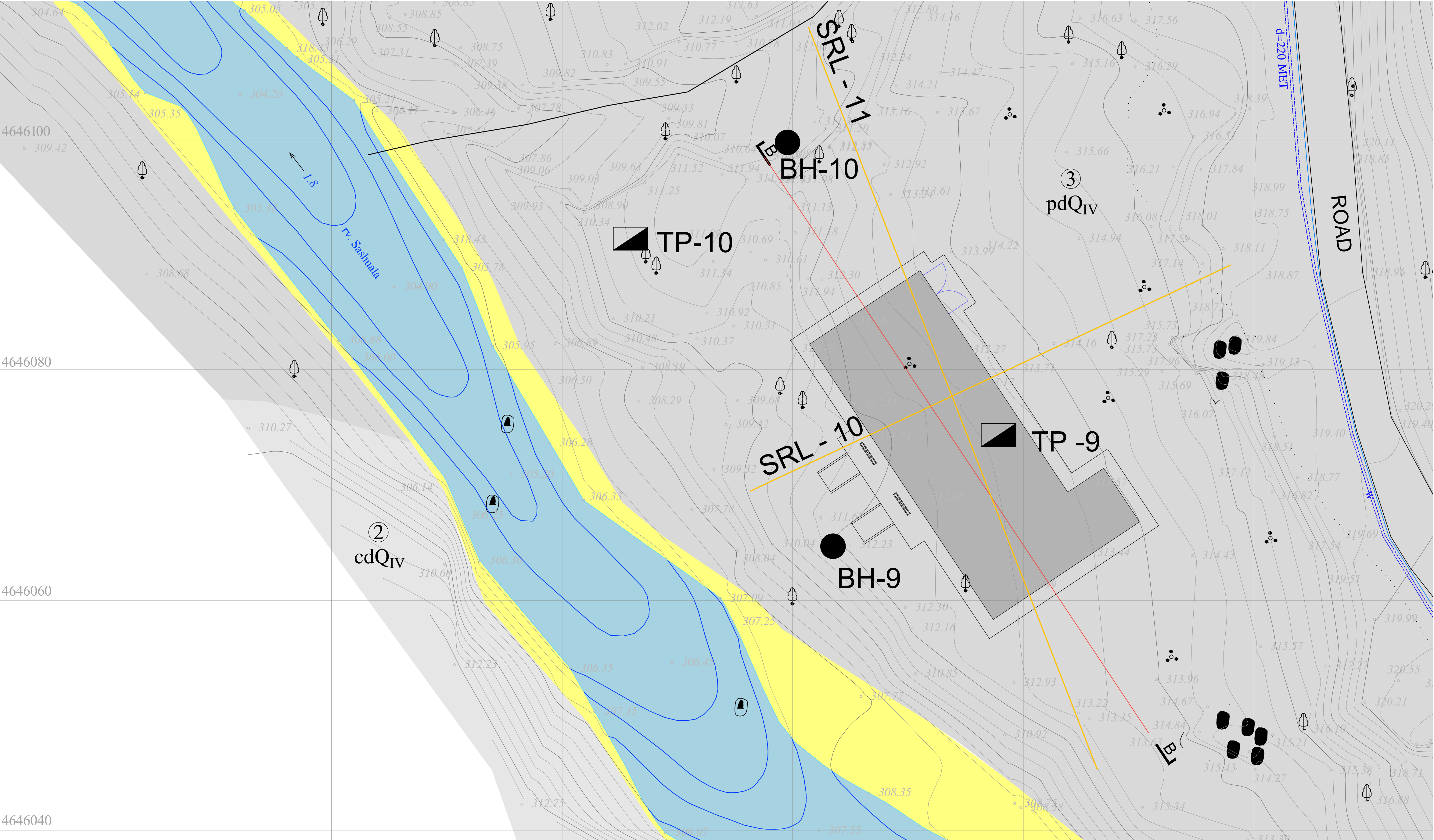
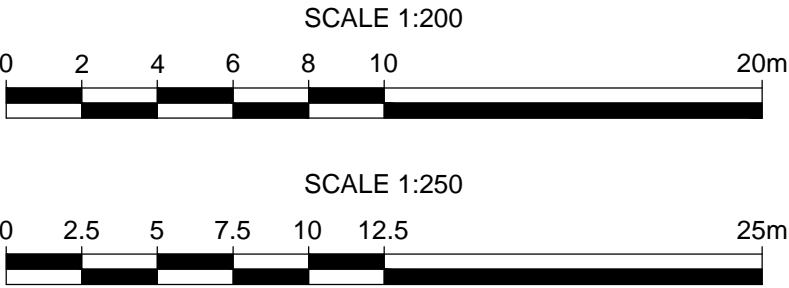


GEOLOGICAL MAP
1:200



- LEGEND:
- cdQiv Sandy, silty-clayey GRAVEL and COBBLES with some boulders. Gravel and cobbles are angular and sub-angular.
 - dpQiv Sandy, silty-clayey GRAVEL and COBBLES with some boulders. Gravel and cobbles are angular and sub-angular.
 - apQiv Sandy, silty-clayey COBBLES with gravel and boulders (at some places with large (1-5m) boulders). Cobbles and gravel are rounded and sub-rounded.
 - E₂kn Massive lavas of andesite-basalt composition, lava breccias, tuff breccias and tuffs (Middle Eocene)
 - Groundwater level
 - Presumable border between lithological varieties
 - Completed borehole, its number and depth
 - Suspended boreholes shall be performed prior start of construction works
 - BH Borehole (BH)
 - TP Trial pit (TP)
 - Seismic refraction line (SRL)



- Remark(s):
- All dimensions are in meters.
 - The maps and coordinates are based on UTM-WGS 84 grid system.
 - Section B-B has been updated according to BH data and confirmed by geophysical investigation.

Reference(s):

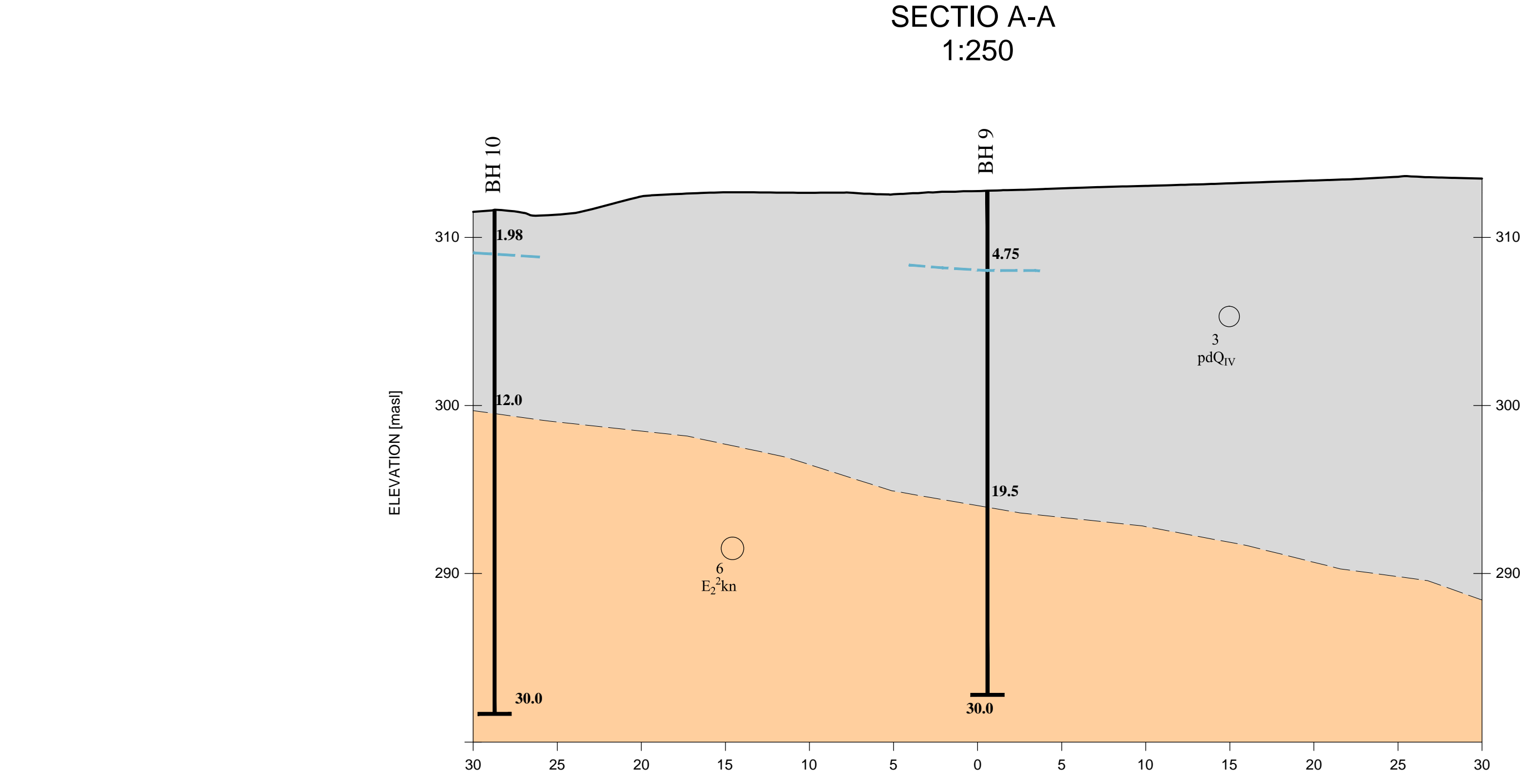
All geological information comes from geological-geotechnical investigation performed in 2017 by Geoengineering.

d				
c				
b				
a	Shapes modified	31.01.18	SLGI	TP
-	Initial version	31.10.17	SLGI	TP
Index	Revisions	Date	Draftsman	Verified

ENERGY DEVELOPMENT GEORGIA LTD

SASHUALA HPP 2	PHASE 2
GEOLGY	SCALE 1:200/250
HEADWORKS SITE	FORMAT A1
GEOLOGICAL SECTION A-A	DRAFTSMAN SLGI
	DATE 31.10.2017
	VERIFIED TP
	APPROVED REPA

DRAWING N° INDEX
5417.0903 a



PARAMETER VALUES OF PROPERTIES AND OTHER DESIGN DATA OF SOILS & ROCKS OBSERVED AT SASHUALA HPP LOCATION AREA									
Stratum n°	Description of Strata	Density, ρ t/m ³	Internal friction angle, ϕ°	Cohesion, c kPa	Deformation modulus, E _d MPa	Uniaxial compressive strength, σ_u MPa	Moisture content, w %	Shrinkage, S _r %	Soil term group as per (SNB 15:5-82)
1	Moist, brown, stiff, slightly sandy, gravelly (at some places slightly gravelly), silty CLAY. Gravel is angular and sub-angular (dehval-dQ _{iv})	1.88	25.0	13.1	13.37	250	-	1:1.5	p. 33-4 Group II (Vol. 1)
2	Sandy, silty-clayey GRAVEL and COBBLES with some boulders. Gravel and cobbles are angular and sub-angular (colhval-dQ _{iv})	2.0	33.4	26.0	51.82	450	-	1:1	p. 6-9 Group IV (Vol. 1)
3	Sandy, silty-clayey (at some places very sandy, or very silty-clayey) GRAVEL with cobbles and boulders. Gravel and cobbles are angular and sub-angular (dehval-dQ _{iv})	2.0	32.3	28.4	48.24	450	-	1:1	p. 6-9 Group IV (Vol. 1)
4	Sandy, silty-clayey COBBLES with gravel and boulders. Cobbles and gravel are sub-angular and sub-rounded (prohval-pQ _{iv})	2.0	32.0	28.0	48.0	450	-	1:1	p. 6-4 Group V (Vol. 1)
5	Sandy, slightly silty-clayey, COBBLES with gravel and boulders (at some places with large (1-5m) boulders. Cobbles and gravel are rounded and sub-rounded (colhval-prohval-pQ _{iv})	2.2	40.0	10.0	60.0	600	-	1:1	p. 6-4 Group V (Vol. 1)
6	Volcanic-andesite rocks, massive lavas, lava breccias, tuff breccias and tuffs of andesite-basalt content (Mid-Eocene-E ₂ /ka)	2.62	-	-	3000	-	44.0	10.2	p. 20-5 Group VIII (Vol. 3)

Note: Inclination of up to 12 m high man-made slope above water-table, as well as the inclination of up to 12 m and higher slope below water-table for saturated soils should be calculated individually.