AZERBAZALT SCIENTIFIC PRODUCTION UNION (EIB) LLC

TECHNICAL REPORT AND MINERAL RESOURCE ESTIMATE FOR THE CHAYKEND BASALT PROJECT GOYGOL DISTRICT, REPUBLIC OF AZERBAIJAN

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1.0 SUMMARY

1.1 Introduction

Micon International Co Limited (Micon) was contracted by Azerbazalt Scientific Production Union (EIB) LLC ('Azerbazalt' or the 'Client') to prepare a mineral resource estimate for the Chaykend Basalt project and the proposed project operations. The objective of this report is to compile available mapping, trenching and drilling information and prepare the first mineral resource estimate of the basalt lithological unit, suitable for production of basalt fibre within the Chaykend project area, following the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ('the JORC Code', 2012). It is emphasised that the results of this study are principally derived from the examination and interpretation of exploration and sampling data, provided by Azerbazalt. No independent confirmatory sampling has been performed by Micon as a part of the current study to confirm or otherwise qualify the conclusions presented in this report.

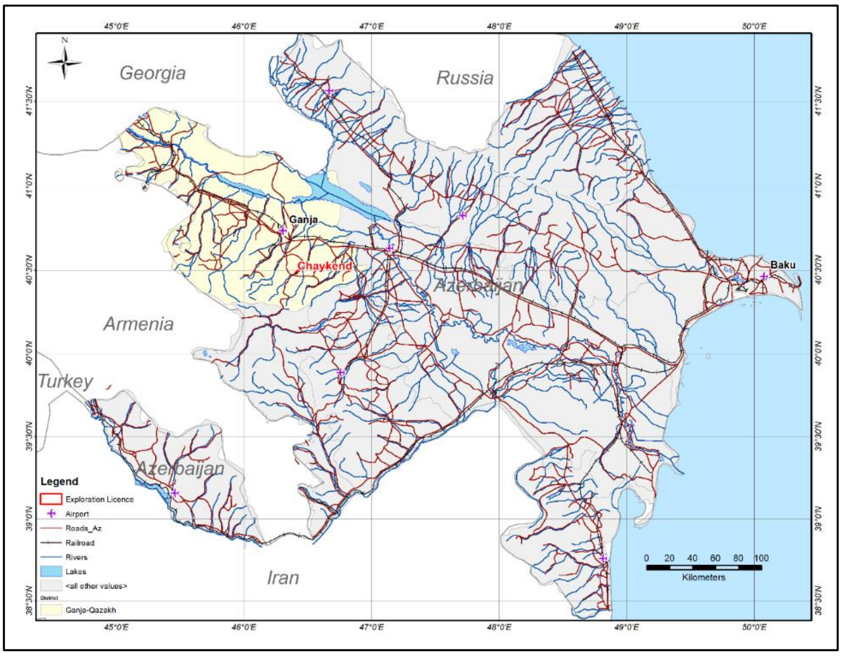
Micon is an independent firm of geologists, mining engineers, metallurgists, and environmental consultants, all of whom have extensive experience in the mining industry. The firm operates from integrated offices in Norwich, United Kingdom and Toronto and Vancouver, Canada.

The principal consultants responsible for the review of the data and the preparation of this Report are listed in Section 2.2.1.

1.2 Location & Property Description

The Chaykend Basalt Project is located in Goygol district, Republic of Azerbaijan (Figure 1.1).

Figure 1.1
Location of the Chaykend Basalt Project



The project site is in the north-west part of the country, close to administrative centres as Ganja and Goygol. The geographic location of the Chaykend Basalt project is approximately at 40°29'26"N latitude and 46°24’36"E longitude. The corresponding UTM coordinates are 4483170 m N, 619581 m E, NAD UTM zone 38 N, WGS84 Datum.

The project is approximately 2.5 km north-east of Chaykend village on the left bank of the Kurakchay river. The coordinates of the corner points of the Chaykend Basalt project are listed in Table 1.1.

Table 1.1
Coordinates of the Corner Points for the Chaykent Project Area

Pt	Corner	Latitude (°)	Longitude (°)	Latitude (dec °)	Longitude (dec °)	Northing (m)	Easting (m)
1	SW	40° 28' 40"	46° 24' 24"	40.4778	46.4067	4481738	619234
2	NW	40° 29' 06"	46° 23' 52"	40.4850	46.3978	4482528	618467
3	SE	40° 29' 50"	46° 25' 50"	40.4972	46.4306	44839293	621224
4	NE	40° 30' 09"	46° 25' 18"	40.5025	46.4217	4484503	620461

1.3 Licences & Permits

Micon is not qualified to and has not undertaken any legal due diligence of the land tenure associated with the Chaykend Basalt project and does not present any legal opinion regarding the corresponding ownership or title. Micon has reviewed the documentation relating to the title of assets and licence for exploration and mining as provided by Azerbazalt.

Azerbazalt and the Ministry of Ecology and Natural Resources (MENR) of Azerbaijan has signed an option agreement, titled “*Contract Agreement No 001/2020*” on 08 January, 2020. According to the contract Azerbazalt will finance and Azerbaijan’s National Geological Exploration Survey (NGES), part of the Ministry of Ecology and Natural Resources (MENR) to complete an exploration program that will consists of:

- Reconnaissance and geological mapping and sampling in scale1:10 000.
- Excavation of trenches and exploration pits for 300 m^3.
- Diamond drilling in the areas, suitable for mining raw materials to produce basalt fibre, so that mineral resources for the basalt can be classified in the C_2 resource category, according to the Azerbaijani Resource Classification System.
- Prepare a geological report and fill and files the documents, required by the law to maintain the Chaykend Basalt property in good standing.
- Both parties Azerbazalt and NGES has fulfilled their obligations, listed in the contract and the exploration team, called Chaykend Geological Group, led by the Chief Geologist Shiraslan Yusifov is in a process of filing the geological report for the 2020-2021 Exploration Program.

The fees that Azerbazalt has paid until now and the fees that are payable to keep the licence in good standing is approximately USD123,000.

1.4 Mining Regulations in Azerbaijan

Micon's QPs are not qualified to interpret the mining laws and regulations. The text in this sub-section is summarized from Global Mining Guide 2015 (Baker & McKenzie, 2015) and is intended for information purposes only.

Azerbaijan has a centralised system, where all licenses for all kinds of commodities are processed after a written application to the Ministry of Ecology and Mineral Resources. The state has the ownership (title) to minerals in the ground. The rights that can be granted through licensing or contracts to private companies are generally limited to the right to explore and develop minerals.

Under the Subsoil Law, a right to engage in subsoil exploration activities can be granted to Azerbaijani citizens and entities, as well as to foreign individuals and legal entities, pursuant to a special permit or license. The licensing process also normally involves the award of geological leases.

A license for exploration can be issued for a term of up to five years and can be extended subject to the subsoil user's compliance with the terms of the license. An existing license holder who has complied with the terms of the license has a priority right to obtain an extension.

Upon the grant of a special permit (license), the MENR grants the status of a geological lease to subsoil plots given for the purpose of exploration. Several special permits for the same subsoil area can be granted to various subsoil users and the legal relations between them are set out in the special permit.

Under the Subsoil Law, duties, royalties, and taxes payable by private parties conducting exploration activities consist of the following specific payments:

- state duty for the award of license.
- payments for the use (exploration) of subsoil (do not apply if both exploration and development are licensed); and
- payment for the use of areas of the seabed and water.

Because licences are often awarded through contracts, some of the payments may not apply.

MENR prepares a list of commodities and exploration plots to be licensed every year. The steps to acquire an exploration right include a participation in a public auction conducted by the MENR and the Mining Agency. The Subsoil User of an exploration licence has the obligations to prepare annual reports as of 1 January of the preceding year, to be filed by 1 February. The reports consist of five geological survey statistical report forms, description of reserves that were "written off", protocols on the increase of reserves and their transfer from one category to another, and explanatory notes. The reports are prepared for each type of mineral by deposit (or portions of a field) and are classified according to the stage of the exploration and mine development for this subsoil plot - only geological exploration or both geological exploration and extraction have been conducted.

Exploration and development rights may be terminated in the following cases:

- expiration of special permit or license.
- waiver by subsoil user of his rights — in this case, the subsoil user shall inform the state authority issuing the license (special permit) six months in advance; and

- in case of occurrence of circumstances that lead to depriving the rights under special permit or license.

The right of exploration and development may also be limited or terminated early by the state authority issuing the special permit (license) in the following cases:

- occurrence of threat to life and health of people living and working in the mining areas;
- non-compliance with conditions determined in the special permit or license;
- systematic violation of the rules of subsoil use;
- the occurrence of force majeure (natural disasters, acts of war and others);
- where the subsoil user has not proceeded to mining activities in specified volume, within the time frame determined in the special permit or license;
- liquidation of entity that was granted the right of subsoil use;
- by the initiative of the holder of a special permit or license.
- In case of elimination of circumstances that provoked the early termination or limitation, the right of subsoil use may be fully re-established.
- Subject to the fulfilment of the terms of a license, the parties may agree to extend the time for the use of subsoil.

1.5 Accessibility, Climate, Local Resources & Infrastructure

The Chaykend Basalt project is located 380 km from Baku (4 h drive) via international road E60 and 20-25 km (0.5 h) south-east of Ganja and the town of Goygol via regional highway R19. The project site is 2.5 km north-east of Chaykend village on the left bank of the Kurakchay River. Asphalt roads connect the villages with Goygol and each other. Access roads and trails connect the project site to the Chaykend village. Goygol region and Baku are connected by highway and railway. The nearest railway station and airport are located 45 km from Ganja. The district centre and settlements have infrastructure and services for mining or industrial operations.

The Chaikend area has dry continental climate with hot summer and relatively long cold winter. The winter period lasts from October to April. The average annual air temperature varies between +4°C and 14°C. The average annual precipitations are 400-600 mm. The climate is favourable for exploration and mining operations during the whole year.

Currently Goygol (previously Khanlar) region is dominated by agriculture, but the mining industry was essential for the economic development of the region. The Chiragdara pyrite deposit, Hajikand Mikhailovka (Banovshali) and Myasnikov agate deposits were mined in the past. Skilled professionals and trades people can be hired from Ganja, Goygol and the villages around the project site.

Chaykend Basalt is an early-stage exploration project and there is no mining infrastructure on the project site, but the national electrical grid passes through the project site. Several access roads were created during the exploration in 2019 and 2020 and they can be upgraded and expanded.

1.6 GEOLOGY & MINERALISATION

1.6.1 Regional Geology

Azerbaijan is in the Alpine Himalayan collisional zone and is characterized by its complex geological settings. The structure and geological history of the Caucasus is largely determined by its position between the still-converging Eurasian and Africa-Arabian lithospheric plates, within a wide continental collision zone (Alizadeh, A. et al., 2017).

The primary geological units, mapped in the area include Middle and Upper Jurassic, partly Upper Cretaceous rocks, and Quaternary sediments. Yusifov and Memmedov (2021) provided a short description of the geological settings based on their own observations and knowledge from scientific literature for the area.

1.6.2 Stratigraphy

The Middle Jurassic sediments are widespread in the Lok-Karabakh structural-formation zone of the Lesser Caucasus. The Upper Bajocian and Bathonian rocks are observed in the area of the 2019-2021 exploration programs.

Upper Bajocian rocks are the oldest in the area. They consist of rhyolites and their tuffs with some subvolcanic intrusions. Bathonian lithological units are relatively uncommon, and they sharply differ in colour and chemical composition from the Upper Bajocian rocks. They consist mainly of andesite, andesite-basalt tuffs, tuff breccia, and rarely andesite lava flows. They cover transgressively the Upper Bajocian rhyolites and start with basal conglomerates.

Upper Jurassic rocks are represented by Callovian and Kimmeridgian strata. Callovian stage consist mainly of tuffs and siltstones with fossil flora in the Kapaz syncline. Kimmeridgian stage is identified mainly in the upper part of the mountains. According to their petrographic composition, they are classified as intermediate volcanics - andesite dacite, rarely dacites and their various not very well consolidated tuffs and lava flows. The rocks overlay with unconformity Callovian and Bathonian rocks.

Upper Cretaceous sediments consist of Coniacian and Santonian rocks in the exploration area. Coniacian rocks are mainly crystalline and pyroclastic rocks, including dacite tuffs, and sediments - gravelite and calcareous sandstones.

In the Chaykend project area, the rocks belonging to the Upper Cretaceous system are predominantly composed of rocks of the Santonian stage. According to the lithological composition, these rocks are andesite, andesite-basalt and dolerites and their tuffs. These rocks often are interbedded with limestone layers and subvolcanic units containing diabase.

Eluvial, diluvial and alluvial sediments are widespread in the exploration area. Eluvial and diluvial sediments are widespread, mainly in mountain slopes, with a thickness range from 1-3 m to 10 m. Alluvial sediments are widespread in the valleys of the Kurakchay and Ganjachay rivers, and in their floodplains and terraces. These sediments are mainly composed of graded sand, clay and gravel, pebbles and boulders from the surrounding rock units.

1.6.3 Tectonics

The Chaykend Basalt project is located between the north-western part of the Goygol uplift and the Agjakend depression (known as Agjakend synclinorium). This depression is located in the area between the Goshgarchay and Injachay rivers in the north-eastern part of the Dashkasan synclinorium and is composed of Upper Cretaceous sediments.

The Goygol uplift is between the Buzlugchay and Kurekchay rivers and is surrounded by Kapaz syncline in the south and Meydanyal syncline in the north. Its core consists of Upper Bajocian felsic volcanics.

In the north-west of the Goygol uplift, in the Chiragdara ore district multiple tectonic deformations (faults, shears and fractures) are identified. Intense metasomatic alterations contributed to the formation of pyrite and other mineral deposits.

Kapaz syncline is in the east part of Dashkasan synclinorium, located in the southern part of Goygol uplift. It is mainly represented by Callovian-Oxfordian clastic and carbonate sediments.

Meydanyal syncline is in the north-western part of the Goygol uplift, and its core is composed of Bathonian - Kimmeridgian volcanic and sedimentary rocks.

The Pantdag horst is between Agjakend and Meydanyal syncline. This structure is composed of Jurassic effusive rocks, covering the hills that are the watershed of the Ganjachay and Kurekchay rivers.

1.6.4 Magmatism

1.6.4.1 Volcanic Rocks

The products of the Upper Bajocian volcanism are very widespread in the Chaykend Basalt project area. Upper Bajocian volcanism has 3 phases (Yusifov and Memmedev, 2021). In the first and second phases, central volcanoes were active, and because of the long activity of these volcanoes, large amount of felsic (acidic) volcanic rocks were formed.

In the third phase, due to the drop in pressure in the volcanic centres, the magma cooled near the surface and formed subvolcanic intrusions. Because of the strong influence of this magma on the surrounding host rocks, metasomatic wallrock alterations and pyrite ore were formed. After the Upper Bajocian volcanism, there was a hiatus in the rock formation in this area.

After some time, the Bathonian volcanism started in the Chiragdara area. Intermediate volcanoclastic rocks start with basal conglomerate with nonconformity contact with underlying older rocks. The products of Bathonian volcanism consist of pyroclastic materials, lava flows and volcanogenic-sedimentary rocks, and in many places these rocks alternate. Hydrothermal solutions released from intrusive rocks that gradually cooled in depth reacted with the host rocks, overprinted them, and created metasomatic rocks.

1.6.4.2 Intrusive Rocks

The Dashkasan-Zurnabad intrusion covers the upper valleys of the Ganjachay and Goshgarchay rivers. It is exposed on the surface in the areas between Zurnabad in the north-east and Dashkasan settlements in the south-west and extends in a latitudinal direction.

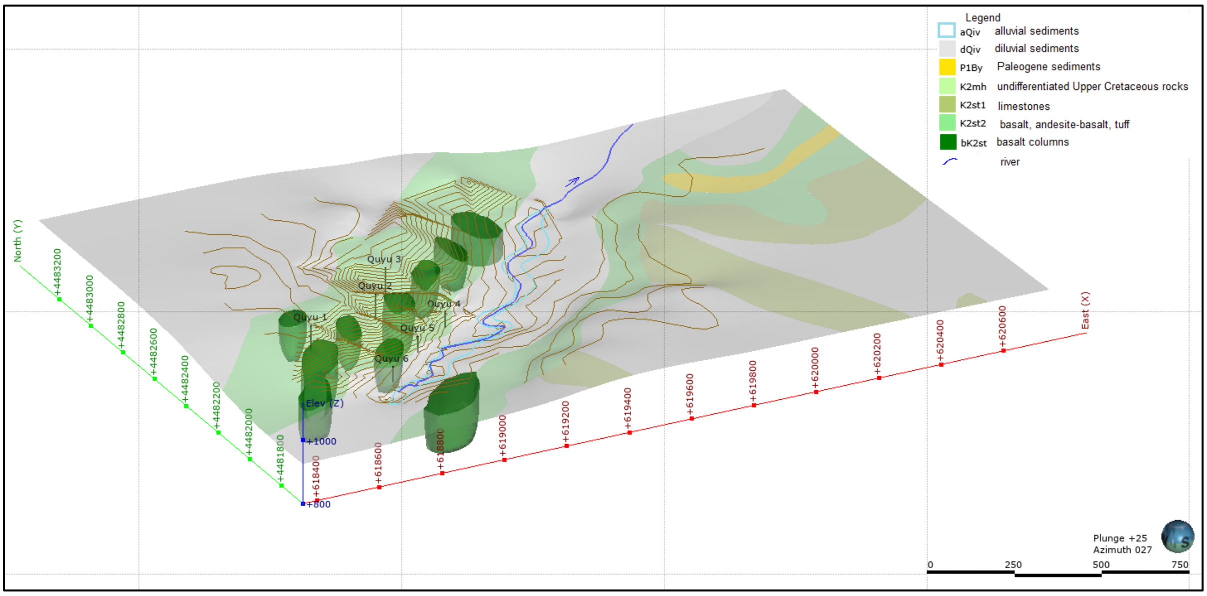
The Zurnabad intrusion is an eastern extension of the Dashkasan intrusion and is located mainly on the left bank of the Ganjachay river. The intrusion is part of the sedimentary-volcanic complex of the Jurassic and Cretaceous rocks and is observed as an apophysis. The Zurnabad intrusive is described as greyish green to dark grey gabbro diorite and quartz syenite diorite. The different phases of the intrusive complex gradually transition from one rock type to another. Zurnabad intrusion covers an area of 10 sq. km and the contact with the surrounding stratigraphic units is tectonically active. Rhyolite (known as liparite), rhyoloite-dacite, andesite and their tuffs are the host rocks of the intrusion. Along the contacts are developed metamorphic haloes, shear zones and hydrothermal alterations, which are mainly silicification, limonitization, kaolinization. Az a result of metamorphism, hydrothermal alterations are formed secondary quartzites, hornfels and metasomatic rocks.

1.7 PROPERTY GEOLOGY

1.7.1 Lithology

The bedrock of the Chaykend project is mainly composed of Upper Cretaceous mafic volcanics and sediments (Santonian stage) and Paleogene and Quaternary sediments (Figure 1.2). According to their lithological composition, the mafic and intermediate volcanics are represented by basalt, andesite-basalt, diabase (called dolerites in some countries), andesite and their tuffs. The volcanogenic - sedimentary complex includes sub-volcanic intrusions, identified as diabase dykes and basalt pipes or dykes, seen in outcrops as basalt column.

Figure 1.2
3D Geological Model with the Basalt Dykes and 2020-2022 Drill Holes



In the project area, the mafic volcanics are mainly presented as basalt columns with different height (Figure 1.3), porphyritic basalt, plagioclase basalt and andesite-basalt lava flows and tuffs. More information is necessary for the bedrock below the Quaternary alluvium and diluvium sediments, in the areas outside of the drilling.

Basalt has been intersected in all drill holes and in trenches and it has dark green to black colour with dark grey, prismatic plagioclase with a glass lustre. Mafic volcanic flows and pyroclastic with almost same chemical composition are found in the areas between the columns and are intersected in all 6 drill holes.

Figure 1.3
Basalt Columns, Chaykend Project

Picture taken by Micon during the site visit (dated: 19 Aug 2021)

In the far north-eastern part of the project are identified several diabase dykes. Small diabase intersections are identified in the drill holes Quyu 1, Quyu 3 and Quyu 5 and in trench X-7.

On the weathered surface mafic volcanics are fractured, with a weak supergene alteration and ochre to dark brown colour. The weathering profile in the mountain slopes is not deep. The project geologists suggest that the top 2 m of the mafic volcanics should be considered as an overburden and should be used for roads.

The foothills of the mountains are covered with aeolian and diluvial sediment. The river valley and terraces are filled with boulders, gravel, sand, and clay.

1.7.2 Geological Structures

The mafic volcanics - basalt, andesite-basalt and their tuffs have nonconformity contact with white limestones. The contacts are mapped in trenches and in natural outcrops.

Up to 20 ha of the studied area consists of basalt, andesite-basalt and mafic tuffs is. The 2020-2021 drilling program intersected fault zones in 2 drill holes. The fault zone intersected in Quyu 3 is from

21.0 m to 27.0 m (6 m core length) wide and the fault zone in Quyu 4 is from 36.0 m to 39.0 m (3 m). Because the holes are vertical is impossible to estimate the strike, dip and true width of the fault zone or zones, but the geological mapping didn't identify any significant displacement and lithological change on the surface, that can materially affect the quality of the raw material within the resource area.

1.7.3 Mineralogical Results

In 2020 and 2021, the main minerals have been identified with XRD analyses in drill core. The analyses were completed by an independent commercial and scientific laboratory "Geoservices" EIB LLC (Geoservices) in Baku. The basalt, andesite-basalt and tuff consist of undifferentiated volcanic matrix and mafic minerals such as pyroxene, feldspar, some products of the weathering and chemical alteration (hematite, illite, kaolinite), montmorillonite and some additional inclusions such as hematite and other hydro-silicates. The main minerals are listed by abundance in Table 1.2.

Table 1.2
List of the Minerals Identified in the Chaykend Basalt Project

Mineral	Chemical Composition	Num	Min	Mean	Max
Feldspar (albite-anortite)	$Na(AlSi_3O_8)$ - $Ca(Al_2Si_2O_8)$	127	25.00	50.99	68.00
Pyroxene (Augite)	$(Ca,Mg,Fe)(Mg,Fe)Si_2O_6$	127	3.00	13.53	21.00
Volcanic ash	NA	127	3.00	7.3	47.00
Titanomagnetite	$Fe^{2+}(Fe^{3+,}Ti)_2O_4$	127	7.00	13.99	20.00
Hematite	Fe_2O_3	127	<DL	0.24	6.00
Illite (clay)	$K_{0.65}Al_2[Al_{0.65}Si_{3.35}O_{10}](OH)2$	127	<DL	1.33	8.00
Montmorilonite	(Na,Ca)0.33(Al,Mg)2(Si4O10)(OH)2.nH2O	127	<DL	9.08	33.00
Kaolinite	$Al_2(Si_2O_5)(OH)_4$	127	<DL	0.95	10.00
Calcite	$CaCO_3$	127	<DL	0.51	26.00

Source: The mineral formulae are taken from www.mindat.org, the percentage of the minerals is from the XRD analyses, provided by Geoservices Laboratory in Baku.

1.8 Deposit Type

The Chaykend's commodity of interest is volcanic rock with low silica content and is considered as an industrial mineral. Unlike basalt rocks, used as aggregates, the suitability of the raw material for basalt fibres is determined by the content of the following oxides:

- SiO_2 (45%-55%)
- Al_2O_3 (15%-20%)
- Fe_2O + FeO (up to 20%)
- MgO
- CaO
- Na_2O+K_2O

In addition to the main elements the presence of deleterious elements is very important. The main deleterious mineral compounds are free quartz, SO_3 and MnO.

1.8.1 Basalt as a Raw Material for Basalt Fibre

Basalt is a magmatic rock formed mainly from aluminosilicate alloy from the depths, hardened in the upper layers of the earth's crust or on the earth's surface. Basalt makes up more than 30% of the earth's surface. The main components of basalt are SiO_2, Fe_2O_3 + FeO, Al_2O_3, CaO, MgO, TiO_2 and Na_2O+K_2O.

The suitability for the production of various types of basalt fibres and the mineral processing of rocks have been studied by the State Enterprise and Scientific-Technological Centre "Material of Basalt Fibres" (STC and ETM Bavoma, Kiev, Ukraine). The centre has conducted research in more than 500 locations in different regions of the world. After a review of the results from geochemical analyses from Chaykend project, the experts from STC confirmed that the basalt from Chaykend meets the specifications for raw materials, that can be used for basalt fibres production. Table 1.3 and Table 1.4 show the chemical and mineral composition of rocks suitable to produce various types of fibres.

Table 1.3
Chemical Composition of Rocks Suitable to Produce Basalt Fibres

Oxide	Rough		Continuous (rowinq)		Spatula (flakes) Delicate		Spatula Super fine Rough	
SiO_2	48	53	47.5	55	43	51	46	52
Al_2O_3	13	18	14	20	10	17	13	18
FeO + Fe_2O_3	8	15	7	13.5	10	18	8	15
CaO	6.5	11	7	11	8	13	6.05	11
MgO	3	10	3	8.5	4	15	3.5	10
TiO_2	0.5	2	0.2	2	0.2	3	0.5	2.5
Na_2O + K_2O	2	7.5	2.5	7.5	2	5	2	7.5
Acidity coef Mk	3.15	1.68	3.16	1.90	2.22	1.39	3.04	1.67
MnO less then	0.5		0.25		0.4		0.5	
SO_3 less then	1		0.2		1		0.5	
LOI less then	5		5		5		5	
Free quartz less then	3		2		3		3	

Source: ETM "Bavoma" (http://www.bavoma.com/eng/stuff.php)

Table 1.4
Mineralogical Composition of the Rocks, Suitable to Produce Basalt Fibres

Minerals	Acceptable Range of the Minerals (%)		
	Thin Staple Fibre	Super Thin Staple Fibre	Continuous Fibre
Pyroxene	0-45	5-40	1-35
Fe Ore	0-12	0-12	0-12
Olivine	0-15	0-15	0-15
Natural volcanic glass	0-25	2-45	0-50
Quartz	0-2	0-2	0-traces
Amphibole	0-30	0-15	0-10
Biotite	0-2	0-3	0-3
Palagonite	0-20	0-20	0-25
Chlorite	0-35	0-35	0-35
Epidote-zeolite	0-10	0-15	0-5
Carbonate	0-15	0-10	0-8

Source: ETM "Bavoma" (http://www.bavoma.com/eng/stuff.php)

The main physical and mechanical properties of rocks are the viscosity and the maximum temperature of crystallization (melting point). The viscosity of a rock depends on its chemical composition. The geochemical composition is used for the calculation of acidity coefficient Mk (acidity-basicity indicator) that is the basis of the classification system for mineral fibres (Table 1.3).

1.9 EXPLORATION & DRILLING

In 2019 and 2020, NGES started geological mapping and sampling program in the Chaykend project area. The geological observations were conducted on 10 traverses (M-1 to M-10). Grab samples with dimensions 100x100x20mm, 50x50x50mm, 150x100mm, 200x100mm, 300x50x50mm, 100x200x60mm were collected during the geological prospecting. A 1:10000 geological map (Memmedov and Yusifov, 2020) of the area was compiled based on field observation and measurements of structural elements. Natural outcrops and small stripping and clearing areas were sampled by cutting 54 channel samples (1 m long and 5 cm wide). The rock chips from the channels are analysed in the "Center of Shared Analytical Instruments and Equipment" and its geochemical laboratory Geoservices, Baku. The results are provided in Table 9.1.

In 2020, 8 trenches (X-1 to X-8), totalling 300 m^3 were excavated to expose and sample the bedrock under diluvium and to map the lithological boundaries of the different varieties of the mafic volcanics (basalt and andesite-basalt) and the surrounding lithological units (limestone). The trenches are surveyed by a professional surveyor. The coordinates of the measured points from the 2020 trenches are listed in Table 9.2. The trenches were mapped and sampled, and the lithology and the geochemical results are imported in the 3D geological model for the Chaykend project. basic geostatistical parameters of the trench samples are provided in Table 9.3.

Six (6) drill holes with a total length of 400 m were drilled to estimate the raw material to a depth of 50m to 100 m. The drilling program started on 16 September 2020 and completed on 21 April 2021. The drilling contractor was the NGES, part of the Ministry of Ecology and Natural Resources. The project geologist, who managed the drilling program is Mr. Nahid Mammadov and the program was supervised by Mr. Shiraslan Yusifov, a Chief Geologist of the Chaykend Exploration Group.

The holes were drilled with POWER-6000 SD drilling rig (Figure 10.1). The hole diameter is 76 mm, and the core diameter is 47.6 mm (NQ core). Core recovery during drilling ranged from 40% 100%. Average core recovery is 83%. All holes are vertical, and no downhole survey was conducted. The drill collars are surveyed by a professional surveyor. List of drill holes is provided in Table 1.5.

Table 1.5
Drill Holes from the 2020-2021 Program on the Chaykend Bazalt Property

Drill Hole	Length (m)	Dip (°)	Azimuth (°)	Easting (m)	Northing (m)	Elevation (m)	Start	End
Quyu 1	80	90°	0°	618728.87	4482353.17	993.53	16-Sep-20	28-Sep-20
Quyu 2	80	90°	0°	619003.85	4482485.91	977.48	8-Feb-21	24-Feb-21
Quyu 3	81	90°	0°	619127.79	4482667.98	957.67	6-Mar-21	26-Mar-21
Quyu 4	51	90°	0°	619196.72	4487428.47	904.51	8-Apr-21	12-Apr-21
Quyu 5	51	90°	0°	619044.02	4482298.59	914.25	13-Apr-21	16-Apr-21
Quyu 6	51	90°	0°	618894.84	4482165.18	906.82	17-Apr-21	21-Apr-21

Note: The length of the hole is rounded to the lowest meter.

Core logging and sampling procedures are described in detail in Section 10.0.

Micon's QP Dr. Tania Ilieva, P.Geo. reviewed the drill core, the drill logs, the pictures and video clips and observed the core splitting. Micon's opinion is that the NGES exploration team followed standard industry operating procedures and practices and the data collected during the drilling program is reliable and it can be used for the purposes of the geological interpretations, modelling and mineral resource estimation.

Micon recommends collecting additional geotechnical information, such as rock quality description (RQD) before sampling the core

1.10 SAMPLE PREPARATION, ANALYSES & QA/QC

The samples from the drill core were collected and processed respecting the lithology and the texture of the volcanic rocks. The samples were delivered to a core storage facility in the industrial zone of Baku. The drill core was cut in half and one half was sent to a state commercial chemical laboratory Geoservices, part of the Azerbaijan National Academy of Science in Baku.

Micon have the description of the procedure for the chemical analyses from the Geoservices Laboratory manager.

A system of internal and external quality control is in place and the laboratory goes through annual certification from state and international institutions. Duplicates are selected and analysed for SiO_2%, Al_2O_3%, TiO_2%, K_2O%, Na_2O%, CaO%, MgO%, Fe_2O_3%, MnO%, P_2O_5%, SO_3% and Cl%. The samples from the drill holes were analysed not only for their chemical content (XRF analyses), but for their mineral content (XRD method). Internal quality control included analyses of blanks and 3 coarse reject duplicates.

External quality control pulp duplicates were sent for analysis to a certified laboratory ALS Labs, Turkey. Micon's review identified that the secondary lab ALS is using a different procedure and equipment for the XRF analyses, and the results cannot be used for comparison and determination of the bias and repeatability.

The internal blanks and duplicate analyses demonstrated very good repeatability with no contamination between the samples, mismatch of the numbers and significant bias.

1.11 Data Verification & Site Visit

Micon has not carried out any independent exploration work, drilled any holes or carried out any programme of sampling and assaying on the property.

The data verification conducted by Micon involved the following:

- Review of the Azerbazalt contract with MENR for exploration on the Chaykend Basalt licence and internal reports about the project and review of the logs for the alluvial exploration pitting.
- Site visits to the Chaykend Basalt project.
- Collecting additional information such as drill logs, assay results, plans and sections.
- Discussions about the basalt product specifications, saleable raw material and final products.
- Review of the initial metallurgical test, geological report, scientific articles and published studies about basalt fibre projects in other countries.

Micon, represented by Dr. Tania Ilieva, P.Geo., visited project site and main administration offices from 16th to 19th August, 2021.

Micon has reviewed the data provided by Azerbazalt and prepared the geological database using vertical sections, graphic logs with geochemical results and georeferenced AutoCAD drawings. It is Micon's opinion that the data is reliable and can be used for mineral resource estimation purposes.

1.12 Mineral Resources

The mineral resource estimate was prepared using geological interpretation, conventional statistical analysis on raw data, solid creation, statistical analysis on the geochemical results of the 3 m composites, review and calculation of the interpolation parameters, block modelling, block model validation and classification.

Micon has prepared mineral resource estimates for the basalt rocks in the Chaykend Basalt project, following the JORC Code (2012) and CIM NI 43-101 Standards and Definitions (2014).

1.12.1 Database and Variables to be Estimated

Micon was provided with a geological database on 3rd of November, 2021 and with an updated database for the 8 trenches and 6 holes drilled during 2020 to 2021 on 5th January 2022. This included collar coordinates, updated trench location coordinates, topographic survey, sample data and geochemical certificates, geological maps and sections (**.pdf* and AutoCAD **.dwg* files), topographic map in scale of 1:10,000 and geological reports. Systematic checks were performed on the geological and topographic data to ensure that it met specific validation requirements and that no overlapping intervals were present in the data. Minor typographical errors were found and easily corrected.

Table 1.6 summarizes the types and amount of data in the database and the portion of the data used for the mineral resource estimate.

Table 1.6
Type and Amount of the Input Data

Parameter	Number	Sample Numbers
Drill holes	6	127
Trenches	5 out of 8	15
Sampling meterage	430	142

The detection limit for the whole rock XRF analyses is 0.01%. Geochemical results for the trench and core samples are processed, using the Leapfrog Geo and Leapfrog Edge software. The chemical analyses show that the composition of all samples is within the acceptable limits (See Table 8.2) of the raw material used for fibre production.

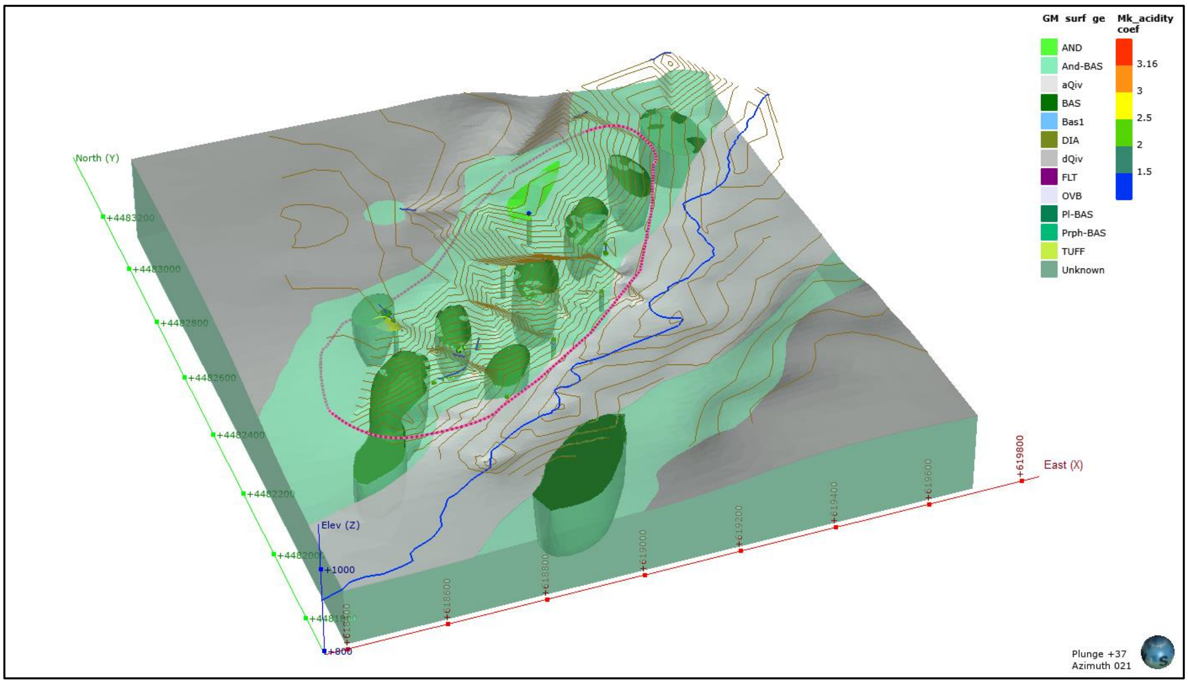
The following variables were estimated: SiO_2_pc, Al_2O_3_pc, TiO_2_pc, CaO_pc, Fe_2O_3_pc, K_2O_pc, MgO_pc, Na_2O_pc, TiO_2_pc, acidity coefficient (Mk). The main deleterious oxides MnO, P_2O_5, and SO_3 are also included in the resource model.

The silica in the basalt currently used for fibre production ranges from 43.0% to 55.0%, and total alkali (K_2O+Na_2O) vary from 2.0% to 7.5%. The detection limit for the whole rock XRF analyses is 0.01%. Geochemical results for the trench and core samples are processed, using the Leapfrog Geo® and Leapfrog Edge® software. The chemical analyses show that the composition of all samples is within the acceptable limits (See Table 8.2) of the raw material used for fibre production. shows that the mafic volcanics, analysed from Chaykend project can be combined in one geological domain (BAS) for the resource estimation purposes.

1.12.2 Wireframes

The project topography was provided by Azerbazalt as an AutoCAD file of the 1:10,000 m topographical map. The topographic map is of sufficient quality for an early-stage exploration project with assumed open pit mining. The topography was used to clip the wireframes projection to surface. Micon constructed geological model, based on the lithology from the geological mapping and sampling program, drill logs and trench plans and sections for the Chaykend area with 3-D meshes representing different lithological units – andesite (AND), andesite-basalt (And-BAS), diabase (DIA), basalt (BAS, Pl-BAS, Prph-BAS), tuff (TUFF), alluvial (aQiv) and diluvial (dQiv) sediments. The tectonically brecciated rocks and/or fault zones have lithological code FLT. Figure 1.4 shows the current geological model, based on logged lithology.

Figure 1.4
3D Geological Model, Based on Lithology



The comparison of the geochemical results shows that the chemical composition for the lithological units - basalt, diabase, andesite-basalt, porphyry basalt and plagioclase-basalt are very similar (See Figure 14.4). The different varieties of the mafic volcanics are combined in one geological domain (BAS). Basalt varieties have transitional boundaries, so one wireframe was created for the whole domain. The wireframe was prepared, using the data from channel and grab samples, collected during the mapping program in 2020, the geological map for the area, and the data from the drilling and trenching.

1.12.3 Statistical Analyses of the Primary Data

The samples from the drill holes and the trenches are processed and interpreted as one dataset. A total of 142 samples were used for the mineral resource estimate with a total length of 430 m. A summary of the basic statistics for sample variables are presented in Table 1.7.

Table 1.7
Basic Statistics of the Main Variables in Core and Trench Samples

Parameter	Count	Mean	St Dev	Coef Var	Var	Min	Median	Max
Al_2O_3 %	142	14.02	2.10	0.15	4.42	7.45	14.04	17.63
CaO %	142	7.84	2.59	0.33	6.69	2.38	7.85	30.34
Fe_2O_3 %	142	13.81	2.22	0.16	4.91	10.05	13.82	18.62
K_2O %	142	0.85	0.66	0.78	0.44	0.13	0.59	4.02
MgO %	142	7.84	2.44	0.31	5.93	3.13	8.04	13.35
MnO % (deleterious)	142	0.12	0.15	1.24	0.02	0.01	0.01	0.71
Na_2O %	142	2.74	0.67	0.24	0.44	0.25	2.78	4.75
P_2O_5 % (deleterious)	145	0.45	0.24	0.53	0.06	0.03	0.52	1.44

Parameter	Count	Mean	St Dev	Coef Var	Var	Min	Median	Max
SiO_2 %	142	48.51	2.39	0.05	5.74	30.26	48.62	53.11
SO_3 % (deleterious)	142	0.01	0.04	2.39	0.001	0.01	0.01	0.28
TiO_2 %	142	1.48	0.35	0.23	0.12	0.81	1.44	2.25
Mk (acidity coefficient)	142	1.97	0.34	0.15	0.89	0.81	1.92	2.62
Sample Length	142	3.05	0.51	0.17	0.26	1.50	3.00	6.00

1.12.4 Compositing and Capping

The drillhole and trench intercepts for the Chaykend project were composited into 3.0 m equal length intervals, with the composite length selected based on the most common original sample length. The intervals less than 50% of the original length are distributed equally along the drill hole. The basic statistics for the length-weighted composite data are summarized in Table 1.8.

Table 1.8
Basic Statistics of the Main Variables in Composite Data

Parameter	Count	Mean	St Dev	Coef Var	Var	Min	Median	Max
Al_2O_3 %	145	14.02	2.10	0.15	4.42	7.45	14.04	17.63
CaO %	145	7.84	2.59	0.33	6.70	2.38	7.85	30.34
Fe_2O_3 %	145	13.81	2.22	0.16	4.91	10.05	13.82	18.62
K_2O %	145	0.85	0.66	0.78	0.44	0.13	0.59	4.02
MgO %	145	7.84	2.43	0.31	5.93	3.13	8.04	13.35
MnO % (deleterious)	145	0.12	0.15	1.24	0.02	0.01	0.01	0.71
Na_2O %	145	2.74	0.67	0.24	0.44	0.25	2.78	4.75
P_2O_5 % (deleterious)	145	0.45	0.31	0.67	0.09	0.01	0.50	1.44
SiO_2 %	145	48.51	2.39	0.05	5.74	30.26	48.62	53.11
SO_3 % (deleterious)	145	0.01	0.03	2.39	0.00	0.01	0.01	0.28
TiO_2 %	145	1.48	0.35	0.23	0.12	0.81	1.44	2.25
Interval Length	145	2.92	0.27	0.09	0.07	1.5	3.0	3.0

Figure 14.5 show the histograms of the univariate distributions for the main oxides. No outliers were identified, and no capping was applied for any variable.

No density measurements were provided for the core, trench, or grab samples. The density of the basalt and its varieties ranges from 2.7 to 3.3. The average basalt density of 2.9 t/m^3 is used in the current resource estimate.

1.12.5 Mineral Resource Estimation Results

The commodity of economic interest at the Chaykend Project is basalt; no other commodities have been assessed at this time. The estimation of the deposit tonnage and grade was performed using Leapfrog Geo/EDGE software.

1.12.5.1 Resource Model

A block model was constructed to represent the volumes and attributes of rock, density, and grade within the basalt solid. A summary of the block model definitions is provided in Table 1.9.

Table 1.9
Block Model Parameters

Description	Values
Model Dimension X (m)	750
Model Dimension Y (m)	1225
Model Dimension Z (m)	240
Origin X (Easting)	618,385
Origin Y (Northing)	4,482,335
Origin Z (Upper Elev.)	1050
Clockwise Rotation (°)	45.0
Parent Block Size X (m) - Along Strike	25.0
Parent Block Size Y (m) - Across Strike	25.0
Parent Block Size Z (m) - Down Dip	6.0
Child Block Size X (m) - Along Strike	5.0
Child Block Size Y (m) - Across Strike	5.0
Child Block Size Z (m) - Down Dip	3.0

Origin of the resource block model in Leapfrog Edge is the centroid of the block in the top left corner. The sub-blocking triggers are topography, the resource outline, and the optimized pit shell. Based on the distance between the drillholes and trenches and the statistical analyses, showing the homogeneity of the rocks in the BAS domain the composite values for the oxides are interpolated in the blocks using Weighted Inverse Distance Squared (ID^2) interpolation algorithm. The parameters are provided in Table 1.10.

Table 1.10
Summary of Inverse Distance Squared Interpolation Parameters

Domain	Pass	Orientation				Search Parameters				
		Dip (°)	Az (°)	Pitch (°)	Range Major Axis (m)	Range Semi-Major Axis (m)	Range Minor Axis (m)	Minimum Samples	Maximum Samples	Maximum Samples per Hole
BAS	1	0	45	0	100	150	15	6	20	5
	2	0	45	0	200	300	30	4	15	3
	3	0	45	0	400	600	60	3	10	2

1.12.6 Prospects for Economic Extraction

The JORC Code (2012) requires that a mineral resource must have reasonable prospects for eventual economic extraction. The mineral resource discussed herein has been constrained by a preliminary open pit shell, using the acceptable ranges for the main oxides SiO_2 %, Al_2O_3 %, TiO_2 %, CaO %, Fe_2O_3 %, K_2O %, MgO %, Na_2O %, TiO_2 % and the acidity coefficient (Mk).

The open pit for the quarry is conceptual in nature and is based on a Mk=1.60 cut-off value. Additional category variable "BasFiber" with 2 possible outcomes "0" and "1" is created. If all oxides, including the deleterious elements are within the acceptable limits (See Table 8.2) the value for the

BasFibre is “1”. If any oxide or deleterious element is outside of the acceptable limits the BasFibre variable is “0”. Buffers of 500 m around the settlements and 100 m around the river was applied to the pit shell. The pit shell was created using Surpac MineShed® Software. Table 1.11 shows the basic parameters of the pit shell.

Table 1.11
Parameters of the Open Pit Shell

Parameter	Description	Unit	Value
Wall slope angles		(°)	45
Working Bench Height	Bearing 0, 90, 180,270	(m)	15
Final Position Bench Height	Hard Rock	(m)	15
	Soft overburden	(m)	5
Bench slope angles	Working bench	(°)	75
	Final Position bench	(°)	65
	Bench in soft overburden	(°)	45
Safety berm width		(m)	8
Max ramp gradient		(%)	8
Ramp width		(m)	24
Working bench width		(m)	30
Minimal pit bottom width		(m)	30
Pit bottom		(m)	825

The effective date of the Mineral Resource Estimate is 5th January 2022. The cut-off grade is based on the acidity coefficient Mk=1.6. The mineral resource statement is provided in Table 1.12.

Table 1.12
Mineral Resources for the Chaykend Basalt Project (as of 5th January 2022)

Cate-gory	Geochemical Specification	Volume (Mil m^3)	Mass (Kt)	Average Value											
				Mk	SiO_2 (%)	Al_2O_3 (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)
Inferred	BasFiber=0	5	15,000	1.80	47.85	12.78	1.65	0.71	2.40	15.32	6.85	9.42	0.12	0.38	0.031
	BasFibre=1	16	45,000	1.97	48.78	14.23	1.52	0.80	2.79	13.74	8.07	7.47	0.13	0.48	0.014
Total	**Basalt**	21	61,000	1.93	48.54	13.86	1.55	0.78	2.69	14.14	7.76	7.97	0.12	0.46	0.019

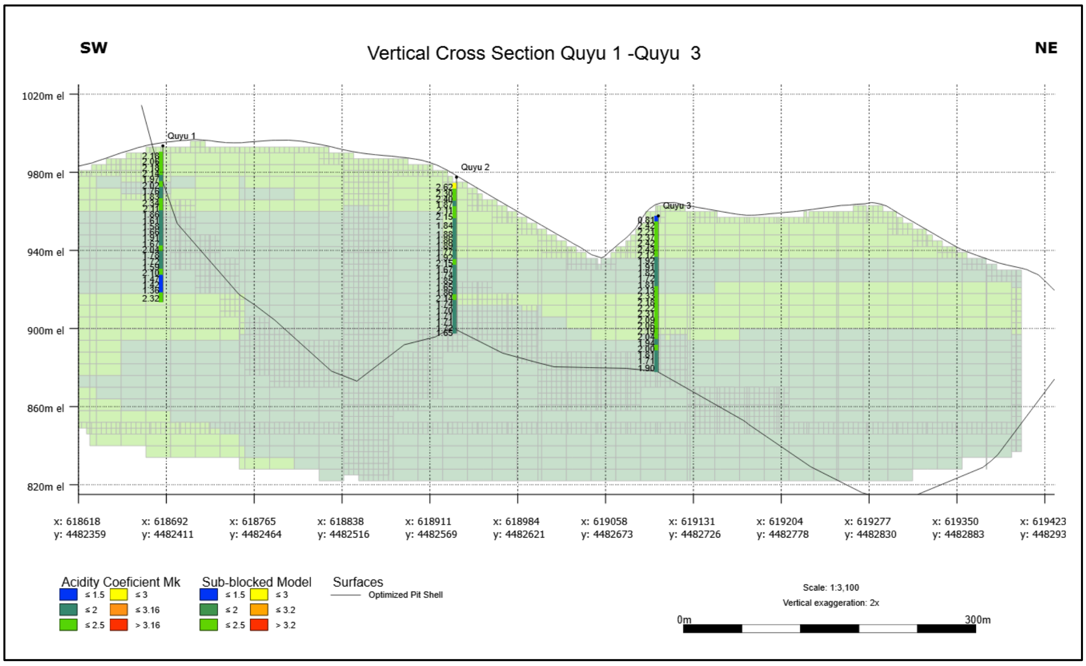
Notes:

1. Mineral Resource Estimate is prepared in accordance with the guidelines of the JORC Code (2012).
2. The mineral resource is estimated based on 3 m composites calculated from XRF chemical analyses values from 6 diamond drill holes and 5 trenches.
3. Acidity coefficient Mk cut-off grade is 1.6. BasFibre=1- all values for the chemical composition are within the specifications for raw material for basalt fibre. BasFibre=0 – one or more values is outside of the specifications for the chemical composition of the basalt fibre and this basalt may require adding extra chemicals to reach the head grade for the raw material.
4. Rock density average value is 2.9 g/cm^3.
5. The block model grades were estimated using the Inverse Distance Squared interpolation method.
6. Mineral Resources volume and tonnage have been rounded to reflect the accuracy of the estimate, and numbers may not add up due to rounding.
7. Inferred Mineral Resources are that part of a mineral resource for which quantity and grade can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity.
8. The reported cut-off grade of acidity coefficient for the estimated mineral resource is based on the similar mining operations in adjacent countries and reasonable assumptions on mining and processing and compares with reported mining operation cut-off grades for similar deposits.

1.12.7 Validation of the Block Model

The block model was validated using visual comparison of the composite values and the block model values. Longitudinal vertical section with the distribution of the acidity coefficient Mk in the block model and the drill holes composites are shown respectively on Figure 1.5. In validating the block model and the resource estimate, Micon conducted a statistical comparison of the input 3 m composites, against output interpolated data in the block model.

Figure 1.5
Longitudinal Vertical Section in the North Part with Composites and Interpolated Mk Values



The statistical comparison of the Mean for composite and block model data shows reasonable agreement of the input data versus output estimated blocks (Table 1.13).

Table 1.13
Statistical Comparison: Composites (Input) vs Blocks (Output)

Variable	3 m Composites		Block Model	
	Count	Mean	Block Count	Mean
Al_2O_3_pc	145	14.02	72712	13.86
CaO_pc	145	7.84	72712	7.76
Fe_2O_3_pc	145	13.81	72712	14.14
K_2O_pc	145	0.85	72712	0.78
MgO_pc	145	7.84	72712	7.97
MnO_pc	145	0.12	72712	0.12
Na_2O_pc	145	2.74	72712	2.69
SiO_2_pc	145	48.51	72712	48.54
SO_3_pc	145	0.016	72712	0.015
TiO_2_pc	145	1.48	72712	1.55
Mk	145	1.97	72712	1.92

The block model validation was performed using swath plots for different oxides. Figure 14.7 shows the swath plots for SiO_2 and Fe_2O_3. Each swath covers 125 m (5 blocks) along X and Y and 30 m (5 blocks) along Z axis.

In addition to the above-mentioned verifications Micon has compared the results from 2 different interpolation methods. The Nearest Neighbourhood interpolation method is very similar to the polygonal method, used by NGES. For comparison purposes Micon has performed NN interpolation in addition to the ID^2. The values from both interpolations are presented in Table 14.10.

Table 1.14
Comparison of the Mineral Resources, Estimated with ID² and NN method
(cut-off Mk=1.4)

Cate-gory	Geochemical Specification	Volume (Mil m^3)	Mass (Kt)	Average Value											
				Mk	SiO_2 (%)	Al_2O_3 (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)
Weighted Inverse Distance Squared															
Inferred	BasFiber=0	12.883	37,361	1.92	48.54	13.71	1.57	0.79	2.64	14.26	7.67	8.04	0.12	0.50	0.019
	BasFibre=1	8.112	23.525	1.93	48.54	14.09	1.52	0.76	2.77	13.96	7.91	7.85	0.13	0.39	0.018
Total	*Basalt*	*20.995*	*60.885*	*1.92*	*48.54*	*13.86*	*1.55*	*0.78*	*2.69*	*14.14*	*7.76*	*7.97*	*0.12*	*0.46*	*0.019*
Inferred	BasFiber=0	12.883	37,361	1.95	48.63	13.77	1.58	0.74	2.61	14.18	7.67	8.01	0.11	0.52	0.015
	BasFibre=1	8.112	23.525	1.99	48.71	14.54	1.50	0.70	2.83	13.51	8.41	7.36	0.14	0.43	0.010
	Basalt	*20.995*	*60.885*	*1.96*	*48.66*	*14.07*	*1.55*	*0.72*	*2.70*	*13.92*	*7.96*	*7.75*	*0.12*	*0.49*	*0.013*

Notes:

The cut-off grade Mk=1.4 is not the same as the cut-off grade in the resource statement.

The volume and mass are not rounded to reflect the accuracy of the estimate, because the volume, mass and grade are for comparison purposes of the interpolation methods only.

1.12.8 NGES Mineral Resource Estimate

The geologists (Yusifov and Memmedov, 2021) from NGES estimated the mineral resources in December 2021. The text below is summarized from the internal report for the exploration program from 2020 to 2021and especially from section “Reserve Estimation”.

Azerbazalt engaged the NGES to conduct a geological survey and estimate the mineral resources and reserves for industrial minerals (basalt) for the production of basalt fibre. The company provided technical specifications and guidelines for the estimation of the basalt resources and reserves:

- Reserve category-C_2;
- Depth of study of raw materials - 50-100 m;
- The basalt included in the resource and reserve estimate should have chemical composition that is within the following ranges:

SiO_2	47.0 to 55.0%.
Al_2O_3	14.0-20.0%.
TiO_2	1.36-2.0%.
Fe_2O_3 + FeO	5.38-13.5%.
CaO	7.0-11.0%.
Na_2O	2.7-7.5%.
K_2O	2.5-2.7%.
MnO	0.25-0.5%.
P_2O_5	less than 0.5%.
SO_3	less than 0.5%.

No economical parameters have been determined to calculate the Chaykend Basalt project reserves. Based on the complexity of its geological structure, the Chaykend Basalt project has a simple structure.

According to its petrographic composition, the deposit belongs to the basic rock complex with basalt, andesite-basalt and diabase composition, which have the same chemical composition. The basalt columns belong to the subvolcanic phase of the intrusion and have solidified mainly at shallow depth.

After a review of the geochemical results from grab, channel, and core samples the exploration team concluded that the raw materials (basalt) from Chaykend Basalt project is suitable for basalt fibre production. The basalt fibre products are used in various sectors of the economy.

The Chaykend basalt rocks are eroded and crushed in some areas as a result of weathering (exogenous) processes. As a result of geological mapping, trenching, and drilling was determined that the basalt is free of overburden. and only fragments of basalt are recorded. Therefore. it was decided by the authors to use all samples, including the ones that are immediately below the topographic surface in the resource estimation.

Resources were calculated using only the results of 3 holes drilled on the 1st section (Quyu 1, Quyu 2 and Quyu 3). The results are listed in Table 1.15.

Table 1.15
Calculated Average Valued for the Main Variables

Drill hole	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	CaO (%)	MgO (%)	Na_2O (%)	K_2O (%)	MnO (%)	SO_3 (%)	P_2O_5 (%)	LOI
Quyu-1	48.50	12.99	14.00	1.52	7.85	8.52	2.51	0.41	0.17	0.005	0.52	2.11
Quyu-2	48.85	12.84	14.18	1.62	7.09	7.76	2.64	0.68	0.11	0.005	0.48	1.77
Quyu-3	49.71	15.08	12.75	1.33	8.43	6.28	2.85	1.04	0.10	0.007	0.52	1.07
Average	49.00	13.63	13.85	1.49	7.79	7.52	2.66	0.71	0.13	0.005	0.50	1.65

NGES calculated the mineral resources using the results from 3 drill holes drilled on the 1-st section and classified them in category C_2. Table 1.16 show the calculations of the the horizontal areas of basalt rock unit and the total volume. The Resource and Reserves are still under review in the Ministry of Environmet and Natural Resources.

Table 1.16
Calculations for the Areas of the Resource Polygons (Yusifov, December 2021)

Number	Polygone	Length (m)	H (m)	S=(L*H/2) (m^2)	Depth (m)	Volume (m^3)
1	Triangle- 1	250	110	250 x 110 / 2 = 13,750	80	1,100,000
4	Trapezoid	(300 +380)/2=340	180	340 x 180 /2 =30,600	80	2,448,000
	Total			**44,350**	**80**	**3,548,000**

1.13 CONCLUSIONS, INTERPRETATIONS & RECOMMENDATIONS

Based on the quality of the geological information that was provided by Azerbazalt on 3rd November, 2021 and 5th January, 2022, Micon's opinion is that Chaykend exploration and mining data is sufficient and reliable, and it can be used for a mineral resource estimate.

The data that was reviewed (mapping, trenching and drilling data) confirm the presence of basalt rocks, that has a reasonable prospect of economic extraction.

The Chaykend Basalt project is a green field exploration project. The project has good exploration potential, because the mafic volcanics (basalt, andesite-basalt, and their tuffs) are widespread in Chaykend area and the lithological unit (K_2st_2 and bK_2st) continue northeast of the drilled area.

Basalt fibres are a new material with a lot of new applications in the industry and the everyday life, therefore the raw materials that meet the specifications for the production of different varieties of basalt fibre have reasonable prospects of eventual economic extraction. The project contains a substantial mineral resource that can be mined by open pit methods and recovered with conventional processing.

It is Micon's opinion that the Chaykend Basalt project merits additional exploration and technical studies such as baseline environmental and social assessment, geotechnical study, market research, additional metallurgical test work, economic analyses to advance the project and bring the project to a Preliminary Economic Assessment (PEA) and pre-feasibility study (PFS) level in line with Azerbazalt desire to open a quarry and build Basalt Fibre plant.

Chemical analysis of rock samples and the initial metallurgical test confirmed that the basalt from Chaykend project is suitable for the production of basalt fibre. The geological surveys and the mineral processing studies provided enough data for the first mineral resource estimate and Micon's recommendations to advance the project are:

- Collect data for density determination from the different lithologies and mineralization type.
- Additional infill and geotechnical drilling, especially in the northeast end of the proposed open pit shell.
- Collecting a bulk sample to test and prepare a flow sheet for production. The additional physical properties that should be tested are melting temperature (°C), possible fibre diameters (µm), temperature withstand (°C), viscosity, elastic modulus (GPa), breaking strength (MPa), breaking extension (%), linear density etc determine the final products from the basalt raw material and the parameters for economic extraction.
- Prepare a flow sheet for production of basalt faber, using the results from the bulk metallurgical test.
- Environmental baseline study and community relations.
- Hydrogeological and geotechnical studies of the quarry footprint area, including geotechnical drilling.

It is anticipated that the Chaykend Basalt exploration program will start in the second or third quarter of 2022.

The exploration program will focus on areas covering the proposed open pit and the surrounding 200-500 m. It will focus on collecting data for PEA study. Every stage will would be contingent on the success of the previous study. Table 1.17 tabulates the main field activities and the proposed budget.

Table 1.17
Proposed Budget for Additional Exploration and Engineering Studies

Item	Unit	Cost/unit	Total ($)
Fees, licences, and permits	1	2,500	2,500
Infill and geotechnical drilling, geochemical testing and logging	150	200 $/m	3,000
Environmental Baseline and Social Survey	1	10,000	10,000
Geotechnical survey	1	15,000$	15,000$
Metallurgical Test work and flow sheet	1	25,000$	25,000$
Community relations	1	2,500	2,500
Field equipment (rental)	1	2,000	2,000
Data processing, interpretations, reports		50,000	50,000
Contingency	10%		11,150
Total			**122,650**

Micon believes that the proposed budget is reasonable and recommends that Azerbazalt implements the program as proposed, subject to either funding or other matters which may cause the proposed program to be altered in the normal course of its business activities, or alterations which may affect the program as a result of the activities themselves.

2.0 INTRODUCTION

2.1 GENERAL

Micon International Co Limited (Micon) was contracted by Azerbaszalt, with a head office in Baku, Republic of Azerbaijan (Azerbazalt or the Client) to review the exploration data for the Chaykend Bazalt project and the data from the 2020-2021 drilling program, conducted by MENR and Cahykend Exploration Group. The objective of the review is to compile available exploration drilling information and prepare a mineral resource estimate of the mineral resources within the Chaykend licence area, following the JORC Code. It is emphasised that the results of this study are principally derived from the examination and interpretation of exploration and sampling data, provided by Azerbazalt or their contractors and consultants. No independent confirmatory sampling has been performed by Micon as a part of the current study to confirm or otherwise qualify the conclusions presented in this report.

A site visit was made to Chaykend from 16 August to 19 August 2021. Micon visited the project site and Azerbazalt core logging and core storage facility close to Baku. The project manager Mr. Shiraslan Yusifov showed the different types of rocks and basalt columns during the site visit. An inspection was made of the core logging and core sampling procedures, the remaining core from the 2020-2021 drilling program and the drill logs.

Tania Ilieva, Ph.D., P.Geo., visited the Chaykend project on 19 August 2021. Micon was assisted during the 2021 site visit by a number of employees of Azerbazalt and Mr. Yusifov, who supervised the drilling program.

Micon's resource estimate has focussed on the southwest part of the Chaykend project area, which has 6 drill holes and multiple channel samples from outcrops and trenches. The Chaykend project area covers 3.0 km^2. Micon understands that there is a nearby additional basalt outcrops that has also been explored. It is apparent from the drilling data reviewed that the basalt extends beyond the limits of the Chaykend project area.

2.2 QUALIFICATIONS OF THE CONSULTANT

Micon is an independent firm of geologists, mining engineers, metallurgists and environmental consultants, all of whom have extensive experience in the mining industry. The firm operates from integrated offices in Norwich United Kingdom and Toronto and Vancouver, Canada. Micon offers a broad range of consulting services to clients involved in the mineral industry. The firm maintains a substantial practice in the geological assessment of prospective properties, the independent estimation of resources and reserves, the compilation and review of feasibility studies, the economic evaluation of mineral properties, due diligence reviews, and the monitoring of mineral projects on behalf of financing agencies.

Micon's practice is worldwide and covers all of the precious and base metals, the energy minerals (coal and uranium) and a wide variety of industrial minerals. The firm's clients include major mining companies, most of the major United Kingdom and Canadian banks and investment houses, and a large number of financial institutions in other parts of the world. Micon's technical, due diligence and valuation reports are typically accepted by regulatory agencies such as the London Stock Exchange, the United States (US) Securities and Exchange Commission, the Ontario Securities Commission, the Toronto Stock Exchange, and the Australian Stock Exchange.

2.2.1 Independence

Micon is a private company internally owned and is entirely independent of Northcott Capital and their affiliated companies. The personnel responsible for this review and opinions expressed in the report are Micon's full-time employees or Micon associates. For its services in preparing the report, Micon is receiving payment based upon time and expenses and will not receive any capital stock from Northcott Capital or any of their affiliated companies. Micon is reimbursing its associates based upon time and expenses.

The principal consultant and Competent Person, responsible for the preparation of the mineral resources of the Chaykend Basalt Project and the preparation of this Technical Report is Tania Ilieva, Ph.D., P.Geo., Senior Geologist with Micon and she is independent from Azerbazalt. She is assisted by Michael Khoudine, M.Sc., MAusIMM - Senior Mining Engineer. Each consultant has extensive experience in the mining industry and the appropriate professional qualifications.

2.3 Technical Report Use

This Technical Report is intended to be used by Azerbazalt subject to the terms and conditions of its agreement with Micon.

The conclusions and recommendations in this Report reflect the authors' best judgment in light of the information available to them at the time of writing. The authors and Micon reserve the right, but will not be obliged, to revise this Report and conclusions if additional information becomes known to them subsequent to the date of this Report. Use of this Report acknowledges acceptance of the foregoing conditions.

2.4 Units & Currency

Quantities are generally stated in SI units, as utilised by international mining companies, including: metric tons (tonnes, t), million metric tonnes (Mt), kilograms (kg) and grams (g) for weight; kilometres (km), metres (m), centimetres (cm) or millimetres (mm) for distance; cubic metres (m^3), litres (l), millilitres (ml) or cubic centimetres (cm^3) for volume, square kilometres (km^2) or hectares (ha) for area, weight percent (%) for base metal grades, grams per metric tonne (g/t) for gold grades (g/t Au) and tonnes per cubic metre (t/m^3) for density. Precious metal grades may also be expressed in parts per billion (ppb) or parts per million (ppm) and their quantities may also be reported in troy ounces (ounces, oz), a common practice in the mining industry. All currency amounts are stated either in US dollars (US$) or Euros (EUR) or Azerbaijan manat (AZN) A glossary of terms and abbreviations can be found in Section 22.1 of this report.

3.0 RELIANCE ON OTHER EXPERTS

3.1 Information Sources

The geological setting of the property, mineralisation style and occurrences, and exploration history were described in various internal reports, and in various government and scientific publications listed in Section 21.0. The relevant sections of those reports are reproduced herein.

The review of the Chaykend project was based on published material researched by Micon, as well as data, professional opinions and unpublished material submitted by the former professional staff of Azerbazalt or their consultants. Much of the data came from reports prepared by or for Azerbaijan Industrial Corporation.

Micon is pleased to acknowledge the helpful cooperation of Azerbazalt's management and field personnel, all of whom made any and all data requested available and responded openly and helpfully to all questions, queries and requests for material during both the site visit and the preparation of this report.

This report includes technical information which requires subsequent calculations or estimates to derive totals and weighted averages. Such calculations or estimations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, Micon does not consider them to be material.

The conclusions of this Report rely on data available in published and unpublished reports, information supplied by the various companies which have conducted exploration on the property and information supplied by Azerbaijan Industrial Corporation. The information provided to Azerbaijan Industrial Corporation supplied by reputable companies and Micon has no reason to doubt its validity. Micon's conclusions were augmented by its direct field examination during the two site visits in 2019.

The figures and tables for this report were reproduced or derived from reports written for Azerbaijan Industrial Corporation and the majority of the photographs were taken by the author during the Micon's 2021 site visit. Where the figures and tables are derived from sources other than Micon, the source is acknowledged below the figure or table. The primary author of this report is Tania Ilieva, Ph.D., P.Geo. Tania Ilieva was assisted by Derick de Wit, MBA and Sandra Stark, FG.

Tania Ilieva, Ph.D., P.Geo., visited the Chaykend project on 19 August 2021 and examined the local geology, collected GPS points of drill holes, observed the process of drilling and sampling and had discussions with Azerbazalt's contractors and subcontractors and management. Micon was assisted during the 2021 site visits by a number of Azerbaijan National Geological Exploration Service (NGES) employees.

3.2 Reliance on Other Experts

Micon is not qualified to comment on issues related to legal agreements, royalties, permitting, taxation and environmental matters. Micon has therefore relied upon the representations and documentation supplied by Azerbazalt's management and third parties where necessary.

All data used in this report were originally provided by Azerbaijan Industrial Corporation in 2019 and in 2021. Micon has reviewed and analysed this data and has drawn its own conclusions therefrom, augmented by its direct field examination during the site visits.

Micon has not carried out any independent exploration work, drilled any holes or carried out any systematic sampling and assaying on the property.

While exercising all reasonable diligence in checking, confirming and testing it, Micon has relied upon Azerbaijan Industrial Corporation's presentation of the project data from previous operations and 2021 drilling program. Micon's QPs have exploration experience from similar projects for formulating its opinion.

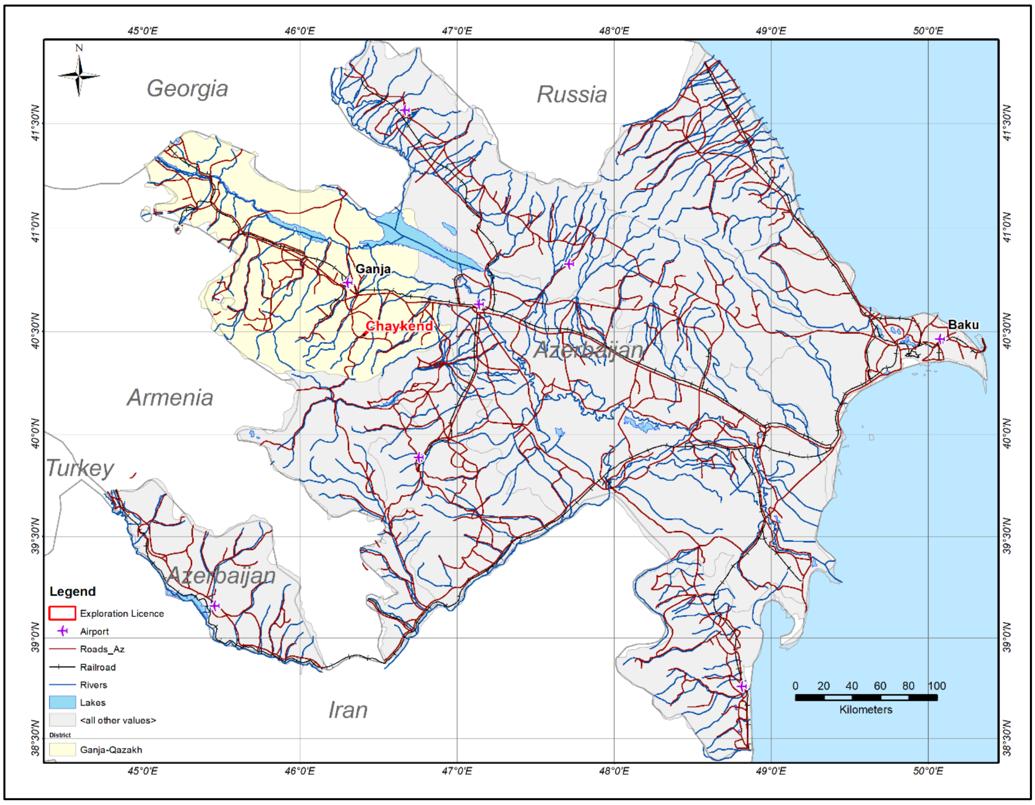
The agreements under which Azerbazalt holds title to the exploration licence comprising the Chaykend property have not been reviewed by Micon. Micon has relied on statements from Azerbazalt in October 2021 with respect to such matters. Micon offers no legal opinion as to the validity of the mineral title claimed. A description of the properties, and ownership thereof, is provided for general information purposes only. The existing environmental conditions, liabilities and remediation have been described where required by JORC regulations. These statements also are provided for information purposes only and Micon offers no opinion in this regard.

4.0 LOCATION AND PROPERTY DESCRIPTION

4.1 LOCATION

The project site is in the north-west part of the country, close to administrative centres as Ganja and Goygol. The closest village is Chaykend and it is accessible all year via regional highway R19. Chaykend village is 4 h drive from Baku and 0.5 h drive from Goygol. The geographic location of the Chaykend Project is approximately at 40°29'26"N latitude and 46°24’36"E longitude. The corresponding UTM coordinates are 4483170 m N, 619581 m E, NAD UTM zone 38 N, WGS84 Datum. The location of the project is shown on a map of Azerbaijan (Figure 4.1.)

Figure 4.1
Location of the Chaykend Basalt Project



The project is approximately 2.5 km north-east of Chaykend village on the left bank of the Kurakchay river. The coordinates of the corner points of the Chaykend Basalt property are listed in Table 4.1.

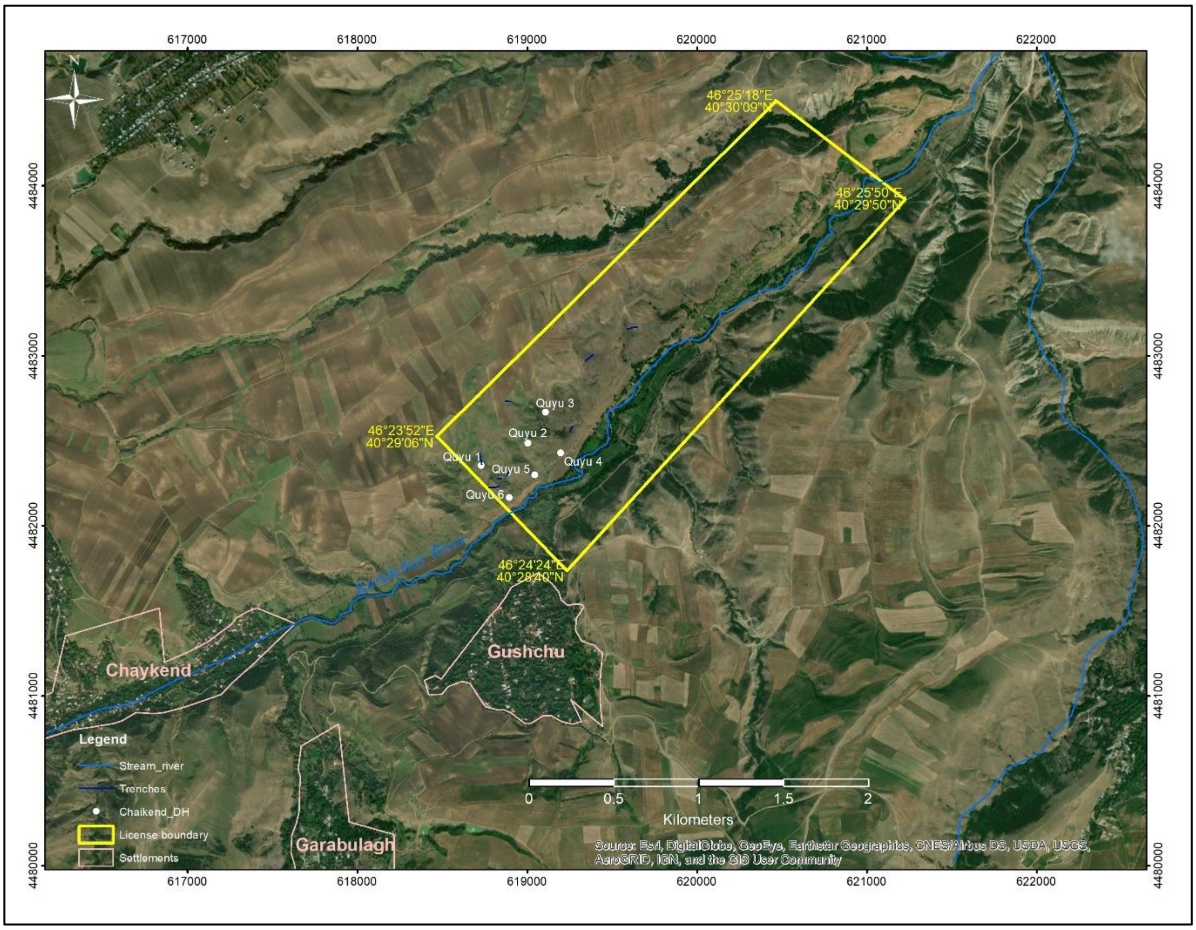
Regional geological survey was carried out by the National Geological Exploration Service (NGES) and identified the perspective area for basalt. The project area was selected and proposed for additional exploration and licensing to a private business entities in a governmental auction in 2020 after the review of the results of sampling along exploration grid in scale of 1:10000 in an area of 3.0 sq. km.

Table 4.1
Coordinates of the Corner Points for the Chaykent Project Area

Pt	Corner	Latitude (°)	Longitude (°)	Latitude (dec °)	Longitude (dec °)	Northing (m)	Easting (m)
1	SW	40 28' 40"	46 24' 24"	40.4778	46.4067	4481738	619234
2	NW	40 29' 06"	46 23' 52"	40.4850	46.3978	4482528	618467
3	SE	40 29' 50"	46 25' 50"	40.4972	46.4306	44839293	621224
4	NE	40 30' 09"	46 25' 18"	40.5025	46.4217	4484503	620461

Figure 4.2 shows the location of the closest settlements and a satellite image of the project area.

Figure 4.2
Satellite Image of the Chaykend Project Area



Source: ESRI, date 22 December 2021.

4.2 LICENCES & PERMITS

Micon is not qualified to and has not undertaken any legal due diligence of the land tenure associated with the Chaykend Basalt project and does not present any legal opinion regarding the corresponding ownership or title. Micon has reviewed the documentation relating to the title of assets and licence for exploration and mining as provided by Azerbazalt.

Azerbazalt and the Ministry of Ecology and Natural Resources (MENR) of Azerbaijan has signed an option agreement, titled "*Contract Agreement No 001/2020*" on 08 January, 2020. According to the contract Azerbazalt will finance and Azerbaijan's National Geological Exploration Survey (NGES), part of the Ministry of Ecology and Natural Resources (MENR) will complete an exploration program that will consists of:

- Reconnaissance and geological mapping and sampling in scale1:10,000;
- Excavation of trenches and exploration pits for 300 m^3.
- Diamond drilling in the areas, suitable for mining raw materials to produce basalt fibre, so that mineral resources for the basalt can be classified in the C_2 resource category, according to the Azerbaijani Resource Classification System.
- Prepare a geological report and fill and files the documents, required by the law to maintain the Chaykend Bazalt property in good standing.

Both parties Azerbazalt and NGES has fulfilled their obligations, listed in the contract and the exploration team (called Chaykend Geological Group), led by the Chief Geologist Shiraslan Yusifov is in a process of filing the geological report for the 2020 Exploration Program.

The fees that Azerbazalt has paid until now and the fees that are payable to keep the licence in good standing is approximately USD123,000.

4.3 Mining Regulations in Azerbaijan

Micon's QPs are not qualified to interpret the mining laws and regulations. The text in this sub-section is copied or summarized from Global Mining Guide 2015 (Baker & McKenzie, 2015) and is intended for information purposes only.

Azerbaijan has a centralised system, where all licenses for all kinds of commodities are processed after a written application to the Ministry of Ecology and Mineral Resources. The principal laws and regulations regulating the mining industry in Azerbaijan are:

- Constitution of the Republic of Azerbaijan, adopted by public referendum on 12 November 1995;
- Law No. 439-IQ on Subsoil, dated 13 February 1998 (the Subsoil Law);
- Decree No. 102 of the President of the Republic of Azerbaijan, On Ensuring Implementation of Law on Subsoil, dated 13 February 1999;
- Instructive Order No. 351 of the President of the Republic of Azerbaijan, On Approval of Certain Legal Acts Ensuring Implementation of Law on Subsoil, dated 6 March 2000;
- Events of Award of Special Permit (License) for Subsoil Use by Direct Negotiations, approved by Resolution No. 111 of the Cabinet of Ministers of the Republic of Azerbaijan dated June 30, 2000;
- Rules on Approval and Writing-off of Mineral Reserve Deposits, approved by Decree No. 973 of the President of the Republic of Azerbaijan, dated 23 October 2003;
- Regulations on Rules and Terms of Competitions and Auctions for Subsoil Use, approved by Decree No. 975 of the President of the Republic of Azerbaijan, dated 23 October 2003;

- Regulations on Rules on Subsoil Use for Production of Radioactive Raw Materials and Burial of Radioactive Waste and Hazardous Substances, approved by Decree No. 975 of the President of the Republic of Azerbaijan, dated 23 October 2003.

Additionally, precious metals (gold, silver, platinum and platinum group metals) and gems (natural diamond, emerald, ruby, sapphire and alexandrite) are further regulated by Law No. 924-IIQ On Precious Metals and Gems, dated 10 June 2005.

The state retains exclusive ownership (title) to minerals in the ground. The rights that can be granted (whether through licensing or contracts) to private parties are generally limited to the right to explore and develop minerals. Under the Subsoil Law, a right to engage in subsoil exploration activities can be granted to Azerbaijani citizens and entities, as well as to foreign individuals and legal entities, pursuant to a special permit or license. The licensing process also normally involves the award of geological leases. The law does not specifically separate the permits/rights granted for exploration.

A license for exploration can be issued for a term of up to five years and can be extended subject to the subsoil user's compliance with the terms of the license. An existing license holder who has complied with the terms of the license has a priority right to obtain an extension.

Upon the grant of a special permit (license), the MENR grants the status of a geological lease to subsoil plots granted for the purpose of exploration. Several special permits relating to the same subsoil plot can be granted to various subsoil users — legal relations between them are set out in the special permit.

Under the Subsoil Law, duties, royalties and taxes payable by private parties conducting exploration activities consist of the following specific payments:

- state fee for the award of license;
- payments for the use (exploration) of subsoil (don't apply if both exploration and development are licensed); and
- payment for the use of areas of the seabed and water.

Because licences are often awarded through contracts, only some of the above payments may apply.

The steps to acquire an exploration right include a participation in a public auction conducted by the MENR and the Mining Agency. MENR prepares a list of deposits to be licensed and the potential exploration apply for a licence and sign a contract. The Subsoil User of an exploration licence has the obligations to prepare annual reports as of 1 January of the preceding year, to be filed by 1 February. The reports consist of five geological survey statistical report forms, description of reserves that were "written off" because of new data that has reduced the volume and tonnage of previously estimated resource, protocols on the increase of reserves and their transfer from one category to another, and explanatory notes. The reports are prepared for each type of mineral by deposit (or portions of a field) and are classified according to whether only geological exploration or both geological exploration and extraction have been conducted.

Exploration and development rights may be terminated in the following cases:

- Expiration of special permit or license.

- Waiver by subsoil user of his rights — in this case, the subsoil user shall inform the state authority issuing the license (special permit) six months in advance; and
- In case of occurrence of circumstances (depriving the rights) under special permit or license.
- The right of exploration and development may also be limited or terminated early by the state authority issuing the special permit (license) in the following cases:
- Occurrence of threat to life and health of people living and working in the mining areas;
- Non-compliance with conditions determined in the special permit or license;
- Systematic violation of the rules of subsoil use;
- The occurrence of force majeure (natural disasters, acts of war and others);
- Where the subsoil user has not proceeded to mining activities in specified volume, within the time frame determined in the special permit or license;
- Liquidation of entity that was granted the right of subsoil use;
- By the initiative of the holder of a special permit or license.

In case of elimination of circumstances that provoked the early termination or limitation, the right of subsoil use may be fully re-established.

Subject to the fulfillment of the terms of a license, the parties may agree to extend the time for the use of subsoil.

"Azerbazalt" Scientific Production Union (EIB) LLC submitted an application to conduct prospecting and exploration for basalt raw materials identified in Chaykend area of the Goygol region.

Based on the mentioned application, the National Geological Exploration Servey and "Azerbazalt" EIB LLC signed on April 20, 2020 a Contract Agreement for an exploration program on basalt raw materials in Chaykend area and a relevant exploration estimate was prepared. State duty of AZN2,200 (approximately USD2,800) is payable on licenses.

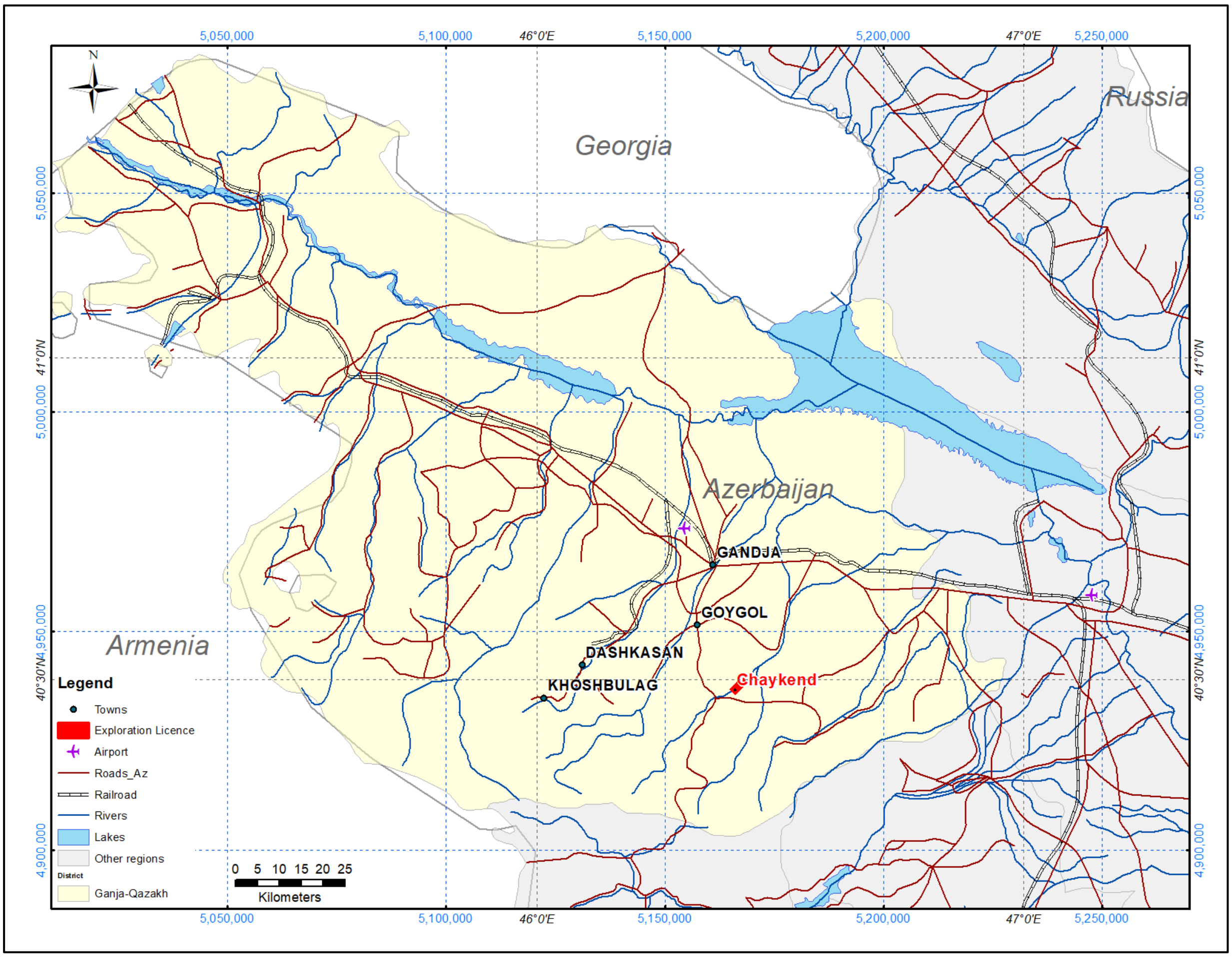
5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE & PHYSIOGRAPHY

5.1 ACCESSIBILITY & INFRASTRUCTURE

The Chaykend Bazalt project is located 380 km from Baku (4 h drive) via international road E60 and 20-25 km (0.5 h) south-east of Ganja and the town of Goygol via regional highway R19. The project site is 2.5 km north-east of Chaykend village on the left bank of the Kurakchay River.

Figure 5.1 illustrates the road network in Azerbaijan and the location of the Chaykend exploration licence.

Figure 5.1
Regional Map showing the Road Network and the Chaikend Bazalt Project



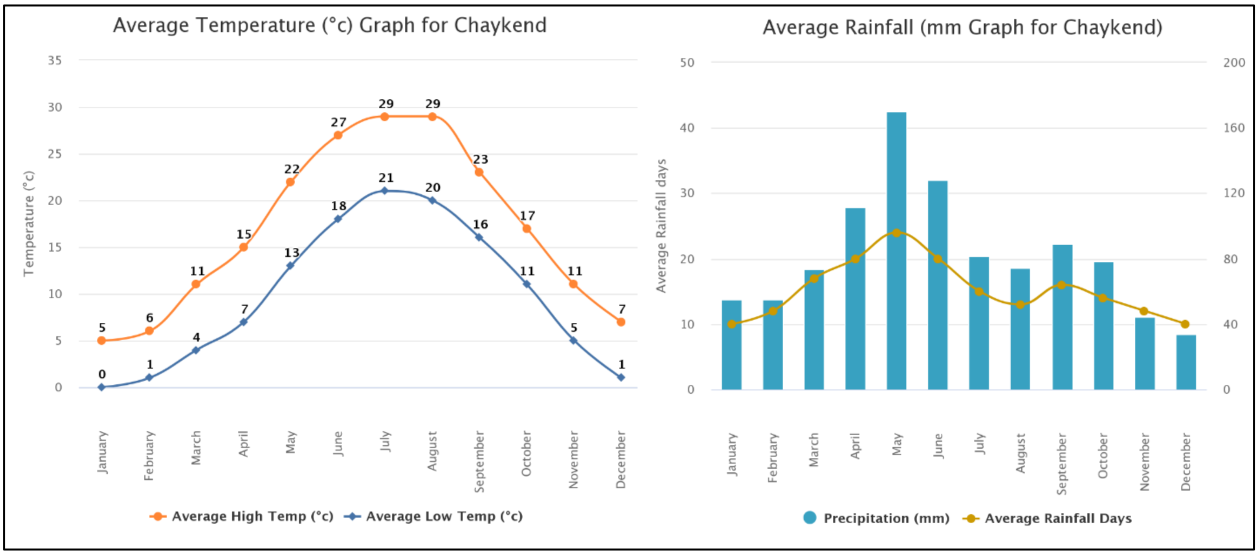
Source: www.esri.com (data downloaded on December, 2021).

The project has a connection with the national electrical grid.

5.2 CLIMATE

The Chaikend area has dry continental climate with hot summer and relatively cold winter. The winter period lasts from October to April, and the lowest temperature is -5 (-10°C) from December to the end of February. The average annual air temperature varies between +4°C and 14°C. The highest temperature is in July-August (+30°C). The wind speed is 8/10 m/s. The average annual precipitations are 400-600 mm. Most of the precipitations falls in the spring. Figure 5.2 shows the temperature and the rainfall variations in Chaykend village.

Figure 5.2
Average Temperatures and Rainfall in the Chaykend Project Area



Source https://www.worldweatheronline.com/chaykend-weather-averages/xanlar/az.aspx

Mining and exploration work can be carried out during the whole year.

5.3 Physiography

Goygol and Chaykend are located in the north-east of the Lesser Caucasus, is surrounded by mountains descending to the north. Project area is located in the orographically high and middle mountainous area. The absolute heights of the main mountain peaks vary between 1000-3065 m. The more important mountain peaks close to the project site are Kapaz (3065 m), Pantdag (2107.9 m), Meydanyal Mountain (2098.4 m), Sariyaldagh (1820.6 m). The area is cut by canyons and some of the Jurassic sediments have natural caves.

The lower slopes have thick deciduous and mixed forest, but at higher altitudes, the landscape is dominated by sparse vegitations with subalpine and alpine meadows that reach the foothils of the rocky mountain peaks. The main types of trees in the forest are oriental beech, oriental oak, Caucasian hornbeam, hook pine, various pollen trees and maples. The most common shrub species are cornel, chains, peas, blackberries, hips, hazelnuts, azaleas and others (Abbazov, 2014).

The fauna of the north-west Azerbaijan includes hundreds of species of amphibians, birds and mammals. Among them are Caucasian deer, mountain goats, roe deer, badgers, rabbits, mountain and forest squirrels, Caucasian tetras, partridges, mountain turkeys, grey partridges, nightingales. Wolves, bears, deer, wild goats and large cats can be found in the more isolated areas.

5.4 Hydrogeology

No special hydrogeological studies have been conducted in the Chaykend basalt deposit yet. The project site is located on the left slope of the Kurakchay river, above the local river terraces.

Groundwater springs are not found in the field or in very close areas to the drilling and trenching location. A small spring is marked 2.5-3 km southwest of the basalt area.

Because the rocks around the riverbed are very cracked, the atmospheric precipitations that fall into the area are filtered through the cracks and move towards the Kurakchay river and mix with those waters at depth. No aquifers or deep faults were intersected during the drilling program in the Chaykend area. Even in holes drilled to 80 m depth, water was not recorded. The area has hills and slopes, so the water from atmospheric precipitations drains towards the river valley, but water from rain and snow could accumulate at the bottom of the quarry. If the depth of the quarry reaches the river level or falls below it, the water can be removed by medium-capacity pumps.

Kurakchay water can be used as technical water during operation. Drinking water can be brought from the spring, located 2.5-3.0 km. Drilled boreholes, visual observations and the above indicate that the field has normal hydrogeological conditions.

5.5 Local Resources

The population of Ganja is around 333,000 and the city is an administrative, educational and cultural centre of the area. The railroad and highways that connect the Caspian Sea and the Black Sea pass through Ganja (international road E60). The nearest railway station and airport are located 45 km from Ganja. The closest town to the project is Goygol (Khanlar from 1938 to 2008) and it is located approximately 25 km north of the Chaykend project. The town has a population of approximately 37,000 people. Goygol region has developed as an industrial and district center during the mining of the Chiragdara sulfur-pyrite deposit. Hajikand agate deposit, Mikhailovka (Banovshali) agate deposit and Myasnikov agate deposit were mined irregularly in the past. Currently, the main industries are cattle breeding and agriculture. A small part of the people works in newly established small enterprises and construction companies.

The district centre has hospitals, postal and logistics services, municipal water system> The drilking water for the settlements around Chaykend is from mineral springs. Technical water can be used from the Kurakchay and Ganjachay rivers. The Tulalar gold deposit and several deposits of industrial minerals and aggregates materials in the region have mineral reserves and there are plans for mine development in the near future.

Chaykend Basalt is an early-stage exploration project and there is no mining infrastructure on the project site, but the national electrical grid passes through the project site. Several access roads were created for the agricultural purposes and during the exploration in 2019 and 2020.

Skilled professionals and trades people can be hired from Ganja, Goygol and the villages around the project site.

6.0 PROJECT HISTORY

6.1 HISTORICAL EXPLORATION

Goygol region is an area rich in ore and non-ore deposits and mineral occurences. Various geological prospecting and exploration programs have been completed and the results are published as geological reports and scientific articles and monographs. A brief review of the the geological surveys of the Chaykend area provided in this section is from the internal report geological report, prepared by the exploration team (Yusifov et all, 2021).

In 1929-1932, geologist Rakitin Mollajalilli conducted exploration work on the **manganese** and Chiragdara pyrite deposits. During the exploration works, 0.96-44.53% copper was determined in the Adit № 8 where the “copper ore strip” (chalcopyrite, covellin, tetrahedrite) was excavated.

In 1941, M. Alizadeh and A. D. Karimov conducted a **barite** search in the area between Shamkir district and Bashgishlag village. As a result, Bayan, Azad, Sarisu, Chaykend areas were allocated and reserves in the amount of ($B_1 + C_1 + C_2$) 674,406 t were calculated.

In 1943-1944 A. S. Shikhalibeyli and H. H. Karimov carried out exploration work on barite, sulfur, pyrite and derivative quartzites. As a result, exploration work was completed on the Chiragdera sulfur pyrite deposit.

In 1959-1962 S. M. Suleymanov and N.M.Salimkhanov compiled a survey map of 700 km^2 area between the Goshgarchay and Kurakchay rivers. Gold nugets were found in the area between Goygol region and Zurnabad village on Ganjachay river. More than 5 gold nuggets were found in the panned heavy minerals concentrate from the Kurakchay river.

In 1961-1968, up to 40 gold flakes were found in one slide (№104) in the Azadchay valley by the Agduzdag GAP in the Goygol region.

In 1968-1969, A. E. Ismayilov and A.M. Agakishiyev carried out 1:50,000 scale prospecting and field works in the area between Goranchay and Ganjachay. As a result, several intrusive and subvolcanic masses in the form of stockworks, layers and dykes were separated. At the same time, Todan basalt manifestations were discovered on the right bank of Sarisu river and Ganjachay basalt manifestations were discovered 5.0-5.5 km south-west of Goygol city.

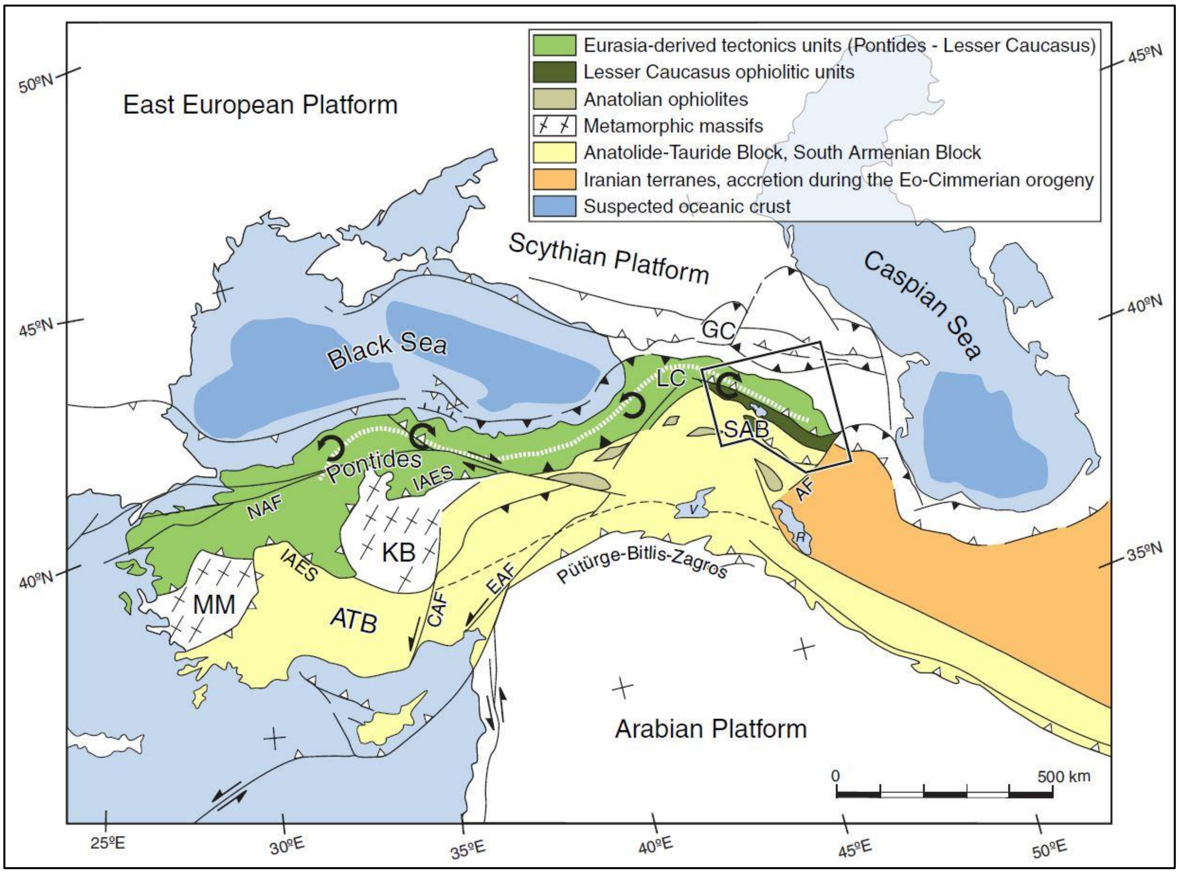
In 1991-2002, Sh. H. Yusifov and G. D. Heydarov carried out accurate gold prospecting work in Tulallar Pant area of Ganjachay basin. As a result, 26,229 kg of forecast resources of P_1 category gold were calculated in the Tulallar gold-bearing zone.

7.0 GEOLOGICAL SETTING & MINERALISATION

7.1 GENERAL INFORMATION ABOUT THE GEOLOGY OF NORTHWEST AZERBAIJAN

Azerbaijan is in the Alpine Himalayan collision zone and is characterized by complex geological settings. The Tethys Ocean was located between the northern and southern domains of the youngest supercontinent Pangea, which started to break down during the Early Jurassic (~200 Ma) by opening of the central Atlantic Ocean. Simultaneously, continental fragments such as the Anatolide–Tauride South Armenian (ATA) microplate rifted off the African margin and converged with Eurasia, relics of which presently occupy large parts of the region from Turkey to Azerbaijan (See Figure 7.1). The rifting along the African margin has been caused by subduction below the southern Eurasian margin and within the Tethys Ocean. Hässig et al. (2014) presented structural, metamorphic and isotopic age data that imply the existence of a second southward subduction below the South Armenian Block (SAB) from Late Jurassic to Early Cretaceous (~160 to 123 Ma).

Figure 7.1
Tectonic Setting of the Caucasus Region and Neighbouring Terranes



Note: AF = Arax Fault, ATB = Anatolide–Tauride Block, CAF = Central Anatolian Fault, EAF = East Anatolian Fault, IAES =Izmir–Ankara–Erzincan suture, KB = Kırşehir Block, GC = Greater Caucasus, LC = Lesser Caucasus, MM = Menderes Massif, NAF = North Anatolian Fault, R = Lake Rezaiyeh, SAB = South Armenian Block, V = Lake Van (Meijers M. et al., 2015).

The subduction of the Tethys is evidenced by a thick and mainly calcalkaline volcanogenic and volcanoclastic series dated as Bajocian to Santonian (Adamia et al., 2017). At this period of time, the northern Lesser Caucasus was characterized by an island arc domain called the Somkheto-Karabakh Island Arc.

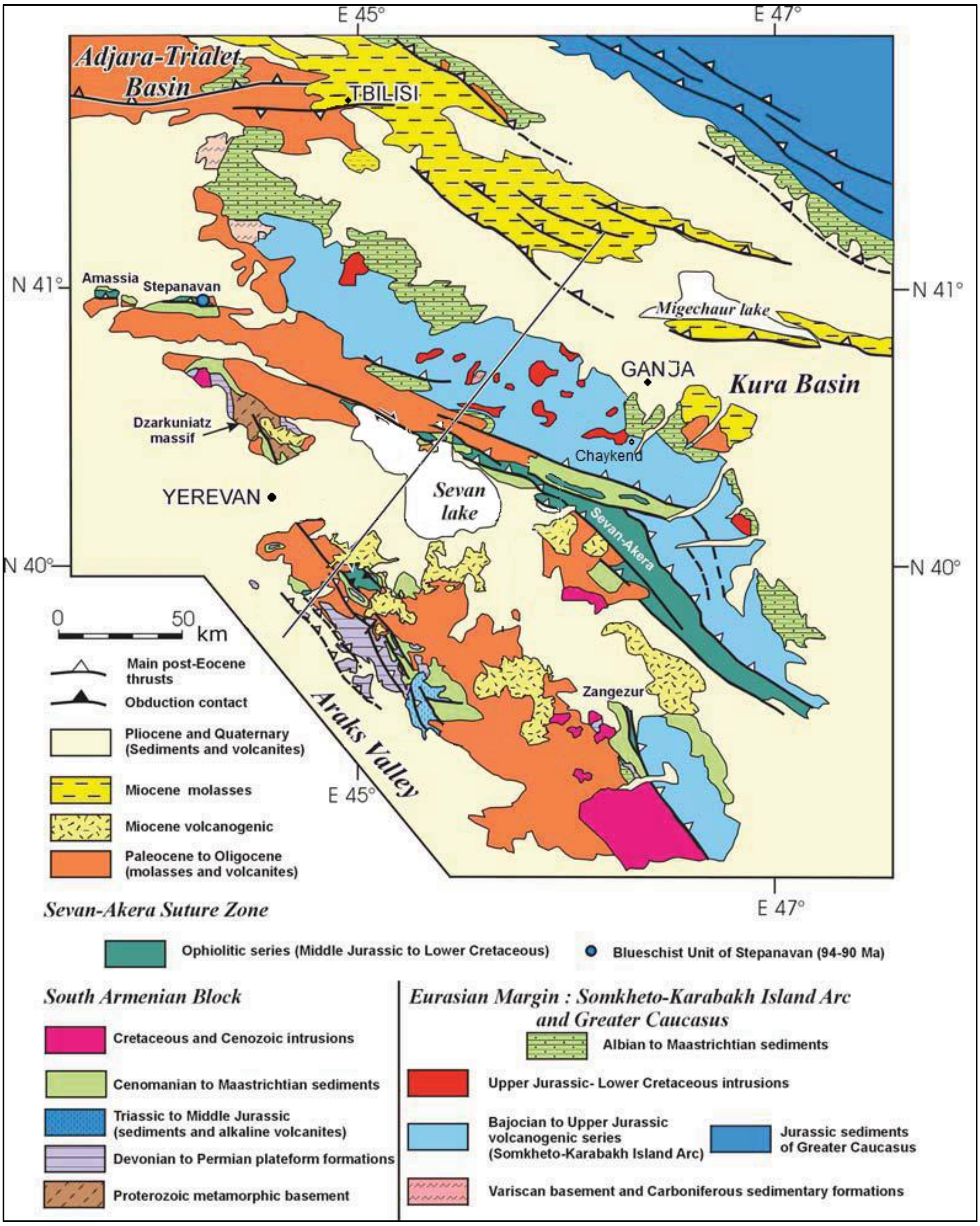
In the Lesser Caucasus from SW to NE are identified three main domains:

- South Armenian Block (SAB)-an autochtonus a Gondwana-derived terrane.
- The ophiolitic Sevan–Akera suture zone with ophiolites.
- The Eurasian plate.
- Chaykend Basalt project is located in the northeast part of Anatolite-Tauride-Armenian Block (ATA) at the former southern Eurasian continental margin (Figure 7.2).
- Recent stratigraphical, petrological, geochemical and geochronological data, combined with previous data allowed the identification of two subductions zones (Sasson et al., 2010). The first one is related to the Neotethys subduction beneath the Eurasian margin and the second one is intra-oceanic (SSZ) responsible for the opening of a back-arc basin with Jurassic-Cretaceous magmatism of the Lesser Caucasus.

The Proterozoic and Upper Palaeozoic (PR-PZ) metamorphic rocks form the Pre-Jurassic basement in the area. They are described in the Azerbaijan part of the Northeast Lesser Caucasus flank (Nalivkin, 1976) of the Lesser Caucasus mega-anticlinorium.

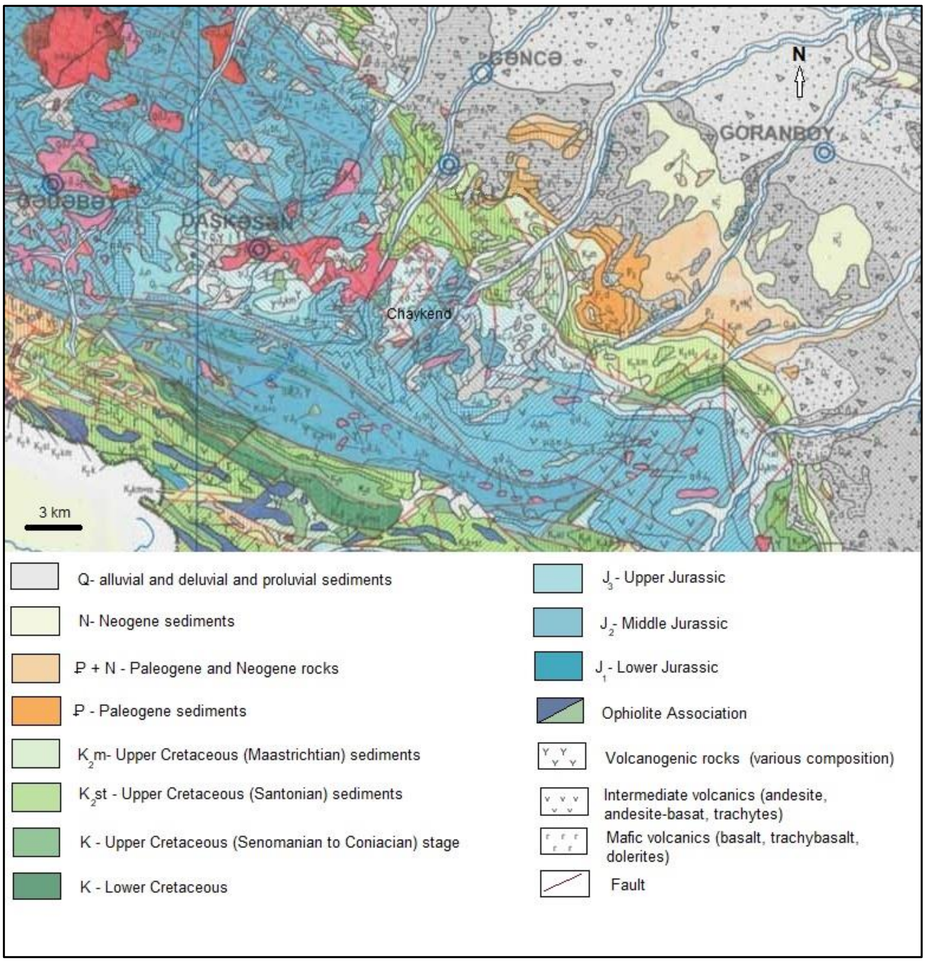
The Mezozoic complex (Figure 7.3 and Figure 7.4) overlays the basement with angular unconformities and nonconformities. Mesozoic cover starts with Jurassic shale, followed by volcanogenic-sedimentary complexes. Bajocian–Bathonian formations (+2400 m) present a basal conglomerate on the Variscan basement and upwards volcanoclastic series, sandstones, marl with macro fossils, basalts, volcanoclastic turbidites and andesite on top. This series indicates a significant magmatic activity during the Middle Jurassic period (Sosson, M. et al., 2010).

Figure 7.2
Tectonic Map of Lesser Caucasus (after Nalivkin, 1976)



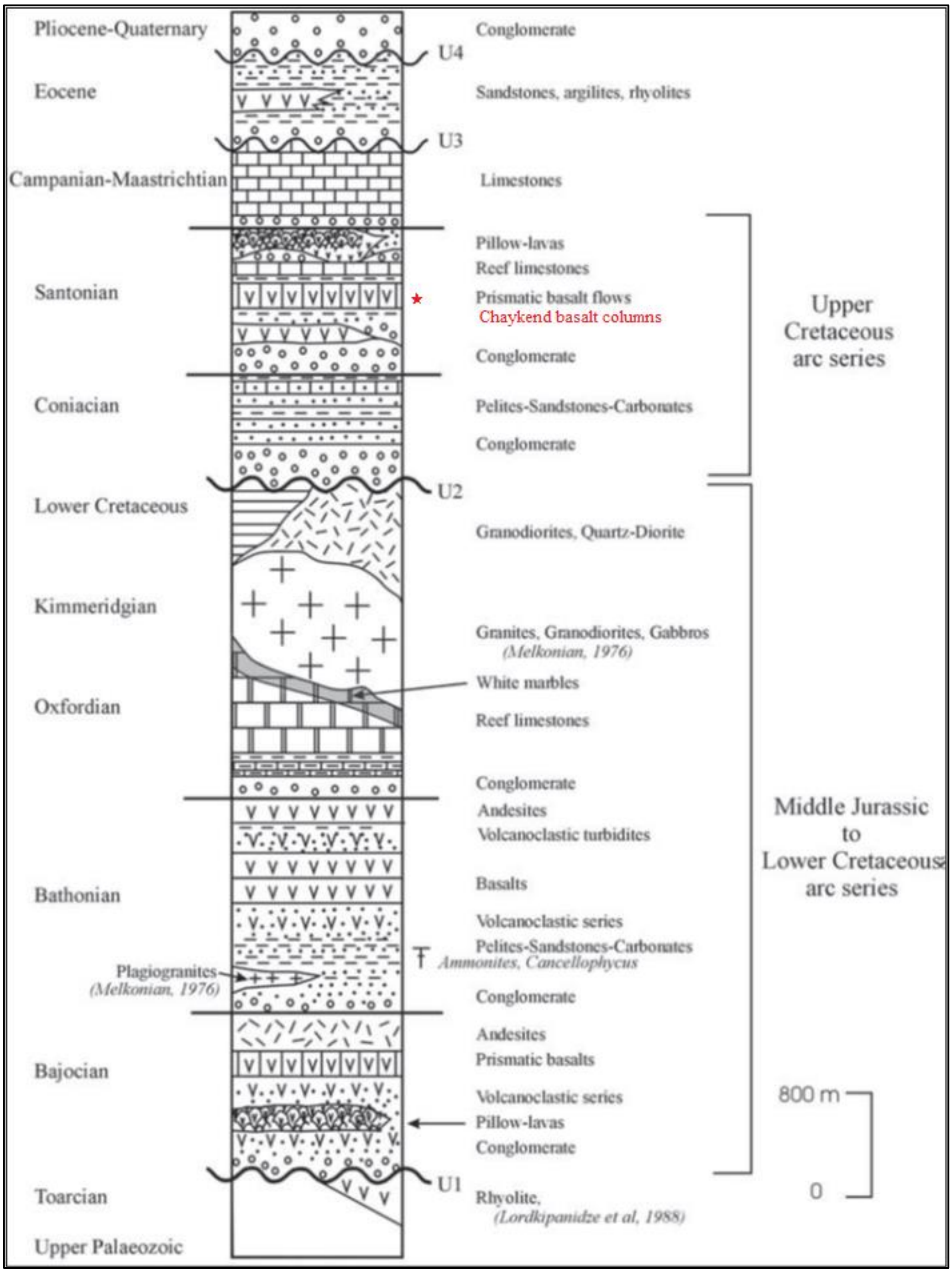
Source: Subductions, Obduction and Collision in the Lesser Caucasus (Armenia, Azerbaijan, Georgia), New insights (Sosson, M. et al., 2010), modified by Micon (June, 2020).

Figure 7.3
Geological Map of the North West Part of Azerbaijan



Source: Geological Map of Azerbaijan Republic 1:500 000 (Bayramov et al., 2008)

Figure 7.4
Lithological Column of the Main Stratigraphic Units in Lesser Caucasus in Azerbaijan



Source: Subductions, Obduction and Collision in the Lesser Caucasus (Sosson, M. et al., 2010), modified by Micon (Dec, 2021).

Sosson et al. (2010) studied the Mesozoic volcanogenic series in four valleys near Ganja (Azerbaijan) from west to east and summarized the stratigraphical information in a composite lithological column (Figure 7.4)of the Eurasian margin of the northeast part of Lesser Caucasus.

Upper Cretaceous (Coniacian) formations unconformably overlie the Upper Jurassic intrusive and volcanic rocks and Lower Cretaceous sediments. From the lowest levels to the top the Coniacian stage consists of a red conglomerate, sandstones and reef limestones indicating a shallow water environment at that time. A similar palaeoenvironment is also featured by the Santonian formations. They are characterized by a transgressive sequence (conglomerate, sandstones and limestones) including prismatic basalt flows. In some places, the series contains on its top pillowed and massive basalt lava flows. The magmatic arc was still active during the Santonian time along this part of the Eurasian margin. The end of magmatic activity occurred in the Campanian to Maastrichtian stages. The formations are made of thin layered pelagic limestones with some carbonate turbidites.

The compiled lithostratigraphic column (Sosson et al., 2010) characterizes an arc-type evolution of the active Eurasian margin from Bajocian to Late Jurassic all along the Lesser Caucasus northern flank. In this part of the Eurasian margin some ages of volcanogenic series (Late Cretaceous) are younger than in the north-western part (Transcaucasian massif, Georgia). A possible migration of the magmatic arc resulted in formation of younger magmatic rock formations during the Late Cretaceous, including the basalt, and andesite-basalt and diabase dykes identified in the Chaykend project area.

7.2 Regional Geology

This sub-section of the report provides an overview of the geology of the Chaykend area and text is summarized or copied from internal geological report, prepared by the Chaykend Exploration Group (Yusifov and Memmedov, 2021).

The primary geological units, mapped in the area include Middle and Upper Jurassic, partly Upper Cretaceous rocks and Quaternary sediments. Yusifov and Memmedov (2021) provided a short description of the geological settings based on their own observations and knowledge from scientific literature for the area.

7.2.1 Stratigraphy

7.2.1.1 Middle Jurassic

The Middle Jurassic sediments are widespread in the Lok-Karabakh structural-formation zone of the Lesser Caucasus. The Upper Bajocian and Bathonian rocks are observed in the area of the 2019-2021 exploration programs.

Upper Bajocian rocks are the oldest in the area. They consist of rhyolites and their tuffs with some subvolcanic intrusions. The hypabyssal rocks are often composed of 25%-30% quartz crystals and they are exposed on the surface mainly in the south-western part of the area around the Chiragdere and Toganali pyrite deposits. The lateral distribution of those rock units extends to the "101 picket" area. Several pyrites and gold-sulphide deposits have been found in the Upper Bajocian stage.

Bathonian lithological units are relatively uncommon, and they sharply differ in colour and chemical composition from the Upper Bajocian rocks. They consist mainly of andesite, andesite-basalt tuffs, tuff breccia, and rarely andesite lava flows. They cover transgressively the Upper Bajocian rhyolites, and start with basal conglomerates.

7.2.1.2 Upper Jurassic

Upper Jurassic sediments are represented by Callovian and Kimmeridgian strata.

Callovian Stage consist mainly of tuffs and siltstones with fossil flora in the Kapaz syncline.

Kimmeridgian Stage is identified mainly in the upper part of the mountains. According to their petrographic composition, they are classified as intermediate volcanics - andesite dacite, rarely dacites and their various not very well consolidated tuffs and lava flows. The rocks overlay with unconformity Callovian and Bathonian rocks.

7.2.1.3 Upper Cretaceous

Upper Cretaceous sediments consist of Coniacian and Santonian rocks in the exploration area.

Coniacian Stage covers Kimmeridgian, Bathonian, and sometimes Upper Bajocian rocks with geological nonconformity. Volcanics are mainly crystalline and pyroclastic rocks, including dacite tuffs, and the sediments are gravelite and calcareous sandstones.

In the Chaykend project area, the rocks belonging to the Upper Cretaceous system are predominantly composed of rocks of the Santonian stage. According to the lithological composition, these rocks are andesite, andesite-basalt and dolerites and their tuffs. These rocks often are interbedded with limestone layers and subvolcanic units containing diabase.

7.2.1.4 Quaternary sediments

Eluvial, diluvial and alluvial sediments are widespread in the exploration area. Eluvial and diluvial sediments are widespread, mainly in watersheds and mountain slopes, with a thickness range from 1-3 m to 10 m. Alluvial sediments are widespread in the valleys of the Kurakchay and Ganjachay rivers, and in their floodplains and terraces. These sediments are mainly composed of graded sand, clay and other gravel and boulders from the surrounding rock units.

7.2.2 Tectonics

The exploration area is located between the north-western part of the Goygol uplift and the Agjakend depression (known as Agjakend synclinorium). It covers the north-eastern parts of the Chaykend Bazalt project and is located between the Goshgarchay and Injachay rivers in the north-eastern part of the Dashkasan synclinorium. It is composed of Upper Cretaceous sediments.

The Goygol uplift is located between the Buzlugchay and Kurekchay rivers and is surrounded by Kapaz syncline in the south and Meydanyal syncline in the north. Its core has multiple outcrops of the Upper Bajocian felsic volcanics.

In the north-west of the Goygol uplift, in the Chiragdara ore district, several tectonic deformations (faults, shears and fractured zones) have been identified. The area has extensive development of hydrothermal alterations, related to pyrite and other mineral deposits.

Kapaz syncline is part of the east Dashkasan synclinorium, in the southern part of Goygol uplift. It consists mainly of Callovian-Oxfordian clastic and carbonate sediments.

Meydanyal syncline is located in the north-western part of the Goygol uplift and is composed of Bathonian volcanogenic and sedimentary rocks.

The Pantdag rise is located between Agjakend and Meydanyal syncline. This structure is composed of Jurassic volcanic rocks, with outcrops in the watershed of the Ganjachay and Kurekchay rivers.

7.2.3 Magmatism

The Earth's crust is a constantly changing and it is subject to subduction and uplift in different geological periods. During these movements, under the influence of tangential forces, tectonic faults appear in the Earth's crust, penetrating in different directions and to different depths.

Depending on the depth of cooling and the composition of the magma, lithologoical units with different texture, structures and chemical compositions are formed. Depending on its internal pressure and the thickness of the bedrock, magma, which moves towards the earth's crust, either cools at different depths or rises to the surface to form volcanoes.

During magmatism, differentiation and assimilation processes take place, which play an important role in the composition of rock formations. Hydrothermal solutions saturated the magma itself and the gas and water vapours released from it move along fractures and faults, changing them to varying degrees of hydrothermal alteration of the surrounding wallrocks.

7.2.3.1 Volcanic Rocks

The products of the Upper Bayocian volcanism are very widespread in the Chaykend Basalt project area. MA Gashgay determined that Upper Bayocian volcanism has 3 phases. In the first and second phases, central volcanoes functioned, and as a result of the long activity of these volcanoes, large amount of felsic (acidic) volcanic rocks were accumulated.

In the third phase, due to the drop in pressure in the volcanic centers, the magma cooled to near the surface and formed subvolcanic intrusions. Because of the strong influence of this magma on the surrounding rocks, metasomatites and pyrite ore were formed.

After the Upper Bayocian volcanism, there was a hiatus in the rock formation in this area. After some time, the Bathonian volcanism started in the Chiragdara area.

The products of Bathonian volcanism consist mainly of pyroclastic materials. At the same time, lava flows and volcanic-sedimentary rocks have formed lithological units, and in many places these rocks alternate.

Medium-grade volcanic-cluster materials were collected during the Bathhonian and have nonconformity contact with basal-conglomerate.

The strongest effect on rocks is shown by hydrothermal solutions released from intrusive rocks that gradually cool in the bigger depth in the Earth. These solutions react with the host rocks, overprinting them with the hydrothermal metasomatic effect and precipitating the beneficial elements they bring with them in that alteration zone. Depending on the cooling conditions, the composition of the hydrothermal solution, the role of intrusive rocks in the formation of the mineralogical and chemical composition of the alteration zones is very significant.

7.2.3.2 Intrusive Rocks

The Dashkasan-Zurnabad intrusion covers the upper valleys of the Ganjachay and Goshgarchay rivers. It is exposed on the surface in the areas between Zurnabad in the north-east and Dashkasan settlements in the south-west and extends in a latitudinal direction.

The Zurnabad intrusion is an eastern extension of the Dashkasan intrusion and is located mainly on the left bank of the Ganjachay river. The intrusion is part of the sedimentary-volcanic complex of the Jurassic and Cretaceous rocks and is observed as an apophysis. The Zurnabad intrusive is described as grayish-green to dark grey gabbro diorite and quartz syenite diorite. The different phases of the intrusive complex gradually transition from one rock type to another. Zurnabad intrusion covers an area of 10 sq. km and the contact with the surrounding stratigraphic units is tectonically active. Liparite, liparite dacites, andesites and their tuffs are the host rocks of the intrusion. Along the contacts are developed shear zones and hydrothermal alterations- silisification, limonitization, kaolinization. Az a result of the metasomatic overprinting are formed secondary quartzites, hornfels and other metasomatites.

7.2.4 Mineral Deposits

The active tectonics and magmatic activities created three main metallogenic zones in the Lesser Caucasus in Azerbaijan: Lok-Kharabakh (also known as Lok-Garabah), Ordubad-Zangazur and Sharur-Djulfa metallogenic belts (Alizadeh et al., 2017).

The Lok-Karabakh Zone is situated in north western Azerbaijan and includes the following deposits:

- Gold deposits- Gedabek, Chovdar, Ugur, Gadir, Dakhkesaman, Gyzylbulag, and Gosha.
- Skarn deposits- Dashkesan Iron deposit, Dashkasan cobalt and iron deposit.
- Zaylik Alunite deposit, that provided the raw material for aluminium production in Gandja metallurgical complex since 1964.
- Manganese- Molladjalili deposits.
- Multiple quaries fro aggregates and dimension stones.

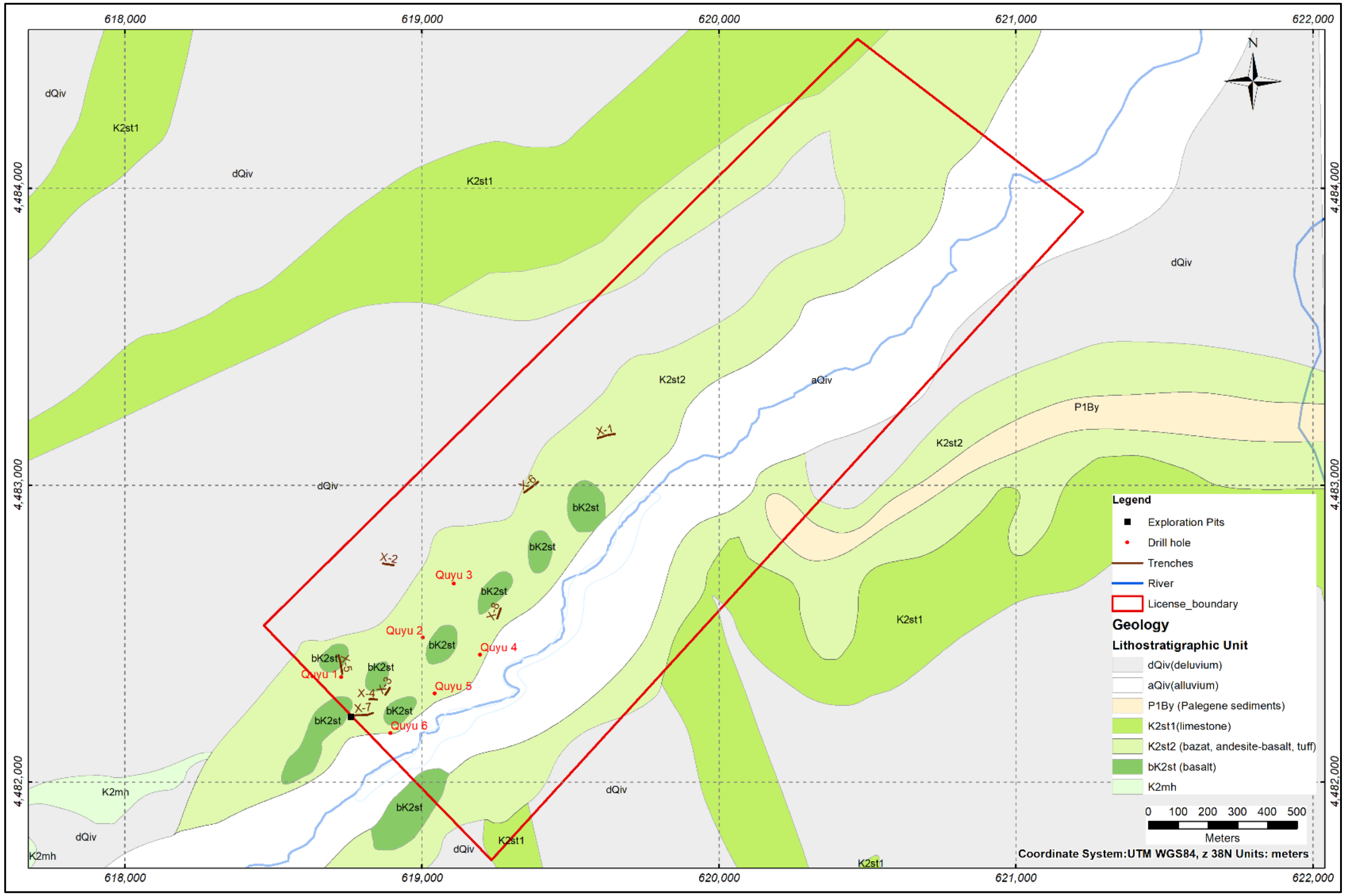
7.3 PROPERTY GEOLOGY

7.3.1 Lithology

The bedrock of the Chaykend project is mainly composed of Upper Cretaceous mafic and intermediate volcanics and sediments (Santonian stage) and Paleogene and Quaternary sediments (Figure 7.5).

According to their chemical and mineral composition and texture, the volcanic rocks are represented by basalt, porphyritic basalt, plagioclase basalt, andesite-basalt, andesite, diabase (called dolerites in some countries) and their tuffs. The volcanogenic - sedimentary complex includes sub-volcanic intrusions, identified as diabase dykes and basalt pipes or dykes.

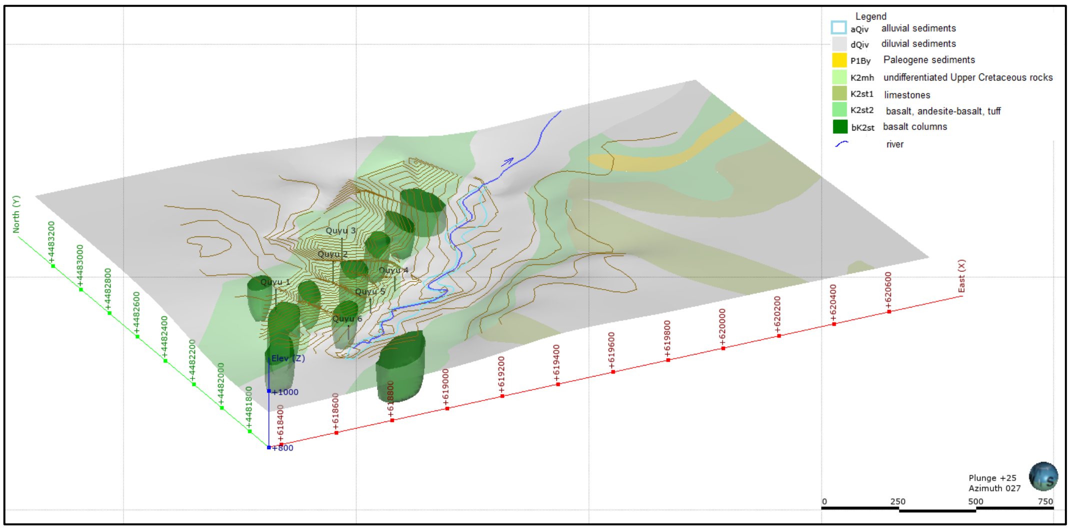
Figure 7.5
Geological Map of the Chaykend Bazalt Project Area (after Yusifov and Memmedov, 2021)



Source: Map was prepared by Micon, based on the data provided by NGES (Yusifov and Memedov, 2021) in January,2022

In the project area, the mafic volcanics are mainly presented as basalt columns (Figure 7.6 and Figure 7.8) with different height and basalt and andesite-basalt flows and tuffs. More information is necessary for the bedrock below the Quaternary alluvium and diluvium sediments, in the areas outside of the drilling.

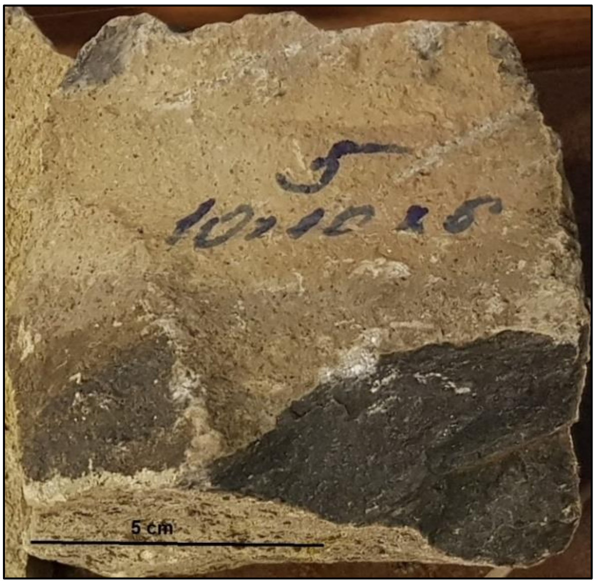
Figure 7.6
3D Geological Model with the Basalt Dykes and 2020-2022 Drill Holes



Prepared by Micon with data provided by Azerbazalt (dated 5 Jan 2022)

Basalt has been intersected in all drill holes and in all trenches. Yusifov and Memmedov (2021) described basalt rocks from the Chaykend Basalt project as dark green to black colour with very fine-grained massive texture. Dark grey, prismatic plagioclase with a glass lustre can be seen on fresh surface (Figure 7.7).

Figure 7.7
Basalt Grab Sample with Weathered and Fresh Surface



Source: Picture provided by Azerbazalt (May, 2021).

Mafic volcanic flows and pyroclastic (tuff) with almost same chemical composition are found in the areas between the columns and are intersected in all 6 drill holes and all trenches.

Figure 7.8
Basalt Columns, Chaykend Project

Picture taken by Micon during the site visit (dated: 19 Aug 2021)

In the far north-eastern part of the project are identified several diabase dykes. Small diabase intersections are identified in the drill holes Quyu 1, Quyu 3 and Quyu 5 and in trench X-7.

On the weathered surface mafic volcanics are fractured, with a weak supergene alteration and ochre to dark brown colour. The weathering profile in the mountain slopes is not deep. The project geologists suggest that the top 2 m of the mafic volcanics should be considered as an overburden and should be used for roads.

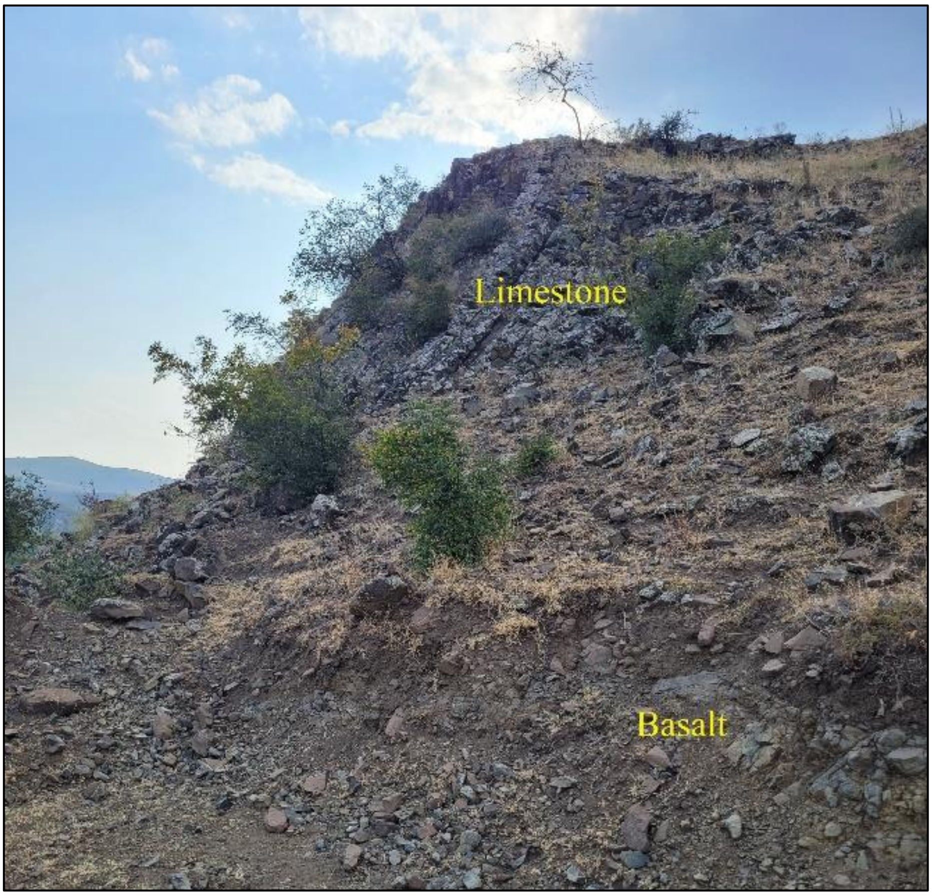
The foothills of the mountains are covered with eluvial and diluvial sediment. The river valley and terraces are filled with boulders, pebbles, gravel, sand, and clay.

7.3.2 Geological Structures

The mafic volcanics - basalt, andesite-basalt and their tuffs have nonconformity contact with white limestones. The contacts are mapped in trenches and in natural outcrops (Figure 7.9).

The studied area of the basalt, andesite-basalt and mafic tuffs is up to 20 ha. The 2020-2021 drilling program intersected fault zones in 2 drill holes. The fault zone intersected in Quyu 3 is from 21.0 m to 27.0 m (6 m core length) wide and the fault zone in Quyu 4 is from 36.0 m to 39.0 m (3m). Because the holes are vertical it is impossible to estimate the strike, dip and true width of the fault zone or zones, but the geological mapping didn't identify any significant displacement and lithological change on the surface, that can affect the quality of the raw material within the resource area.

Figure 7.9
Outcrop of Mafic Volcanics and Limestone



Picture taken by Micon during the site visit (dated: 19 Aug 2021)

7.3.3 Mineralogical Results

The main minerals are identified with XRD analyses in drill core, completed in the geochemical laboratory "Geoservices", part of the "Center of Shared Analytical Instruments and Equipment", Institute of Geology and Geophysics (www.gia.az) in Baku in 2021. The basalt, andesite-basalt and tuff consist of undifferentiated volcanic matrix and mafic minerals such as pyroxene, feldspar, some products of the weathering and chemical alteration (hematite, illite, kaolinite), montmorillonite and some additional inclusions such as hematite and other hydro-silicates. The main minerals are listed by abundance in Table 7.1.

Table 7.1
List of the Minerals Identified in the Chaykend Basalt Project

Mineral	Chemical Composition	Count	Min %	Mean %	Max %
Feldspar (albite-anorthite)	$Na(AlSi_3O_8)$ - $Ca(Al_2Si_2O_8)$	127	25.00	50.99	68.00
Pyroxene (Augite)	$(Ca,Mg,Fe)(Mg,Fe)Si_2O_6$	127	3.00	13.53	21.00
Volcanic ash	NA	127	3.00	7.3	47.00
Titanomagnetite	$Fe^{2+}(Fe^{3+,}Ti)_2O_4$	127	7.00	13.99	20.00
Hematite	Fe_2O_3	127	<DL	0.24	6.00
Illite (clay)	$K_{0.65}Al_2[Al_{0.65}Si_{3.35}O_{10}](OH)2$	127	<DL	1.33	8.00

Mineral	Chemical Composition	Count	Min %	Mean %	Max %
Montmorilonite	$(Na,Ca)_{0.33}(Al,Mg)_2(Si_4O_{10})(OH)_2.nH_2O$	127	<DL	9.08	33.00
Kaolinite	$Al_2(Si_2O_5)(OH)_4$	127	<DL	0.95	10.00
Calcite	$CaCO_3$	127	<DL	0.51	26.00

Source: The mineral formulae are taken from www.mindat.org, the percentage of the minerals is from the XRD analyses, provided by Geoservices Laboratory in Baku.

Feldspar is the name of a group of aluminium silicate minerals and is collectively the most common mineral found on the surface of the Earth. The major rock-forming minerals in the Feldspar group include albite, anorthite, orthoclase and microcline**.** The plagioclase is Plagioclase is a series of tectosilicate (framework silicate) minerals within the feldspar group. The series ranges from albite to anorthite**.** The colour ranges from white to grey, bluish grey, greenish, reddish and the crystals have vitreous lustre.

Pyroxene (augite) is a very common mineral. The colour ranges from black, brown, greenish, violet-brown. Very often it is observed as stubby prismatic crystals with vitreous lustre.

Volcanic ash is a dust-like mixture of undifferentiated pyroclasts (size <2 mm) expelled from a volcano during a volcanic eruption. Individual particles have a hardness of between 5 and 7 on the Mohs Hardness Scale. The particles are irregular in shape, with sharp edges.

Montmorillonite is a very soft phyllosilicate group of minerals with microscopic crystals with white, buff, yellow, greenish to pale pink colour. Usually, it is a result of wallrock alteration or chemical weathering.

Kaolinite is a clay mineral from Kaolinite subgroup. It is soft, white to cream and pale-yellow colour, also often stained various hues with waxy, pearly lustre or earthy look. It is usually found with the fine-grained alunite in lower grade mineralization and gives grey colour of the mineralized material.

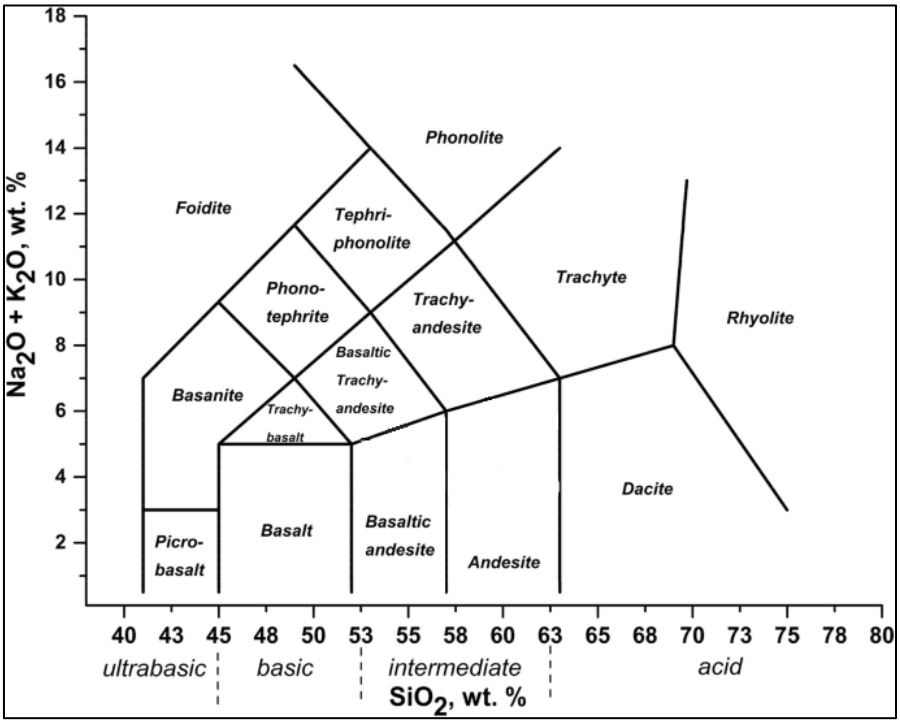
Hematite is present as small fine grains or as small aggregates that are included in the alunite-quartz matrix. Sometimes hematite forms thin layers (up to a few mm thickness). Very rare can be observed tabular idiomatic crystals within the alunite and dickite aggregates.

8.0 DEPOSIT TYPES

The Chaykend raw material is volcanic rock with low silica content and is considered as an industrial mineral commodity.

Most of the volcanic rocks don't have well crystalised minerals and the classification is based on colour, texture and chemical composition. Figure 8.1 shows the international classification of the volcanic rocks is based on total alkalis vs silica (TAS) (Le Bas & Strecksen, 1991).

Figure 8.1
The Chemical Classification of the Volcanic Rocks Based on Total Alkalis versus Silica



Source: international classification of the volcanic rocks (Le Bas & Strecksen, 1991).

Unlike basalt rocks, used as aggregates, the suitability of the raw material for basalt fibres is determined by the content of the following oxides:

- SiO_2 (45%-55%)
- Al_2O_3 (15%-20%)
- Fe_2O + FeO (up to 20%)
- MgO
- CaO
- Na_2O+K_2O

In addition to the main elements the presence of deleterious elements is very important. The main deleterious mineral compounds are free quartz, SO_3 and MnO.

Several basalt deposits are already used for mining of basalt that is used for basalt fibre. NGES (Yusifov and Memedov, 2021) provided a comparison of the chemical composition of Chaykend basalts with the chemical composition of gabbro, basalt, andesite-basalt, and diabase deposits that have been explored and economically fully evaluated in Ukraine, Russia, Georgia. Table 8.1 shows that the chemical composition of the Chaykend basalt deposit is approximately identical to the Karakan basalt (Siberia. Russia). Vasiliyevsk basalt (Russia). Marneuli basalt (Georgia) deposits.

Table 8.1
Comparison of the Basalt from Chaykend with other Basalt Deposits

Item	Andesite-basalt	Basalt	Diabase	Basalt	Basalt	Gabbro	Basalt
Deposit	Podgorny	Karakan	Vasilyev	Berestovetsk	Marneuli	Maletinsk	Chaykend
SiO_2	53.23	52.92	49.25	50.63	51.50	48.11	51.25
Al_2O_3	18.13	15.48	16.28	14.73	17.10	14.70	17.42
TiO_2	1.18	1.72	1.91	2.59	1.60	2.33	1.19
MgO	4.32	4.03	4.01	5.15	5.80	5.47	4.74
CaO	8.24	7.88	8.10	8.06	8.20	10.69	8.70
$FeO+Fe_2O_3$	10.32	13.04	15.43	15.12	9.20	13.85	10.84
MnO	0.16	0.24	0.26	0.18	0.14	0.21	0.20
$Na_2O + K_2O$	4.21	4.24	5.08	3.19	5.70	3.84	2.23

Source: NGES Report (Yusifov and Memedov, 2021)

8.1 PETROLOGICAL DESCRIPTION OF BASALT

Basalt is an igneous mafic rock with volcanic or sub-volcanic origin, formed as a result of the rapid cooling of lava on the surface, close to the surface, or at the bottom of the world oceans. The basalt and it's varieties are widely distributed in the upper parts of the earth's crust and on the Earth's surface. It is estimated that more than 30% of the Earth's crust is basalt.

Rapid cooling and solidification of mafic magma create a very fine grained or fine grained rock with dark colour and massive or columnar jointing structure. The colour ranges from black to dark grey, greenish dark grey, greenish-black and brownish to hematite red dark grey.

The main minerals are pyroxene (augite), calcium-rich plagioclase with lesser amounts of olivine and amphibole and small amounts of volcanic glass.

Basalt and its varieties usually have massive or columnar jointing structure. The typical basalt columns are most commonly hexagonal in shape and are separated by joints or fractures in the rock that formed when the rock contracted, during the cooling of the lava.

Because of its relatively low silica content, basalt lava has a comparatively low viscosity, and forms lava flows that can travel long distances. Basalt is also found as intrusive dikes and sills.

The most common basalt textures are:

- aphanitic (glassy) - crystals are visible only under microscope.
- fine-grained – small crystals are visible on fresh surface.
- porphyritic – the rock has well-formed light-coloured feldspar phenocrysts or glassy light green olivine phenocrysts, set in a very fine grained or glassy matrix (groundmass).

8.2 BASALT AS A RAW MATERIAL FOR BASALT FIBER

Basalt is a magmatic rock formed mainly from aluminosilicate alloy from the depths, hardened in the upper layers of the earth's crust or on the earth's surface. Basalt makes up more than 30% of the earth's surface.

Unlike the glass industry, basalt is a natural raw material for fibre production. The main components of basalt are SiO_2, Fe_2O_3 + FeO, Al_2O_3, CaO, MgO, TiO_2 and (Na_2O+K_2O).

The suitability for the production of various types of basalt fibres and the mineral processing of rocks have been studied by the State Enterprise and Scientific-Technological Centre "Basalt Fibre Materials BAVOMA" (Bavoma), Kiev, Ukraine. The centre has conducted research in more than 500 locations in different parts of the world. Table 8.2 shows the chemical composition of rocks suitable to produce various types of fibres.

Table 8.2
Chemical Composition of Rocks Suitable to Produce Basalt Fibres

Oxide	Rough		Continuous (rowinq)		Spatula (flakes) Delicate		Spatula Super fine Rough	
SiO_2	48	53	47.5	55	43	51	46	52
Al_2O_3	13	18	14	20	10	17	13	18
FeO + Fe_2O_3	8	15	7	13.5	10	18	8	15
CaO	6.5	11	7	11	8	13	6.05	11
MgO	3	10	3	8.5	4	15	3.5	10
TiO_2	0.5	2	0.2	2	0.2	3	0.5	2.5
Na_2O + K_2O	2	7.5	2.5	7.5	2	5	2	7.5
Acidity coef Mk	3.15	1.68	3.16	1.90	2.22	1.39	3.04	1.67
MnO less then	0.5		0.25		0.4		0.5	
SO_3 less then	1		0.2		1		0.5	
LOI less then	5		5		5		5	
Free quartz less then	3		2		3		3	

Source: ETM "Bavoma" (http://www.bavoma.com/eng/stuff.php).

Table 8.3
Mineralogical Composition of the Rocks, Suitable to Produce Basalt Fibres

Minerals	Acceptable Range of the Minerals (%)		
	Thin staple fibre	Super thin staple fibre	Continuous fibre
Pyroxene	0-45	5-40	1-35
Fe Ore	0-12	0-12	0-12
Olivine	0-15	0-15	0-15
Natural volcanic glass	0-25	2-45	0-50
Quartz	0-2	0-2	0-traces
Amphibole	0-30	0-15	0-10
Biotite	0-2	0-3	0-3
Palagonite	0-20	0-20	0-25
Chlorite	0-35	0-35	0-35
Epidote-zeolite	0-10	0-15	0-5
Carbonate	0-15	0-10	0-8

Source: ETM "Bavoma" (http://www.bavoma.com/eng/stuff.php)

The main physical and mechanical properties of rocks are the viscosity and the maximum temperature of crystallization (melting point). The viscosity of a rock depends on its chemical composition. The amount of the different oxides plays a key role in the calculation of acidity coefficient Mk (acidity-basicity indicator) that is the basis of the classification system for mineral fibres (Table 8.2).

After a review of the results from geochemical analyses from Chaykend project, the experts from Bavoma confirmed that the basalt from Chaykend meets the specifications for raw materials, that can be used for basalt fibres production

9.0 MINERAL EXPLORATION

9.1 INTRODUCTION

On 20th April 2020, “Azerbazalt” EIB and the National Geological Exploration Service (NGES) signed “Contract Agreement No. 001/2020” for exploration and evaluation of basalt raw materials in Chaykend area. According to the terms of the contract, geological exploration will be carried out to determine the quantity and quality of the basalt and its lithological varieties, calculate the amount of raw materials of category C_2, evaluate the potential for economic extraction and register the mineral resources and reserves in the database of the State Reserve Committee and submit them to Azerbazalt.

According to the agreement, boreholes were drilled, and trenches were excavated in the Chaykend Basalt project area in accordance with the Azerbaijan State exploration guidelines and regulations for C_2 category mineral resource drilling to expose and sample the rocks below the Quaternary sediments in the places where alluvial or diluvial overburden exists.

9.2 GEOLOGICAL PROSPECTING AND MAPPING PROGRAM

In 2019 and 2020, NGES started geological mapping and sampling program in the Chaykend project area. The geological observations were conducted on 10 traverses (M-1 to M-10) (Figure 9.1).

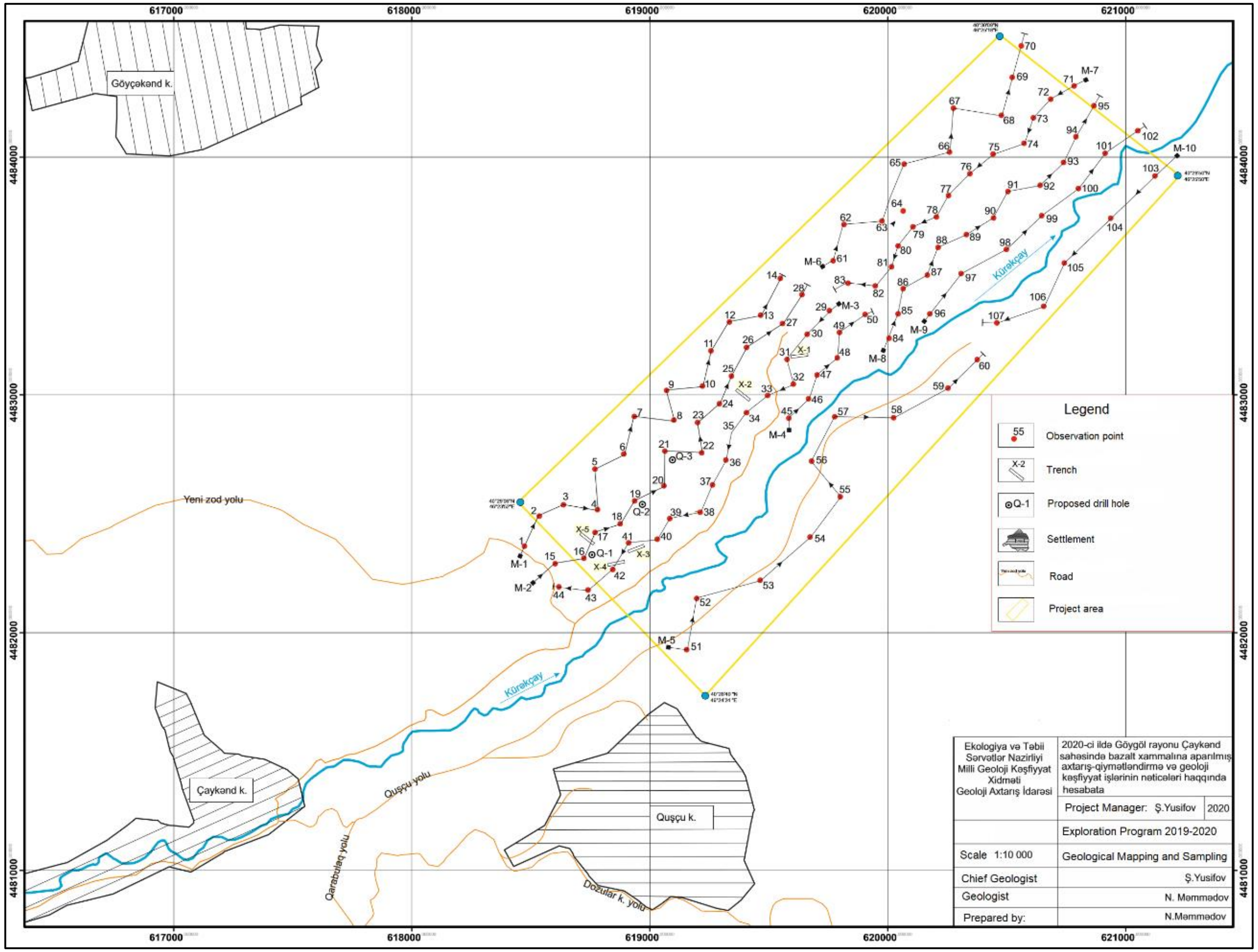
Grab samples with dimensions 100 x 100 x 20 mm, 50 x 50 x 50 mm, 150 x 100 mm, 200 x 100 mm, 300 x 50 x 50 mm, 100 x 200 x 60 mm were collected during the geological prospecting and send for geochemical analyses to Geoservice EIB LLC in Baku. Geoservice is a scientific and commercial laboratory, independent from Azerbazalt and Micon, and is part of the Institute of Geology and Geophysics of the Azerbaijan National Academy of Sciences, Baku. Some grab samples were sent to the “Institut Stekla” in Moscow, Russia to determine the chemical composition, physical properties and the suitability of the raw material from Chaykend for the production of basalt fibre. The results from the test are very encouraging and show that the project merits additional exploration (see Section 13.0) and the Azerbazalt management and the exploration team decided to advance the project and continue with the next phase of the drilling program.

The results from the 54 samples showed that the basalt from the Chaykend project can be used for production of basalt fibres and the exploration group from NGES proposed additional field work including trenching and drilling.

A 1:10000 geological map (Memmedov and Yusifov, 2020) of the area was compiled based on field observation and measurements of structural elements. Natural outcrops and small stripping and clearing areas were sampled by cutting 54 channel samples (1 m long and 5 cm wide). The rock chips from the channels are analysed in the “Center of Shared Analytical Instruments and Equipment” and its geochemical laboratory “Geoservice”, Baku.

The results from the channel samples are provided in Table 9.1

Figure 9.1
Map of the Observation Stations



Source: Map was prepared by NGES (Memmedov, 2020) and provided by Azerbazalt (August, 2021)

Table 9.1
Geochemical Results for the Channel Samples (After Memmedov and Yusifov, 2020)

Sample	Channel Location	Length (m)	SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	CaO %	MgO %	Na_2O %	K_2O %	MnO %	SO_3 %	P_2O_5 %	Cl %	LOI %
Q-1	clearing 1	1.0	50.58	17.01	11.55	1.33	8.95	5.18	3.21	0.62	0.27	0.005	0.41	0.004	0.81
Q-2	outcrop	1.0	53.63	16.91	9.67	1.07	7.56	3.73	3.82	1.63	0.14	0.004	0.89	0.002	0.89
Q-3	outcrop		51.12	15.24	12.09	1.03	9.37	4.62	3.46	0.71	0.28	0.008	0.59	0.003	0.84
Q-4	outcrop	1.0	51.19	16.79	11.06	1.17	9.06	4.98	3.26	0.76	0.01	0.007	0.58	0.001	0.79
Q-5	outcrop	1.0	50.17	19.67	11.70	1.05	9.47	5.34	3.11	0.71	0.01	0.005	0.53	0.002	0.92
Q-6	outcrop	1.0	50.84	16.79	11.27	1.22	9.11	4.72	3.48	0.71	0.24	0.003	0.61	0.002	0.86
Q-7	outcrop	1.0	50.99	17.30	10.22	1.06	9.49	5.01	3.35	0.91	0.17	0.002	0.57	0.001	0.88
Q-8	outcrop	1.0	52.31	15.24	12.09	1.51	7.45	4.54	3.30	1.75	0.25	0.004	0.72	0.002	0.81
Q-9	outcrop	1.0	52.69	16.77	10.44	1.02	7.96	3.9	3.68	1.55	0.22	0.003	0.79	0.008	0.93
Q-10	outcrop	1.0	52.26	16.49	11.29	1.21	8.02	3.94	3.49	1.59	0.01	0.004	0.77	0.001	0.91
Q-11	outcrop		51.46	17.07	10.49	1.20	8.31	5.36	3.55	0.79	0.21	0.005	0.88	0.002	0.92
Q-12	outcrop	1.0	51.12	17.04	10.62	1.16	8.89	5.44	3.39	0.86	0.17	0.006	0.42	0.002	0.87
Q-13	outcrop	1.0	51.25	17.08	10.61	1.01	8.80	5.21	3.29	1.01	0.02	0.006	0.62	0.003	0.94
Q-14	outcrop	1.0	51.09	17.08	10.75	1.07	9.26	4.78	3.35	1.02	0.15	0.008	0.47	0.005	0.89
Q-15	outcrop	1.0	51.36	16.88	10.43	1.11	8.81	4.66	3.26	1.25	0.06	0.003	0.71	0.003	0.91
Q-16	outcrop	1.0	51.26	17.85	9.23	1.12	9.03	4.75	3.41	1.37	0.16	0.002	0.61	0.002	0.92
Q-17	outcrop	1.0	51.27	17.49	9.24	1.01	8.96	4.71	3.62	1.32	0.14	0.003	0.74	0.003	0.89
Q-18	outcrop	1.0	51.71	16.01	10.95	1.54	6.86	5.27	3.09	2.74	0.18	0.008	0.48	0.003	0.76
Q-19	clearing 2	1.0	60.72	17.54	10.40	1.23	9.49	4.72	3.53	0.62	0.23	0.002	0.43	0.002	0.91
Q-20	clearing 2	1.0	50.92	17.76	10.45	1.1	9.36	4.89	3.42	0.89	0.24	0.003	0.53	0.002	0.89
Q-21	outcrop	1.0	50.84	17.14	10.93	1.91	9.03	5.12	3.26	0.70	0.14	0.006	0.47	0.003	0.91
Q-22	outcrop		51.41	17.31	10.36	1.11	9.25	4.98	3.53	0.72	0.17	0.006	0.46	0.002	0.68
Q-23	outcrop	1.0	51.07	16.70	10.75	1.20	9.28	5.19	3.36	0.75	0.26	0.002	0.50	0.002	0.93
Q-24	outcrop	1.0	51.11	17.14	10.46	1.11	9.31	5.27	3.26	0.52	0.23	0.008	0.38	0.003	0.72
Q-25	outcrop	1.0	50.35	17.06	11.14	1.07	9.19	5.26	3.24	0.90	0.26	0.004	0.42	0.002	0.86
Q-26	clearing 2	1.0	51.01	17.14	10.57	1.17	9.49	4.68	3.43	0.88	0.23	0.007	0.51	0.003	0.81
Q-27	outcrop	1.0	51.11	17.53	10.45	1.22	8.76	4.71	3.49	0.90	0.14	0.006	0.58	0.003	0.87
Q-28	clearing 3	1.0	51.49	16.93	10.34	1.19	8.87	5.11	3.46	1.11	0.02	0.003	0.88	0.003	0.89
Q-29	outcrop	1.0	50.72	17.63	10.29	1.16	9.41	5.12	3.29	0.84	0.01	0.007	0.55	0.002	0.91
Q-30	outcrop		51.07	16.82	10.74	1.13	9.50	4.57	3.21	1.28	0.22	0.002	0.53	0.002	0.87
Q-31	outcrop	1.0	51.18	17.14	10.49	1.03	9.09	4.32	3.47	1.24	0.15	0.009	0.63	0.004	0.88
Q-32	outcrop	1.0	50.91	16.74	10.83	1.19	9.06	4.85	3.32	1.38	0.03	0.003	0.63	0.003	0.95
Q-33	outcrop	1.0	51.13	17.48	10.15	1.08	9.01	4.87	3.50	1.26	0.19	0.007	0.42	0.002	0.82
Q-34	outcrop	1.0	51.67	17.05	10.16	1.06	8.67	4.53	3.49	1.40	0.23	0.004	0.72	0.004	0.92
Q-35	outcrop	1.0	51.19	16.88	11.05	1.14	8.24	3.83	3.85	1.57	0.22	0.008	0.67	0.003	0.91
Q-36	outcrop	1.0	51.28	18.20	10.14	1.12	9.07	4.51	3.56	0.48	0.17	0.008	0.55	0.003	0.89

Sample	Channel Location	Length (m)	SiO_2 %	Al_2O_3 %	Fe_2O_3 %	TiO_2 %	CaO %	MgO %	Na_2O %	K_2O %	MnO %	SO_3 %	P_2O_5 %	Cl %	LOI %
Q-37	outcrop	1.0	50.96	17.23	10.81	1.08	9.10	4.98	3.48	0.66	0.24	0.007	0.50	0.002	0.91
Q-38	clearing 2	1.0	50.98	16.61	11.63	1.04	8.55	5.04	3.31	1.21	0.01	0.005	0.68	0.004	0.93
Q-39	outcrop	1.0	51.39	17.55	10.51	1.16	8.99	4.29	3.49	1.11	0.06	0.11	0.69	0.004	0.94
Q-40	outcrop	1.0	50.49	17.28	10.83	1.12	9.13	4.79	3.43	1.05	0.28	0.008	0.65	0.002	0.91
Q-41	outcrop		50.93	17.03	10.79	1.03	8.94	4.87	3.46	1.12	0.17	0.008	0.71	0.003	0.91
Q-42	outcrop	1.0	51.51	17.05	10.48	1.04	9.03	4.62	3.42	0.91	0.18	0.009	0.52	0.003	0.89
Q-43	outcrop	1.0	52.19	18.12	8.98	1.14	9.71	3.68	3.51	1.01	0.01	0.008	0.31	0.004	0.88
Q-44	outcrop	1.0	51.60	16.58	11.02	1.14	8.18	4.04	3.78	1.52	0.31	0.007	0.89	0.003	0.91
Q-45	outcrop	1.0	53.15	18.41	8.76	1.199	8.88	3.31	3.54	1.49	0.01	0.007	0.38	0.003	0.84
Q-46	outcrop	1.0	51.10	16.69	11.19	1.08	8.61	4.88	3.48	1.09	0.19	0.009	0.77	0.002	0.88
Q-47	outcrop	1.0	55.04	15.86	10.68	1.21	7.29	2.89	4.03	1.64	0.05	0.008	0.46	0.002	0.81
Q-48	outcrop	1.0	54.82	15.94	10.52	1.13	7.58	3.21	4.01	1.38	0.05	0.007	0.35	0.003	0.87
Q-49	outcrop	1.0	51.91	16.67	11.14	1.03	8.67	4.18	3.36	1.02	0.17	0.008	0.48	0.003	0.92
Q-50	outcrop	1.0	45.88	17.19	15.96	1.55	6.76	7.62	3.24	0.69	0.01	0.11	0.73	0.003	0.14
Q-51	outcrop	1.0	50.37	17.51	10.91	1.23	9.61	4.79	3.29	0.71	0.19	0.009	0.49	0.004	0.83
Q-52	outcrop	1.0	50.68	17.03	10.88	1.11	9.11	4.79	3.54	0.97	0.26	0.007	0.61	0.003	0.93
Q-53	outcrop	1.0	51.38	16.93	10.86	1.24	9.03		3.51	0.95	0.24	0.009	0.57	0.003	0.91
Q-54	outcrop	1.0	51.65	16.96	11.21	1.19	9.54		3.82	0.84	0.24	0.006	0.79	0.003	0.87
Average			**51.25**	**17.42**	**10.84**	**1.151**	**8.70**	**4.74**	**3.43**	**1.03**	**0.21**	**0.006**	**0.56**	**0.003**	**0.89**

Source: The data was prepared by NGES (Yusifov and Memmedov, 2021) and provided by Azerbazalt (November, 2021).

9.3 Trenching Program

In 2020, 8 trenches (X-1 to X-8), totalling 300 m^3 were excavated to expose and sample the bedrock under diluvium and to map the lithological boundaries of the different varieties of the mafic volcanics (basalt and andesite-basalt) and the surrounding lithological units (limestone).

The surveying of the trenches was part of the data collection, data compilation and preparation of a 1:10,000 topographic base map of the Chaykend project. Surveying was completed by a surveyor from the NGES, using theodolite traverses. The GPS-LEICA-VIVA-15 (differential GPS instrument), produced by Leyka Geosystems (www.leyka-geosystems.com) was used to collect the GPS coordinates of the points with-accuracy (<25 cm). The trenches and exploration pit are included in the 1:10 000 topographic map with contours at 5m vertical intervals.

For measuring the horizontal and vertical angles was used an optical theodolite 2T5KP. To verify the accuracy of the measurements, the bases were measured at the beginning and end of the network. The difference between the measurements did not exceed 2 cm. The coordinates of the topographic network are calculated in Universal Transverse Mercator Grid (UTM) WGS-84, zone 38 North, and the heights are calculated in the Ellipsoid system . The coordinates of the measured points from the 2020 trenches are listed in Table 9.2.

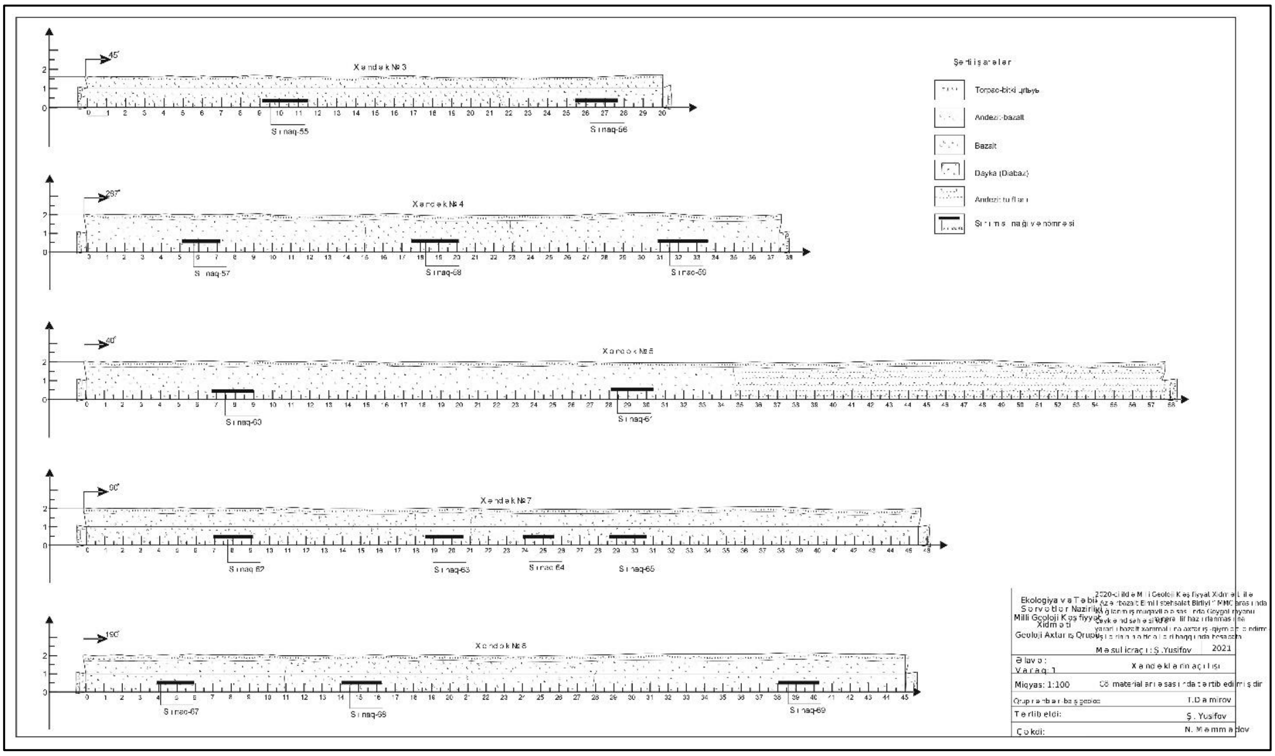
Table 9.2
Chaykend 2020 Trenches- Coordinates of the Surveyed Points

Trench	Length (m)	Pt	Location	Easting	Northing	Elevation
Xendek-01	60.00	X-1.1	start	619590.85	4483157.96	917.28
		X-1.2	@ 21.5 m	619627.83	4483168.73	924.83
		X-1.3	end	619648.99	4483172.03	920.22
Xendek-02	35.50	X-2.1	start	619344.13	4482974.79	947.12
		X-2.2	@ 26.0 m	619365.32	4482989.84	936.68
		X-2.3	end	619390.73	4483010.49	929.14
Xendek-03	59.00	X-3.1	start	618876.84	4482294.14	934.22
		X-3.2	@ 14.0 m	618884.41	4482306.01	939.93
		X-3.3	end	618892.23	4482317.27	947.16
Xendek-04	59.00	X-4.1	start	618822.15	4482278.22	949.82
		X-4.2	end	618847.77	4482277.3	938.26
Xendek-05	66.00	X-5.1	start	618731.7	4482362.89	992.23
		X-5.2	@41.0 m	618725.43	4482403.44	994.13
		X-5.3	end	618718.83	4482427.71	996.75
Xendek-06	26.00	X-6.1	start	618868.53	4482736.19	988.6
		X-6.2	@17.5 m	618885.79	4482732.86	983.26
		X-6.3	end	618903.51	4482730.47	977.86
Xendek-07	61.00	X-7.1	start	618774.09	4482224.35	938.24
		X-7.2	@ 42.75 m	618816.94	4482226.78	944.1
		X-7.3	end	618834.13	4482232.73	947.79
Xendek-08	45.00	X-8.1	start	619253.39	4482551.49	895.36
Exploration Pit	1.5	Shurf 1	start	618761.04	4482217.94	939.45

Source: The data was compiled by NGES (Huseynov, 2021) and provided by Azerbazalt (January, 2022)

The trenches were mapped by the project geologist and 20 intervals were sampled. Figure 9.2 show the geological mapping and sampling for trenches X-3, X-4, X-5, X-7 and X-8.

Figure 9.2
Mapping and Sampling of the 2020 Trenches in the Chaykend Basalt Project



Note: Data provided by Azerbazalt (8 December, 2021).

The trenches were mapped and sampled, and the lithology and the geochemical results are imported in the 3D geological model for the Chaykend project. The trenches that are sampled 0.5 m to 1.0 m deep. The basic geostatistical parameters of the trench samples are provided in Table 9.3.

Table 9.3
Basic Geostatistical Parameters of the Trench Samples

Name	Count	Mean	Standard Deviation	Coefficient of Variation	Variance	Minimum	Median	Maximum
Acidity Mk	20	2.41	0.078	0.03	0.006	2.25	2.39	2.56
Al_2O_3%	20	17.13	0.418	0.02	0.176	16.49	17.05	18.21
CaO%	20	9.02	0.43	0.00	0.186	7.96	9.06	9.5
Fe_2O_3%	20	10.62	0.59	0.06	0.35	9.24	10.61	11.7
K_2O%	20	1.00	0.35	0.35	0.12	0.48	0.91	1.59
MgO%	20	4.80	0.39	0.08	0.15	3.9	4.78	5.34
Na_2O%	20	3.41	0.14	0.04	0.02	3.11	3.41	3.68
P_2O_5%	20	0.58	0.11	0.20	0.01	0.41	0.55	0.79
SIO_2%	20	51.17	0.56	0.01	0.31	50.17	51.07	52.69
SO_3%	20	0.004	0.002	0.50	0.00	0.002	0.003	0.008
Ti_2O%	20	1.13	0.09	0.08	0.01	1.01	1.12	1.33
Cl%	20	0.003	0.001	0.5	0.00	0.001	0.002	0.008
MnO%	20	0.15	0.09	0.58	0.01	0.01	0.17	0.27
LOI	20	0.90	0.03	0.04	0.01	0.81	0.91	0.95

Based on the data obtained from prospecting, grab sampling, trenching and core drilling and sampling a geological map in scale 1:10,000 was compiled.

9.4 COMMENTS & CONCLUSION

Micon's QP Dr. Tania Ilieva, P.Geo. reviewed the mapping and trenching geological information and visited trenches and outcrops. Micon's opinion is that the NGES exploration team followed standard industry procedures and practices and the data collected during the mapping and trenching program is reliable and it can be used for the purposes of the geological interpretations, modelling and mineral resource estimation.

10.0 DRILLING

10.1 AZERBAZALT 2020-2021 DRILLING PROGRAM

Six (6) drill holes with a total length of 400 m were drilled to estimate the raw material to a depth of 50 m to 100 m.

The drilling program started on 16 September 2020 and completed on 21 April 2021. The drilling contractor was the NGES, part of the Ministry of Ecology and Natural Resources. The project geologist, who managed the drilling program is Mr. Nahid Mammadov and the program was supervised by Mr. Shiraslan Yusifov, a Chief Geologist of the Chaykend Exploration Group.

The holes were drilled with POWER-6000 SD drilling rig (Figure 10.1). The hole diameter is 76 mm and the core diameter is 47.6 mm (NQ core). Core recovery during drilling ranged from 40% in the beginning of the holes to 100% (average is above 80%). Thus, the core recovery was low in the fractured areas of the rock, and 80-100% in the massive mafic volcanics - massive basalt, andesite-basalt of diabase. Average core recovery is 83%.

Figure 10.1
Drilling Program 2020-2021

Source: Picture provided by Azerbazalt (May, 2021).

The casing of the holes is pulled out of the ground and the collars of the holes are not capped or cemented. During the site visit the holes were still visible on the ground. The holes are surveyed by a professional surveyor. All holes are vertical and no downhole survey was conducted.

The core extracted from the drill holes is analysed and the chemical composition and quality of the raw material were determined by chemical analysis. The geological setting, physical-geographical, hydrogeological and geotechnical conditions of the Chaykend basalt field were studied during the field seasons of 2020 and 2021.

Table 10.1
Drill Holes from the 2020-2021 Program on the Chaykend Bazalt Property

Drill Hole	Length (m)	Dip (°)	Azimuth (°)	Easting (m)	Northing (m)	Elevation (m)	Start	End
Quyu 1	80	90°	0°	618728.87	4482353.17	993.53	16-Sep-20	28-Sep-20
Quyu 2	80	90°	0°	619003.85	4482485.91	977.48	8-Feb-21	24-Feb-21
Quyu 3	81	90°	0°	619127.79	4482667.98	957.67	6-Mar-21	26-Mar-21
Quyu 4	51	90°	0°	619196.72	4487428.47	904.51	8-Apr-21	12-Apr-21
Quyu 5	51	90°	0°	619044.02	4482298.59	914.25	13-Apr-21	16-Apr-21
Quyu 6	51	90°	0°	618894.84	4482165.18	906.82	17-Apr-21	21-Apr-21

Note: The length of the hole is rounded to the lowest meter.

10.2 Core Logging Procedure

Core logging procedure starts the moment the drill cores are placed in the core boxes. Project geologist and the chief geologist communicate with the drillers every day and complete a quick log at the drill site (Figure 10.2). The geologist ensures that the drill cores are properly placed and oriented in the core boxes and prepares daily summary log of the cores.

Figure 10.2
Core Inspection and Quck Core Logging in the Field at the Drill Site

Source: Picture provided by Azerbazalt (May, 2021).

In the core storage facility, the core boxes are carefully downloaded from the truck. The core is cleaned from mud, debris and possible lubricants.

The core boxes are placed in order on the ground. The lowest numbered core box is placed on the top left corner with the beginning or top of core at the upper-left side. The next numbered core box is put below it and so on, until the end of the hole. The hole number is written on the core box.

Using a black marker and/or red grease pencil the meterage is written on the wooden box at the beginning and the end of the box.

The core is measured, the lithology and visible mineralization, textures and structures are described in the drill log book. The samples are marked and labelled, and the sample number is written on the core as well (Figure 10.3). The core recovery is then measured per sample.

Figure 10.3
Core from Drill Hole Quyu-3
(CH-21-003 46.8 m to 51.4 m)

Source: Picture taken during the Micon's site visit (16 August, 2021).

The core is photographed and then it is ready for cutting. After the cutting the core is stored in locked shipping container in the storage facility.

The information from the drill log notebook is entered in Excel spreadsheets. A copy of the digital information is saved in NGES and Azerbazalt offices.

In addition, the program is documented with pictures and video clips during the drilling in the field. A drill hole and trenches map has been provided in Figure 10.4.

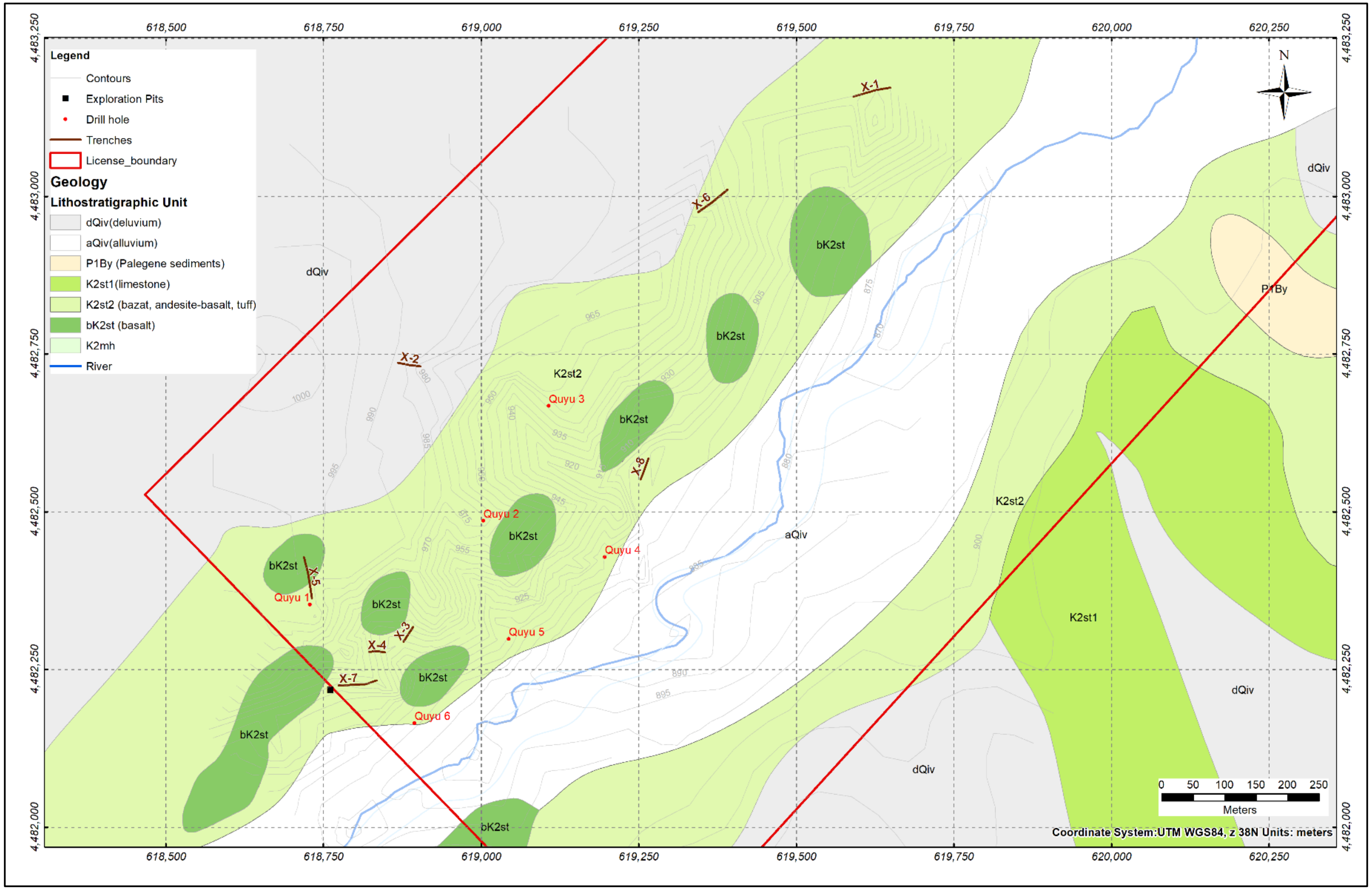
No special studies have been conducted to study the hydrogeological and engineering-geological conditions of the Chayked project yet. Based on the visual field observations and the topography, it has been determined that the project area has very favourable hydrogeological, engineering-geological, and geotechnical conditions.

10.3 Comments & Conclusion

Micon's QP Dr. Tania Ilieva, P.Geo. reviewed the drill core, the drill logs, the pictures and video clips and observed the core splitting. Micon's opinion is that the NGES exploration team followed standard industry operating procedures and practices and the data collected during the drilling program is reliable and it can be used for the purposes of the geological interpretations, modelling and mineral resource estimation.

Micon recommends collecting additional geotechnical information, such as rock quality description (RQD) before sampling the core.

Figure 10.4
Chaykend Basalt Project-Drill Hole and Trenches Map



11.0 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sample Preparation in the Core Processing Facility

The drill core was logged, the samples were marked, and the core was photographed for the photo archive of the drilling program. The core pictures are stored on the company server together with the core logs and the chemical analyses.

The 47.6 mm core is split, using a core saw in 2 almost equal parts in the core logging facility (Figure 11.1). One half of the core was put in a sample bag with a sample tag, closed with a tie and prepared for shipping, another half was returned in the core box as an archive. The average length of the sample is 3 m, but the sample boundaries respect the lithology and the texture the length ranges from 2.0 m to 3.0 m. The initial weight of the sample varies from 2.5 kg to 4 kg, and it depends on the size and the length of the core.

Figure 11.1
Core Splitting

The total number of samples collected during the exploration is 127. Samples were delivered to the Geoservice Lab, a certified laboratory, part of the Center of Shared Analytical Instruments and Equipment, Institute of Geology and Geophysics, Azerbaijan National Academy of Science, Baku. Geoservice is certified laboratory for ISO 12677 (XRF analyses for ceramics) by international and state auditors.

11.1.1 Sample Preparation in the Geoservice Laboratory

The samples were prepared and analysed in Geoservice laboratory, following the standard industry procedure:

1. After receiving the samples, they are weighted, logged and entered in the laboratory database.
2. The samples are dried to 105°C for 2 h.

3. The rock material (approximately 2 kg) is crushed using jaw crusher. The crushed material is split in 4. One part is used for additional processing, the remaining material is a stored as a coarse reject.
4. Then ¼ subsample is grinded to a fine particle size (<75µ) Then the sub-sample is split, using mechanical riffler. The riffling is repeated discarding every alternate sample. When the sample is approximately 100 g the sample is bagged and labelled. The excess material is stored as a reject in the lab or returned to the client.
5. The pulp is processed to prepare a pressed pellets for XRF analysis includes mixing it with a binder in a grinding or mixing container, pouring the mixture into a cup and pressing the sample. The resulting pellet is then ready for analysis.

11.1.1.1 X-ray Fluorescence

The main chemical components (99% of the total) of the basalt are Al_2O_3, SiO_2, MgO, CaO, TiO_2, K_2O, Na_2O, Fe_2O_3. The samples were measured, dried, pulverised, and analysed for Al_2O_3%, SiO_2%, SO_3%, K_2O%, Na_2O%, Fe_2O_3%, FeO%, CaO%, MgO%, MnO%, P_2O_5% and LOI (loss on ignition), following the standard procedures, described in the International Standard ISO 12677 for Chemical analysis of refractory products by X-ray fluorescence (XRF) — Fused cast-bead method.

The equipment, used for the XRD analyses is “S8 TIGER”, which is a WDXRF (wavelength dispersive X-ray fluorescence) spectrometer for advanced quantitative elemental analysis for different materials, including rocks and minerals. It can analyse all elements from beryllium (Be) to americium (Am) in a wide variety of sample types. The equipment is produced by Bruker Corporation (www.bruker.com), a manufacturer of scientific instruments, based in Massachusetts , USA. Regular inspection and calibration of the equipment is performed by manufacturer’s representative. The equipment is calibrated before every sample and calibration standards are provided by the manufacturer of the equipment.

11.1.1.2 X-ray Diffraction

X-ray diffraction (XRD) is a technique used in mineral exploration and mining for determining the atomic and molecular structure of mineral and rocks. This is done by irradiating a sample of the material with incident X-rays and then measuring the intensities and scattering angles of the X-rays that are scattered by the material. The intensity of the scattered X-rays are plotted as a function of the scattering angle, and the structure of the material is determined from the analysis of the location, in angle, and the intensities of scattered intensity peaks. Beyond being able to measure the average positions of the atoms in the crystal, information on how the actual structure deviates from the ideal one, resulting for example from internal stress or from defects, can be determined.

The foundation of the XRD analytical method is the relationship between diffracted peak positions and crystal structure of the tested material.

When light waves of sufficiently small wavelength are incident upon a crystal lattice, they diffract from the lattice points. At certain angles of incidence, the diffracted parallel waves constructively interfere and create detectable peaks in intensity. Consequently, we can calculate d-spacings based on the angles at which these peaks are observed. By calculating the d-spacings of multiple peaks, the crystal class and the crystal structure parameters can be identified using a data library, that is part of the XRD software. The main factors that contribute to the intensity in an XRD pattern are:

- The absorption factor – this is a constant value that primarily depends on the ability of the material to absorb X-rays on their way in and out.
- The 'structure factor' - the intensity of specific peaks as a result of the unique structure of each mineral.

Figure 11.2
XRD Graph for Sample 262, Hole Quyu-3.

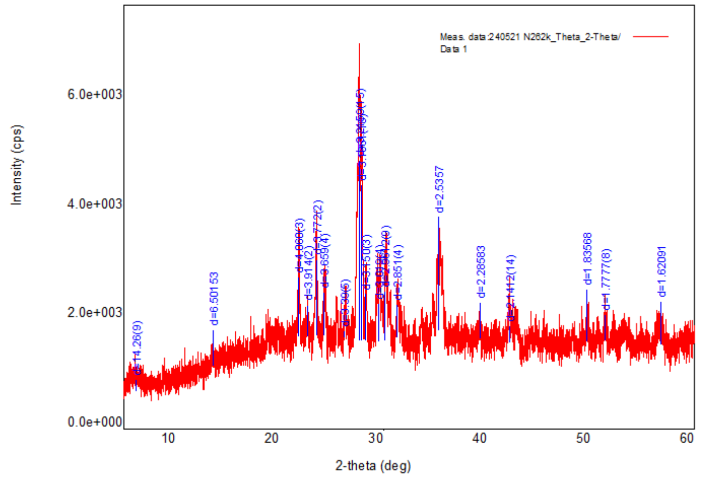
General information

Analysis date	2021/07/23 12:33:17		
Sample name	240521 N262k	Measurement date	2021/05/24 11:32:59
File name	240521 N262k_Theta_2-Theta.raw	Operator	
Comment	-		

Measurement conditions

X-Ray	40 kV, 15 mA	Scan speed / Duration time	10.0000 deg./min.
Goniometer		Step width	0.0100 deg.
Attachment	-	Scan axis	2Theta/Theta
Filter	None	Scan range	5.0000 - 60.0000 deg.
CBO selection slit	-	Incident slit	-
Diffracted beam mono.	None	Length limiting slit	-
Detector	SC-70	Receiving slit #1	-
Scan mode	CONTINUOUS	Receiving slit #2	-

Measurement profile



Source: Sample report prepared by Geoservice, the file was provided by Azerbazalt.

Determination of the of crystal type and the associated parameters (a, b, c, α, β, and γ) is determined by observing systematic presence/absence of peaks, comparing values against databases, using deduction and a process of elimination. Nowadays, this is process is automated by a variety of software linked to crystal structure databases.

The analyses are completed following the NSAM 439Pc (GOST 23201) on X-ray diffractometric equipment XRD Miniflex 600.

11.2 QUALITY ASSURANCE & QUALITY CONTROL

The geochemical data has been subject to a quality control for each of the elements assayed. A total of 9 Quality Assurance/Quality Control (QA/QC) samples were re-assayed. The quality control protocol includes:

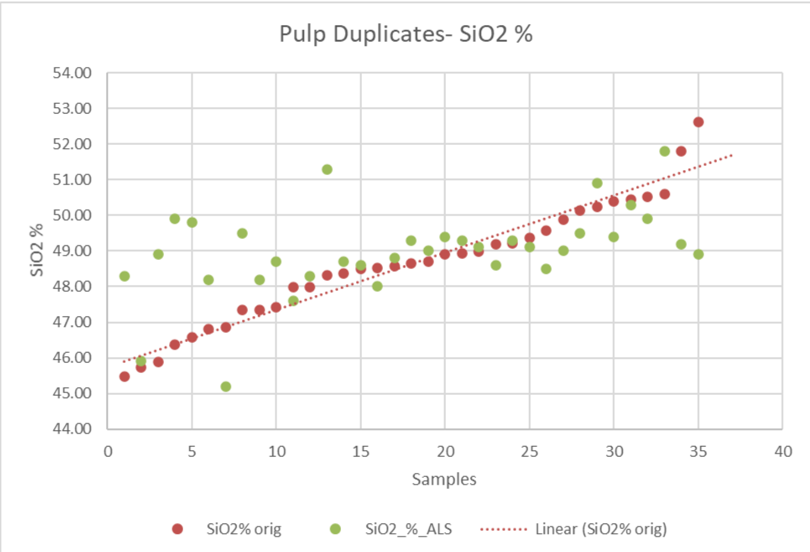
Insertion of **blanks** to check for mismatched samples in the core processing facilities and for sample cross contamination in the preparation laboratory. Azerbazalt has used 1 blank sample in the sample stream for every drill hole. The blanks are approximately 5% of the amount of core samples. The blank material is white marble, a rock with very different chemical composition from basalt and basalt andesite or tuff. All oxides, except the CaO and MgO returned values, close to the detection limit. The results from the blanks show that there wasn't any cross contamination in the preparation laboratory or mismatch of the sample numbers.

Only 3 **field duplicates** (split core) were analysed. The results are very close to the original samples results and this shows that the material is homogenous, and the half core samples are representative.

In addition to the internal control (field duplicates and blanks) Azerbazalt 35 pulp samples, prepared by the primary laboratory in Baku to a second certified laboratory (ALS Turkey) for independent analysis (external control). The primary Geoservice laboratory in Baku has used a pressed pellets for XRF procedure for analysing the chemical composition (major oxides) for ceramics and rocks. The analysis was carried out in accordance with ISO 12677 standard on X-ray spectrometer XRF S8 Tiger.

ALS Turkey (the secondary laboratory) has used totally different procedure, typical for iron ore and has analysed the pulp using lithium borate fusion technique coupled with XRF. The XRF analysis is determined in conjunction with a loss-on-ignition at 1,000°C. The resulting data from both determinations are compared. The results for some of the major oxides, such as SiO_2 are close, but we cannot compare the 2 totally different methods.

Figure 11.3
Check Samples, Analysed in a Second Laboratory
(External Duplicates for SiO_2)



11.3 Comments & Conclusion

NGES and Azerbazalt have used very well-known certified commercial laboratories for its geochemical analyses. Geoservice laboratory, part of the Institute of Geology and Geophysics (www.gia.az), ANAS is independent from NGES, Azerbazalt and from Micon.

The existing quality control protocol, used by the exploration team includes standard procedures.

The results from the internal duplicates and blanks, part of the QA/QC monitoring confirm that the samples are not mismatched or contaminated. The difference in the results from the external control lab ALS Labs, Turkey and the results from the primary laboratory in Baku are due to using different analytical method.

QP’s opinion is that the results from the 2020-2021 trenching and drilling program are reliable and they can be used for mineral resource estimation purposes for the Chaykend Basalt project.

12.0 DATA VERIFICATION

12.1 Introduction

Micon has not carried out any independent exploration work, drilled any holes or carried out any program of sampling and assaying on the property.

The data verification conducted by Micon involved the following:

- Review of the Azerbazalt contract for exploration with the Ministry of Ecology and Natural Resources, Azerbaijan and internal reports about the geological mapping and trenching and 2020-2021 drilling program.
- Review of the drill core and the drill logs from 2020-2021 exploration drilling during the site visit in the core storage facility in Baku's industrial zone.
- Site visits to the Chaykend Basalt project and reviewing the basalt outcrops t and in the 2021 drill core, that was available at the time of the site visit.
- Collecting additional information such as topographic survey reports, geochemical and mineralogical results, plans and sections.
- Discussions about the basalt raw material for fibre production, possible mining operations and annual production and final saleable products.
- Additional technical studies and plans for economic extraction and mineral processing.

12.2 Site Visit

Micon, represented by Tania Ilieva, PhD., P.Geo. visited the Azerbazalt office, and core storage from 16th to 19th August, 2021. On 17th August, 2021 she visited the Institute of Geology and Geophysics, Azerbaijan National Academy of Science, Baku and the "Center of Shared Analytical Instruments and Equipment" (CSAIE) and its geochemical laboratory "Geoservices". The Head of CSAIE Mr. Nazim Sadigov showed preparation facilities, the equipment and the international certification of the laboratory to perform X-ray spectroscopic (XRF) analysis X-ray phase (XRD) analysis, used in the resource estimate for Chaykend Basalt project.

On 19 August 2021, Dr. Ilieva visited several outcrops of basalt exposed as basalt columns near the village of Chaykend, Goygol district. She was able to collect GPS points from drill hole collar locations, trenches and natural outcrops and see a fresh and weathered surface of the basalt.

12.3 Comments & Conclusion

Micon inspected the core storage facility in the industrial zone of Baku and noted that it is secure, well organised and maintained. Micon has examined outcrops and drill core, the logging procedures used and described in Section 10.0. Micon's observations of the core logging procedure confirm that diligence and best practice was always exercised when logging and sampling the drill cores. In this project, the core recovery is above 80% and is considered a good recovery.

Micon is not aware of any drilling, sampling, or recovery factors that could materially impact the accuracy and reliability of the results presented in this report.

13.0 METALLURGICAL TESTING

In November 2019, Azerbazalt signed contract No. 02513 and engaged the research team from department “New Materials” of the JSC “Institut Stekla” (English translation “Glass Institute”) in Moscow, Russia to conduct the tests and determine the suitability of 100 kg raw material from Chaykend project for the production of basalt fibres. Two (2) samples were taken from the basalt columns in the Chaykend area and sent to the research laboratory for initial metallurgical test. The testing laboratory of the JSC "Institute of Glass" is accredited by the Federal Agency for Technical Regulation and Metrology in the GOST R Certification System, Russia for technical competence and quality and is independent from NGES and the Azerbazalt.

The information below, including the chemical formulae of the minerals is translated from the internal report, prepared by JDS “Institut Stekla” (Pavlushkina & Babinova, 2019).

The weight of Sample No1 was 48 kg, and the weight of Sample No2 was 52 kg. The analyses included gravimetry and Inductively Coupled Plasma (ICP) optical spectrometry (instrument Perkin Elmer Optima 4300 DV ICP-OES Spectrometer). Table 13.1 shows the chemical composition for the 2 head samples.

Table 13.1
Geochemical Composition of the Head Samples from Chaykend, Azerbaijan

Component	Unit	Met Sample 1	Met Sample 2
SiO_2	%	46.89	49.85
Al_2O_3	%	13.35	17.37
FeO total ($FeO+Fe_2O_3$)	%	10.24	11.5
MgO	%	9.54	5.66
CaO	%	10.12	9.61
Na_2O	%	2.02	2.95
K_2O	%	2.91	0.69
MnO	%	0.17	0.2
TiO_2	%	1.06	1.39
LOI (loss when heated to 1000°C)		3.64	0.43

Source: Internal report for Azerbazalt (Makarov, 2019)

For the mineral processing the research team decided to use the metallurgical sample No 2 and proceed to melting and fibre production.

Based on this agreement, the "X-ray phase" method was used to determine the complete melting temperature of basalt and produce different types of basalt fibres from the Chaykend raw material. X-ray phase analysis was performed on an DRON 3M automated diffractometer. The basalt “No 2” was crushed and grinded to fine particle size. The main crystal phases that were identified are silica SiO_2 as α-cristobalite, plagioclase as labradorite $(Na,Ca)Al[Al,Si]Si_2O_8$ and clinopyroxene $(Al_{0.220}xTiO_{0.045}xMgO_{0.58}xFe_{0.15}x(Ca_{0.68},Na_{0.117})(MgO_{0.096}xFe_{0.105},Al)(Si_{1.77}xAl_{0.228})O_6$.

The crushed basalt material was loaded into a crucible and placed in the kiln, where the temperature was increased 430°C/hour to 1500°C.

During the melting process the samples were collected and processed at the following temperatures:

- 1200°C-temperature of the change in the shape of the grains.
- 1300°C-temperature of the softening.
- 1350°C-melting of the grains and forming the aluminosilicate alloy with high viscosity.
- 1400°C-lowering of the viscosity, formation of foam, the melted alloy doesn’t stretch as a string.
- 1450°C- complete melted aluminosilicate alloy, the sample material can be stretched as a fibre, but the alloy is not homogeneous.
- 1500°C-homogeneous melted alloy, the string of basalt fibre is easily stretched and does not have any inclusions. Fibres obtained by homogeneous melting at 1500°C are easily elongated and do not break.

A signed and stamped report dated December 16, 2019 (Makarov, 2019) provided an expert opinion about the suitability of the raw material for basalt fibre. The conclusion in the report is that the basalt from Chaykend project is suitable for basalt production. The institute Stekla send the basalt fibres produced from the Chaykend raw material and Azerbazalt has a prototype of possible final products. Based on the information obtained from the initial metallurgical test “Azerbazalt” EIB and the NGES signed “Contract Agreement” No. 001/2020 on April 20, 2020 for additional exploration and evaluation of basalt in Chaykend area.

13.1 COMMENTS & CONCLUSION

The initial metallurgical test provided enough information and confidence that the basalt from Chaykend project can be used for basalt production and the company can proceed with its first mineral resource estimation.

Azerbazalt should conduct additional tests with bigger volume of bulk sample and prepare a flow sheet for production. The additional physical properties that should be tested are melting temperature (°C), possible fibre diameters (μm), temperature withstand (°C), viscosity, elastic modulus (GPa), breaking strength (MPa), breaking extension (%), linear density etc determine the final products from the basalt raw material and the parameters for economic extraction.

14.0 MINERAL RESOURCE ESTIMATES

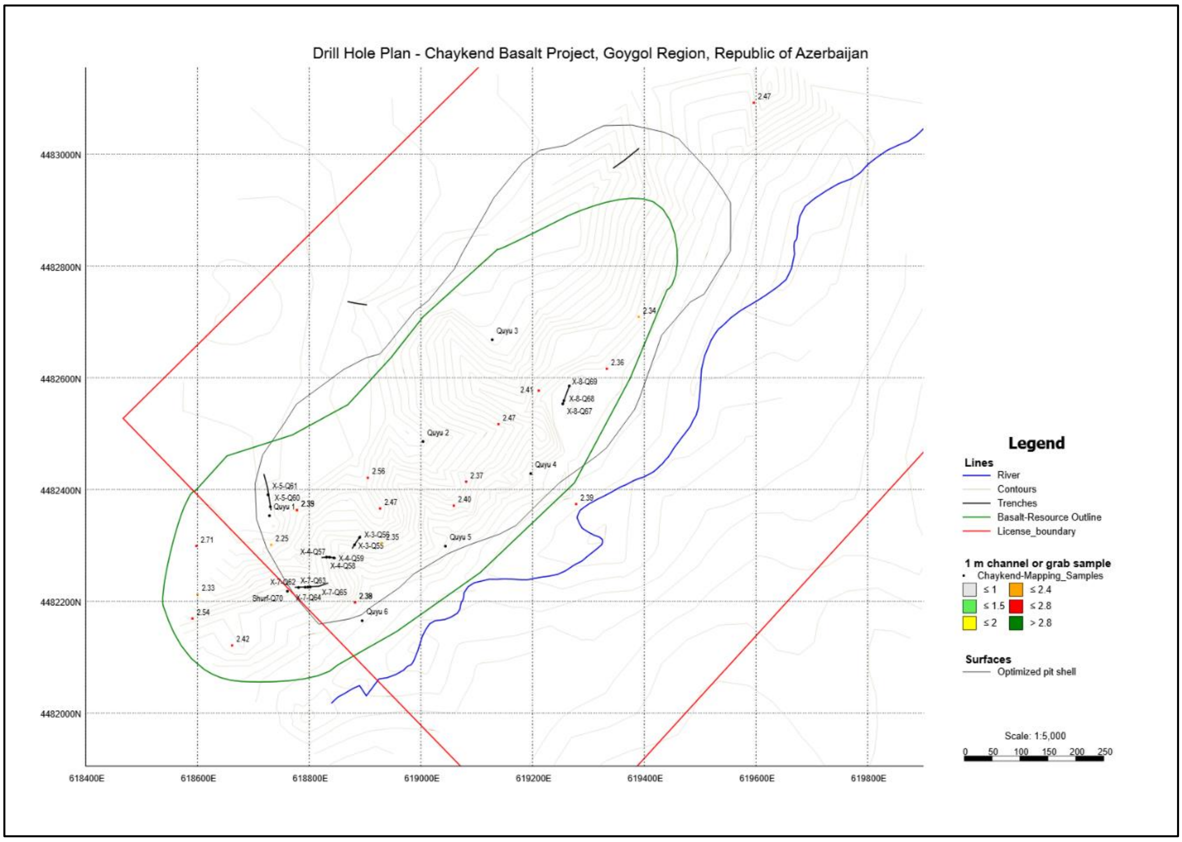
14.1 INTRODUCTION

This section discusses the new mineral resource estimate for Chaykend Basalt project in Goygol district, Republic of Azerbaijan.

The Chaykend Basalt mineral resource estimate was prepared using geological interpretation, conventional statistical analysis on raw data, solid creation, statistical analysis on silica (SiO_2), aluminium oxide (Al_2O_3), titanium oxide (TiO_2), potassium oxide (K_2O), sodium oxide (Na_2O), iron oxide (Fe_2O_3), magnesium oxide (MgO) and calcium oxide (CaO) composite sample data, geostatistical analysis, calculation of the interpolation parameters, block modelling, block model validation and classification.

This mineral resource estimate for industrial mineral basalt was based upon geological and geochemical information derived from Azerbazalt's database, which contained 6 drill holes and 8 trenches. From this database, 6 diamond drill holes located on an exploration grid approximately 200 m apart and 5 trenches near the drill holes centre of the deposit area was used to estimate the mineral resources. Figure 14.1 shows a plan view of the area interpreted as a basalt body that can be used as an industrial mineral for the production of basalt fibre. The mineral resources for the Chaykend project have been estimated assuming an open pit (quarry) mining scenario.

Figure 14.1
Drill Hole Plan with Trenches, Basalt Resource Area and the Pit Shell Outline



Prepared by Micon with data provided by Azerbazalt (Dated 5 Jan 2022)

14.2 MINERAL RESOURCE DEFINITIONS & CLASSIFICATIONS

All resources and reserves presented in a Technical Report should follow the current JORC Code (2012) definitions and standards for mineral resources and reserves. The latest edition of the JORC Code was adopted in 2012, and includes the resource definitions reproduced below:

> *Mineral Resources are sub-divided, in order of increasing geological confidence, into Inferred, Indicated and Measured categories. An Inferred Mineral Resource has a lower level of confidence than that applied to an Indicated Mineral Resource. An Indicated Mineral Resource has a higher level of confidence than an Inferred Mineral Resource but has a lower level of confidence than a Measured Mineral Resource.*
>
> *A Mineral Resource is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction.*
>
> *The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.*
>
> *Material of economic interest refers to diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals.*
>
> *The term Mineral Resource covers mineralization and natural material of intrinsic economic interest which has been identified and estimated through exploration and sampling and within which Mineral Reserves may subsequently be defined by the consideration and application of Modifying Factors.*
>
> ***Inferred Mineral Resource***
>
> *An Inferred Mineral Resource is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.*
>
> *An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.*
>
> *An Inferred Mineral Resource is based on limited information and sampling gathered through appropriate sampling techniques from locations such as outcrops, trenches, pits, workings and drill holes. Inferred Mineral Resources must not be included in the economic analysis, production schedules, or estimated mine life in publicly disclosed Pre-Feasibility or Feasibility Studies, or in the Life of Mine plans and cash flow models of developed mines. Inferred Mineral Resources can only be used in economic studies as provided under NI 43-101.*
>
> ***Indicated Mineral Resource***
>
> *An Indicated Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit.*

Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation.

An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

Mineralization may be classified as an Indicated Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such as to allow confident interpretation of the geological framework and to reasonably assume the continuity of mineralization. The Qualified Person must recognize the importance of the Indicated Mineral Resource category to the advancement of the feasibility of the project. An Indicated Mineral Resource estimate is of sufficient quality to support a Pre-Feasibility Study which can serve as the basis for major development decisions.

Measured Mineral Resource

A Measured Mineral Resource is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit.

Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

Mineralization or other natural material of economic interest may be classified as a Measured Mineral Resource by the Qualified Person when the nature, quality, quantity and distribution of data are such that the tonnage and grade or quality of the mineralization can be estimated to within close limits and that variation from the estimate would not significantly affect potential economic viability of the deposit. This category requires a high level of confidence in, and understanding of, the geology and controls of the mineral deposit.

14.3 DATABASE AND VARIABLES TO BE ESTIMATED

Micon was provided with a geological database on 3rd of November, 2021 and with an updated database for the 8 trenches and 6 holes drilled during 2020 to 2021 on 5th January 2022. This included collar coordinates, updated trench location coordinates, topographic survey, sample data and geochemical certificates, geological maps and sections (**.pdf* and AutoCAD **.dwg* files), topographic map in scale of 1:10,000 and geological reports. Systematic checks were performed on the geological and topographic data to ensure that it met specific validation requirements and that no overlapping intervals were present in the data. Minor typographical errors were found and easily corrected.

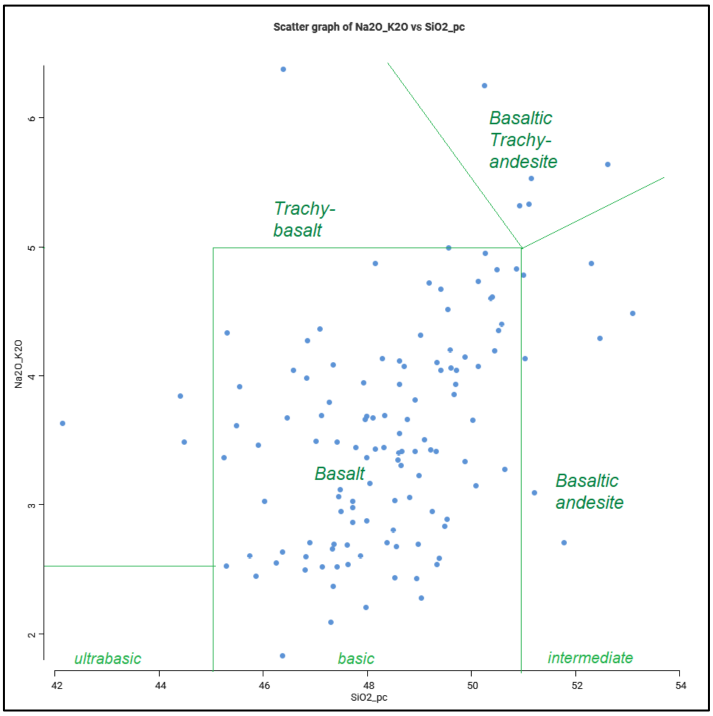
The database and underlying QA/QC data were validated by Micon prior to being used in the modelling and estimation. Table 14.1 summarizes the types and amount of data in the database and the portion of the data used for the mineral resource estimate.

Table 14.1
Type and Amount of the Input Data

Parameter	Number	Sample Numbers
Drill holes	6	127
Trenches	5 out of 8	15
Sampling meterage	430	142

The detection limit for the whole rock XRF analyses is 0.01%. Geochemical results for the trench and core samples are processed, using the Leapfrog Geo® and Leapfrog Edge® software. The chemical analyses show that the composition of all samples is within the acceptable limits (See Table 8.2) of the raw material used for fibre production. The following variables were estimated: SiO_2_pc, Al_2O_3_pc, TiO_2_pc, CaO_pc, Fe_2O_3_pc, K_2O_pc, MgO_pc, Na_2O_pc, TiO_2_pc, acidity coefficient (Mk). The variables for the main deleterious oxides (MnO_pc, P_2O_5_pc and SO_3_pc) are also included in the resource model.

Figure 14.2
Total Alkalis (Na_2O + K_2O) versus Silica Graph for the Chaykend Drill Samples



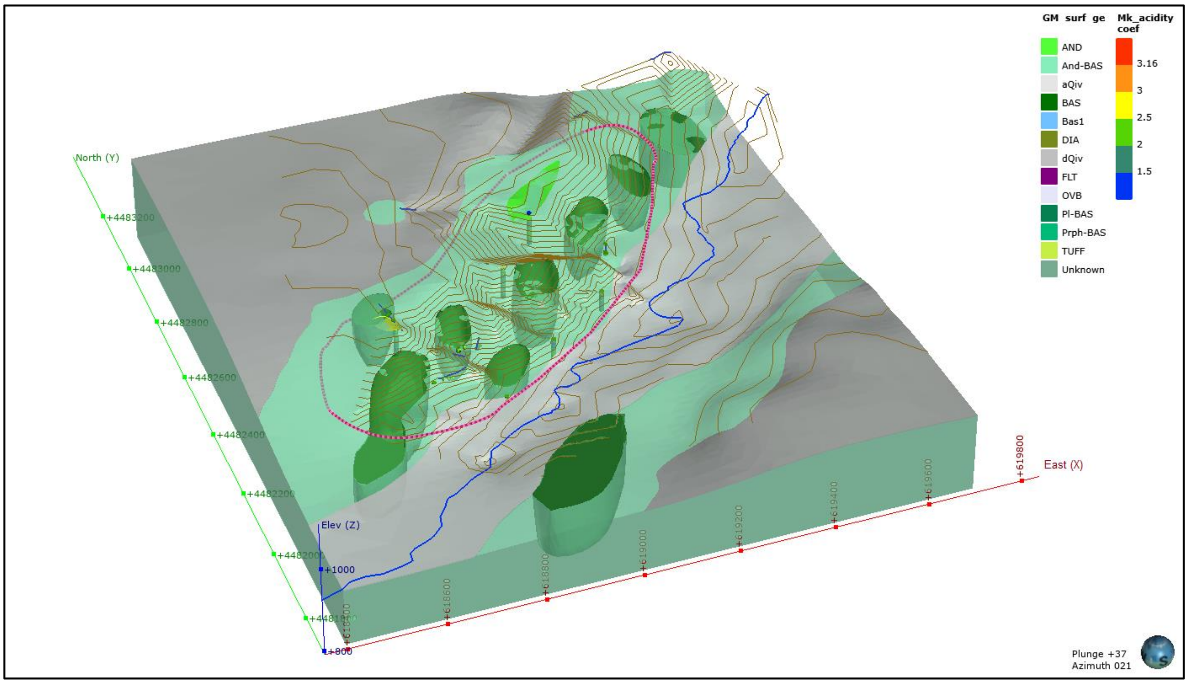
Prepared by Micon with data provided by Azerbazalt (dated 5 Jan 2022)

The silica in the basalt currently used for fibre production ranges from 43.0% to 55.0%, and total alkali (K_2O+Na_2O) vary from 2.0% to 7.5%. The detection limit for the whole rock XRF analyses is 0.01%. Geochemical results for the trench and core samples are processed, using the Leapfrog Geo® and Leapfrog Edge® software. The chemical analyses show that the composition of all samples is within the acceptable limits (See Table 8.2) of the raw material used for fibre production shows that the mafic volcanics, analysed from Chaykend project can be combined in one geological domain (BAS) for the resource estimation purposes.

14.4 WIREFRAMES

The project topography was provided by Azerbazalt as an AutoCAD file of the 1:10,000 m topographical map. The topographic map is of sufficient quality for an early-stage exploration project with assumed open pit mining. The topography was used to clip the wireframes projection to surface. Micon constructed geological model, based on the lithology from the geological mapping and sampling program, drill logs and trench plans and sections for the Chaykend area with 3-D meshes representing different lithological units – andesite (AND), andesite-basalt (And-BAS), diabase (DIA), basalt (BAS, Pl-BAS, Prph-BAS), tuff (TUFF), alluvial (aQiv) and diluvial (dQiv) sediments. The tectonically brecciated rocks and/or fault zones have lithological code FLT. Figure 14.3 shows the current geological model, based on logged lithology.

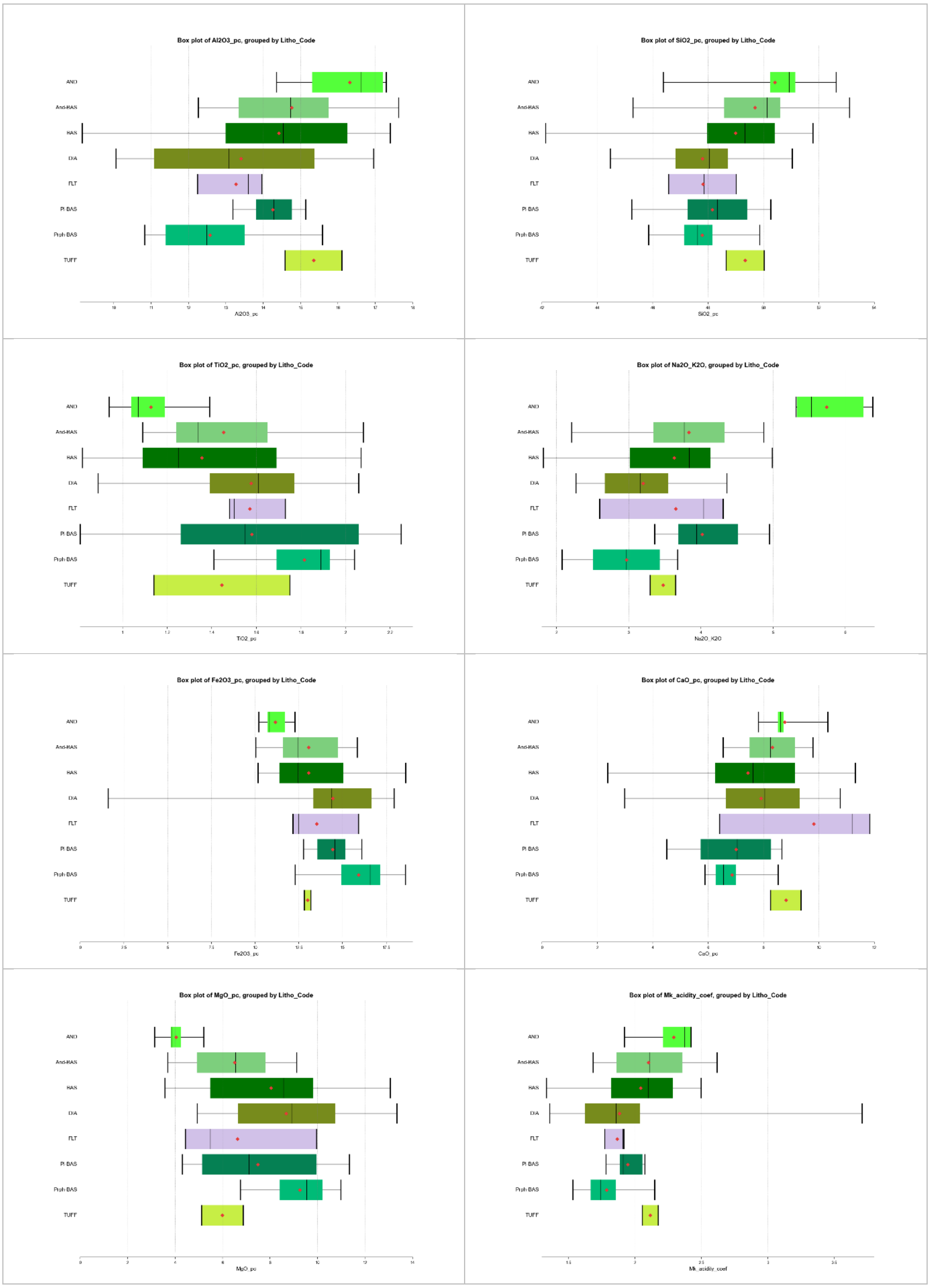
Figure 14.3
3D Geological Model, Based on Lithology



The comparison of the geochemical results shows that the chemical composition for the lithological units - basalt, diabase, andesite-basalt, porphyry basalt and plagioclase-basalt are very similar. The box plots on Figure 14.4 for the different oxides confirm that the mafic and intermediate volcanics from Chaykend meet the specifications for the raw materials for production of basalt fibre and the andesite, andesite-basalt, basalt (all varieties), diorite and their tuffs can be combined in one geological domain (BAS). Different basalt varieties have transitional boundaries, so one wireframe was created for the whole domain. The wireframe was prepared, using the lithology data from channel and grab samples, collected during the mapping program in 2020, the geological map for the area and the data from the drilling and trenching.

The BAS domain is 1,100m long along strike (45°) and 370m wide and vertical extend 180m. All drill holes ended in mafic volcanics, and the bottom of the basalt unit is not intersected. The BAS domains both across and along strike is homogenous and is a small portion of the bK_2st and K_2st_2 lithostratigraphic units. The upper limit is 2 m below the topographic surface to eliminate the fractured and broken material on the surface, the lower limit for the block model is 810 m elevation.

Figure 14.4
Box Plots for the Different Oxides, Grouped by Lithological Units



14.5 Statistical Analyses of the Primary Data

The samples from the drill holes and the trenches are processed and interpreted as one dataset. A total of 142 samples were used for the mineral resource estimate with a total length of 430 m. A summary of the basic statistics for sample variables are presented in Table 14.2.

Table 14.2
Basic Statistics of the Main Variables in Core and Trench Samples

Parameter	Count	Mean	St Dev	Coef Var	Var	Min	Median	Max
Al_2O_3 %	142	14.02	2.10	0.15	4.42	7.45	14.04	17.63
CaO %	142	7.84	2.59	0.33	6.69	2.38	7.85	30.34
Fe_2O_3 %	142	13.81	2.22	0.16	4.91	10.05	13.82	18.62
K_2O %	142	0.85	0.66	0.78	0.44	0.13	0.59	4.02
MgO %	142	7.84	2.44	0.31	5.93	3.13	8.04	13.35
MnO % (deleterious)	142	0.12	0.15	1.24	0.02	0.01	0.01	0.71
Na_2O %	142	2.74	0.67	0.24	0.44	0.25	2.78	4.75
P_2O_5 % (deleterious)	145	0.45	0.24	0.53	0.06	0.03	0.52	1.44
SiO_2 %	142	48.51	2.39	0.05	5.74	30.26	48.62	53.11
SO_3 % (deleterious)	142	0.01	0.04	2.39	0.001	0.01	0.01	0.28
TiO_2 %	142	1.48	0.35	0.23	0.12	0.81	1.44	2.25
Mk (acidity coefficient)	142	1.97	0.34	0.15	0.89	0.81	1.92	2.62
Sample Length	142	3.05	0.51	0.17	0.26	1.50	3.00	6.00

14.6 Compositing & Capping

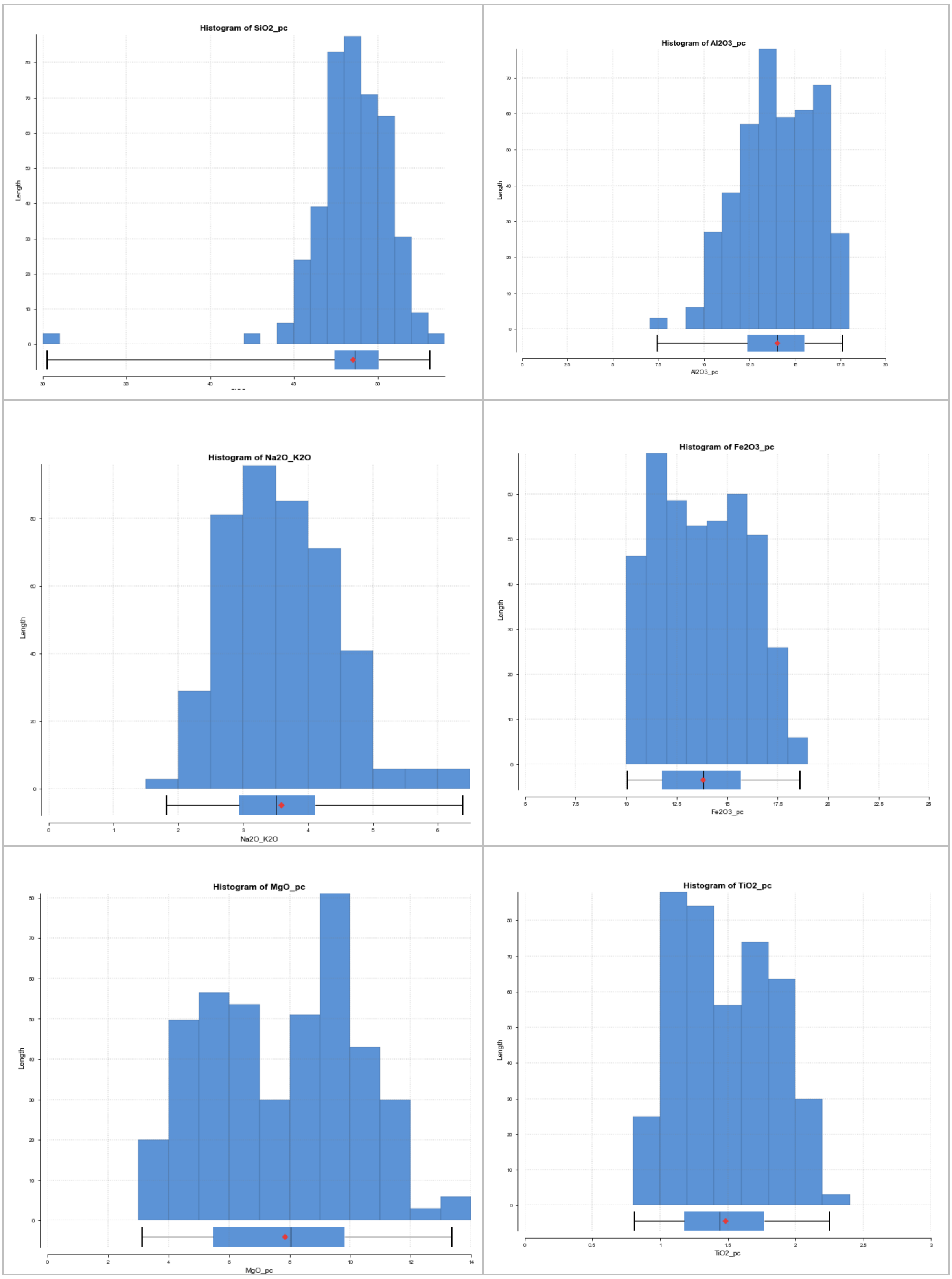
The drillhole and trench intercepts for the Chaykend project were composited into 3.0 m equal length intervals, with the composite length selected based on the most common original sample length. The intervals less than 50% of the original length are distributed equally along the drill hole. The basic statistics for the length-weighted composite data are summarized in Table 14.3.

Table 14.3
Basic Statistics of the Main Variables in Composite Data

Parameter	Count	Mean	St Dev	Coef Var	Var	Min	Median	Max
Al_2O_3 %	145	14.02	2.10	0.15	4.42	7.45	14.04	17.63
CaO %	145	7.84	2.59	0.33	6.70	2.38	7.85	30.34
Fe_2O_3 %	145	13.81	2.22	0.16	4.91	10.05	13.82	18.62
K_2O %	145	0.85	0.66	0.78	0.44	0.13	0.59	4.02
MgO %	145	7.84	2.43	0.31	5.93	3.13	8.04	13.35
MnO % (deleterious)	145	0.12	0.15	1.24	0.02	0.01	0.01	0.71
Na_2O %	145	2.74	0.67	0.24	0.44	0.25	2.78	4.75
P2O5 % (deleterious)	145	0.45	0.31	0.67	0.09	0.01	0.50	1.44
SiO_2 %	145	48.51	2.39	0.05	5.74	30.26	48.62	53.11
SO_3 % (deleterious)	145	0.01	0.03	2.39	0.00	0.01	0.01	0.28
TiO_2 %	145	1.48	0.35	0.23	0.12	0.81	1.44	2.25
Interval Length	145	2.92	0.27	0.09	0.07	1.5	3.0	3.0

Figure 14.5 show the histograms of the univariate distributions for the main oxides. No outliers were identified, and no capping was applied for any variable.

Figure 14.5
Histograms of the Distribution for the Main Oxides



14.7 DENSITY

No density measurements were provided for the core, trench, or grab samples. The density of the basalt and its lithological varieties ranges from 2.7 to 3.3. The average basalt density of 2.9 t/m3 is used in the current resource estimate.

14.8 MINERAL RESOURCE ESTIMATION RESULTS

The commodity of economic interest at the Chaykend Project is basalt; no other commodities have been assessed at this time. The estimation of the deposit tonnage and grade was performed using Leapfrog Geo/EDGE software.

14.8.1 Resource Model

A block model was constructed to represent the volumes and attributes of rock, density, and grade within the basalt (BAS) solid. A summary of the block model definitions is provided in Table 14.4.

Table 14.4
Block Model Parameters

Description	Values
Model Dimension X (m)	750
Model Dimension Y (m)	1225
Model Dimension Z (m)	240
Origin X (Easting)	618,385
Origin Y (Northing)	4,482,335
Origin Z (Upper Elev.)	1050
Clockwise Rotation (°)	45.0
Parent Block Size X (m) - Along Strike	25.0
Parent Block Size Y (m) - Across Strike	25.0
Parent Block Size Z (m) - Down Dip	6.0
Child Block Size X (m) - Along Strike	5.0
Child Block Size Y (m) - Across Strike	5.0
Child Block Size Z (m) - Down Dip	3.0

Origin of the resource block model in Leapfrog Edge is the centroid of the block in the top left corner.

The sub-blocking triggers are topography, the resource outline, and the optimized pit shell. Based on the distance between the drillholes and trenches and the statistical analyses, showing the homogeneity of the rocks in the BAS domain the composite values for the oxides are interpolated in the blocks using Weighted Inverse Distance Squared (ID^2) interpolation algorithm. The parameters are provided in Table 14.5.

Table 14.5
Summary of Inverse Distance Squared Interpolation Parameters

Domain	Pass	Orientation				Search Parameters				
		Dip (°)	Az (°)	Pitch (°)	Range Major Axis (m)	Range Semi-Major Axis (m)	Range Minor Axis (m)	Minimum Samples	Maximum Samples	Maximum Samples per Hole
BAS	1	0	45	0	100	150	15	6	20	5
	2	0	45	0	200	300	30	4	15	3
	3	0	45	0	400	600	60	3	10	2

14.8.2 Prospects for Economic Extraction

The JORC Code (2012) requires that a mineral resource must have reasonable prospects for eventual economic extraction. The mineral resource discussed herein has been constrained by a preliminary open pit shell, using the acceptable ranges for the main oxides SiO_2 %, Al_2O_3 %, TiO_2 %, CaO %, Fe_2O_3 %, K_2O %, MgO %, Na_2O %, TiO_2 % and the acidity coefficient (Mk).

The open pit for the quarry is conceptual in nature and is based on a Mk=1.60 cut-off value. Additional category variable "BasFiber" with 2 possible outcomes "0" and "1" is created. If all oxides, including the deleterious elements are within the acceptable limits listed in Table 14.6 the value for the BasFibre is "1". If any oxide or deleterious element is outside of the acceptable limits the BasFibre variable is "0". Buffers of 500 m around the settlements and 100 m around the river was applied to the pit shell.

Table 14.6
Acceptable Limits for the Oxides

Oxide	Min	Max
SiO_2 %	43	55
Al_2O_3%	13	20
FeO + Fe_2O_3	7	18
CaO%	6.05	11
MgO%	3	10
TiO_2%	0.2	3
Na_2O% + K_2O%	2	7.5
Acidity coefficient Mk	1.39	3.16
MnO less then	0.5	
SO_3 less then	1	
LOI less then		
Free quartz less then		

The pit shell was created using Surpac® Software and the parameters tabulated in Table 14.7.

Table 14.7
Parameters of the Open Pit Shell

Parameter	Description	Unit	Value
Wall slope angles		(°)	45
Working Bench Height	Bearing 0, 90, 180,270	(m)	15
Final Position Bench Height	Hard Rock	(m)	15
	Soft overburden	(m)	5
Bench slope angles	Working bench	(°)	75
	Final Position bench	(°)	65
	Bench in soft overburden	(°)	45
Safety berm width		(m)	8
Max ramp gradient		(%)	8
Ramp width		(m)	24
Working bench width		(m)	30
Minimal pit bottom width		(m)	30
Pit bottom		(m)	825

14.8.3 Mineral Resource Statement

The mineral resource model for Chaykend Basalt project is summarized in Table 14.8. The effective date of this report is 5th of January 2022.

The mineral resource estimate discussed in this Technical Report has been prepared by Tania Ilieva, Ph.D., P.Geo. The open pit shell, that is used for the reporting of the resource estimate is created by Mr. Michael Khoudin, M.Sc. MAusIMM(CP) of Micon. Both Dr. Ilieva and Mr. Khoudin are independent of Azerbazalt and Dr. Ilieva is “Competent Person” within the meaning of JORC Code.

Table 14.8
Mineral Resources for the Chaykend Basalt Project

Cate-gory	Geochemical Specification	Volume (Mil m^3)	Mass (Kt)	Average Value											
				Mk	SiO_2 (%)	Al_2O_3 (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)
Inferred	BasFiber=0	5	15,000	1.80	47.85	12.78	1.65	0.71	2.40	15.32	6.85	9.42	0.12	0.38	0.031
	BasFibre=1	16	45,000	1.97	48.78	14.23	1.52	0.80	2.79	13.74	8.07	7.47	0.13	0.48	0.014
Total	**Basalt**	21	61,000	1.93	48.54	13.86	1.55	0.78	2.69	14.14	7.76	7.97	0.12	0.46	0.019

Notes:

1. Mineral Resource Estimate is prepared in accordance with the guidelines of the JORC Code (2012)
2. The mineral resource is estimated based on 3 m composites calculated from XRF chemical analyses values from 6 diamond drill holes and 5 trenches,
3. Acidity coefficient Mk cut-off grade is 1.6. BasFibre=1- all values for the chemical composition are within the specifications for raw material for basalt fibre. BasFibre=0 – one or more values is outside of the specifications for the chemical composition of the basalt fibre and this basalt may require adding extra chemicals to reach the head grade for the raw material.
4. Rock density average value is 2.9 g/cm^3.
5. The block model grades were estimated using the Inverse Distance Squared interpolation method.
6. Mineral Resources volume and tonnage have been rounded to reflect the accuracy of the estimate, and numbers may not add up due to rounding.
7. Inferred Mineral Resources are that part of a mineral resource for which quantity and grade can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity.
8. The reported cut-off grade of acidity coefficient for the estimated mineral resource is based on the similar mining operations in adjacent countries and reasonable assumptions on mining and processing and compares with reported mining operation cut-off grades for similar deposits.

14.8.4 Validation of the Block Model

The block model was validated using visual comparison of the composite values and the block model values. Longitudinal vertical section with the distribution of the acidity coefficient Mk in the block model and the drill holes composites are shown respectively on Figure 14.6.

In validating the block model and the resource estimate, Micon conducted a statistical comparison of the input 3 m composites, against output interpolated data in the block model. Table 14.9 shows the comparison of global means of the main oxides, and Figure 14.7 the swath plots of two major oxides-SiO_2 and Fe_2O_3. All comparisons show good agreement between the input data and the output estimates.

Figure 14.6
Longitudinal Vertical Section in the North Part with Composites and Interpolated Mk Values

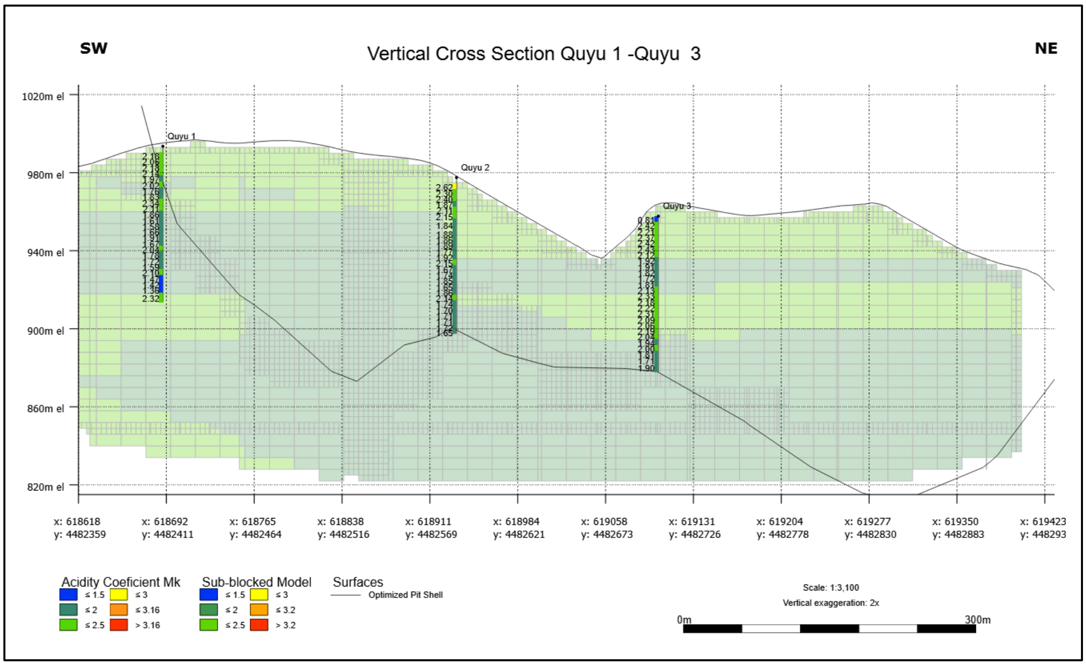


Table 14.9
Statistical Comparison: Composites (Input) vs Blocks (Output)

Variable	3 m Composites		Block Model	
	Count	Mean	Block Count	Mean
Al_2O_3_pc	145	14.02	72712	13.86
CaO_pc	145	7.84	72712	7.76
Fe_2O_3_pc	145	13.81	72712	14.14
K_2O_pc	145	0.85	72712	0.78
MgO_pc	145	7.84	72712	7.97
MnO_pc	145	0.12	72712	0.12
Na_2O_pc	145	2.74	72712	2.69
SiO_2_pc	145	48.51	72712	48.54
SO_3_pc	145	0.016	72712	0.015
TiO_2_pc	145	1.48	72712	1.55
Mk	145	1.97	72712	1.92

The statistical comparison of the oxides shows reasonable agreement of the input data versus output estimated blocks. It's noticeable that Al_2O_3, CaO, Fe_2O_3, K_2O, Mk have lower average grade values and SiO_2, MgO, Fe_2O_3, TiO_2 have higher average grade due to the influence of adjacent grade values that are not within the optimized pit shell. All the variations are within the acceptable limits.

The block model validation was performed using swath plots for different oxides.

Figure 14.7 shows the swath plots along X, Y and Z axes for SiO_2 (yellow) and Fe_2O_3 (blue). Each swath covers 125 m (5 blocks) along X and Y and 30 m (5 blocks) along Z axis.

In addition to the above-mentioned verifications Micon has compared the results from 2 different interpolation methods. The Nearest Neighbourhood interpolation method is very similar to the polygonal method, used by NGES. For comparison purposes Micon has performed NN interpolation in addition to the ID^2. The values from both interpolations are presented in Table 14.10.

Figure 14.7
Swath Plots for SiO_2_pc and Fe_2O_3_pc

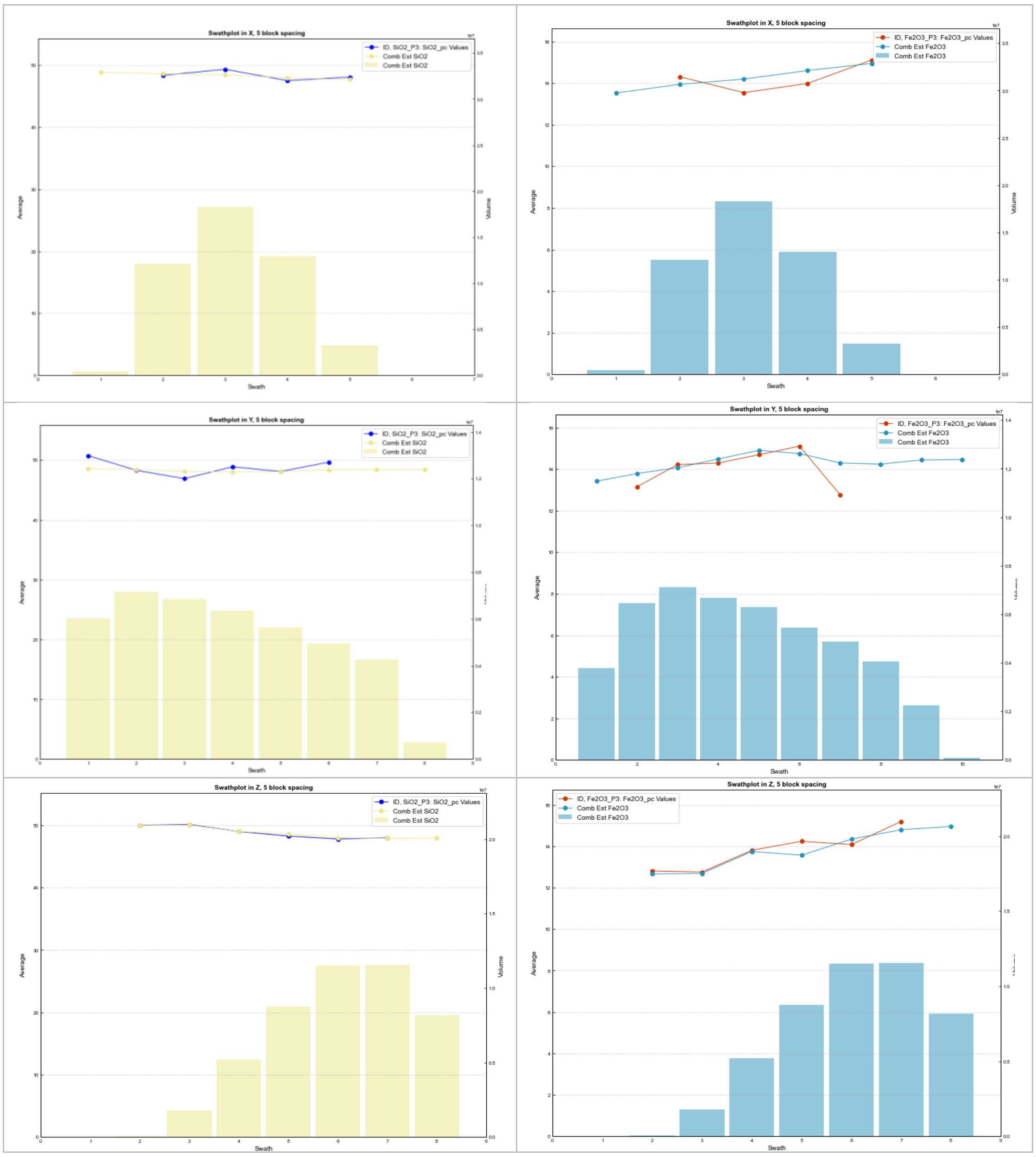


Table 14.10
Comparison of the Mineral Resources, Estimated with ID[2] and NN Method
(cut-off Mk=1.4)

Cate-gory	Geochemical Specification	Volume (Mil m³)	Mass (Kt)	Average Value											
				Mk	SiO_2 (%)	Al_2O_3 (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)
Weighted Inverse Distance Squared															
Inferred	BasFiber=0	12.883	37,361	1.92	48.54	13.71	1.57	0.79	2.64	14.26	7.67	8.04	0.12	0.50	0.019
	BasFibre=1	8.112	23.525	1.93	48.54	14.09	1.52	0.76	2.77	13.96	7.91	7.85	0.13	0.39	0.018
Total	*Basalt*	*20.995*	*60.885*	*1.92*	*48.54*	*13.86*	*1.55*	*0.78*	*2.69*	*14.14*	*7.76*	*7.97*	*0.12*	*0.46*	*0.019*
Inferred	BasFiber=0	12.883	37,361	1.95	48.63	13.77	1.58	0.74	2.61	14.18	7.67	8.01	0.11	0.52	0.015
	BasFibre=1	8.112	23.525	1.99	48.71	14.54	1.50	0.70	2.83	13.51	8.41	7.36	0.14	0.43	0.010
	Basalt	*20.995*	*60.885*	*1.96*	*48.66*	*14.07*	*1.55*	*0.72*	*2.70*	*13.92*	*7.96*	*7.75*	*0.12*	*0.49*	*0.013*

Notes:

The cut-off grade Mk=1.4 is not the same as the cut-off grade in the resource statement.

The volume and mass are not rounded to reflect the accuracy of the estimate, because the volume, mass and grade are for comparison purposes of the interpolation methods only.

14.9 NGES MINERAL RESOURCE ESTIMATE

The geologists (Yusifov and Memmedov, 2021) from NGES estimated the mineral resources in December 2021. The text below is summarized from the internal report for the exploration program from 2020 to 2021and especially from section “Reserve Estimation”.

Azerbazalt engaged the NGES to conduct a geological survey and estimate the mineral resources and reserves for industrial minerals (basalt) for the production of basalt fibre. The company provided technical specifications and guidelines for the estimation of the basalt resources and reserves.

- Reserve category-C_2;
- Depth of study of raw materials - 50-100 m;
- The basalt included in the resource and reserve estimate should have chemical composition that is within the following ranges:

SiO_2	47.0 to 55.0%.
Al_2O_3	14.0-20.0%.
TiO_2	1.36-2.0%.
$Fe_2O_3 + FeO$	5.38-13.5%.
CaO	7.0-11.0%.
Na_2O	2.7-7.5%.
K_2O	2.5-2.7%.
MnO	0.25-0.5%.
P_2O_5	less than 0.5%.
SO_3	less than 0.5%.

No economical parameters have been determined to calculate the Chaykend Basalt project reserves. Based on the complexity of its geological structure, the Chaykend Basalt project has a simple structure.

According to its petrographic composition, the deposit belongs to the basic rock complex with basalt, andesite-basalt and diabase composition, which have the same chemical composition. The basalt columns belong to the subvolcanic phase of the intrusion and have solidified mainly at shallow depth.

After a review of the geochemical results from grab, channel, and core samples the exploration team concluded that the raw materials (basalt) from Chaykend Basalt project is suitable for basalt fibre production. The basalt fibre products are used in various sectors of the economy.

The Chaykend basalt rocks are eroded and crushed in some areas as a result of weathering (exogenous) processes. As a result of geological mapping, trenching, and drilling was determined that the basalt is free of overburden. and only fragments of basalt are recorded. Therefore. it was decided by the authors to use all samples, including the ones that are immediately below the topographic surface in the resource estimation.

Resources were calculated using only the results of 3 holes drilled on the 1st section (Quyu 1, Quyu 2 and Quyu 3).

Table 14.11
List of the Drill Holes and the Average Values for the Main Oxides

Drill hole	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	TiO_2 (%)	CaO (%)	MgO (%)	Na_2O (%)	K_2O (%)	MnO (%)	SO_3 (%)	P_2O_5 (%)	LOI
Quyu-1	48.50	12.99	14.00	1.52	7.85	8.52	2.51	0.41	0.17	0.005	0.52	2.11
Quyu-2	48.85	12.84	14.18	1.62	7.09	7.76	2.64	0.68	0.11	0.005	0.48	1.77
Quyu-3	49.71	15.08	12.75	1.33	8.43	6.28	2.85	1.04	0.10	0.007	0.52	1.07
Average	49.00	13.63	13.85	1.49	7.79	7.52	2.66	0.71	0.13	0.005	0.50	1.65

GNES calculated the mineral resources using the results from 3 drill holes drilled on the 1-st section and classified them in category C_2.

The resource of the Chaykend Basalt project are estimated using polygonal method. The area of distribution of the basalt raw material is divided into polygons (triangles and trapezoid). The area (S) and grade of each oxide is estimated for each polygone (triangle or trapezoid).

$$S=(L*H/2)\ (m^2)$$

Based on the established parameters, the reserve of basalt raw material was calculated with the C_2 category as follows. assuming a depth (h) of 80 m. Thus. the volume of raw materials:

$$V = S * h = 44{,}350\ m^2 \times 80m = 3{,}548{,}000\ m^3.$$

Table 14.12 show the calculations of the the horizontal areas of basalt rock unit and the total volume.

Table 14.12
Calculations for the Areas of the Resource Polygons
(Yusifov, 2021)

Number	Polygone	Length (m)	H (m)	$S=(L*H/2)\ (m^2)$	Depth (m)	Volume (m^3)
1	Triangle- 1	250	110	250 x 110 / 2 = 13,750	80	1,100,000
4	Trapezoid	(300 +380)/2=340	180	340 x 180 /2 =30,600	80	2,448,000
	Total			**44,350**	**80**	**3,548,000**

15.0 ADJACENT PROPERTIES

The Chaykend Basalt project does not have adjacent exploration or mining projects. Similar projects are developed in Ukraine and Russia. Several exploration projects focused on basalt for the production of basalt fibre are located in Georgia, Turkey and Russia.

16.0 OTHER RELEVANT DATA AND INFORMATION

The information in this section is summarized from the "Report on the results of exploration and geological exploration of basalt raw materials in the Chaykend area of Goygol region based on a contract signed between "Azerbazalt" LLC and the National Geological Exploration Service in 2020" (Yusifov, S. and N. Memmedov, 2021).

16.1 MAIN TYPES OF THE BASALT FIBRE, BASED ON THE PRODUCT SIZE

There are 2 main types of basalt fibers - staple and filaments (continuous). The most important parameter of staple basalt fibers is the diameter of the final product. They are divided into the following types:

- Micronic fibers- <0.6 µm diameter,
- Ultrafine fibers- 0.6-1.0 µm diameter,
- Supernar fibres- 1.0-3.0 µm diameter,
- Thin fibres- 9-15 µm diameter,
- Coarse fibres- 50-100 µm diameter .

The diameter of the fibers affects the heat transfer, sound absorption, and other physical properties and the different varieties are used for different purposes.

One of the main quality indicators of basalt fibers is the acidity coefficient Mk, which indicates the relationship between felsic and mafic oxides.

According to the requirements of the State Standards 4640-93 "Mineral Fiber Specifications", basalt fiber is classified according to the amount of acidity coefficient Mk as follows:

- Type A - acidity coefficient >1.6
- Type B - acidity coefficient >1.4-1.6
- Type V - acidity coefficient >1.2-1.4

Fibers with a high acidity coefficient are more water-resistant and are usually considered to have a longer lifespan.

During basalt fibre production the acidity coefficient of the raw material is tested regularly. A composite sample from 10 locations on the conveyor and with a total mass of at least 1.5 kg material placed on the conveyor is combined and analysed. The acidity coefficient Mk and the amount of deleterious elements and harmful vapors is determined for each test. The upper limit for hydrocarbon vapours released from the raw material when heated to 40 ˚C is 1.5 mg / m^3 (saturation should not exceed 0.4).

Basalt fibers are used as a heat, sound and fire insulation material in various industries, factories, petrochemical industry, hospitals, automotive and aviation industries, homes, offices and offices.

16.2 Types & Characteristics of Basalt Fibers

Filaments (continuous) basalt fibers are produced in 8-11 microns (microns), 12-14 microns, 16-20 microns in diameter, 25-50 m and more than a kilometer in length.

Staple (plates, flakes, scales) fibers are produced with a diameter of 6-12 microns and 5-12 mm in length. Very high quality continuous (supernar) basalt fibers have 0.5-3 microns diameter and 10-50 mm in length.

16.3 Specific Features of the Basalt Fibers

The advantages of using a new material, such as basalt fiber instead of traditional steal, plastic, fiber glass, wood and others are:

- It can be used as safer substitute for asbestos.
- It has a longer service life than glass fibers, so brake pads made of basalt have a longer life.
- It a higher sound absorption than glass fibers, so they are even higher when using basalt fibers.
- When it is exposed to heat and humidity, it does not change its dimensions and does not deform.
- It does not crumble, rot, mold and rust over time.
- It is not destroyed by insects and microorganisms.
- It is not hygroscopic and capillary.
- It belongs to class A of "non-combustible materials" according to T.S.E.N 13501 standards.
- Basalt fibres-based friction materials have a more stable coefficient of friction.

17.0 INTERPRETATION AND CONCLUSIONS

17.1 INTERPRETATIONS

Based on the quality of the geological information that was provided by Azerbazalt on 3rd November 2021 and 5th January 2022, Micon's opinion is that Chaykend exploration and mining data is sufficient and reliable, and it can be used for a mineral resource estimate that meets JORC Code (2012) or CIM NI 43-101 Standards and Definitions requirements.

The data that was reviewed (mapping, trenching and drilling data) confirm the presence of basalt rocks, that has a reasonable prospect of economic extraction.

The mineral resource estimate was prepared following the guidelines of the JORC Standards. All data was collected from reliable sources such as geological reports, geochemical certificates and geological maps and sections that are available at the Azerbazalt office and in the National Geological Exploration Services, part of the Ministry of the Environment and Natural Resources.

The interpolation algorithm used for populating the grade in the blocks is ID^2. The maximum value for the oxides are not capped, because the geostatistical analyses show close to normal (not skewed) distribution of the different compounds such as SiO_2, Al_2O_3, TiO_2, CaO, Na_2O, K_2O, MgO, Fe_2O_3 in the basalt.

Micon has prepared an estimate for the mineral resources of the Chaykend Basalt project in accordance with the guidelines of the JORC Code (2012). The effective date of the Mineral Resource Estimate is 5th January 2022. The cut-off grade is based on the acidity coefficient Mk=1.6. The mineral resource statement is provided in Table 17.1.

The interpolation algorithm used for populating the grade in the blocks is ID^2. The maximum value for the oxides is not capped, because the geostatistical analyses show close to normal (not skewed) distribution of the different compounds such as SiO_2, Al_2O_3, TiO_2, CaO, Na_2O, K_2O, MgO, Fe_2O_3 in the basalt.

Table 17.1
Mineral Resources for the Chaykend Basalt Project (as of 5th January 2022)

Cate-gory	Geochemical Specification	Volume (Mil m³)	Mass (Kt)	Average Value											
				Mk	SiO_2 (%)	Al_2O_3 (%)	TiO_2 (%)	K_2O (%)	Na_2O (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)
Inferred	BasFiber=0	5	15,000	1.80	47.85	12.78	1.65	0.71	2.40	15.32	6.85	9.42	0.12	0.38	0.031
	BasFibre=1	16	45,000	1.97	48.78	14.23	1.52	0.80	2.79	13.74	8.07	7.47	0.13	0.48	0.014
Total	**Basalt**	21	61,000	1.93	48.54	13.86	1.55	0.78	2.69	14.14	7.76	7.97	0.12	0.46	0.019

Notes:

1. Mineral Resource Estimate is prepared in accordance with the guidelines of the JORC Code (2012). Mineral Resources for the Chaykend Basalt Project (as of 5th January 2022)
2. The mineral resource is estimated based on 3 m composites calculated from XRF chemical analyses values from 6 diamond drill holes and 5 trenches.
3. Acidity coefficient Mk cut-off grade is 1.6. BasFibre=1- all values for the chemical composition are within the specifications for raw material for basalt fibre. BasFibre=0 – one or more values is outside of the specifications for the chemical composition of the basalt fibre and this basalt may require adding extra chemicals to reach the head grade for the raw material.
4. Rock density average value is 2.9 g/cm³.
5. The block model grades were estimated using the Inverse Distance Squared interpolation method.
6. Mineral Resources volume and tonnage have been rounded to reflect the accuracy of the estimate, and numbers may not add up due to rounding.
7. Inferred Mineral Resources are that part of a mineral resource for which quantity and grade can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity.
8. The reported cut-off grade of acidity coefficient for the estimated mineral resource is based on the similar mining operations in adjacent countries and reasonable assumptions on mining and processing and compares with reported mining operation cut-off grades for similar deposits.

17.2 CONCLUSIONS

The Chaykend Basalt project is a green field exploration project. The project has good exploration potential, because the mafic volcanics (basalt, andesite-basalt, and their tuffs) are widespread in Chaykend area and the lithological units K_2st_2 and bK_2st, that contain the current mineral resource continue northeast of the drilled area within the exploration permit.

Basalt fibres are a new material with a lot of new applications in the industry and the everyday life, therefore the raw materials that meet the specifications for the production of different varieties of basalt fibre have reasonable prospects of eventual economic extraction. The project contains a mineral resource that can be mined by open pit methods and recovered with conventional processing. The project contains a substantial mineral resource that can be mined by open pit methods and recovered with conventional processing.

It is Micon's opinion that the Chaykend Basalt project merits additional exploration and technical studies such as baseline environmental and social impact assessment, geotechnical study, market research, additional metallurgical test work, economic analyses to advance the project and bring the project to a Preliminary Economic Assessment (PEA) and pre-feasibility study (PFS) level in line with Azerbazalt desire to open a quarry and build Basalt Fibre plant.

If the PEA for Chaykend Basalt project is positive, the project owner has to start the application for a mining concession and permitting in order to achieve Azerbazalt's project development plans.

18.0 RECOMMENDATIONS

Chemical analysis of rock samples (the content of oxides in the basalt) and the initial metallurgical test confirmed that the basalt from Chaykend project is suitable for the production of basalt fibre. The geological surveys and the mineral processing studies provided enough data for the first mineral resource estimate and Micon's recommendations to advance the project are:

- Collect data for density determination from the different lithologies and mineralization type.
- Additional infill and geotechnical drilling, especially in the northeast end of the proposed open pit shell.
- Collecting a bulk sample to test and prepare a flow sheet for production. The additional physical properties that should be tested are melting temperature (°C), possible fibre diameters (µm), temperature withstand (°C), viscosity, elastic modulus (GPa), breaking strength (MPa), breaking extension (%), linear density etc determine the final products from the basalt raw material and the parameters for economic extraction.
- Prepare a flow sheet for production of basalt faber, using the results from the bulk metallurgical test.
- Environmental baseline study and community relations.
- Hydrogeological and geotechnical studies of the quarry footprint area, including geotechnical drilling.

It is anticipated that the Chaykend Basalt exploration program will start in the second or third quarter of 2022.

18.1 BUDGET

The exploration program will focus on areas covering the proposed open pit and the surrounding 200-500 m. It will focus on collecting data for PEA study. Every stage will would be contingent on the success of the previous study. Table 18.1 the main field activities and the proposed budget.

Table 18.1
Proposed Budget for Additional Exploration and Engineering Studies

Item	Unit	Cost/unit	Total ($)
Fees, licences, and permits	1	2,500	2,500
Infill and geotechnical drilling, geochemical testing and logging	150	200 $/m	3,000
Environmental Baseline and Social Survey	1	10,000	10,000
Geotechnical survey	1	15,000$	15,000$
Metallurgical Test work and flow sheet	1	25,000$	25,000$
Community relations	1	2,500	2,500
Field equipment (rental)	1	2,000	2,000
Data processing, interpretations, reports		50,000	50,000
Contingency	10%		11,150
Total			**122,650**

Micon believes that the proposed budget is reasonable and recommends that Azerbazalt implements the program as proposed, subject to either funding or other matters which may cause the proposed program to be altered in the normal course of its business activities, or alterations which may affect the program as a result of the activities themselves.

19.0 DATE AND SIGNATURE PAGE

On behalf of Micon International Co Limited:

Tania Ilieva, Ph.D., P.Geo. (APGO # 1259)
Senior Geologist, Micon International Limited

Effective Date: 5th January, 2022
Signed Date: 31st January, 2022

20.0 CERTIFICATES

Certificate of Co-Author Tania Ilieva, Ph.D. P.Geo.

As a co-author of the “Technical Report and Mineral Resource Estimate for the Chaykend Basalt Project, Goygol District, Republic of Azerbaijan”, with effective date 5th January 2022, I, Tania Ilieva, hereby certify that:

1. I am employed by, and conducted this assignment for, Micon International Limited, Suite 900, Bay St, Toronto, Ontario. tel. 001(416) 362-5136 501, e-mail *tilieva@micon-international.com*;
2. I hold the following academic qualifications:

B.Sc. Geological Sciences	Institute of Mining and Geology, Sofia, Azerbaijan, 1986;
Ph.D. (Geology)	University of Mining and Geology, Sofia, Azerbaijan, 2000;

3. I am a registered Professional Geoscientist with the Association of Professional Geoscientists of the Province of Ontario (membership #1259). In addition, I am a member in good standing of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM, Toronto Branch);
4. I have worked as a geologist in the minerals industry for 30 years;
5. I do, by reason of education, experience and professional qualifications fulfil the requirements of a Competent Person as defined by JORC Code (2012). My work experience includes 10 years as a research fellow, more than 5 years in mineral exploration geologist for gold, silver and base metal deposits and industrial minerals (lithium). I have more than 15 years as a consulting geologist working in precious, ferrous and base metals and industrial minerals and I have more than 20 years of experience of geological data processing, GIS and mineral resource estimation;
6. I visited the property that is the subject of this Technical Report from 16th to 19th August 2021;
7. I am responsible for the preparation of Sections 2 to 12, Section 14.1 to 14.8.1, 14.8.3 and 14.8.4 and Section 21. I am partially responsible for Section 1, Sections 21 to 23 of this Report;
8. I am independent of Azerbazalt, its directors, senior management, and its other advisers, and I have had no prior involvement in the Chaykend Basalt Project;
9. I have read JORC Code (2012) and the Technical Report and confirm that this Report has been prepared in compliance with the Code; and,
10. As of the date of this certificate, to the best of my knowledge, information and belief, the “Mineral Resource Estimates for the Chaykend Basalt Project, Goygold District, Republic of Azerbaijan”, with effective date 5th January 2022, contains all scientific and technical information that is required to be disclosed to make this Report not misleading.

Effective Date: 5th January 2022
Signed Date: 31st January 2022

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22.0 GLOSSARY & ABBREVIATIONS

22.1 GLOSSARY

Alpha-Cristobalite (α-cristobalite) is a silica (SiO_2) polymorph that is thermodynamically stable only at temperatures above 1470°C, up to the melting point at 1705°C, at atmospheric pressures.

Andesite-basalt: a volcanic rock that is intermediate in composition between basalt and andesite. It is composed predominantly of augite and plagioclase. Basaltic andesite can be found in volcanoes around the world. Andesite-basalt is almost synonym of basaltic andesite.

Amphibole ($(Na,K)Ca_2[Mg_3(Fe^{3+},Fe^{2+})Ti](Si_6Al_2O_{22})(F,O)_2$): A group of inosilicate minerals forming prism or needle shaped crystals Commonly found in igneous and metamorphic rocks though can also be found in detrital sedimentary rocks.

Basalt: an extrusive igneous rock with low SiO2 content and rich in magnesium and iron minerals. Usually it is dark-coloured, very fine grained and it is formed from rapid cooling on the surface, close to the surface or on the ocean floor.

Biotite ($K(Mg,Fe)_3(AlSi_3O_{10})(F,OH)_2$): Dark brown to black (mafic) mica mineral. Biotite is a sheet silicate mineral common in igneous and metamorphic rocks.

Calcite ($CaCO_3$): Calcium carbonate.

Clay: is a fine-grained sedimentary rock or soil material (particles <4 µm) that consists of one or more clay minerals.

Cretaceous Period - the third (last) period of the Mesozoic Era. It began 145 million years ago and ended 66 million years ago. The rocks formed during the Cretaceous period are called Cretaceous system.

Cut-off criteria: A set of requirements for the quality and quantity of a mineral in subsoil, for mining and other conditions of the deposit development that define the commercial value of the deposit. The cut-off criteria are used to calculate mineral reserves.

Cut-off grade: The minimum concentration of a valuable component in a marginal sample of the mineral. The cut-off grade is used to delineate parts of the deposit to be mined.

Diabase: dark green to black, sometimes with white crystals scattered through it (salt-and-pepper look), fine-grained, intrusive igneous rock that has a composition similar to basalt and gabbro. In some countries it is called dolerite. The difference between basalt, diabase, and gabbro is in their grain size - which was determined by their location and cooling rates. Diabase and dolerite are almost synonyms, some geologists consider the diabase as altered dolerite.

Dilution: Waste rock that is, by necessity, removed along with the ore in the mining process, subsequently lowering the grade of the ore.

Feasibility Study: As defined by the CIM, a Feasibility Study is a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of realistically assumed mining, processing, metallurgical, economic, marketing, legal, environmental, social and governmental considerations together with any other relevant operational factors and detailed financial analysis, that are necessary to demonstrate at the time of reporting that extraction is reasonably justified (economically mineable). The results of the study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of the project.

Feldspars: A group of silicate minerals with four distinct categories, potassium feldspars ($KAlSi_3O_4$); sodium feldspars ($NaAlSi_3O_8$); calcium feldspars ($CaAl_2Si_2O_8$); and barium feldspars ($BaAl_2Si_2O_8$).

Fluorite (CaF_2): Calcium fluoride mineral commonly found in hydrothermal veins.

Geological fault: Discontinuity of rock with or without a shift on the surface. Faults occur due to the movement of rock masses.

Host rock: Wall rock that confines the mineral occurrence zone.

Igneous rock: A rock formed by the solidification of magma.

Jurassic Period - the second period of the Mesozoic Era. It began 201 million years ago and ended 145 million years ago. The rocks formed during the Jurassic period are called Jurassic system.

Layer: a bed of sedimentary rock that is visually distinguishable from adjacent strata.

Limestone: A common sedimentary rock composed mainly of calcium carbonate.

Mafic: Sub-silicic, basic. Pertaining to or composed dominantly of the magnesian (Mg) and iron (Fe) rock-forming silicates; Mafic is said of some igneous rocks and their constituent minerals. Generally synonymous with dark minerals or dark rock.

Magnetite (Fe_3O_4): Iron oxide common in igneous, metamorphic, and sedimentary rocks, strongly magnetic and an important source of iron.

Metamorphic rock: A rock that has, in a solid state, undergone changes in mineralogy, texture, or chemical composition as a result of heat or pressure.

Mine: An excavation from which valuable materials are recovered.

Mineral deposit: A body of mineralisation that represents a concentration of valuable metals. The limits can be defined by geological contacts or assay cut-off grade criteria.

Mineral Reserve: The equivalent of the CIM NI 43-101 mineral resource and mineral reserve. In Azerbaijan the mineral resources and mineral reserves are subdivided into A, B, C_1 and C_2 categories depending on the level of definition and technological study.

Montmorillonite: Group of rocks containing clay minerals with chemical varieties that swell in water and possess high cation-exchange capacities. Often called the fullers' earth group or the smectite group.

Muscovite ($KAl_2(AlSi_3O_{10})(F,OH)_2$): Sheet silicate mineral common in igneous and metamorphic rocks, occurring as a detrital mineral in sedimentary rocks.

Neogene: Period of the Cenozoic era. The rocks formed during the Neogene period are called Neogene System.

NI 43-101: Standards of Disclosure for Mineral Projects as dictated by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM).

Off-Balance Mineral Reserves: A volume of material which has demonstrated the presence of a metal/useful mineral to a sufficient level of confidence but whose economic viability has not been demonstrated.

Opal ($SiO_2.n(H_2O)$): Hydrated form of amorphous silica, the water content can range from 3% up to 21% by weight but is usually between 6% to 10%. Opal occurs in a large range of colours often with an internal play of colours within the stones. Forms in low temperature and low-pressure environments as a secondary alteration mineral in rocks containing silica. Often found in siliceous deep-water marine sediments.

Open pit: A mine that is entirely on surface; also referred to as open-cut or open-cast mine.

Operational reserves: Balance mineral reserves that have been adjusted for dilution and losses, and have been incorporated into a mine production schedule

Ore body: A body of mineralisation that either has been or demonstrates a reasonable probability of being mined profitably.

Ore field: A collection of mines that exploit a common mineral deposit or cluster of closely related mineral deposits.

Palaeogene: The oldest of two sub-divisions of the Tertiary Period, from approximately 66 Ma to approximately 23 Ma, including the Palaeocene, Eocene, and Oligocene Epochs.

Primary ore: Ore which is in its primary mineralised state and has not undergone the process of natural oxidation.

Pyrite (FeS_2): Iron sulphide mineral.

Quarry: an open pit excavation, from which stone or other materials are or have been extracted.

Quartz (SiO_2): One of the most common minerals on the Earth and is the important constituent of many rocks. Quartz is composed of silica and exists in several different forms, habits and colours. Quartz is commonly found in igneous, metamorphic and sedimentary rocks and frequently found in veins with metal ores.

Quaternary Period (Q)- the last period of the Cenozoic Era. It began 2.6 million years ago and extends into the present. The rocks formed during the Quaternary period are called Quaternary system.

Rutile (TiO_2): An allotrope of titanium dioxide often found in igneous and metamorphic rocks. The other allotropes are anatase and brookite.

Sanidine $K(AlSi_3O_8)$: High temperature alkaline feldspar, end member of the potassium series.

Sandstone: Sedimentary clastic rock consisting of sand sized particles (0.0625 to 2 mm) cemented together within a matrix.

Sedimentary rock: Rock formed by sedimentation of substances in water, less often from air and due to glacial actions on the land surface and within sea and ocean basins. Sedimentation can be mechanical (under the influence of gravity or environment dynamics changes), chemical (from water solutions upon their reaching saturation concentrations and because of exchange reactions), or biogenic (under the influence of biological activity).

Siltstone: Sedimentary clastic rock consisting of silt sized particles (0.0039 mm to 0.0625 mm) cemented together within a matrix.

Stockpile: Broken ore heaped on surface, pending treatment or shipment.

Sulphide ore: Ore which is in its primary mineralised state and has not undergone the process of natural oxidation.

Tailings management facility (TMF): The engineered area for storage of material rejected from the process plant after most of the recoverable valuable minerals have been extracted.

22.2 ABBREVIATIONS

The imperial system has been used throughout this report unless otherwise stated. All currency is in U.S. dollars. The following abbreviations are typical to the mining industry and may be used in this report.

Abbreviation	Name
°	degree (angle)
°C	degree Centigrade
%	percentage
>	greater than
<	less than
ANAS	Azerbaijan National Academy of Science
CIM	Canadian Institute of Mining, Metallurgy and Petroleum
CoG	Cut-off grade
CoV	coefficient of variation
CRM	certified reference material
dmtu	Dry metric tonne unit
DTM	Digital terrain model
ID	Inverse distance algorithm
h	Hour(s)
kg	kilogramme
km	kilometre
km^2	square kilometre
km^3	thousand cubic metres
kt	thousand tonnes
kV	kilovolt
LOM	Life of mine
µm	micron
mm	millimetre

Abbreviation	Name
m	metre
m^2	square metre
m^3	cubic metre
mm	millimetre
µm	micron
Micon	Micon International Co Limited
Mn	Alunite
Ma	Millions of years ago
Mt	million tonnes
Mt/a	million tonnes per year
NI 43-101	Canadian National Instrument 43-101
NN	Nearest neighbourhood algorithm
P	Phosphorus
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
Report	Technical report
SG	Specific gravity
SI	Système International d'Unités
t	tonne
t/a	tonnes/year
t/d	tonnes/day
t/h	tonnes/hour
TMF	Tailings management facility
US$	United States dollar
VAT	Value Added Tax
Wt%	Weight percent
y	Year(s)