

8-5 地質調查結果

BORING LOG

Drawing No. 2

Project :	Ban Sai Bridge	Logged by :	Nguyen Nam Duong
Borehole No:	P1	Checked by :	Do Van Dang
Co-ordinate:		Sheet:	1/1
Date :	01/07/2006 - 03/07/2006	Ground Elev.:	23.41m
Scale :	1/200	Terminated depth:	17.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/30cm 0 10 20 30 40 50
								N1	N2	N3		
1	19.81	3.60	3.60		D1 1.50-2.00	Gravel with boulder, yellowish gray, greenish grey, very dense.	1.00-1.45	22	30	35	>50	>50
							2.00-2.45	27	35	61	>50	>50
							3.00-3.45	33	39	48	>50	>50
							4.00-4.20	38	51/5	>50	>50	
2a			10.40		R2 9.60-9.75	Highly weathered sandstone, brown, TCR=20%, RQD=10%.						
	9.41	14.00			R3 13.00-13.30							
2b			3.00		R4 16.00-16.15	Moderately weathered sandstone, brown, TCR=50%, RQD=40%.						
	6.41	17.00										

D : Disturbed Sample ●
 UD : Undisturbed Sample ■
 R : Rock Sample □



TEDI-gic

TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

BORING LOG

Drawing No. 2

Project :	Ban Tum Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Co-ordinate:		Sheet:	1/1
Date :	04/07/2006 - 07/07/2006	Ground Elev.:	15.51m
Scale :	1/200	Terminated depth:	18.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/30cm 0 10 20 30 40 50
								N1	N2	N3		
1	10.51	5.00	5.00			Gravel with boulder, greenish grey, whitish grey, dense to very dense.	1.00-1.45	12	17	23	40	
							2.00-2.46	15	22	28	60	
							3.00-3.45	14	17	26	43	
							4.00-4.13	22	47	13/3	>50	
							5.00-5.42	17	29	25/12	>50	
2a	8.51	7.00	2.00			Highly to completely weathered sandstone, siltstone, reddish brown, brownish grey, TCR=0%.						
2b	2.51	13.00	5.00		R1 8.60-9.00	Highly to moderately weathered sandstone, siltstone, reddish brown, brownish grey, TCR= 25%, RQD= 15%.						
					R2 11.80-12.00							
2c	-2.49	18.00	5.00		R3 14.20-14.40	Moderately weathered sandstone, siltstone, reddish brown, brownish grey, TCR= 50%, RQD= 35%.						
					R4 16.40-16.60							

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TEDI-GIC

BORING LOG

Drawing No. 2

Project :	Ban Tum Bridge	Logged by :	Pham Van Toan
Borehole No:	P2	Checked by :	Do Van Dang
Co-ordinate:		Sheet:	1/1
Date :	04/07/2006 - 07/07/2006	Ground Elev.:	15.01m
Scale :	1/200	Terminated depth:	17.50m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50
								N1	N2	N3		
1	10.51	4.50	4.50			Gravel with boulder, greenish grey, whitish grey, dense to very dense.	1.00-1.45	11	18	25	43	
2a			2.70			Highly to completely weathered sandstone, siltstone, reddish brown, brownish grey, TCR=0%.	2.00-2.45	19	21	30	>50	
2b	7.81	7.20	4.70		R1 8.30-8.50	Highly to moderately weathered sandstone, siltstone, reddish brown, brownish grey, TCR= 35%, RQD= 15%.	3.00-3.45	14	24	25	49	
	3.11	11.90			R2 11.20-11.40	Moderately weathered sandstone, siltstone, reddish brown, brownish grey, TCR= 60%, RQD= 25%.	4.00-4.40	18	24	30/10	>50	
2c	-2.49	17.50	5.80		R3 14.40-14.60							

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 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

BORING LOG

Drawing No. 2

Project :	Na Phat Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km 0+196.56	Sheet:	1/1
Date :	16/06/2006 - 21/06/2006	Ground Elev.:	890.30m
Scale :	1/200	Terminated depth:	20.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST								
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/30cm 0 10 20 30 40 50			
								N1	N2	N3					
QD			2.50			Filling soil: clay with gravel and fragments of rock.									
1	887.80	2.60	1.00			Gravel with sand, grey, yellowish grey.									
	886.80	3.60													
2a			6.50			Highly weathered shale, grey, dark grey, TCR=0%.									
	880.30	10.00													
2b			3.00		R1 11.30-11.50	Highly to moderately weather shale, grey, dark grey, TCR=20%, RQD=5%.									
	877.30	13.00													
2c			7.00		R2 14.50-14.70	Moderately weathered shale, grey, dark grey, TCR=45%; RQD=20%.									
	870.30	20.00			R3 18.70-18.90										

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 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

BORING LOG

Drawing No. 2

Project :	Na Phat Bridge	Logged by :	Pham Van Toan
Borehole No:	P2	Checked by :	Do Van Dang
Station:	Km 0+178.56	Sheet:	1/1
Date :	16/06/2006 - 21/06/2006	Ground Elev.:	888.27m
Scale :	1/200	Terminated depth:	19.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST							
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50		
								N1	N2	N3				
2	887.77	0.50	0.50			Gravel with sand.								
3b	876.47	11.80	11.30		R1 3.80-4.00	Highly to moderately weathered shale, grey, dark grey, TCR=25%-45%, RQD=10%-15%.								
					R2 7.60-7.80									
3c	889.27	19.00	7.20		R3 11.20-12.00	Moderately weathered shale, grey, dark grey, TCR=60%, RQD=35%.								
					R4 14.00-14.20									
					R5 17.20-17.40									

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TEDI-GIC

BORING LOG

Drawing No. 2

Project :	Pa Bat Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km 0+195.75	Sheet:	1/1
Date :	12/06/2006 - 15/06/2006	Ground Elev.:	884.98m
Scale :	1/200	Terminated depth:	14.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST												
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50							
								N1	N2	N3									
	884.98	0.30	0.30			Very soft clay with gravel													
2a			2.70			Highly weathered gneiss, greenish grey, whitish grey, TCR=10%, RQD=0%.													
	881.98	3.00																	
2b			7.00		R1 5.50-5.65	Highly to moderately weathered gneiss, greenish grey, TCR=40%, RQD=15%.													
	874.98	10.00																	
2c			4.00		R2 10.80-10.95 R3 12.70-12.90	Moderately weathered gneiss, greenish grey, whitish grey, TCR=50%, RQD=30%.													
	870.98	14.00																	

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 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111184

BORING LOG

Drawing No. 2

Project :	Pa Bat Bridge	Logged by :	Pham Van Toan
Borehole No:	P2	Checked by :	Do Van Dang
Station:	Km 0+225.75	Sheet:	1/1
Date :	12/06/2006 - 15/06/2006	Ground Elev.:	884.58m
Scale :	1/200	Terminated depth:	15.80m

Layer Name	Elevation (m)	Depth (m)	Thickress (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST												
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50							
								N1	N2	N3									
1	884.08	0.50	0.50			Very soft clay with gravel and boulder.													
2a	881.08	3.50	3.00			Highly weathered gneiss, greenish grey, whitish grey, TCR=10%, RQD=0%.													
2b		5.80	5.80-5.65		R1 5.50-5.65	Highly to moderately weathered gneiss, greenish grey, whitish grey, TCR=30%, RQD=15%.													
	875.28	9.30	9.30-9.65		R2 9.50-9.65														
2c		6.50	11.80-11.95		R3 11.80-11.95	Moderately weathered Gneiss, greenish grey, whitish grey, TCR=45%, RQD=25%.													
	868.78	15.80	15.30-15.50		R4 15.30-15.50														

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 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

TEDI-gic

BORING LOG

Drawing No. 2

Project :	Su Lu Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km 0+162.72	Sheet:	1/1
Date :	08/06/2006 - 10/06/2006	Ground Elev.:	888.25m
Scale :	1/200	Terminated depth:	20.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm
								N1	N2	N3		
1a	884.25	4.00	4.00			Fine to medium sand, whitish grey, yellowish grey, loose.	1.00-1.45	1	2	2	4	
							2.00-2.45	1	3	5	8	
1b	878.25	10.00	6.00			Sand with gravel, whitish grey, yellowish grey, medium dense to dense.	3.00-3.45	2	4	4	8	
							4.00-4.45	8	12	14	28	
							5.00-5.45	10	12	15	27	
							6.00-6.45	11	13	15	28	
							7.00-7.45	12	13	17	30	
							8.00-8.45	10	11	14	25	
3	876.25	12.00	2.00			Completely to highly weathered siltstone, sandstone, gray, greenish grey, TCR=0%.	9.00-9.45	11	11	12	23	
							10.00-10.45	14	17	18	35	
4a	871.25	17.00	5.00			Highly weathered gneiss, greenish grey, whitish grey. TCR=20%, RQD=0%.	11.00-11.45	15	18	20	38	
							17.00-17.55	R1				
4b	868.25	20.00	3.00			Moderately weathered gneiss, greenish grey, whitish grey, TCR=40%, RQD=25%.	19.00-19.80	R2				

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 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 278 - Ton Duc Thang - Ha noi Tel: 8112215 FAX: 8111184

BORING LOG

Drawing No. 2

Project :	Su Lu Bridge	Logged by :	Pham Van Toan
Borehole No:	P2	Checked by :	Do Van Dang
Station:	Km 0+129.72	Sheet:	1/1
Date :	08/06/2006 - 11/06/2006	Ground Elev.:	883.55m
Scale :	1/200	Terminated depth:	25.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N=Blows/ 30cm 0 10 20 30 40 50
								N1	N2	N3		
2	876.55	7.00	7.00			Gravel with sand, whitish grey, yellowish grey, medium dense to dense.	1.00-1.45	7	8	11	19	
							2.00-2.45	7	9	13	22	
							3.00-3.45	8	10	11	21	
							4.00-4.45	7	10	12	22	
							5.00-5.45	10	13	14	27	
							6.00-6.45	10	15	17	32	
3	864.95	18.60	11.60			Completely to highly weathered siltstone, sandstone, brownish grey, yellowish grey, TCR=0%.	7.00-7.45	9	12	13	25	
							8.00-8.45	11	15	28	41	
							9.00-9.45	11	18	28	42	
							10.00-10.45	9	12	15	27	
							11.00-11.45	10	13	15	28	
							12.00-12.45	12	18	30	46	
							13.00-13.45	9	12	16	28	
							14.00-14.45	11	15	30	45	
							15.00-15.45	10	11	29	39	
							16.00-16.45	9	17	25	42	
17.00-17.45	10	15	23	38								
4a	881.75	21.80	3.20			Highly weathered gneiss, brownish grey, whitish grey, TCR=20%, RQD=0%.						
4b	858.55	25.00	3.20		R1 23.00-23.20	Moderately weathered gneiss, greenish grey, whitish grey, TCR=35%, RQD=25%.						
					R2 24.70-24.90							

D : Disturbed Sample ●
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 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 278 - Ton Duc Thang - Ha noi Tel: 6112215 FAX: 6111184

BORING LOG

Drawing No. 2

Project :	Ban Bung Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km 0+163.60	Sheet:	1/1
Date :	23/06/2006 - 29/06/2006	Ground Elev.:	892.54m
Scale :	1/200	Terminated depth:	20.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/30cm 0 10 20 30 40 50
								N1	N2	N3		
1	884.54	8.00	8.00			Sand with gravel, yellowish grey, whitish grey, medium dense to dense.	1.00-1.45	6	10	12	17	
							2.00-2.45	7	8	10	18	
							3.00-3.45	7	8	9	17	
							4.00-4.45	8	12	15	27	
							5.00-5.45	7	12	16	28	
							6.00-6.45	10	14	17	31	
							7.00-7.45	14	17	24	41	
2	880.54	12.00	4.00			Gravel with sand, yellowish grey, whitish grey, dense.	8.00-8.45	15	20	27	47	
							9.00-9.45	14	18	26	45	
							10.00-10.45	19	24	26	50	
3a	875.54	17.00	5.00			Highly weathered shale, grey, dark grey, yellowish brown, TCR=10%, RQD=0%.	11.00-11.45	17	22	28	50	
							12.00-12.45	17	22	28	50	
3b	872.54	20.00	3.00			Moderately weathered shale, grey, dark grey, yellowish brown, TCR=30%, RQD=10%.						

R : Rock Sample

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TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 27B - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

TEDI-gic

BORING LOG

Drawing No. 2

Project :	Pac Nam Bridge	Logged by :	Pham Van Toan
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km 0+281.67	Sheet:	1/1
Date :	23/06/2006 - 25/06/2006	Ground Elev.:	894.50m
Scale :	1/200	Terminated depth:	16.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST												
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50							
								N1	N2	N3									
1	882.40	2.10	2.10			Gravel with sand, grey, dark grey, dense (bottom layer with big boulder).													
2a		5.90			R1 6.50-6.70	Highly weathered gneiss, dark grey, greenish grey, TCR=20%, RQD=5%.													
2b	888.50	8.00			R2 9.60-9.80	Moderately weathered gneiss, dark grey, greenish grey, whitish grey, TCR=50%, RQD=30%.													
		8.00			R3 12.60-12.80														
	878.50	16.00			R4 15.60-15.80														

D : Disturbed Sample ●
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TEDI-gic

TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-gic)
 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

BORING LOG

Drawing No. 2

Project :	Nam Puc Bridge	Logged by :	Nguyen Nam Duong
Borehole No:	P1	Checked by :	Do Van Dang
Station:	Km0+353.34	Sheet:	1/1
Date :	17/06/2006 - 21/06/2006	Ground Elev.:	63.12m
Scale :	1/200	Terminated depth:	19.00m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/ 30cm 0 10 20 30 40 50
								N1	N2	N3		
1	59.12	4.00	4.00		D1 1.00-4.00	Gravel with sand, yellowish grey, greenish grey, very dense.	1.00-1.26	41	55		>50	>50
							2.00-2.05	>50			>50	>50
							3.00-3.05	>50			>50	>50
							4.00-4.25	55	85		>50	>50
2a	49.12	14.00	10.00			Highly weathered shale, dark grey, TCR=20%, RQD=0%.						
2b	44.12	19.00	5.00			Moderately weathered shale, dark grey, TCR=35%, RQD=0%.						

D : Disturbed Sample ●
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 R : Rock Sample ☒



TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 27b - Ton Duc Thang - Ha noi Tel: 6112216 FAX: 5111164

BORING LOG

Drawing No. 2

Project :	Nam Puc Bridge	Logged by :	Nguyen Nam Duong
Borehole No. :	P2	Checked by :	Do Van Dang
Station:	Km0+377.34	Sheet:	1/1
Date :	22/06/2006 - 25/06/2006	Ground Elev.:	63.72m
Scale :	1/200	Terminated depth:	18.90m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST																				
							SPT Depth	Blows/ 15cm			N Value	CHART															
								N1	N2	N3		N = Blows/ 30cm 0 10 20 30 40 50															
1	57.22	8.50	8.50		D1 1.00-4.00	Gravel with sand, yellowish grey, greenish grey, very dense.	1.00-1.25	21	40	50	>50																
							2.00-2.30	39	60																		
							3.00-3.20	52	55																		
							4.00-4.30	47	60																		
							5.00-5.45	38	47	50																	
							6.00-6.45	35	42	50																	
							7.00-7.15	60																			
							8.00-8.15	65																			
2a	48.72	15.00	8.50			Highly weathered shale, dark grey, brownish grey, TCR=20%, RQD=0%.																					
2b	44.62	18.90	3.90			Moderately weathered shale, dark grey, TCR=35%, RQD=0%.																					

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 278 - Ton Duc Thang - Ha noi Tel: 6112216 FAX: 6111164

TEDI-GIC

BORING LOG

Drawing No. 2

Project :	Nam Cum Bridge	Logged by :	Nguyen Nam Duong
Borehole No:	P1	Checked by :	Do Van Dang
Station	Km40+046.56 (Left 3.00m)	Sheet:	1/1
Date :	10/06/2006 - 13/06/2006	Ground Elev.:	85.30m
Scale :	1/200	Terminated depth:	17.80m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST												
							SPT Depth	Blows/ 15cm			N Value	CHART							
								N1	N2	N3		N = Blows/30cm							
1	83.80	1.50	1.50			Gravel with boulder, yellowish grey, greenish grey, very dense.	1.00-1.45	18	27	38	>50								
2a	75.80	3.50	8.00			Highly weathered shale, greenish grey, TCR=20%, RQD=0%.	2.50-2.60	>50			>50								
							3.50-3.60	>50			>50								
2b	87.50	17.80	6.30			Moderately weathered shale, greenish grey, TCR=35%-40%, RQD=0%.													

D : Disturbed Sample ●
 UD : Undisturbed Sample ■
 R : Rock Sample ☒



TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION DESIGN CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111184

BORING LOG

Drawing No. 2

Project :	Nam Cum Bridge	Logged by :	Nguyen Nam Duong
Borehole No:	P2	Checked by :	Do Van Dang
Station:	Km40+69.56	Sheet:	1/1
Date :	06/06/2006 - 09/06/2006	Ground Elev.:	83.89m
Scale :	1/200	Terminated depth:	18.10m

Layer Name	Elevation (m)	Depth (m)	Thickness (m)	PROFILE	Sample type & depth	DESCRIPTION	STANDARD PENETRATION TEST					
							SPT Depth	Blows/ 15cm			N Value	CHART N = Blows/30cm 0 10 20 30 40 50
								N1	N2	N3		
1	78.89	5.00	5.00		D1 0.00-3.00	Gravel with boulder, yellowish grey, greenish gray, very dense.	1.00-1.45	17	41	85	86	>50
							2.00-2.45	29	47	50	97	>50
2a	75.89	8.00	3.00		D2 3.00-5.00	Highly weathered shale, greenish grey, TCR=15%, RQD=0%.	3.00-3.45	23	38	45	83	>50
							4.00-4.45	32	42	50	92	>50
2b	65.79	18.10	10.10			Moderately weathered shale, greenish grey, TCR=30%-50%, RQD=0%.	5.00-5.15	65			>50	>50
							6.00-6.04	65			>50	>50
							7.00-7.15	65			>50	>50

D : Disturbed Sample ●
 UD : Undisturbed Sample ■
 R : Rock Sample ∅



TRANSPORT ENGINEERING DESIGN INCORPORATION (TEDI)
 GEOTECHNICAL AND INSPECTION CONSULTANTS JOINT STOCK COMPANY (TEDI-GIC)
 278 - Ton Duc Thang - Ha noi Tel: 5112215 FAX: 5111164

BORING LOG

ENGINEERING		THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES TECHNICAL DESIGN PHASE				BRIDGES OF YEN BAI PROVINCE					
Bore hole		LKT1		Co-ord. X= Y=		Station: NGOI THAP BRIDGE					
Elev.: +192.20		Elev. of underwater level: +0.00		Drilling date:		19/06/2006 - 20/06/2006					
Corrector:		Nguyen Cong Sinh		Checker:		Tran Viet Han					
Layer	Elev. (m)	Depth (m)	PROFILE Scale 1/100	DESCRIPTION	STANDARD PENETRATION TEST (SPT)					Sampling depth for test (m)	
					Depth (m)	Blow No./15cm			Chart		N
N1	N2	N3	N/30cm	0		10	20	30		40	
1		8.00		Dusty clay is in brown mixed with vegetative humus, interposed fine sand and very soft.	SPT1 1.00-1.45	2	3	3	8		
					SPT2 2.00-2.45	1	2	3	6		
					SPT3 3.20-3.65	2	3	4	7		
					SPT4 4.00-4.45	2	3	3	6		
					SPT5 5.00-5.45	3	3	5	8		
					SPT6 6.00-6.45	3	4	4	8		
					SPT7 7.20-7.65	2	3	4	7		
2	184.20	8.00		Sand, gravel, grit mixes with cobble in blue. Structure is medium closed.	SPT8 8.00-8.45	6	8	18	23		ND1 3.60-3.30
	182.70	9.50			SPT9 9.00-9.45	7	15	20	35		
3		7.00		Grit is in greenish grey mixed with redish brown clay. Structure is very closed (resulting from completely weathered sandstone).	SPT10 10.00-10.45	7	18	25	43		ND2 5.0-5.20
					SPT11 11.00-11.45	6	18	23	41		
					SPT12 12.00-12.45	7	20	25	45		
					SPT13 13.00-13.45	8	20	35	55		
					SPT14 14.00-14.45	10	20	34	54		
					SPT15 15.00-15.45	9	21	35	56		
4	175.70	18.50		Sandstone is in blackish green. hardness is in level 7-8.	SPT16 15.00-15.45	18	>50	>50		ND3 7.00-7.20	
	172.20	20.0									
											ND4 9.80-10.00
											XD5 12.00-12.50
											XD6 14.50-15.00
											ND7 16.00-16.20
											UB 18.00-18.30
											US 19.80-20.00

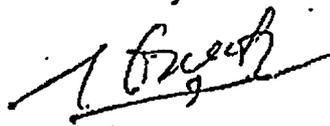
TEST FOR UNCONFINED COMPRESSIVE STRENGTH OF ROCK
(22 TCN 57 - 84)

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES

NGOI THAP BRIDGE

Bore hole		T1	T1	
Sample No.		U8	U9	
Depth (m)		18,0-18,3	19,8-20,0	
Test items				
Dry unconfined compressive strength	σ_n (kG/cm ²)	144,0	165,0	
Saturated unconfined compressive strength	σ_{bh} (kG/cm ²)	95,0	112,0	
Index of softening	k	0,66	0,68	
Natural unit weight	γ_w (g/cm ³)	2,371	2,375	
Specific gravity	Δ (g/cm ³)	2,690	2,692	

Tested by



Nguyễn Văn Hạnh



VII.46 VAD Toan

No: 100706.03,4/CLD

SUMMARY OF TEST RESULTS

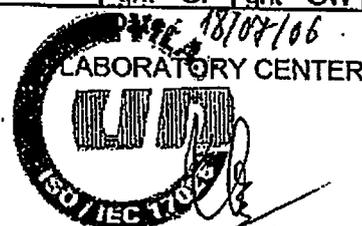
THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES

NGOI THAP BRIDGE

Borehole :		T1						
Sample No :		ND1	ND2	ND3	ND4	XD5	XD6	ND7
Depth (m): m		3.0 ÷ 3.2	5.0 ÷ 5.2	7.0 ÷ 7.2	9.8 ÷ 10.0	12.0 ÷ 12.5	14.5 ÷ 15.0	16.0 ÷ 16.2
Test No.		735	736	737	738	739	740	741
Grain size analysis P %								
Percent finer (%)	50.8 (mm)					100.0	79.7	100.0
	25.4 (mm)					65.8	52.5	85.6
	19.0 (mm)					53.0	47.6	82.9
	9.5 (mm)					42.7	42.1	76.4
	4.75 (mm)					34.9	31.1	69.9
	2.00 (mm)	100.0				25.0	24.0	59.9
	0.425 (mm)	99.5	100.0	100.0	100.0	5.2	8.8	35.5
	0.075 (mm)	98.6	99.3	99.3	99.7	0.7	2.4	21.2
	0.050 (mm)	96.0	92.5	97.0	95.0			
	0.005 (mm)	44.0	41.0	43.0	41.0			
	0.002 (mm)	21.5	20.5	19.0	20.5			
Natural water content W %		42.7	34.7	33.2	35.0			
Natural unit weight γ_w g/cm ³		1.779	1.831	1.739	1.865			
Dry unit weight γ_k g/cm ³		1.247	1.359	1.306	1.381			
Specific gravity ρ g/cm ³		2.690	2.690	2.690	2.690	2.670	2.670	2.670
Coefficient of uniformity C_u						35.5	64.6	
Coefficient of gradation C_c						0.7	1.2	
In Dry condision α_k								
In Saturation condision α_w								
Void Ratio e_0		1.158	0.979	1.060	0.947			
Porosity n %		53.7	49.5	51.5	48.6			
Degree of Saturation S %		99.21	95.35	84.22	99.40			
Liquid Limits Wl %		39.3	40.1	38.7	42.0			22.8
Plastic Limits Wp %		24.3	24.9	25.2	25.5			14.7
Plasticity Index Ip %		15.0	15.2	13.5	16.5			8.1
Internal friction angle φ°		15°10'	17°16'	14°38'	14°38'			
Cohesion C KG/cm ²		0.023	0.023	0.008	0.028			
Compressibility Index a_{1-2} cm ² /KG		0.069	0.056	0.083	0.058			
Soil classification ASTM - D 2487		Clay soils CL	Clay soils CL	Clay soils CL	Clay soils CL	Bad aggregate grit - GP	Good aggregate grit - GW	Clay sand - SC

COLECTED BY

UHP



Eng. Nguyen Thi Khanh Ha

VEAS 129
Eng. Tran Van Toan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1
Sample No : ND2
Depth (m) : 5.0 + 5.2

Tels No : 736
Date : 16/7/2006

SIZE ANALYSIS

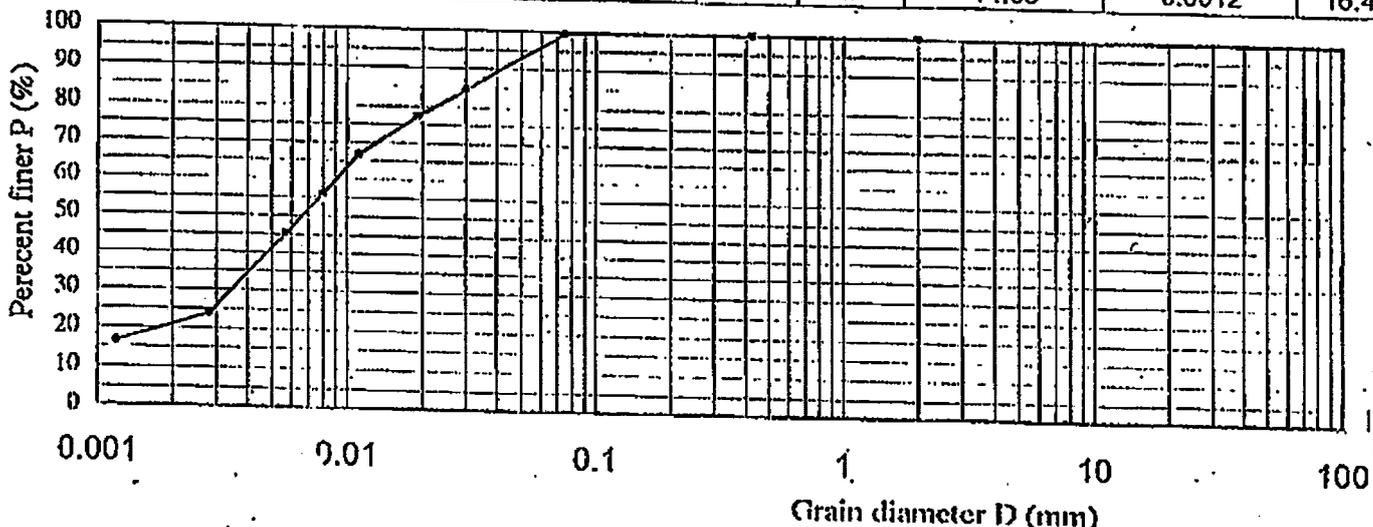
Grain diameter (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	Khối lượng riêng (g/cm ³) 2.690
Weight soil retained (g)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	
Percent retained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	
Percent finer (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.3	

Weight of dry soil (g):

HYDROMETER ANALYSIS

Weight of dry soil (g): 22.27
Temperature in (°C) 30.0

Elapsed time (min)	Actual Hydrometer Reading	Correction			Effective depth L (cm)	Diameter D (mm)	Percent passing P (%)
		Temperature	Zero	Hyd. Reagin			
2	8.5	2.3	1.0	11.8	12.63	0.0303	84.3
5	7.5	2.3	1.0	10.8	12.78	0.0192	77.2
15	6.0	2.3	1.0	9.3	13.01	0.0112	66.5
30	4.5	2.3	1.0	7.8	13.23	0.0080	55.7
60	3.0	2.3	1.0	6.3	13.46	0.0057	45.0
250	0.0	2.3	1.0	3.3	13.91	0.0028	23.6
1440	-1.0	2.3	1.0	2.3	14.06	0.0012	16.4



RESULT

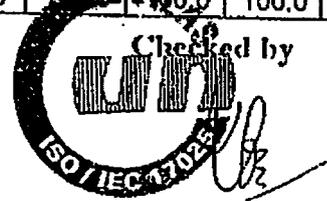
Size (mm)	< 0.002	0.002	0.005	0.05	0.075	0.425	2.00	4.75	9.5	19.0	25.4	50.8
Percent (%)	20.5	20.5	51.5	6.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent finer (%)		20.5	41.0	92.5	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Tested by

[Signature]

Tran Thi My Dung

Checked by



VILAS 120
Tran Van Toan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1
Sample No : ND3
Depth (m) : 7.0 ± 7.2

Tets No : 737
Date : 16/7/2006

SIZE ANALYSIS

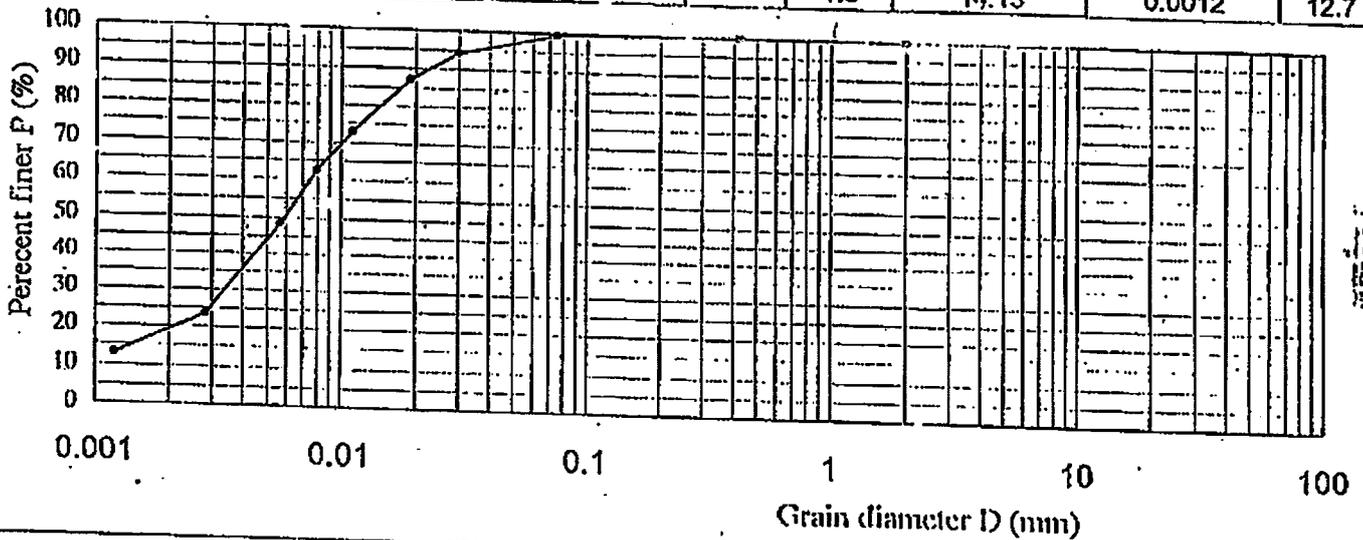
Grain diameter (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	Khối lượng riêng (g/cm ³) 2.690
Weight soil retained (g)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	
Percent retained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	
Percent finer (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.3	

Weight of dry soil (g):

HYDROMETER ANALYSIS

Weight of dry soil (g): 22.52
Temperature in (°C) 30.0

Elapsed time (min)	Actual Hydrometer Reading	Correction			Effective depth L (cm)	Diameter D (mm)	Percent passing P (%)
		Temperature	Zero	Hyd. Reagin			
2	10.0	2.3	1.0	13.3	12.41	0.0300	94.0
5	9.0	2.3	1.0	12.3	12.56	0.0191	86.9
15	7.0	2.3	1.0	10.3	12.86	0.0111	72.8
30	5.5	2.3	1.0	8.8	13.08	0.0079	62.2
60	3.5	2.3	1.0	6.8	13.38	0.0057	48.1
250	0.0	2.3	1.0	3.3	13.91	0.0028	23.3
1440	-1.5	2.3	1.0	1.8	14.13	0.0012	12.7



RESULT

Size (mm)	< 0.002	0.002	0.005	0.05	0.075	0.425	2.00	4.75	9.5	19.0	25.4	50.8
Percent (%)	19.0	21.0	54.0	2.3	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent finer (%)		19.0	43.0	97.0	99.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Tested by

(Handwritten signature)

Tran Thi My Dung

Checked by



VILAKH 29 an Toan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1
Sample No : ND4
Depth (m) : 9.8 + 10.0

Tets No : 738
Date : 16/7/2016

SIZE ANALYSIS

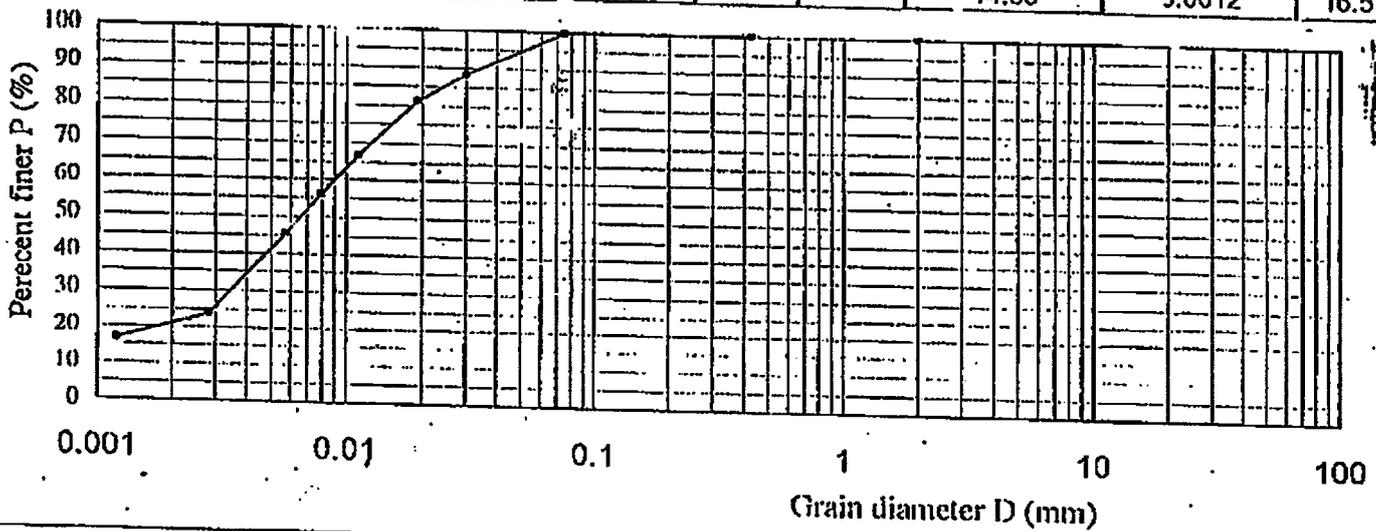
Grain diameter (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	Khối lượng riêng (g/cm ³) 2.690
Weight soil retained (g)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	
Percent retained (%)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
Percent finer (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.7	

Weight of dry soil (g):

HYDROMETER ANALYSIS

Weight of dry soil (g): 22.22
Temperature in (°C) 30.0

Elapsed time (min)	Actual Hydrometer Reading	Correction			Effective depth L (cm)	Diameter D (mm)	Percent passing P (%)
		Temperature	Zero	Hyd. Reagin			
2	9.0	2.3	1.0	12.3	12.56	0.0302	88.1
5	8.0	2.3	1.0	11.3	12.71	0.0192	80.9
15	6.0	2.3	1.0	9.3	13.01	0.0112	66.6
30	4.5	2.3	1.0	7.8	13.23	0.0080	55.9
60	3.0	2.3	1.0	6.3	13.46	0.0057	45.1
250	0.0	2.3	1.0	3.3	13.91	0.0028	23.8
1440	-1.0	2.3	1.0	2.3	14.08	0.0012	16.5



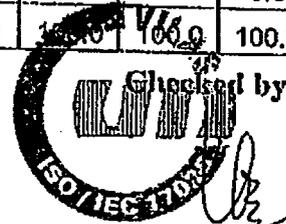
RESULT

Size (mm)	< 0.002	0.002	0.005	0.05	0.075	0.425	2.00	4.75	9.5	19.0	25.4	50.8
Percent (%)	20.5	20.5	54.0	4.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percent finer (%)		20.5	41.0	95.0	99.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Tested by

Tran Thi My Dung

Tran Thi My Dung



Checked by

VILAS 129
Tran Van Toan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
 NCOI THAP BRIDGE

Borehole : T1
 Sample No : XD5
 Depth (m): 12.0 + 12.5

Tests No : 739
 Date : 13/7/2006

SIZE ANALYSIS

Weight of dry soil (g): 1215.0

Size (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	< 0.075
Wt. Soil retained (g)	0.00	415.00	155.60	125.60	95.10	120.30	240.20	55.00	8.2
Percent retained (%)	0.0	34.2	12.8	10.3	7.8	9.9	19.8	4.5	0.7
Percent finer (%)	100.0	65.8	53.0	42.7	34.9	25.0	5.2	0.7	

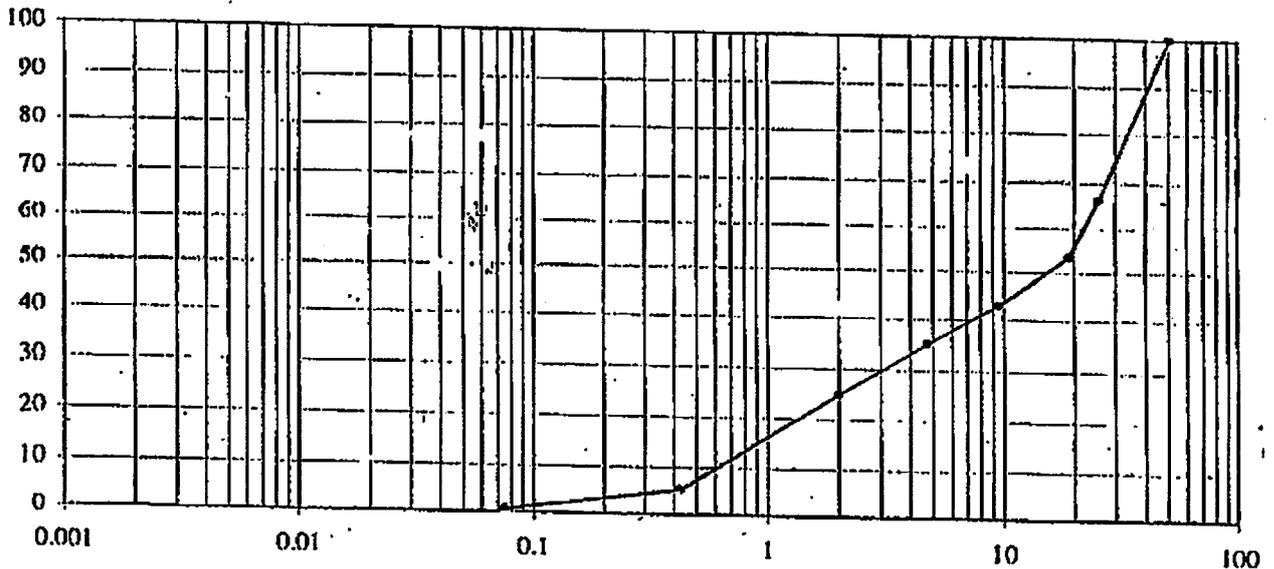
RESULT

$D_{60} = 22.00$ $C_u = 35.5$
 $D_{30} = 3.10$ $C_c = 0.7$
 $D_{10} = 0.620$

Soil classification (ASTM - D 2487)

Group symbol : GP
 Group name : Bad aggregate grit

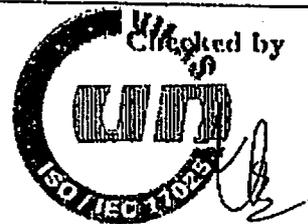
Size (mm)	50.8	25.4	19.0	9.5	4.75	2.0	0.425	0.075	< 0.075
Percent retained (%)	0.0	34.2	12.8	10.3	7.8	9.9	19.8	4.5	0.7



Tested by

Handwritten signature

Nguyen Thi Hong



VILAS 129
 Tran Van Toan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1
 Sample No : XD6
 Depth (m) : 14.5 + 15.0

Tets No : 740
 Date : 13/7/2006

SIZE ANALYSIS

Weight of dry soil (g): 1360.0

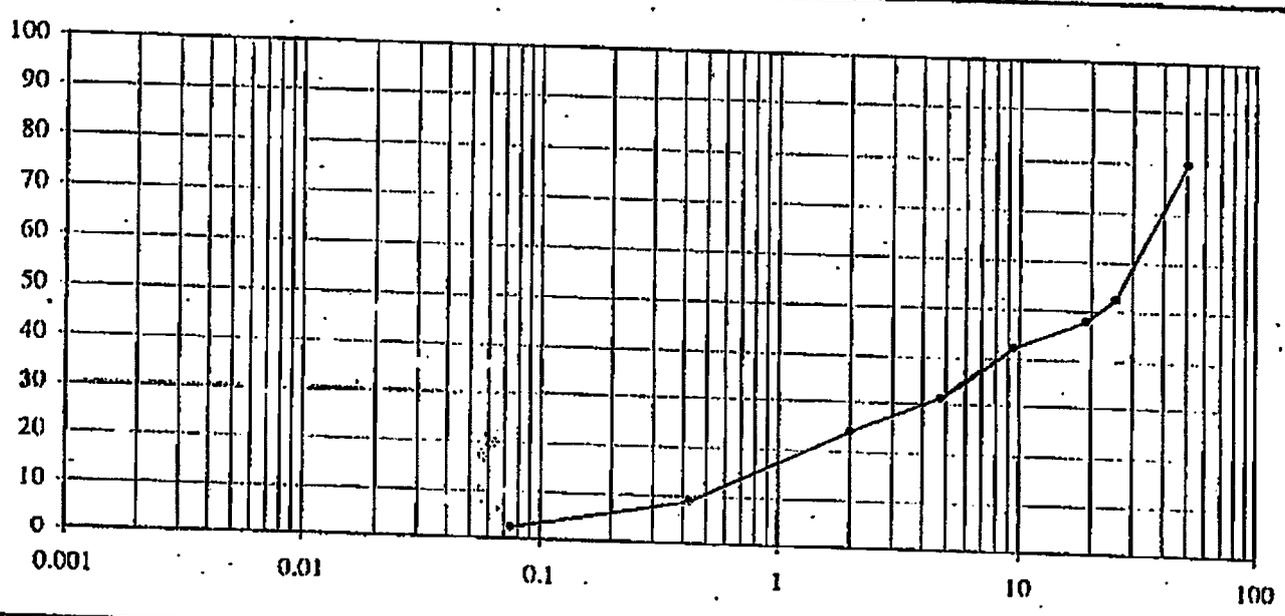
Size (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	< 0.075
Wt. Soil retained (g)	275.70	370.90	65.40	75.00	150.30	96.80	206.80	87.00	32.3
Percent retained (%)	20.3	27.3	4.8	5.5	11.1	7.1	15.2	6.4	2.4
Percent finer (%)	79.7	52.5	47.6	42.1	31.1	24.0	8.8	2.4	

RESULT

$D_{60} = 31.0$ $C_u = 64.6$
 $D_{30} = 4.2$ $C_c = 1.2$
 $D_{10} = 0.48$

Soil classification (ASTM - D 2487)
 Group symbol : GW
 Group name : Good aggregate grit

Size (mm)	50.8	25.4	19.0	9.5	4.75	2.0	0.425	0.075	< 0.075
Percent retained (%)	20.3	27.3	4.8	5.5	11.1	7.1	15.2	6.4	2.4



Tested by

Signature of Nguyen Thi Hong

Nguyen Thi Hong



VILAC 129 Tran Hoan

GRAIN SIZE ANALYSIS

ASTM - D 422 - 63.

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1
Sample No : ND7
Depth (m): 16.0 + 16.2

Tets No : 741
Date : 17/7/2006

SIZE ANALYSIS

Weight of dry soil (g): 1850.0

Size (mm)	50.8	25.4	19.0	9.5	4.75	2.00	0.425	0.075	< 0.075
Wt. Soil retained (g)	0.00	265.80	50.80	120.30	120.00	185.40	450.10	265.10	392.4
Percent retained (%)	0.0	14.4	2.7	6.5	6.5	10.0	24.3	14.3	21.2
Percent finer (%)	100.0	85.6	82.9	76.4	69.9	59.9	35.5	21.2	

RESULT

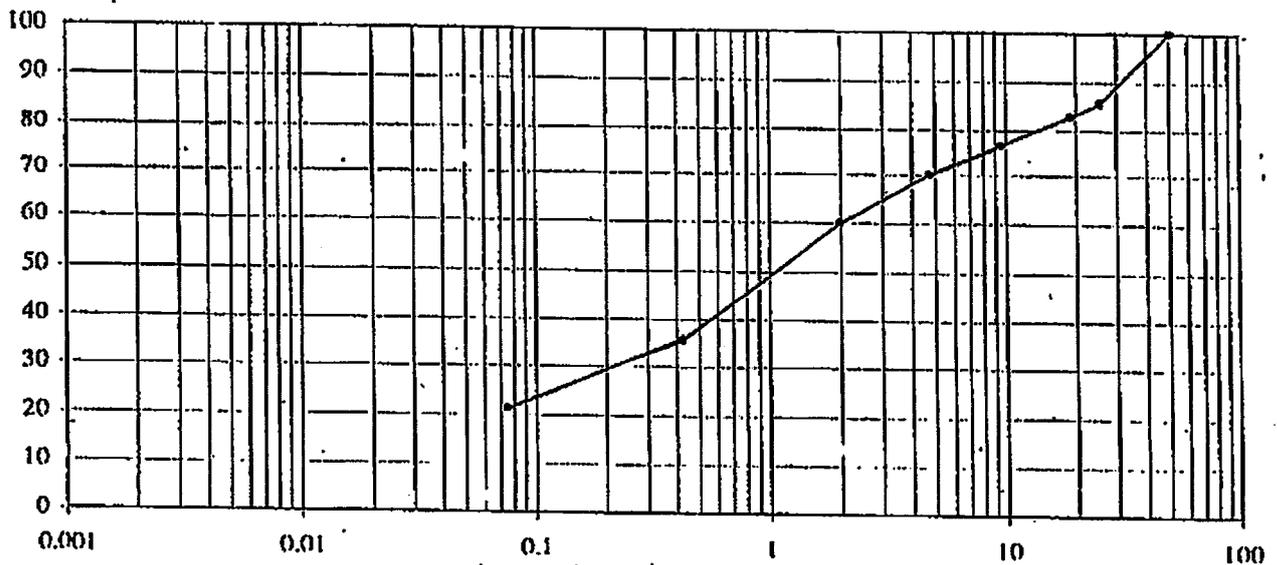
$D_{60} =$ $C_u =$
 $D_{30} =$ $C_c =$
 $D_{10} =$

Soil classification (ASTM - D 2487)

Group symbol : SC

Group name : Clay-sand

Size (mm)	50.8	25.4	19.0	9.5	4.75	2.0	0.425	0.075	< 0.075
Percent retained (%)	0.0	14.4	2.7	6.5	6.5	10.0	24.3	14.3	21.2



Tested by

Signature

Nguyen Thi Hong



VILAT 189 Van Toan

OEDOMETER COMPRESSION TEST

TCVN 4200 - 95

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE.

Borehole : T1

Sample No : ND1

Depth (m) : 3.0 + 3.2

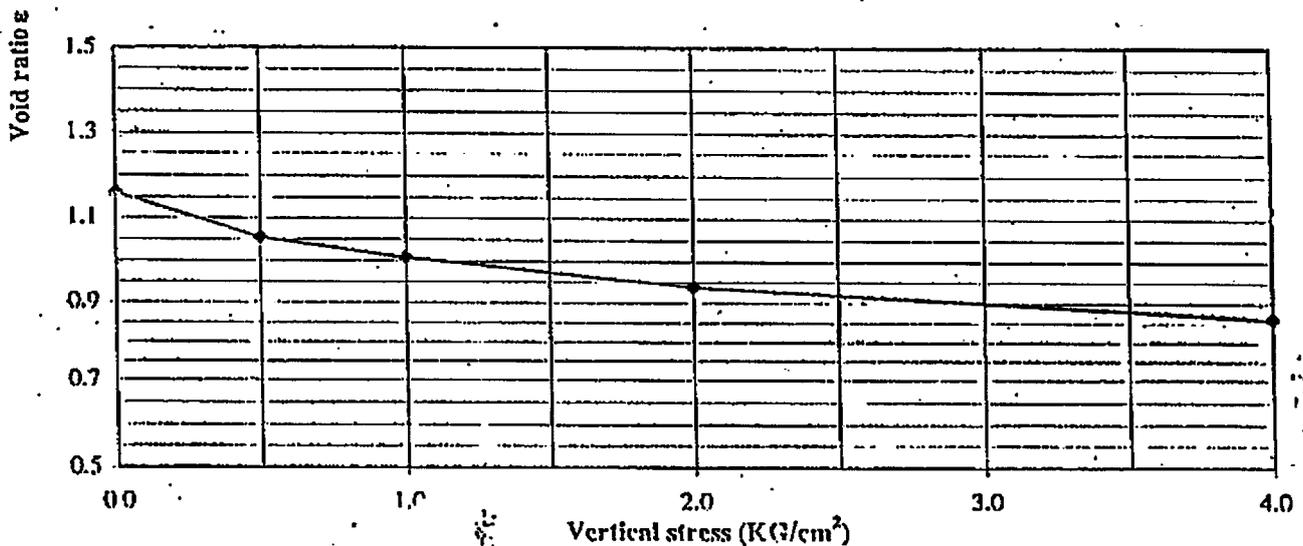
Tets No : 735

Date : 15/7/2006

PHYSICAL PROPERTIES

W (%)	γ_w (g/cm ³)	γ_d (g/cm ³)	ρ (g/cm ³)	S (%)	n (%)	ϵ_0	H (cm)	N_0
42.7	1.779	1.246	2.690	99.2	53.7	1.158	2.00	11

Vertical stress (kg/cm ²)	0.0	0.5	1.0	2.0	3.0	4.0
Dial reading (0.01mm)						
2 h		98.0	144.0	211.0	251.0	290.0
24 h						295.0
Final reading (0.01mm)		99.7	146.5	214.8	255.3	295.0
Deformation of compr. (0.01mm)		2.0	6.0	10.0	13.0	16.5
Deformation of sample ΔH (0.01mm)		97.7	140.5	204.6	242.3	278.5
Change of void ratio Δe		0.105	0.152	0.221	0.261	0.301
Void ratio e_p	1.158	1.053	1.007	0.937	0.897	0.858
Index of compression a (cm ² /KG)		0.211	0.092	0.069	0.041	0.039



Tested by

Nguyen Thi Hong

Nguyen Thi Hong



VILAS 129
Tran Van Toan

OEDOMETER COMPRESSION TEST

TCVN 4200 - 95

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

Sample No : ND2

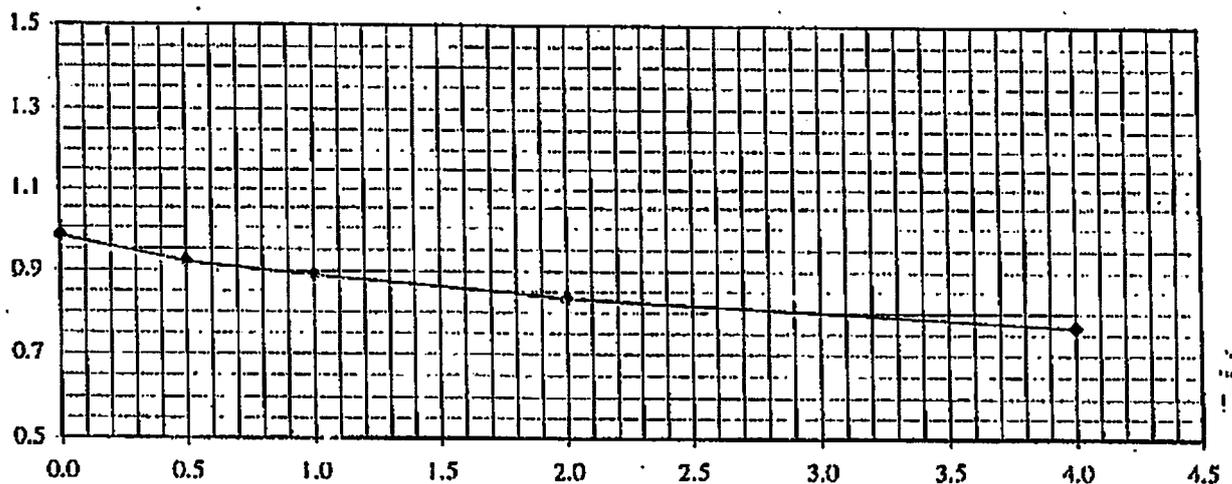
Depth (m) : 5.0 ± 5.2

Tests No : 736

Date : 16/7/2006

PHYSICAL PROPERTIES

W. (%)	γ_w (g/cm ³)	γ_s (g/cm ³)	ρ (g/cm ³)	S (%)	n (%)	ϵ_0	H (cm)	N _o
34.7	1.831	1.360	2.690	95.4	49.5	0.979	2.00	10
Vertical stress (kg/cm ²)		0.0	0.5	1.0	2.0	3.0	4.0	
Dial reading (0.01mm)								
2 h			60.0	96.0	155.0	192.0	228.0	
24 h							231.0	
Final reading (0.01mm)			90.8	97.3	167.0	194.5	231.0	
Deformation of compr. (0.01mm)			2.0	6.0	9.0	11.0	16.0	
Deformation of sample ΔH (0.01mm)			58.8	91.3	148.0	183.5	215.0	
Change of void ratio Δe			0.058	0.090	0.146	0.182	0.213	
Void ratio e_p		0.979	0.920	0.888	0.832	0.797	0.766	
Index of compression a (cm ² /KG)			0.116	0.064	0.056	0.035	0.031	



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Nguyen Thi Hong



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OEDOMETER COMPRESSION TEST

TCVN 4200 - 95

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

Sample No : ND3

Depth (m) : 7.0 + 7.2

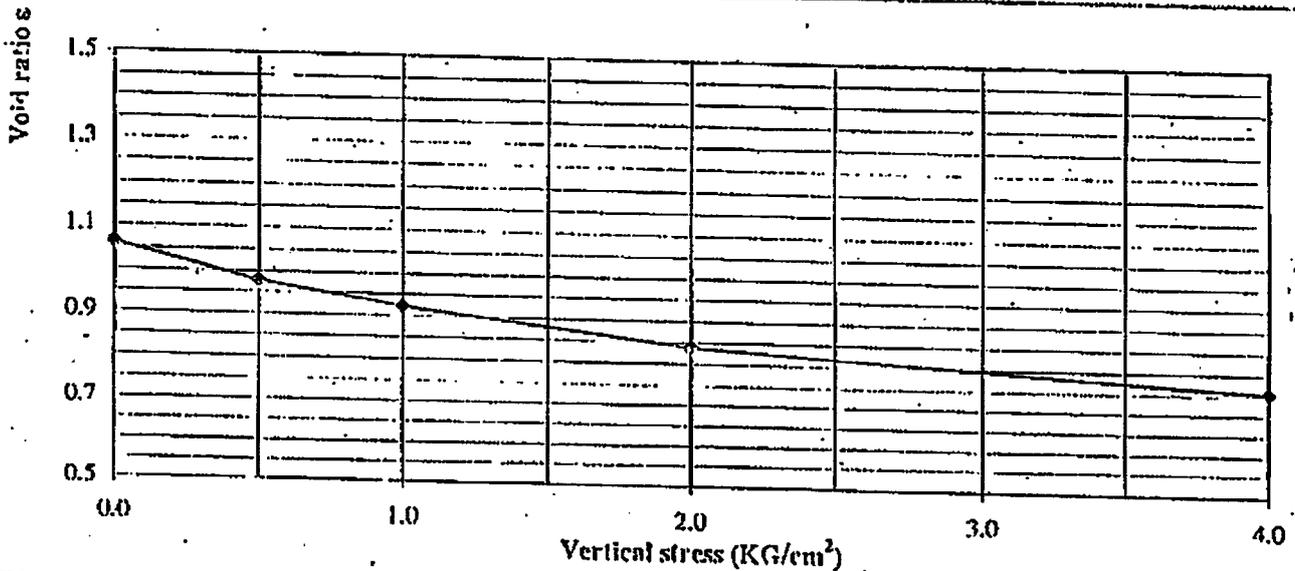
Tests No : 737

Date : 16/7/2006

PHYSICAL PROPERTIES

W (%)	γ_w (g/cm ³)	γ_d (g/cm ³)	ρ (g/cm ³)	S (%)	n (%)	ϵ_0	H (cm)	N_0
33.2	1.739	1.305	2.690	84.2	51.5	1.061	2.00	12

Vertical stress (kg/cm ²)	0.0	0.5	1.0	2.0	3.0	4.0
Dial reading (0.01mm)						
2 h		85.0	141.0	225.0	275.0	312.0
24 h						315.5
Final reading (0.01mm)		86.0	142.6	227.5	278.1	315.5
Deformation of compr: (0.01mm)		3.0	7.0	11.0	14.0	16.0
Deformation of sample ΔH (0.01mm)		83.0	135.6	216.5	264.1	299.5
Change of void ratio Δe		0.085	0.140	0.223	0.272	0.309
Void ratio e_p	1.061	0.975	0.921	0.838	0.789	0.752
Index of compression a (cm ² /KG)		0.171	0.108	0.083	0.049	0.036



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Nguyen Thi Hong

Checked by



VILAS 129
Hai Van Toan

OEDOMETER COMPRESSION TEST

TCVN 4200 - 95

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

Sample No : ND4

Depth (m) : 9.8 + 10.0

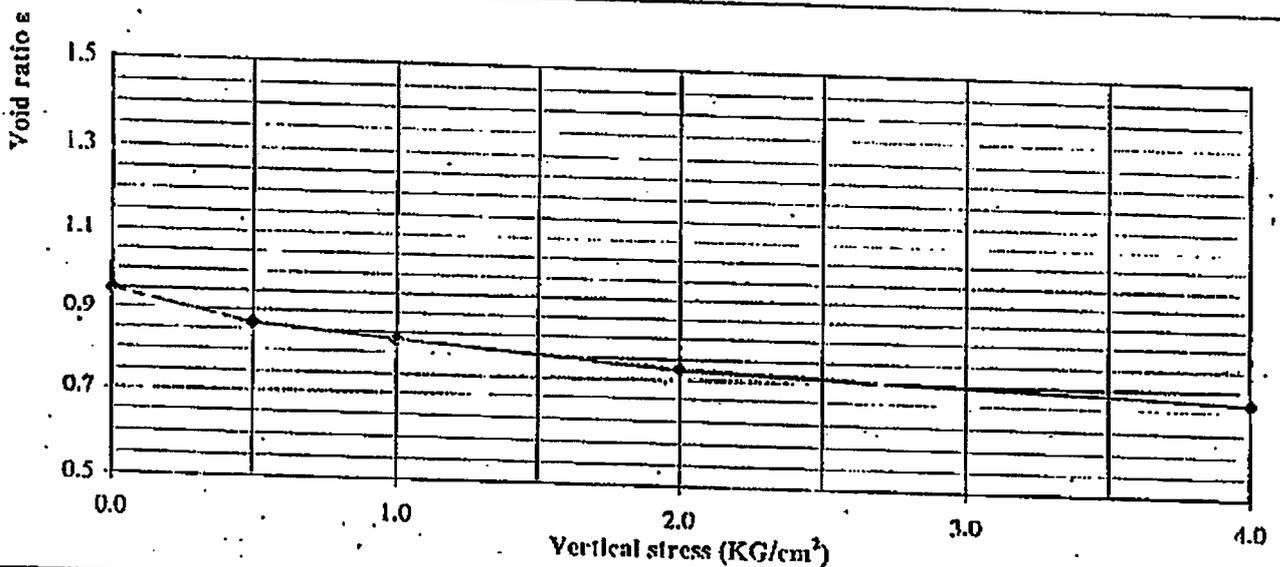
Tests No : 738

Date : 16/7/2006

PHYSICAL PROPERTIES

W (%)	γ_w (g/cm ³)	γ_d (g/cm ³)	ρ (g/cm ³)	S (%)	n (%)	e_o	H (cm)	N_o
35.0	1.995	1.382	2.690	99.4	48.6	0.947	2.00	7

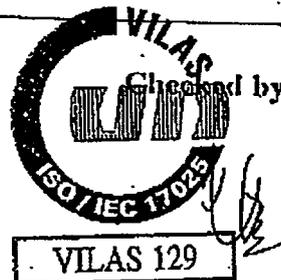
Vertical stress (kg/cm ²)	0.0	0.5	1.0	2.0	3.0	4.0
Dial reading (0.01mm ³)						
2 h		85.0	124.0	185.0	221.5	251.0
24 h						254.0
Final reading (0.01mm)		86.0	125.5	187.2	224.1	254.0
Deformation of compr. (0.01mm)		2.0	7.0	9.0	12.0	16.0
Deformation of sample ΔH (0.01mm)		84.0	118.5	178.2	212.1	238.0
Change of void ratio Δe		0.082	0.115	0.173	0.207	0.232
Void ratio e_p	0.947	0.865	0.832	0.773	0.740	0.715
Index of compression a (cm ² /KG)		0.164	0.067	0.058	0.033	0.025



Tested by

Handwritten signature of Nguyen Thi Hong

Nguyen Thi Hong



Tran Van Toan

DIRECT SHEAR TEST

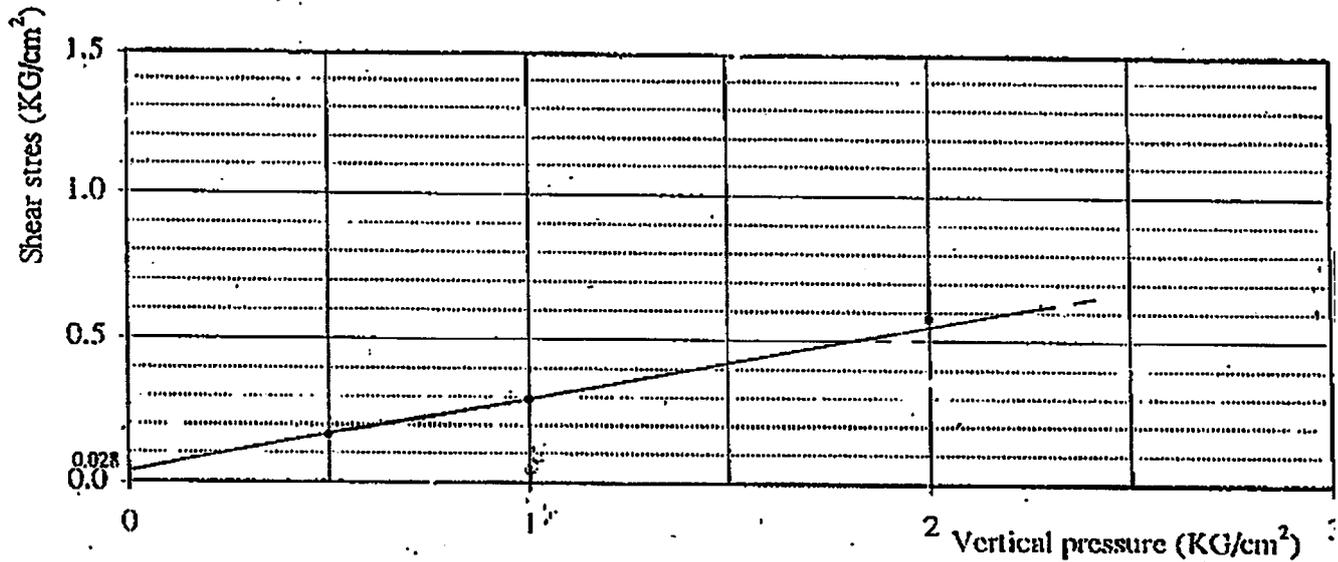
TCVN 4199 - 95

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES

NGOI THAP BRIDGE

Borehole :	T1	Tets No :	738
Sample No :	ND4	Date :	15/7/2006
Depth (m) :	9.8 ÷ 10.0	Method :	Unconsolidated - Undrained

Vertical pressure (kG/cm ²)	0.5	1.0	2.0	CALCULATE
Max reading	8.0	14.5	29.0	$\lg \varphi = \frac{0.420 - 0.159}{1.5 - 0.5} = 0.261$
Composic Correction	0.01985	0.01985	0.01985	RESULT
Shear stress τ (kG/cm ²)	0.159	0.288	0.576	Internal friction angle $\varphi (^{\circ}) = 14^{\circ}38'$ Cohesion C (kG/cm ²) = 0.028



Tested by

Nguyen Thi Lien



VILAS 12/2/2006 Toan

ATTERBERG LIMITS

ASTM - D 4318 - 84

THE PROJLCT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES

NGOI THAP BRIDGE

Borehole : T1

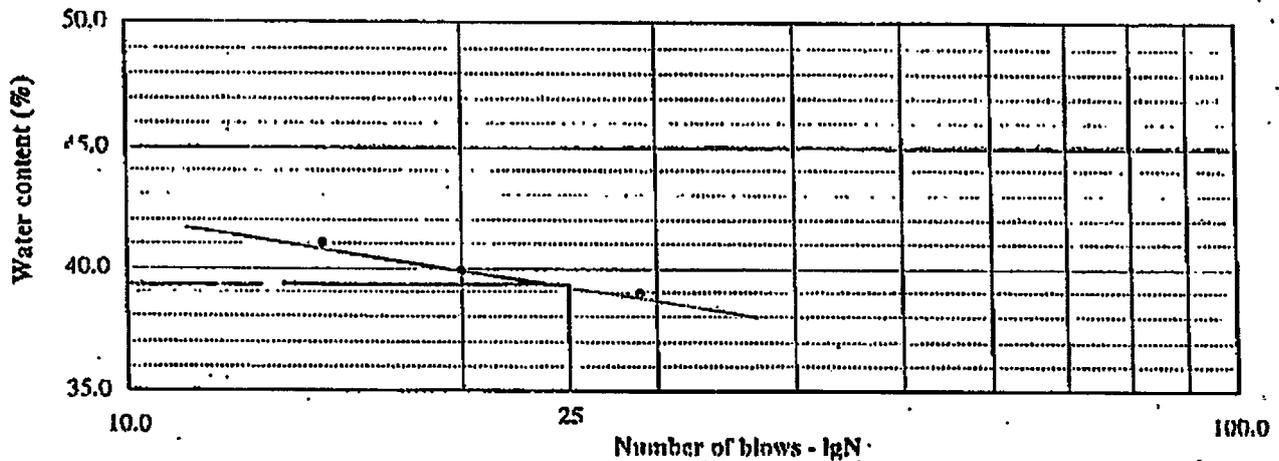
Sample No : ND1

Tests No : 735

Depth (m): 3.0 + 3.2

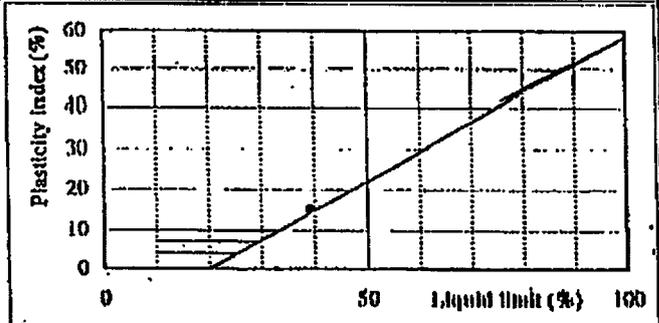
Date : 16/7/2008

Container number	LIQUID LIMIT (W_L)			PLATIC LIMIT (W_P)	
	IN06	IN34	IN19	HN12	HN15
Weight of wet (g)	91.69	91.21	92.27	30.74	27.37
Weight of dry (g)	83.73	83.74	84.50	28.15	24.75
Weight of container (g)	64.32	65.00	64.55	17.34	14.12
Waterr content (%)	41.0	39.9	38.9	24.0	24.6
Average waterr content (%)	24.3				
Number of blows (N)	15	20	29		



RESULT:

Liquid limit : $W_L = 39.3$ %
 Platic limit : $W_P = 24.3$ %
 Plasticity index : $I_P = 15.0$ %



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Nguyen Thi Lien

Nguyen Thi Lien



VILAS 129
Tran Van Toan

ATTERBERG LIMITS

ASTM - D 4318 - 84

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

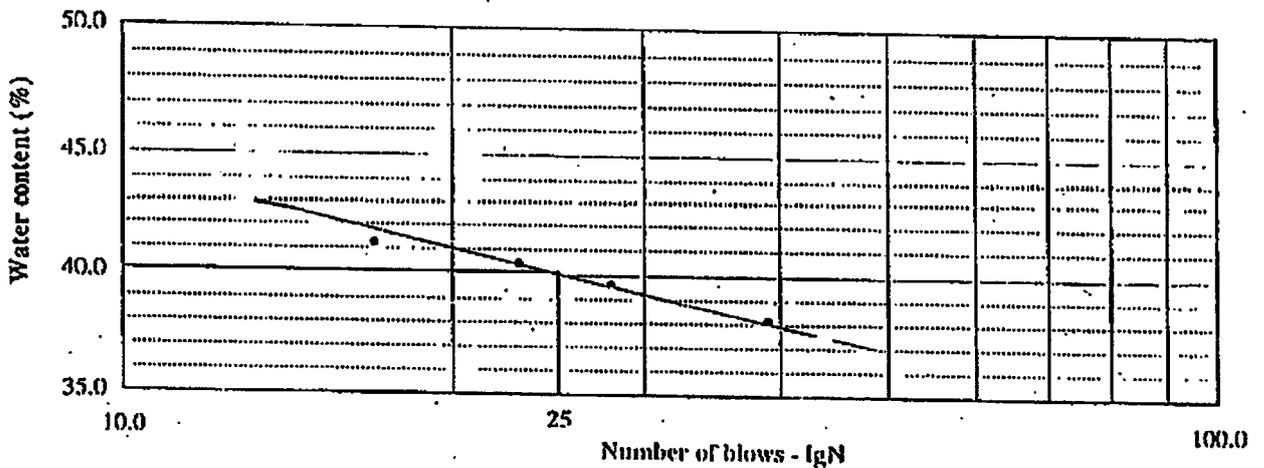
Sample No : ND2

Depth (m): 5.0 + 5.2

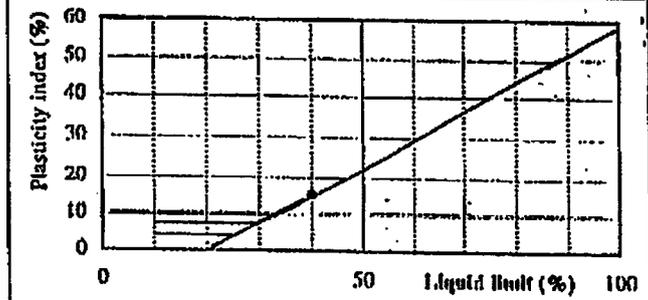
Tets No : 736

Date : 16/7/2008

Container number	LIQUID LIMIT (W _L)				PLATIC LIMIT (W _P)		
	IN23	IN11	IN09	IN29	HN98	HN06	
Weight of wet (g)	89.67	88.94	90.51	88.23	47.57	38.20	
Weight of dry (g)	82.75	82.06	83.31	81.83	44.12	35.08	
Weight of container (g)	65.96	65.04	65.13	66.03	30.16	22.65	
Water content (%)	41.2	40.4	39.6	38.1	24.7	25.1	
Average water content (%)						24.9	
Number of blows (N)	17	23	28	39			



RESULT:
 Liquid limit : W_L = 40.1 %
 Platic limit : W_P = 24.9 %
 Plasticity index : I_p = 15.2 %



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 Nguyen Thi Lien



V.L.A.S. 129
 Phan Van Loan

ATTERBERG LIMITS

ASTM - D 4318 - 84

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

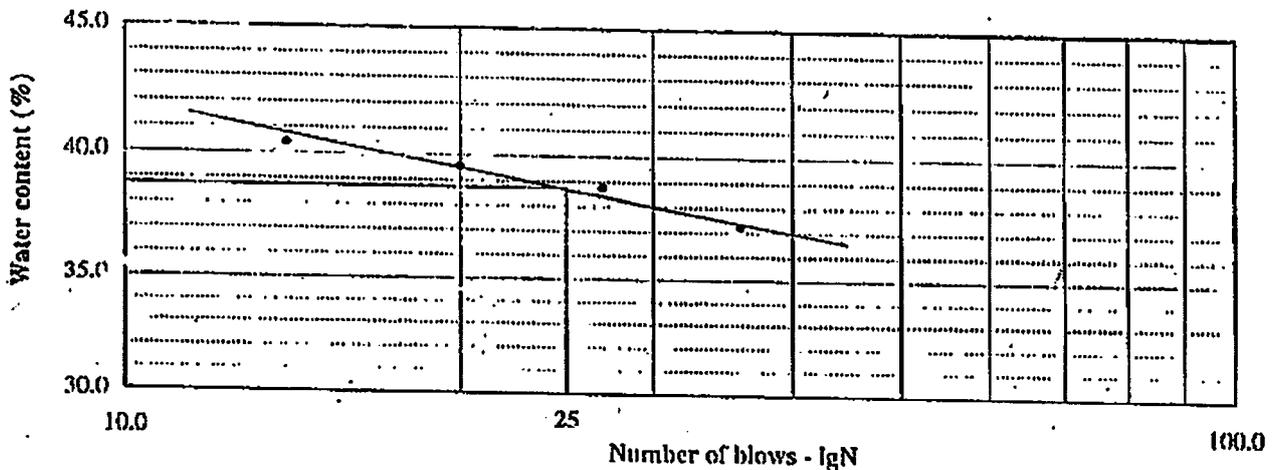
Sample No : ND3

Tests No : 737

Depth (m) : 7.0 + 7.2

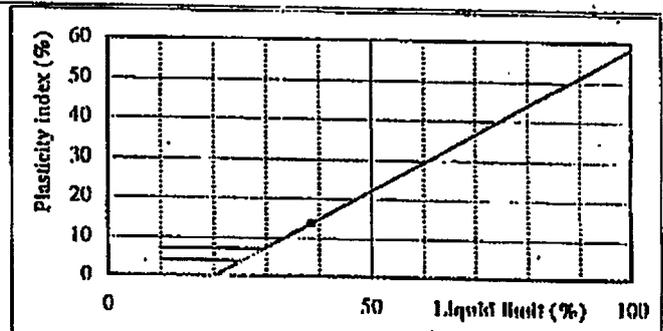
Date : 16/7/2008

Container number	LIQUID LIMIT (W_L)				PLASTIC LIMIT (W_P)		
	IN12	IN10	IN04	IN01	HN40	HN19	
Weight of wet (g)	92.33	91.43	88.77	89.51	41.40	39.67	
Weight of dry (g)	84.58	83.82	82.10	82.79	37.72	36.32	
Weight of container (g)	65.39	64.55	64.88	64.73	22.95	23.21	
Water content (%)	40.4	39.5	38.7	37.2	24.9	25.6	
Average water content (%)						25.2	
Number of blows (N)	14	20	27	36			



RESULT:

Liquid limit : $W_L = 38.7$ %
 Plastic limit : $W_P = 25.2$ %
 Plasticity index : $I_p = 13.5$ %



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Nguyen Thi Lien



VILAS 129
Tran Van Toan

ATTERBERG LIMITS

ASTM - D 4318 - 84

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES
NGOI THAP BRIDGE

Borehole : T1

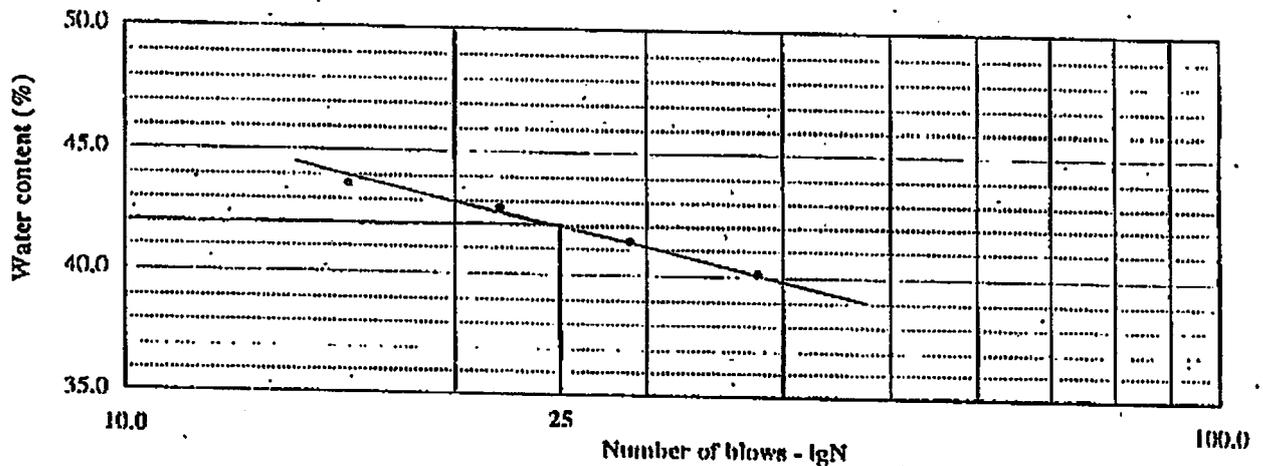
Sample No : ND4

Depth (m): 9.8 + 10.0

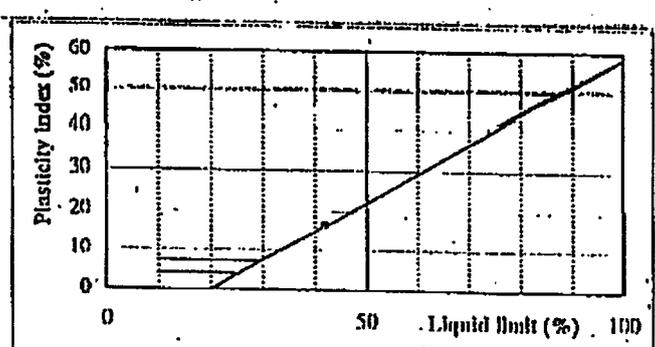
Tets No : 738

Date : 16/7/2006

Container number	LIQUID LIMIT (W_L)				PLATIC LIMIT (W_P)		
	IN25	IN03	IN22	C19	HN36	HN04	
Weight of wat (g)	76.71	89.55	91.40	66.71	37.54	36.72	
Weight of dry (g)	68.38	82.30	83.70	55.20	34.69	33.72	
Weight of container (g)	49.28	65.32	65.05	36.97	23.64	21.84	
Waterr content (%)	43.6	42.7	41.3	40.1	25.8	25.3	
Average waterr content (%)						25.5	
Number of blows (N)	16	22	29	38			



RESULT:
 Liquid limit : $W_L = 42.0$ %
 Platic limit : $W_P = 25.5$ %
 Plasticity index : $I_p = 16.5$ %



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Nguyen Thi Lien

Nguyen Thi Lien



VILAS 129
Tran Van Toan

ATTERBERG LIMITS

ASTM - D 4318 - 84

THE PROJECT FOR IMPROVEMENT OF RURAL BRIDGES IN NORTHERN MOUNTAINOUS PROVINCES

NGOI THAP BRIDGE

Borehole : T1

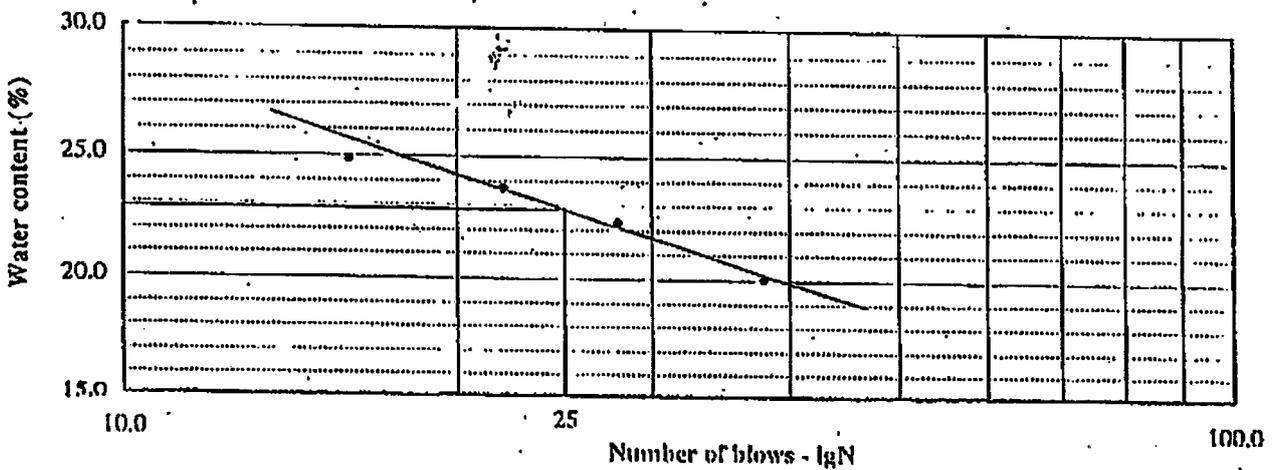
Sample No : ND7

Tets No : 741

Depth (m): 16.0 ÷ 16.2

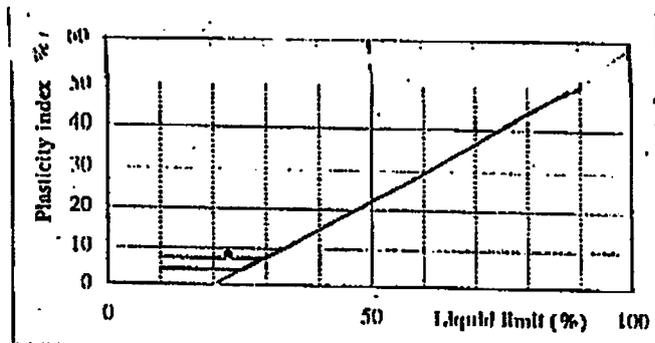
Date : 17/7/2006

Container number	LIQUID LIMIT (W _L)				PLATIC LIMIT (W _P)		
	IN04	IN12	IN13	IN16	HN36	HN04	
Weight of wet (g)	91.41	91.63	90.82	90.22	40.88	39.11	
Weight of dry (g)	66.10	66.61	66.14	66.02	38.67	36.90	
Weight of container (g)	64.68	65.39	65.14	65.03	23.64	21.84	
Water content (%)	24.8	23.7	22.3	20.0	14.7	14.7	
Average water content (%)						14.7	
Number of blows (N)	16	22	28	38			



RESULT:

Liquid limit : W_L = 22.8 %
 Platic limit : W_P = 14.7 %
 Plasticity index : I_p = 8.1 %



Tested by

(Signature)

Nguyen Thi Lien



VH-AS 120
 Tran Van Toan