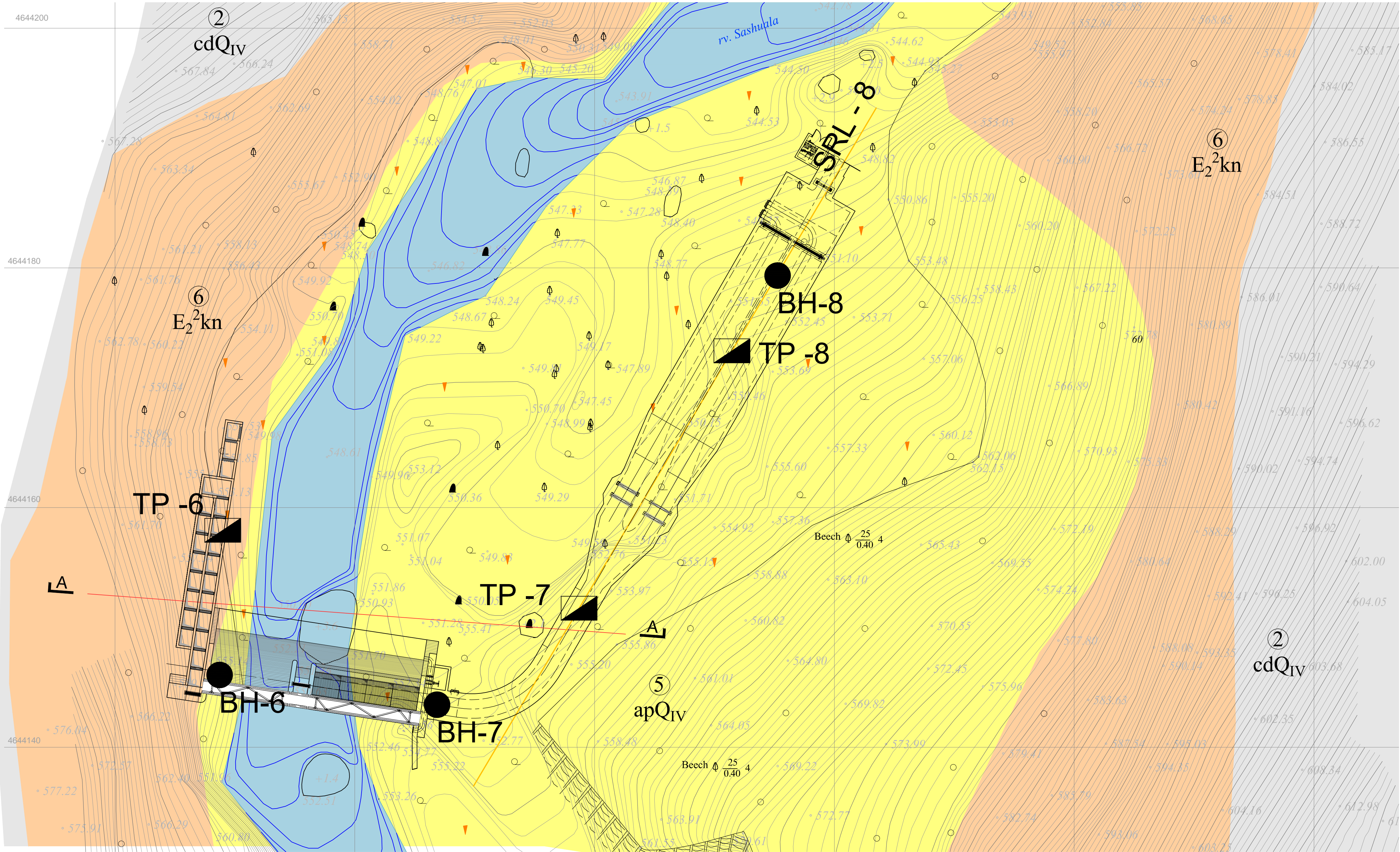


GEOLOGICAL MAP  
1:200

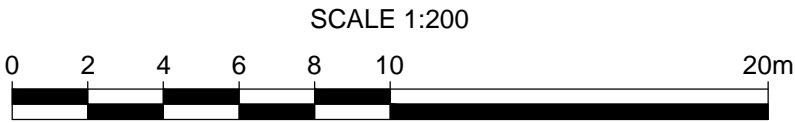


LEGEND:

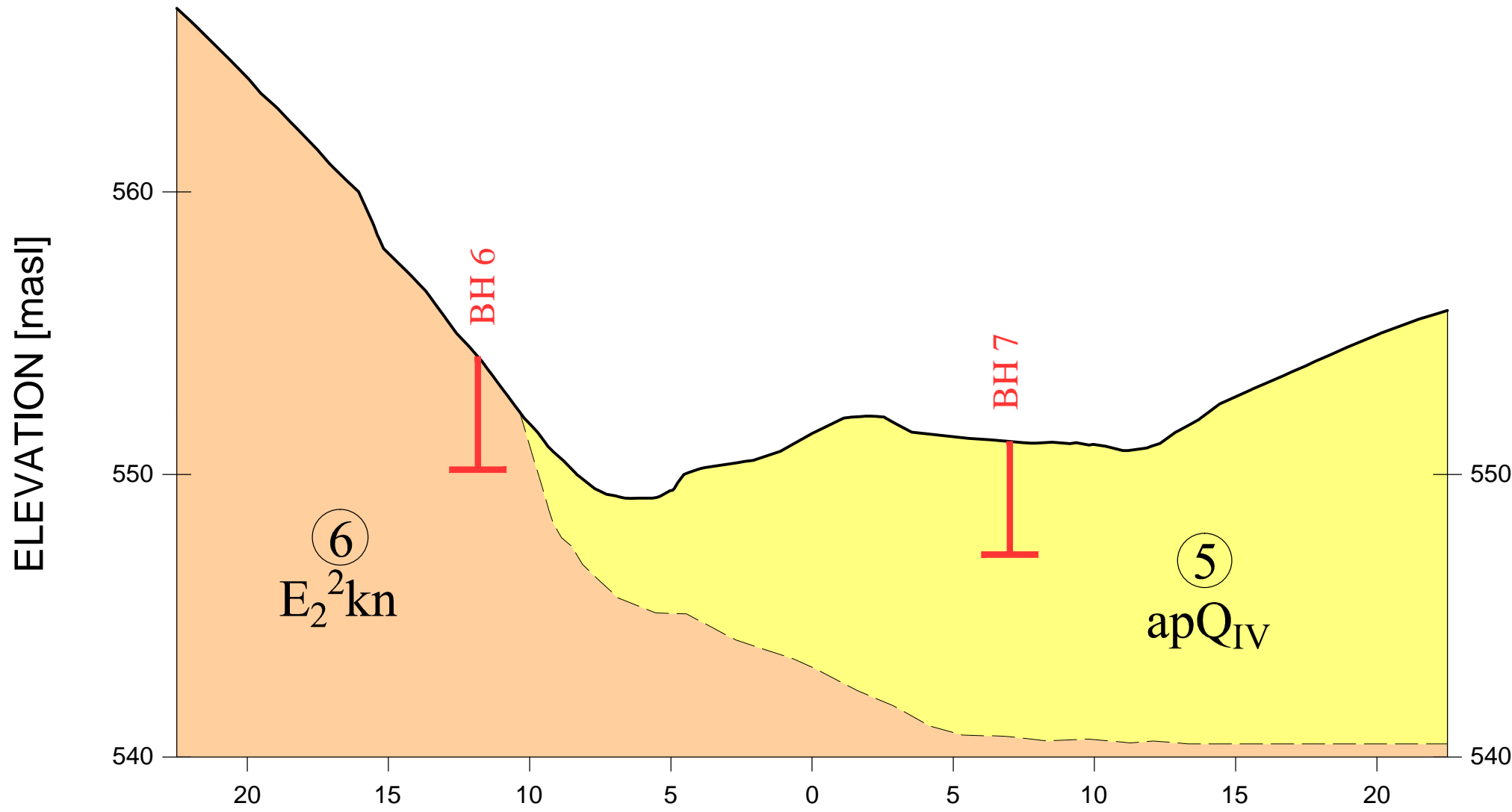
- 2 cdQIV Sandy, silty-clayey GRAVEL and COBBLES with some boulders. Gravel and cobbles are angular and sub-angular.
- 3 dpQIV Sandy, silty-clayey GRAVEL and COBBLES with some boulders. Gravel and cobbles are angular and sub-angular.
- 4 apQIV Sandy, silty-clayey COBBLES with gravel and boulders (at some places with large (1-5m) boulders). Cobbles and gravel are rounded and sub-rounded.
- 5 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
- Suspended Trial pit (TP)
- Suspended seismic refraction line (SRL)

LEGEND:

- 1 Intake
- 2 Sandtrap
- 3 Penstock
- 4 Road
- 5 Powerhouse



SECTION A-A  
1:200



PARAMETER VALUES OF PROPERTIES AND OTHER DESIGN DATA OF SOILS & ROCKS OBSERVED  
AT SASHUALA HPP LOCATION AREA

Stratum n	Description of Stratum	Density, $\rho$ , t/m <sup>3</sup>	Internal friction angle, $\phi$	Cohesion, c, kPa	Deformation modulus, E, MPa	Uniaxial compressive strength, $\sigma_{1c}$ , MPa	Maximum allowable stress above water-table, $\sigma_{1a}$ , MPa	Soil term group as per excavation difficulty (SMB 13-582)
1	Moist, brown, stiff, slightly sandy, gravelly (at some places slightly gravelly), silty CLAY. Gravel is angular and sub-angular (deluvial-dQ <sub>2</sub> )	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 (coluvial-deluvial-dQ <sub>2</sub> )	2.0	33.4	26.0	51.82	450	-	1:1 p. 62 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 (deluvial-proluvial-dQ <sub>2</sub> )	2.0	32.3	28.4	48.24	450	-	1:1 p. 62 Group IV (Vol.1)
4	Sandy, silty-clayey COBBLES with gravel and boulders. Cobbles and gravel are sub-angular and sub-rounded (proluvial-pQ <sub>2</sub> )	2.0	32.0	28.0	48.0	450	-	1:1 p. 64 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 (alluvial-proluvial-apQ <sub>2</sub> )	2.2	40.0	10.0	60.0	600	-	1:1 p. 64 Group V (Vol.1)
6	Volcanic-andesite-basalt rocks, massive lavas, lava breccias, tuff breccias and tuffs of andesite-basalt content (Mid-Eocene-E <sub>2</sub> /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.

- Remark(s):
- All dimensions are in meters.
  - The maps and coordinates are based on UTM-WGS 84 grid system.

Reference(s):

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

d				
c				
b				
a	Headwork shapes modified	31.01.18	SLGI	TP REPA
-	Initial version	31.10.17	SLGI	TP REPA
Index	Revisions	Date	Draftsman	Verified Approved

ENERGY DEVELOPMENT GEORGIA LTD

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

DRAWING N° INDEX  
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