



SİSTEM ZEMİN MÜH. İNŞ
TİC.LTD.ŞTİ.

GEORGIA NAMAHHVANI
HPP CASCADE PROJECT

Start-Finish Date : 27.02-03.03.2018
Trend/Plunge : Vertical
Coordinate.X : 315338
Coordinate.Y : 4703881
Core Diameter : 89,00 mm.
Elevation.Z (m) : 321,72 m.
D.Rig. Rotary : Hydraulic / Rotary
Boring Depth : 40.00 m.
Casing Depth : 40.00 m.
Groundwater : 15.00 m.

BOREHOLE NO: BH-VSK-10R

(Page 1 / 3)

Undisturbed Sample : UD
Core Sample : K
Standart Penetration Test : SPT
Pressuremeter Test : PMT
Permeability Test : PRB
Packer Test : BST

Boring Depth (m)	Sample Type	Lugeon	Strength (R)	S (Spacing)	UCS (Mpa)	E(Gpa)	N30 Graph 2550	TCR %	SCR %	RQD %	W Weathering	Groundwater level	Z (m)	Profile	Prepared by Dilara BAŞOĞUL Geological Engineer	Approved by Emre YILMAZ Geological Eng. M. Sc.
															DESCRIPTION:	
0															0.00-15.50 m. DILUVIAL, COLLUVIAL and TERRACE deposits River Gravels with Sand and blocky rock fragments Subrounded-rounded	
1	K															
2	K															
3																
4	K															
5	K															
6																
7	K															
8	K															
9																
10	K															
11	K															
12																
13	K															
14	K															
15																

Spacing
S1 Ext.close spacing
S2 Very close spacing
S3 Close spacing
S4 Moderately spacing
S5 Widely spacing
S6 Very Widely spacing
S7 Ext. Widely spacing

Strength Classification
(R0)<1 Mpa Ext. Weak Rock
(R1)1-5 Mpa Very Weak Rock
(R2)5-25 Mpa Weak Rock
(R3)25-50 Mpa Medium Rock
(R4)50-100 Mpa Strong Rock
(R5)100-250 Mpa Very Strong Rock
(R6)>250 Mpa Ext.Strong Rock

Lugeon (Conductivity)
<1 Low
1-5 Moderate
5-25 High
>25 Very High

Rock Quality Designation
0-25 Very Poor
25-50 Poor
50-75 Fair
75-90 Good
90-100 Good

Weathering (W)
W1 Fresh
W2 Slightly Weathered
W3 Mod. Weathered
W4 Highly Weathered
W5 Comp. Weathered



SİSTEM ZEMİN MÜH. İNŞ
TİC.LTD.ŞTİ.

GEORGIA NAMA KHVANI
HPP CASCADE PROJECT

Start-Finish Date : 27.02-03.03.2018
Trend/Plunge : Vertical
Coordinate.X : 315338
Coordinate.Y : 4703881
Core Diameter : 89,00 mm.
Elevation.Z (m) : 321.72 m.
D.Rig. Rotary : Hydraulic / Rotary
Boring Depth : 40.00 m.
Casing Depth : 40.00 m.
Groundwater : 15.00 m.

BOREHOLE NO: BH-VSK-10R

(Page 2 / 3)

Undisturbed Sample : UD
Core Sample : K
Standart Penetration Test : SPT
Pressuremeter Test : PMT
Permeability Test : PRB
Packer Test : BST

Boring Depth (m)	Sample Type	Lugeon	Strength (R)	S (Spacing)	UCS (Mpa)	E(Gpa)	N30 Graph 2550	TCR %	SCR %	RQD %	W Weathering	Groundwater level	Z (m)	Profile	Prepared by Dilara BAŞOĞUL Geological Engineer	Approved by Emre YILMAZ Geological Eng. M. Sc.
DESCRIPTION:																
15																
16	K			S4	27.5	4.6		100	60	60	W2				15.50 - 22.50 m.	
17	K			S4				100	90	85	W2				LAVA BRECCIA and ANDESITE PORPHYRITE	
18															Light grey to dark grey	
19	K			S3				100	60	55	W2				With FeO concretion	
20	K			S4				90	90	80	W2				Slightly weathered (W2)	
21															Fair to Good Rock Quality	
22	K			S4				100	90	70	W2				Closely to Moderately spaced (S3-S4)	
23	K			S2				80	20	-	W4				22.50 - 39.00 m. LAVA BRECCIA and ANDESITE PORPHYRITE	
24															Light grey to dark grey	
25	K			S2				15	-	-	W4				With FeO concretion	
26	K			S2				90	-	-	W4				Highly weathered (W4)	
27															Fair to Good Rock Quality	
28	K			S2				95	30	20	W4				Verry Closely spaced (S2)	
29	K			S2				100	-	-	W4					

Spacing
S1 Ext.close spacing
S2 Very close spacing
S3 Close spacing
S4 Moderately spacing
S5 Widely spacing
S6 Very Widely spacing
S7 Ext. Widely spacing

Strength Classification
(R0)<1 Mpa Ext. Weak Rock
(R1)1-5 Mpa Very Weak Rock
(R2)5-25 Mpa Weak Rock
(R3)25-50 Mpa Medium Rock
(R4)50-100 Mpa Strong Rock
(R5)100-250 Mpa Very Strong Rock
(R6)>250 Mpa Ext.Strong Rock

Lugeon (Conductivity)
<1 Low
1-5 Moderate
5-25 High
>25 Very High

Rock Quality Designation
0-25 Very Poor
25-50 Poor
50-75 Fair
75-90 Good
90-100 Good

Weathering (W)
W1 Fresh
W2 Slightly Weathered
W3 Mod. Weathered
W4 Highly Weathered
W5 Comp. Weathered



SİSTEM ZEMİN MÜH. İNŞ
TİC.LTD.ŞTİ.

GEORGIA NAMA KHVANI
HPP CASCADE PROJECT

Start-Finish Date : 27.02-03.03.2018
Trend/Plunge : Vertical
Coordinate.X : 315338
Coordinate.Y : 4703881
Core Diameter : 89,00 mm.
Elevation.Z (m) : 321.72 m.
D.Rig. Rotary : Hydraulic / Rotary
Boring Depth : 40.00 m.
Casing Depth : 40.00 m.
Groundwater : 15.00 m.

BOREHOLE NO: BH-VSK-10R

(Page 3 / 3)

Undisturbed Sample : UD
Core Sample : K
Standart Penetration Test : SPT
Pressuremeter Test : PMT
Permeability Test : PRB
Packer Test : BST

Boring Depth (m)	Sample Type	Lugeon	Strength (R)	S (Spacing)	UCS (Mpa)	E(Gpa)	N30 Graph 2550	TCR %	SCR %	RQD %	W	Weathering	Groundwater level	Z (m)	Profile	Prepared by Dilara BAŞOĞUL Geological Engineer	Approved by Emre YILMAZ Geological Eng. M. Sc.	DESCRIPTION:
30																		22.50 - 39.00 m.
31	K			S2				100	15	15	W4							LAVA BRECCIA and ANDESITE PORPHYRITE
32	K			S3				100	30	30	W3							Light grey to dark grey
33																		With FeO concretion
34	K			S2				100	10	-	W4							Highly weathered (W4)
35	K			S2				100	-	-	W4							Fair to Good Rock Quality
36																		Verry Closely spaced (S2)
37	K			S2				100	-	-	W4							
38	K			S2				90	30	15	W4							
39																		
40	K			S4				100	90	90	W2							39.00 - 40.00 m. LAVA BRECCIA and ANDESITE PORPHYRITE Light grey to dark grey With FeO concretion Slightly weathered (W2) Excellent Rock Quality Moderately spaced (S4)
41																		
42																		
43																		End of Borehole 40.00 m.
44																		
45																		



Spacing
S1 Ext.close spacing
S2 Very close spacing
S3 Close spacing
S4 Moderately spacing
S5 Widely spacing
S6 Very Widely spacing
S7 Ext. Widely spacing

Strength Classification
(R0)<1 Mpa Ext. Weak Rock
(R1)1-5 Mpa Very Weak Rock
(R2)5-25 Mpa Weak Rock
(R3)25-50 Mpa Medium Rock
(R4)50-100 Mpa Strong Rock
(R5)100-250 Mpa Very Strong Rock
(R6)>250 Mpa Ext.Strong Rock



Lugeon (Conductivity)
<1 Low
1-5 Moderate
5-25 High
>25 Very High

Rock Quality Designation
0-25 Very Poor
25-50 Poor
50-75 Fair
75-90 Good
90-100 Good



Weathering (W)
W1 Fresh
W2 Slightly Weathered
W3 Mod. Weathered
W4 Highly Weathered
W5 Comp. Weathered

PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	1-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	0.00-9.00
			
			1 m.





PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	2-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	9.00-16.50
			
			1 m.





PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	3-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	16.50-20.50
			
			1 m.





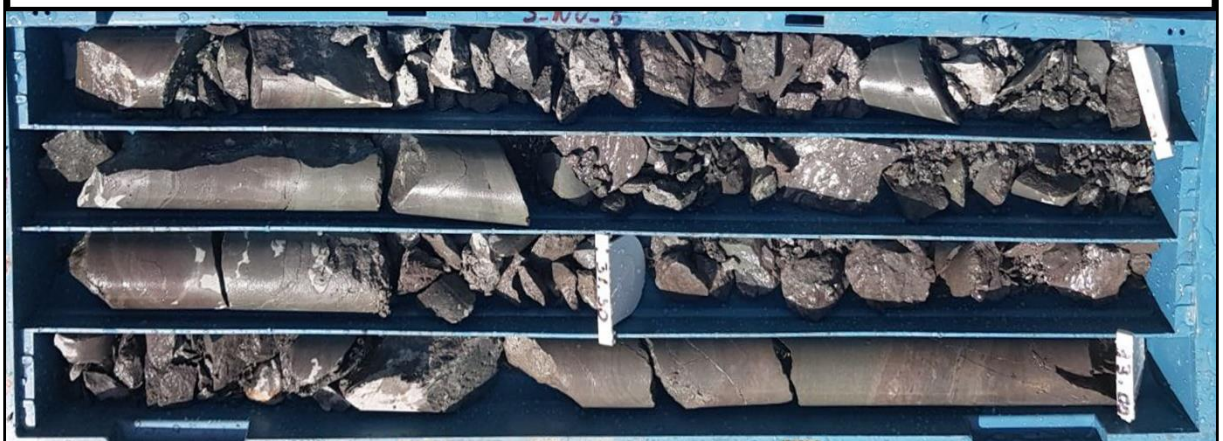
PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	4-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	20.50-25.00
			
			1 m.





PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	5-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	25.00-29.00
			
			1 m.


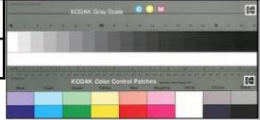


PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	6-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	29.00-33.00
			
			1 m.



PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	7-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	33.00-37.00
			
0			1 m.



PROJECT NAME	GEORGIA NAMAKHVANI HPP CASCADE PROJECT		
CONTRACTOR	ENKA	SUBCONTRACTOR	
	ENKA İNŞAAT SANAYİ A.Ş.		SİSTEM ZEMİN MÜH. İNŞ. TIC.LTD.ŞTİ.
BOREHOLE NO	VSK-10r	COREBOX NO	8-8
DATE DRILLED	27.02-03.03.2018	DEPTH (M)	37.00-40.00
			
0			1 m.

