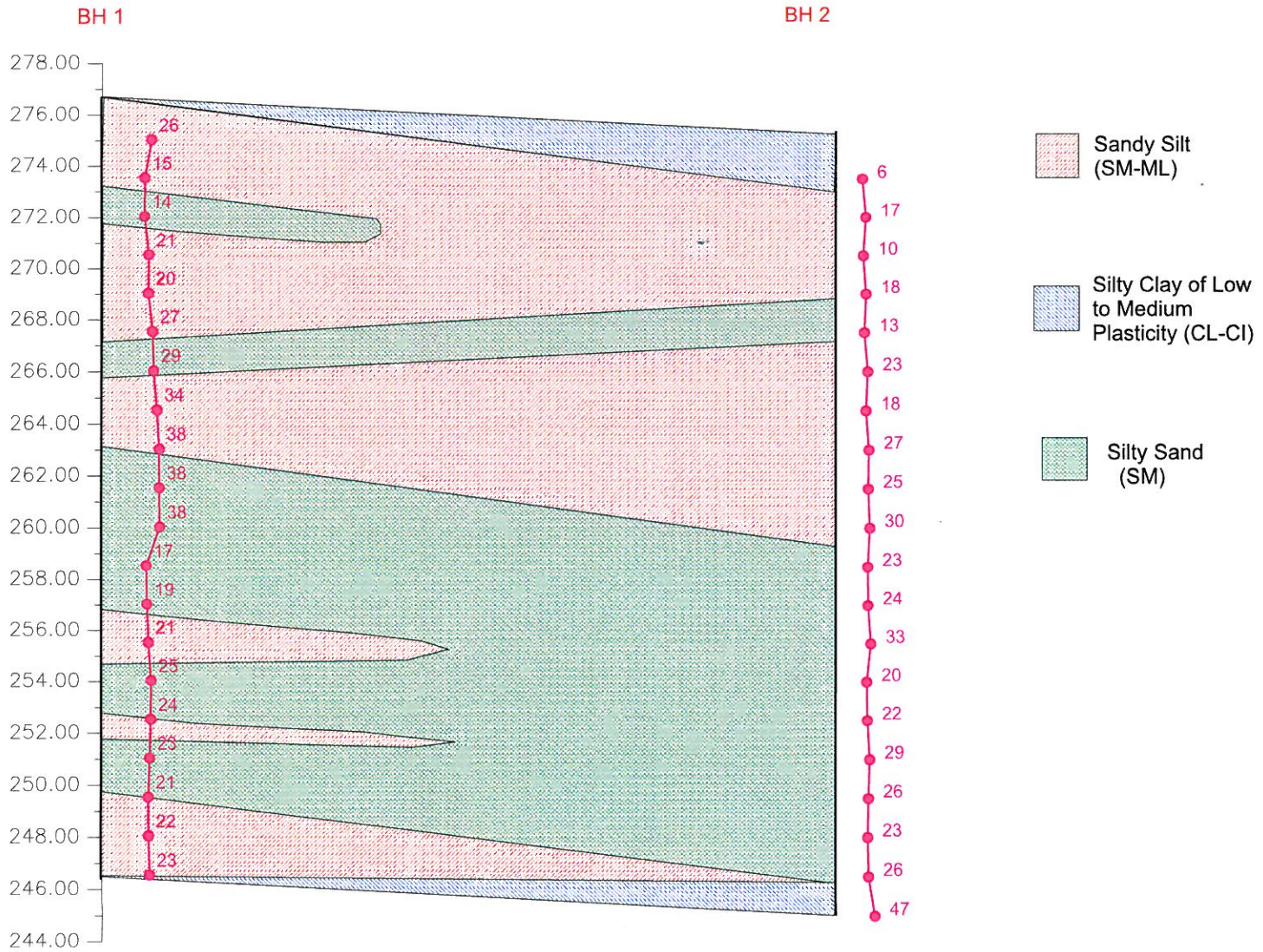


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BD2

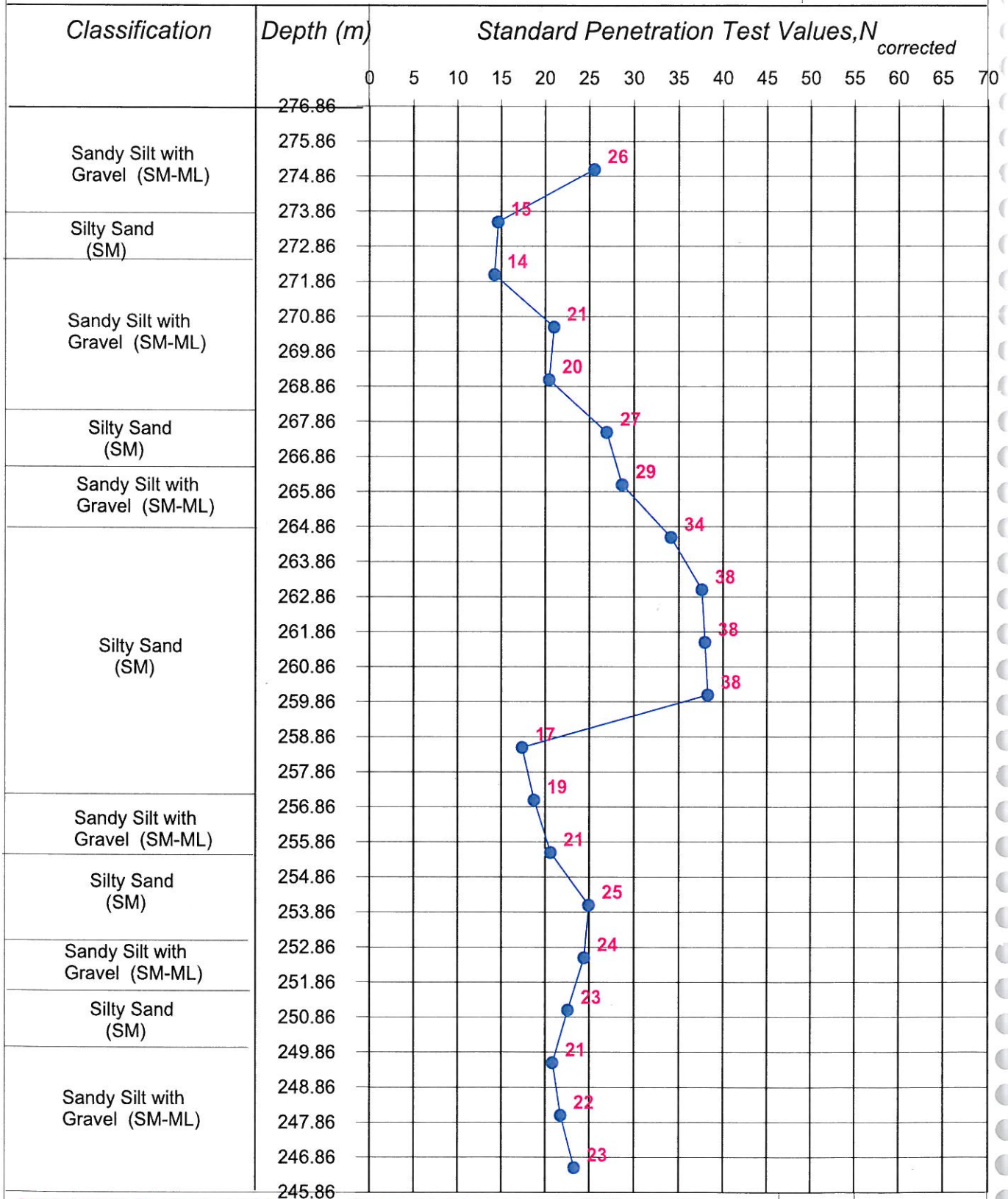


BR 259 @ CH 219/17-19



EXPECTED SOIL PROFILE FOR PRPPOSED BRIDGE, ALONG BH 1 TO BH 2 WITH CORRECTED SPT VALUES

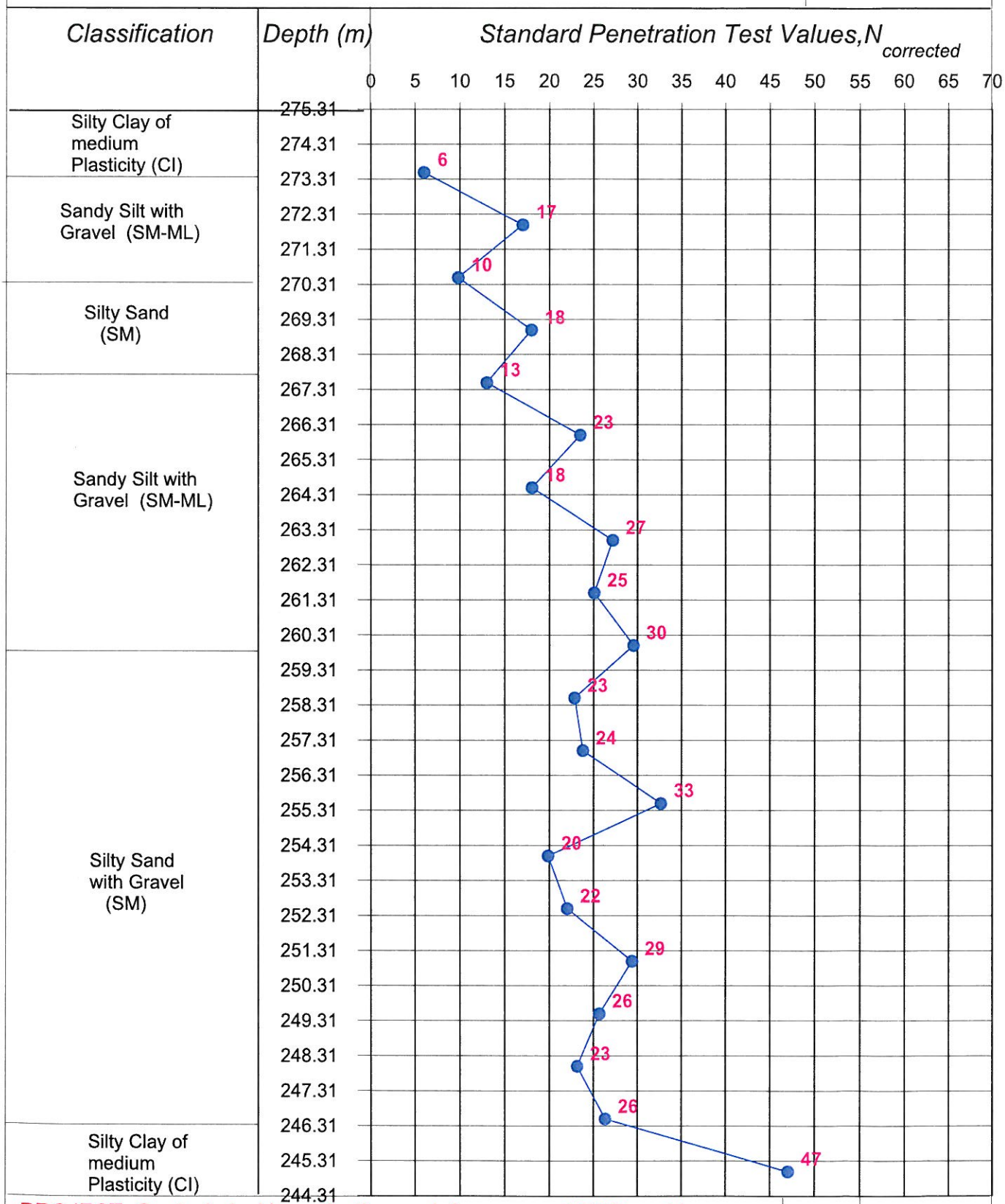
SOIL ENGINEERING CONSULTANTS BR-259 ,219/17-19 Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 1 | Fig: SP BD-1

0136

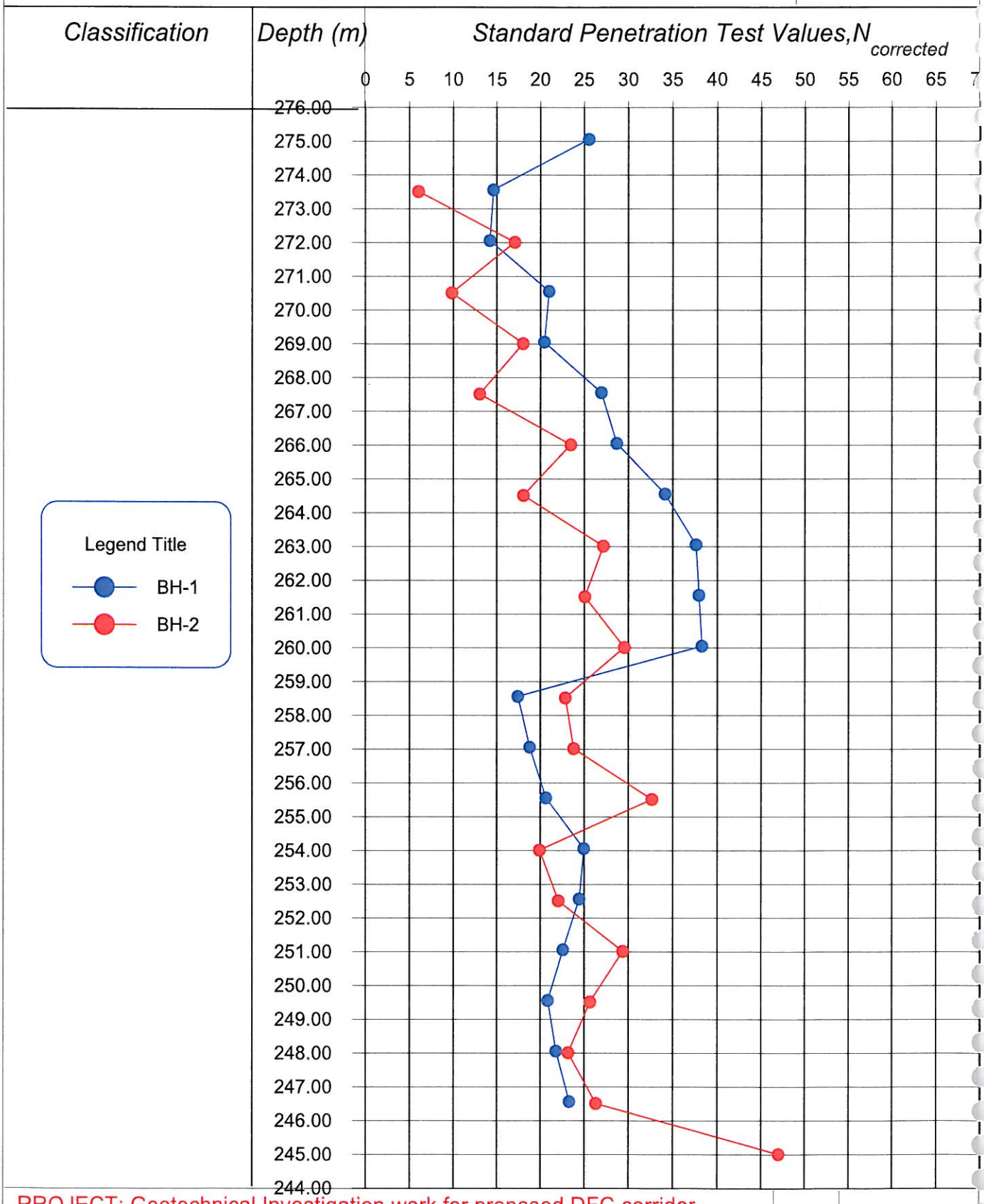
SOIL ENGINEERING CONSULTANTS BR-259 ,219/17-19 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 2 | Fig: SP BD2

0137

SOIL ENGINEERING CONSULTANTS BR-259 ,219/17-19 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 1 | Fig: ASP- BD

BORE LOG

PROJECT: Geotechnical Investigation work for the proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 260 RL: 274.869

Location: 221/5-7
BH No.: 1
Depth : 30.00 m
Depth of Water table : 24.5m.

Date of start : 12/04/2008
Date of finish : 14/04/2008

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
274.869																	
274.369	0.50	DS	Silty Clay with medium plasticity (CI)		1	10	89				41	24					
273.069	1.80	SPT		20	1	14	85				41	24					
272.369	2.50	UDS						1.92	17.50	9.68				UU	1.26	3	
271.569	3.30	SPT		29	0	39	61				44	23					
270.069	4.80	SPT	Sandy Silt (SM-ML)	23	0	14	86				Non	Plastic					
269.369	5.50	UDS						1.92	1.73	10.60				DST	0.15	31	
268.569	6.30	SPT		28	0	13	87				Non	Plastic					
267.069	7.80	SPT	Silty Sand (SM)	17	1	69	30				Non	Plastic					
265.569	9.30	SPT	Sandy Silt (SM-ML)	18	2	81	17				Non	Plastic					
264.069	10.80	SPT		28	0	9	91				Non	Plastic					
262.569	12.30	SPT	Silty Sand (SM)	19	0	64	36				Non	Plastic					
261.069	13.80	SPT		36	1	57	42				Non	Plastic					
259.569	15.30	SPT		33	0	64	36				Non	Plastic					
258.069	16.80	SPT		53	0	73	27				Non	Plastic					
256.569	18.30	SPT		23	2	53	45				Non	Plastic					
255.069	19.80	SPT		31	1	55	44				Non	Plastic					
253.569	21.30	SPT	Sandy Silt (SM-ML)	35	2	44	54				Non	Plastic					
252.069	22.80	SPT	(SM)	55	1	77	22				Non	Plastic					
250.569	24.30	SPT	(SM-ML)	34	1	43	56				Non	Plastic					
249.069	25.80	SPT	(SM)	47	1	83	16				Non	Plastic					
247.569	27.30	SPT		52	1	62	37				Non	Plastic					
246.069	28.80	SPT		60	1	59	40				Non	Plastic					
244.569	30.30	SPT		37	1	62	37				Non	Plastic					

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 260 RL: 273.860

Location: 221/5-7
BH No.: 2
Depth : 30.00 m
Depth of Water table : 24.00m.

Date of start : 14/04/2008
Date of finish : 15/04/2008

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	Density (gm/cc) r(dry)	W/C W(%)	Limits (%) L.L	Limits (%) P . L	Sp.Gr	Shear Parameters Type of test	Shear Parameters C(kg/sq.cm)	Shear Parameters phi(degrees)	Cc
273.860				0 10 20 30 40 50 60 70 80 90 100 110 120													
273.360	0.50	DS			1	4	95				Non	Plastic					
272.060	1.80	SPT		22	1	8	91				Non	Plastic					
271.360	2.50	UDS	Sandy Silt with Gravel (SM-ML)										2.67	DST	0.2	31	
270.560	3.30	SPT		24	0	4	96				Non	Plastic					
269.060	4.80	SPT		19	0	38	62				Non	Plastic					
268.360	5.50	UDS						1.92	1.73	10.60				DST	0.15	31	
267.560	6.30	SPT		28	0	38	62				Non	Plastic					
266.060	7.80	SPT	Silty Sand with Gravel (SM)	16	1	51	48				Non	Plastic					
265.360	8.50	UDS						1.93	1.60	16.40			2.69	DST		30	
264.560	9.30	SPT		19	0	63	37				Non	Plastic					
263.060	10.80	SPT	Sandy Silt with Gravel (SM-ML)	21	1	21	78				Non	Plastic					
262.360	11.50	UDS												DST		30	
261.560	12.30	SPT	Silty Sand with Gravel (SM)	28	0	53	47				Non	Plastic					
260.060	13.80	SPT		28	0	51	49				Non	Plastic					
259.360	14.50	UDS						1.56	1.34	16.00			2.69	DST		31	
258.560	15.30	SPT		32	1	77	22				Non	Plastic					
257.060	16.80	SPT	Sandy Silt with Gravel (SM-ML)	37	0	36	64				Non	Plastic					
256.360	17.50	UDS						1.93	1.73	11.50				DST	0.1	31	
255.560	18.30	SPT	Silty Sand with Gravel (SM)	40	6	83	11				Non	Plastic					
254.060	19.80	SPT	Sandy Silt with Gravel (SM-ML)	30	2	40	58				Non	Plastic					
253.360	20.50	UDS															
252.560	21.30	SPT	Silty Sand with Gravel (SM)	41	1	68	31				Non	Plastic					
251.060	22.80	SPT		31	0	57	43				Non	Plastic					
249.560	24.30	SPT		36	1	71	28				Non	Plastic					
248.060	25.80	SPT		41	1	50	49				Non	Plastic					
246.560	27.30	SPT		40	0	68	32				Non	Plastic					
245.060	28.80	SPT	Sandy Silt with Gravel (SM-ML)	42	1	47	52				Non	Plastic					
[illegible]	[illegible]	PT	Silty Sand with Gravel (SM)			[illegible]	37				Non	Plasti					

0170

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 260 RL: 274.870

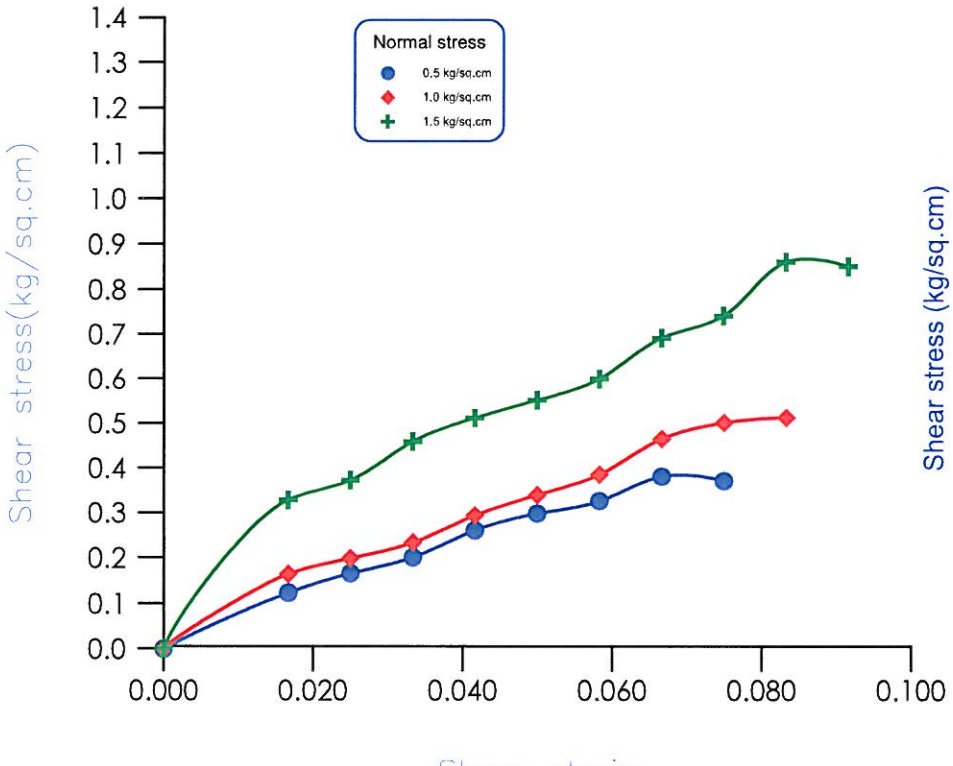
Location:221/5-7
BH No.: 3
Depth : 30.00 m
Depth of Water table : 24.00m.

Date of start : 16/04/2008
Date of finish : 17/04/2008

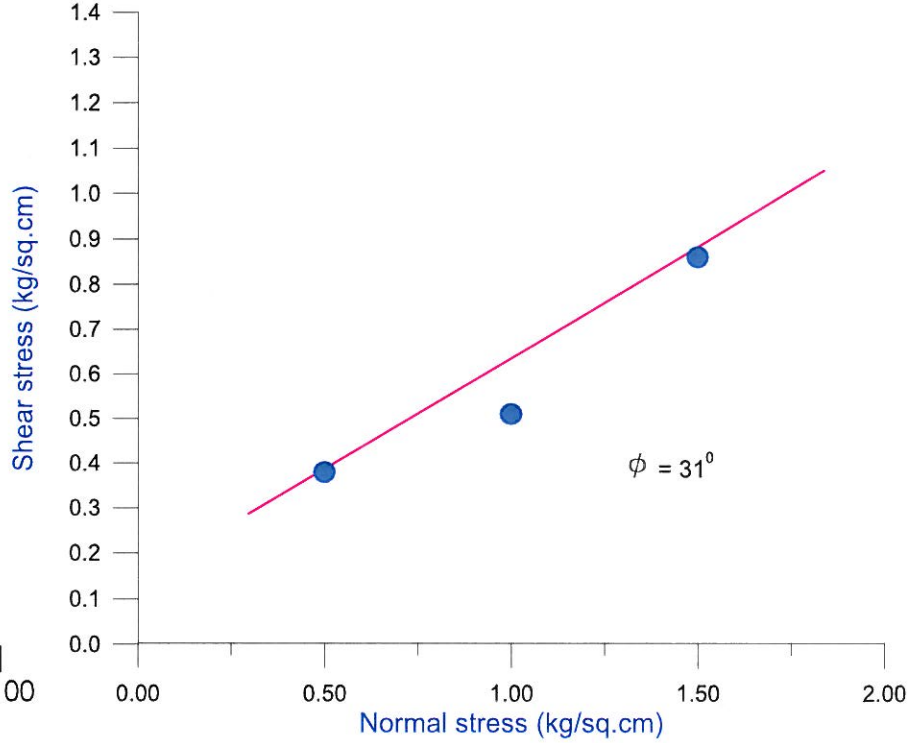
SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
274.870																	
274.370	0.50	DS			0	3	97				Non	Plastic					
273.070	1.80	SPT	Silty Clay with Medium Plasticity (CI)	24	2	5	93										
272.370	2.50	UDS						1.79	1.58	13.48			2.71	UU	1.08	3	0.083
271.570	3.30	SPT		17	2	8	90				40	22					
270.070	4.80	SPT		22	0	37	63				Non	Plastic					
269.370	5.50	UDS	Sandy Silt (SM-ML)					1.86	1.63	14.11				DST	0.16	32	
268.570	6.30	SPT		20	0	39	61				Non	Plastic					
267.070	7.80	SPT	Silty Sand (SM)	16	1	52	47				Non	Plastic					
266.370	8.50	UDS						1.83	1.60	14.23			2.67	DST	0.11	31	
265.570	9.30	SPT	Sandy Silt (SM-ML)	22	0	46	54				Non	Plastic					
264.070	10.80	SPT	Silty Sand (SM)	23	0	54	46				Non	Plastic					
263.370	11.50	UDS						1.86	1.62	14.96				DST		30	
262.570	12.30	SPT		27	0	55	45				Non	Plastic					
261.070	13.80	SPT		30	0	57	43				Non	Plastic					
260.370	14.50	UDS						1.88	1.60	17.40				DST		30	
259.570	15.30	SPT	Sandy Silt (SM-ML)	34	0	42	58				Non	Plastic					
258.070	16.80	SPT		34	0	50	50				Non	Plastic					
257.370	17.50	UDS						1.92	1.63	17.82				DST	0.1	31	
256.570	18.30	SPT		37	0	48	52				Non	Plastic					
255.070	19.80	SPT	Silty Sand (SM)	29	0	57	43				Non	Plastic					
254.370	20.50	UDS						1.9	1.61	18.23			2.69	DST		31	
253.570	21.30	SPT		44	0	62	38				Non	Plastic					
252.070	22.80	SPT		48	0	64	36				Non	Plastic					
250.570	24.30	SPT		50	0	57	43				Non	Plastic					
249.070	25.80	SPT		47	1	82	17				Non	Plastic					
247.570	27.30	SPT		50	0	91	9				Non	Plastic					
246.070	28.80	SPT		53	5	77	18				Non	Plastic					
244.570	30.30	SPT		49	0	64	36				Non	Plastic					

BH-1
DEPTH = 5.50 m.



(Shear stress - shear strain relationship)

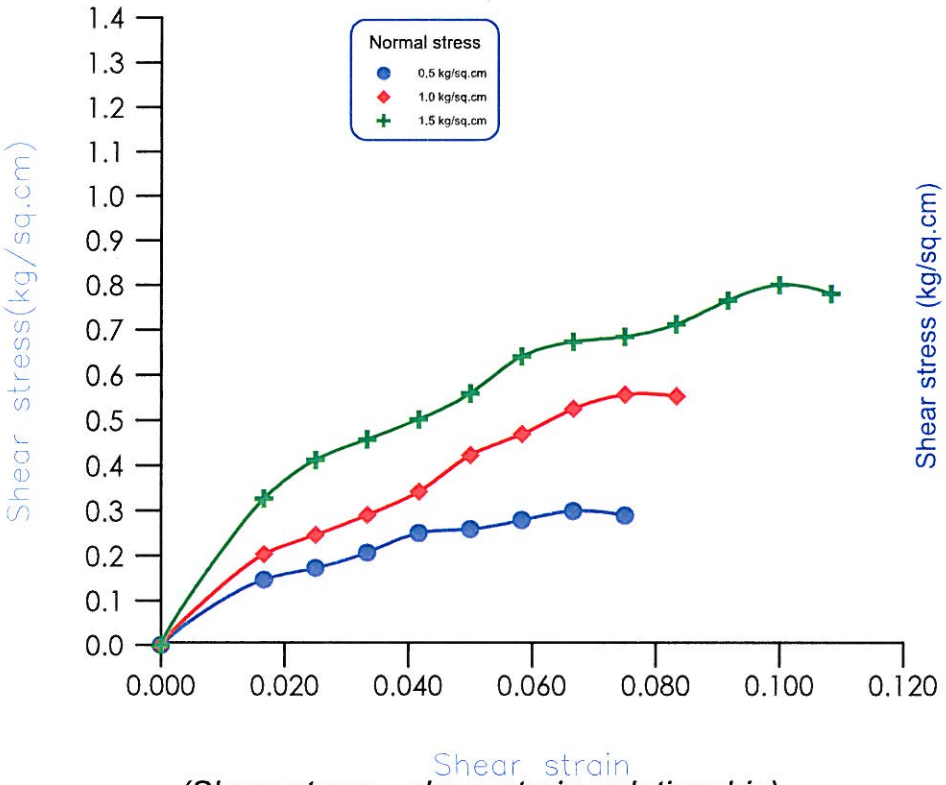


(Shear stress - Normal stress relationship)

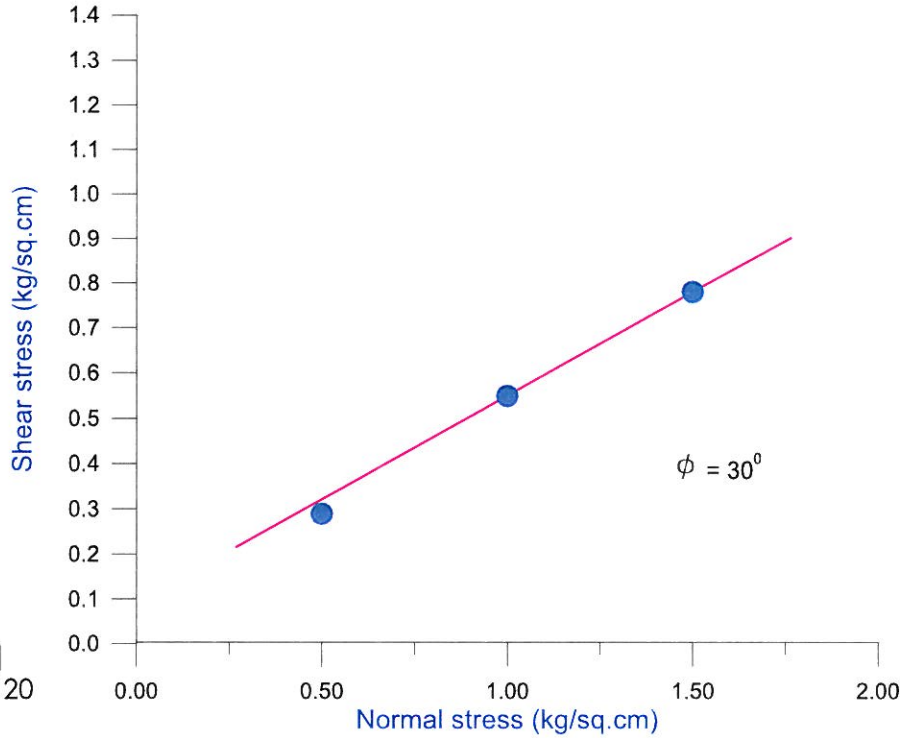
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BF1

BH-2
DEPTH = 8.50 m.



(Shear stress - shear strain relationship)

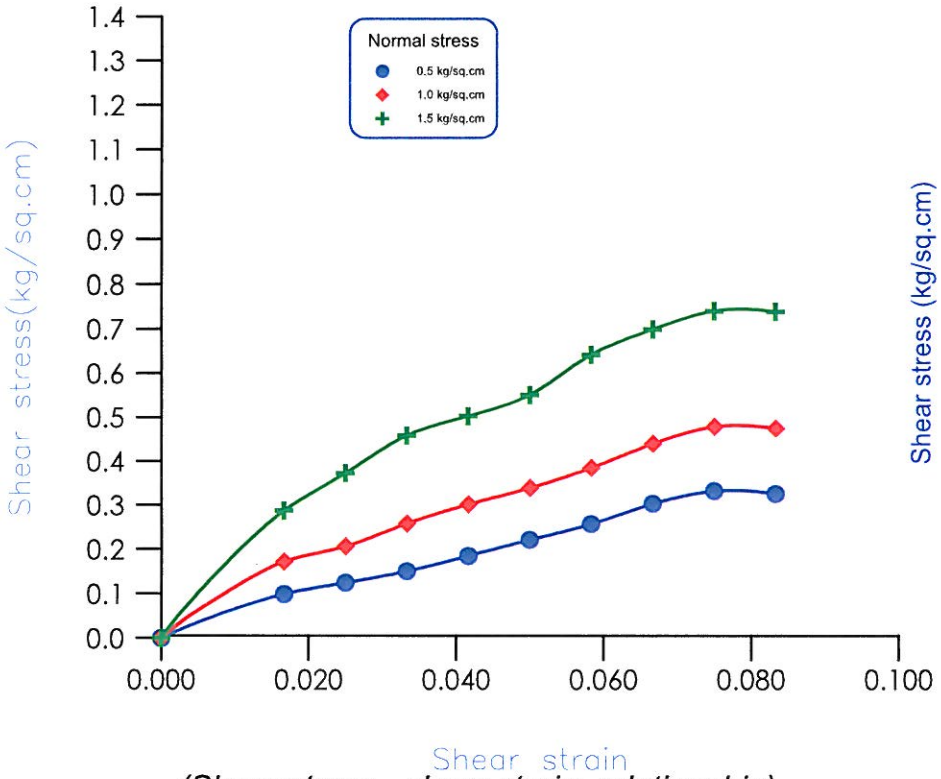


(Shear stress - Normal stress relationship)

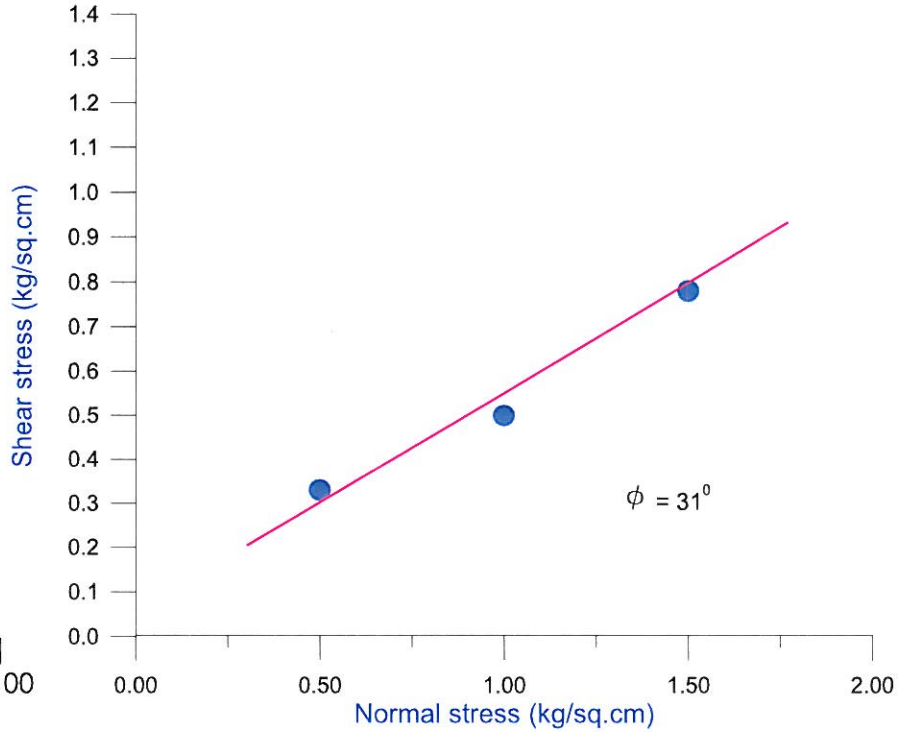
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BF2

BH-2
DEPTH = 14.50 m.



(Shear stress - shear strain relationship)

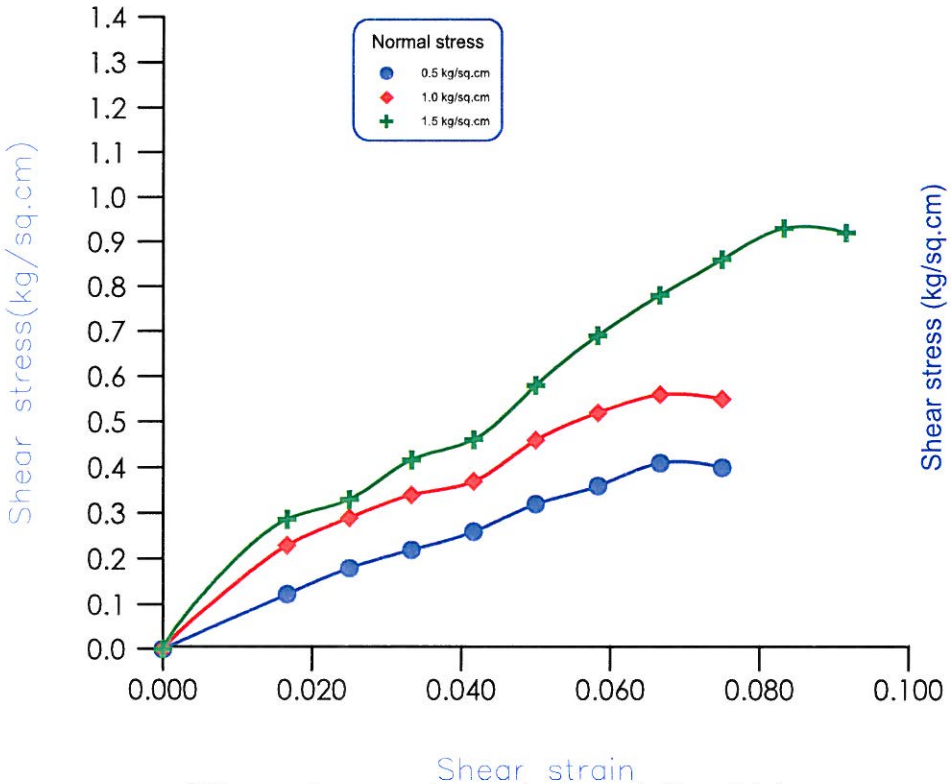


(Shear stress - Normal stress relationship)

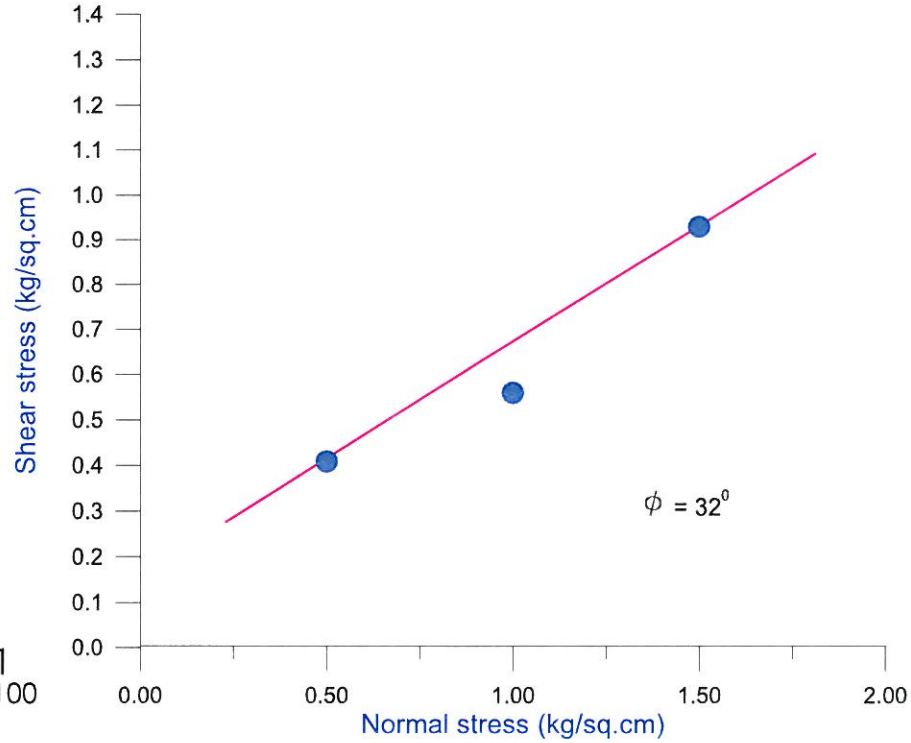
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BF3

BH-3
DEPTH = 5.50 m.



(Shear stress - shear strain relationship)



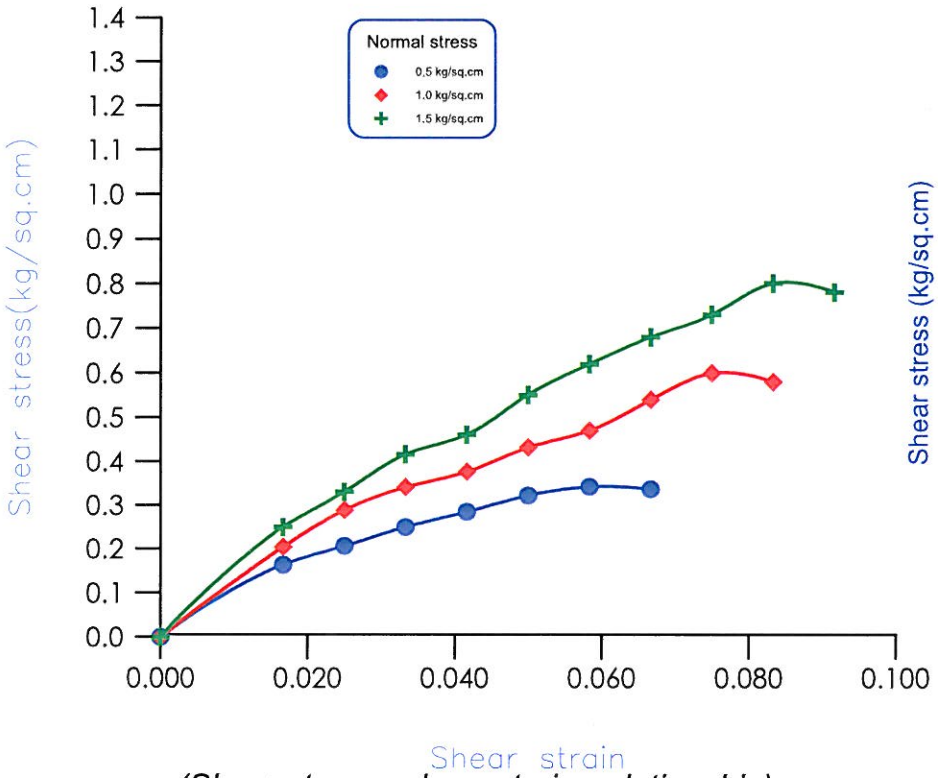
(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

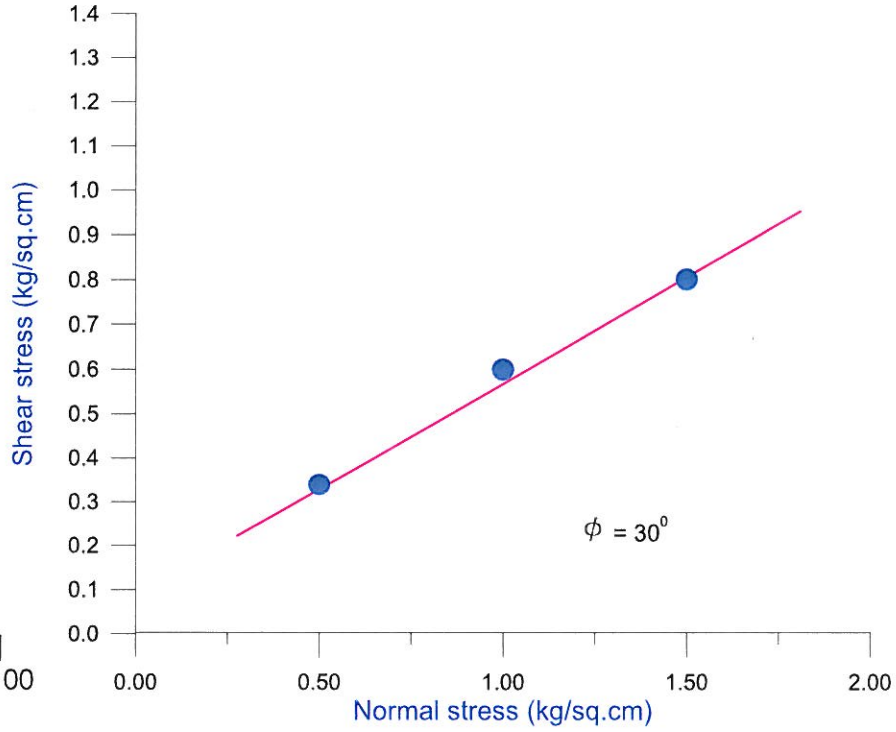
FIG- DS-BF4

0145

BH-3
DEPTH = 11.50 m.



(Shear stress - shear strain relationship)

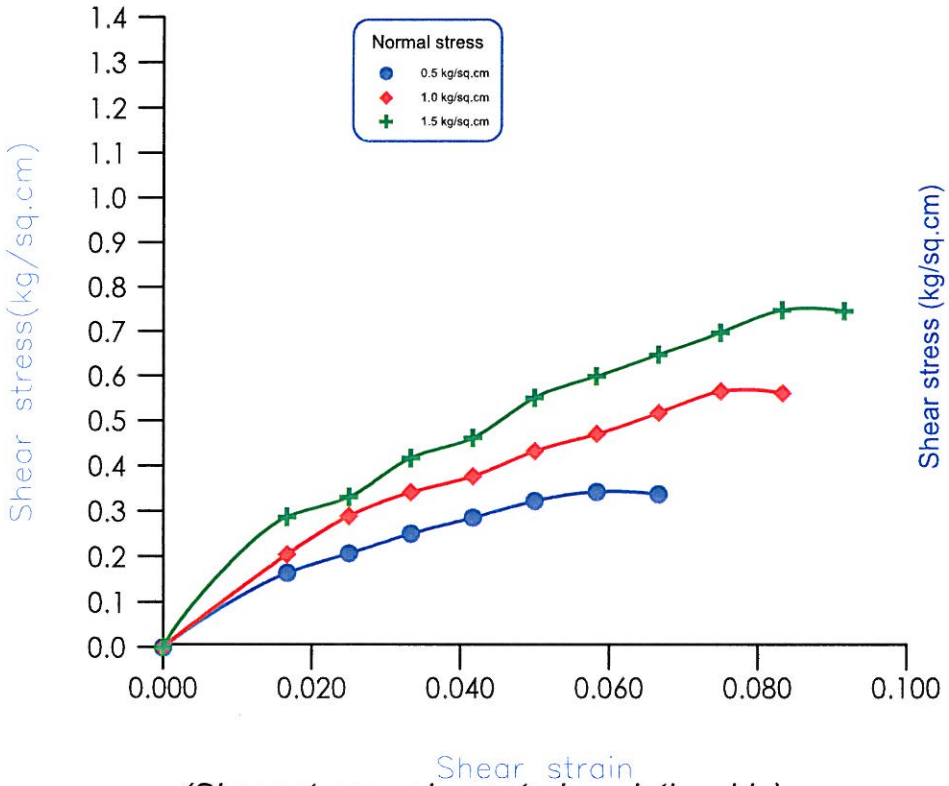


(Shear stress - Normal stress relationship)

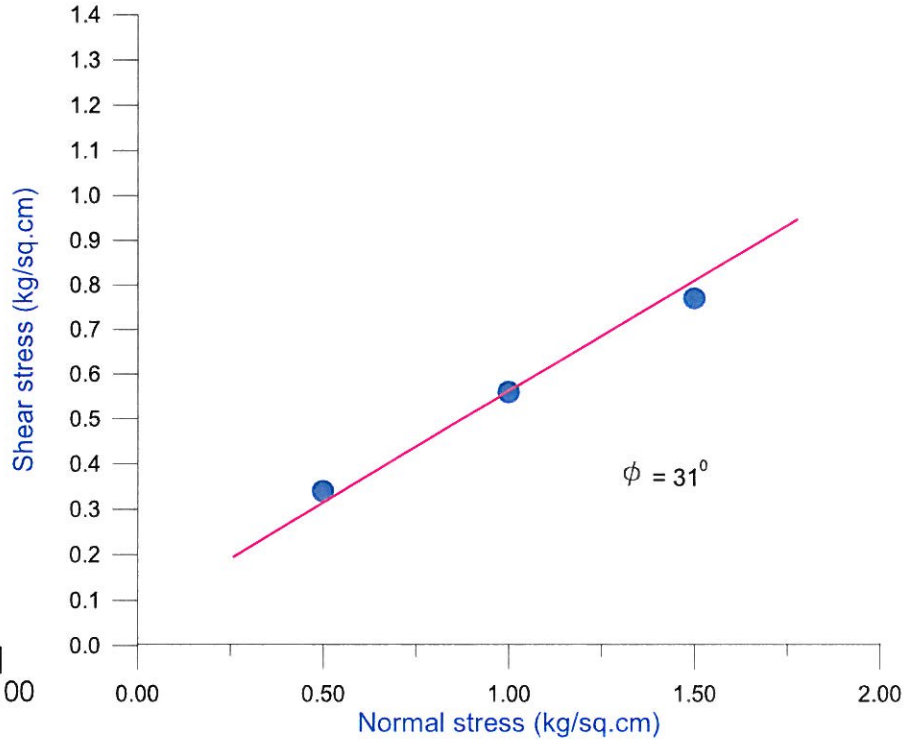
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BF5

BH-3
DEPTH = 17.50 m.



(Shear stress - shear strain relationship)

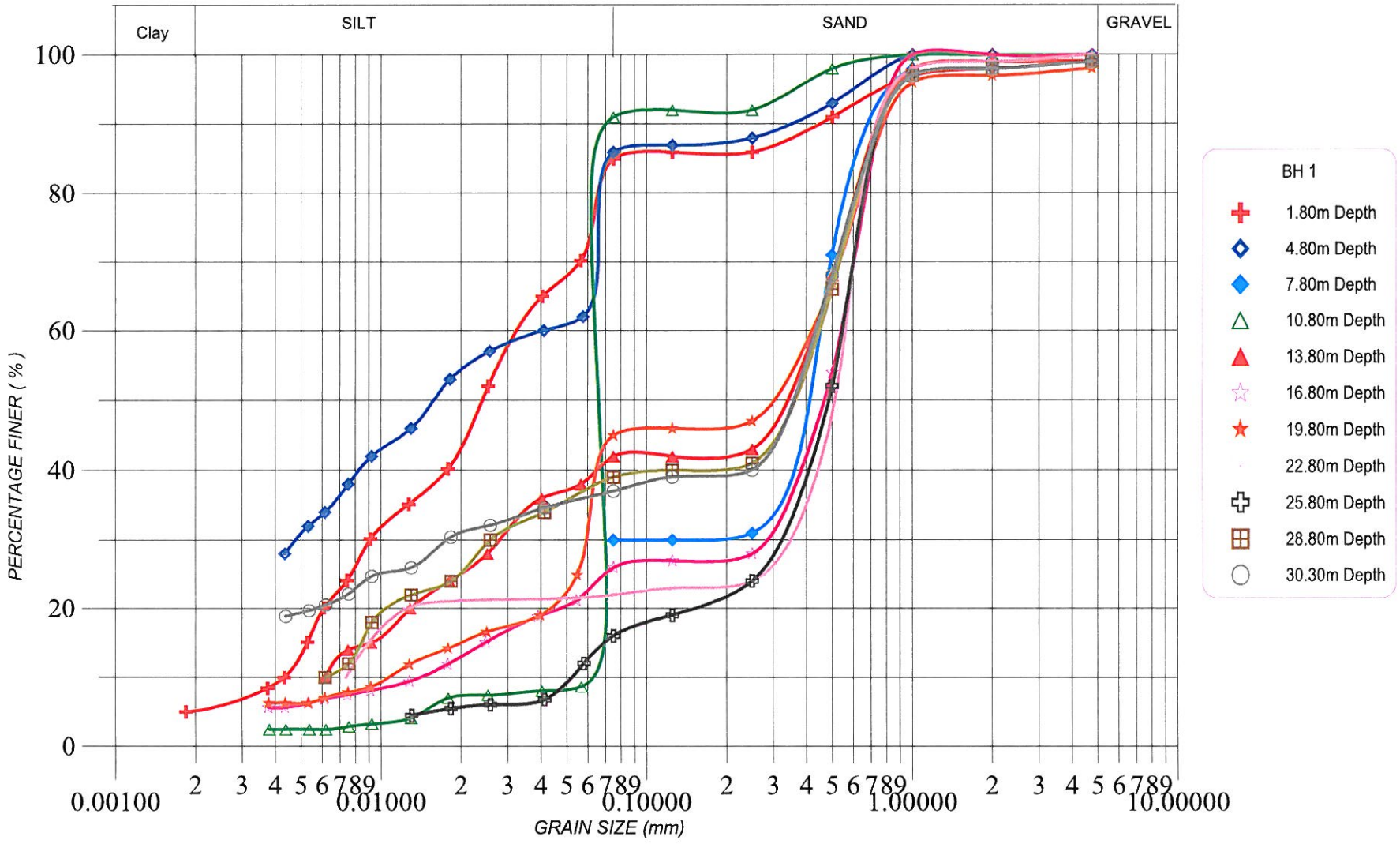


(Shear stress - Normal stress relationship)

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BF6

GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BF1

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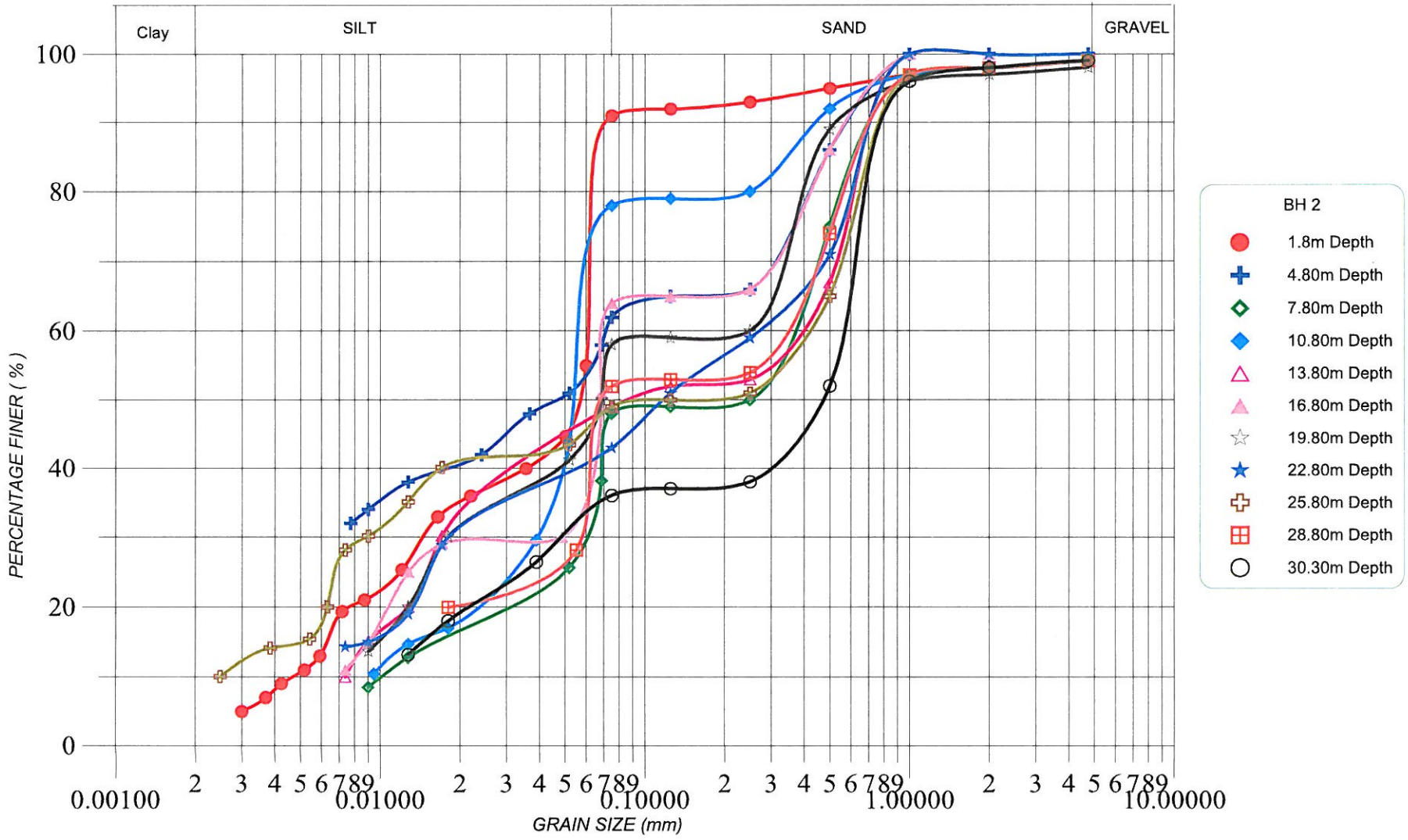
Job:1813

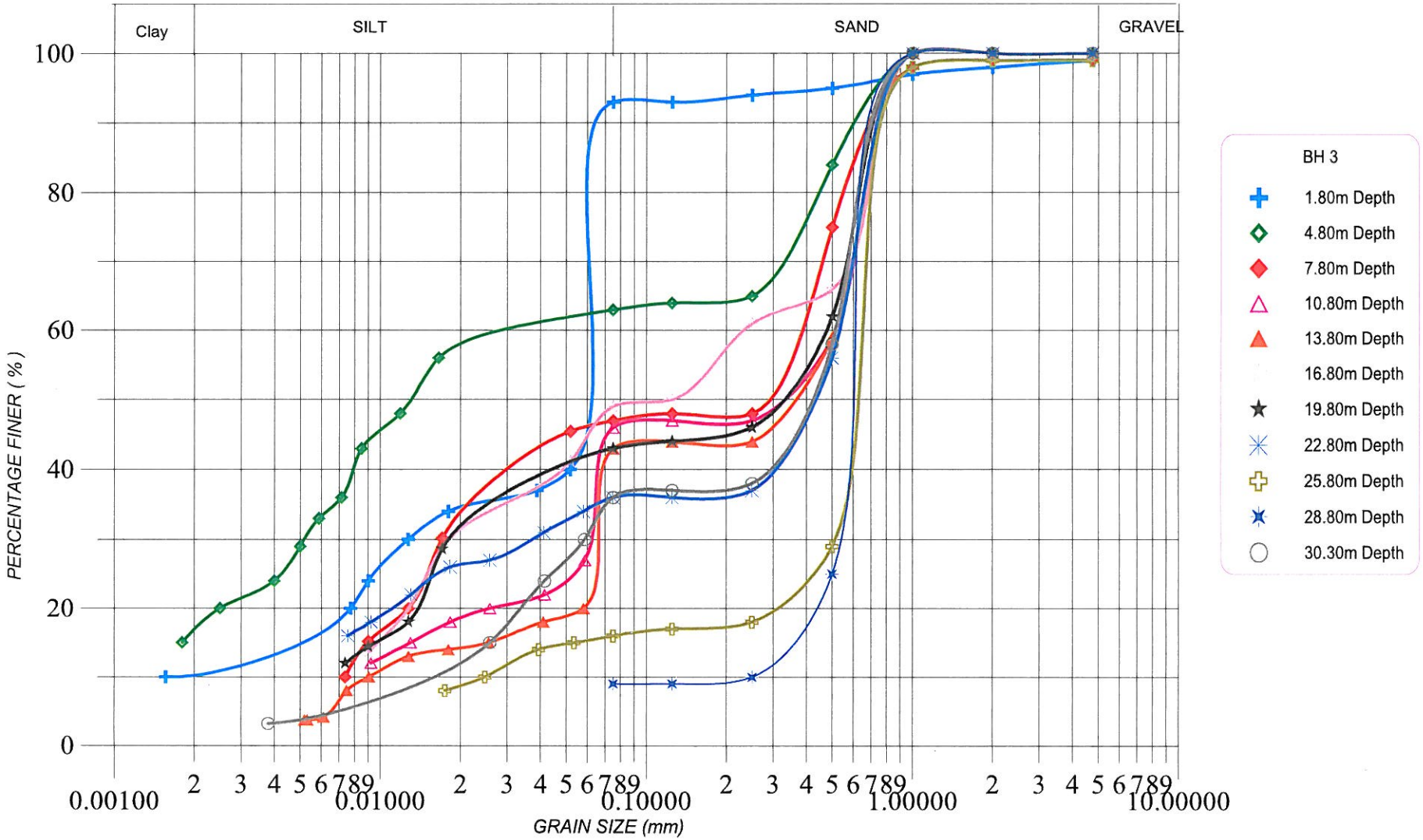
GRAIN SIZE DRISTRIBUTION CURVE



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BF2

GRAIN SIZE DRISTRIBUTION CURVE



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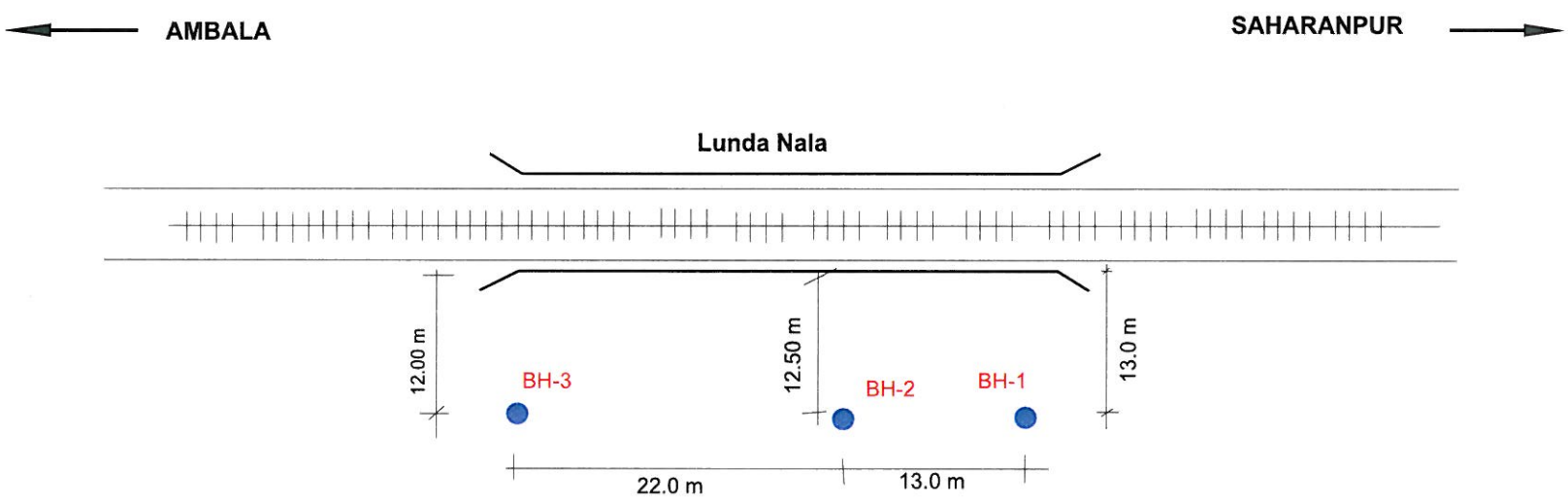
Job No: 1813



BR 260 @ CH 221/5-7

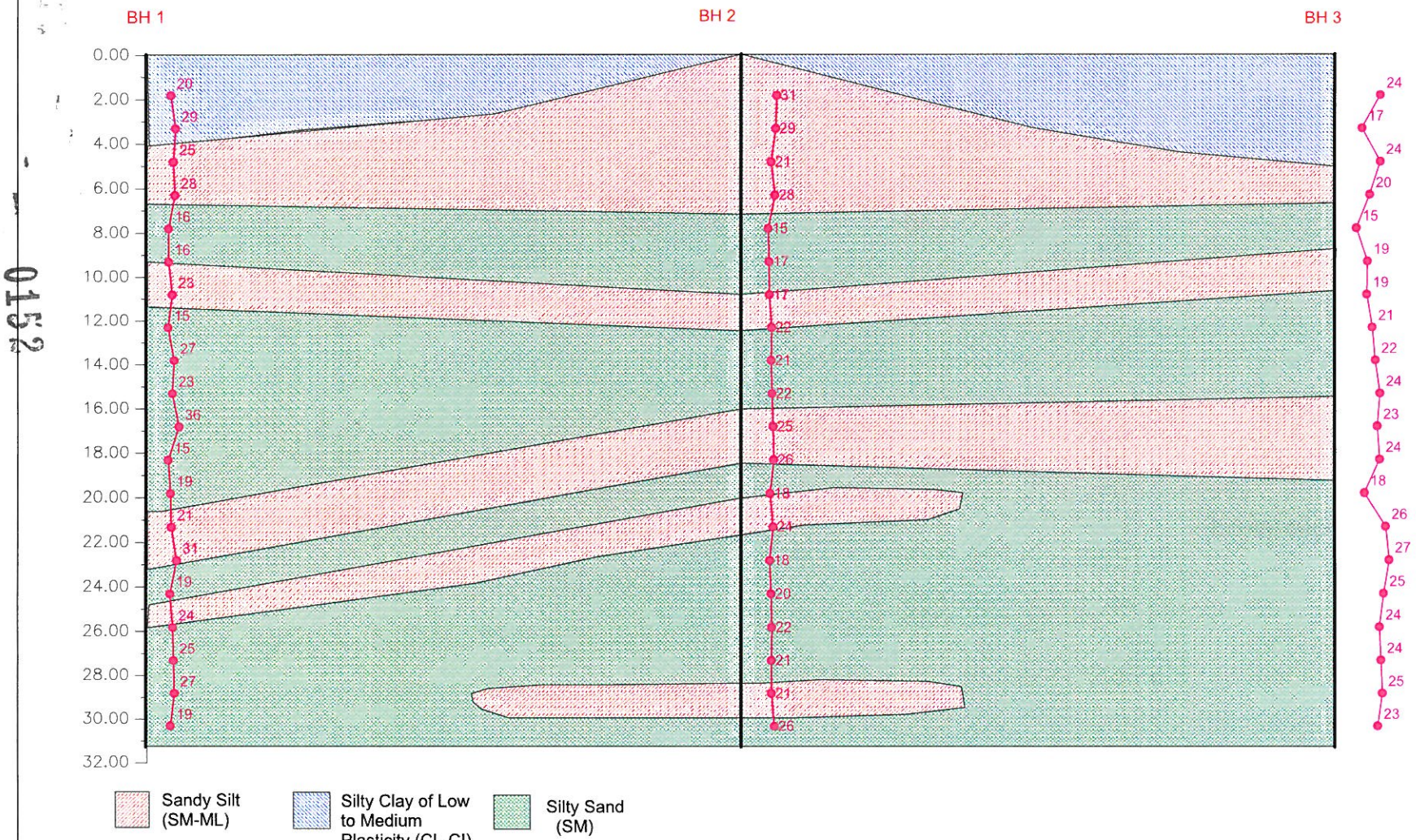
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-BF

Soil Enginering Consultants

BR: 260@221/5-7

Project No. 1813

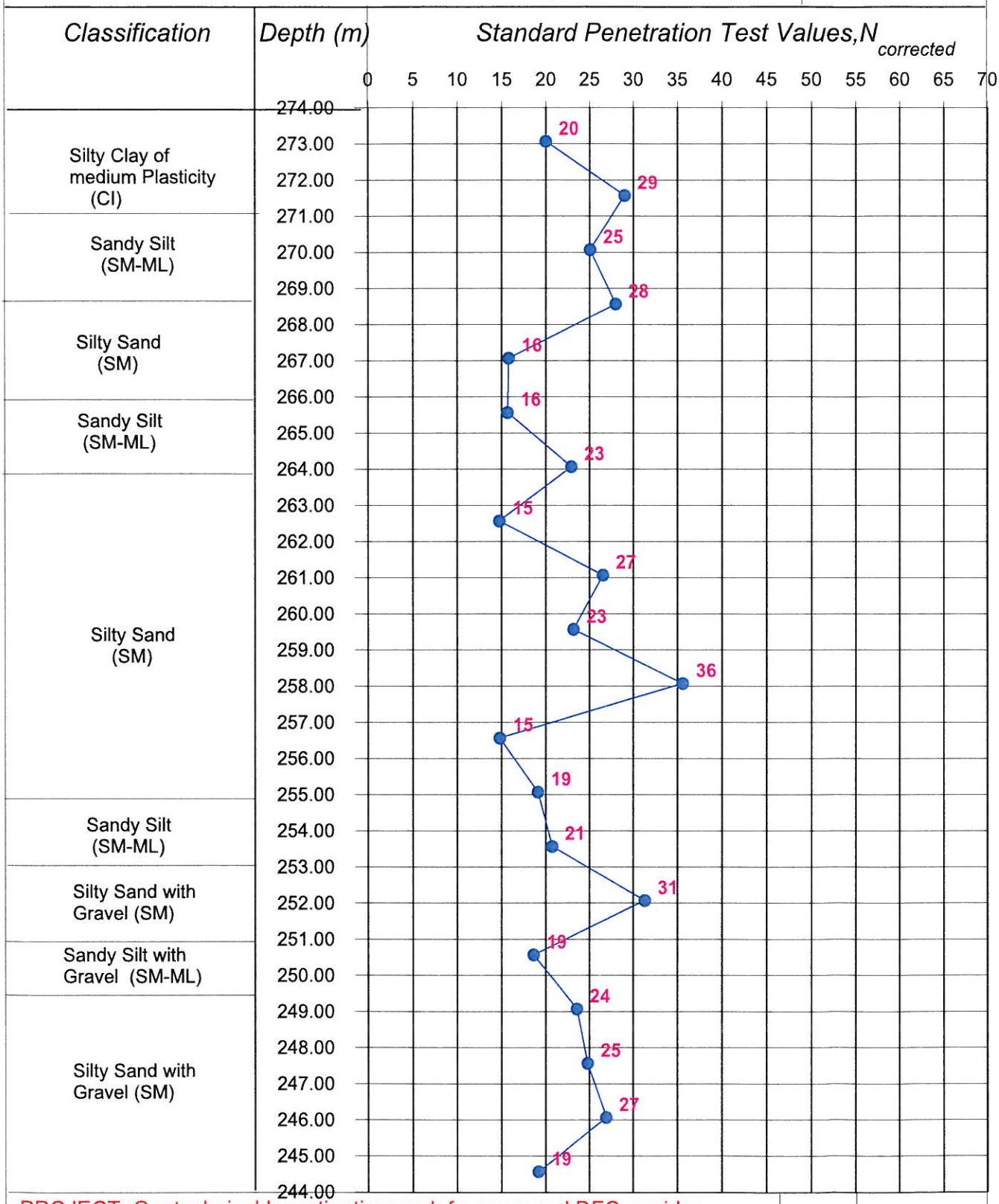


EXPECTED SOIL PROFILE FOR PRPPOSED Mj. Br. Over JLN Feeder and J.S.B.Canal @ CH:78.565 km. ALONG BH 1 to BH 3 WITH CORRECTED SPT VALUES

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Figure : Soilpro BF

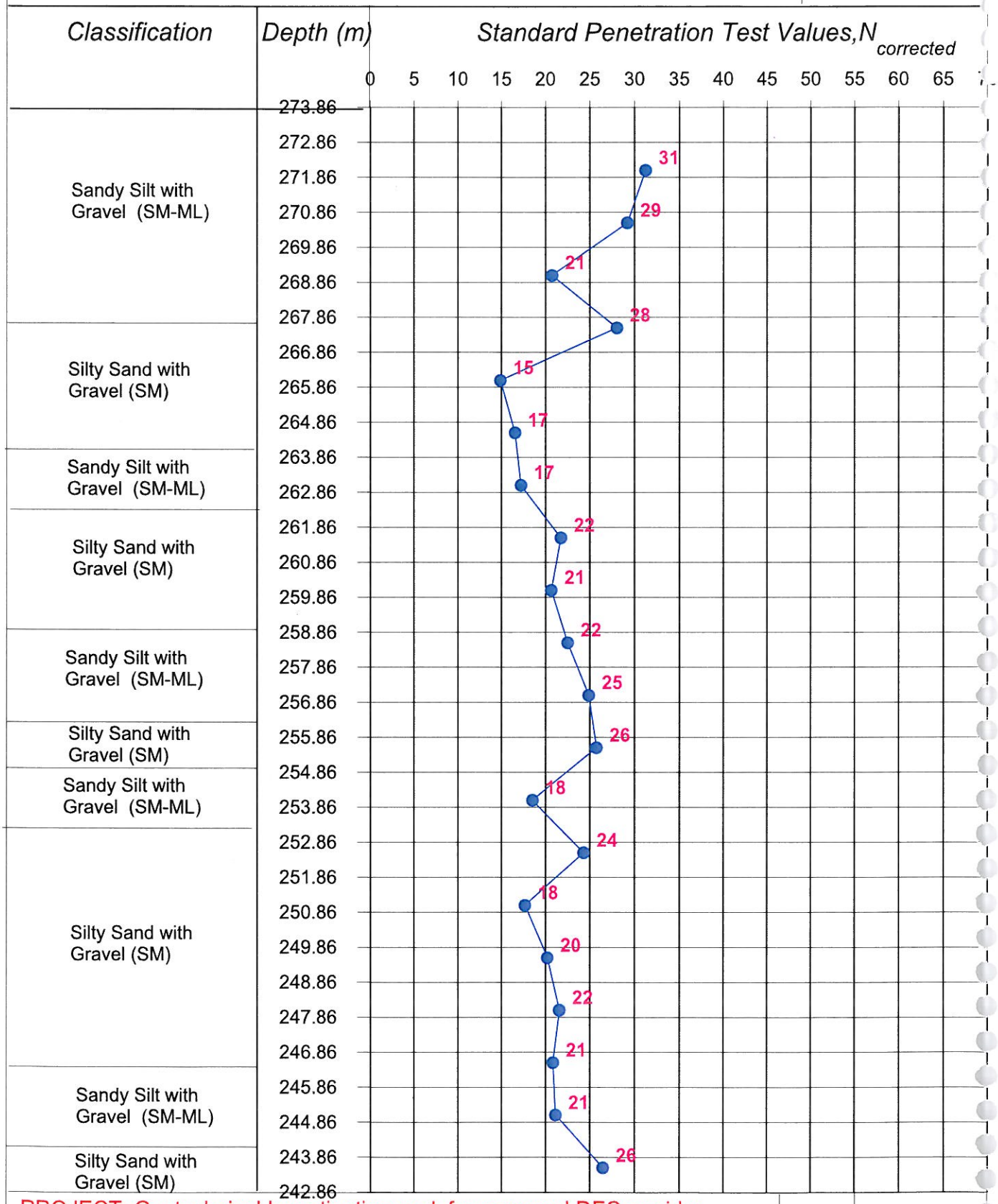
SOIL ENGINEERING CONSULTANTS | BR @ 260-221/5-7 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 1 | Fig: SP-BF1

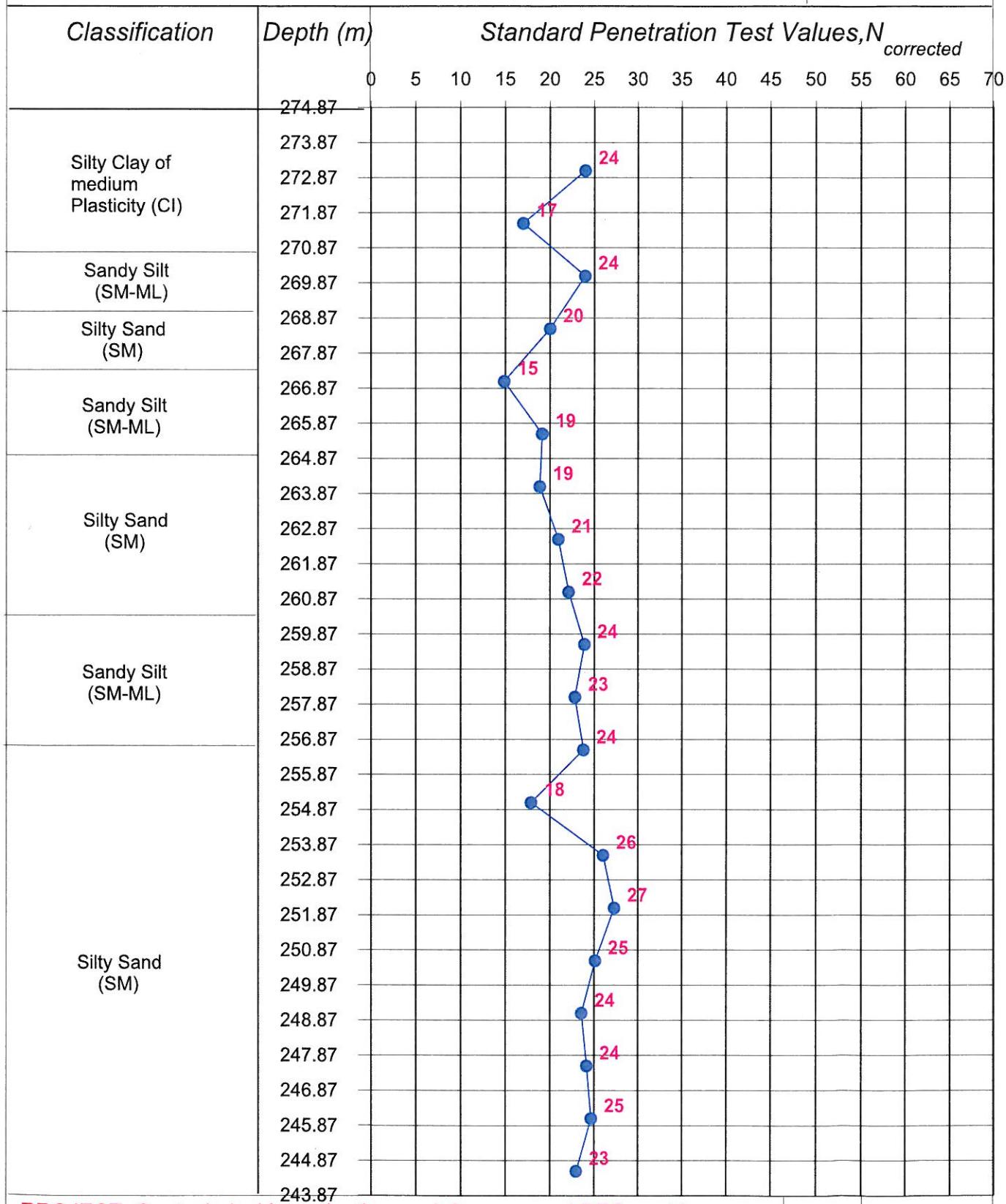
0153

SOIL ENGINEERING CONSULTANTS | BR @ 260-221/5-7 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 2 | Fig: SP-BF

SOIL ENGINEERING CONSULTANTS BR: 260-221/5-7 Project No: 1813

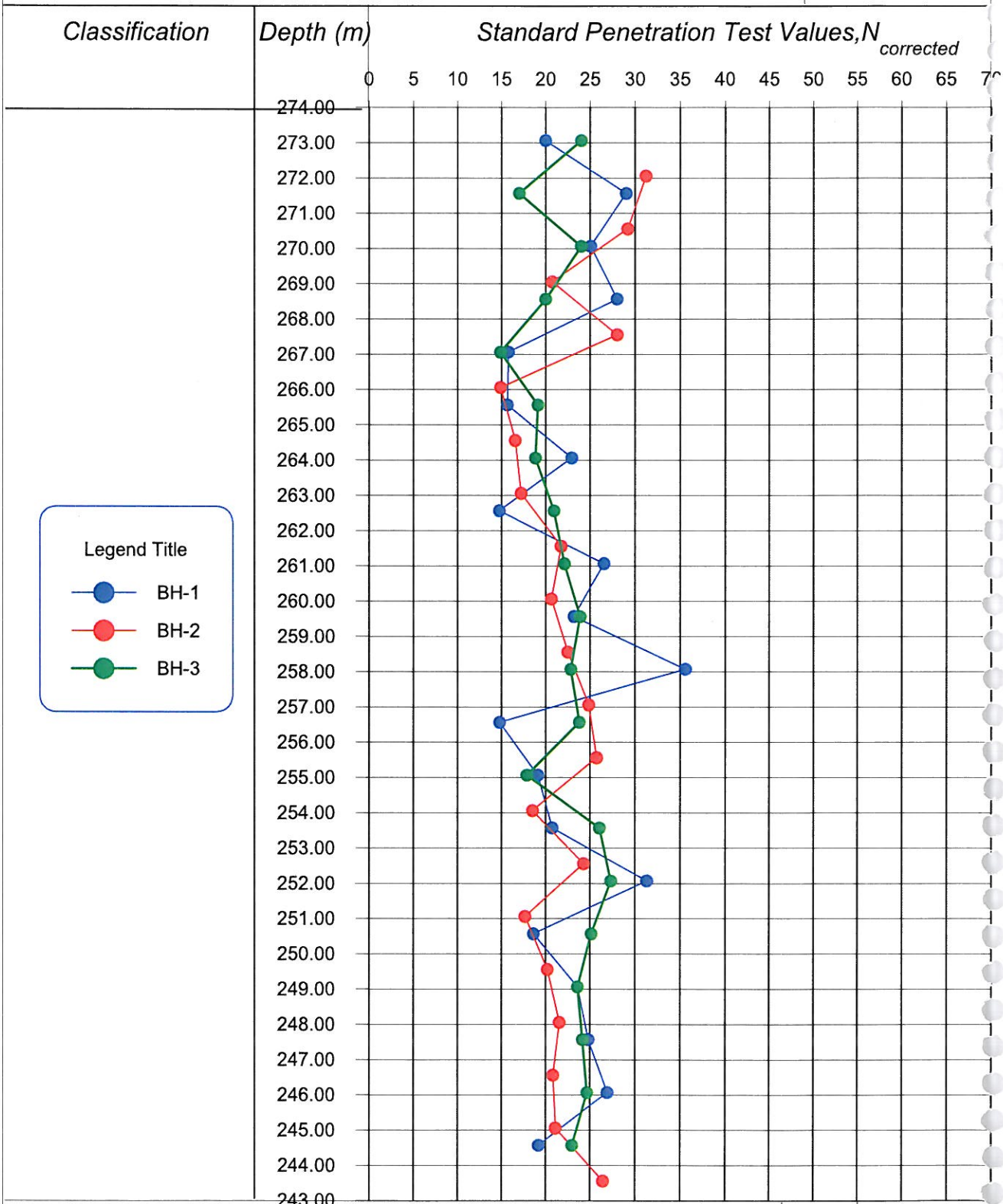


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

BH 3 Fig: SP-BF3

0155

SOIL ENGINEERING CONSULTANTS BR-260-221/5-7 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH 1 | Fig: ASP-BH

0156

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

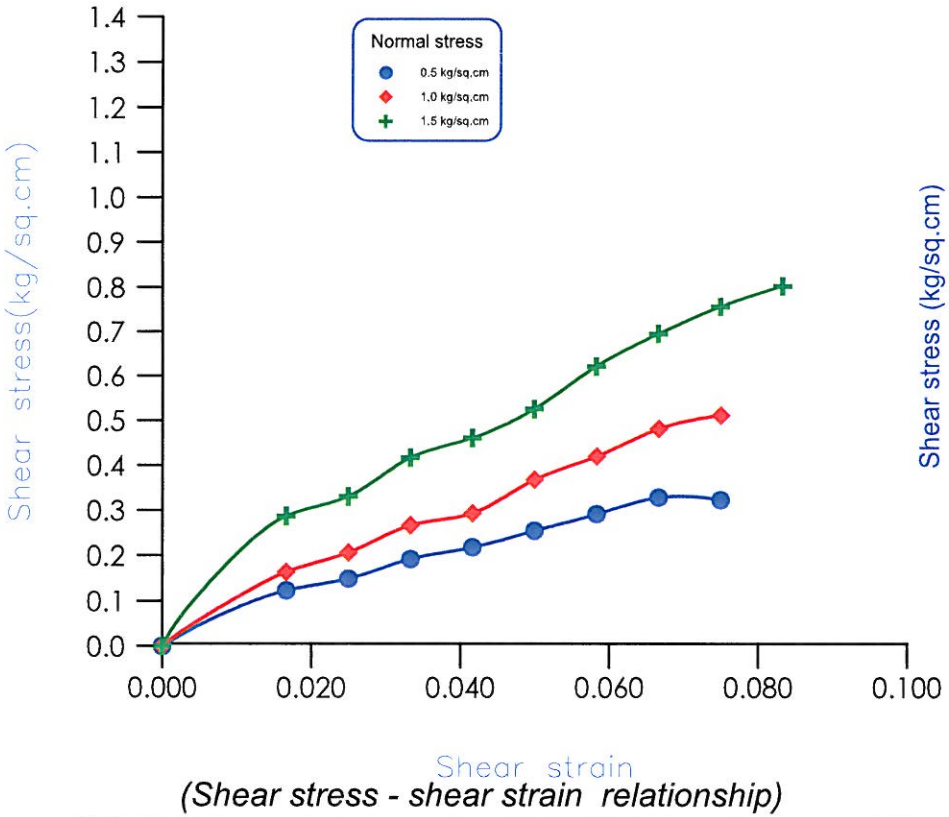
Project No. 1813 Bridge : 261 RL: 276.714

Location:221/9-11
BH No.: 1
Depth : 12.00
Depth of Water table : Not Met

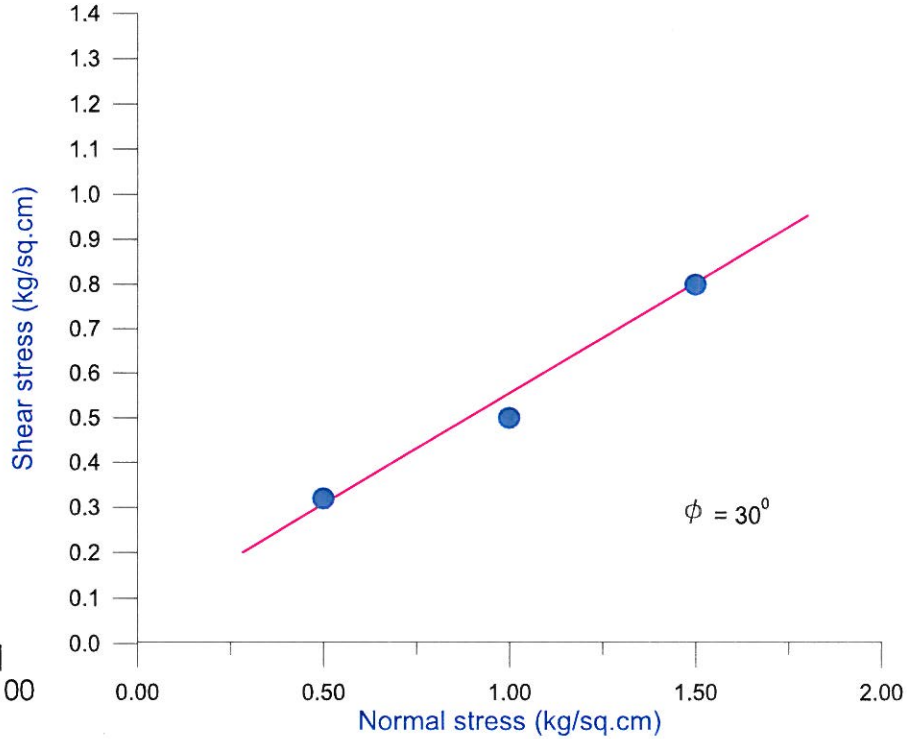
Date of start : 12/04/2008
Date of finish : 13/04/2008

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P. L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
276.714																	
276.214	0.50	DS	Sandy Silt with gravel (SM-ML)		12	22	66				Non	Plastic					
274.914	1.80	SPT		6	3	8	89				Non	Plastic					
274.214	2.50	UDS						1.76	1.56	12.89				DST	0.15	30	
273.414	3.30	SPT		27	0	28	72				Non	Plastic					
271.914	4.80	SPT		34	0	16	84				Non	Plastic					
271.214	5.50	UDS						1.87	1.63	14.45			2.67	DST	0.1	32	
270.414	6.30	SPT	Silty Sand (SM)	41	0	87	13				Non	Plastic					
268.914	7.80	SPT		44	1	67	32				Non	Plastic					
267.414	9.30	SPT		23	1	64	35				Non	Plastic					
265.914	10.80	SPT	Sandy Silt (SM-ML)	42	0	42	58				Non	Plastic					
265.214	11.50	UDS						1.89	1.65	14.89			2.67	DST	0.1	32	
264.414	12.30	SPT		55	1	34	65				Non	Plastic					

BH-1
DEPTH = 2.50 m.



(Shear stress - shear strain relationship)

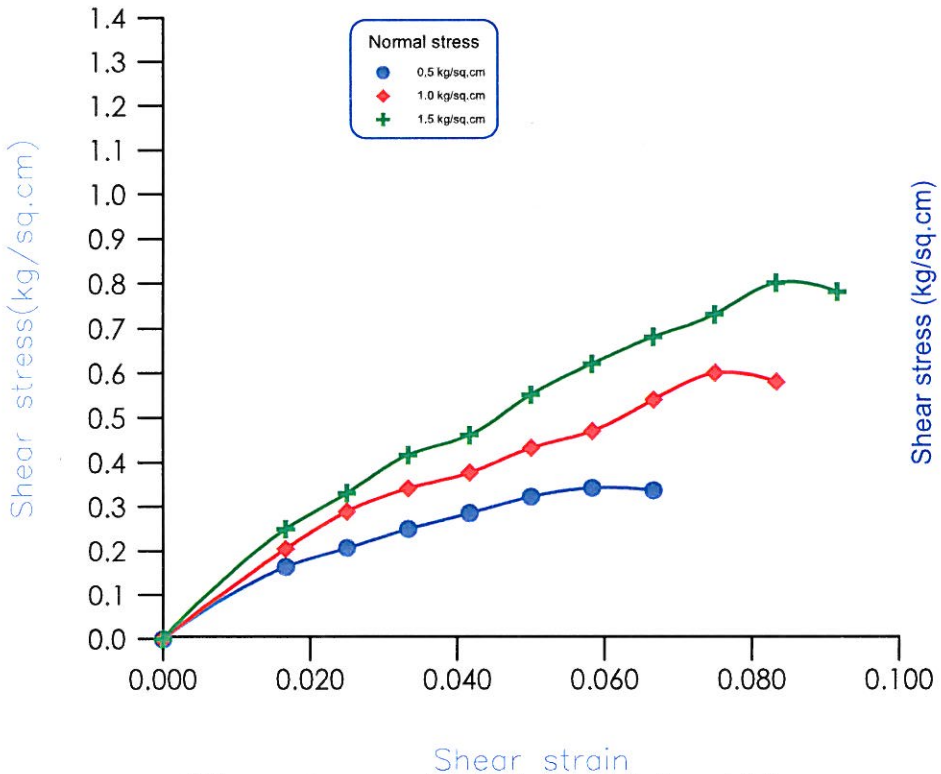


(Shear stress - Normal stress relationship)

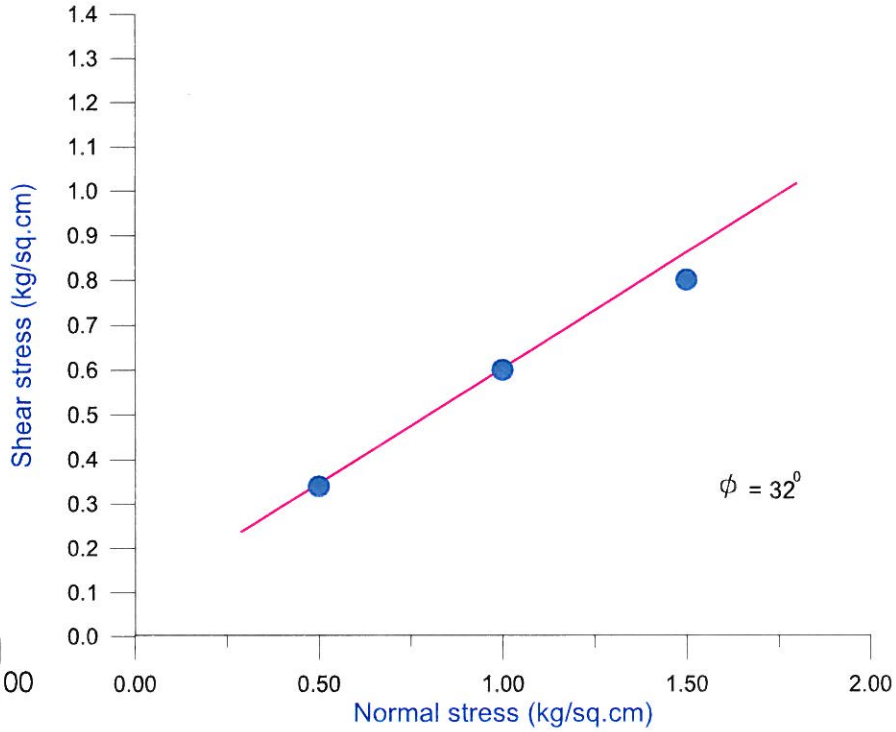
PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

FIG- DS-BG1

BH-1
DEPTH = 5.50 m.

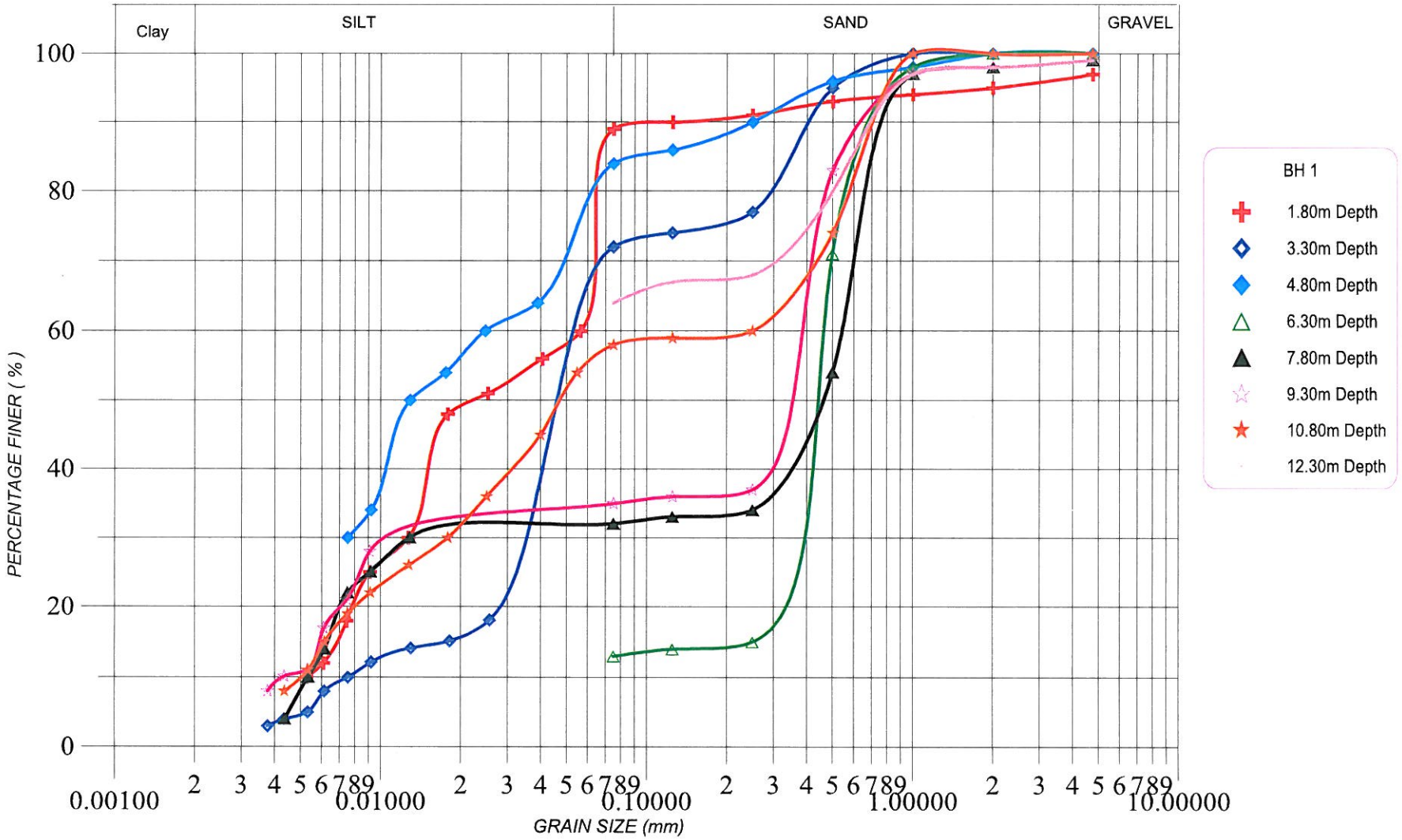


(Shear stress - shear strain relationship)



(Shear stress - Normal stress relationship)

GRAIN SIZE DRISTRIBUTION CURVE

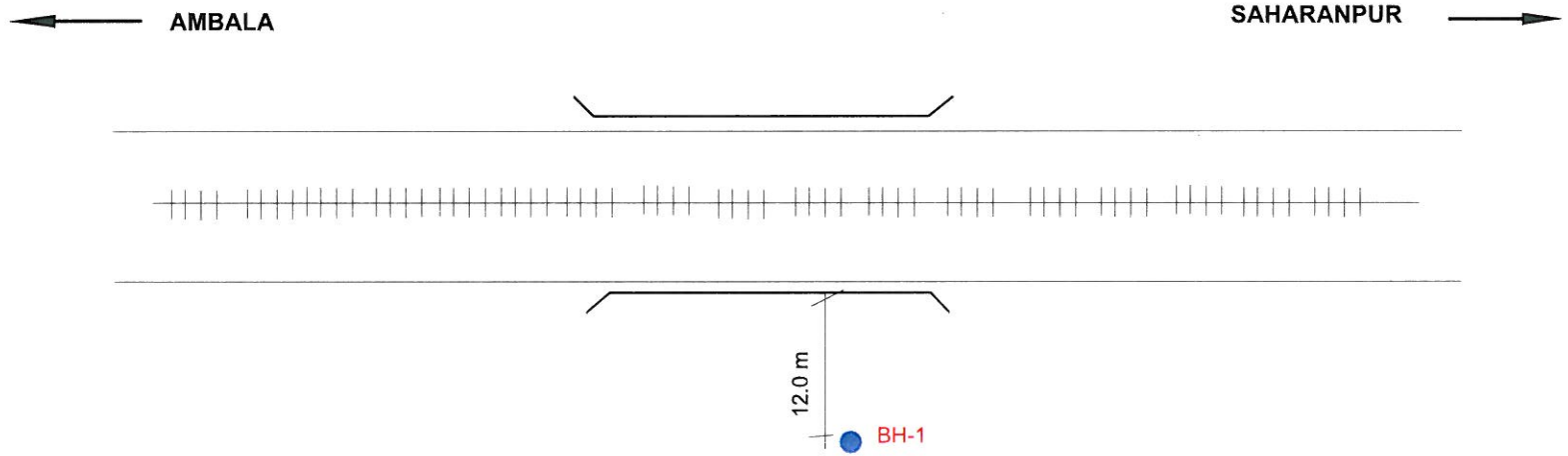


PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig : GSD-BG

SOIL ENGINEERING CONSULTANTS

Job No: 1813

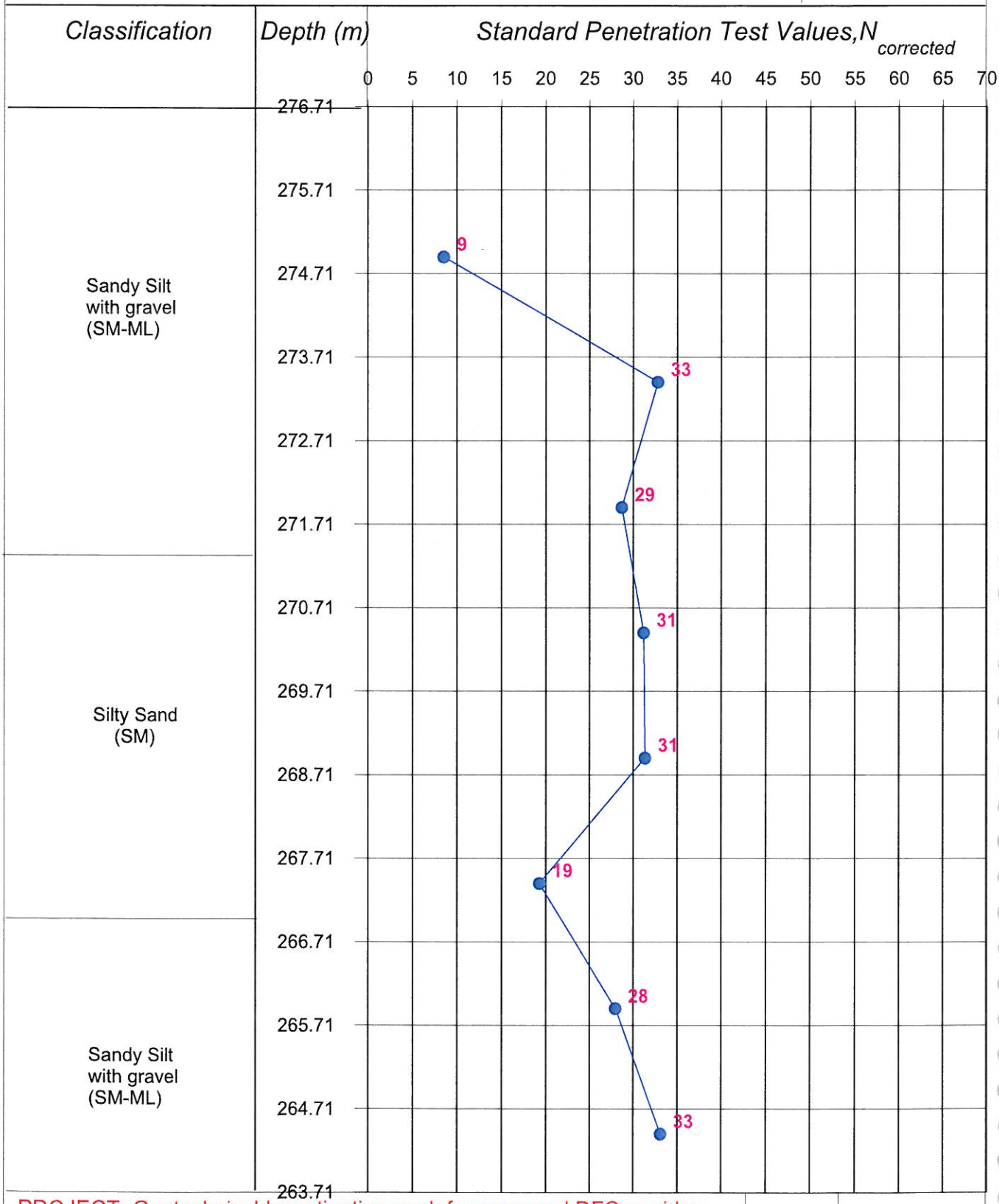


BR 261@221/9-11

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Fig: Plan-BG

SOIL ENGINEERING CONSULTANTS | BR@ 261 221/9-11 | Project No: 1813



PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur | BH-1 | Fig: SP-BG

0162

BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Project No. 1813 Bridge : 262 RL: 274.550

Location;222/9-19
BH No.: 1
Depth : 30.00M
Depth of Water table : 22.50M

Date of start : 15/04/2008
Date of finish : 19/04/2008

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	Density (gm/cc) r(dry)	W/C W(%)	Limits (%) L.L	Limits (%) P . L	Sp.Gr	Shear Parameters Type of test	Shear Parameters C(kg/sq.cm)	Shear Parameters phi(degrees)	Cc
274.550				0 10 20 30 40 50 60 70 80 90 100 110 120													
274.050	0.50	DS	Silty Clay of Medium Plasticity (CI)		8	8	84										
272.750	1.80	SPT		29	0	4	96				46	22					
272.050	2.50	UDS						1.71	24.00	9.78				UU	0.28	0.072	
271.250	3.30	SPT		7	1	3	96				47	24					
269.750	4.80	SPT		13	0	21	79				Non	Plastic					
269.050	5.50	UDS						1.8	1.60	12.43			2.67	DST	0.15	29	
268.250	6.30	SPT	Sandy Silt (SM-ML)	15	0	23	77				Non	Plastic					
266.750	7.80	SPT		18	0	6	94				Non	Plastic					
266.050	8.50	UDS						1.82	1.58	14.89				DST	0.1	30	
265.250	9.30	SPT		25	0	77	23				Non	Plastic					
263.750	10.80	SPT	Silty Sand (SM)	20	0	55	45				Non	Plastic					
263.050	11.50	UDS						1.84	1.59	16.43			2.69	DST		31	
262.250	12.30	SPT		30	1	75	24				Non	Plastic					
260.750	13.80	SPT		31	0	15	85				Non	Plastic					
260.050	14.50	USD						1.81	1.52	19.47				DST	0.15	29	
259.250	15.30	SPT		13	5	3	92				Non	Plastic					
257.750	16.80	SPT		16	1	7	92				Non	Plastic					
257.050	17.50	USD						1.81	1.50	20.85			2.67	DST	0.15	30	
256.250	18.30	SPT		16	1	7	92				Non	Plastic					
254.750	19.80	SPT	Sandy Silt with Gravel (SM-ML)	23	0	6	94				Non	Plastic					
254.050	20.50	USD						1.81	1.46	23.62				DST	0.15	30	
253.250	21.30	SPT		18	3	9	88				Non	Plastic					
251.750	22.80	SPT		23	5	10	85				Non	Plastic					
251.050	23.50	USD						1.83	1.48	23.12				DST	0.1	30	
250.250	24.30	SPT		21	1	8	91				Non	Plastic					
248.750	25.80	SPT		22	3	15	82				Non	Plastic					
247.250	27.30	SPT		30	0	39	61				Non	Plastic					
245.750	28.80	SPT		34	0	22	78				Non	Plastic					
244.250	30.30	SPT	Silty Sand (SM)	34	0	65	35				Non	Plastic					

BORE LOG

PROJECT: Geotechnical Investigation work for the proposed DFC corridor from Ludhiyana to Saharanpur

Location;222/9-19
BH No.: 2
Depth : 30.00M
Depth of Water table : 22.50M

Date of start :20/04/2008
Date of finish : 22/04/2008

Project No. 1813 Bridge : 262 RL:274.841

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	Density (gm/cc) r(dry)	W/C W(%)	Limits (%) L.L	Limits (%) P.L	Sp.Gr	Shear Parameters Type of test	Shear Parameters C(kg/sq.cm)	Shear Parameters phi(degrees)	Cc
274.841																	
274.041	0.80	DS	Sandy Silt with Gravel (SM-ML)	23	2	9	89				Non	Plastic					
273.041	1.80	SPT			1	7	92				Non	Plastic					
272.341	2.50	UDS						1.86	1.65	12.46				DST	0.15	31	
271.541	3.30	SPT		29	0	4	96				53	24					
270.041	4.80	SPT	Silty Clay of High Plasticity (CH)	30	1	3	96				54	26					
269.341	5.50	UDS						1.89	1.66	13.92			2.69	UU	1.71		0.069
268.541	6.30	SPT		33	0	31	69				Non	Plastic					
267.041	7.80	SPT	Sandy Silt with Gravel (SM-ML)	43	0	19	81				Non	Plastic					
266.341	8.50	UDS						1.91	1.67	14.58				DST	0.1	32	
265.541	9.30	SPT		35	0	30	70				Non	Plastic					
264.041	10.80	SPT	Silty Sand (SM)	33	0	60	40				Non	Plastic					
263.341	11.50	UDS						1.89	1.61	17.23			2.69	DST		32	
262.541	12.30	SPT		32	0	44	56				Non	Plastic					
261.041	13.80	SPT	Sandy Silt with Gravel (SM-ML)	36	1	43	56				Non	Plastic					
260.341	14.50	USD						1.86	1.58	17.94				DST	0.15	31	
259.541	15.30	SPT		30	3	9	88				Non	Plastic					
258.041	16.80	SPT		34	5	5	90				Non	Plastic					
257.341	17.50	USD						1.93	1.63	18.77				DST	0.1	31	
256.541	18.30	SPT		76	0	49	51				Non	Plastic					
255.041	19.80	SPT		49	0	39	61				Non	Plastic					
254.341	20.50	USD						1.89	1.57	20.44			2.68	DST	0.1	31	
253.541	21.30	SPT		33	0	24	76				Non	Plastic					
252.041	22.80	SPT		32	0	8	92				Non	Plastic					
250.541	24.30	SPT	Silty Sand with Gravel (SM)	24	0	60	40				Non	Plastic					
249.041	25.80	SPT		33	0	58	42				Non	Plastic					
248.341	26.50	USD															
247.541	27.30	SPT		32	0	61	39				Non	Plastic					
246.041	28.80	SPT		43	1	78	21				Non	Plastic					
244.541	30.30	SPT		61	1	54	45				Non	Plastic					

BORE LOG

PROJECT: Geotechnical Investigation work for the proposed DFC corridor from Ludhiyana to Saharanpur

Location;222/9-19
BH No.: 3
Depth : 30.00M
Depth of Water table : 22.50M

Date of start :27/04/2008
Date of finish : 29/04/2008

Project No. 1813 Bridge : 262 RL: 274.056

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Gravel	Sand	Silt/clay	r(wet)	r(dry)	W/C W(%)	L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
274.056																	
273.556	0.50	DS	Sandy Silt with traces of Gravel (SM-ML)	17	3	9	88				Non	Plastic					
272.256	1.80	SPT			2	4	94				Non	Plastic					
271.556	2.50	UDS						1.8	1.62	11.30				DST	0.15	31	
270.756	3.30	SPT		15	1	10	89				Non	Plastic					
269.256	4.80	SPT		16	0	5	95				Non	Plastic					
268.556	5.50	UDS						1.8	1.60	12.30			2.66	DST	0.18	31	
267.756	6.30	SPT		20	0	44	56				Non	Plastic					
266.256	7.80	SPT		17	0	5	95				Non	Plastic					
265.556	8.50	UDS						1.8	1.59	13.89				DST	0.16	31	
264.756	9.30	SPT	Silty Sand (SM)	23	0	75	25				Non	Plastic					
263.256	10.80	SPT		18	0	54	46				Non	Plastic					
262.556	11.50	UDS						1.8	1.57	15.00			2.67	DST		31	
261.756	12.30	SPT		39	1	62	37				Non	Plastic					
260.256	13.80	SPT	Sandy Silt with Gravel (SM-ML)	20	7	8	85				Non	Plastic					
258.756	15.30	SPT		15	2	8	90				Non	Plastic					
257.256	16.80	SPT		23	5	4	91				Non	Plastic					
256.556	17.50	USD						1.85	1.59	16.45				DST	0.1	32	
255.756	18.30	SPT		26	1	31	68				Non	Plastic					
254.256	19.80	SPT		33	3	10	87				Non	Plastic					
253.556	20.50	USD						1.88	1.60	17.23			2.67	DST	0.1	33	
252.756	21.30	SPT	Silty Sand (SM)	39	0	56	44				Non	Plastic					
251.256	22.80	SPT	Sandy Silt with Gravel (SM-ML)	46	2	15	83				Non	Plastic					
249.756	24.30	SPT		46	1	52	47				Non	Plastic					
248.256	25.80	SPT		36	0	56	44				Non	Plastic					
246.756	27.30	SPT	Silty Sand with gravel (SM)	50	0	95	5				Non	Plastic					
245.256	28.80	SPT		54	0	83	17				Non	Plastic					
243.756	30.30	SPT		62	0	55	45				Non	Plastic					

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BORE LOG

PROJECT: Geotechnical Investigation work for proposed DFC corridor from Ludhiyana to Saharanpur

Location;222/9-19
BH No.: 4
Depth : 30.00M
Depth of Water table : 22.50M

Date of start : 01/05/2008
Date of finish : 03/05/2008

Project No. 1813 Bridge : 262 RL: 274.614

SOIL ENGINEERING CONSULTANTS

Reduced Level	Depth (m)	Type of sample	Soil Classification	S.P.T Plot (Observed)	Grain size (%) Gravel	Sand	Silt/clay	Density (gm/cc) r(wet)	r(dry)	W/C W(%)	Limits (%) L.L	P . L	Sp.Gr	Shear Parameters Type of test	C(kg/sq.cm)	phi(degrees)	Cc
274.614																	
273.814	0.80	DS	Sandy Silt with gravel (SM-ML)		2	3	95				Non	Plastic					
272.814	1.80	SPT		18	1	4	95				Non	Plastic					
271.314	3.30	SPT		20	1	25	74				Non	Plastic					
269.814	4.80	SPT		14	0	25	75				Non	Plastic					
269.114	5.50	UDS						1.76	1.62	10.48				DST	0.15	30	
268.314	6.30	SPT		15	0	42	58				Non	Plastic					
266.814	7.80	SPT	Silty Sand (SM)	42	0	69	31				Non	Plastic					
266.114	8.50	UDS						1.8	1.62	10.83				DST	0.15	30	
265.314	9.30	SPT		13	1	8	91				Non	Plastic					
263.814	10.80	SPT	Sandy Silt with Gravel (SM-ML)	17	0	42	58				Non	Plastic					
263.114	11.50	UDS						1.82	1.63	11.21			2.67	DST	0.1	30	
262.314	12.30	SPT		49	4	9	87				Non	Plastic					
260.814	13.80	SPT		53	10	7	83				Non	Plastic					
260.114	14.50	USD						1.86	1.66	12.34				DST	0.1	30	
259.314	15.30	SPT		27	3	18	79				Non	Plastic					
257.814	16.80	SPT		35	0	10	90				Non	Plastic					
257.114	17.50	USD						1.91	1.68	13.89				DST	0.1	31	
256.314	18.30	SPT		57	2	9	89				Non	Plastic					
254.814	19.80	SPT		51	0	16	84				Non	Plastic					
254.114	20.50	USD						1.96	1.68	16.91				DST	0.1	32	
253.314	21.30	SPT	Silty Sand with gravel (SM)	49	0	51	49				Non	Plastic					
251.814	22.80	SPT		55	0	66	34				Non	Plastic					
250.314	24.30	SPT		42	1	73	26				Non	Plastic					
248.814	25.80	SPT		46	1	64	35				Non	Plastic					
247.314	27.30	SPT		56	1	79	20				Non	Plastic					
245.814	28.80	SPT		62	1	64	35				Non	Plastic					
244.314	30.30	SPT		68	2	84	14				Non	Plastic					

0 10 20 30 40 50 60 70 80 90 100

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