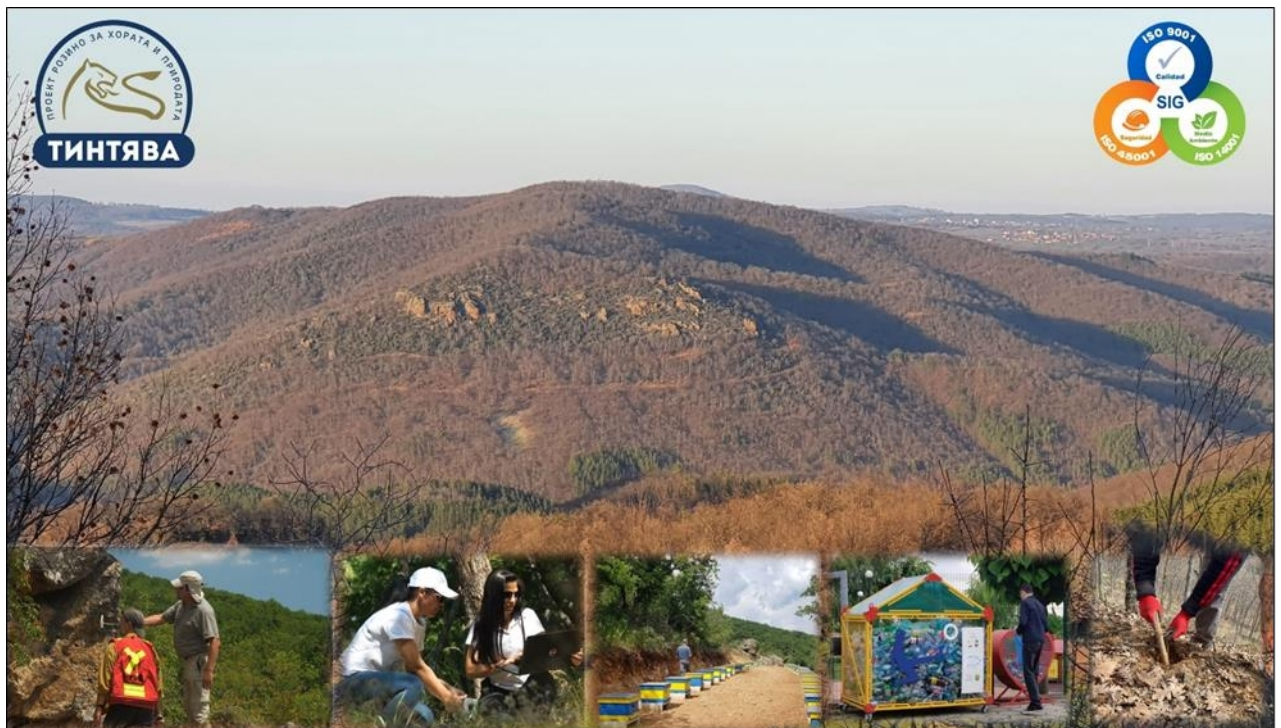


EIA REPORT
(SUPPLEMENTED*)
ON AN INVESTMENT PROPOSAL FOR
"EXTRACTION AND PROCESSING OF POLYMETALLIC ORES FROM THE
"ROZINO" DEPOSIT, TINTYAVA AREA, LOCATED IN THE LAND OF THE
VILLAGES OF ROZINO AND GUGUTKA, MUNICIPALITY OF
IVAYLOVGRAD, HASKOVO REGION



Contracting authority: Tintyava Exploration AD

March 2026

*** Note:** This EIA Report has been supplemented in accordance with the instructions given in letters from:

1. Ministry of Environment Environment and Water, ref. No. EIA-68-65/20.10.2025
2. Ministry of Health, ref. No. 04-09-119/10.09.2025
3. Basin Directorate "Eastern Black Sea Region" Plovdiv, ref. No. PU-010-808(2) dated 26.09.2025
4. Ministry of Environment Environment and Water, ref. No. EIA-68-91/12.02.2026

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List of abbreviations:

Abbreviation	Meaning
AIS	Automatic measuring station
AKB	Archaeological map of Bulgaria
BAS	Bulgarian Academy of Sciences
BGS	Bulgarian Geodetic System
BD ZBR	Basin Directorate "Western Black Sea Region"
BD IBR	Basin Directorate Eastern Black Sea Region
BDS	Bulgarian State Standard
BEK	Biological Quality Elements
BOD	Biological oxygen demand
BB	Explosives
VT	Water body
GD GRAO	General Directorate "Civil Registration and Administrative Services"
DV	State Gazette
DV	Internal combustion engines
EIA	Environmental impact assessment report
EEA	European Environment Agency
EIK	Unique Identification Code
EU	European Council
ZV	Water Act
APIA	Access to Public Information Act
PPA	Protected Area
ZOOS	Environmental Protection Act
ZPB	Law on Underground Resources
WMA	Waste Management Act
ZUT	Territorial Planning Act
EAOS	Executive Agency for the Environment
IP	Investment proposal
CAV	Air Quality
COS	Control of generally dangerous substances
CPPC	Comprehensive pollution prevention and control
MVR	Ministry of the Interior
MOH	Ministry of Health
MAF	Ministry of Agriculture and Food
MOEW	Ministry of Environment and Water
MPS	Motor vehicle
MS	Meteorological station
NASEM	National Automated System for Environmental Monitoring
NEM	National Environmental Network
NINKN	National Institute for Immovable Cultural Heritage
NMOS	Non-methane volatile organic compounds
NRZ	Radiation Protection Ordinance
NSI	National Statistical Institute
NCPHA	National Center for Public Health and Analysis

EIA	Environmental Impact Assessment
OS	Compatibility Assessment
OF	Enrichment plant
OHVS	Hazardous Chemical Substances and Mixtures
PBTR	Regulations on occupational safety in explosive works
PVD	Drilling and blasting activities
PVR	Drilling and blasting works
PVT	Underground water body
MPC	Maximum permissible concentration
PS	Pumping station
RBMP	River Basin Management Plan
PURN	Flood risk management plan
RZI	Regional Health Inspectorate
RIOSV	Regional Inspectorate for Environment and Water
RSUO	Regional Waste Management Association
SGN	Average annual rate
SDN	Average daily rate
NW-SE	Northwest - Southeast
SKOS	Environmental quality standards
SKC	Average annual value
SMO	Mining waste facility
CO	Carbon dioxide
SOZ	Sanitary protection zone
TK	Tube well
TSI	Crushing and sorting plant
UVV	Shock wave
FPCH10	Fine particulate matter, up to 10 microns in size
FPD2.5	Fine dust particles, up to 2.5 microns in size
FHE	Physical and chemical quality elements
HQP	Hydromorphological quality elements
HS	Chemical status
CRP	Comprehensive working project
EMEP	European Monitoring and Evaluation Programme
MIBC	Methylisobutylcarbinol
NOx	Nitrogen oxides
PAX	Potassium amyl xanthate
SO2	Sulfur dioxide

I. INTRODUCTION. GENERAL INFORMATION

Information about the Contracting Authority:

Tintyava Exploration AD, UIC 204432874, with registered address at 6570 Ivaylovgrad, ul. "Shesti Septemvri" No. 1

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General information about the investment proposal and the EIA procedure:

This report concerns the investment proposal (IP) "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territories of the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region.

Permit No. 467/28.02.2017 of the Minister of Energy (**Text Annex No. 2**) authorizes Gorubso Kardzhali AD, Kardzhali, to conduct exploration and research of metal minerals, underground resources, in the Tintyava area, located in the territory of the municipality of Ivaylovgrad, Haskovo region, and the municipality of Krumovgrad, Kardzhali region. underground resources in the Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region, and the municipality of Krumovgrad, Kardzhali region.

The rights and obligations under the Agreement of 02.05.2017 for the exploration and prospecting of metal minerals - underground resources under Article 2, paragraph 1, item 1 of the Underground Resources Act in the Tintyava area, concluded between Gorubso-Kardzhali AD and the Minister of Energy on the basis of Permit No. 467/28.02.2017 of the Ministry of Energy, were transferred to Tintyava Exploration AD by Supplementary Agreement No. 1 to the Agreement on the basis of Article 25, paragraph 1 of the Underground Resources Act and Article 61, paragraph 1, item 12 of the Agreement. The Agreement entered into force on July 17, 2017, after receipt of Decision No. 09-OS/2017 of the Minister of Environment and Water for assessing the likely degree of significant negative impact on the environment. On August 31, 2020, Tintyava Exploration AD and the Minister of Energy signed Supplementary Agreement No. 2 to extend the term of the Agreement by two years.

After submitting a comprehensive two-year report on the activities carried out and a reasoned proposal for the first extension of the term of the Agreement, and on the basis of Article 31(3) of the ZP, in connection with Article 2(6) and (7) of the Agreement of May 2, 2017, on 23.01.2023, Additional Agreement No. 3 (**Text Annex No. 3**) was signed between Tintyava Exploration AD and the Minister of Energy to extend the term of the Agreement by another 2 years. By letter ref. No. 017/08.05.2019 (**Text Annex No. 4**) the Company submitted an application for registration of a commercial discovery, but such registration can only be obtained after the entry into force of a positive EIA decision, as stated in letter ref. No. E-26-T-364/15.05.2020 (**Text Annex No. 4**) from the Ministry of Energy.

At the time of writing this report, no concession agreement has been concluded for the deposit. Pursuant to Article 37(1) of the Underground Resources Act (URA), the concession area includes the area of the deposit or its individual sections, as well as all areas necessary for the implementation of the concession activity, other than extraction. When determining the concession area, the following must be taken into account:

- the conditions of the underground resource deposit;
- the technical conditions for its full utilization;
- the additional areas required for the placement of spoil heaps, warehouses, and technical infrastructure elements;
- the requirements of the ZPB for optimal extraction of natural resources; additional exploration work shall be provided for in the overall and annual extraction plans
with a view to achieving the fullest possible extraction of the reserves and resources of underground wealth from the deposit during their extraction, through the application of appropriate and environmentally friendly technologies.

The distances from the extraction sites to the boundaries of populated areas and the areas necessary to provide buffer zones around technical infrastructure facilities have been taken into account in relation to the protection of the environment and human health.

Therefore, the boundaries and size of the project concession area necessary for the extraction from the deposit and the processing of the raw material will be discussed and assessed here, and will be submitted for approval by the relevant state authorities in the concession award procedure.

The contracting authority plans to extract and process polymetallic (gold-silver) ores from the Rosino deposit, Tintyava area, with the future concession area amounting to **2,753 decares, of which the disturbed areas will amount to 1,179 decares**. The main activities included in the proposal are:

- open-pit mining of polymetallic ores;
- processing of the ore by flotation to obtain concentrate;
- construction and operation of the necessary accompanying infrastructure – roads, water supply, electricity supply, material storage facilities, mining waste facilities, etc.;
- phased recultivation of the affected areas.

The concession term is set at 35 years.

The purpose of the investment project is the open-pit mining and processing of polymetallic gold-silver ore from the Rosino deposit, Tintyava area. The technological process of open-pit mining includes exposing the natural resources, performing drilling and blasting works (DBW) and crushing the ore. The ore will be processed by flotation to obtain a concentrate, which will be the final product for the installation. No black metal is expected to be obtained. The generated mining waste will be deposited in mining waste facilities.

The investment proposal is not related to the maintenance and construction of a warehouse for explosive materials. Blasting works will be carried out on the basis of a written contract with a specialized company that has all the necessary permits and approval documents to store, deliver, and detonate the ore mass.

At the earliest stage, the client informed the Regional Inspectorate of Environment and Water Resources (RIEW) – Haskovo, the affected municipalities, mayor's offices, and the population. The investment proposal (IP) falls within the scope of item 19. "Open-pit mining in quarries and mines of raw materials - with an area of more than 25 hectares, or peat extraction - with an area of more than 150 hectares" of Annex No. 1 to the Environmental Protection Act and is subject to a mandatory environmental impact assessment (EIA).

At this stage, open-pit mining and processing by flotation of natural raw materials is outside the scope of Annex No. 4 to the Environmental Protection Act, and therefore no integrated permit is required under Chapter Seven, Section Two of the Environmental Protection Act to implement the project. Therefore, there is no need to prepare an assessment of the applicability of the best available techniques in relation to the proposed technologies.

The investment proposal does not provide for the storage of hazardous chemicals and mixtures on the site in quantities exceeding those specified in Annex 3 to the Environmental Protection Act, and therefore does not fall within the scope of Article 103 of the Environmental Protection Act. The explosives will be delivered by a licensed company whose warehouses are equipped and operated in accordance with the regulatory requirements for working with hazardous substances.

The future concession area does not fall within the boundaries of protected areas within the meaning of the Protected Areas Act, but falls within two protected areas (PA) of the Natura 2000 National Ecological Network:

- PA "Rhodopes - East", code BG0001032, for the protection of natural habitats and wild flora and fauna;
- PA "Biala Reka", code BG0002019, for the protection of wild birds.

In accordance with the instructions given, the Contracting Authority has taken steps to prepare the necessary EIA documentation and a report assessing the compatibility of the IP with the subject and objectives of the protected area (OS Report).

In connection with a letter from the Minister of Environment and Water, ref. No. 99-00-587/27.05.2024, pursuant to Article 98(1) of the Environmental Protection Act, a notification was prepared and sent to inform the potentially affected party, the Republic of Greece, in connection with the EIA procedure and in accordance with the requirements of the Convention on EIA in a transboundary context. The notification was prepared in accordance with Decision I/4 of the First Meeting of the Parties to the Convention.

By letter ref. No. EIA-68/23.10.2024, the Ministry of Environment and Water received an official response from the Greek side confirming its willingness to participate in the EIA procedure as an affected party. With this, the competent authority for conducting the EIA procedure becomes the Minister of Environment and Water. The scope of the assessment examines in detail the transboundary aspects of the impact, with special attention paid to the component

"Water". The letters relating to the transboundary procedure are presented in **Text Annex No. 5**.

The investment proposal falls within the scope of the Eastern Black Sea Basin Directorate, Plovdiv. Letter No. PU-01-183 (5)/26.05.2023 from the Director of the BDIBR (**Text Appendix No. 6**) expresses the opinion that the IP is admissible, subject to the following conditions (we attach some of them):

- no pollution of surface and groundwater bodies from the activities related to the operation of the investment proposal shall be allowed;
- no activities that could lead to a negative change in the status of water body BG3MA100R270 shall be allowed;
- to prevent direct and indirect discharge of hazardous and harmful substances into groundwater during the implementation of the investment project;
- to prevent the cutting of natural coastal vegetation;
- water abstraction from surface or groundwater shall be carried out after a permit has been issued, in accordance with Article 44(1) of the Water Act;
- the construction of new facilities in a water body shall be carried out after a permit has been issued in accordance with Article 46(1) of the Water Act;
- protection of drinking water sources in the area of the investment project in terms of their quantity and quality;
- the construction of drainage ditches around the perimeter of the mine field and the open pit mine shall be provided for, in order to collect rainwater and snowmelt from higher elevations and prevent surface water from entering the mine pit;
- to provide for appropriate measures for the reuse of rainwater, waste water, and drainage water, which should be included in a closed cycle, in order to reduce the planned water intake and ensure the efficient use of water.

All these requirements have been taken into account in the development of the conceptual design, and the relevant analyses will be made in this EIA report.

It should be noted that the Water Act does not provide for any prohibitions or restrictions with regard to the proposed project.

In order to ensure the completeness of the analyses and assessment of the "groundwater" component, the Contracting Authority has commissioned the preparation of a "Report on the hydrogeological conditions in the area of the investment proposal for the Rozino deposit". This report was prepared by persons with the relevant expertise and was submitted to the Ministry of Environment and Water by letter from the Contracting Authority ref. No. 4-2/28.04.2024. There are two opinions on the report – one from the BD IBR ref. No. PU-10-182(8)/12.05.2024 and one from an expert hydrogeologist. All documents are presented in **Text Appendix No. 16**.

The terms of reference for determining the scope of the EIA report were developed in accordance with Article 10, paragraph 3 of the EIA Ordinance in October 2024 and were submitted for consultation. The written results of the consultations are presented in **Text Appendix No. 7**.

The EIA report was prepared on the basis of Article 96, paragraph 1 of the Environmental Protection Act, in accordance with the consultations held with the affected parties and the public, additional studies conducted during the EIA procedure, including letters from the Ministry of Environment and Water (MEW) ref. No. EIA-68-17/18.11.2024 and ref. No. EIA-68-28/14.02.2025. It was submitted for quality assessment to the Ministry of Environment and Water in August 2025. By letter ref. No. EIA-68-65/20.10.2025 (**Text Annex No. 7A**), a first negative assessment of the quality of the EIA and ES report was given, pointing out certain omissions, and the report was returned for completion. It is noteworthy that most of the opinions, as well as the opinion of the competent authority, did not use the criteria for assessing the quality of the EIA report set out in Article 14(1) of the EIA Ordinance.

The supplemented report was submitted for a second quality assessment and, by letter from the Ministry of Environment and Water, ref.

No. EIA-68-91/12.02.2026 gives a positive assessment of the supplementary report. **Text Appendix No. 7B** contains a letter from the Ministry of Environment and Water, ref. No. EIA-68-91/12.02.2026, and a letter from the BD IBR, ref. No. PU-01-808(6) dated 30.01.2026.

This supplemented EIA report reflects the comments made, and we draw attention to the following response to the comment made in point 1.5 of the letter from the Ministry of Environment and Water: "No assessment has been made as to whether individual sections of the IP fall within future sanitary protection zones in connection with the presence of water intake facilities for drinking and domestic water supply less than 1000 m from the boundaries of the future concession area, for which no CO3 has been established," as detailed and justified in the report submitted in August 2025 and repeated in this report:

A survey of all available water sources around the future concession area has been carried out. At 800 m east and 1800 m south of the boundaries of the IP, there are water supply and sewerage facilities – Haskovo PS Rozino (on the terrace of Arpa Dere) and PS Gugutka (on the terrace of the Biala River), Figure No. IV.2.2-1, Table No. IV.2.2-11, and Table No. IV.2.2-12. Information has been requested from the BD IBR under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIBR on granting access to public information (**Text Annex No. 15**) explicitly states that **"At present, we have no information about the existence of future II or III zones of the SSS for nearby water sources for drinking and domestic water supply." In view of this, it is not possible to make such an assessment.**

This response was probably read by the BD IBR and the question was not raised again in their opinion ref. No. PU-010-808(2) of 26.09.2025.

With regard to the comments in the same letter from the BD, namely:

"At about 620 m east of point 6 describing the contour of the future concession area is the "Rozino" water intake, located in the territory of the village of Pastrok, municipality of Ivaylovgrad, for drinking and domestic water supply, owned by the State Forestry. There is no sanitary protection zone (SPZ) built around the water intake facility in accordance with Ordinance No. 3/10.10.2000. There is no sanitary protection zone around the water intake facility in accordance with Ordinance No. 3/10.10.2000.

Annex No. 7.2.1. to Section 7 of the updated RBMP of the IBR, adopted by Decision No. 920/31.12.2024 of the Council of Ministers, provides for a measure with code DW_1 and title: Prohibitions and restrictions on activities in drinking water protection areas and in designated sanitary protection zones (SPZ) and buffer zones around water intake facilities/systems, action to implement the measure: DW_1_35

Prohibition on the extraction of underground resources, including inert and construction materials, in a buffer zone with a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply.

In view of the above circumstances, part of the project concession area subject to the IP falls within the scope of the mark set in the RBMP of the IBR 2022-2027 and needs to be excluded from the concession area of the "Rozino" buffer zone within a radius of 1000 m from facilities for groundwater abstraction for drinking and domestic water supply (the "Rozino" catchment, located in the territory of the village of Pastrok, municipality of Ivaylovgrad)." We make the following clarification:

The Rozino catchment is located 2300 meters from the contour of the mine where mining will take place and 1300 meters from the boundary of the buffer zone with a radius of 1000 m from the water intake facility. As can be seen from Figure No. II.1.2-1, **the catchment is close to point 6 of the contour of the future concession area, with this point being below the clean water reservoir.** The map material shows that **no extraction, respectively PVR, can be carried out in the 1000 m buffer zone (without a defined SOW), as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir.**

We emphasize once again that extraction will take place 1300 m from the buffer zone with a radius of 1000 m (without a defined sanitary protection zone) and 2300 m from the catchment itself, which is why we find no grounds for excluding the buffer zone around the Rozino catchment from the future concession area. The exclusion of this territory will make it impossible to build the clean water reservoir necessary for the implementation of the investment project. The following figure illustrates these distances.

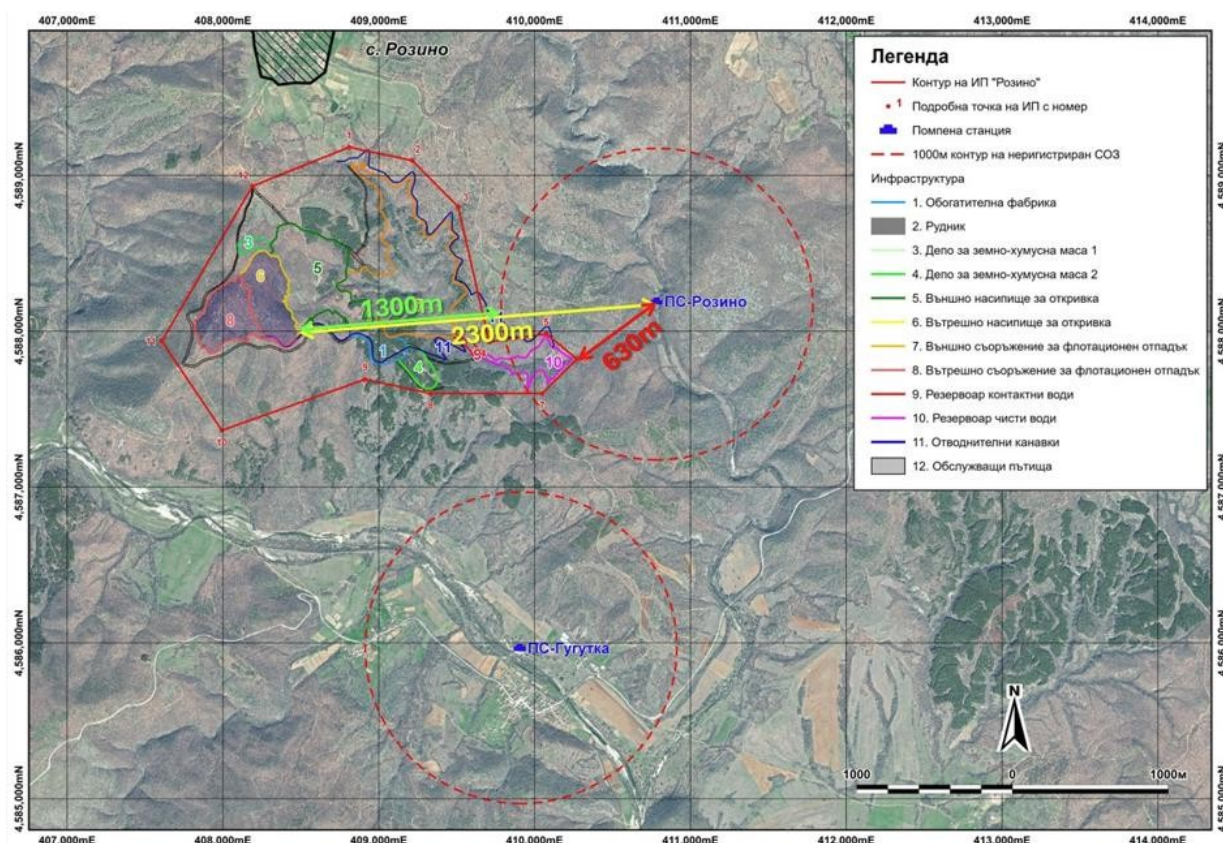


Figure No. II.1.2-1. Location of the Rozino catchment in relation to the mine contour and the IP contour

In addition, we note that Figure No. V.2-1 shows the IP's catchment areas during operation, and it is clear that in the buffer zone of the catchment

There are no mining operations at Rosino.

The report describes and analyzes *the territory* that will be affected by the IP in its entirety, including all additional or accompanying facilities and activities, in relation to the spatial and temporal dimensions, frequency, and duration of the significant impacts that the IP is likely to have. The impacts related to the implementation of the IP *for the phases of its implementation—construction, operation, closure, and recultivation*—have been identified, taking into account the degree of development/detail of the project design and the information provided by the Contracting Authority.

The possible cumulative impacts have also been assessed, taking into account the available and provided information on existing or planned other activities and intentions in the area of the investment proposal.

The expected impacts have been assessed, and general and specific conclusions have been formulated regarding the expected potential impacts, including their degree. Based on these conclusions, recommendations and measures have been proposed to reduce the impacts, to resolve any future environmental problems and to ensure the safe operation of the facility, guaranteeing the protection of human health, the environment and the sustainable development of the area.

The list of experts under Article 83(1) of the Environmental Protection Act and the head of the team that developed this EIA is presented in **Text Appendix No. 1**. Copies of the diplomas of all experts are attached, and written declarations under Article 11(4) of the EIA Ordinance, signed by the experts in accordance with: Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC; the Electronic Document and Electronic Certification Services Act and Regulation (EU) No. 910/2014 of the European Parliament and of the Council of July 23, 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC. **Under current legislation, a qualified electronic signature has the same legal value as a handwritten signature.**

II. DETAILED DESCRIPTION OF THE INVESTMENT PROPOSAL, INCLUDING INFORMATION ON THE SIZE, AREA AFFECTED, PARAMETERS, SCALE, VOLUME, PRODUCTIVITY, SCOPE, AND FORM OF THE INVESTMENT PROPOSAL IN ITS ENTIRETY

1. Description of the location of the investment proposal. Required areas. Operating mode. Productivity.

1.1. Physical characteristics of the area

The Rosino deposit, Tintyava area, is located in the territories of the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region, about 1.2 km south of the village of Rosino. To the east and south is the border with Greece, and to the north and west are the municipalities of Lyubimets, Madzharovo, and Krumovgrad. It is located about 350 km (by road) east-southeast of the capital, Sofia. The

The Rosino deposit area is bordered to the south by the steep cliffs of the and is cut by the Byala River and its tributaries, which flow into the Arda River as a regional catchment area. In the deposit area, the average altitude is about 470 m (in the northern part) and 300 m (in the south).

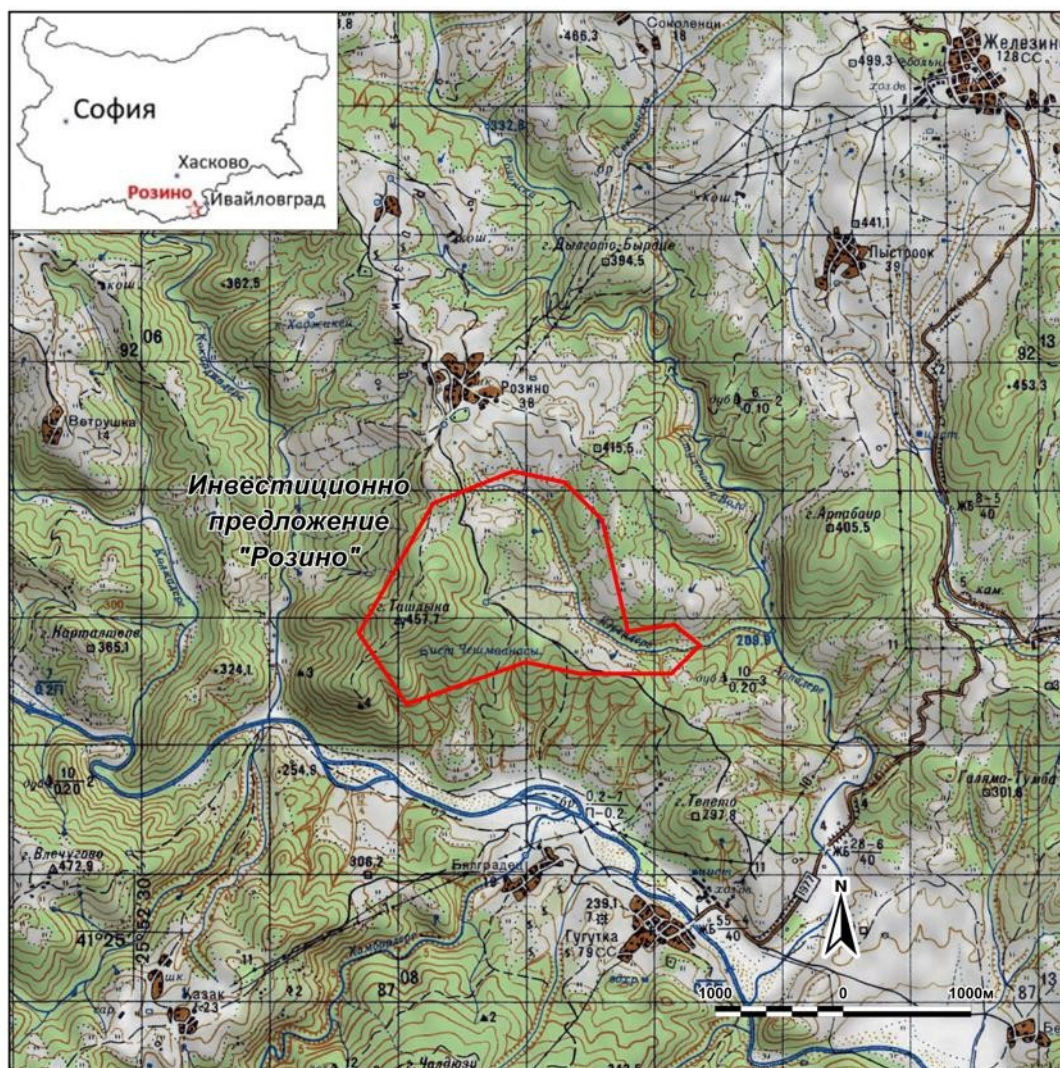


Figure No. II.1.1-1. Location of the Rosino deposit, Tintyava area

The relief in the area is low mountainous and hilly, with flat hills predominating. It has a well-defined low ridge and valley character. The highest peak in the area, Kojale, at 1,267 m, is located on the Măglănik ridge. The altitude ranges from 70 to 700 m, with an average of 320 m. The relief in the area of the Tashlaka hill is heavily dissected by the Byala River and its tributaries - Dermene Dere, Kokardzha Dere, Arpa Dere, Hambar Dere, Yuruklerska, etc. The river basins are dominated by tectonically controlled river valleys, with rivers flowing from different directions merging into the main river in the region - the Arda River.

The area is entirely within the Gyumyurdzhina-Moglena physical-geographical subregion. The winds are northwesterly, with active manifestation in the valleys and mountainous areas.

There is also the occurrence of foehn winds. Average annual precipitation varies widely, from 800 to 1200 mm. There is an autumn-winter maximum in November and December. The frequent frontal and torrential nature of the precipitation reaches up to 100 mm per day. This is one of the reasons for surface erosion. Snow cover lasts 5-10 days a year. The runoff module is from 5 to 25 l/sec/1m².

1.2 Areas required for the implementation of the investment proposal and road connections. Projected mining depth.

The total planned concession area is **2,753 decares**, of which **1,179 decares** will be disturbed terrain. The buffer zone area is 1,574 decares. Part of the facilities will be developed in already worked/disturbed areas and no new land will be taken, with this "overlap" amounting to 261.9 decares. The distribution for each of the infrastructure sites is as follows:

No	Facilities	Areas, decares
1	Enrichment plant	51.4
2	Mine	261.9
3	External embankment-1 for earth and humus masses	14.5
4	External embankment-2 for earth and humus masses	37
5	External embankment for sterile rock mass (excavation)	247
6	Internal embankment (backfill) for sterile rock mass (excavation)	133.2
7	External facility for flotation waste after processing	438.4
8	Internal (backfill) facility for flotation waste after processing	128.7
9	Contact water reservoir. Covers: external facility for sterile waste after processing, mine, factory, and collection channels. Consists of a water mirror and a retaining wall.	9
10	Clean water reservoir and collection channels (water mirror and retaining wall)	62.4
11	Service roads (outside the above infrastructure)	57.3
12	Overlapping areas - backfilling - internal embankment and internal facility for sterile waste after processing (This area is excluded from the total!)	-261.9
Total area required:		1179.0

No mining activities will be carried out in the buffer zone. It will provide protection for the facilities and installations and restrict accidental access by people and animals. It will ensure compliance with the obligations under the ZPB for additional research work with a view to the optimal extraction of reserves and resources from the subsoil.

The site plan shown in Figure II.1.2-1 illustrates the elements of the IP that are in the conceptual phase. As the project progresses and moves on to the working design stage, the contours of the individual sub-projects may be changed slightly within the assessed areas without changing the impact analysis.

In compliance with the requirements set out in letter ref. No. PU-02-231/1/18.12.2024 of the BD ZBR, drainage ditches are to be constructed around the perimeter of the mine field and the open pit mine in order to collect rainwater and snowmelt from higher elevations and prevent surface water from entering the mine pit. With regard to their illustration on the site plan, it should be emphasized that they are marked hypothetically, taking into account the geodesy of the terrain

at the moment. Their exact location will be determined after engineering calculations and the development of specific technical designs, with a view to their maximum efficiency in relation to the technical parameters of the overall future project. Therefore, in some places, the contour of the hypothetical ditches extends beyond the proposed concession area, which will be corrected at the technical design stage and will be adjusted to the concession area provided, as they will be constructed within this area.

The coordinates along the contour of the future concession area are presented in the following table:

Table No. 1.2.1. Coordinate register of the boundary points of the project concession contour for investment intention (BGS 2005 system and geographical coordinates)

No.	East, m	North, m	Longitude, degrees	Width, degrees
1	408811	4589180	25.908290	41.449019
2	409216	4589094	25.913149	41.448299
3	409510	4588798	25.916717	41.445662
4	409710	4587930	25.919241	41.437868
5	410076	4587982	25.923614	41.438381
6	410274	4587821	25.926004	41.436948
7	410050	458760	25.923359	41.434934
8	409332	4587600	25.914766	41.434853
9	408913	4587690	25.909739	41.435616
10	407994	4587363	25.898795	41.432568
11	407609	4587935	25.894091	41.437674
12	408190	4588930	25.900899	41.446702

The register of affected properties is presented in **Text Appendix No. 8.**

The site plan of the elements of the IP is presented in the following figure.

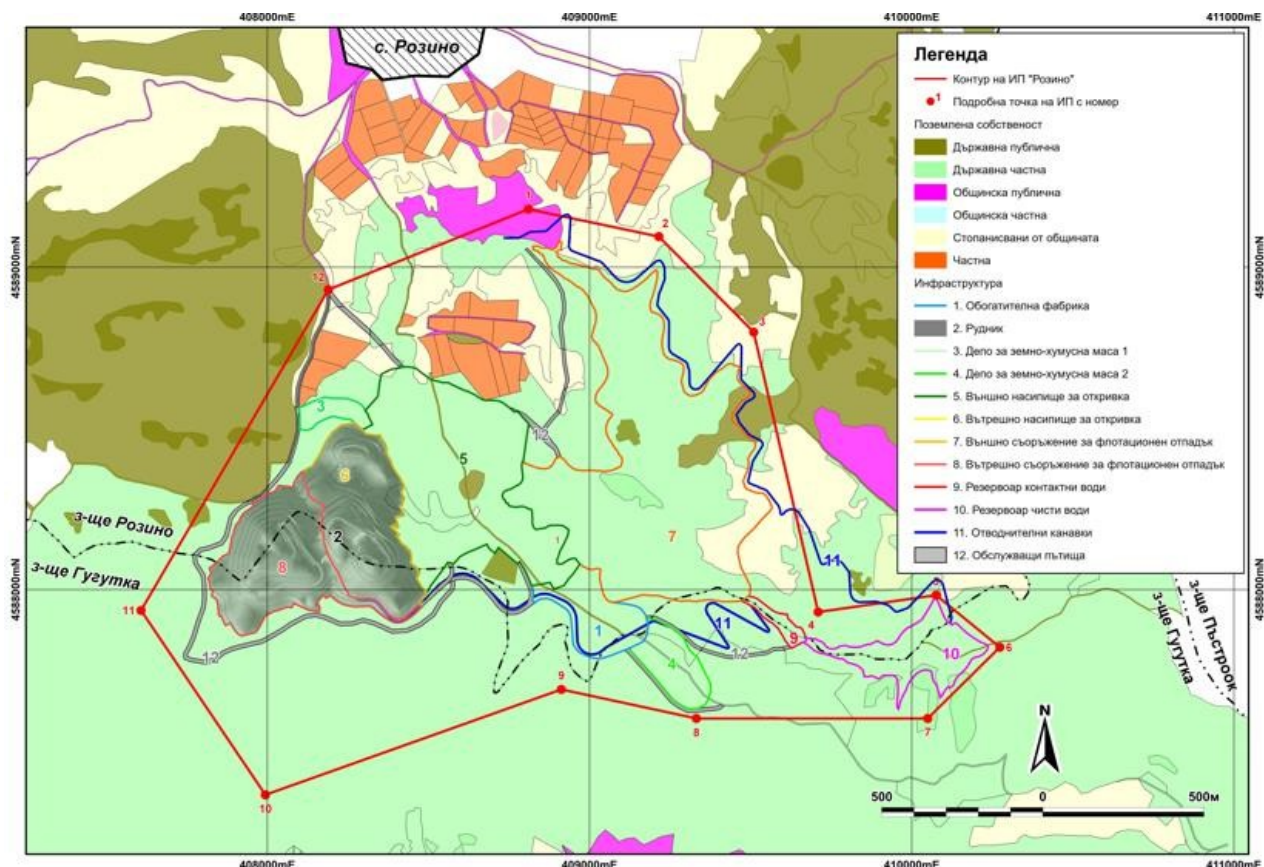


Figure No. II.1.2-1. Site plan of the elements of the investment proposal

The implementation of the investment proposal requires the construction of internal roads and access roads to the sites. The road connection to the Rosino mine will be provided by the existing dirt road through the villages of Rosino and Konnitsa, which connects to asphalt road II 59, linking the towns of Ivaylovgrad and Krumovgrad.

According to hypothetical data at present, transport access to and from the concession area, including the transport of finished products, could be achieved in two ways:

- *option 1:* via a new private road from the concession area to a third-class national road, with a length of 3725 m;
- *Option 2:* via a new private road from the concession area, with a length of 2,810 m, to a municipal road. The municipal road is 12,120 m long.

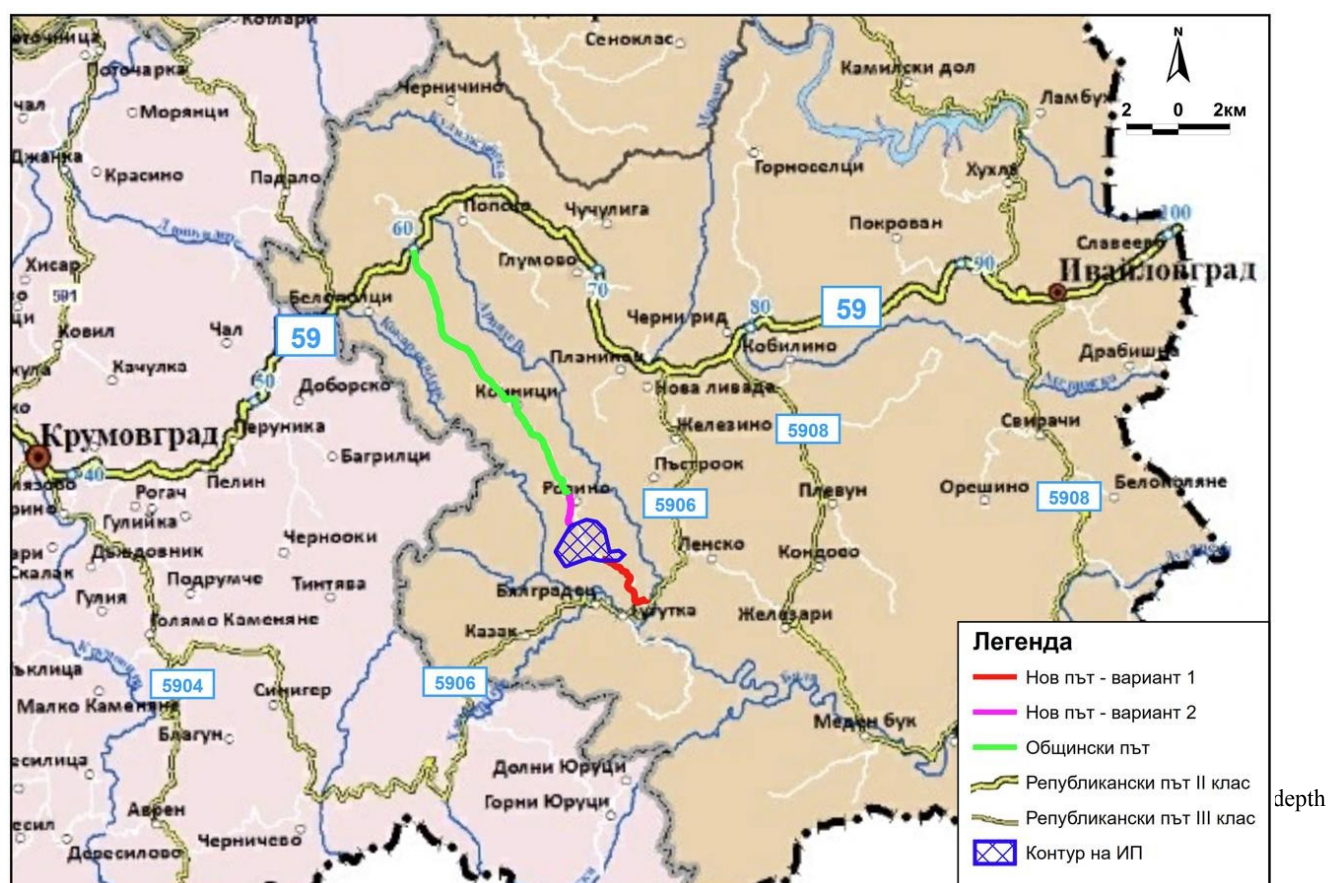
The options are illustrated in **Figure II.1.2-2**.

The expected number of trucks for transporting the production is a total of 30 trucks/week, each truck with a payload of 25 tons, distributed over three working days of the week.

It is estimated, without certainty, that the delivery of OHS will be once every 3 months, but it is not clear where the suppliers will be, because none have been selected and it is not possible to have any before receiving the concession for extraction and construction of the OF.

The contracting authority envisages the use of **electric trucks**, as they do not emit harmful substances into the air or noise from internal combustion engines

internal combustion engines. Economic incentives and regulations in the European Union, such as the Euro 7 regulation, are paving the way for more electrified heavy-duty vehicles in the coming years. EU policy envisages the gradual phasing out of heavy-duty diesel-powered vehicles in favour of zero-emission vehicles. The Contracting Authority of the IP is also pursuing this policy. In 2023 alone, 5,279 new electric trucks were registered in the EU.



95% of them are at a depth of less than 120 meters and about 1% below 140 meters. **The maximum depth of the mine pit is planned to be about 140 m from the surface.**

Figure II.1.2-2 shows a cross-section of the mine with the corresponding elevations.

The fresh water reservoir is planned at elevation 315 m, and the mixed water reservoir is planned to be at elevation 325 m.

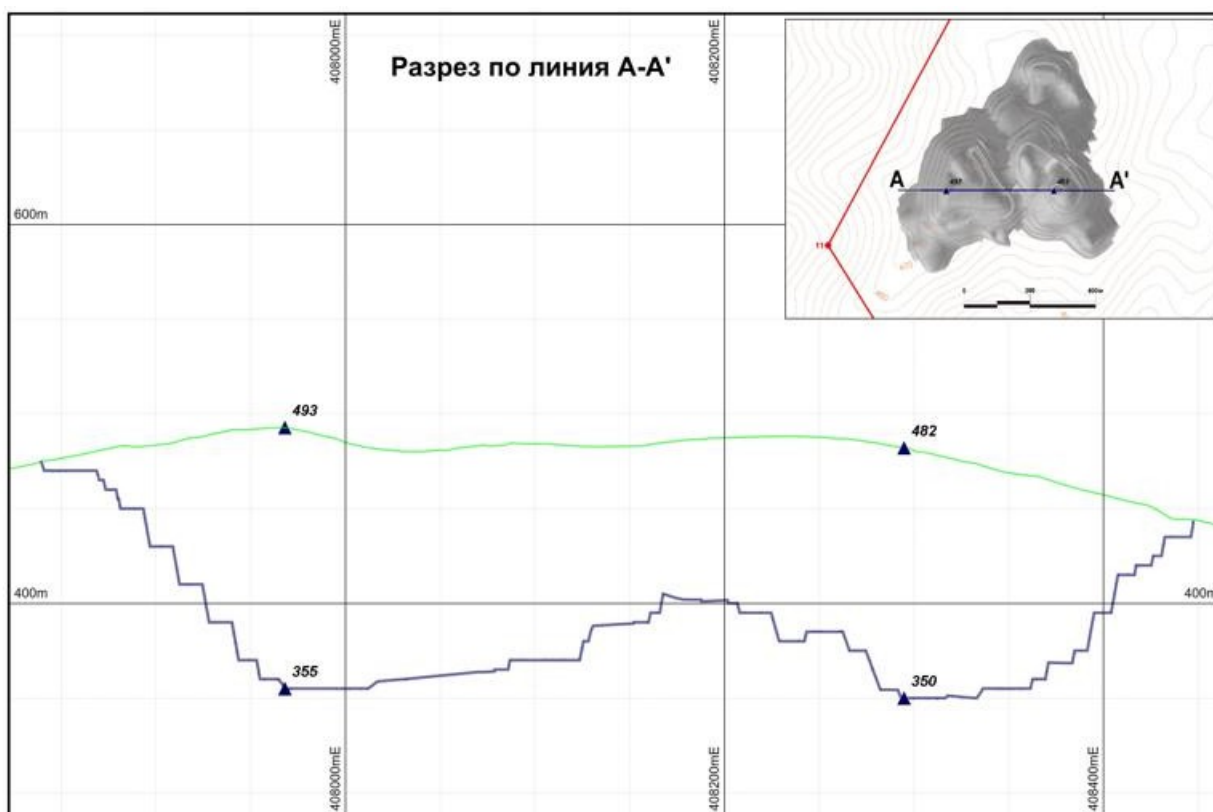


Figure No. II.1.2-3. Cross-section of the mine and elevations

1.3. Productivity. Operating mode. Personnel.

The reserves in the Rozino deposit amount to 11.3 million tons of ore with a content of 1.33 g/t gold and 26.6 million tons of overburden, as described in the Appendix to the final Report on reserves. Taking into account the time required for mine construction, building the necessary infrastructure, procedures for settling the status of the land, investment risk, mining and geological risk, and reclamation, the site is expected to have a 35-year life span, with an average annual productivity of 0.87 million tons/year of ore.

The planned maximum annual production is:

- By ore – 1.77 million tons/year or 0.72 million m³/year;
- Open pit – 3.3 million tons/year or 1.3 million m³/year;

The planned average annual production is as follows:

- Ore – 0.87 million tons/year or 0.36 million m³/year;
- Open pit mining – 1.65 million tons/year or 0.681 million m³/year;

To ensure the processing of the planned quantities of ore, the design capacity of the processing plant is 1.7 million tons of ore per year. The planned maximum capacity of the plant guarantees production security in case the planned maximum annual capacity of the mine is reached.

The operating mode of the mine and the processing plant is presented in the following table.

Table No. 1.3-1. Operating mode of the mine and the processing plant

No	Indicators	Measure	Quantity
1	Working days per year		
	- Total number of days per year	pcs/year	365
	- Number of holidays per year	No./year	0
	- Number of public holidays per year.	No.	14
	Total number of working days per year	No./year	351
2	Working days per week	No./week	7
3	Working shifts per day	No./day	
3.1	for the mine:	No./day	2
3.2	for the factory:	units/day	3
4	Duration of the work shift	hour	8

The number of workers at the site is determined according to the type of activities performed during operation, with **an expected total staff of 120 people**, but this could reach 300 if necessary. According to current data, 50 people will be needed for the mining and extraction part, and a total of 70 people will be needed for the OF.

2. Description of the physical characteristics of the investment proposal as a whole and, if applicable, the necessary demolition and destruction activities, as well as the requirements for the use of water and subsoil resources during the construction and operation phases. Reclamation.

Engineering-geological, hydrogeological, geological, and other experimental field and laboratory studies have been conducted to study the mining and technical conditions for the exploitation of the deposit. Given the nature of the deposit, its location, and depth, extraction will be carried out using an open-pit method.

The investment intention is based on the following initial parameters:

- ✓ No mining operations have been carried out in the Rosino deposit, Tintyava area.
- ✓ No enrichment plant has been built;
- ✓ Transport access to the deposit will be provided by existing roads, with partial construction of new ones;
- ✓ The mine is not electrified and has no water supply;
- ✓ Extraction is carried out by means of drilling and blasting;
- ✓ The deposit will be exploited in accordance with a comprehensive working project for ore extraction and processing, prepared and agreed upon in accordance with the relevant procedure.

The discovery of the deposit and the construction of the mine are essential for the conduct of open-pit mining operations. Their proper and consistent implementation is crucial for the subsequent effective and safe exploitation of the Tintyava area.

The technological process of open-pit mining of polymetallic ores from the Tintyava area will include the implementation of PVR, crushing of the mine mass, its transport and processing in the OF, transport of the overburden (sterile rock mass) to the dump, transportation of flotation waste to the SMO.

Mine construction

The capital mining construction works envisage:

➤ **Year 1:**

- rehabilitation of existing road connections and construction of new ones to the mine, to the plant, to the dumps, and to the water reservoirs;
- Conducting excavation works related to the formation of soil deposits – two for the earth-humus mass, which will be collected selectively, where possible, and stored separately, forming SMO and developing a temporary dump for low-grade ore. It is expected that approximately 45% of the project area will be uncovered;
- Establishing a site for servicing the mining equipment;
- commencement of construction of the power transmission network;
- clearing of the production site and commencement of construction of the OF;
- delivery of ISOBOX mobile trailers for the administrative and residential complex;
- delivery and installation of a diesel generator to be used during mine construction and subsequently as a backup power source in case of a power outage;
- delivery and installation of a mobile crusher for the needs of the retaining walls (dikes) of the SMO, the reservoirs, and for the construction and maintenance of roads;
- clearing the land designated for the clean water reservoir and starting the construction of the retaining wall;
- clearing the areas designated for the contact water reservoir and starting the construction of the retaining wall;
- clearing the areas designated for the SMO;
- clearing of land for the construction of a contact reservoir dam at the base of the SMO;
- commencement of marking the first horizons, mainly on rock outcrops, in order to expose and prepare ore reserves;
- delivery of chemical toilets for workers.

➤ **Year 2:**

- Continuation of selective removal of the topsoil, with expected to clear another 45% of the area, or a total of 90%, and continue its selective disposal for subsequent use in recultivation;
- Continuation of work on the SMO and the low-grade ore dump;
- All road connections between the individual sites will be completed;
- The retaining wall of the contact water reservoir of the SMO, the mine, and the factory will be completed;
- The retaining wall of the contact water reservoir at the low-grade ore dump will be completed;

- The retaining wall of the clean water reservoir, the contact water reservoir, and the clean water reservoir will be completed;
- The entire water management system for the contact reservoirs and the clean water reservoir will be constructed;
- It will be built the infrastructure and be to begin operation;
- At the end of the second year, the construction of the enrichment complex will be completed.

Table II.2-1 shows the volumes of overburden and ore that will be extracted during the first two years.

Table II.2-1. Volumes to be extracted during mine construction

Year of manufacture	First		Second	
Section I	Open pit, t	Ore, t	Open pit, t	Ore, t
Total:	8,621	3,837	708,689	178,947
Ore in stockpiles		3,837		178,947

All of the above activities mark the end of mine construction and the start of actual mining.

Operation

Actual mining will begin immediately after the completion of mine construction and the commissioning of the OF in normal operating mode.

The main mining processes are:

- excavation works;
- mining operations;
- ore processing.

Ore extraction

Work on soil and humus stripping (mass)

Topsoil (soil) will be selectively collected from the rock excavation. It is planned to be selectively deposited, and after the end of exploitation, it will be used entirely for recultivation and restoration of the disturbed areas.

The main activities for collecting the earth mass are:

- clearing the designated areas of trees and shrubs;
- collection of soil piles using a bulldozer, noting that in some places the soil cover is missing or is less than 0.25 cm thick, making it technologically impossible to collect. In all other areas, the soil and humus will be collected in piles and loaded onto dump trucks using a front loader or excavator and transported to the two embankments designated for soil and humus.

These embankments will be developed during the mining construction period and will be closed

after the end of recultivation.

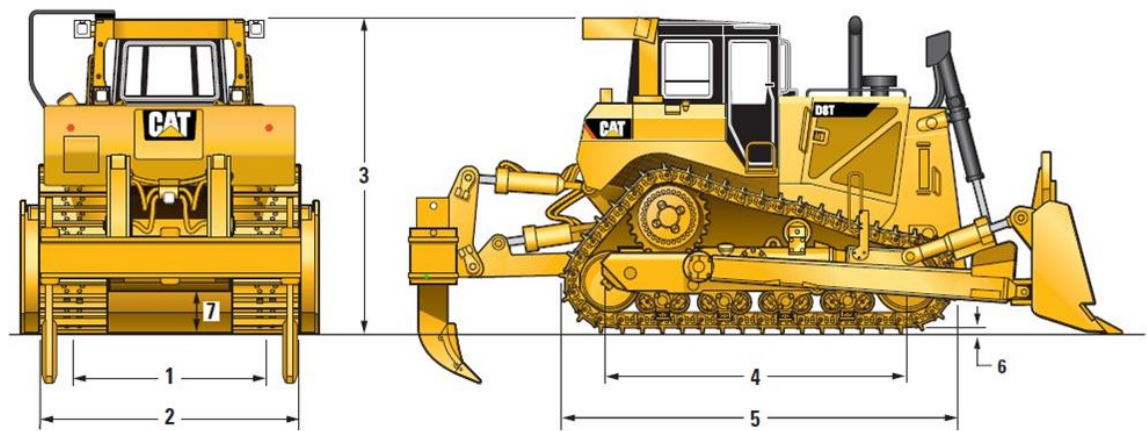


Figure No. II.2-1. CAT D8T bulldozer.

Work on rock (sterile) overburden

The following parameters of the stripping and ore mining system have been adopted for the conditions at the Rozino deposit:

- Working step height – $5 \div 10$ m;
- Non-working step height – 20 m (in the final non-working contour, the 5-meter steps are combined in groups of 4, or 2 10-meter steps are combined in groups of 2);
- Working step angle – $85 \div 90^\circ$;
- Angle of non-working step – 70° ;
- Minimum width between two groups of non-working steps 12 m;
- Minimum width of working platform - 60 m;
- General angle of non-working board $36 \div 48^\circ$.

Due to the hardness of the rocks, it is accepted practice to separate the ore and rock overburden from the massif by drilling, followed by millisecond initiation and detonation using a NONEL system.

The rock overburden in the Rozino deposit, which does not contain any useful components but covers the ore-bearing rocks or is mixed with them, must be selectively removed and deposited.

In general, the processes for the selective removal of sterile overburden are: conducting PVR with a millisecond delay to separate the sterile from the massif, loading by means of a backhoe loader onto dump trucks and transport to a sterile dump.

The NONEL/NON EL (non-electric) initiation and detonation system is currently the most widely used technology in Bulgaria and the European Union over the last 30 years due to its advantages over electric and fire detonation, which were used in the past in almost all open-pit mines and quarries in the country. The advantages of the NONEL system are as follows:

- The safest system for transport, handling, and initiation;
- Possibility of controlled reduction of seismic impact to a minimum, thanks to a wide range of delayers allowing the detonation of separate series of boreholes in a single blast field;
- Reduced sound effect;
- Better fragmentation.

The total design volume of sterile rock mass to be removed from the deposit amounts to approximately 26.6 million tons or approximately 10.8 million m³. Or a maximum annual amount of 3.3 million tons/year (1.3 million m³/year) is expected.

The planned volumes of sterile rock are to be dumped in the SMO, east of the mine pit.

After the fourth year (after the depletion of the reserves in section 1), the backfilling of the excavated areas will begin.

The height of the working steps in the open pit is assumed to be 5 ÷ 10 m.

The loading of the open pit and the ore is planned to be done with a hydraulic backhoe loader with a bucket volume of 6 m³, and after the blasting and ventilation of the mine, the excavator stands next to the blasted field and begins to load the blasted piles.

Figure II.2-2 shows the general view of a CAT 930D excavator and its main technical parameters.

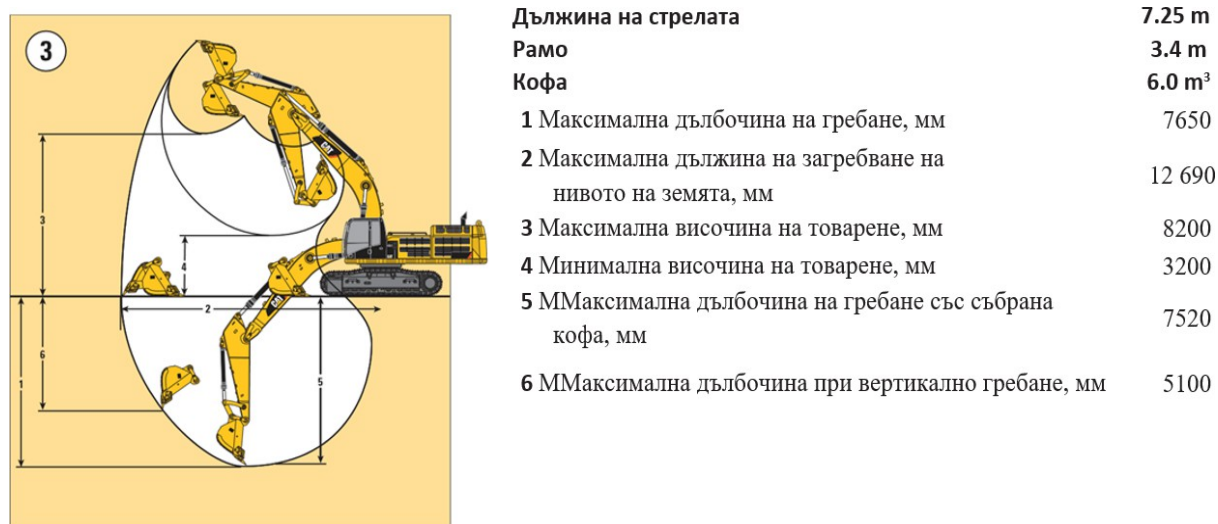


Figure II.2-2. CAT 390D excavator and its main technical parameters The transport of the excavated material is planned

to be carried out by dump trucks with a total load capacity of about 55 t (33 m³) and a 10x4 wheel configuration, loading length of 7 m, loading width of 2.6 m, and unloading height of 1.96 m. The dump trucks will be equipped with modern engines that meet the EURO 6 emission standard.

A total of 12 machines are required for the excavation work.

Table No. II.2-2. Type of equipment for open-pit work (soil and sterile rock mass), number

No	Type of equipment	Required number
1	Bulldozer	1
2	Excavator	1
3	Dump trucks	7
4.	Water tanker	1
	Total uncovered:	10

Based on the conceptual design and maximum annual production capacity of 3.3 million tons/year and 1.7 million tons/year of ore, the indicative parameters of the PDR for open pit and ore have been determined. The main parameters of the PDR are listed in Table

No. II.2-3.

Table No. II.2-3. Main indicators of blasting works for open pit and ore

No	Parameters	Measure	Stope and ore average indicators
1	Foot height	m	5
2	Borehole diameter	mm	76.2÷110
3	Type of BB	-	ANFO/E3000
4	Relative BB consumption	kg/m ³	0.36
5	Volume of excavated rock mass from 1 explosive field/explosion per Open pit	m ³	Approximately 30,000
6	Volume of rock rock mass from 1 explosive field/explosion per ore	m ³	Approximately 15,000
7	Frequency of blasting per Open pit per week basis	No.	Once a week
8	Frequency of blasting per ore on a weekly basis	No	Once a week

The total number of blasts per year will be 88. The purpose of the PVR is to ensure the productive and efficient operation of the excavation, loading, and transport machinery, as well as the primary crushing, through appropriate and optimal fragmentation of the material and a minimum amount of oversized pieces.

No explosives will be stored on site. The IP is outside the scope of Article 99b of the Environmental Protection Act.

The blasting works will be carried out by an external contractor who will deliver the necessary explosives immediately before their execution, therefore there is no likelihood of explosives being present on site. The specified charge weight is mandatory when preparing the Project and Passport for each individual blasting operation.

The main explosive to be used is expected to be an ammonium nitrate-fuel oil (ANFO) explosive mixture and/or emulsion explosives. Given the type and condition of the rock mass,

the parameters of the blasting plan are determined for three different zones, as follows: Oxidized, Transitional, and Fresh Rocks, respectively for ore and waste rock.

Performing special blasting works means that the explosive mass slides down on the spot and there is no "scattering" of fragments. Regardless of this, with regard to the safe performance of blasting works near populated areas where there is a possibility of

"scattering" of fragments, protective covers against the scattering of rock fragments will be used. Protective covers can be in the form of heavy covers – rubber blasting mats, geogrids or geotextiles, or in the form of light covers – coarse and finer meshes in combination with rubber conveyor belts discarded after use. The effect of the protective covers is such that, when correctly placed on the blast field, they limit the scattering of fragments. Blasting mats reduce the noise and dust generated during blasting operations. The individual protective covers are placed in such a way as to allow the explosive gases to escape. This reduces the pressure from the explosive gases and allows the covers to stop rock fragments and dust. Another significant advantage is that the covers can be used multiple times.

In this regard, and in line with good practices in open-pit mining, the first 5 to 6 blasts are intended to adjust and refine the parameters of the PVR. Well-blasted/fragmented material saves the consumption of additional energy for the destruction of oversized fragments and generally improves the efficiency of mining and processing machines.

According to the Regulations for Occupational Safety in Blasting Operations in Open Mines and Quarries, the contractor performing drilling and blasting activities (PVD/ is licensed to work with explosives and is required to obtain a permit from the Regional Labor Inspectorate each year to carry out PVR for the respective year and, separately for each specific blasting, prepares a PVR Project and Passport, which is submitted for approval to the COS service at the district office of the Ministry of Interior. The specified safe charge weight is mandatory when preparing the Project and Passport for each individual blasting operation.

The contractor may not carry out any blasting that does not comply with the specified safe charge weight in terms of the seismic impact on the quarry area. The legislator has provided for a strict control mechanism to protect the working environment and the life and health of local communities.

As part of the preliminary studies, experimental test blasting was carried out at the Rozino deposit, control measurements were taken, and their impact on the environment was recorded. The results are presented in the *"Assessment of the Side Effects of Blasting on the Environment: Rozino Deposit. Final Report"* (2020).

Ore processing

The following operating system parameters have been adopted for both open-pit activities and ore mining:

- Working step height – $5 \div 10$ m;
- Height of non-working step – 20 m (in the final non-working contour, the 5-meter steps are combined in groups of 4 or 2, and the 10-meter steps are combined in groups of 2);
- Working step angle – $85 \div 90^\circ$;
- Angle of non-working step – 70° ;
- Minimum width between two groups of non-working steps 12 m;
- Minimum width of working platform - 60 m;
- General angle of non-working board $36 \div 48^\circ$.

The ore will be separated from the rock mass by drilling, followed by millisecond initiation and detonation using the NONEL system.

The advantages of the NONEL system are as follows:

- The safest system for transport, handling, and initiation;
- Possibility of controlled reduction of seismic impact to a minimum, thanks to a wide range of delayers allowing the detonation of separate series of boreholes in a single blast field;
- Reduced sound effect;
- Better fragmentation.

The following sequence will be applied during the extraction works:

- the prepared reserves from a given horizon will be drilled with a rotary percussion drill equipped with a dust collection system;
- once the field has been drilled, it will be loaded, connected to an initiation system, and detonated.
- After ventilating the face, the ore will be loaded using a backhoe loader with a bucket volume of 6 m³ onto dump trucks and subsequently transported to the processing plant.

The expected maximum annual ore volumes are 1.75 million tons or 0.72 million m³.

A total of six machines will be involved in ore extraction.

Table No. II.2-4. Type of ore processing equipment, number

No	Type of equipment	Number required
1	Excavator	1
2	Dump trucks	4
3	Water tanker	1
	Total ore:	6

The parameters of the ore processing plant are given in **Table No. II. 2-3**.

In order to ensure the quality indicators of the ore supplied to the factory, it has been decided that the Rozino deposit will be developed in two stages. This will guarantee the supply of ore of the required quality and quantity for the entire period of operation.

Stage 1: Section 1 is being developed

This stage is characterized by the fact that all operational work is concentrated solely in Section 1.

Once the excavation works in Section 1 are completed, all equipment will be moved and concentrated on the excavation and preparation of Section 2. Only mining works will continue in Section 1 until the planned geological reserves are completely depleted.

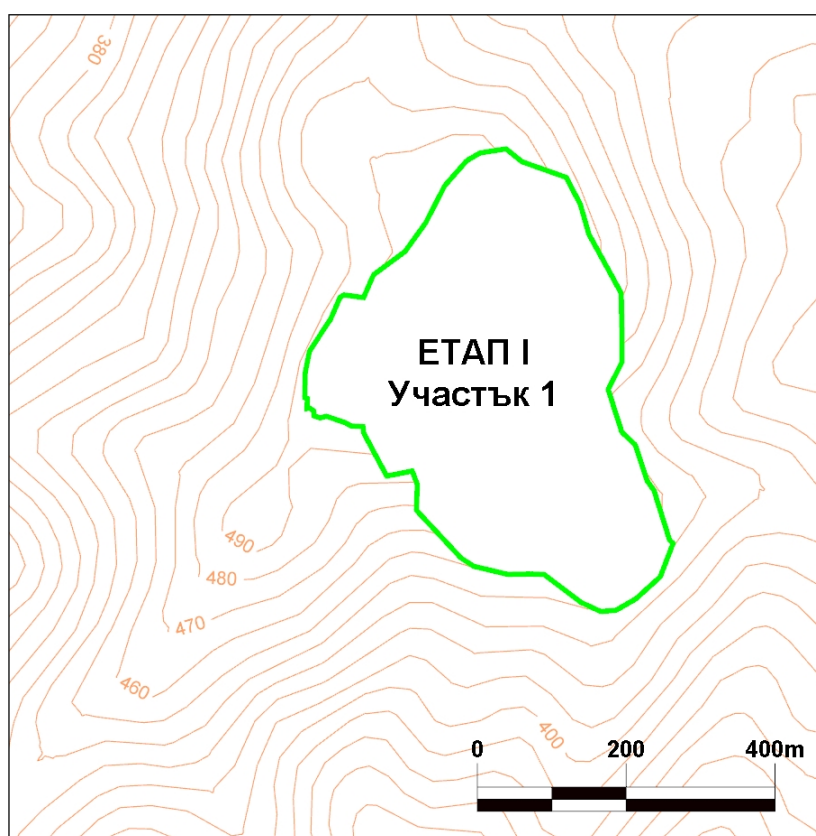


Figure No. II.2-3. Stage 1, Section 1 of the deposit

Once the bottom of the reserves in Section 1 has been reached, backfilling of the pit in this section with sterile rock overburden and sterile material from production can begin (SMO will move from external to internal).

Stage 2: Sections 1+2

Stage 2 will begin with the start of excavation and preparatory work in Section 2. Mining operations in Section 1 will not yet be completed.

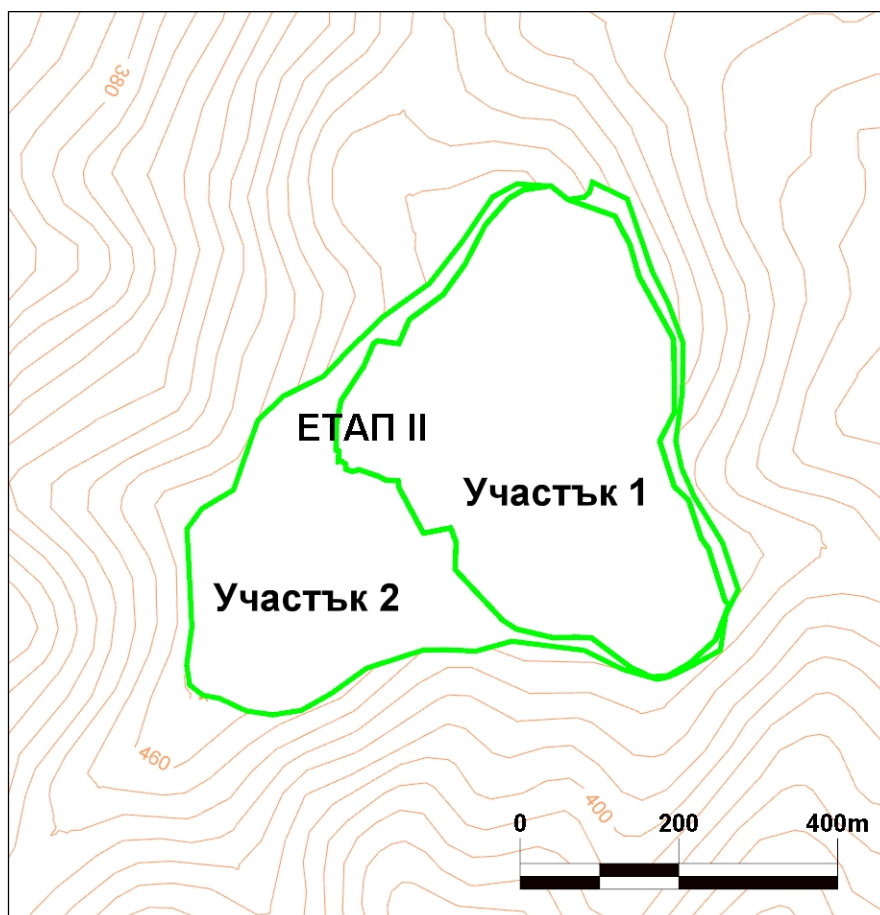


Figure No. II.2-4. Stage 2, Section 1 and Section 2 of the deposit The end of stage 2 will occur

after:

- complete depletion of reserves in Section 2;
- backfilling in Section 1 with sterile rock overburden and processing waste.

Embankment works

With regard to embankment works, a selective embankment formation technology using a bulldozer and motor vehicles is envisaged.

Selective/separate disposal of:

- Soil and humus mass;
- Sterile rock mass (overburden);
- Flotation waste.

This selective dumping approach is in line with best international practices for the management and protection of soil and humus masses, which will be used to restore disturbed areas when recultivation begins.

Deposition of soil and humus mass

In total, two soil and humus mass landfills are planned for the deposit, as follows:

- Northeast with a single horizon at an approximate elevation of 495 m;
- Southwest with two horizons with approximate elevations of 377 m and 382 m

These dumps are expected to be developed during the mining construction period and will be closed after the end of recultivation. It should be noted that during the development of the overall project for the exploitation and recultivation of the affected lands, it is possible to choose a system of phased recultivation.

Deposition of sterile rock mass (overburden)

The rock overburden dump is planned to be of the bulldozer type. The sterile rock mass loaded onto motor vehicles will be delivered to the dump area and unloaded. Subsequently, the body of the dump will be shaped with a bulldozer.

It is planned to develop an external embankment and, after the fourth year, to start internal embankment formation in the mine pit.

The boundary between the external and internal embankments is conditional, following the contour of the pit in Section 1.

Table No. II.2-5. Type of equipment for dumping works, number

No	Type of equipment	Required number
1	Bulldozer	2
	Total for earthworks:	2

Deposition of flotation waste

Post-processing waste is expected to be deposited after being compacted to 70–75% solid matter. This method is preferred over conventional tailings storage due to the following factors:

- Higher percentage of recycled water use;
- Lower consumption of "fresh" water;
- Smaller landfill area;
- Significantly increased stability coefficient of landfills containing compacted flotation waste;
- Significantly reduced risk of compromising the support structures;
- Significantly increased potential for phased reclamation.

When depositing flotation waste with a water/solid ratio of 25%/75%, the area and volume of the facility is reduced by about 10÷15 decares compared to conventional disposal, where the water/solid ratio is 45%/55%, i.e., the turnover water is reduced by about 20÷25%.

To reduce the water content in the flotation waste, a thickener is planned to be installed on the territory of the enrichment plant, where the flotation waste will be dewatered.

After the depletion of the reserves in Section 1 and the progress of mining operations in Section 2, it is planned to start backfilling the excavated areas, which again complies with best practices for open-pit mining. Backfilling is expected to start as early as the 4th or 5th year of operation.

The positive effects of backfilling are:

- Significant reduction in the area required for storage of sterile rock mass (overburden) and flotation waste after processing (if this option proves to be viable in terms of quality);
- Significant reduction in the time during which external dumping will be used and, respectively, much faster recultivation of the external dump and, possibly, the external facility for storing flotation waste.

Ore processing

Technological scheme and description of the processing plant for the extracted

Ore

According to preliminary studies, the technological sequence for processing the extracted ore includes the following main and related activities:

- crushing and transportation;
- storage of the crushed ore in a covered buffer warehouse, which is a reinforced concrete platform covered with a shed with a feeder underneath;
- grinding (ball mill);
- flotation;
- thickening of flotation waste and disposal of SMO;
- concentrate thickening and filtration;
- accompanying activities – technological provision of: water, air, and reagents.

The basic technological scheme of the OF is shown in Fig. 1.2-5.

Ore preparation

Crushing

The basis for the choice of the ore preparation scheme is the low working crushing index (4.7-8.92 kWh/t) and the moderate working grinding index Bond (11.2-12.5 kWh/t) for the different types of ore, which favors the use of a multi-stage crushing and ball milling scheme. The primary feeding device is a belt feeder that can withstand impacts from large pieces of ore falling into the ore hopper. A static screen is provided to separate all oversized pieces from the feed to the jaw crusher. The entire installation will be equipped with a sprinkler system to prevent secondary dust separation during the unloading of dump trucks and during the process itself.

The crushing scheme is designed to produce crushed ore with a size of 80-12 mm. It consists of three crushing stages: primary jaw crusher, followed by secondary and tertiary cone crushers. The ore is fed either directly from the pit or by a loader from the stockyard to the uncrushed ore bunker. A fixed 15kW hydraulic hammer crushes oversized pieces to the required size. The belt ore feeder (1300 x 6400 mm, 22kW) feeds the primary jaw crusher (160 kW). The ore feed conveyor (1300 x 6400 mm, 22 kW) feeds the primary jaw crusher (160 kW). The crushed ore is fed through a screen onto a conveyor. Steel scrap will be removed with a magnet in the scrap metal bunker.

The sprinkler system will maintain air quality in each of the crushing buildings. A 5-ton hoist is provided to assist with maintenance in the primary crusher building. The primary crushed material is screened using a double-deck screen (45 kW). The undersize material is transported to the crushed ore storage area, and the oversize material from the screens is sent to the secondary and tertiary cone crushers, respectively. The secondary and tertiary crushers operate in a closed cycle with a double-deck screen until all material is fed to the stored crushed ore as undersize material. Two belt scales are provided. There is one secondary crusher and two tertiary crushers. Assuming 16 hours of operation in two shifts and an average equipment availability of 75%, the crushing plant's capacity is estimated at 5000 t/day. The total installed power of the crushing section is approximately 1600 kW.

Covered buffer storage for crushed ore.

A buffer volume of crushed ore of 15,000 tons is planned to be provided after the crushing plant. This volume is sufficient to supply the grinding plant for three days.

The crushed ore will be stored in a temporary warehouse, which is a reinforced concrete platform with a feed hopper and covered with a metal shed to prevent uncontrolled dust emissions.

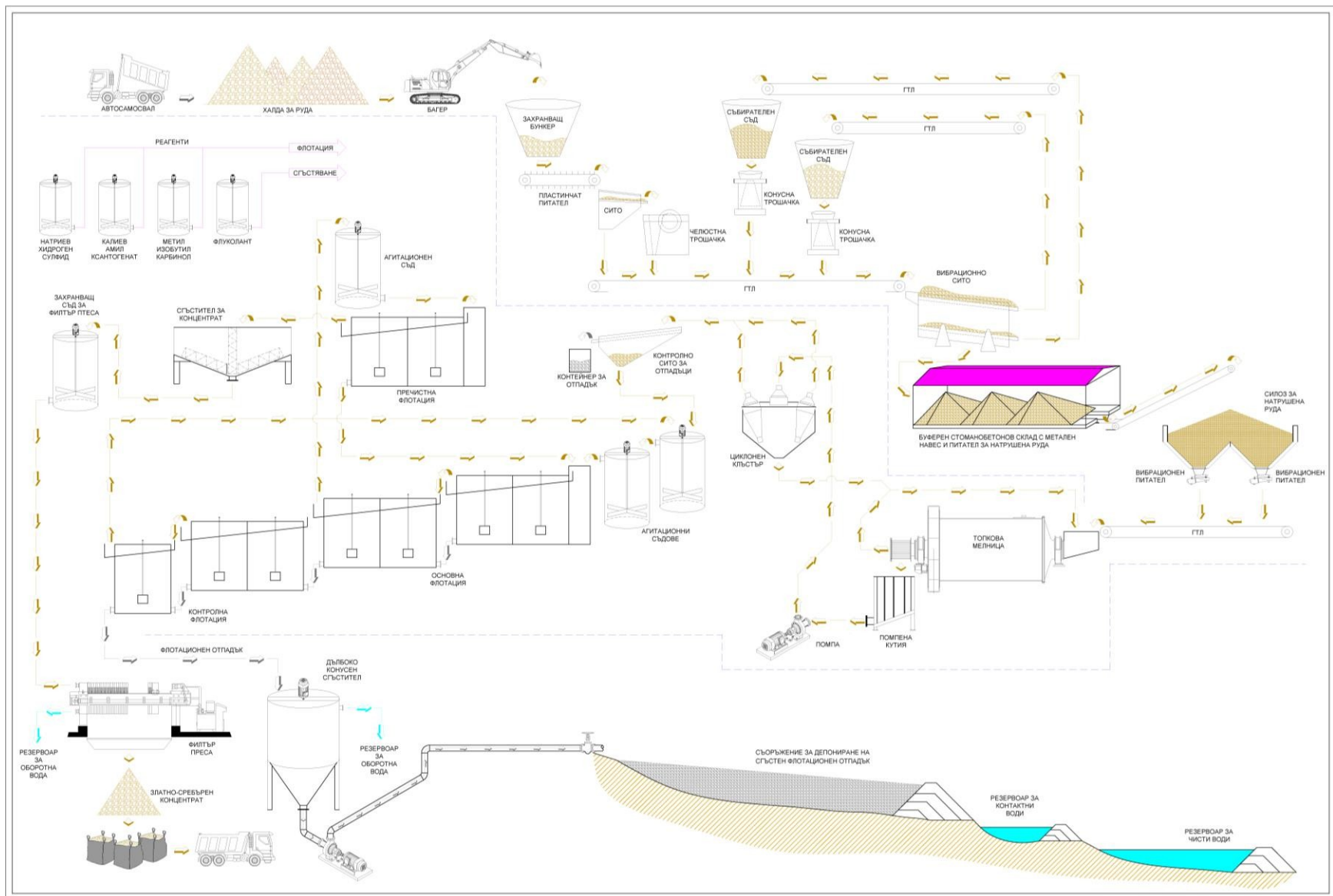


Figure II.2-5. Technological diagram of the OF

Ore grinding.

Performed in a ball mill. The conveyor feeding the mill is equipped with the necessary devices for controlling the speed of ore feed to the mill and measuring capacity. A device is provided for taking samples from a cross conveyor belt for the purposes of technological balance.

The grinding area consists of a ball mill operating in a closed circuit with a group of hydrocyclone classifiers. The grinding circuit is designed to produce particles with a size of P80 -75 μm . The ball mill dimensions are 4.88 m diameter x 7.62 m length with a 3500 kW motor. The ball mill installation includes lubrication of the support bearings and gearbox, cooling systems, and a control system. The ball mill discharges into a sump, which feeds the hydrocyclone group via a cyclone feed pump in operation/standby mode. The cyclone group consists of 14 cyclones, of which only 12 are operational at any given time. The discharge from the cyclones passes into the flotation zone, and the sands are returned to the ball mill.

Any spillage along the grinding chain will be collected in a sump located under the mill. The sump will be equipped with a vertical slurry pump to return the spillage to the mill feed box.

The installed capacity in the grinding section is approximately 3700 kW.

Ore enrichment by flotation

High-volume flotation cells have been selected for the flotation scheme as they are more cost-effective than multi-stage flotation machines (SFR) in terms of capital and operating costs. The sizing and selection of the flotation cells is based on the optimal laboratory flotation times obtained, with a correction factor for flotation time on an industrial scale of 2.5 and an aeration factor of 0.85.

The flotation scheme is a standard collective one, including primary and control flotation and pre-cleaning flotation to obtain a gold-bearing concentrate.

The crushed ore from the hydrocyclone cluster, before entering flotation, passes through a cleaning vibrating screen with a mesh size of 0.85 mm to remove all atypical impurities from the ore, such as wood, plastic, metals, and larger pieces of unground ore.

The undersize product from the cleaning screen is fed into two agitation tanks with a capacity of 50 m³ each. Connected in series, they provide the necessary agitation time for the pulp with the added reagents of 2x5 minutes.

Through a feed pump, the pulp after agitation is fed into the main and control flotation section, which consists of 6 high-volume flotation cells, configured 4 for main gold-containing flotation and 2 for control flotation. Each cell has an effective volume of 60 m³ or a total of 360 m³, which provides the necessary flotation time of 34 minutes. All electric motors of the flotation cells are 90 kW.

The flotation cells are equipped with air mass flow control to allow each section of the cells to be controlled.

The chamber product from control flotation is final flotation waste and is fed to the deep cone thickener for dewatering before being deposited at the

SMO.

concentrate from primary flotation is pumped to the section for secondary flotation. Before entering the flotation cells, the pulp is conditioned in a 10 m³ agitation tank, ensuring a 5-minute agitation time of the pulp with reagents. The pre-flotation section is configured with two cells with an installed capacity of 15 kW and an effective volume of 8 m³ each, or 16 m³ in total, which provides the necessary flotation time of 8.6 minutes.

Water sprays are provided in the discharge chutes of the flotation cells to assist in breaking up the foam and concentrating the flow.

A chamber product sampling device from the control flotation (flotation waste) feeds a sample for ongoing analysis.

The concentrate from the pre-flotation is a final concentrate and is fed to a sump for delivery to a thickener for the gold-bearing concentrate. The target gold concentration in the final concentrate is between 22 and 30 g/t, depending on the contents of the feed ore.

The pump for repumping the gold-bearing concentrate is a fixed-speed chamber pump.

Reagent dosing is controlled automatically, with consumption rates entered by the operator. The addition of a foaming agent (methyl isobutyl carbinol - MIBC) and a collector (potassium amyl xanthate - PAX) is carried out by specialised pumps and dosing devices, which feed the individual points of the flotation process.

Sump pumps are installed on the floor of the flotation workshop to collect any spills from the circuit and transport them to the appropriate points in the flotation scheme.

The installed capacity in the flotation department is about 1000 kW.

Thickening and filtering of the concentrate.

The available results from static sedimentation tests were used to size the concentrate thickener. Filtration tests to determine the size and selection of the pressure concentrate filter block were not performed. Instead of test data, values from the database for similar types of concentrates and particle sizes were used for sizing. The design moisture content of the concentrate is 10 to 12% by volume. The concentrate thickening and filtration scheme consists of a 16 m diameter concentrate thickener and a pressure dewatering filter. The thickener will receive 11.3 t/h of concentrate with a feed density of 23% solids. The overflow from the thickener will be returned to the process water tank and reused in the grinding and flotation areas. The thickened product in the thickener (at 50 to 55% solids) will be discharged to the filter press via two 50 mm x 40 mm pumps, which will be in operation/standby mode.

The filter feed tank is equipped with a stirrer to prevent the settling of solids. The suspension from the concentrate filter feed tank will be pumped to the concentrate filter via two filter feed pumps (75 mm x 50 mm) that will be in operation/standby mode. The concentrate filter will be a vertical plate dewatering filter press designed to operate at 75% utilisation and produce 11.3 t/h concentrate with

a moisture content of 10 to 12%. The filter press has a special compressor and air receiver.

The concentrate is placed in a storage bunker until it is loaded for processing by the end user.

Required mechanization

The following are required for the enrichment plant:

- A front loader to feed the crushing plant;
- A bulldozer to service the buffer storage for crushed ore;

Table No. II.2-6. Type and number of machines required to service the enrichment plant

No	Type of equipment	Required number
1	Front loader	1
2	Bulldozer	1
	Total for factory:	2

Flotation waste management

When selecting a technology for thickening and dewatering flotation waste, the following features were taken into account:

- The physical and chemical properties of the waste after flotation – according to current data, there is no potential for generating acidic solutions;
- Yield point or yield stress – a property of the material corresponding to the yield point at which the material begins to deform plastically;
- Negative water balance;
- Best practices in dewatering of mining waste after processing;
- Best practices in the management of mining waste after extraction and processing.

Taking into account the above factors and based on a conceptual design for the conditions at the , a technology has been selected for the disposal of flotation waste, compacted to 70-75% solid content, using a cone compactor.

The disposal of the waste involves the separation of water (thickening) prior to its disposal. The thickener works as follows: the slurry flow enters radially into the center of the thickener, into a feed tank. While the solid phase settles, a rake that reaches the outer edge of the thickener rotates slowly and transports the settled material to the central outlet. At the same time, as the solid particles settle at the bottom of the thickener, the water or solution at the surface becomes clearer, and with the introduction of more sludge, the water level rises and overflows into a chute along the outer perimeter, through which it returns to the process. The particles settled in the center of the thickener and the particles raked towards it exit through the central outlet pipe at the bottom of the thickener, containing significantly less water than the sludge that

which entered the thickener. The thickened waste can be transferred to the landfill using high-pressure sludge pumps.

The advantage of this method is its water efficiency and relatively favorable operating conditions compared to landfilling waste with a high water content. A second advantage is that, compared to other options, the landfilled waste has minimal potential for liquefaction (free sliding or flowing) or rupture of the dam wall. Typically, high-performance cone thickeners increase the concentration of solid particles (solid phase) to about 70-75%.

Cone thickeners provide the highest values at the yield point, which ensures a high degree of stability for the waste after it is deposited in the landfill.

The resulting waste has a water-to-solid ratio of 25/75. The increased compaction allows for:

- a significant increase in the use of recycled water;
- a significant reduction in the use of "fresh" water.

The increased density makes the waste easy to handle – dumping and shaping in the landfill where it is stored.

The reduced water content significantly shortens the evaporation time of the residual water and, accordingly, improves the stability of the landfill body, allowing for its gradual overbuilding with guaranteed stability.

Compacting the waste before disposal has an impact on the overall water consumption in the OF, significantly improving the overall water balance.

The disposal of compacted flotation waste also corresponds to the natural geographical, geological, geotechnical, and geochemical conditions at the site. Considering that disposal is carried out from the highest point to the lowest point of the landfill, it should be noted that this creates a prerequisite for the gradual recultivation of the worked slopes.

Closure and recultivation

Upon completion of the maximum production program, i.e., reaching an ore extraction and processing capacity of 1.7 million tons/year, the closure and recultivation of the worked-out areas can begin as early as the sixth year after the start of extraction.

The implementation of technical and biological recultivation after liquidation will ensure that the site achieves a sustainable and maintenance-free status. The proposed comprehensive strategy for recultivation of the site is as follows:

- Carrying out technical recultivation;
- Carrying out biological recultivation.

The technical recultivation activities actually started during of mine construction, when it is planned to selectively collect and store the topsoil layer.

Technical recultivation activities include:

- Trimming and securing all non-working steps;
- Cleaning all horizons of residual rock fragments;

- Loading, delivery, and spreading of soil and humus material on the areas designated for recultivation;
- Preparation of the areas designated for afforestation;
- Preparation of the areas designated for restoration for agricultural use;
- Ensuring normal surface water runoff.
- All areas cleared during the liquidation of the enrichment plant will be plowed (to increase water infiltration and reduce the potential for surface erosion and instability), leveled, and covered with approximately 0.15 m of soil layer (except for concrete structures).
- It is planned that the concrete slabs will remain in place and be covered with approximately 0.40 m of topsoil from the landfills.

After completion of the reclamation, proceed to biological. It includes:

- Reforestation of areas designated for return to the forest fund by creating a nursery for planting and growing seedlings of native species trees (oak and black pine), which will be necessary for recultivation;
- Grassing of the areas intended to be restored as agricultural land, through the purchase of grass mixtures, planting, and cultivation.

3. Description of the main characteristics of the operational phase of the investment proposal (all processes and activities), e.g. energy requirements and energy used, nature and quantity of materials and natural resources used (including water, soil, and biodiversity)

3.1. Description of the main characteristics of the production process

The purpose of the investment proposal is the open-pit mining and processing of polymetallic gold-silver ore from the Rosino deposit, Tintyava area. The technological process of open-pit mining includes the exposure of natural resources, drilling and blasting, and crushing of the ore. The ore will be processed by flotation to obtain a concentrate, which will be the final product for the installation. No block metal is expected to be obtained. The generated mining waste will be deposited in mining waste facilities.

The IP is not related to the maintenance and construction of a storage facility for explosives. Blasting works will be carried out on the basis of a written contract with a specialized company that has all the necessary permits and approval documents to store, deliver, and detonate the ore mass.

Detailed information is provided in the previous point.

3.2. Required raw materials, materials used, natural resources used, energy needs, and energy used

The IP is for the extraction of polymetallic gold-silver ore, so **natural resources will be directly affected.**

The reserves in the Rozino deposit amount to 11.3 million tons of ore with a content of 1.33 g/t gold and 26.6 million tons of overburden, as described in the Appendix to the final Report on reserves.

Mineral composition of the ore

The following are observed in the analyzed ore samples:

- primary minerals: pyrite, chalcopyrite, sphalerite, magnetite.
- vein minerals: quartz, calcite
- supergene minerals: hematite/limonite, bornite.

Of the primary minerals, pyrite is the most common. The other minerals occur as single grains. Pyrite is deposited as idiomorphic and hypidiomorphic grains and aggregates, most often alone, less often with chalcopyrite and sphalerite. Supergene minerals most often affect pyrite, which in places is completely replaced by hematite/limonite.

No native gold has been found in the ore.

Of the vein minerals, only quartz and calcite have been observed.

Of the supergene minerals, hematite is the most common, accompanied by limonite in many places. Several boron grains have been identified, probably the result of chalcopyrite alteration.

Fuels and hazardous chemicals and mixtures

Fuels, lubricants, and other hazardous chemicals and mixtures (HCCM) necessary for the ore enrichment process will be used and stored on the mining site.

The necessary equipment is as follows:

Table No. II.3.2-1. Total required machinery and equipment

No	Type of equipment	Open pit work	Ore work	Dumps Work	OF	Required number, total
1	Excavator	1	1	-	-	2
2.	Dump trucks	7	4	-	-	11
3.	Water carrier	1	1	-	-	2
4.	Front loader	-	-	-	1	1
5.	Bulldozer	1	-	2	1	4
		Total 10	Total 6	Total 2	Total 2	20

Diesel fuel will be used for the loading and transport equipment and auxiliary self-propelled equipment used in ore mining. It will be stored in steel tanks with a total capacity of 42.5 tons (with an average density of 0.85) - 50,000 liters - 55 m³. The number and dimensions of the tanks will be in accordance with the Project for the Construction of a Gas Station under the Spatial Development Act.

Diesel fuel will be delivered by mobile tankers, with a maximum available quantity of 42.5 tons on site.

During the construction and operation of the mine and the OF, **fuel and lubricants** for the service equipment.

The necessary lubricants, hydraulic and cooling oils, and greases will be delivered in packaging that will be returned to the suppliers on a full-empty basis.

The following will be available on site, in a storage room:

- Prista® M10 De motor oil, 2 barrels of 110 kg each, total 0.22 t, and
- Prista AN 68_100 lubricating oil, 2 barrels of 110 kg each, total 0.22 t.

The main explosive to be used is expected to be an ammonium nitrate-fuel oil (ANFO) explosive mixture and/or emulsion explosives. The total number of blasts per year will be

88. Blasting will be carried out by an external contractor who will deliver the necessary explosives immediately before the blasting, so there is no likelihood of explosives being present on site. ***It is planned that the explosives will be supplied by a specialist company and will not be stored on site.***

No **chemicals or mixtures** are required in the extraction process. These will be used in the enrichment process. The reagent distribution area includes the storage and preparation of the following reagents:

Foaming agent: methyl isobutyl carbinol (MIBC). The MIBC preparation system consists of a storage tank with a mixer and two distribution pumps that feed MIBC to the flotation area in operating/standby mode. The maximum quantity available on site will be 6.6 tons, located in: a storage room, a solution storage tank with a total capacity of 480 kg – 500 liters – 0.6 m³, and a solution supply tank with a total capacity of 60 kg – 64 liters – 0.06 m³ with a solution dosing system.

Collector: potassium amyl xanthate (PAX). The maximum quantity available on site will be 18.7 t, located in: a storage room, a solution storage tank with a total capacity of 1440 kg – 9600 liters – 10 m³ and a solution delivery tank with a total capacity of 480 kg – 3,200 liters – 3.5 m³ with a solution dosing system. The tanks also have two circulation pumps in operating/standby mode, which deliver the PAX solution to the flotation area;

Activating agent: copper sulfate (CuSO₄.5H₂O). The maximum quantity available on site will be 45 tons, located in: a storage room, a solution preparation tank with a total capacity of 3000 kg – 20000 liters – 20 m³ and a solution delivery tank with a total capacity of 1500 kg – 10,000 liters – 10 m³ with a solution dosing system.

Sulphidising reagent: sodium hydrogen sulphide (NaHS). The maximum quantity available on site will be 48 tonnes, located in: a storage room, a tank for preparing the solution with a total capacity of 3600 kg – 23980 litres – 25 m³ and a solution delivery tank with a total capacity of 1200 kg – 8000 liters – 8 m³ with a solution dosing system.

Collector: Aerofloat 404 (A404). The maximum quantity available on site will be 3.6 tons, located in: storage room, solution preparation tank with a total capacity of 360 kg – 2400 liters – 2.5 m³ and a solution delivery tank with a total capacity of 60 kg – 400 liters – 0.4 m³ with a solution dosing system.

Flocculant (mixture): The maximum quantity available on site will be 2.2 tons, located in an automatic machine for the preliminary preparation of polymer solution doses. The flocculant distribution system includes a powder flocculant hopper, a feed screw, a mixing tank with a stirrer, a storage tank with a stirrer, and two dosing pumps. Tomal PolyRex, an automatic machine for the preliminary preparation of polymer solution doses, will be used. This allows for the correct preparation of the solution and aging of the flocculant. The two dosing pumps feed the mixed flocculant to the thickeners of both the concentrate and the production waste. Before being added to the thickener, each line will have a built-in mixer for further dilution of the flocculant to 0.02% by volume.

The delivery, transport, preparation of solutions, use, disposal, and treatment of packaging are in accordance with regulatory requirements.

The IP is outside the scope of Article 99b of the Environmental Protection Act.

Electricity - to provide electricity for the machines, equipment, and installations in the enrichment plant and open-pit mine, it is necessary to build a power line. At this stage, the project decision is to build a branch from the existing 10 kV power supply (marked with a black line in the figure below) and represents a transformer station in the village of Rozino. The length of the expected route to the plant is 2.4 km (marked with a red line in the figure below). The distance from the transformer station to the concession boundary is 583 m.

The coordinates of the power line in BGS-2005 are:

Object	East, m	North, m
Rozino transformer station	408680.3	4589732.34
Intermediate point	408691.70	4589375.40
Point of entry into the concession	408764.60	4589160.97

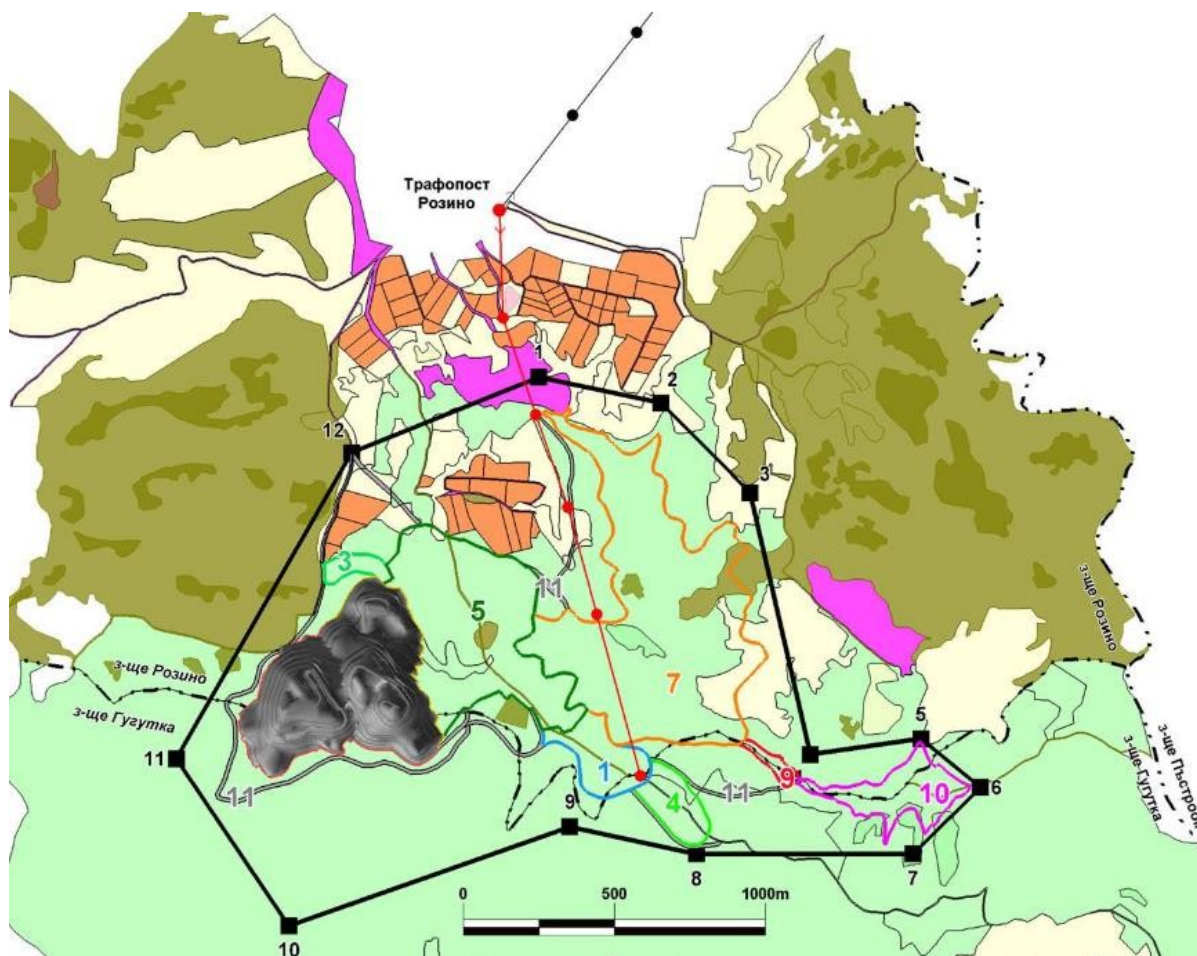


Figure No. II.3.2-1. Forecast route of the power supply line.

Water supply

The implementation of the investment project will require quantities of water for production needs (in the enrichment plant, for irrigation during dust suppression, and for drinking and domestic needs of the personnel).

The hydrological survey, defined in the hydrogeological report, on the availability of water resources from surface water bodies **shows** that during the period January-May, when there is sufficient flow in the river, it is possible to use water from Arpa Dere, in the area of the pumping station (PS) "Rosino" at a flow rate that will provide a minimum water quantity of 50 l/s (expected total volume of 648,000 m³), equal to 10% of the average annual water quantity, as **well as guarantee the ecological minimum in the river**. During this period, an open reservoir for non-contact water will be filled through continuous water pumping.

A possible option for water abstraction is to build a pumping station in the area of the existing Rosino pumping station, which is used to supply drinking water to the village of Rosino. Due to the higher flow rate in February, March, and April, a higher flow rate of about 100 l/s can be used during these months to fill the non-contact water reservoir on days with higher rainfall.

Rainwater will accumulate within the catchment area in the Rosino mine pit, depending on the exposure of the mine over the years. This water will be drained into an open reservoir for contact water and will be used in the technological process.

A hydrogeological study conducted in the area of the deposit has established that the underground waters have an insignificant flow rate and their yield is extremely insufficient for technological needs.

For optimal water consumption, part of the water will be recycled where possible, for which an open contact water reservoir will be built.

Bottled water will be provided for drinking purposes.

For sanitary and domestic needs, a contract will be concluded with the water supply company for the supply of water from a reservoir owned by the water supply company, located 800 m from the domestic premises in the OF area. Such infrastructure is already in place and it is technically possible to connect it to the future facility. The exact routes will be determined during the working design phase.

The soil and biodiversity will not be used as a natural resource, but will be affected by the implementation of the IP. The characteristics of their current state and the forecast for their impact are described in the relevant sections of this report.

4. Assessment by type and quantity of expected residual substances and emissions (such as water, air, soil and subsoil pollution, noise, vibrations) and quantities and types of waste generated during the construction and operation phases.

The IP will be implemented in three phases – construction, operation, closure, and recultivation. In line with the scope of this point, the main emissions by pollutants for the construction and operation phases are presented here, while all other sections examine the three phases in detail. It should be noted that there are no typical construction activities, but rather the uncovering of natural resources, so the construction phase should be understood as the uncovering of natural resources.

Atmospheric air

During construction

Construction works are related to the discovery of natural resources, which includes the removal of the topsoil layer (where present) and the excavation. This stage is characterized by dust emissions from excavation and loading/unloading activities and exhaust gases from construction equipment. Dust emissions depend largely on climatic and meteorological factors, including wind speed and direction, temperature, and the fractional size and relative weight of fine dust particles. Insignificant amounts of NO_x, PM₁₀, NMVOC, CO, and SO₂ will be emitted as a result of the operation of internal combustion engines in construction and transport equipment.

The impact of pollutants emitted during construction on air quality in the area can be classified as insignificant, short-term, reversible, with a small territorial scope and no cumulative effect.

During operation

The implementation of the investment project does not envisage the organised release of pollutants into the atmosphere.

During the operational activities of extraction and crushing of polymetallic ores, dust pollution will be generated during the extraction and crushing of the raw material. The pollution will be local, at short distances – up to 50 m from the various sources, and will not affect pollution in the area.

Other harmful emissions that are a source of pollution of the environment and the working environment are the exhaust gases from the machines. The CO_x, NO_x, SO_x, unburned hydrocarbons, dust (soot), etc. emitted by the diesel machinery and transport equipment used are local in nature and will not have a significant impact on pollution in the area.

In order to reduce air pollution in the area of the deposit, the investment proposal provides for the following measures:

- sprinkling of internal roads, especially in dry weather;
- working with new and serviceable equipment, with daily inspections of the machines used before the start of work and, in the event of a malfunction, timely repair of faults;
- irrigation of the ore loading and processing processes in the crushing and grinding plant;
- carrying out activities indoors that lead to unorganized dust emissions during ore enrichment in the enrichment plant.

During the PVR process, emissions of harmful substances will also be released into the atmosphere, but these are short-term, temporary, and completely reversible.

No pollutants are emitted into the atmosphere from the enrichment process.

Detailed data on emissions during mining, processing (mainly crushing), and transportation activities are presented in Section V of the report. Mathematical modeling has been developed to determine the impacts of emissions during extraction and transport activities, with calculations made using established European methodologies and those approved by the Minister of Environment and Water.

During closure and recultivation

Emissions are similar to those during construction.

Water

During construction

According to , during , at , construction , work , there is no , to , , waste , water .
Chemical toilets and mobile sinks are provided for workers.

During operation

The provisions of the IP are such that the use/release of harmful or hazardous substances that could affect the quality of both groundwater and surface water in the area is not permitted.

The following wastewater is expected to be generated at the site: production wastewater from the flotation and dewatering of the concentrate, and domestic and fecal wastewater from the workers

at the mining site. All this water will be recycled, with an open contact water reservoir serving as a buffer volume.

There are no plans to discharge production wastewater into water bodies or into the sewage system of populated areas.

A local treatment plant (operating with active microbiological sludge) will be built to treat domestic sewage, and the treated water will be discharged into the contact tank.

There are no plans to discharge domestic sewage into water bodies or into the sewage system of populated areas.

Surface water, rainwater, and water from mine drainage will be collected and discharged into the contact water tank.

The wastewater described above will be generated throughout the entire life cycle of the mining facility.

In general, the IP does not provide for any discharge into water bodies.

During closure and recultivation

Water management is similar to that during construction.

Soils

During construction

The technology for uncovering the deposit will involve removing the topsoil layer from the areas where it is present, removing the overburden, and starting the actual extraction. The topsoil layer will be removed from all accompanying facilities planned for construction. These activities will cause emissions of: dust particles from activities in the concession area; exhaust gases from internal combustion engines (carbon monoxide, nitrogen oxides, sulfur dioxide, soot, etc.) from mining equipment and vehicles (dump trucks).

During operation

The exploitation of the deposit will be associated with an indirect impact on the soil in terms of the pollution of the ground air with dust and its subsequent deposition on vegetation and soil in the vicinity. In addition, possible contamination of adjacent land and soil around the mining areas may result from:

- dusting – during the transport and crushing of the extracted raw material in dry and windy weather;
- petroleum products – due to improper maintenance and operation of equipment and accidental spills of fuels and lubricants;
- gas and aerosol pollution during blasting operations.

Section V of the report examines the possible impact on soils from mining and processing (crushing) operations, on the basis of which specific measures are proposed to reduce or prevent it.

During closure and recultivation

The impact on soil is similar to that during construction, with the exception of the soil removed, which will be used for technical and biological recultivation.

Hazardous energy sources (noise and vibrations)

During construction

Noise pollution in the area will be caused by the machinery used to prepare for ore extraction - removal and deposition of soil layer (where present), stripping, construction of new internal roads and work sites, as well as organisational activities related to the development of the deposit.

The following sections of the EIA report present the noise levels of individual machines and equipment and determine the expected equivalent noise level at the construction site, in the vicinity of the operating equipment.

During operation

Noise pollution in the area will be caused by the machinery used for ore extraction, PVR, crushing of raw materials, enrichment, and transport vehicles. In addition, there will be noise pollution in the area from the machines used for loading the overburden. Noise pollution will occur during blasting operations, from dump trucks and other equipment, and from the crushing and grinding plant, and will be daily – in the order of 85 dB(A) for workers operating these machines and significantly less in the area. Ear defenders are provided for workers and must be worn by excavator operators, bulldozer operators, and other workers.

The noise from the machinery, in this case, will have a localised impact, affecting the operators of the machinery and those working within the mine pit, but not the surrounding settlements and the surrounding environment. No disturbance to the acoustic comfort of the surrounding settlements is expected from the machinery that will be used within the boundaries of the IP, but this has nevertheless been analysed in detail in Section V of the EIA report.

Probable sources of excessive general transport **vibration** parameters are identified for the cabins of a number of bulldozer and excavator modifications, as well as local vibrations of the control lever handles. Vibrations are also possible around crushing equipment.

During closure and recultivation

The impact of harmful physical factors is similar to that during construction

The activities envisaged in the IP are not a source of **radiation** - light, heat or radiation.

Waste

The implementation of the investment proposal is expected to generate the following types of waste, which can be divided into two main groups:

- waste falling within the scope of the Waste Management Act, and
- mining waste falling within the scope of the Mining Waste Act.

The classification of these wastes must be in accordance with Ordinance No. 2 of 23.06.2014 on the classification of wastes (State Gazette No. 66/2014, as amended and supplemented).

Waste generated under the Waste Management Act

During construction:

The construction phase is largely related to the organizational activities for developing the deposit, *as well as to the preparation for extraction by exposing the reserves.*

Typical construction works will be carried out during the construction of the OF and other necessary facilities. After the issuance of a building permit for the specific site, a Construction Waste Management Plan will be developed in accordance with *the Ordinance on Construction Waste Management and the Use of Recycled Construction Materials.*

The expected types of construction waste are:

- 15 01 01 paper and cardboard packaging;
- 15 01 02 plastic packaging;
- 15 01 03 packaging made of wood materials;
- 17 01 01 concrete;
- 17 02 03 plastic;
- 17 04 05 iron and steel;
- 17 05 04 soil and stones other than those mentioned in 17 05 03
- 20 03 01 mixed municipal waste.

All waste will be handed over on the basis of written contracts with persons holding the relevant permits or registration documents issued in accordance with the Waste Management Act.

Household waste will be collected in containers and periodically transported to a household waste landfill on the basis of a contract with the local household waste transport company serving the municipality of Ivaylovgrad.

During operation:

The investment proposal generates waste related to mining, processing, and transport equipment, as well as household waste from staff.

Table No. II.4-1. Classification of waste falling within the scope of the Waste Management Act

Type of waste	Name	Code under Ordinance No. 2/2014
Non-hazardous	Ferrous metals	16 01 17
	End-of-life tyres	16 01 03
	End-of-life from equipment, various from referred to in codes 16 02 09* to 16 02 13* - lamps from industrial lighting on site	16 02 14

	Waste from sand traps	19 08 02
	Waste from rubber conveyor belts (including rubber mats)	19 12 04
Hazardous	Non-chlorinated mineral-based hydraulic oils based	13 01 10*
	Synthetic hydraulic oils	13 01 11*
	Synthetic engine and lubricating oils and oils for gear oils	13 02 06*
	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, and protective clothing contaminated with dangerous substances	15 02 02
	Packaging containing residues of hazardous substances or contaminated with dangerous substances	15 01 10*
	Lead storage batteries	16 06 01
Mixed household	Mixed household waste	20 03 01

The waste generated will be collected separately and promptly transferred for subsequent treatment, in accordance with a contract with companies holding registration or permit documents issued under the Waste Management Act. **No hazardous waste will be stored on the territory of the IP.**

When mining activities commence at the site, it is planned to use only modern mining and transport equipment that complies with the Euro 6 standard. The repair and mechanical workshop will carry out ongoing repair and maintenance work on transport and mining equipment. A site will be set up for the collection of waste from these activities, which will be equipped with appropriate materials for collecting spills. Also, in emergency situations, fuel and/or oil spills are possible, which will be collected with absorbents (sawdust, bran), which after use will be handed over as hazardous waste (code 150202*).

Waste expected to be generated during recultivation

The waste that will be generated during the closure and recultivation of the site is similar to the waste generated during the operation itself, with the exception of mining waste.

Waste generated under the Waste Management Act

The following waste will be generated from the extraction and processing of metal-bearing ores:

- code 01 01 01 - waste from the exposure and extraction of metal-bearing ores, which will be deposited in a sterile rock mass dump;
- code 01 03 06 - residues from enrichment, other than those mentioned in 01 03 04 and 01 03 05, which will be deposited in the form of paste.

The study conducted to generate acidic water from the rocks in the deposit shows that the rocks from the outcrop **do not generate** such water and no metal leaching is expected. Both the ore and the sterile rock mass have a low sulphide content (~1% and

below 0.5% pyrite) and relatively high neutralization potential, resulting in clean neutralization ratios of over 2. The results of the metal leaching tests show that the infiltrate from the ore, sterile rock, and flotation tailings would not have hazardous properties.

Pursuant to Article 22d, paragraph 4 of the Underground Resources Act, as part of the IP, a proposal for the management of mining waste has been prepared and is presented in **Text Annex No. 9**.

No other mining waste is expected to be generated.

The IP does not provide for any waste treatment activities other than the disposal of mining waste.

III. DESCRIPTION OF REASONABLE ALTERNATIVES (E.G. IN TERMS OF ACTIVITIES, TECHNOLOGY, LOCATION, SIZE, AND SCALE) EXAMINED BY THE CONTRACTING AUTHORITY, WHICH ARE RELEVANT TO THE INVESTMENT PROPOSAL AND ITS SPECIFIC CHARACTERISTICS, AND INDICATION OF THE REASONS FOR THE CHOSEN OPTION, TAKING INTO ACCOUNT THE CONSEQUENCES OF THE IMPACTS OF THE INVESTMENT PROPOSAL ON THE ENVIRONMENT

Pursuant to Article 96, paragraph 1, item 2 of the Environmental Protection Act, the EIA report must contain: "a description of reasonable alternatives (e.g. in terms of activities, technology, location, size and scale) studied by the developer that are relevant to the investment proposal and its specific characteristics, and an indication of the reasons for the chosen option, taking into account the consequences of the investment proposal's impact on the environment."

In view of these legal requirements, the alternatives are considered below and are structured in 5 sub-points. In addition, the "zero alternative", i.e. non-implementation of the investment proposal, is considered. In practice, there are the following limitations when considering alternative options for implementing the activity:

The specific location of the natural resource in the subsoil does not allow for consideration of alternatives for the location of the investment proposal itself. This is stated in point III.1. of the EIA.

The only possible alternative is the location of the elements of the investment proposal (point III.2) within the future concession area, but there are other restrictions on them, such as: the terrain, the technological sequence of processes, ensuring the stability and safety of the facilities.

The alternative for technology and sequence of extraction is presented in section III.3. of the EIA and it also has a number of restrictions such as: depth of the natural resource, location of the natural resource in the subsoil, geological and mining conditions for the specific activity.

The alternatives for raw material processing technologies are discussed in section III.4. of the EIA, with environmental protection in all its aspects being of decisive importance for the choice of alternative.

Special attention is paid to the alternatives for flotation waste management technologies (section III.5), with consideration given to the classic option of tailings storage and the more environmentally friendly option of compacted waste disposal.

2.1. Alternatives for the location of the investment project

With regard to the location of the Rosino ore deposit, there are no other alternatives, as the underground resources have been identified and the boundaries of the reserve have been determined in this area.

There are no other alternatives, as the underground resources have been identified in this area and the boundaries of the reserve have been determined. The boundaries of the future concession area have been declared accordingly.

2.2. Alternatives for the location of the elements of the investment proposal

The location of the open-pit mines, their size and shape are predetermined by the geological structure of the ore bodies and the reserves designated for extraction, as the characteristics of the relief and geographical location largely limit the alternative options for the location of the accompanying infrastructure and facilities.

Several options with a larger area required for the location of the accompanying facilities and infrastructure were considered, but they were rejected by the Contracting Authority with a view to maximising the protection of natural resources.

When considering the various alternatives for the design of the necessary facilities and their location, the following were taken into account:

- The ore extraction technology and the location of the relevant accompanying elements;
- Minimal land use;
- Requirements for environmentally sound management of mining waste.
- Minimal impact on areas of the Rhodopes-East Special Protection Area, code BG0001032, and the "Biala Reka", code BG0002019.

From a practical point of view, taking into account all these circumstances, there is no real better alternative for the location of the mines, other facilities, and infrastructure.

Difference in the affected areas compared to the notification submitted by letter ref. No. of RIEW – Haskovo PD-279/14.02.2023

The planned concession area, as specified in the above notification, amounts to 3044.7 decares, of which 1189.8 decares are disturbed areas and 1854.9 decares are buffer areas. With a view to optimising the location of the sites and reducing the directly affected areas, the total planned concession area subject to this assessment amounts to 2,753 decares, of which the disturbed areas will amount to 1,179 decares and the buffer zone area is 1,574.4 decares.

2.3. Alternatives for extraction technology

Open-pit mining is used for the development of deposits with ore bodies close to the surface, in large deposits with low content of valuable components. The main disadvantage of this mining option is the creation

a new negative feature in the area (a pit), which creates a certain problem in restoring the environment after exploitation. A new feature with a significant volume may also be formed – a pile of non-ore mass.

The underground method of ore extraction is used for richer deposits located at a considerable depth in the earth's crust. In this case, the mined-out spaces must be filled. Mine filling is necessary both for the complete extraction of reserves and for the protection of the earth's surface above the ore bodies from collapse. The underground mine option facilitates the management of mining waste (non-ore rock mass) through the partial use of waste fractions for backfilling in the underground mine. In the case of near-surface deposits and low contents of valuable components, this option is economically unfeasible due to the increase in capital and production costs for the construction and operation of the mine.

For the conditions of the Rozino deposit, underground mining is not a viable option due to:

- the shallow depth of the ore bodies – 15-20 m;
- the low stripping ratio – 2.5, which makes underground mining systems economically unfeasible;
- the morphological type of ore deposit – vein-sprayed, which requires the accurate identification of the balance ores and, respectively, their correct and regular extraction, a goal that is difficult to achieve with underground mining. In the case of underground mining, it will be necessary to create additional areas for temporary stockpiles for the different types of ore and their subsequent averaging before delivery to the factory.

Other such alternatives could not be considered, as the mining technology is tailored to the location of the natural resources in the subsoil and the geological and mining conditions of the specific activity. The open-pit method of polymetallic ore extraction is widely used in the exploitation of similar deposits. It is also justified as the only economically viable method, given the costs of extraction, processing, and transportation in relation to the market price of the product.

2.4. Alternatives for raw material processing technologies

In principle, there are three alternatives for processing the mined ore:

- *Alternative 1:* Mining and crushing of the ore within the concession area and sale to companies with their own processing facilities.

- *Alternative 2:* Processing of the ore into gold-bearing concentrate as the final product within the concession area. This option includes the mandatory construction and operation of a processing plant, which is associated with an increase in the potential concession area in order to provide sufficient space for ancillary facilities such as: water and chemical solution tanks, a flotation waste storage facility, a finished product storage facility, etc. This option also involves additional water management – ensuring sufficient quantities of fresh water and sufficient volumes of circulating water.

- *Alternative 3*: Processing the ore into block metal as the final product within the concession area, which would necessarily include: mining, a flotation plant, cyanide leaching, and a block metal production facility. Given the proven reserves of natural resources, this option is economically and financially unjustified and excludes the need to use another hazardous chemical substance - cyanide.

Preliminary technical and economic assessments of the three options with an accuracy of $\pm 30\%$ show a clear advantage for *Option 2*.

Alternative 1 is not applicable for the following reasons:

- the remoteness of existing processing facilities. In addition to being economically unviable, transporting huge quantities of ore over such distances also places a significant burden on the road network with heavy goods vehicles, which in turn leads to increased emissions of harmful substances into the atmosphere, excessive noise, permanent disturbance to animal species and significant discomfort for people using these roads;
- the specified production capacities of the existing installations are limited to processing ore from specific deposits, with a specific capacity and specific ore composition. In practice, there is no free production capacity to take on additional quantities of ore from the Rozino deposit;
- The limited volume of existing mining waste facilities at the respective processing plants, which are designed for specific needs, conditions, and capacities.

Alternative 2, preferred by the Contracting Authority, allows for the production of a final product – gold-bearing concentrate, which is significantly smaller in volume than the ore mass, can be easily transported for further processing, with less load on the transport network and, accordingly, less impact on the environment in the immediate vicinity of the transport routes.

2.5. Alternatives for flotation waste management technologies

- *Alternative 1*: Conventional water disposal in a tailings pond, where the water-bearing waste is transported by water to a tailings pond, which is essentially a hydraulic engineering structure.

- *Alternative 2*: Landfilling of waste after compaction. Additional dewatering of the flotation waste produces waste with a solid content of 70-75%, which is transported through pipelines to the post-treatment waste storage facility.

Considering the advantages of compacted waste disposal, the Contracting Authority plans to implement *Alternative 2*. This technology has the following advantages over the disposal of waste with a high water content:

- Reduced consumption of "fresh" water by 20-25%, which leads to a reduction in the volume and area of the "fresh" water reservoir by up to 5%;
- Increased use of recycled water by 20÷25%, which leads to a reduction in the volume and area required for the construction of the "contact" water tank water by up to 5%.

- Reduction in the area of the landfill facility by 10÷15% due to a reduction in the volume of waste deposited;
- Low moisture content in waste after disposal – up to 5%;
- Accelerated drying and hardening time of the waste – up to 1÷2 days in dry seasons;
- Increased overall stability coefficient of the landfill body and retaining wall due to reduced or complete absence of water in the waste;
- Reduced risks associated with the disposal of waste with high water content;
- Possibility of gradual recultivation of the land after reaching the design landfill level.

2.6. Application of the "zero" alternative

The "zero alternative" represents the non-implementation of the investment proposal. In this case, the proven polymetallic ore reserves located in the "Rosino" deposit, "Tintyava" area, will not be exploited and, accordingly, utilised. This would deprive the state and the municipality of Ivaylovgrad of revenue from direct and indirect taxes and fees, and local communities of jobs at the site itself and at other companies serving the site.

IV. DESCRIPTION OF THE RELEVANT ASPECTS OF THE CURRENT STATE OF THE ENVIRONMENT (BASELINE SCENARIO) AND A BRIEF DESCRIPTION OF THEIR LIKELY EVOLUTION IF THE INVESTMENT PROPOSAL IS NOT IMPLEMENTED, INsofar AS NATURAL CHANGES FROM THE BASELINE SCENARIO CAN BE ASSESSED ON THE BASIS OF AVAILABLE ENVIRONMENTAL INFORMATION AND SCIENTIFIC KNOWLEDGE

1. Atmospheric air and climatic factors

1.1. Climatic characteristics and meteorological conditions of the area

Occupying the eastern parts of the Rhodopes, the climate in the IP area falls within the transitional Mediterranean climate zone and is characterized as temperate continental to Mediterranean. The area is under a predominantly Mediterranean climate influence, especially with regard to Mediterranean cyclones. In addition, due to its greater openness to the north during the winter months, the influence of cold continental air masses invading from the north is noticeably felt. Active cyclonic activity during the winter months is responsible for both the relatively high temperatures and the increase in precipitation, which is mostly frontal in nature. The average January temperature is above zero and varies between 1 and 2°C. Sometimes the rainfall is very intense, with up to 80 mm of precipitation observed within 24 hours. It is precisely because of the high winter and autumn precipitation that the average annual precipitation values are relatively high, ranging between 650 and 750 mm. In most cases, precipitation is in the form of rain, with snow falling mainly in the second half of December, January, and February. It is rare for snow cover to remain for 5-6 days.

The snow usually melts very quickly, causing rivers to flood, sometimes violently.

Despite the relatively mild winter, the warming in spring does not occur very quickly. Until mid-April, spring frosts and frosts are observed, while further south the thermal conditions in spring are more favorable and the harmful frosts and frosts end earlier than the above-mentioned dates. According to the Geographic Atlas of Bulgaria (2010), the average amount of precipitation in spring for the period 1976-2005 is between 150 and 200 mm.

Summer is characterized by scarce rainfall, extremely high temperatures, average July temperatures between 23 and 25°C, and many sunny days. It is precisely the influx of hot tropical air masses that causes periods of drought. The total rainfall during the summer (June, July, August) for the period 1976-2005, as in spring, varies between 150 and 200 mm.

The nearest meteorological station with long-term climate data is located in the town of Krumovgrad (approximately ≈20 km west of the deposit boundaries).

Precipitation:

Precipitation is a major climatic factor that contributes to the natural purification of the atmosphere from pollutants

The average annual precipitation is 761 mm.

Winter precipitation is the highest – 251 mm, which is favorable in terms of limiting unorganized dust emissions.

Table No. IV.1-1. Average monthly precipitation in millimeters (MS Krumovgrad)

I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Year
83	67	64	60	66	64	37	24	38	73	84	101	761

Table No. IV.1-2. Average monthly and annual number of days with precipitation (MS Krumovgrad)

mm	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Year
≥0.1	10.6	9.1	8.7	9	9.9	8.5	5.4	4.2	4.3	6.7	8.5	10.3	95.1
≥1	8.7	7.1	6.9	7.2	8.3	5.9	4.1	3.1	3.6	5.5	7.1	8.9	76.4

Winds:

Wind conditions in the area of the investment proposal are the main factor determining the direction of pollutant dispersion during excavation/mining activities. Wind is also an important factor in the natural self-cleaning of the air and directly affects the distance over which pollutants will disperse during the various phases of the investment proposal's implementation.

Table No. IV.1-3. Average wind speed by month and direction, m/s (Krumovgrad station)

"Krumovgrad")

Directions	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
N	4	3.8	3.6	3.4	3.3	3.3	3.6	3.5	3.4	3.6	3.5	3.8
NE	3.4	3	3.4	3.1	3.1	2.7	3	3.2	2.9	3	3.1	3
E	3.1	2.9	2.7	2.6	2.6	2.5	2.6	2.6	2.8	2.5	2.8	2.7
SE	3	3.3	3	3	2.9	2.9	2.7	2.6	3	3.1	3.2	3.1
S	3.3	4.9	4.3	4.4	3.3	3.2	3.2	3.2	3.2	4	4.3	4.7

Directions	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
SW	2.7	4.2	3.2	3.7	3.3	3.1	2.8	2.6	2.8	3.2	2.8	4.2
W	1.6	2	2.2	2.6	1.9	2.1	2	2.1	2	1.6	1.9	1.6
NW	3	2.6	2.7	2.7	3.5	2.6	3.1	2.8	2.8	2.5	2.6	2.7

Table IV.1-4. Average annual wind frequency by direction, calm weather (%) and wind speed (m/s) (Krumovgrad station)

Directions	Frequency %	Speed m/s
N	34.1	3.6
NE	14.2	3.1
E	8.3	2.7
SE	12.7	3
S	9.5	3.8
SW	5.5	3.2
W	2.6	2
NW	13.1	2.8
quiet	49.9	-

North winds prevail throughout the year (34.1%), followed by northeast, northwest, and southeast winds (40% in total). The remaining winds have a frequency of less than 10%. The prevailing wind direction determines the main direction of dispersion of any pollutants from the site—from north to south.

The average wind speed for the area is 1.8 m/s.

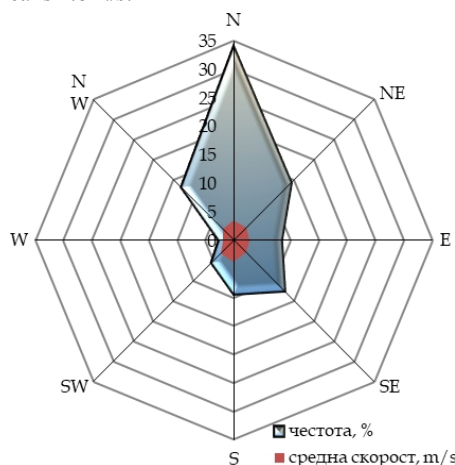


Figure IV.1.1-1. Annual wind roses by frequency and direction, and speed and direction – Krumovgrad station

Conclusions:

The winds are northwesterly, with active manifestation in the valleys and mountainous areas. There is also the occurrence of foehn winds. Average annual precipitation varies widely – from 800 to 1200 mm. They have an autumn-winter maximum in November and December. The frequent frontal and torrential nature of the precipitation reaches up to 100 mm per day. This precipitation helps to limit unorganized dust emissions.

In general, the climatic conditions in the area allow for year-round harvesting.

1.2. Air quality in the area

Directive 2008/50/EC on ambient air quality and cleaner air for Europe establishes a framework for

assessment of air quality at EU level. In Bulgarian legislation, this directive has been transposed into *Ordinance No. 12 of July 15, 2010, on standards for sulfur dioxide, nitrogen dioxide, fine particulate matter, lead, benzene, carbon monoxide, and ozone in ambient air*.

The following tables systematise the ambient air quality standards from the directive and national legislation according to the indicators relevant to the implementation of the IP.

Table No. IV.1-5. Standards for the protection of human health

Pollutant	Concentration	Dimension	Averaging period	Permitted number of exceedances
FPCH10	50	µg/m ³	24 hours	35
	40	µg/m ³	1 year	-
PM2.5	20	µg/m ³	1 year	-

The air quality (AQ) in the area under consideration is monitored by the Regional Inspectorate of Environment and Water Resources (RIEW) in Haskovo. The municipality of Ivaylovgrad, which includes the boundaries of the Rosina deposit, has good air quality.

AQS is monitored through a system of monitoring stations. According to the areas for assessment and management of ambient air quality (*Article 30, paragraph 1 of Ordinance No. 7 on the assessment and management of ambient air quality*), the municipality of Ivaylovgrad falls within "areas" where the levels of one or more pollutants are between the respective upper and lower assessment thresholds. The municipality of Ivaylovgrad is not included in the national environmental monitoring system. The nearest station is AIS "Studen Kladenets" - Automatic - urban background station, located in the built-up area of Kardzhali, measuring the impact of emissions from production activities and emissions from the domestic sector. The station is located more than 40 km as the crow flies northwest of the IP boundaries and, accordingly, the data from the monitoring are not applicable to the IP. The station is located more than 40 km as the crow flies northwest of the IP boundaries and, accordingly, the data from the monitoring carried out are not applicable to the area under consideration.

In accordance with the *Environmental Protection Program of the Municipality of Ivaylovgrad, 2023-2028*, no excessive amounts of harmful emissions into the atmosphere have been registered in the municipality. There are no large industrial enterprises or environmental polluters here.

There are no significant sources of pollution in the IP area: there are no roads with heavy traffic; there is no developed industry; there are no large settlements and, accordingly, domestic heating does not significantly affect the air quality.

Overall, there are no other sources of pollution in the area and it can be concluded that the air quality is within acceptable limits.

Conclusion:

Based on the analyses carried out so far, it can be concluded that the background levels of air pollutants relevant to the implementation of the IP are within the acceptable limits for the protection of human health.

Within the boundaries of populated areas, the maximum possible average annual concentrations of PM₁₀ and PM_{2.5} are several times lower than the permissible standards.

In the area of the deposit, the maximum dust concentrations are within the permissible limit values for chemical agents in the air at the workplace,

specified in Annex No. 1 to Regulation No. 13 of December 30, 2003, on the protection of workers from risks related to exposure to chemical agents at work.

2. Surface and groundwater

The investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area falls within the scope of the Basin Directorate for Water Management in the Eastern Black Sea Region – Plovdiv, the Biala River basin, water body (WB) BG3MA100R270 Biala River and its tributaries.

When determining the impact on water, the following are mainly taken into account: *the 2022-2027 River Basin Management Plan for the Eastern Black Sea Region* (RBMP for the EBR), and *the 2022-2027 Flood Risk Management Plan for the Eastern Black Sea Region* (FRMP for the EBR), which are key instruments for integrated water management and are current as of the date of preparation of this report.

The baseline status of the water bodies expected to be affected by the investment proposal is determined by the available data from the monitoring of their ecological, chemical, and quantitative status. The use of these waters in the implementation of the investment proposal, their use for various economic purposes – water supply, irrigation, etc., as well as the areas for the protection of water bodies – mainly areas for the protection of water for drinking purposes, protected areas, and Natura 2000 sites.

According to the Water Act (WA), such water protection areas are:

Art. 119a.(1) Water protection areas are:

- 1. the territory of the catchment area of surface water bodies and the land surface above groundwater bodies under Art. 119, para. 1, items 1 and 2;*
- 2. water bodies designated as waters for recreation and water sports, including designated bathing water areas, in accordance with the ordinance under Art. 135, para. 1, item 7;*
- 3. areas where waters are sensitive to biogenic elements, including: a) vulnerable areas;*
b) sensitive areas;
- 4. areas for the protection of commercially valuable fish species and other aquatic organisms;*
- 5. protected areas and zones designated or declared for the protection of habitats and biological species, where maintaining or improving the status of waters is an important factor for their protection.*

Table IV.2-1 shows the presence or absence of water protection areas in the Rosino deposit area, in accordance with Article 119a(1) of the Water Act.

Table IV.2-1. Water protection zones in the area of the Rosino deposit, pursuant to Article 119a(1) of the Water Act.

Water protection zones	Type of zone	The investment proposal does not fall/falls (name, code) within a protection zone
Art. 119a, para. 1, item 1 of the Water Act	Drinking water protection zone water from surface water bodies	Does not fall within.
	Drinking water protection zone from groundwater bodies	Applicable. Protected area code: BG3DGW000PtPg049, groundwater body BG3G000PtPg049 Fissured waters - Eastern Rhodope

		complex
Art. 119a, para. 1, item 2 of the Water Act	Recreation and water sports area	Not included
Art. 119a, para. 1, item 3 of the Water Act	Sensitive area	Not applicable
	Vulnerable area	Applicable Underground water body BG3G000PtPg049 Fissure waters - Eastern Rhodope complex, defined as waters that are polluted or threatened by pollution with nitrates from agricultural sources, in accordance with Annex 1 to Order No. RD-900/21.10.2024
Art. 119a, para. 1, item 4 of the Water Act	Zone for commercially valuable fish species	Not applicable.
Art. 119a, para. 1, item 5 of the Water Act	Protected areas	Not applicable.
	Habitat zone*	Applicable. Protected area with code BG0001032 Rhodopes - Eastern
	Bird area	Included. Protected area with code BG0002019 Byala River

The area of the investment proposal **does not affect** facilities for the extraction of water for drinking and domestic needs, as well as established sanitary protection zones around them.

The investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region" is related to the use of water quantities for production needs (in the enrichment plant), for irrigation during dusting and for drinking and domestic needs of the staff. It is planned that water for industrial needs will be provided from surface water sources - possibility of water use from Arpa Dere, in the area of the Rosino pumping station (PS). Rainwater will be collected within the catchment area of the Rozino mine pit, depending on the exposure of the mine over the years. This water will be drained into an open reservoir for contact water and will be used in the technological process. For optimal water consumption, part of the water will be reused where possible, for which an open contact water reservoir will be built.

Text Appendix No. 10 presents a hydrological assessment of the outflow in the Bela River Biala River and its tributary Arpa Dere near the village of Gugutka, municipality of Ivaylovgrad, Haskovo region.

Bottled water will be provided for drinking purposes. For sanitary and domestic needs, a contract will be concluded with the water supply and sewerage company for the supply of water from a reservoir owned by the water supply and sewerage company, located 800 m from the domestic premises in the OF area. The exact routes will be determined during the working design phase. The construction of the water supply and sewerage networks will be carried out in accordance with the requirements of the Water Supply and Sewerage Act and the Water Supply and Sewerage Regulations.

In the third RBMP of the IBR, Section 5 for BG3MA100R270 r. Byala and its tributaries, the environmental status objective is defined as "maintaining good status and preventing deterioration," with no specific measures defined in Section 7 for the VT. In this regard, the investment proposal does not contain activities that contradict the program of measures set out in the third RBMP of the IBR or that cannot be complied with

during its implementation. This also applies to the measures set out in the third RBMP of the IBR, insofar as the IP does not affect areas with significant potential flood risk.

2.1. Surface waters

The investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area" falls within the basin of the Biala River.

The Byala River has a catchment area together with that of the Luda River up to the state border with the Republic of Greece – 636 km². The Byala River rises near the village of Chernichevo, municipality of Krumovgrad, and flows from west to east in the southern part of the Eastern Rhodopes. It is 72.3 km long to the border. The length of the Luda River from its sources to the state border is 17.6 km. The Byala River has about 13 significant tributaries, located symmetrically to the main river. The largest of these are the Kokardzha Dere, Arpa Dere, Hambar Dere, and Yuruklerska rivers. At the border with the Republic of Greece, the Byala River flows into the Luda River, which is called Eritropotamos (Red River) on Greek territory.

The site covered by this IP is located in the municipality of Ivaylovgrad, Haskovo region, southern Bulgaria, immediately south of the village of Rozino. The Biala River, the Luda River, and their tributaries are the main water sources in the area, with the site located between two tributaries of the Biala River (the Kokardzha Dere and the Arpa Dere). The Biala River drains the Muglenik, Irintepe, and Sirt ridges of the Eastern Rhodopes and has a total catchment area of 594 km². The river's outflow at the village of Dolno Lukovo is approximately 7.53 m³/s and is mainly fed by precipitation. Many of the surface water bodies are ephemeral with no flow during the dry season (dry streams).

The closest surface water bodies to the boundaries of the Rozino deposit are the Biala River 650 m to the south, the Kokardzha Dere River 550 m to the west, and the Arpa Dere River 560 m to the east.

The problems in the basin are related to the climatic characteristics of the area. The Biala and Luda rivers are torrential. During the winter flood season, a rapid increase in the water flow from 5 to 90 m³/sec. is observed within a few hours. At maximum discharge (February), the Biala River becomes a large, turbulent, and full-flowing river, forming wide meanders. When the water level is high, the river floods the adjacent river terraces. It contributes significantly to the high water levels of the Maritsa River in Turkish territory and to flooding in Greece and Turkey. At the same time, in summer, the rivers in the basin almost dry up.

The entire territory of the Rosino deposit falls within the scope of surface water body code **BG3MA100R270**, named **the Biala River and its tributaries**. The water body is defined as natural with a catchment area of 618.5 km² and a river network length of 69.9 km (Table No. IV.2.1-1).

The Biala River and its tributaries have characteristics of type R14 Sub-Mediterranean rivers in EP7 (Figure No. IV.2.1-1.). On the territory of Bulgaria, the river can be classified into two of the subtypes of R14, namely:

- subtype R14a Sub-Mediterranean small semi-mountainous rivers and streams with seasonal flow in EP7 – the section from the springs to the village of Meden Buk/village of Dolno

Lukovo. The river flow has significant seasonal fluctuations, but the rivers do not dry up completely. Specific type of torrential rivers.

- Subtype R14c Sub-Mediterranean, temporary (drying up) small and medium rivers and streams – the section from the villages of Meden Buk/Dolno Lukovo to the state border. The river flow in this subtype of Mediterranean rivers is characterized by periods of complete drying up with varying frequency over the years. Specific type of torrential rivers.

In the third RBMP of the IBR (Section 4), VT BG3MA100R270 is defined as being in "good" ecological status (Table No. IV. 2.1-2) according to biological (BEC), physico-chemical (PCE) and hydromorphological (HME) quality elements with medium assessment reliability (Table No. IV. 2.1-3, Table No. IV. 2.1-4 and Table No. IV. 2.1-5). The hydromorphological conditions are close to the reference conditions for the type with little impact on the coastal zone. The chemical status of the water body is assessed as "good" (Table No. IV. 2.1-6). The status of the water body shows a stable trend, maintaining the "good" ecological and chemical status reported in the second RBMP of the IBR.

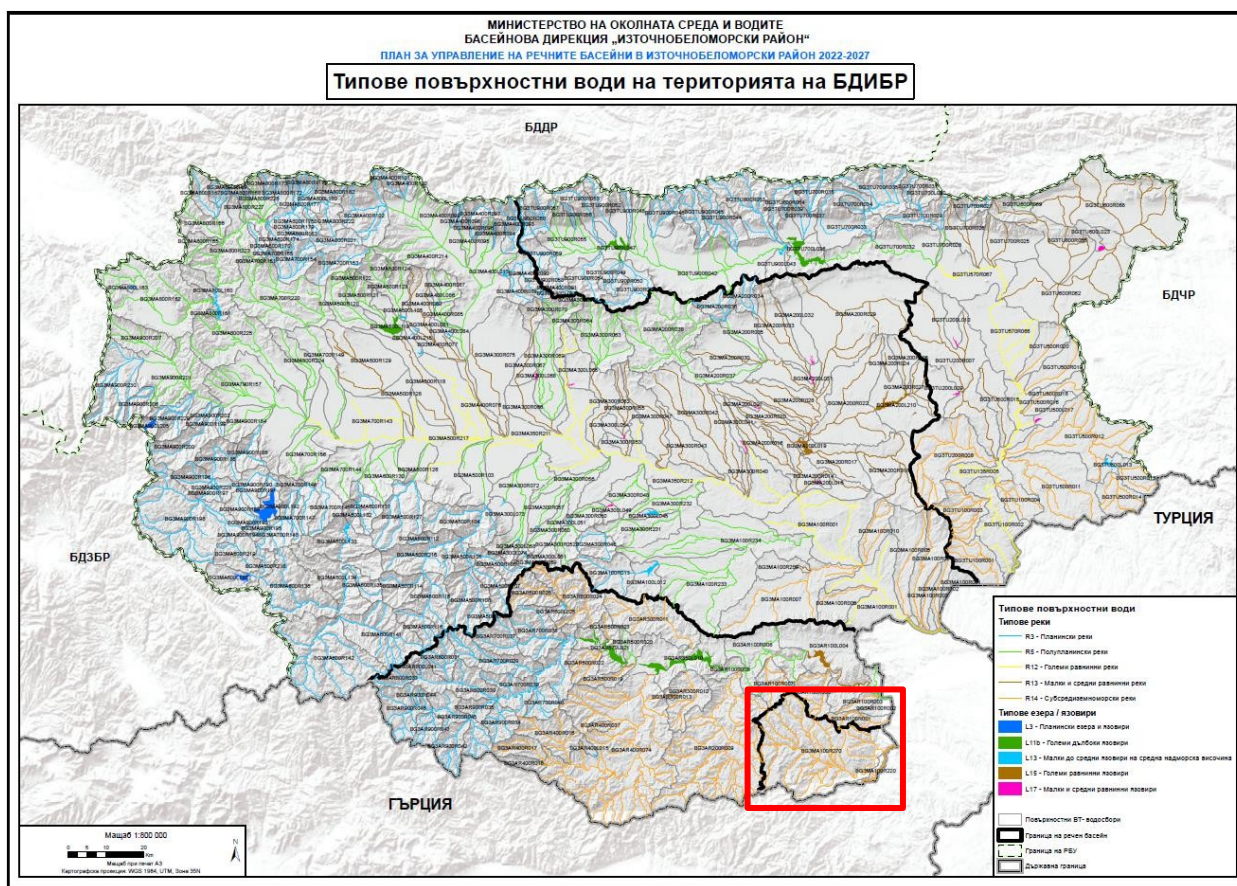


Figure No. IV.2.1-1. Distribution of type R14 Sub-Mediterranean rivers in ER7 and the Biala River basin (marked in red).

According to the information published in the Annual Bulletin on the Status of Waters in the Eastern Black Sea Region for 2022 and 2023, the ecological and chemical status of the Bela River and its tributaries has been assessed as "good" (Table No. IV. 2.1-7).

The status assessment is based on the results of monitoring by biological elements for quality, physical and chemical indicators,

specific pollutants and priority substances in surface waters during the period 2016-2021. The monitoring data have been processed, analyzed, and compared in accordance with the type-specific classification systems in Ordinance No. H-4 of 14.09.2012 for characterizing surface waters (for indicators relevant to determining ecological status) and the Ordinance on SKOS for priority substances and other pollutants of 2010 (for priority substances that are decisive for the chemical status of surface waters).

In preparing the assessment of ecological status/potential, an updated "Approach for grouping surface water bodies for monitoring purposes and to support the assessment of ecological and chemical status" was used. The national approach further develops the approaches applied in Bulgaria for grouping surface water bodies during the second cycle of the 2016-2021 RBMP (which provide monitoring data for the assessments in the 2022-2027 RBMP). The purpose of grouping is to optimize the planning of surface water monitoring and the assessment of the status of surface water bodies, as well as to ensure good representativeness of the results for all grouped surface water bodies. This approach allows the data collected from one water body to be used for the assessment of another water body, subject to the following criteria:

- Surface water bodies must be of the same type;
- Water bodies must have similar pressures that do not pose a risk of failing to achieve good status for surface water bodies;
- No exceedances of the accepted limits and standards for good ecological status of all quality elements have been identified.

The updated grouping approach introduces the possibility of grouping water bodies by individual quality elements (including priority substances and specific pollutants). Water body BG3MA100R270, the Biala River and its tributaries, is grouped in the assessment of ecological and chemical status, with the ecological status being the observed WB and the chemical status being grouped with WB BG3AR100R002.

In the Overview of significant pressures and impacts resulting from human activity on the status of surface and groundwater (Section 2, Annex

No. 2.2.1.4 of the third RBMP of the IBR) states that *no significant pressure has been identified* for BG3MA100R270 r. Byala and its tributaries. Based on the determined ecological and chemical status and the absence of significant pressure on the water body, it has been determined that there is no risk to the achievement of the objectives (Table No. IV. 2.1-8).

Table No. IV.2-1 shows that the surface water body in which the IP area is located does not fall within water protection zones designated as such for the protection of drinking water from surface water bodies, for recreation and water sports, for commercially valuable fish species, or as a sensitive area.

The water body is a water protection zone pursuant to Article 119a, paragraph 1, item 5 of the Water Act, namely related to protected areas designated or declared for the conservation of habitats and biological species, in which the maintenance or improvement of water status is an important factor for their conservation, respectively:

- a water protection zone of "Natura 2000" pursuant to Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna, in

where maintaining or improving the status of water is an important factor for their conservation - Protected area with code BG0001032 Rhodopes - Eastern;

- Natura 2000 water protection area under Directive 2009/147/EC on the conservation of wild birds, where maintaining or improving the status of water bodies is an important factor for their conservation - Protected area with code BG0002019 Byala River.

In the third RBMP of the IBR, these areas are redefined/updated in accordance with the areas included in the National Ecological Network (NEN), which is established in accordance with the requirements of the Biological Diversity Act (BDA). The boundaries of the water protection areas under Article 119a, paragraph 1, item 5 of the Water Act overlap with the boundaries of the protected areas of the Natura 2000 network and the boundaries of the protected areas that fall within surface water bodies on the territory of the IBR.

In connection with achieving the environmental protection objectives (Table No. IV. 2.1-9 and Table No. IV. 2.1-10) in Section 7 of the third RBMP of the IBR (2022-2027), a program of measures has been developed. No specific measures are envisaged for the surface water body in which the IP area is located, with code BG3MA100R270, the Biala River and its tributaries, due to the fact that it has been determined to be in a "good" ecological and chemical status.

The list of Additional Measures (Table No. IV. 2.1-11) includes those that are common at the river basin management area level. It is clear from the additional measures listed that only measure *PM_4 Application of EIA for water abstraction from surface water bodies* (KTM 99 Other preventive measures) is relevant to the implementation of the IP under consideration. Accordingly, due to the absence of processes involving the discharge of waste water into surface waters, measures IP_1 Implementation of the procedure for reviewing issued permits for waste water discharge, PI_1 Amendment or termination of permits for the discharge of waste water as a result of their review, and PI_3 Ensuring the collection, conveyance, and treatment of industrial waste water discharged into water bodies.

According to the third PUDR of the IBR (2022-2027), adopted by Decision No. 937/28.12.2023 of the Council of Ministers, the IP area does not fall within an area with significant potential flood risk.

Table No. IV.2.1-1. Data on surface water bodies in the IP area

Water body code	Name of water body	Category of surface water body	Category according to hydro-morphological characteristics	Type code	Description of type	Length of rivers, km	Catchment area, km ²
BG3MA100R270	Biala River and its tributaries	River	naturally	R14	Sub-Mediterranean rivers in EP7 subtypes: <ul style="list-style-type: none"> R14a Sub-Mediterranean small semi-mountainous rivers and streams with seasonal flow in EP7 R14c Sub-Mediterranean, temporary (drying up) small and medium rivers and streams 	69.9	618.5

Table No. IV.2.1-2. Data on the ecological status of surface water body BG3MA100R270.

WB code	Name of water body	Type of water body	Description of type	Overall EU assessment according to BEC	Overall assessment of EU under FCSB	Overall EU rating EU by HEC	Overall EU rating	Indicators with deviations from Good EU
BG3MA100R270	Biala River and its tributaries	R14	Sub-Mediterranean rivers in EP7	Good	Good	Good	Good	None

Table No. IV.2.1-3. Data on the ecological status of surface water body BG3MA100R270 by biological quality elements.

WB code	Name of water body	Overall assessment of the EC for Macrophytes	Overall assessment EU assessment for Phytobenthos	Overall assessment of EU for Macrozoobenthos	Overall EU assessment for fish	Overall EU assessment of BEC	BEC with deviations from the DES	Assessment data
BG3MA100R270	Biala River and its tributaries	Good	Good	Good	Good	Good	None	Monitoring

Table No. IV.2.1-4. Data on the ecological status of surface water body BG3MA100R270 by physical and chemical quality elements.

WB code	Name of water body	EU pH rating	EC assessment by BODs (rivers)	EU assessment by total nitrogen	EU assessment by total phosphorus	EU rating by dissolved oxygen	Overall EU assessment EU assessment of FCHEC	FCHEC with deviations from DES	Assessment data
BG3MA100R270	Biala River and its tributaries	Good	Very good	Excellent	Excellent	Excellent	Good	None	Monitoring

Table No. IV.2.1-5. Data on the ecological status of surface water body BG3MA100R270 by hydrobiological quality elements.

WB code	Name of water body	Hydrology	Continuity	Morphology	EU according to HMEC	Notes
BG3MA100R270	The White River and its tributaries	Excellent	Good	Good	Good	The hydromorphological conditions are close to the reference conditions for the type, with little impact on the coastal zone.

Table No. IV.2.1-6. Data on the chemical status of surface water body BG3MA100R270.

WB code Name of water body		Chemical status of surface water bodies in the RBMP 2022-2027						
		Assessment of chemical status for substances up to Nos. 33, including ubiquitous pollutants (uPBTs incl.)			Assessment of chemical status for substances up to Nos. 33 excluding ubiquitous pollutants (uPBTs excluded)			Exceedances - HC 33 (WATER/BIOT A)
		Chemical status in the "water" matrix	Chemical status in the "biota" matrix	Overall chemical status by matrix "water" and "biota"	Chemical status in the "water" matrix	Chemical status in the "biota" matrix	Overall chemical status by matrix "water" and "biota"	
BG3MA100R270	The White River and its tributaries	Dobro	Unknown	Good	Good	Unknown	Good	None

Table No. IV.2.1-7. Data on the ecological and chemical status of surface water body BG3MA100R270 for 2022 and 2023.

Surface water body code (WB)	Name of water body	Annual bulletin on the status of waters in the Eastern Black Sea region for 2022		Annual bulletin on the status of waters in the Eastern Black Sea region for 2023	
		Ecological status	Chemical status	Ecological status	Chemical status
BG3MA100R270	Biala River and its tributaries	Good	Good in the "water" matrix and the "biota" matrix	Good	Good in the "water" matrix and the "biota" matrix

Table No. IV.2.1-8. Risk assessment for the ecological and chemical status of surface water body BG3MA100R270.

WB code	Name of water body	Overall EU assessment according to BEC	Risk assessment according to BEC	Overall EU assessment according to FCHEC	Risk assessment under FCHEC	EU overall assessment	Overall ecological risk assessment	Overall chemical status according to the "water" and "biota" matrices	Chemical risk assessment
BG3MA100R270	Biala River and its tributaries	Good	Not at risk	Good	Not at risk	Good	Not at risk	Good	Not at risk

Table No. IV.2.1-9. Environmental status objective for surface water body BG3MA100R270.

Water body code	Name of water body	Ecological status/potential in the RBMP3	Indicators with deviation in RBMP3	Target for ecological status in RBMP3	Exceptions to achieving of good environmental status in RBMP3
BG3MA100R270	Biala River and its tributaries	Good	None	Maintaining good ecological status and preventing its deterioration.	Not applicable

Table No. IV.2.1-10. Chemical status objective for surface water body BG3MA100R270.

Water body code	Name of water body	Assessment of chemical status in RBMP3	Exceedances - 33 (water/biota)	TARGET for chemical status in RBMP3	Exceptions to achieving good chemical status in RBMP3
BG3MA100R270	Biala River and its tributaries	Good	None	Maintaining good chemical status and preventing its deterioration.	Not applicable

Table No. IV.2.1-11. List of additional measures for achieving environmental objectives.

Measure code	KTM code	KTM	Type of measure	Name of measure	Implementing authority
DP_12	2	Reduction of nutrient pollution from agriculture	Diffuse pollution	Biological methods for limiting eutrophication	BD/MFA
DP_13	3	Reduction of pesticide pollution from agriculture	Diffuse pollution	Protection of water from pollution by plant protection products	MEW/BD
DP_2	16	Modernization or improvement of treatment plants	Diffuse	Reduction of diffuse pollution from	Owner or operator

Measure code	KTM code	KTM	Type of measure	Name of measure	Implementing authority
		Industrial wastewater treatment plants (including those from agricultural holdings)	Pollution	Industrial activities	of the facility
DP_4	16	Modernization or improvements to treatment for industrial waste water (including from agricultural holdings)	Diffuse pollution	Reduction of pollution from mining activities	Owner or operator of the facility
DW_4	13	Measures to protect drinking water (e.g., designation of protection zones, buffer zones, etc.)	Protection of water abstraction	Protection of surface waters intended for drinking water supply	MEW/BD
GO_3	14	Research activities, improving the knowledge base to reduce uncertainty	Improvement of management	Improving water management in water protection areas	MEW/EAOS/BD
HY_2	6	Improving the hydromorphological conditions of water bodies (e.g., restoring rivers, improving coastal areas, removing solid embankments, restoring the connection between rivers and floodplains, improving the hydromorphological status of transitional and coastal waters, etc.)	Hydromorphology	Restoration of the natural state of lake beds after barrier structures	Owner or operator of the facility
HY_7	6	Improvement of the hydromorphological conditions of water bodies (e.g. restoration of rivers, improvement of coastal areas, removal of solid embankments, restoration of the connection between rivers and floodplains, improvement of the hydromorphological status of transitional and coastal waters, etc.)	Hydromorphology	Improvement of the hydromorphological status of rivers	Facility owner or operator/MES, BD
HY_8	6	Improvement of the hydromorphological conditions of water bodies (e.g., restoration of rivers, improvement of coastal areas, removal of solid embankments, restoration of the connection between rivers and floodplains, improvement of the hydromorphological status of transitional and coastal waters, etc.)	Hydromorphology	Application of EIA for investment proposals/projects related to new changes in the physical characteristics of surface water bodies	MEW/BD
IP_1	16	Modernization or improvement of industrial wastewater treatment plants (including from agricultural holdings)	KPKZ	Implementation of the procedure for reviewing issued permits for wastewater discharge	MEW/EAOS
IP_2	14	Research activities, improvement of the knowledge base to reduce uncertainty	CPCC	Monitoring of results from the local monitoring network of tailings ponds	MEC/BD/IAOS
OS_2	23	Measures for natural water retention.	Other significant adverse	Improvement of natural water retention	Ministry of Environment and Water/ Municipalities/ Regions/ Owner or

Measure code	KTM code	KTM	Type of measure	Name of measure	Implementing authority
			Impacts		Facility operator
PI_1	2,3,16	To more than one KTM	Point discharge of waste water	Amendment or termination of permits for wastewater discharge as a result of their review.	MEW/BD
PI_2	16	Modernization or improvement of treatment plants for industrial wastewater (including from agricultural holdings)	Point discharge of waste water	Ensuring adequate treatment of industrial wastewater	Owner or operator of the facility
PI_3	1	Construction or modernization of wastewater treatment plants	Point discharge of wastewater	Ensuring the collection, conveyance, and treatment of industrial wastewater discharged into water bodies	Owner or operator of the facility
UW_1	1	Construction or modernization of wastewater treatment plants	Urban wastewater	Use of natural methods for wastewater treatment	Facility owner or operator/ Ministry of Environment and Water, BD
OS_3	14	Research activities, improving the knowledge base to reduce uncertainty	Other significant adverse impacts	Study to determine surface and groundwater pollution	MEW/BD
OS_4	23	Measures for natural water retention	Other significant adverse effects	Flooding of wetlands	Municipalities/ Region/ Ministry of Environment and Water
PM_2	99	Other preventive measures	Other preventive measures	Protection of the chemical status of groundwater from pollution and deterioration	MEC/BD
PM_3	99	Other preventive measures	Other preventive measures	Application of EIA for water abstraction from groundwater bodies	Ministry of Environment and Water
PM_4	99	Other preventive measures	Other preventive measures	Application of EIA when water is taken from surface water bodies	Ministry of Environment and Water

2.2. Groundwater

The area of the site subject to the IP falls within the boundaries of an underground water body (UWB) with code BG3G000PtPg049 Fractured waters - Eastern Rhodope complex, in an area that is part of the Eastern Rhodope block, which is composed of Precambrian, Paleogene, and Quaternary rock formations. The GWB is borderline, with the state border predominantly running along the watershed ridges.

According to the hydrogeological zoning of Bulgaria, the studied site falls within the Eastern Rhodope region of the Rila-Rhodope area and is part of the Arda River basin. In the studied territory, part of the Arda River basin, the waters circulating in the alluvial deposits of the Biala River and its tributaries Arpa Dere, Hambardere, Yuruklerska, etc. are of the greatest practical importance. The Paleogene sediments form a layered aquifer complex with predominantly low water abundance. It has a wide area distribution, significant thickness, irregular changes in the different rock types in the horizontal and vertical directions, leading, together with the uneven fracturing, to filtration anisotropy of the surrounding rocks. In the studied area, fissure-type waters have formed in this complex. They are formed in sedimentary-tuffaceous materials, with sandstones and conglomerates being the main aquifers and, to a lesser extent, tuffs and tuff breccias. Groundwater is associated with areas of regional fracturing. Sandstones and conglomerates are often quartzified, which reduces their water-collecting properties and water abundance. Fracture waters are fed by precipitation, but because in most cases the water-permeable rocks are covered by water barriers, this feeding is difficult. On the other hand, the highly dissected relief contributes to faster drainage of stratum waters into the intersecting streams, which also reduces the volumes of water accumulated in them. During experimental water pumping in the area of Ivaylovgrad, the relative flow rates were low
- often below 0.1 l/s.

The geological-lithological section of PVT BG3G000PtPg049 includes lithological types that are very diverse in terms of type and age. In the studied area, the geological formations are represented by a metamorphic foundation (migmatites, serpentinites, amphibolites, marbles, gneisses, and granites) and a Paleogene sedimentary complex (breccias and conglomerates, polymictic coarse-grained to silt-sized sandstones, marls, and coal shales).

Among these practically impermeable lithological types, groundwater circulates exclusively through mechanical disturbances – fractures and tectonic disturbances. The uneven water-bearing capacity of the rock formations is determined by the geological structure and lithological composition of the rocks and mainly by the uneven fracturing and faulting.

In the period 2019-2022, the levels of groundwater flowing in PWT BG3G000PtPg049 were regularly measured in 8 boreholes (monitoring of which continues at present). The results of the measurements, as well as the data from the overall study, make it possible to characterize the BG3G000PtPg049 aquifer in the studied area of the Rozino IP. During the period in question, groundwater levels were found at a depth of 4.82 to 31.33 m below the surface, generally following the terrain line. Water levels ranged from 259.27 to 467.03 m. An exception is borehole RDD-056, where groundwater is drained by self-flow at an elevation of 368.75 m. Groundwater is classified as fissure type.

The filtration parameters of the water-bearing rocks are very low – filtration coefficient ranging from 2.11×10^{-7} to 2.13×10^{-9} m/sec and conductivity in the range of 0.02 – 0.069 mS/day.

The waters flowing in GWB BG3G000PtPg049 are fresh with mineralization <1 g/l, neutral (pH 7.02–7.65). The results of the chemical analyses show lower concentrations of the parameters studied compared to the quality standard according to Ordinance No. 1 of 10.10.2007. This circumstance reflects the good chemical status of the groundwater, as the values of the parameters studied in the individual boreholes are very close and reflect a relatively constant chemical composition of the groundwater, which has not been altered by human activity.

The recharge of groundwater accumulated in the Paleogene sediments in the studied area is mainly through fractures and tectonic disturbances from adjacent horizons and from the metamorphic rocks forming their base. The highly dissected relief, combined with the very low filtration characteristics of the rocks, is a prerequisite for very little infiltration recharge from surface waters.

Detailed information on the geological and hydrogeological characteristics of the PWT and, in particular, the Rosino IP area is provided in the "Report on the hydrogeological conditions in the area of the investment proposal for the Rosino deposit," prepared for Tintyava Exploration AD, presented in **Text Appendix No. 16** to this report.

The main data and characteristics (geological, hydrogeological, soil) of the groundwater body BG3G000PtPg049 Fractured waters - Eastern Rhodope Complex are presented in Table No. IV.2.2-1, Table No. IV.2.2-2, Table No. IV.2.2-3 and Table No. IV.2.2-4 (source: Section 1 of the third RBMP of the IBR).

According to Section 4, points 4.2.2 and 4.2.3, Annex No. 4.2.2.2.1 of the third RBMP of the IBR, groundwater body BG3G000PtPg049 is classified as being in "good" chemical status according to the standard of Ordinance No. 1 of October 10, 2007 for the study, use, and protection of groundwater (State Gazette No. 87 of 2007, amended State Gazette No. 28 of 2013) and specified threshold values) and "good" quantitative status (Table No. IV.2.2-5). In the second RBMP, the PWB was assessed as "at risk", while in the third RBMP the risk assessment is: "not at risk" (Table No. IV.2.2-6.).

Up-to-date information on the status of the groundwater body is presented in the Annual Bulletin on the Status of Surface and Groundwater Bodies in the Western Black Sea Basin Management Area for 2022 (published on May 12, 2023). The assessment of the chemical status of groundwater bodies in the Western Black Sea River Basin Management District is based on the measured values of pollutant concentrations and pollution indicators at monitoring points, the determination and comparison of the relevant 5 annual average values with the relevant quality standards in Annex No. 1 to Ordinance No. 1 of 10.10.2007 for the study, use, and protection of groundwater, as well as a comparison of the average annual values of the relevant pollutants/pollution indicators with the relevant permissible values for each of the groundwater bodies included in the RBMP of the ZBR (2016-2021).

The total available resource of GWB BG3G000PtPg049 is 10,753 l/sec. with consumption of 253 l/sec., which determines an exploitation index of 2.35%. The main consumption of water quantities is for (Table No. IV. 2.2-7):

- public drinking and domestic water supply to the population – 168.6 l/sec;
- industrial purposes – 3.0 l/sec;
- agricultural purposes (irrigation, livestock farming, and aquaculture) – 9.0 l/sec;
- meeting the needs of citizens (households) – 51.4 l/sec;
- other purposes – 18.9 l/sec.

No ecosystems dependent on quantitative pressure on groundwater have been identified within the scope of the PWT.

The groundwater body is designated as a water protection zone pursuant to Article 119a, paragraph 1, item 1 of the Water Act – waters designated for human consumption with ZZV code BG3DGW000PtPg049.

The territory of the investment proposal falls within a nitrate-vulnerable zone, according to Section 3, item 3.3.1 of the third RBMP of the IBR and Annex 1 to Order No. RD-900/21.10.2024 of the Minister of Environment and Water. For the protection of nitrate vulnerable zones, Order No. RD-237/17.03.2020 of the Minister of the Ministry of Environment and Water and No. RD-09-222/27.02.2020 of the Minister of the Ministry of Agriculture, a program of measures to limit and prevent nitrate pollution from agricultural sources in vulnerable areas was approved in accordance with the requirements of Ordinance 2/13.09.2007 on the protection of waters from pollution by nitrates from agricultural sources.

In connection with the achievement of environmental protection objectives (Table No. IV.2.2-8) in Section 7 of the third RBMP of the IBR (2022-2027), a program of measures has been developed. No specific measures are envisaged for the groundwater body BG3G000PtPg049 Fissured waters - Eastern Rhodope complex, which includes the IP area, due to the fact that it has been determined to be in a "good" quantitative and chemical status.

The lack of identified significant pressure, the risk assessment for chemical (based on monitoring data and diffuse pressure) and quantitative status of GWB BG3G000PtPg049 is that it is not at risk (Table No. IV. 2.2-9).

Annex 1.3.3.4 to Section 1 of the third RBMP of the IBR provides an overview of the aquatic or terrestrial ecosystems associated with groundwater bodies. One such ecosystem has been identified between PWB BG3G000PtPg049 and PWB BG3MA100R270, concerning habitat 6510 Lowland hay meadows with an area of 0.02 km² in Protected Area BG0001032 Rhodopes – Eastern. The status of the ecosystems is favorable (Table No. IV.2.2-10).

This relationship basically determines the structure, composition, and functioning of ecosystems, especially in areas where water is a limiting factor. Habitat 6510 Lowland hay meadows within the protected area is mainly found in valleys and river beds, on floodplains and in the lower basin areas of the Eastern Rhodopes. It is typical of areas with periodic flooding or long-term soil moisture and is traditionally maintained by haymaking and light grazing. Geographically, within BG0001032, these meadows are patchy in distribution — they do not form large continuous areas, but rather local patches along the valleys of the Arda River and its tributaries, along rivers and streams, and in the lower areas near the low

flat depressions. This patchy structure is typical of habitat 6510 in sparsely cultivated and semi-cultivated landscapes.

According to the information in the report "Distribution and assessment of the PS of natural habitat 6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis) in SPA BG0001032 "Rhodopes-East", Annex 8.2. Map of the ultimate distribution of natural habitat 6510 in protected area BG0001032 "Rhodopes-East", the nearest sites with established habitat 6510 are near the village of Gugutka (with an area of about 0.06 ha) about 3.5 km southeast, the village of Planinets (0.75 ha) about 7 km north, the village of Tintyava (0.9 ha) 8 km southwest, and the village of Kondovo (about 1 ha) about 9.5 km east from the concession area

(https://natura2000.egov.bg/EsriBg.Natura.Public.Web.App/Home/ProtectedSite?code=BG0001_032&siteType=HabitatDirective). These are small, local areas with a total area of about 2.7 ha.

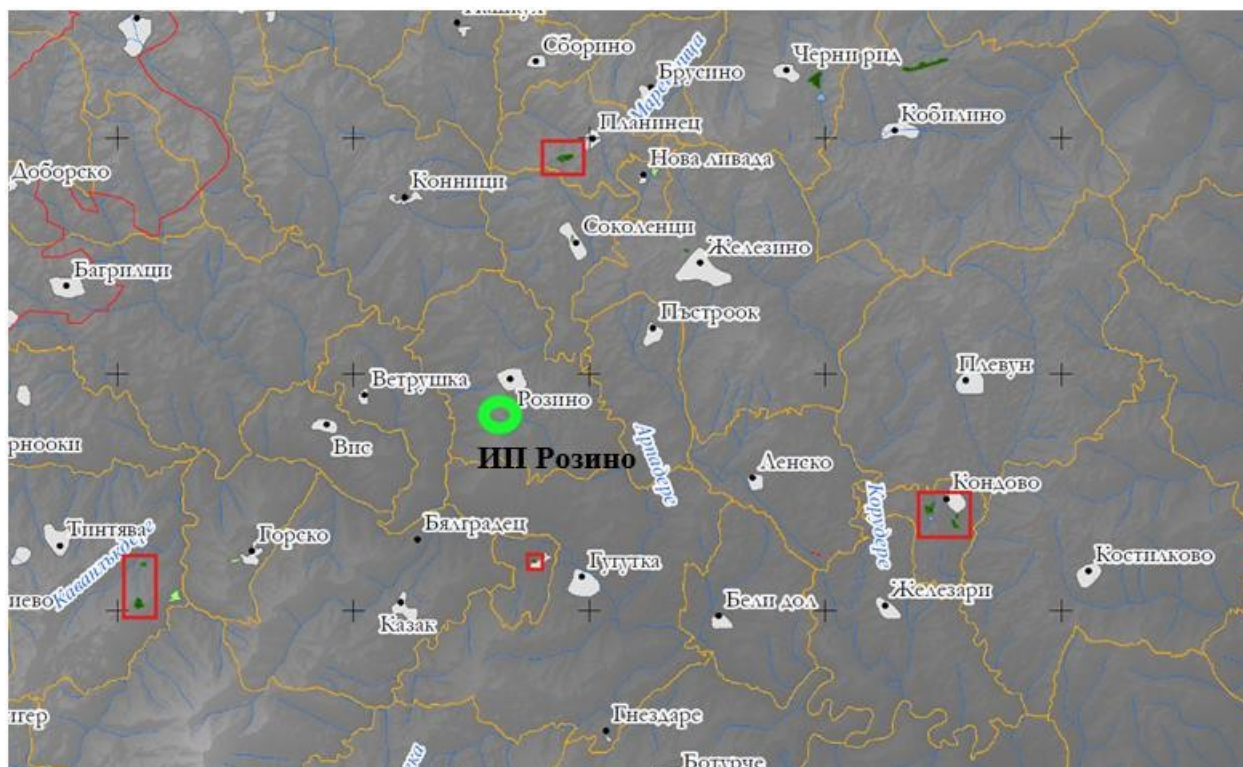


Figure IV.2.2-1. Areas with identified habitat 6510 Lowland hay meadows - marked in red (source: NATURA 2000).

On the other hand, the total available resource of PWT BG3G000PtPg049 is 10,753 l/sec, and the total consumption is 253 l/sec - an operational index of 2.35%. If the planned water abstraction of 50 l/s is implemented, the operational index would increase by only 0.5%.

In this regard, it can be concluded that the impact on natural habitat 6510 Lowland hay meadows will be insignificant due to:

- the territorial remoteness of the areas where habitat 6510 is found in relation to the concession area;

- habitat 6510 is located in riparian areas that have no direct hydraulic connection with the concession area;
- the planned water abstraction is insignificant in relation to the resource security of the PWT.

In summary, it can be stated that the area is characterized by limited groundwater resources in terms of water abundance, but stable and good quantitative and chemical status of the GWB, low exploitation pressure, and lack of data on significant anthropogenic changes. Subject to compliance with the applicable restrictions on water use in a protected area for water intended for human consumption, the requirements for nitrate-vulnerable zones, and the implementation of the planned management and monitoring measures, no significant adverse impact on groundwater and related ecosystems is expected.

The implementation of the investment proposal provides for the pumping of water directly from Arpa Dere during the wet months of the year (from January to May inclusive). Water abstraction from Arpa Dere will be close to the confluence with Yuren Dere and adjacent to the existing pumping station in the village of Rozino. This pumping station is designed to pump water from a spring that flows into the whirlpool. The flow rate of this spring varies between 6 and 11 l/s throughout the year, depending on the season. It has been calculated that the flow rate required to maintain the village of Rozino is in the order of 0.34 l/s. The excess water from the spring, after the relevant justification, could be used for the industrial needs of the site throughout the year. It is planned that the water intake will be carried out from a naturally formed pool without the need to build a dam or other construction works blocking the river.

Due to the higher flow rate in February, March, and April, about 100 l/s can be drawn during these months, which can be used to fill the non-contact water tank on days with higher rainfall. This option is considered possible but not essential due to the fact that the hydrogeological study conducted in the area of the deposit has established that the area is characterized by limited groundwater resources in terms of water abundance and their extraction is extremely insufficient for technological needs.

A possible option is to draw water from the terrace of the Arpa Dere River (PVT BG3G000PtPg049) by building a new pumping station. In this case, the Contracting Authority must carry out a procedure for issuing a permit for groundwater abstraction on the basis of Article 52(1)(4) and Article 44(1) in conjunction with Article 50, paragraphs 7 and 8, and Article 60 of the Water Act and Ordinance No. 1 on the exploration, use, and protection of groundwater.

The Rosino catchment is located 2,300 meters from the contour of the mine where extraction will take place and 1,300 meters from the boundary of the buffer zone with a radius of 1,000 meters (without a defined sanitary protection zone) from the water abstraction facility (Figure No. IV.2.2-2). As can be seen from Figure No. II.1.2-1, the catchment is located near point 6 of the contour of the future concession area, with this point being located below the clean water reservoir. The map material shows that no extraction, respectively PVR, will be carried out in the 1000 m buffer zone, as

an artificial water intake facility will be located there, which is necessary for the needs of the IP and represents a clean water reservoir.

In this regard, the activity does not contradict the measure provided for in Section 7 of the third RBMP of the IBR with code DW_1 and title: "Prohibitions and restrictions on activities in drinking water protection areas and in designated sanitary protection zones (SPZ) and buffer zones around water intake facilities/systems," with a specific action for implementation of the measure: DW_1_35 "Prohibition on the extraction of underground resources, including inert and construction materials, in a buffer zone with a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply."

The IP does not provide for the extraction of underground resources and PVR in the buffer zone with a radius of 1000 m, which means that the action for the implementation of measure DW_1_35 has been applied in practice.

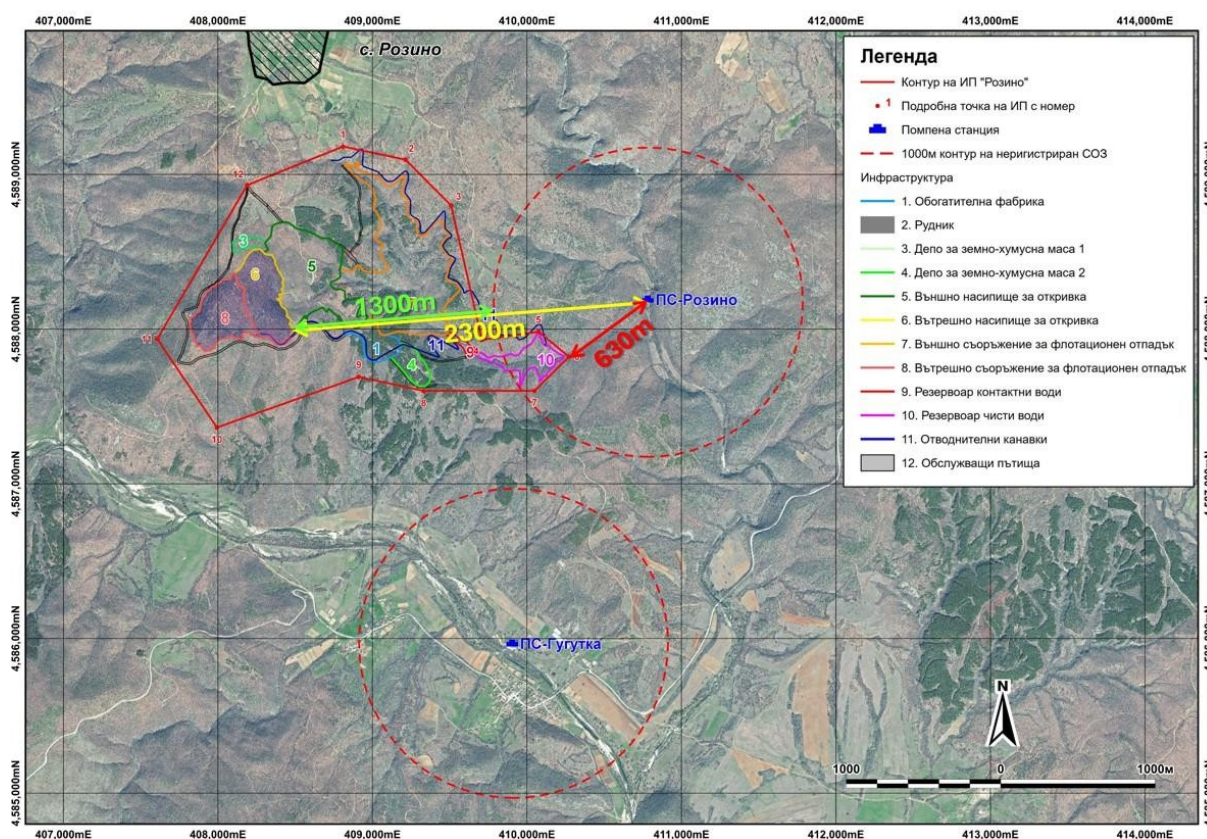


Figure No. IV.2.2-2. Location of the Rosino catchment in relation to the contour of the mine.

Given the low exploitation index of the PWT (2.35%), in the event of water abstraction for own needs, it is not expected to contribute to the impact on the chemical and quantitative status of groundwater.

The investment proposal does not affect drinking water supply facilities and sanitary protection zones for these facilities. Within the territorial scope of the future concession area "Rosino" there is only a dry well (P-19) near the village of Rozino on the road to the village of Gugutka (not in use) and a fountain "Anas" (G-1) near the village of Gugutka (not in use).

In the wider area around the IP site, other water sources have been identified that are used for watering livestock and irrigation, as well as those that are not used or have dried up. 800 m east and 1800 m south of the boundaries of the future concession area "Rozino" are located the facilities of VIK - Haskovo PS Rozino (on the terrace of Arpa Dere, PVT BG3G000PtPg049) and PS Gugutka (on the terrace of the Byala River, VT BG3MA100R270) (Figure No. IV.2.2-3 and Table No. IV.2.2-11), without permits under the Water Act and without established sanitary protection zones.

According to the conclusions of the hydrological assessment presented in **Text Appendix No. 10**, water abstraction for the needs of the IP is planned mainly during the winter-spring period (January-May) from the Arpa Dere River at the pumping station in the village of Rozino (section before the confluence with the Yuren Dere River), with water abstraction planned to be carried out from a naturally formed pool without damming the river. For the Arpa Dere River in the section under consideration, the following have been determined: average discharge $Q_{avg} = 0.983 \text{ m}^3/\text{s}$, eco-minimum $Q_{ek} = 0.098 \text{ m}^3/\text{s}$ and actual minimum water quantity with 90% reliability $Q_{90} = 0.003 \text{ m}^3/\text{s}$. An analysis of the water abstraction possibilities shows that the full water abstraction capacity ($\sim 0.104 \text{ m}^3/\text{s} \approx 104 \text{ l/s}$, i.e. 10% of the norm/ecological minimum) is only applicable when there is sufficient water availability; during the dry period (June–November), restrictions are possible, as monthly water quantities may be below the eco-minimum (10% of the norm). The conclusions state that with the introduction of restricted water use and priority guaranteeing of municipal water supply (Rozino village), water abstraction for the Rozino mine is not expected to affect water supply, and that water abstraction from surface waters does not lead to a change in water quality, as water for technological needs is managed as non-contact/isolated in reservoirs and no contact with groundwater or uncontrolled return to the water receiver is allowed.

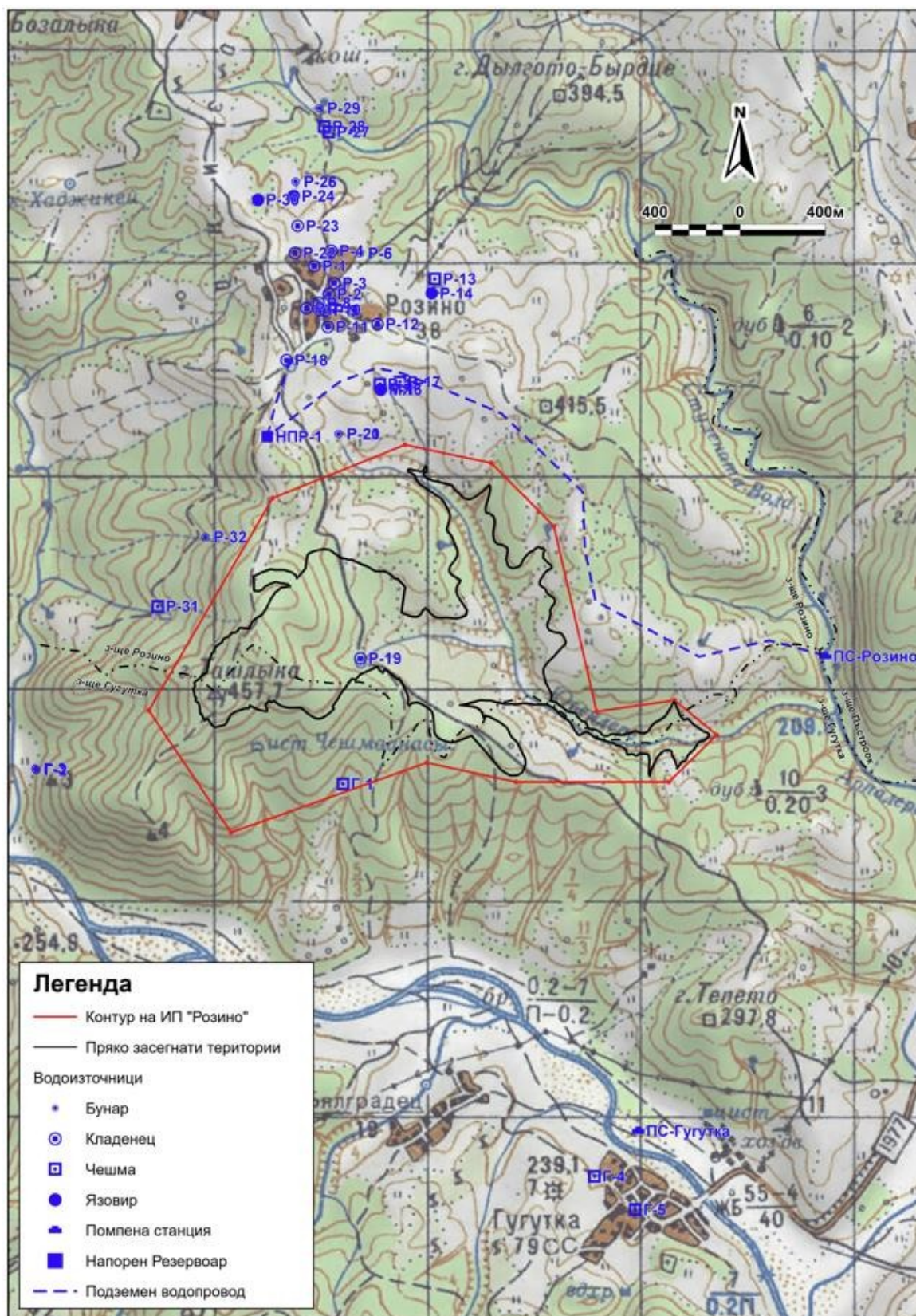


Figure No. IV.2.2-3. Location of water sources in relation to the boundaries of the future concession area "Rosino".

Table No. IV. 2.2-12. presents information on water intake facilities in the IP area, obtained from the BD IBR and VIK-Haskovo.

Table No. IV.2.2-1. Data on the underground water body in the IP area.

Name of the water body	GWB code	Type of GWB according to the hydraulic conditions of its head	Characteristics of the flow of geological strata	Area of the groundwater body km ²	Exposed area km ²	Characteristics of the covering PWT layers in the recharge area	PWTs on which aquatic ecosystems and/or terrestrial systems directly depend
Fissure waters - Eastern Rhodope complex	BG3G000PtPg049	Unconfined	Not layered. The waters are attached to the weathering zones of the rocks and the direction of movement is from high to low parts of the relief.	6593.09	6489.96	Various types of brown and cinnamon forest soils. Weathered to varying degrees, diverse volcanic, volcano-sedimentary, metamorphic and magmatic rocks.	BG0001032 Rhodopes - Eastern, BG0002106 Ivaylovgrad Dam BG0002071 Arda Bridge BG0002012 Krumovitsa BG0002013 Studen Kladenets BG0002014 Madzharovo

Table No. IV.2.2-2. Geological characteristics of the groundwater body BG3G000PtPg049.

Name of the GWB	GWB code	Geological characteristics		
		Geological formation	Lithological structure of the GWB	Tectonics
Fracture waters - Eastern Rhodope Complex	BG3G000PtPg049	Prarhodope Supergroup, Rhodope Supergroup, Metavolcanic Complex, Phanerozoic Granitoids, Paleogene Volcanogenic, Sedimentary-Effusive Complexes	Rhyolites, andesites, pyroclastic rhyodacites, tuffs, tuffites, tuffaceous sandstones and siltstones, limestones - cavernous, calcareous sandstones, marls, conglomerates, sandstones, clays. Gneiss, granitic gneiss, granite gneisses, gneisses, migmatites, amphibolite schists, marbles, calcschists.	Rhodope Massif—Central Rhodope and Eastern Rhodope Block

Table No. IV.2.2-3. Characteristics of the sediments and soils covering the groundwater body BG3G000PtPg049.

Name of the groundwater body	GWB code	Characteristics of sediments and soils covering the groundwater body			
		Thickness of sediments and soils covering the water body, m	Porosity, %	Filtration coefficient, m/day	Absorption properties
Fissure waters - Eastern Rhodope Complex	BG3G000PtPg049	From 1 to several tens of meters depending on the degree of weathering and relief.	1	0.5-2.2	No data available.

Table No. IV.2.2-4. Hydrogeological characteristics of the underground water body BG3G000PtPg049.

Name of the PBT	AWB code	Type of aquifer	Hydrogeological characteristics of the groundwater body					
			Thickness of the aquifer, m	Filtration coefficient m/day	Water conductivity, m ² /day	Type of aquifer	Porosity %	% Infiltration
Fracture waters - Eastern Rhodope Complex	BG3G000PtPg049	Fissure, low water yield	from several meters to several tens of meters	0.0001	no data	PWT with fissure waters	1	8

Table No. IV.2.2-5. Assessment of the chemical status of groundwater body BG3G000PtPg049.

GWB code	Name	Test: Overall assessment of the chemical status of the groundwater body (good/poor)	Test Intrusions of saline or polluted waters (not applicable/good/poor)	Test Significant deterioration of the ecological or chemical status of surface water bodies caused by the transfer of pollutants from the WFD (not applicable/good/poor);	Test: Significant deterioration of terrestrial ecosystems dependent on groundwater due to the transport of pollutants from PWC (not applicable/good/bad)	Test: Deterioration in the quality of groundwater intended for drinking and domestic water supply (not applicable/good/poor)	Presence of upward trends (yes/no)	Overall assessment of the chemical status of GWB	Pollutants or indicators of pollution
BG3G000PtPg049	Fissure waters - Eastern Rhodope complex	good	good	good	good	good	no	good	none

Table No. IV.2.2-6. Risk assessment based on chemical status for groundwater body BG3G000PtPg049.

WGB code	Name	Risk assessment of the chemical status of the WGB in RBMP 2 (2016–2021)	Overall assessment of the chemical status of the WGB in RBMP 2 (2016–2021)	Risk assessment of the chemical status of the WFD in RBMP 3 (2022–2027)	Overall assessment of the chemical status of the WFD in the RBMP 3 (2022–2027)
BG3G000PtPg049	Fissured waters - Eastern Rhodope complex	at risk	good	not at risk	good

Table No. IV.2.2-7. Data on water consumption from the groundwater body BG3G000PtPg049.

Groundwater body code	Name of the water body	Annual water abstraction, in l/sec								Available resources of the groundwater body, l/sec.	Exploitation index
		Purpose of water abstraction							Total		
		For public drinking and domestic water supply to the population	For agricultural purposes (irrigation and livestock farming)	For industrial purposes	Other	For aquaculture	For meeting the needs of citizens (households)	Tourism and recreation			
BG3G000PTPg049	Fissured waters - Eastern Rhodope complex	168.55	9	3	18.9	0	51.38	2	253	10753	2.4

Table No. IV.2.2-8. Targets for achieving good chemical status for groundwater body BG3G000PtPg049.

Groundwater body code	Name of the groundwater body	Overall assessment of the chemical status of water bodies in the RBMP 3	Indicators with deviation in RBMP 3	Target - chemical status in RBMP 3	Exceptions to achieving good status in RBMP 3
BG3G000PtPg049	Fissure waters - Eastern Rhodope complex	Good	none	Maintaining good chemical status and preventing its deterioration	Not applicable

Table No. IV.2.2-9. Risk assessment for groundwater body BG3G000PtPg049.

GWB code	Name of the GWB	Pressure category		Risk assessment based on the chemical status of the GWB according to the results of monitoring	Risk assessment based on the chemical status of the PBT (monitoring+ diffuse pressure)	Risk assessment of PBTs based on quantity
		Point sources	Diffuse			
		Potential impact % of the exposed area of the PWT	Potential impact % of the exposed area of the PWT			
BG3G000PtPg049	Fissure waters - Eastern Rhodope complex	<p>7.87</p> <p><u>Sources</u></p> <p>Waste disposal sites, pesticide storage facilities, earthen lagoons, deposits of: industrial minerals; rock facing materials; construction materials, settlements with partially constructed sewerage systems</p>	<p>57.15</p> <p><u>Sources</u></p> <p>Settlements without sewage systems and agricultural diffusion—probably from organic nitrogen and phosphorus fertilizers, tailings ponds, metal deposits, deposits of: uranium; rock facing materials; construction materials; industrial minerals</p>	not at risk	not at risk	not at risk

Table No. IV.2.2-10. Relationship between terrestrial ecosystems and the underground water body BG3G000PtPg049.

Groundwater body	Surface water body	Terrestrial ecosystems	Terrestrial ecosystems-area, km²	Protected area	Status of ecosystems
BG3G000PtPg049 Fissure waters - Ivaylovgrad massif	BG3MA100R270 Biala River and its tributaries	6510 Lowland hay meadows	0.02	BG0001032 Rhodopes - Eastern	Favorable

Table No. IV.2.2-11. Water sources within the territorial scope of the site subject to the IP or in a wider area around it.

ID	Settlement	Location	Type of facility		Geographical coordinates		BGS2005 UTM		Use
				Facility code	Width	Length	North_35N	East_35N	
R-1	Rozino village	Rozino village, Myumyun	Kladenets	Kladenets	41.456513	25.903067	4590017	408385	dry
R-2	village of Rozino	Rozino village, mosque	Kladenets	Kladenets	41	25.903913	4589886	408454	Not in use

ID	Settlement	Location	Type of facility	Facility code	Geographical coordinates		BGS2005 UTM		Use
					Width	Length	North_35N	East_35N	
R-3	Rozino village	Rozino village, below the mosque	Kladenets	Well	41.455803	25.904204	4589937	408479	Not in use
R-4	Rozino village	village of Rozino, Kadir Gyulista	Kladenets	Kladenets	41.457162	25.904014	4590088	408465	for irrigation
R-5	village of Rozino	village of Rozino	Bunar	Bunar	41.457069	25.905632	4590076	408600	for watering
R-6	village of Rozino	village of Rozino	Bunar	Bunar	41.457069	25.905632	4590076	408600	for watering
R-7	village of Rozino	Rozino village, to Orhan's mother	Kladenets	Well	41.454726	25.902666	4589819	408349	dry
R-8	Rozino village	Rozino village, near Orhan	Kladenets	Kladenets	41.454957	25.903345	4589844	408406	Not in use
R-9	Rozino village	Rozino village, near the Mümün sheepfold	Well	Well	41.454637	25.9037	4589808	408438	dry
R-10	village of Rozino	Rozino village, sheepfold	Kladenets	Well	41.454661	25.903397	4589811	408410	Not in use
R-11	Rozino village	Rozino village, mayor's office	Kladenets	Kladenets	41.453954	25.903876	4589732	408449	Not in use
R-12	Rozino village	Rozino village, transformer station	Kladenets	Well	41.454097	25.906663	4589745	408682	dry
R-13	Rozino village	Rozino village, below the dam	Fountain	Fountain	41.456037	25.909852	4589957	408951	for watering
R-14	Rozino village	Rozino village	Micro-dam	Dam	41.455432	25.909682	4589890	408936	for watering
R-15	village of Rozino	Rozino village, near the micro-dam	Fountain, Mehmed Daud	Fountain	41.451568	25.906838	4589464	408693	for watering
R-16	village of Rozino	village of Rozino	Dam	Dam	41.451334	25.906889	4589438	408697	for watering
R-17	village of Rozino	village of Rozino	Fountain	Fountain	41.451669	25.907961	4589474	408787	for watering
R-18	village of Rozino	Rozino village, near the cemetery	Well	Well	41.452527	25.901578	4589576	408255	Not in use
R-19	Rozino village	Rozino village, road to Gugutka	Kladenets	Kladenets	41.439985	25.905931	4588179	408601	dry
R-20	Rozino village	village of Rozino	Bunar	Bunar	41.449438	25.904551	4589230	408499	for watering
R-21	village of Rozino	village of Rozino	Bunar	Bunar	41.449438	25.904551	4589230	408499	for watering
R-22	village of Rozino	Rozino village, near the first house	Well	Well	41.457052	25.901968	4590078	408294	for irrigation
R-23	village of Rozino	village of Rozino	Kladenets	Kladenets	41.458197	25.902105	4590205	408307	for irrigation
R-24	village of Rozino	Rozino village, to the mayor	Dam	Dam	41.459456	25.901856	4590345	408288	for watering
R-25	village of Rozino	village of Rozino	Bunar	Bunar	41.460060	25.901953	4590412	408297	for watering
R-26	village of Rozino	village of Rozino	Bunar	Bunar	41.460060	25.901953	4590412	408297	for watering
R-27	village of Rozino	Rozino village	Mehmet Gulistan Fountain	Fountain	41.462176	25.903786	4590645	408453	for watering
R-28	village of Rozino	village of Rozino	Fountain	Fountain	41.462408	25.903530	4590671	408432	dry
R-29	village of Rozino	Rozino village	Bunar	Bunar	41.463171	25.903230	4590756	408408	dry
R-30	Rozino village	Rozino village	Dam	Dam	41.459275	25.899859	4590327	408121	for watering
R-31	village of Rozino	village of Rozino	Kyorumerova fountain	Fountain	41.442074	25.894524	4588423	407651	Not in use
R-32	Rozino village	village of Rozino	Bunar	Bunar	41.445026	25.897155	4588748	407875	dry

ID	Settlement	Location	Type of facility	Facility code	Geographical coordinates		BGS2005 UTM		Use
					Width	Length	North_35N	East_35N	
G-1	Gugutka village	Gugutka village	Cheshma, Anas	Fountain	41.434680	25.905050	4587591	408520	Not in use
G-2	Gugutka village	Kokardzha Dere	Bunar	Bunar	41.435091	25.887820	4587655	407081	for watering
G-3	Gugutka village	Kokardzha Dere	Bunar	Bunar	41.435154	25.887759	4587662	407076	for watering
G-4	Gugutka village	On the way to Gugutka	fountain	Fountain	41.418261	25.919446	4585753	409700	dry
G-5	Gugutka village	Gugutka village, near the church	fountain	Fountain	41.416877	25.921755	4585597	409891	flowing
B-1	village of Byalgredets	On the road to Byala Reka	Bunar	Bunar	41.426241	25.899436	4586660	408039	for watering
K-1	village of Kazak	village of Kazak	Bunar	Bunar	41.426434	25.893269	4586688	407524	dry
PS-Gugutka	"ViK" EOOD - Haskovo	On the terrace of Byala Reka, VT BG3MA100R270	Pumping station	Pumping station	41.420195	25.921879	4585965	409906	"ViK" EOOD - Haskovo
PS-Rozino	"ViK" EOOD - Haskovo	On the terrace of Arpa Dere, VT BG3G000PtPg049	Pumping station	Pumping station	41.440319	25.932045	4588189	410783	"ViK" EOOD - Haskovo
MYA	Tintyava Exploration AD	Rosino micro-dam	Micro-dam	Dam	41.451334	25.906889	4589438	408697	Tintyava Exploration" AD

Table No. IV.2.2-12. Information on water intake facilities in the IP area received from BD-IBR and VIK-Haskovo

No	Holder	Permit	BGS2005 UTM34N		Geographical coordinates		RL	Water body code	Note
			North	East	North	East			
1	"ViK" EOOD - Haskovo	No permit	4585965.17	409905.94	41°25'12.7	25°55'18.76	22	BG3MA100R270	PS "Gugutka", Water supply
2	"ViK" EOOD - Haskovo	No permit	4588188.83	410783.07	41°26'25.15	25°55'55.36	255	BG3G000PtPg049	PS "Rozino", for Water Supply
3	Tintyava Exploration AD	No. 1/08.01.2019	4589438	408697	Rosino micro-dam		296	Micro-dam	For drilling activities

3. Soils

According to the soil-geographical zoning of Bulgaria (N. Ninov, Geography of Bulgaria, 1997), the IP area falls within the Balkan-Mediterranean soil sub-region, Eastern Rhodope-Sakar province.



Figure IV.3-1 Map showing the soil-geographical zoning of Bulgaria and the location of the IP

The province is characterized by the predominance of shallow soils (Leptosols, LP) – rankers with lithosols, rankers with cinnamon-like leached (chromicq LVx) soils and erosion development. The lands of the province are mainly IV bonitet group – poor.

They are formed on the weathering zone of Paleogene limestones /Pg23/. They are defined as cinnamon-leached, sandy-clayey, highly stony, very shallow, poor, dry, and unsuitable for forestry up to 90%. Their fertility is low, as is their total nitrogen content – maximum up to 2%. Their soil reaction is mainly slightly acidic and neutral. They are texturally differentiated soils, whose mechanical composition and organic matter content determine high ion exchange and buffering capacity and are also characterized by high resistance to pollution and fall into resistance class III. The presence of a sub-Mediterranean element in the climate of the area where cinnamon forest soils are found influences the longer and more intense course of internal soil weathering processes. They are characterized by a cinnamon, cinnamon-brown color and a more clayey mechanical composition.

In the municipality of Ivaylovgrad, there are mainly leached cinnamon forest soils

soils with a clayey-sandy mechanical composition, loose, shallow, and predominantly dry. In general, cinnamon forest soils are mainly distributed in low mountain areas, while in the basins they occupy relatively more fragmented relief forms. These types of soils have a limited content of mineral chemical elements. In terms of physical properties, they are characterized by strong compaction of the profile, regardless of differences in mechanical composition. In addition, the structure of the upper layer is usually highly pulverized, but the subsoil has a relatively good structure. Deeper down, the soil structure deteriorates sharply. Erosion processes are intensified in the areas where these soils are found. In general, the main processes contributing to the development of erosion are the relatively large vertical relief and the deforestation of significant areas.

It is important to note that soil erosion is one of the main problems faced by farmers, as it has a strong negative impact on the development of agriculture. A number of studies indicate that sustainable organic farming practices and regular reforestation measures can significantly improve soil condition and reduce erosion processes.

Cinnamon forest soils are generally suitable for growing vines, tobacco, fruit, and grain crops.

Other types of soil found in the Ivaylovgrad area are leached and slightly leached black earth soils in river valleys and shallow soils that develop on hard rocks, weather slowly, and are characterized by erosion processes.



Figure IV.3-2. Contour of the future concession area of Google Earth

The Regional Laboratory – Haskovo, part of the Executive Environment Agency, carries out monitoring activities at the observation and control points of the "Land and Soil" subsystem of the National Automated System for Environmental Monitoring (NASEM). The points at which soil samples are taken are determined by the Executive Environment Agency, Sofia. They are located throughout the territory of the Regional Inspectorate of Environment and Water and depend on the sources of pollution. The points are determined according to the type of soil, the type of permanent use, and the crops that are used. The points are determined taking into account the type of soil, the type of permanent use, and the crops that are grown. Their geographical coordinates are determined, forming a network of 16x16 km from each other. Sampling is carried out at the following points for the municipality of Ivaylovgrad:

- Pashkul village;
- Svirachi village.

According to data from the Regional Report on the State of the Environment, prepared by the Regional Inspectorate of Environment and Water Resources (RIEW) – Haskovo, in 2022, tests were carried out on samples taken in 2021 in accordance with the annual soil monitoring program approved by the Executive Director of the Executive Environment Agency for the analysis of soil contamination with heavy metals and metalloid I level. Samples were taken from both points in the municipality of Ivaylovgrad and analyses were carried out on the following indicators: heavy metals and metalloids, total nitrogen (by Kjeldahl), phosphorus, organic carbon, soil reaction (pH), electrical conductivity, total carbon, and persistent organic pollutants - 16 PAH, 6 PCB, 15 chlorinated organic pollutants, bulk density. The results of the analyses show compliance with the maximum permissible concentrations according to Ordinance No. 3/2008 on the standards for permissible content of harmful substances in soils and those specified in Annex 2 to Article 4 - Standards for precautionary concentrations, MPC and intervention concentrations for persistent organic pollutants and petroleum products in soils for all indicators.

In 2022, no sampling and testing of soil samples for acidification was carried out for the Ivaylovgrad area.

There are warehouses (B-B cubes) for obsolete, unusable, and banned plant protection products in the municipality, which have been renovated.

In 2022, tests were carried out on soil samples taken in 2021 from the points in the villages of Pashkul and Svirachi for soil contamination with pesticides. The test results did not find any soil contamination with pesticides.

No sampling and testing of soil samples for acidification was carried out in the Ivaylovgrad area.

In 2022, no oil pollution was detected in the territory of the Regional Inspectorate of Environment and Water Resources (RIEW) - Haskovo.

In 2023 and 2024, no samples were taken and no soil samples were tested from the points in the villages of Pashkul and Svirachi.

The warehouses (B-B cubes) for obsolete, unusable, and banned plant protection products remained unchanged in 2023.

In 2024, a scheduled inspection of the B-B cubes in the village of Plevun, Ivaylovgrad municipality, was carried out and instructions were given to remedy the irregularities found, such as repairing the damaged roof of the warehouses, repairing the walls of the warehouses, and clearing the area of grass vegetation. A follow-up inspection found that

all instructions had been carried out.

Contaminated land

No contamination with harmful substances and waste was found on the site or on the adjacent land.

Degradation processes

No erosion or landslide processes were observed in the area of the investment proposal.

Land use

The register of affected properties is presented in **Text Appendix No. 8**.

4. Subsoil and mineral diversity Geology of the area

The Eastern Rhodopes are considered part of the so-called Eastern Rhodope anticline, formed by a series of anticline and syncline folds (Kozhuharov, 1971), such as the Keseair bulge, the Avren graben syncline, the Tintyav bulge, The Tintyava area is located in the Eastern Rhodope Depression, east of the Belorechki dome.

The Tintyava area is located in the Eastern Rhodope depression, east of the Belorech dome. It is situated in a Paleogene graben typical of the Eastern Rhodopes, filled mainly with coarse-grained material and finer-grained sediments. The reason for the formation of this graben is the collision development of the area during the Upper Cretaceous and Oligocene. As a result, during the Paleogene, thick terrigenous and volcanogenic-sedimentary deposits of diverse composition accumulated in it. At the end of the Oligocene, significant subvolcanic intrusions, mainly of medium acidity, penetrated this highly disintegrated crust, enabling the formation and continued existence of hydrothermal systems. The intrusions acted as thermal engines, driving large volumes of hydrothermal solutions. These solutions leached gold from the host rocks and transported it as chloride complexes through the permeable zones of faulting and folding. Their mixing with meteoric waters led to a decrease in temperature and the deposition of ore mineralization. In the western and northeastern parts of the Paleogene sedimentary basin, several superimposed high-metamorphic complexes, Mesozoic schists, and aplitoid granites (Rozinski type) can be distinguished. In the area, the Paleogene sediments are represented by two formations – breccia conglomerate and coal-bearing sandstone of Priabian age, proven by fauna. These formations are 800–1000 m thick and 100–800 m thick, respectively. The lithological composition of the two formations is quite diverse. The breccia conglomerate formation consists of fragments of metamorphic bedrock, granite fragments, ultrabasic rocks, and diaphorites with sandy and carbonate-sandy cement. The coal-bearing sandy formation is composed of polymictic sandstones with calcareous-clayey cement, gravelly-cobbly conglomerates, aleuritic sandstones, marls, coal shales, and coals.

The main mineralization in the deposit is concentrated in the sediments of the Belorechsky Graben near the western border of the basin. Within the framework of the Paleogene sedimentary basin, several superimposed high-metamorphic complexes, Mesozoic shales, and aplitoid granites (Rozinski type) can be distinguished.

The sediments exposed on the surface are part of the Krumovgrad Group (undivided), the breccia conglomerate association (Podrumchenska Formation), and the coal-bearing sandy association (conglomerate-sandstone association).

The Alpine ore deposits within the Eastern Rhodope Ore Region are grouped into five formation types of mineralization:

- Pre-Paleogene: chalcopyrite-pyrite with gold;
- Paleogene: quartz-pyrolusite, quartz-gold-polymetallic, quartz-gold-adular (low-sulfide);
- Neogene: quartz-antimonite with gold.

The leading mineralizations for the area are quartz-gold-polymetallic and quartz-gold-adularia.

Quartz-gold-polymetallic mineralization is closely related to monzonite hypabyssal intrusions, post-plutonic dikes, and rhyolite-andesite depressions (Kolkovski, 1994). The ore bodies are quartz-sulfide veins, vein-like zones, or linear shocks. Five mineral types are distinguished within the formation:

- quartz-pyrite-chalcopyrite with bismuth sulphosalts - Madzharovo, Popsko;
- quartz-hematite-chlorite with gold - Madzharovo, Spahievo;
- quartz-polymetallic with chalcopyrite - Madzharovo, Popsko, Zvezdel-Pchelojad;
- quartz-barite-sulphate with gold - Zvezdel-Pchelojad, Madzharovo, Popsko.

The increasingly important role of quartz-gold-adularia, sulphide-poor mineralization within the Eastern Rhodope ore district is being established. Its characteristic features are its genetic connection with subvolcanic bodies, mainly silicic with basalt-latite composition. It is controlled by submeridional faults. Four mineral types have been identified:

- quartz-pyrite - Sarnak;
- gold-adular with hematite - Sarnak, Sedefche; Chala;
- gold-quartz-pyrite - Rozino;
- gold-quartz-adularia - Madzharovo, Krumovgrad.

The regional geological position of the Rozino deposit is interpreted as a series of small Paleogene syn-tectonic extensional sedimentary basins within the Belorechensky metamorphic core complex. The tectonic situation in the complex is of a complex extensional nature, with a main north-western direction and right-lateral kinematics of the main structures. One of the main fault disturbances is the so-called Belorechenska shear zone, which can be traced regionally for more than 15 kilometres. Numerous north-eastern fault disturbances have also been identified, which limit the sedimentary basin in its north-western part, and according to drilling data, the Tashlaka fault has been identified. Numerous northeast-trending fault disturbances have also been identified, which limit the sedimentary basin in its northwestern part, and drilling data has identified the Tashlushki fault, on which the telethermal zone of change is located.

The main lithological units containing gold mineralization in the deposit are breccia conglomerate/sandstone sediments and, to some extent, olistostromal blocks, metagranite, and ultrabasic rocks from the upper variegated complex. The breccia conglomerate association is the main host medium of the mineralization and lies

transgressive or along a low-angle fault separating it from the basement with a thickness of up to 200 m. The unit consists of alternating coarse, often unbedded, unstratified conglomerates of polymict breccia, sandstones, siltstones, and clay interbeds. A large olistostrome body with a length of 800 m, a width of 350 m, and a thickness of 170 m has been identified in the basin, which most likely slid along the fault surface of a listric fault during sedimentation. It consists of black-gray low-metamorphic shales and phyllites, which are strongly folded with abundant organic material content.

The vein-speckled gold-silver (polymetallic) mineralization is closely related to the Paleogene sedimentary complex, composed of unsorted breccia conglomerates, sandstones, and gravelites, as well as by olistostromal shales genetically related to the sediments and formed under similar sedimentation conditions. No other significant mineralization has been identified within the sedimentary basin, with the exception of isolated quartz and, more rarely, amethyst veins and pyrite veins. These occurrences have no or insignificant gold and/or silver content and are of no economic interest.

Polymetallic sulfides (chalcopyrite, sphalerite, and galena) occur locally in the sediments in the contact zone with the basement. The zone is composed of unconsolidated tectonic clay, consisting mainly of chlorite, ankerite, adularia, and muscovite, in which the sulfides are randomly scattered. The mineralization is characterized by extremely uneven distribution.

Geochemical analyses of soil samples, drill core samples, and natural outcrops covering both ore and host lithologies do not show any exceedances of heavy metal and radionuclide concentrations above the regulatory reference/maximum permissible values. In view of this, no adverse geochemical processes such as acid drainage and/or secondary mobilization of metals are expected at this stage.

Morphology of ore bodies

The main morphogenetic type of industrial significance in the Rosino section is the vein-sprayed type of mineralization developed in the Paleogene sediments. The ore bodies have a complex morphology, which can be conditionally divided into steep and gentle. The steep bodies are developed near the contact between the sediments and the bedrock within the range of a north-northeast fault bundle. The gentle ore bodies are often buried and have no clear connection with fault structures. In these cases, the permeability and geochemical characteristics of the host rocks play a major role in ore control. Rare vein-type ore bodies are embedded in the rocks of the metamorphic basement. The bodies are subhorizontal to slightly inclined according to the dip and are always associated with the ore-bearing structure.

Three morphogenetic types of mineralization can be identified in the Rosino deposit: vein-sprayed, vein, and vein (gold-silver-polymetallic veins).

The steep bodies are developed near the contact of the sediments with the bedrock within the range of the north-northeast fault bundle – the Tashlushki fault – limiting the Paleogene sedimentary basin from the northeast. Along the fault contact zone, there is extremely rich mineralization (bonanza type) in which, together with gold, chalcopyrite, sphalerite, and galena are locally deposited. This mineralized shear zone has been traced along its length for a distance of 300 m, with the distribution of gold mineralization being very uneven, both laterally and vertically.

In the morphogenetic type of mineralization - vein and vein-like - they are observed both within the steep and sloping ore bodies described above, and independently, forming intersecting ore bodies. These ore bodies are best represented in the north-northeast pre-contact flank of the sedimentary basin, where they form a strip up to 80 m wide with a general direction of 130-150 degrees. Veins, veins, and vein bundles are observed on the surface and in boreholes.

The veins (especially those with fracture brecciation and silicification) show spatial correlation with a tectonically pronounced direction of 130-150 degrees. Many veins with voids and open spaces appear to occupy steep sections of extension near the faults, while others are subparallel to the faults. Observations on the veins show the following:

- Quartz-(carbonate)-pyrite-marcasite veins and quartz-(carbonate)-adularia veins are usually hollow and have significant open spaces. Crustiform, chalcedony-like, and moss-like textures are present;
- The pyrite, +/- quartz, veins have a similar orientation to the quartz veins, with most dipping at a moderate angle to the SW to SSW;
- Carbonate veins appear paragenetically late and dip at a moderate to steep angle to the SW, subparallel to late faults with a NW-SE orientation.

General mineral and chemical composition of the ores

In almost all samples, randomly mixed clasts of various sizes are observed, ranging from grains measuring 4-62.5 μm (represented by angular, single-grain particles) to clasts measuring up to several centimeters, forming oversaturated conglomerates and breccias. The clasts are represented by an allochthonous mixture mainly of quartzites, milonitized quartzites, feldspar quartzites, mica schists (often graphite-bearing), phyllite schists, and granular muscovite-bearing fragments. The cement is almost always composed of a finer-grained mixture of the same minerals that make up the clasts, i.e., mainly quartz, muscovite, and feldspar. In many samples, finely spattered hematite/limonite and/or pigmentation from iron hydroxides are observed. All samples contain disseminated allotropic rutile grains, observed both in the clasts and in the cement. Garnet grains are sometimes observed.

The mineralization in the Rozino deposit is of the low-sulfide epithermal gold-silver type, distributed in a Paleogene sedimentary complex composed of breccia conglomerates, sandstones, and gravelites. The main ore mineral is pyrite, which occurs in veins and disseminated in the quartz-carbonate gangue/non-ore mass. In

limited quantities of chalcopyrite, sphalerite, and galena have been found, but their contents are low and of no economic significance.

Gold occurs mainly along the boundaries of pyrite grains and in microfractures, very rarely as freely visible grains. Silver is present in trace amounts, usually associated with pyrite and silver inclusions in sulfide minerals (e.g., galena) and gold (electrum).

Gangue minerals are mainly quartz, iron carbonates (ankertite) and rarely adularia, with the participation of chlorite and muscovite. The hydrothermal alteration zone is characterized by a quartz-carbonate and chlorite-adularia association, typical of low-temperature epithermal systems.

According to the results of laboratory tests, the waste rocks are classified as environmentally harmless, with no potential for acid drainage (non-acid-generating) and non-hazardous according to the criteria for classification of mining waste.

Data from chemical analyses of a composite sample characterize the ore as gold-bearing (1.28 g/t Au), with a minimum content of Ag - 2 g/t and other useful components (Cu - 48 g/t; Pb - 28 g/t, Zn - 74 g/t). The contents of potentially harmful elements in the ore (As - 125 g/t; Cr - 54 g/t; Cd <1 g/t) are insignificant and are not expected to affect the quality of the final products.

Only the extraction of silver has been assessed, which, due to the low Ag content in the incoming composite sample and the low value of the metal, the analyses are only for end products, from which it is evident that the extraction achieved is below 50%, which is economically insignificant compared to gold.

The Rozino deposit contains gold-silver mineralization with a secondary presence of polymetallic sulfides, which is why the combined name "polymetallic (gold-silver)" is used in various parts of the documentation. The term reflects the mineralogical composition but does not imply complex extraction of metals other than gold and, to a lesser extent, silver.

The mineral composition is dominated by pyrite, with smaller amounts of chalcopyrite, sphalerite, and galena. These minerals occur locally and are found in low concentrations that are not economically significant.

Data from chemical analyses of a composite sample characterize the ore as gold-bearing (1.28 g/t Au), with minimal content of Ag (~ 2 g/t) and other useful components (Cu - 48 g/t; Pb - 28 g/t; Zn - 74 g/t). The contents of potentially harmful elements (As - 125 g/t; Cr - 54 g/t; Cd < 1 g/t) are insignificant and are not expected to affect the quality of the final product.

Only silver extraction has been evaluated, which, due to its low content in the input composite sample, has been considered only in the final products. The silver extraction achieved is less than 50%, which is economically insignificant compared to gold.

Therefore, the term "polymetallic" is used in a descriptive geological sense to reflect the presence of various sulfide minerals, but the classification of

the deposit is "gold-silver", as only these elements are of economic importance in the planned processing technology.

The Rosino deposit is classified as gold-silver, but silver is of secondary and non-economic importance, which is why it is not included in the calculations of reserves and resources presented in the geological report to the Ministry of Energy and approved by the SEC. In response to comment 4.3.3 regarding the description of the ore, the presence of silver, control of the flotation process, and potential environmental risks, we provide the following clarification:

The Rosino deposit is classified as gold-silver, but silver is of secondary and uneconomic importance and is therefore not included in the calculations of reserves and resources presented in the geological report to the Ministry of Energy and approved by the SEC.

The data from the chemical analyses of the composite sample characterize the ore as gold-bearing (1.28 g/t Au), with a minimum content of Ag – 2 g/t and other useful components (Cu – 48 g/t; Pb – 28 g/t; Zn – 74 g/t). The contents of potentially harmful elements (As – 125 g/t; Cr – 54 g/t; Cd < 1 g/t) are insignificant and are not expected to affect the quality of the final product.

The silver content is too low to be considered an economic indicator, especially since laboratory tests show very low extraction (< 50%) and uneven distribution in the ore. Its presence does not affect the economic parameters of the reserve and resource assessment. Silver may be considered an additional positive component in the subsequent processing of the concentrate (production of gold-silver-containing doré), but at this stage it has no significant economic value.

The project envisages the production of gold-bearing flotation concentrate only, with gold being the main economically useful component. The target gold concentration in the final concentrate is 22–30 g/t, depending on the content in the source ore and the parameters of the flotation process. The process will be controlled through regular laboratory analyses of the ore, intermediate and final products, using atomic absorption or ICP methods to determine the content of precious metals.

With regard to the environmental risk associated with pyrite in waste, the results of ARD (Acid Rock Drainage) analyses show a negative ability to generate an acidic environment, as the pyrite content in the flotation tailings is insignificant. According to the results of geochemical tests, the waste materials are classified as harmless, non-acid drainage generating, and non-hazardous. Therefore, no adverse geochemical processes are expected and there is no risk to the environment under the planned waste management.

Form of gold presence in the ore and its relationship to the selected enrichment technology:

Form of gold presence

The ores from the Rosino deposit are of the low-sulfide epithermal gold-silver system type, in which gold is predominantly associated with sulfides, mainly

pyrite (at grain boundaries and in microcracks). Free gold (native or ejecta) is rare and has been observed sporadically in individual samples during previous specialized studies.

There is no contradiction between the statements "native gold has not been found" and "native gold has been found in single samples" as they reflect different analytical sensitivity and representativeness of the methods used. Petrographic and mineralogical observations often do not detect submicron/fine free gold, while specialized analyses can register individual grains. In summary: most of the gold is "bound to sulfides" and not free.

Enrichment method by flotation, connection with mineralogy

The target mineral for enrichment is pyrite, as it is the main carrier of gold. Therefore, the final product of enrichment is a pyrite flotation concentrate enriched with gold.

This also determines the expected characteristics of the product - gold-bearing pyrite concentrate with a target content of about 22-30 g/t Au, in which the gold is "concentrated" together with the pyrite separated by flotation. Silver and non-ferrous metals are present in low and uneven concentrations and do not determine the enrichment process flow.

Verification and control of the form of gold presence in the final product:

- *Analytical laboratory methods (performed/planned):*

- Phase analysis (step cyanide/thiocyanate/thiosulfate tests) to distinguish between free gold, gold in aggregates with other minerals, and gold locked in sulfides.

- QEMSCAN/MLA (Mineral Liberation Analysis) for quantitative assessment of gold-bearing minerals (pyrite, electrum), degree of liberation, and gold associations.

- Flotation tests (open and closed cycles) for assessment of extraction/losses and stability of parameters for optimal extraction of gold and silver.

- *Operational control and reporting:*

- Routine fire assay analyses of ore, intermediate products, concentrate, and flotation tailings, with technological balance kept on a daily/weekly basis.

- Monitoring of sulfur (total and sulfide sulfur), assessment of pyrite content (calculated and/or by MLA), Eh/pH, reagent regime (collector/depressor), flotation time, and granulometry.

- Confirmation of target enrichment stability (22–30 g/t Au) through periodic reference samples and cross-analyses (AAS/ICP versus assay analysis).

Metal losses and environmental aspect

Test results show high Au recovery ($\geq \sim 85\%$) and low/uneconomic Ag recovery ($< \sim 50\%$), which corresponds to the low average content and uneven distribution of silver in the ore.

Since the Au carrier (pyrite) is removed in the concentrate, the residual pyrite in the flotation tailings is very low, which is key to limiting the risk of acid rock drainage (ARD). Data from ARD (static/kinetic) tests classify the flotation tailings as non-hazardous and non-acid-generating, therefore no adverse processes such as acid drainage or metal mobilization are expected under the planned waste treatment and management regime.

Summary

The form of gold presence in the Rosino deposit is predominantly gold associated with sulfides (pyrite), with rare free gold (including electrum). Therefore, the selected technology—flotation targeting pyrite—is technologically sound and leads to gold-bearing pyrite (sulfide) concentrate as the expected end product. The planned control methods and available results confirm the economically significant extraction of Au and low environmental vulnerability of the flotation waste.

Veins

Veins are common in the intervals studied. Vein mineralization is mainly represented by ankerite with a little quartz. Microscopically, many veins are surrounded by a band of idiomorphic quartz and sometimes adularia, while ankerite generally occupies the central part of the veins. Sometimes the vein quartz forms crystals in the shape of dog teeth, typical of low-pressure growth in a pull-apart fault. While most fractures are narrow and completely sealed with quartz and ankerite, others are wider and more porous, indicating the filling of voids and cavities.

A small number of narrow veins are composed solely of quartz. Thin veins of fine-grained orthoclase (adularia) are also rarely found in the series.

In areas where the host rock remains sufficiently compacted, there is a noticeable increase in the frequency of narrow microveins with adularia. Several generations of veins have been noted.

Pyrite-bearing solutions have penetrated the ultramafic rocks of the basement, partially replacing the outer peripheral parts of the magnetite grains and filling the narrow cracks in the host rock. In general, the central parts of the magnetite grains remain unaffected. This feature seems to indicate that the pyrite mineralization is, at least in part, due to the intrusion of iron-rich sulfides into the rock. No pyrite veins are observed in the rocks above the contact with the basement.

Sulfide mineralization

Pyrite occurs throughout the series, in most cases in the form of single idiomorphic to subidiomorphic grains or groups of a few grains scattered in the cement of the host rocks. It also occurs in the form of recrystallized grains attached to the outer peripheral parts of the clasts. The clasts include

A very small number of pyrite grains. In the central areas of many pyrite grains, numerous fine or small platy mica grains are entrapped, while on the outer peripheries there are fewer inclusions, which appears to represent later pyrite overgrowth of the grains. Pyrite is rarely associated with veins, but in areas where quartz-ankerite veins intersect pyrite grains, they have been remobilized and recrystallized in the form of pockets in or near the vein. It has been noted that in rare cases in some quartz-ankerite veins, gold grains form inclusions in the remobilized and/or recrystallized pyrite. It appears that most of the pyrite was formed during diagenesis and was partially altered during late recrystallization and overgrowth during hydrothermal activity. Many pyrite grains have been corroded by the altered material in the cement.

The basement beneath the contact zone is affected by low-temperature pyrite formation, which partially replaces magnetite and fills small cracks in the rock. The pyrite is millerite pyrite, formed at low temperatures.

Polymetallic sulfides are developed locally in the sediments in the contact zone with the foundation. Essentially, this zone is composed of unconsolidated tectonic clay (mainly chlorite, ankerite, adularia, and muscovite), in which the sulfides are randomly scattered—i.e., they are not observed in the form of veins or in cracks, but it is possible that they were in such a form before the fracture. They are represented by chalcopyrite, sphalerite, and galena, which are usually closely associated and in most cases intergrown. Any association with pyrite appears to be more accidental than due to a causal relationship. Only a small number of grains of polymetallic sulfides are associated with pyrite and appear to be genetically related. In these cases, the pyrite is usually more anhedral and intergrown with sphalerite and chalcopyrite than idiomorphic-subidiomorphic. In cases where polymetallic sulfides are associated with the more common idiomorphic pyrite, chalcocite, sphalerite, and galena are generally attached to the outer peripheries of the pyrite grains rather than growing with them. It appears that in some cases, polymetallic sulfides formed at a later stage have assimilated existing pyrite grains. Gold is often associated with chalcopyrite, sphalerite, and galena, forming small, rounded or ovoid inclusions and growths in these minerals, but very rarely with pyrite. Rare splashes of chalcopyrite are observed throughout the series. No change of chalcopyrite to covellite, digeneite, or chalcocite has been observed.

Gold mineralization

Although gold contents are somewhat anomalous throughout most of the series, visible microscopic gold has been found only in isolated samples. Most of the data on the behavior of gold is derived from samples with hurricane-like contents, where gold is associated with chalcopyrite, sphalerite, and galena in the form of small sprouts and inclusions with rounded shapes in the minerals and at the peripheries of the grains. Rare gold grains occur as "free" gold at the contacts between the silicate and/or carbonate grains that make up the rock matrix, and a small number of grains are observed as inclusions in pyrite.

5. Landscape

According to the European Landscape Convention, it plays an important role in the cultural, ecological, and social spheres and represents a resource that promotes economic activity, whose protection, management, and planning can contribute to the sustainable development of society and improve the quality of life.

It is defined as "a territory whose specific appearance and elements have been created as a result of the actions and interactions between natural and/or human factors."

According to the definitions adopted in the country, "landscape is a territorial system composed of interacting natural and anthropogenic components and complexes" and represents a system that contains and reproduces resources, preserves the geofund, and is a source of aesthetic impact.

Landscape sustainability is a category that reflects the constancy or immutability of the landscape over time. It is considered as resistance to the magnitude of the impact affecting the structure of the landscape, as well as its ability to continue developing in one direction while preserving its natural or acquired properties for a certain prognostic period.

The landscape in the IP area is not affected by anthropogenic factors. There are no asphalt roads, industrial enterprises, storage facilities, etc. It is located in the Eastern Rhodopes-Sakar region, according to the Regional Differentiation of Landscapes in Bulgaria (Velchev, Todorov, Penin, 2002).

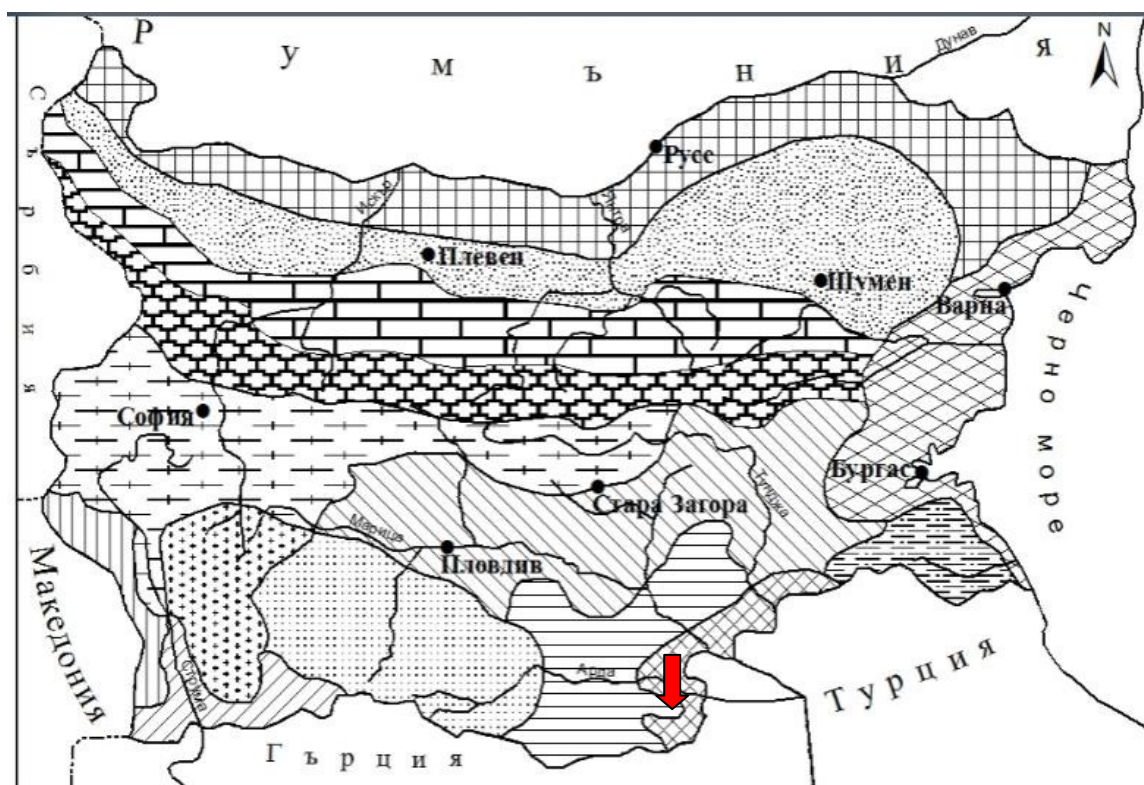


Figure No. IV.5-1. Location of the IP and Regional Differentiation of Landscapes in Bulgaria (Velchev, Todorov, Penin, 2002).

The most important characteristics are as follows:

- covers the Eastern Rhodopes, Sakar, and the lower reaches of the Maritsa, Tundzha, and Arda rivers;
- has a strong Mediterranean influence;
- in some places there is increased anthropization;
- the relief is low mountainous and hilly.

6. Flora and fauna. National ecological network

6.1. Flora and fauna

Flora

According to the geobotanical zoning of Bulgaria (Bondev 2002), the IP falls within the Krumovgrad region of the Eastern Rhodope district of the Macedonian-Thracian province, which covers the relatively warmest areas of the country. The Eastern Rhodope district occupies the Eastern Rhodopes and part of the Thracian Plain – the area between Asenovgrad, Pervomai, Haskovo, and Dimitrovgrad. It is characterized mainly by xerothermic vegetation, consisting of formations of oak, hairy oak, and Virgil's oak. In the southernmost and southwestern parts of the district, there are also formations of Miziya beech, common and eastern hornbeam, and, less frequently, oak. In the western part of Zhelty Dal, there are also birch forests. Many of the forests are depleted and are gradually being invaded by more resistant species, forming secondary forests of kelia oak and shrub formations of dracaena, red juniper, or grass formations dominated by sadina, belizma, and therophytes. The district is rich in flora. The largest number are Macedonian-Thracian (37 species), of which 27 are Balkan and 10 are Bulgarian endemics. Mediterranean species are relatively numerous (11 species), while Illyrian (3 species), steppe (3 species), and Euxine (2 species) flora elements are less common. Macedonian-Thracian Bulgarian endemics are: *Quercus thracica*, *Saponaria stranjensis*, *Medicago rhodopaea*, *Valerianella pontica*, *Verbascum adrianopolitanum*, *V. humile ssp. rhodopaeum*, *Onosma thracica*, *Tulipa rhodopaea*, *Muscari vandasii*. Balkan endemics from the Macedonian-Thracian flora elements are: *Minuartia garckeana*, *Moenchia graeca*, *Silene frivaldskyana*, *S. scorpilli*, *Hypericum thasium*, *Genista rumelica*, *Linum thracicum*, *Stachys milanii*, *Campanula scutellata*, *Nonea atra*, *Verbascum ovalifolium*, *Celsia roripifolia*, *C. rupestris*, *Malabaila aurea*, *Stachys balcanica*, *S. alpina ssp. bulgarica*, *Tnymus atticus*, *Salvia ringens*, *Verbascum humile*, *Knautia ambigua*, *Anthemis tenuiloba*, *Haberlea rhodopaensis*, *Senecio macedonicus*, *Fritillaria pontica*, *F. stribrnyi*, and *Crocus olivieri*. Steppe species include *Paliurus spina-christi*, *Phlomis herba-ventis ssp. pungens*, *Tamarix ramosissima*, Euxine elements include *Lathyrus aureus* and *Quercus erucifolia*, and Mediterranean elements include *Stipa pontica*, *Asparagus acutifolia*, *Quercus coccifera*, *Silene cretica*, *Platanus orientalis*, *Eriolobus trilobata*, *Trifolium tenuifolium*, *Cnicus benedictus*, *Achnatherum bromoides*, *Arbutus unedo*, *A. andrachne*, and *Medicago bondevii*. The Krumovgrad area is characterized by a great diversity of vegetation - xerothermic oak and oak-cerris forests and xeromesophytic hornbeam and mixed hornbeam-cerris forests, with some of the hornbeam forests being eastern hornbeam. In the southern part of the region, there are also forests of Miziya beech, and in some places there are individual trees and groups of trees of eastern beech. In the beech forests, the evergreen relict shrub and small tree - the common juniper - can also be found. Only in this region can the rare

species of Thracian oak (*Q. thracica*) and Yuruk mullein (*Verbascum humile ssp. juruk*) can be found. Only here have the species *Eriolobus trilobata*, *Arbutus unedo*, and *A. andrachnae* been found so far.

The study area is characterized by a relief dominated by southern exposures or those with a southern component. The forest communities are composed of xerothermic species such as hornbeam, oak, and downy oak. The tree communities are various oak communities that have formed in this place over the years under conditions of intensive logging. In some places, there are also shrub communities – mainly Oriental hornbeam (*Carpinus orientalis*), prickly juniper (*Juniperus oxycedrus*), and Christ's thorn (*Paliurus spina-christi*). The grassy vegetation has formed mainly on land that was formerly tobacco fields, abandoned over the years for various reasons. These areas show partial overgrowth, depending on the length of time they have been abandoned by tobacco cultivation. Artificial black pine and white pine plantations are often found in poor condition—a large proportion of the trees are infested with parasites, and many of them (almost 40%) are completely or partially dried out.

As a result of field studies in the study area (SA) – a buffer zone of 700 m from the boundaries of the two mines, plus 110 m from the boundaries of all elements of the IP (see point VIII for details) – 11 habitats were identified, classified according to EUNIS (Davies et al. 2004), of which 5 are included in Annex 1 of the Biodiversity Act and are subject to protection in the Protected Area (PA) "Rhodopes – East" (Table IV.6.1-1, Annex V.1.1-1 of the EIA).

Table IV.6.1-1. Habitat types in the study area (SA) and within the boundaries of direct impact (DI). EUNIS – EUNIS code; App. 1 – code according to Annex 1 of the Biodiversity Act (* - priority habitat).

No	EUNIS	Habitat	App. 1	Area IR /ha	Area IP /ha
1	C2.31	Upper reaches of permanent, slow-flowing rivers and streams		0.936	0.23
2	E1.22	Semi-natural dry grasslands and scrubland communities on calcareous substrates (<i>Festuco Brometalia</i>) (*important orchid sites)	6210	15.9168	1.5202
3	E5.2	Meadows		4.6917	0.8978
4	F5.13	Scrub with <i>Juniperus</i> spp.	5210	0.9151	0.91
5	F5.31	Hellenic-Balkan pseudomacquerel		3.3069	0.00
6	G1.737	Eastern forests of downy oak	91AA	148.1712	17.3182
7	G1.76	Balkan-Pannonian oak-hornbeam forests	91M0	400.0661	95.1278
8	G3.F1	Coniferous crops		74.0565	28.7337
9	G5.81	Recently cut areas, former broadleaf forests		14.0200	0.8712
10	H3.6	Silicate rocks with pioneer vegetation of the <i>Sedo-Scleranthion</i> or <i>Sedo albi-Veronicion dillenii</i> alliances	8230	0.261	0.000
11	H5.61	Unpaved roads		2.1820	0.9593

C2.31. Upper reaches of permanent, slow-flowing rivers and streams

We have included the middle course of the Yurendere in this habitat type, even though it dries up during the hot summer months. This fact, as well as its rocky bottom, determines the complete absence of macrophytic vegetation. No conservation value.

E1.22. = 6210() Semi-natural dry grasslands and scrubland communities on calcareous substrates (Festuco Brometalia) (*important orchid sites).*

These are communities with great floral diversity, with representatives of the genera *Festuca* and *Bromus*, as well as *Chrysopogon gryllus*, occupying a major place in the composition of the grasslands. Species such as *Dorycnium herbaceum*, *Teucrium chamaedrys*, *Sanguisorba minor*, *Eryngium campestre*, *Dactylis glomerata*, *Poa bulbosa*, *Convolvulus cantabrica*, *Cistus incanus* and many others are also found. In some places there are single specimens of shrubs - *Juniperus oxycedrus*, *Rosa canina*, *Paliurus spina-christi*, but their presence does not exceed 2-5% of their area. The habitat is included in Appendix 1 of the Biodiversity Act and is subject to protection in the Rhodopes-East Special Protection Area.

E5.2. Meadows.

It occupies 8 polygons of grassland habitats, with an area of less than 1.5 ha (polygons with a larger area are classified as E1.22), mainly in the northeastern part of the IR. These are forest meadows (Fig. IV.6.1-1), similar in floristic composition to habitat E1.22, but with less floral diversity and a better represented non-moral component – e.g. *Geranium pyrenaicum*, *Verbascum blattaria*, *Ranunculus velutinus*, *Luzula sp.*, *Lappula squarrosa*, *Stellaria media*, *Melica uniflora*, *Galium pumilum*, etc. The participation of single shrubs and trees is also increased. The habitat has no conservation value.



Figure IV.6.1-1: Habitat E5.2.

F5.13. = 5210 Juniper scrub.

It occupies one polygon in the northern part of the IR. These are coniferous groups dominated by *Juniperus oxycedrus* (Fig. V.1.1-3), which occupy areas mainly along oak communities and are often a succession stage in the transition between grassland and forest habitats. They prefer shallower and skeletal soils that form on the periphery of forest communities. When the groups are dense, there is nothing between the coniferous specimens, while in cases where they are more "sparse," grassy complexes settle between them, which have the same species composition that is typical of the surrounding areas occupied by polygons of natural habitat 91AA. The following plant species have been identified in their composition: *Chrysopogon gryllus*, *Dactylis glomerata*, *Rosa sp.*, *Gypsophila muralis*, *Tragopogon sp.*, *Sanguisorba minor*, *Quercus sp.*, *Carpinus orientalis*, *Pyrus amygdaliformis*, *Hypericum olympicum*, *Eryngium campestre*, *Anthemis sp.*, *Paliurus spina-christi*, *Cistus incanus*, *Rubus sp.*, *Ranunculus sp.*, *Muscari sp.*, *Petrorhagia velutina*, *Rumex sp.*, *Convolvulus cantabrica*, *Alium sp.*, *Galium aparine*, *Calamintha nepeta*, *Lolium perenne*, *Achillea millefolium*, *Achillea chyeolata*, *Trifolium arvense*, *Dorycnium herbaceum*, *Vicia sp.* The habitat is included in Appendix 1 of the Biodiversity Act and is subject to protection in the Rhodopes-East Special Protection Area.

F5.31. Helleno-Balkan pseudomacchia

It occupies a polygon in the southwestern corner of the IR. These are shrubby groups (Fig. IV.6.1-2), occupying a limited area with skeletal and fragmented soil, around rocky outcrops (habitat H3.6). They are polydominant, with the shrub layer formed by *Juniperus oxycedrus*, *Paliurus spina-christi*, *Osyris alba*, *Pistacia terebinthus*, *Phillyrea latifolia*, *Carpinus orientalis*, *Jasminus fruticans*, *Rubus sp.* Single specimens are also present.

specimens of *Fraxinus ornus*, *Quercus pubescens*, *Acer monspessulanum*, *Juglans regia*. The following plant species have been identified in the herbaceous layer: *Trifolium campestre*, *Crupina crupinastrum*, *Cyanus triumfettii*, *Campanula sparsa*, *Euphorbia* sp., *Briza maxima*, *Petrorhagia velutina*, *Sedum* sp., *Thymus* sp., *Asparagus acutifolius*, *Cynosurus echinatus*, *Chrysopogon gryllus*, *Stipa* sp., *Muscari* sp., *Tragopogon* sp., *Genista* sp., *Orlaya grandiflora*, *Melica uniflora*, *Cheilanthes marantae*, *Lolium perenne*, *Anthemis* sp., *Cruciata pedemontana*, *Gypsophila muralis*, *Cistus incanus*, *Poa bulbosa*, *Sanguisorba minor*. The habitat is included in the Red Book of Bulgaria with the category "potentially endangered" (Biserkov 2011). It is not affected by the IP.



Figure IV.6.1-2: Habitat F5.31.

G1.737. = 91AA Eastern forests of downy oak.*

These are sparse oak forests with skeletal, shallow soils. Rock blocks of various sizes are often exposed. Climatic conditions and anthropogenic influence (grazing and various types of logging) are the reason why they are fragmented and sometimes have a shrubby appearance. The tree layer is at a height of about 4-5 m, with an average diameter at breast height of about 25-28 cm. The slope is about 4-5. This layer is made up of various species of oak, dominated by downy oak (*Quercus pubescens*). Other species include the Hungarian oak (*Quercus frainetto*) and the Turkey oak (*Quercus cerris*), and in the higher parts, the American white oak (*Quercus dalechampii*). The shrub layer includes prickly juniper (*Juniperus oxycedrus*), tree pea (*Colutea arborescens*), dogwood (*Cornus sanguinea*), smoke tree (*Cotinus coggygria*), and others. The species composition of the ground layer is relatively rich. The habitat is included in Appendix 1 of the Biodiversity Act and is subject to protection in the Rhodopes-East Special Conservation Area.

G1.76. = 91M0 Balkan-Pannonian oak-hornbeam forests.

This is the predominant habitat within the study area, occupying just over 60% of it. In terms of composition, these forests are very similar to the previous habitat, but are more mesophilic in nature, which is reflected in both the tree and herb layers. *Quercus cerris* and/or *Quercus frainetto* dominate. *Quercus pubescens* and *Carpinus orientalis* also occur, and in the higher parts, *Quercus dalechampii*, *Carpinus betulus* (*Carpinus betulus*) also participate. As in the previous habitat, these are relatively young, coppiced forests, but the canopy is larger. There is no shrub layer – there are individual specimens or small groups of dogwood (*Cornus sanguinea*), hawthorn (*Crataegus monogyna*), etc. The species composition of the ground layer is relatively rich, but its projective cover is low – about 20-25%. Many of the oak trees are infected with European mistletoe (*Loranthus europaeus*). The communities on the right slope in the lower part of Yurendere are an exception. They are in very good habitual, physiological, and phytosanitary condition. The tree stand has an uneven horizontal structure, which is a result of past logging. It consists mainly of Turkey oak (*Quercus cerris*) and Hungarian oak (*Quercus frainetto*), with a few specimens of downy oak (*Quercus pubescens*). There are also small trees of Hyrcanian maple (*Acer hyrcanum*), manna ash (*Fraxinus ornus*), as well as cornel (*Cornus mas*), rowan (*Sorbus aucuparia*), walnut (*Juglans regia*) and Montpellier maple (*Acer monspessulanum*). The diameter of the oak trees at chest height varies from 60 cm to 110-120 cm, and their height reaches 16-18 m. The dominant trees develop powerful crowns, which is why the canopy of the tree layer is high – 9-10 m. The soil surface is densely covered with fallen leaves, which, combined with the high canopy cover of the forest, is the reason for the poorly developed herbaceous layer. The total projective cover of grass species does not exceed 10-15%, with small patches of grass vegetation forming in places that are illuminated. The proximity of the river increases the air humidity under the canopy of the trees, which is the reason for the more abundant development of epiphytic vegetation – vines: wild clematis (*Clematis vitalba*) and ivy (*Hedera helix*). This is also the reason for the development of small clumps of prickly mouse ears (*Ruscus aculeatus*). The habitat is included in Appendix 1 of the Biodiversity Act and is subject to protection in the Rhodopes-East Special Protection Area.

G3.F1. Coniferous crops.

These are artificial plantations of Scots pine (*Pinus sylvestris*) and/or black pine (*Pinus nigra*) aged about 55-60 years. Their phytosanitary condition is quite poor - most of the visited plantations are drying up. Their vertical structure is simple – a tree layer (about 8–10 m high, with tree trunks about 35–40 cm in diameter) and a ground layer of grasses, consisting of single specimens of *Dactylis glomerata*, *Rosa canina*, *Rubus caesius*, *Crataegus monogyna*, etc. (Fig. IV.6.1-3). The habitat has no conservation value.



Figure IV.6.1-3: Habitat G3.F1.

G5.81. Recently cleared areas, former broadleaf forests

The habitat occupies four polygons spread across the western part of the IR. All clearings are located on the site of oak forests – habitats 91AA and 91M0. The first stages of succession are characterized by abundant formation of coppice thickets of tree species (*Quercus pubescens*, *Quercus cerris*, *Quercus frainetto*) and some pioneer shrub species, e.g. *Juniperus oxycedrus*, *Rosa sp.* *Rubus sp.*, etc. No conservation value.

H3.6. = 8230 Silicate rocks with pioneer vegetation of the Sedo-Scleranthion or Sedo albi-Veronicion dillenii alliances

These are four very small polygons located in the southwestern corner of the IR. They consist of silicate rocks almost devoid of vegetation, which grows only in rock crevices or on limited flat areas. Lichens dominate. The species richness is relatively high (given the limited area and nature of the substrate) – *Cistus incanus*, *Umbilicus rupestris*, *Scleranthus annuus*, *Satureja sp.*, *Sedum sp.*, *Alyssum sp.*, *Briza maxima*, *Sesleria sp.*, *Cerinthe minor*, *Festuca sp.*, *Allium sp.*, *Cardamine graeca*, and *Geranium sp.* The habitat is included in Appendix 1 of the Biodiversity Act and is subject to protection in the Rhodopes-East Special Protection Area. It is not directly affected.

H5.61. Unpaved roads

The wider forest roads are mapped as such, with one crossing the IR in a south-southeast direction and another running north-south and reaching the center of

western part. The narrower/more overgrown forest roads form a dense network in the area, but are not mapped as such. No conservation value.

Plant species with higher conservation value

According to available data (Asov et al. 2012, Peev 2011, Petrova 2004) and our field studies, including in other parts of the Eastern Rhodopes, and taking into account the biology of the respective species, the following plants with higher conservation value (included in Annexes 2 and/or 3 of the Biodiversity Act or in the Red Data Book of Bulgaria) can be found in the IP area:

Black Sea fritillary (Fritillaria pontica)

Widespread in northeastern and central northern Bulgaria, central and eastern Stara Planina, Sredna Gora, Slavyanka, Struma Valley, Rhodopes, southeastern Bulgaria. It grows in broadleaf forests, including sparse ones, and shrublands, up to 1500 m above sea level (Asov et al. 2012, Stoyanov et al. 1966, personal observations). The species is relatively common in the Eastern Rhodopes, with numerous and stable populations (Petrova 2004). During field studies, it has been recorded outside the IR, as well as in other places in the Eastern Rhodopes. Its presence in the IR, including within the boundaries of the IP, cannot be ruled out. The species is included in Annex 3 of the Biodiversity Act.

Lizard orchid (Himantoglossum caprinum)

It is found in limited numbers throughout the country, up to 1100 m above sea level. It is relatively more common in the karst areas of the Pre-Balkan, Stara Planina, Znepolski region, and Eastern Rhodopes. It is found in open, sunny places, more often on calcareous stony soils, on poorly used pastures, among shrubs and forest glades in light broadleaf forests, including among strips of trees along roads, scree slopes, and dunes overgrown with broom (Peev 2011, personal observations). The species is registered in the southern part of the IR, in a sparse section of habitat 91M0, more than 600 m from the boundaries of the IP. The species is included in the Red Book of Bulgaria with the category "Vulnerable" and in Annexes 2 and 3 of the ZBR. It is subject to protection in the Rhodopes-East Special Conservation Area. The impacts on it will be considered in the EIA.

Limodorum abortivum

It is rarely found throughout the country, up to 900 m above sea level, but we have found it in the Western Rhodopes at 1300 m (Asov et al. 2012, personal observations). We have found it in sparse forests or on the edges and clearings of dense forests, in scrub with well-represented tree vegetation, and more rarely in overgrown pastures, mainly in the oak and beech belt, in the Western Rhodopes – in spruce and spruce and white pine forests. During field studies, the species was found in the eastern part of the IR, outside the boundaries of the IP. The species is included in Annex 3 of the ZBR.

Butterfly orchid (Orchis papilionacea)

It is found sparsely throughout most of the country (except for the Danube Plain and the higher mountains), up to about 1000 m above sea level (Asov et al. 2012, Stoyanov et al. 1966). It grows in meadows, scrublands, mesophilic to xerophilic grasslands, including trampled and rocky ones. During field studies, it was found in 8 locations in the IR, in its western part,

including one site with two specimens within the boundaries of the IP. Outside the IR, west of the village of Rozino, a large population was found. The species is included in Annex 3 of the ZBR.

Autumn spiral orchid (Spiranthes spiralis)

It is found sparsely throughout almost the entire country (except for northeastern Bulgaria; it has not been found in the Struma and Mesta valleys), up to 1000 m above sea level (Asov et al. 2012, Stoyanov et al. 1966). It grows in dry grassy areas, most often trampled (pastures), including rocky ones (personal observations). We have also found it in urban green areas. During field studies in the IR, it was found in the southwestern part of the IR, outside the elements of the IP. The species is included in Annex 3 of the ZBR.

Red Anemone (Anemone pavonina)

It occurs in southern Bulgaria (except for the higher parts) and the northern Black Sea coast, up to 400 m above sea level (Asov et al. 2012). It grows in sparse forests and shrubbery, most often in communities of oriental beech (*Fagus orientalis*), oak (*Quercus pubescens*, *Q. cerris*), dracæa (*Paliurus spina-christi*), and juniper (*Juniperus oxycedrus*) (Yordanov 1970). It has not been found during field studies in the IR (we have found it repeatedly in other places in the Eastern Rhodopes), but given the availability of suitable habitats, its presence, including within the boundaries of the IP elements, is possible. The species is included in Annex 3 of the ZBR.

Rock mullein (Verbascum rupestre)

It grows in rock crevices on steep slopes, very rarely and in rocky areas, on silicate substrate (Peev 2011). It was found in one of the polygons with habitat 8230, outside the elements of the IP. It is included in Annex 3 of the Biodiversity Act and in the Red Book of Bulgaria with the category "Endangered".

Caesar's mushroom (Amanita caesarea)

It occurs in light and warm, oak and mixed broadleaf (oak, beech, chestnut) forests, on well-drained soils. It is widespread along the Black Sea coast, the Pre-Balkan, Stara Planina, Znepolski region, Vitosha region, Rila, Sredna Gora, Rhodopes, Thracian Plain, Strandzha (Peev 2011). The species was found in the easternmost part of the IR, in an oak forest (habitat 91M0), outside the elements of the IP. The species is included in the Red Book of Bulgaria with the category "Vulnerable".

Fauna

Invertebrates

To date, over 29,000 species of invertebrates have been reported in Bulgaria (out of a total of about 29,850 animal species), the vast majority of which are insects, with over 20,500 species.

The Eastern Rhodopes are characterized by an exceptionally diverse fauna, resulting from a combination of physical, geographical, climatic, and habitat features. A diversity of communities of millipedes, arachnids, and various insects has been established (Beron & Popov 2004). The fauna of water striders (Marinov 2004), orthoptera (Popov & Chobanov 2004), and ground beetles (Popov & Chobanov 2004) is exceptionally rich and well studied.

of water striders (Marinov 2004), orthopterans (Popov & Chobanov 2004), ground beetles (Guéorguiev 2004, Teofilova & Kodzhabashev 2020) and butterflies (Beshkov & Langourov 2004), many of which have a high conservation status.

According to the standard form for the Rhodopes-East Special Protection Area (under the Habitats Directive), 15 species of invertebrates included in Annex 2 of the Biodiversity Act are found there and are therefore subject to protection in the area: the thick shelled river mussel (*Unio crassus*), the white-clawed crayfish (*Austropotamobius torrentium*), the damselfly *Coenagrion ornatum*, the grasshopper *Paracaloptenus caloptenoides*, the butterflies: the large copper (*Lycaena dispar*), *Euphydryas aurinia*, the marsh fritillary (*Erigaster catax*), *Euplagia quadripunctaria*, *Dioszeghyana schmidtii*, beetles: stag beetle (*Lucanus cervus*), Alpine longhorn beetle (*Rosalia alpina*), great capricorn beetle (*Cerambyx cerdo*), *Morimus funereus*, *Osmoderma eremita* and *Probatiscus subrugosus*. These species are discussed in detail in the EIA.

The following invertebrates were identified during field studies in the IP area:

Gastropoda:	Limacidae:	<i>Limax maximus</i> Linnaeus, 1758
Decapoda:	Potamidae:	<i>Potamon ibericum</i> Bieberstein, 1808
Scorpiones:	Euscorpiidae:	<i>Euscorpius</i> sp.
Araneae:	Araneidae:	<i>Araneus diadematus</i> Clerck, 1758
Myriapoda:	Scolopendridae:	<i>Scolopendra cingulata</i> Latreille, 1829
	Glomeridae:	<i>Glomeris balcanica</i> Verhoeff, 1906
Odonata:	Calopterygidae:	<i>Calopteryx virgo</i> Linnaeus, 1758
	Aeshnidae:	<i>Aeshna cyanea</i> Müller, 1764
	Libellulidae:	<i>Crocothemis erythraea</i> Brullé, 1832
		<i>Libellula depressa</i> Linnaeus, 1758
Plecoptera:	Perlodidae:	<i>Perlodes intricatus</i> Pictet, 1841
Mantodea:	Mantidae:	<i>Mantis religiosa</i> Linnaeus, 1758
	Empusidae:	<i>Empusa fasciata</i> Brulle, 1832
Isoptera:	Heterotermitidae:	<i>Reticulitermes lucifugus</i> Rossi, 1792
	Cleridae:	<i>Trichodes</i> sp.
Coleoptera:	Carabidae:	<i>Bembidion stephensii stephensii</i> Crotch, 1866
		<i>Bembidion deletum deletum</i> Audinet-Serville, 1821
		<i>Carabus coriaceus</i> Linnaeus, 1758
		<i>Carabus intricatus</i> Linnaeus, 1761
		<i>Carabus scabrosus</i> Olivier, 1795
		<i>Cicindela sylvicola</i> Dejean, 1822
	Buprestidae:	<i>Acmaeodera degener</i> Scopoli, 1763
		<i>Capnodis tenebrionis</i> Linnaeus, 1761
		<i>Coroebus rubi</i> Linnaeus, 1767
	Lampyridae:	<i>Lampyris noctiluca</i> Linnaeus, 1767
	Cerambycidae:	<i>Cerambyx cerdo</i> Linnaeus, 1758
		<i>Rutpela maculata</i> Poda, 1761
		<i>Stenurella melanura</i> Linnaeus, 1758
	Coccinellidae:	<i>Coccinella septempunctata</i> Linnaeus, 1758
	Tenebrionidae:	<i>Gnaptor spinimanus</i> Pallas, 1781

	Lucanidae:	<i>Lucanus cervus</i> Linnaeus, 1758
	Scarabaeidae:	<i>Cetonia aurata</i> Linnaeus, 1758 <i>Copris lunaris</i> Linnaeus, 1758 <i>Oxythyrea cinctella</i> Schaum, 1841 <i>Scarabaeus</i> sp.
	Lycidae:	<i>Lygistopterus sanguineus</i> Linnaeus, 1758
Hymenoptera:	Crabronidae:	<i>Vespa crabro</i> Linnaeus, 1758
	Scoliidae:	<i>Megascolia maculata</i> Drury, 1773
	Apidae:	<i>Apis mellifera</i> Linnaeus, 1758
	Formicidae:	<i>Cataglyphis nodus</i> Brullé, 1833
Neuroptera:	Ascalaphidae:	<i>Libelloides macaronius</i> Scopoli, 1763
Lepidoptera:	Notodontidae:	<i>Thaumetopoea pityocampa</i> Denis & Schiffermüller, 1775 Lasiocampidae: <i>Eriogaster lanestris</i> Linnaeus, 1758
	Erebidae:	<i>Amata phegea</i> Linnaeus, 1758 <i>Euplagia quadripunctaria</i> Poda, 1761
	Nymphalidae:	<i>Aglais urticae</i> Linnaeus, 1758 <i>Argynnis paphia</i> Linnaeus, 1758 <i>Hipparchia circe</i> Fabricius, 1775 <i>Inachis io</i> Linnaeus, 1758 <i>Maniola jurtina</i> Linnaeus, 1758 <i>Melanargia galathea</i> Linnaeus, 1758 <i>Melitaea cinxia</i> Linnaeus, 1758 <i>Nymphalis polychloros</i> Linnaeus, 1758 <i>Pyronia tithonus</i> Linnaeus, 1758 <i>Vanessa atalanta</i> Linnaeus, 1758 <i>Vanessa cardui</i> Linnaeus, 1758
	Sphingidae:	<i>Macroglossum stellatarum</i> Linnaeus, 1758

Vertebrates

The studied area falls within the transitional Mediterranean climate zone and is characterized by a temperate continental to Mediterranean climate. The relief is hilly and diverse, which determines the presence of areas with different microclimatic features. Summers are hot and dry, especially in the second half. Winters are relatively mild with more precipitation, but also with short periods of low temperatures, which limit the penetration of thermophilic species from the south. The soil cover is thin, the rock base is monolithic, and there are no deep and extensive scree slopes. The forests are mainly low-growing, coppiced, or young pine plantations. There are no standing water bodies. The streams (Yuren Dere) are torrential in nature and often dry up after July. These conditions determine the relatively rich species composition of the vertebrate fauna. During our field studies, including work on other projects in this part of the Eastern Rhodopes, we have identified 139 species of vertebrates that could also be found in the IP area, based on the available habitats (Table IV.6.1-1).

Table IV.6.1-1: Vertebrate species found or likely to be found in the IP area and their national conservation status. ZBR – number of the Annex to the ZBR; CBC – category according to the Red Book of Bulgaria (Golemanski 2011).

No	Species	ZBR	CBC	No	Type	ZBR	CBC
<u>Amphibians</u>				70	<i>Pica pica</i>	-	-
1	<i>Salamandra salamandra</i>	3	-	71	<i>Lanius collurio</i>	2, 3	-
2	<i>Lissotriton vulgaris</i>	3	-	72	<i>Lanius minor</i>	2, 3	-
3	<i>Triturus karelinii</i>	2, 3	-	73	<i>Lanius senator</i>	3	-
4	<i>Bombina variegata</i>	2, 3	-	74	<i>Golden Oriole</i>	3	-
5	<i>Bufo bufo</i>	3	-	75	<i>Alauda arvensis</i>	3	-
6	<i>Bufo viridis</i>	3	-	76	<i>Galerida cristata</i>	3	-
7	<i>Hyla arborea</i>	3	-	77	<i>Woodlark</i>	2, 3	-
8	<i>Pelophylax ridibundus</i>	-	-	78	<i>Delichon urbicum</i>	3	-
9	<i>Rana dalmatina</i>	-	-	79	<i>Hirundo daurica</i>	3	-
10	<i>Rana graeca</i>	3	-	80	<i>Hirundo rustica</i>	3	-
<u>Reptiles</u>				81	<i>Riparia rupestris</i>	3	-
11	<i>Testudo graeca</i>	2, 3	EN	82	<i>Phylloscopus sp.</i>	3	-
12	<i>Testudo hermanni</i>	2, 3	EN	83	<i>Aegithalos caudatus</i>	3	-
13	<i>Gymnodactylus kotschy</i>	3	-	84	<i>Parus caeruleus</i>	3	-
14	<i>Darevskia praticola</i>	-	-	85	<i>Parus lugubris</i>	3	-
15	<i>Lacerta trilineata</i>	3	-	86	<i>Parus major</i>	3	-
16	<i>Lacerta viridis</i>	3	-	87	<i>Parus palustris</i>	3	-
17	<i>Podarcis erhardii</i>	3	-	88	<i>Erithacus rubecula</i>	3	-
18	<i>Podarcis muralis</i>	3	-	89	<i>Ficedula parva</i>	2, 3	VU
19	<i>Podarcis taurica</i>	3	-	90	<i>Luscinia megarhynchos</i>	3	-
20	<i>Ablepharus kitaibelii</i>	3	-	91	<i>Muscicapa striata</i>	3	-
21	<i>Anguis colchicus</i>	3	-	92	<i>Oenanthe hispanica</i>	3	-
22	<i>Ophisaurus apodus</i>	3	VU	93	<i>Oenanthe oenanthe</i>	3	-
23	<i>Malpolon insignitus</i>	3	-	94	<i>Phoenicurus ochruros</i>	3	-
24	<i>Natrix natrix</i>	-	-	95	<i>Turdus merula</i>	3	-
25	<i>Natrix tessellata</i>	3	-	96	<i>Turdus philomelos</i>	3	-
26	<i>Dolichophis caspius</i>	3	-	97	<i>Turdus viscivorus</i>	3	-
27	<i>Elaphe sauromates</i>	2, 3	EN	98	<i>Sturnus vulgaris</i>	-	-
28	<i>Platycephalus najadum</i>	3	-	99	<i>Cinclus cinclus</i>	3	-
29	<i>Zamenis longissimus</i>	3	-	100	<i>Troglodytes troglodytes</i>	3	-
30	<i>Vipera ammodytes</i>	3	-	101	<i>Sitta europaea</i>	3	-
<u>Birds</u>				102	<i>Motacilla alba</i>	3	-
31	<i>Columba palumbus</i>	-	-	103	<i>Motacilla cinerea</i>	3	-
32	<i>Streptopelia decaocto</i>	-	-	104	<i>Acanthis cannabina</i>	3	-
33	<i>Streptopelia turtur</i>	-	-	105	<i>Carduelis carduelis</i>	3	-
34	<i>Cuculus canorus</i>	3	-	106	<i>Carduelis chloris</i>	3	-
35	<i>European nightjar</i>	2, 3	-	107	<i>Coccothraustes coccothraustes</i>	3	-
36	<i>Apus apus</i>	3	-	108	<i>Fringilla coelebs</i>	3	-
37	<i>Ciconia ciconia</i>	2, 3	VU	109	<i>Passer domesticus</i>	-	-
38	<i>Ciconia nigra</i>	2, 3	VU	110	<i>Passer hispaniolensis</i>	3	-
39	<i>Accipiter gentilis</i>	3	EN	111	<i>Emberiza calandra</i>	3	-
40	<i>Accipiter nisus</i>	3	EN	112	<i>Emberiza cia</i>	3	-

No	Species	ZBR	CBC	No	Type	ZBR	CBC
41	<i>Aquila chrysaetos</i>	2, 3	VU	113	<i>Emberiza cirius</i>	3	-
42	<i>Aquila pomarina</i>	2, 3	VU	<u>Mammals</u>			
43	<i>Buteo buteo</i>	3	-	114	<i>Erinaceus roumanicus</i>	3	-
44	<i>Buteo rufinus</i>	2, 3	VU	115	<i>European mole</i>	-	-
45	<i>Circus gallicus</i>	2, 3	VU	116	<i>Rhinolophus mehelyi / Rh. euryale*</i>	2, 3	VU
46	<i>Gyps fulvus</i>	2	EN	117	<i>Hypsugo savii</i>	3	-
47	<i>Hieraaetus pennatus</i>	2, 3	VU	118	<i>Myotis myotis / M. blythii*</i>	2, 3	-
48	<i>Milvus migrans</i>	2, 3	VU	119	<i>Nyctalus noctula</i>	3	-
49	<i>Neophron percnopterus</i>	2, 3	EN	120	<i>Pipistrellus nathusii</i>	3	-
50	<i>Pernis apivorus</i>	2, 3	VU	121	<i>Pipistrellus pipistrellus</i>	3	-
51	<i>Falco subbuteo</i>	3	VU	122	<i>Apodemus agrarius</i>	-	-
52	<i>Falco tinnunculus</i>	3	-	123	<i>Mus musculus</i>	-	-
53	<i>Athene noctua</i>	3	-	124	<i>Rattus norvegicus</i>	-	-
54	<i>Otus scops</i>	3	-	125	<i>Sylviaemus sp.</i>	-	-
55	<i>Strix aluco</i>	3	-	126	<i>Glis glis</i>	-	-
56	<i>Upupa epops</i>	3	-	127	<i>Sciurus vulgaris</i>	-	NT
57	<i>Coracias garrulus</i>	2, 3	VU	128	<i>Lepus europaeus</i>	-	NT
58	<i>Merops apiaster</i>	-	-	129	<i>Capreolus capreolus</i>	-	-
59	<i>Dendrocopos major</i>	3	-	130	<i>Cervus elaphus</i>	-	-
60	<i>Dendrocopos medius</i>	2, 3	-	131	<i>Dama dama</i>	-	-
61	<i>Dendrocopos minor</i>	3	-	132	<i>Sus scrofa</i>	-	-
62	<i>Dendrocopos syriacus</i>	2, 3	-	133	<i>Felis silvestris</i>	3	EN
63	<i>Dryocopus martius</i>	2, 3	VU	134	<i>Canis aureus</i>	-	-
64	<i>Picus canus</i>	2, 3	EN	135	<i>Canis lupus</i>	2	VU
65	<i>Picus viridis</i>	3	-	136	<i>Vulpes vulpes</i>	-	-
66	<i>Corvus corax</i>	3	NT	137	<i>Martes foina</i>	-	-
67	<i>Corvus cornix</i>	-	-	138	<i>Meles meles</i>	-	-
68	<i>Corvus monedula</i>	-	-	139	<i>Mustela nivalis</i>	3	-
69	<i>Garrulus glandarius</i>	-	-				

* - through echolocation; this method does not allow for differentiation between the two species.

Some species of amphibians and reptiles, storks, birds of prey, nightjars, blue tits, some woodpeckers (grey, black, middle spotted) and songbirds, and wolves have a higher conservation status. All of them are subject to protection in the two protected areas covered by the IP – SPA "Rhodopes - East" (under the Habitats Directive) and SPA "Biala Reka" (under the Birds Directive). Exceptions are the yellow-bellied snake (*Ophisaurus apodus*), the northern goshawk (*Accipiter gentilis*), the red-breasted flycatcher (*Ficedula parva*) and the wildcat (*Felis silvestris*). The other species, although included in Annex 3 of the Biodiversity Act (some also in Annex 2), are widespread and have relatively large populations both in the Eastern Rhodopes and in the country as a whole.

6.2. National Ecological Network

Protected areas

The area of the IP falls within two protected areas (PA) of the Natura 2000 National Ecological Network (Fig. IV.6.2-1):

- PA "Rhodopes - Eastern", code BG0001032, for the protection of natural habitats and wild flora and fauna;
- PA "Biala Reka", code BG0002019, for the protection of wild birds.

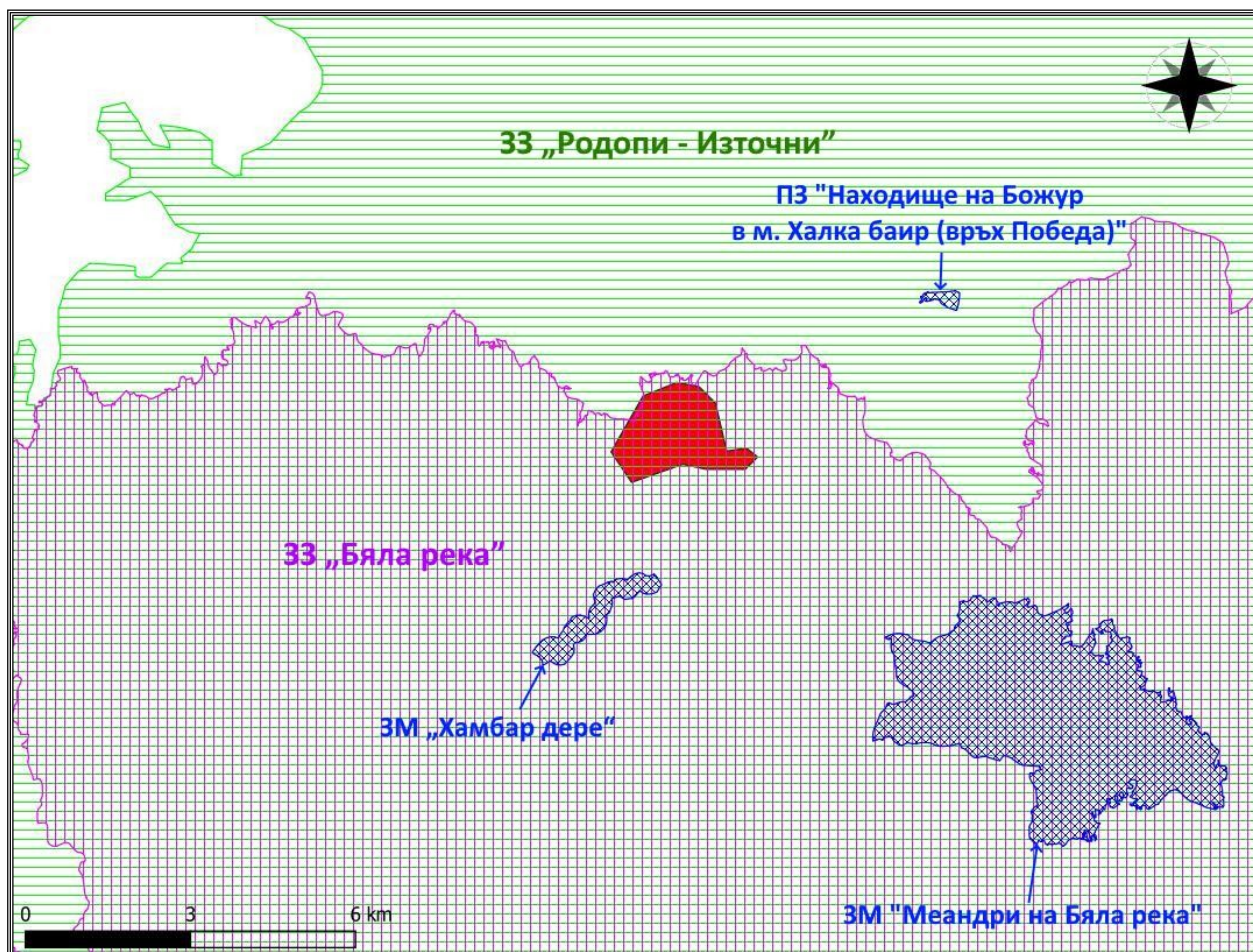


Figure IV.6.2-1: Location of the IP in relation to SPAs and protected areas. Red polygon – concession area; green horizontal line – SPA under the Habitats Directive; purple vertical line – SPA under the Birds Directive; blue diagonal line – protected areas under the Protected Areas Act.

Protected areas

The area covered by the IP does not affect protected areas within the meaning of the Protected Areas Act. The nearest such area is the Protected Area (PA) "Hambar Dere" (Fig. IV.6.2-1), located approximately 1.6 km from the concession (distance between the nearest points of the concession boundaries and the PA).

7. Cultural and historical heritage

This part of the EIA report has been prepared in order to determine the extent to which known cultural heritage sites will be threatened by the implementation of the investment proposal for "Extraction and processing of polymetallic ores from the "Tintyava" area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region. The analysis was carried out by collecting and processing data on known cultural values. To determine the existence, location

and current condition of cultural heritage sites, various information sources were used – the "Archaeological Map of Bulgaria" computer system, the registers of the National Institute for Cultural Heritage, reports from field surveys along the railway line and other infrastructure projects in the area, specialized publications related to archaeological studies already conducted, as well as analysis of topographic maps and orthophoto maps.

The nature of the investment initiative suggests that its implementation may threaten or compromise mainly archaeological cultural values. According to Article 146 of the Cultural Heritage Act, archaeological sites are all movable and immovable material traces of human activity from past eras, located or discovered in the earth's strata, on their surface, on land and under water, for which field studies are the main sources of information. Immovable and movable archaeological sites have the status of cultural values of national importance or national wealth, respectively. The diversity of human activities and the enormous chronological period in which they were created and existed determine the significant diversity of this type of site.

During the analysis, the known cultural assets located in the vicinity of the investment proposal were identified and the measures for their protection, as defined by the specialized regulatory framework, were specified. All sites whose preservation could be positively or negatively affected by the implementation of all activities under the project "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area" are presented.

The area in which the investment proposal is located has been little studied and the number of known archaeological sites is relatively small. To date, a total of ten archaeological sites have been registered in the territories of the villages of Rozino and Gugutka. Four of them are located nearby, but outside the boundaries of the Tintyava area. It is possible that there are unregistered archaeological sites in the area that may be threatened by future exploration or mining activities.

Registered archaeological sites near the boundaries of the concession area

Area:

1. AKB No. 1590350. Medieval fortress in the Kaleto area, located 2.5 km south-southwest of the village of Rozino and 0.25 km from the southwestern border of the concession area. GPS coordinates: 41.43391667 25.89338333.
2. AKB No. 1590322. Early Iron Age settlement located 0.5 km southeast of the village of Rozino and 0.3 km from the northern border of the concession area. GPS coordinates: 41.45247 25.9094.
3. AKB No. 10003863. A burial mound located 2 km northwest of the village of Gugutka and 0.4 km from the southern border of the concession area. GPS coordinates: 41.42944 25.90336.
4. Site without AKB number. Ancient building located 2.6 km south of the village of Rozino and 0.2 km from the southwestern border of the concession area. GPS coordinates: 41.431842 25.896716.

If the investment proposal is not implemented, the condition of the known archaeological sites will not change.

8. Waste

There are no unorganized landfills or other waste pollution that could have a negative impact on the environment in the area that will be affected by the investment proposal.

The scope of the investment proposal covers an area of land in the villages of
The mining waste will be treated in the SMO and temporarily stored in a low-grade ore dump.

The mining waste will be treated in the SMO and a temporary dump for low-grade ore. A proposal for the management of mining waste has also been developed (**Text Annex No. 9**).

Pursuant to Article 22d, paragraph 4 of the Underground Resources Act (URA), when an investment proposal (IP) for activities generating mining waste is subject to the procedure under Chapter Six of the Environmental Protection Act (EPA), the investment proposal must include a proposal for the management of mining waste.

The proposal for the management of mining waste has been prepared in compliance with these provisions, taking into account the available level of detail in the regulatory requirements relating to the development of a Mining Waste Management Plan. The content follows the structure set out in *the Ordinance on Mining Waste Management* (published in State Gazette No. 5 of 19.01.2016 and subsequent amendments) and Directive 2006/21/EC on the management of waste from extractive industries.

The mining waste management plan is drawn up with the aim of preventing, reducing or limiting their harmful impact on the components of the environment and **will be prepared after the entry into force of the EIA decision approving the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, area "Tintyava," located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region."**

This is also the requirement of Article 22d, paragraph 7 of the ZPB, which requires the Operator, together with the mine waste management plan, to submit to the Minister of Energy an EIA decision that has entered into force, issued in accordance with Chapter Six of the Environmental Protection Act, which also contains reasons why the management of mining waste does not conflict with the waste management plans and programs under the Waste Management Act. The plan shall be approved by the Minister of Energy.

Other waste generated shall be transferred for treatment to the Regional Waste Management Association (RWMA) for the Kardzhali region the non-profit association "For Clean Rhodopes" and to persons holding the relevant document under Article 35 of the Waste Management Act, following the waste management hierarchy in order to prevent, reduce or limit their harmful impact on human health and the environment.

9. Hazardous substances

There are no industrial zones or warehouses for the storage of hazardous substances and pesticides located in the vicinity of the territory that will be affected by the investment proposal. No industrial enterprises using hazardous substances have been identified in the vicinity.

No enterprises and/or facilities classified under Chapter Seven of the Environmental Protection Act have been identified in the vicinity of the investment proposal area that will be affected. According to the register of enterprises and/or facilities classified under Chapter Seven of the Environmental Protection Act, the nearest enterprises/facilities with "low and high risk potential" are located more than 45 km away.

10. Hazardous energy sources – noise, vibrations, and radiation

10.1. Noise and vibrations

Noise is one of the main factors with an adverse impact on the population, present as unwanted or harmful external sound caused by human activity, including that emitted by road, rail, and air transport, industrial installations and facilities, and local sources. Environmental noise indicators are physical quantities that take into account the degree and limits of discomfort experienced by citizens exposed to noise. After air pollution, noise is a factor of fundamental importance to human health.

Noise indicators in the environment and living environment are physical quantities determined by taking into account the limits and degree of discomfort of citizens exposed to noise, depending on the nature of the noise, the time of day, the purpose of the living spaces, and the nature of the territories and areas inside and outside urbanized areas.

The effect of noise is most pronounced in urban areas with a population of over 100,000. Their noise exposure depends on both the intensity of the noise and the duration of its impact.

The main sources of noise in the environment are:

- Transport flows of road and rail transport;
- Air transport;
- Local sources – industrial enterprises, commercial establishments, entertainment venues, service providers, and others located in areas designated as urbanized territories under the Spatial Development Act.

Regional health inspectorates, as part of the National System for Monitoring Noise in Urban Areas, participate in the annual observation, analysis, assessment, and control of transport noise pollution. The nearest noise monitoring stations are located in the town of Kardzhali, more than 40 km away from the boundaries of the IP as the crow flies, and therefore the data from the monitoring carried out are not applicable to the area under consideration.

Currently, no extraction or primary processing of natural resources is carried out on the territory of the Rosino deposit or in its immediate vicinity. No activities that could be a source of noise and vibrations in the environment are carried out in the area of

the deposit, there are no activities that could be a source of noise and vibrations in the environment.

There is no heavy traffic on the road network in the area of the IP, and it can be concluded that road transport is not a significant source of noise for the area.

The background noise in the nearby residential areas is currently generated by the daily activities of the residents.

10.2. Radiation

The area where the IP will be located is not a source of harmful radiation to the environment.

The geological base is not a source of harmful radiation, according to gamma spectrometric measurements of one sample of flotation waste and sixteen composite samples from drill cores taken from crushed rock material at various depths from borehole RTD-015 on the site of the investment proposal. The analysis was performed in an accredited laboratory of CNIL at DIAL Ltd., the results of which are presented in protocols No. 2025/4989 (the sample is identified as O 019) dated 06.11.2020, No. 2025/4990 (the sample is identified as M365) dated 07.11.2025, No. 2025/4991 (the sample is identified as M366) dated 07.11.2025, No. 2025/4992 (the sample is identified as M367) dated 07.11.2025, No. 2025/4993 (the sample is identified as M368) dated 10.11.2025, No. 2025/4994 (the sample is identified as M369) dated 10.11.2025, No. 2025/4995 (the sample is identified as M370) dated 10.11.2025, No. 2025/4996 (the sample is identified as M371) dated 10.11.2025, No. 2025/4997 (the sample is identified as M372) dated 11.11.2025, No. 2025/4998 (the sample is identified as M373) dated 11.11.2025, No. 2025/4999 (the sample is identified as M374) dated 11.11.2025, No. 2025/5000 (the sample is identified as M375) dated 11.11.2025, No. 2025/5001 (the sample is identified as M376) dated 11.11.2025, No. 2025/5002 (the sample is identified as M377) dated 11.11.2025, No. 2025/5003 (the sample is identified as M378) dated 13.11.2025, No. 2025/5004 (the sample is identified as M379) dated 13.11.2025, No. 2025/5005 (the sample is identified as M380) dated 13.11.2025, **Text Annex No. 17.**

Laboratory analyses to determine the specific activity of gamma radionuclides were performed using a gamma spectrometry system manufactured by Canberra Packard, consisting of a DSA-LX digital multichannel analyzer with GENIE2000 software package, which is designed for measuring and processing gamma spectra. The detector is made of high-purity germanium (HPGe) and is housed in a lead shield, allowing for low-background measurements. Measurements were made of the nuclides potassium-40, lead-210, lead-214, bismuth-214, radium-223, radium-226, thorium-230, thorium-232, uranium-238, and uranium-235, in accordance with the rules for testing natural radioactivity.

In accordance with Annex No. 3, Table 3 of the Ordinance on Radiation Protection, the maximum permissible specific activities of natural radionuclides for the release from regulation of large quantities of materials (over 1 ton) are determined as follows:

- Specific activity of material for each natural radionuclide from the uranium-238 and thorium-232 families – 1 Bq/g.

- Specific activity of material for the natural radionuclide potassium-40 – 10 Bq/g.

In this regard, gamma logging was performed to study the specific radioactivity in a 166-meter layer of borehole RTD-015, which is low enough not to cause contamination and spread of radioactive isotopes to other components of the environment.

According to the data obtained from the gamma spectrometric analyses of samples from different depths of borehole RTD-015, there is no immediate danger to the environment and to workers during the construction phase, and therefore no measures or actions need to be taken to ensure radiation safety.

The specific activity of the samples from different depths is shown in the following tables:

Table IV.10.2-1 Specific activity of samples from different depths

Test results (value, uncertainty) [Bq/g]									
Name of the	O019	M 365	M 366	M 367	M 368	M 369	M 370	M 371	M 372
indicator	Floating waste	composite samples from drill core							
		0.50÷10.8 m	10.8÷21.0 m	21.0÷31.0 m	31.0÷41.0 m	41.1÷51.7 m	51.7÷61.7 m	61.7÷71.7 m	71.7÷81.7 m
Potassium-40	0.933 ± 0.023	1.000 ± 0.021	0.968 ± 0.033	0.560 ± 0.020	0.598 ± 0.013	0.637 ± 0.022	0.964 ± 0.021	1.231 ± 0.042	0.815 ± 0.027
Lead-210	0.021 ± 0.009	0.017 ± 0.007	0.031 ± 0.012	0.024 ± 0.005	0.109 ± 0.008	0.017 ± 0.005	< 0.014	< 0.023	0.020 ± 0.005
Lead-214	0.018 ± 0.001	0.022 ± 0.001	0.029 ± 0.001	0.017 ± 0.001	0.015 ± 0.001	0.018 ± 0.001	0.020 ± 0.001	0.026 ± 0.001	0.021 ± 0.001
Bismuth-214	0.018 ± 0.002	0.021 ± 0.001	0.028 ± 0.001	< 0.003	0.014 ± 0.001	0.009 ± 0.001	0.019 ± 0.001	0.026 ± 0.001	< 0.002
Radium-223	< 0.005	< 0.005	< 0.005	< 0.002	< 0.007	< 0.003	< 0.007	< 0.005	< 0.003
Radium-226	< 0.017	< 0.010	0.032 ± 0.012	< 0.006	< 0.031	< 0.006	0.023 ± 0.006	0.026 ± 0.007	0.028 ± 0.007
Thorium-232	0.029 ± 0	0.041 ± 0.001	0.039 ± 0.001	< 0.002	< 0.072	0.064 ± 0.021	< 0.072	< 0.001	< 0.065
Uranium-238	0.022 ± 0.006	0.034 ± 0.006	0.029 ± 0.005	0.032 ± 0.003	0.024 ± 0.001	< 0.002	0.037 ± 0.001	0.045 ± 0.001	< 0.002
Uranium-235	0.0019 ± 0.0006	0.0029 ± 0.0003	< 0.001	< 0.0003	0.017 ± 0.004	0.039 ± 0.003	0.022 ± 0.006	0.030 ± 0.006	0.030 ± 0.003

Table IV.10.2-2 Specific activity of samples from different depths

Test results (value, uncertainty) [Bq/g]								
Name of the	M 373	M 374	M 375	M 376	M 377	M 378	M 379	M 380
indicator	composite samples from drill core							
	71.7÷91.8 m	91.80÷102.2 m	102.2÷112.3 m	112.3÷122.8 m	122.8÷132.9 m	132.9÷143.3 m	143.3÷153.3 m	153.3÷166.2 m
Potassium-40	0.986 ± 0	0.686 ± 0.014	0.917 ± 0.032	0.647 ± 0.014	0.717 ± 0.025	0.716 ± 0.024	1.087 ± 0.037	0.990 ± 0.021
Lead-210	< 0.019	0.021 ± 0.006	< 0.024	0.014 ± 0.006	0.023 ± 0.006	0.028 ± 0.005	< 0.025	0.018 ± 0.007
Lead-214	0.023 ± 0.001	0.018 ± 0.001	0.025 ± 0.001	0.015 ± 0.001	0.023 ± 0.001	0.031 ± 0.001	0.032 ± 0.001	0.022 ± 0.001
Bismuth-214	0.022 ± 0.001	0.019 ± 0.001	0.024 ± 0.001	0.015 ± 0.001	< 0.003	0.016 ± 0.001	0.032 ± 0.001	0.021 ± 0.001
Radium-223	< 0.004	< 0.004	< 0.005	< 0.006	0.0046 ± 0.0016	< 0.004	< 0.006	< 0.006

Radium-226	0.026 ± 0.007	< 0.011	0.028 ± 0.006	< 0.027	0.045 ± 0.004	0.035 ± 0.01	0.047 ± 0.013	0.028 ± 0.006
Thorium-232	< 0.052	< 0.050	< 0.089	< 0.056	< 0.056	< 0.056	< 0.094	< 0.067
Uranium-238	0.033 ± 0.001	0.031 ± 0.001	0.038 ± 0.001	0.027 ± 0.001	< 0.003	< 0.003	0.048 ± 0.001	0.990 ± 0.021
Uranium-235	0.021 ± 0.005	0.023 ± 0.004	0.917 ± 0.032	0.020 ± 0.005	0.029 ± 0.003	0.033 ± 0.003	0.030 ± 0.007	0.023 ± 0.005

Based on the results obtained, we can conclude that the samples from the controlled sites comply with the requirements specified in Annex

No. 3, Table 3 of the NRZ for the parameter specific activity of natural radionuclides, for the release of large quantities of materials from regulation. **Therefore, there is no danger to the environment, to the workers at the site, or to the population, and no measures or actions need to be taken to ensure radiation safety.**

The results of gamma spectrometric analyses presented above, compared with the standards under the applicable regulations, show that the materials removed from the site do not pose a threat to the environment and would not lead to a change in the natural radiation background at the site. The measured radioactivity in the surveyed layers is low enough not to cause contamination and spread of radioactive isotopes to other components of the environment.

11. Health and hygiene aspects

The concession area of the Rosino deposit, Tintyava area, subject to this IP, is located on the territory of two municipalities – the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region. The entire concession area is **outside the regulatory boundaries of populated areas.**

The scope of the analyses and assessment is determined by **the parameters of the IP and the location of the nearest sites subject to health protection** within the meaning of point 3 of §1 of the Additional Provisions of *the Ordinance on the conditions and procedure for performing an environmental impact assessment.*

The parameters of the IP, including the type and quantity of expected residual substances and emissions and the quantities and types of waste generated during the implementation stages, show that the impact of the IP is local in scope – mainly within the scope of the directly affected areas (*mine, enrichment plant, dumps for earth and humus masses (humus dumps – HD 1 and HD 2) and for sterile rock mass and mining waste facility – flotation waste, contact water reservoir, clean water reservoir and collection ditches, service roads*) within the concession area.

The total concession area is 2,753 decares, and the directly affected/disturbed areas amount to 1,179 decares. The remaining area of 1,574 decares is designated as a buffer zone where no mining activities will be carried out – it will provide protection for the facilities and installations and restrict accidental access by people and animals.

The distances between the concession area and the directly affected areas within it and the regulatory boundaries of the nearest populated areas are described in **Table IV.11-1** and shown in **Figure IV.11-1** (distances from the boundaries of the concession area to

the regulatory boundaries of the nearest populated areas), **Figure No. IV.11-2** (distances from the directly affected areas in the concession area to the regulatory boundaries of the populated areas) and **Table No. IV.11-2** and **Figures Nos. IV.11-3, 4 and 5** (distances from the mine and other directly affected areas in the concession area to the nearest sites subject to health protection).

Table No. IV.11-1. Distances from the boundaries of the concession area to populated areas and sites subject to health protection

Distances from the boundaries of the concession area to the regulatory boundaries* of the nearest populated areas, meters (m) Figure No. IV.11-1		Distances from the nearest directly affected areas in the concession area to the regulatory boundaries of populated areas, meters (m) Figure No. IV.11-2	
Rozino village	466	Rozino village	600
village of Byalgradets	1	village of Byalgradets	1,405
Gugutka village	1,721	Gugutka village	1,855

* The regulatory boundaries in digital format from the Cadastral Map of the Republic of Bulgaria are superimposed on a Google Earth base map.

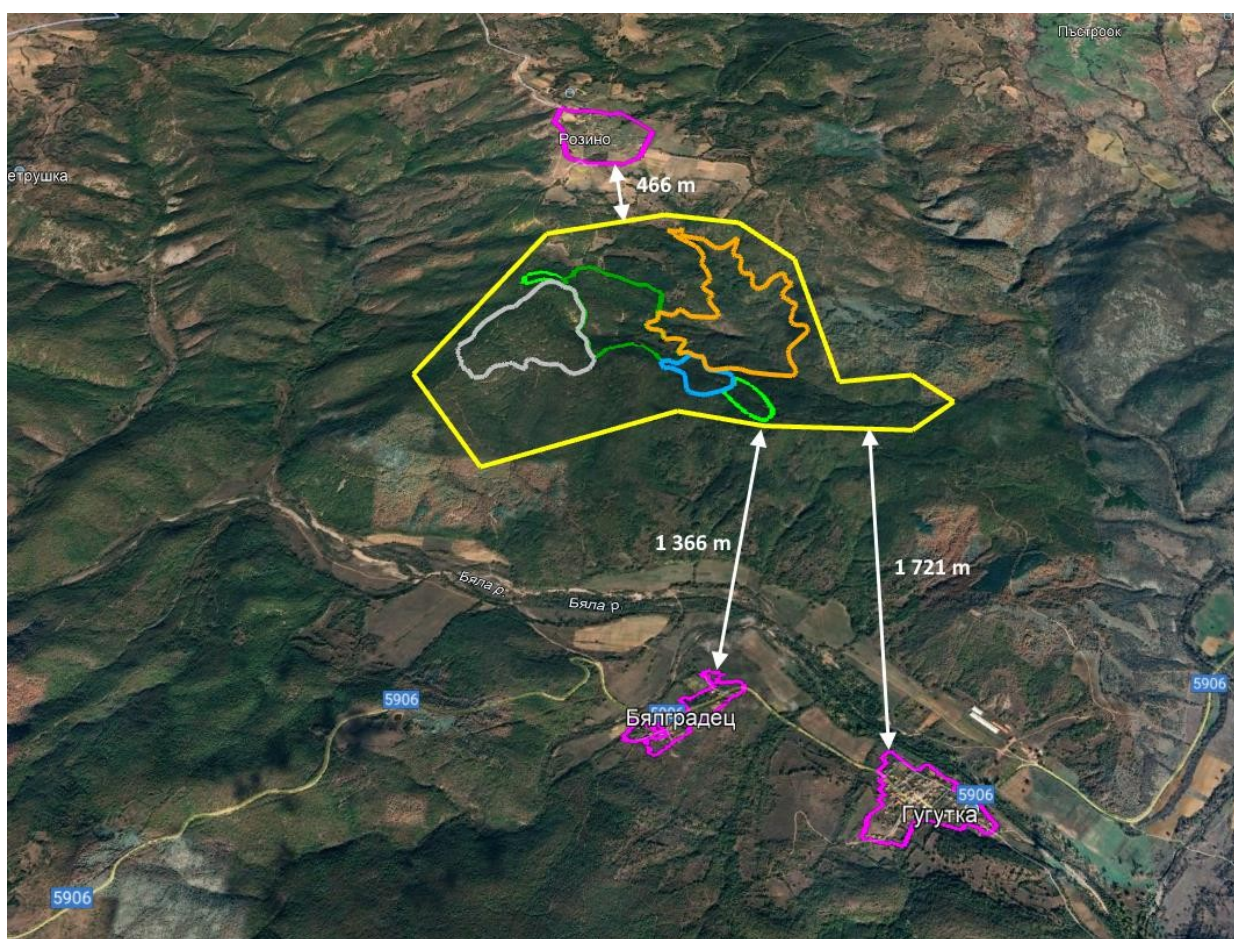


Figure No. IV.11-1. Distances from the boundaries of the concession area to the regulatory boundaries of the nearest populated areas

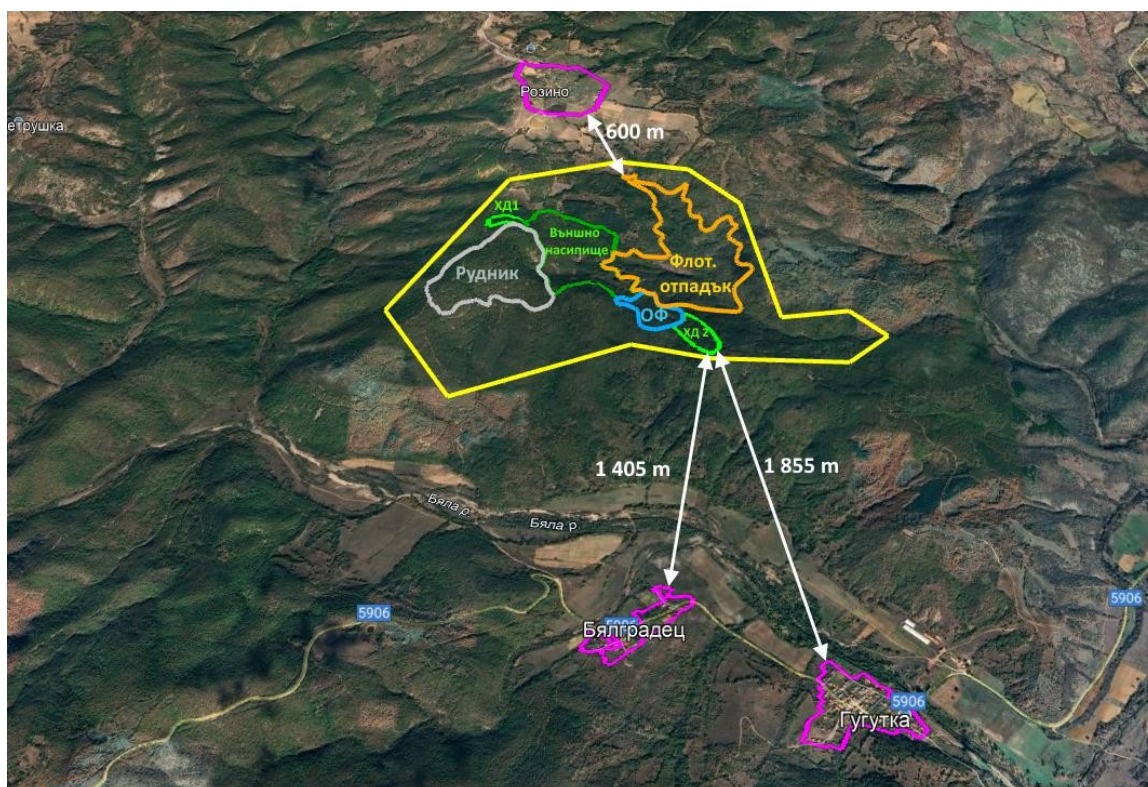


Figure No. IV.11-2. Distances from the nearest directly affected areas in the concession area to the regulatory boundaries of the nearest populated areas

Table No. IV.11-2. Distances from the affected areas/sites in the concession area to the nearest sites subject to health protection

Object in the concession area	Nearest site subject to health protection, Distance – meters (m)
Mine	Residential building in the village of Rozino – 1,200 m
	Residential building in the village of Bialgradets – 1,793 m
	Residential building in the village of Gugutka – 2,483 m
Enrichment plant	Residential building in the village of Rozino – 1,677 m
	Residential building in the village of Bialgradets – 1,548 m
	Residential building in the village of Gugutka – 2,104 m
Manure depot 1	Residential building in the village of Rozino – 1,137 m
	Residential building in the village of Bialgradets – 2,390 m
	Residential building in the village of Gugutka – 3,070 m
Manure depot 2	residential building in the village of Rozino – 1,911 m
	residential building in the village of Bialgradets – 1,422 m
	residential building in the village of Gugutka – 1,872 m
External embankment	residential building in the village of Rozino – 1,002 m
	residential building in the village of Bialgradets – 1,781 m
	Residential building in the village of Gugutka – 2,370 m
Flotation waste facility	residential building in the village of Rozino – 693 m
	residential building in the village of Bialgradets – 1,733 m
	residential building in the village of Gugutka – 2,167 m

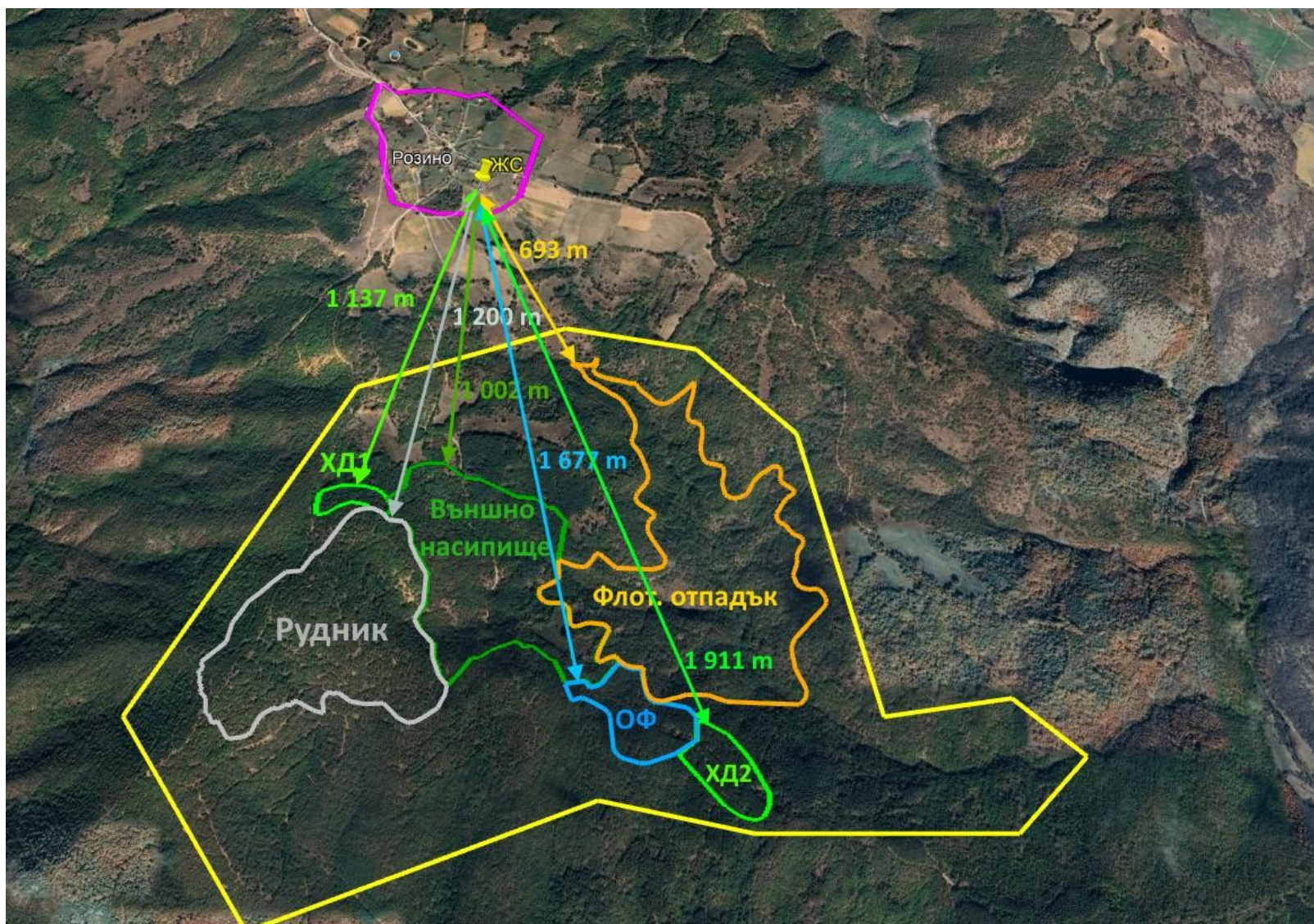


Figure No. IV.11-3. Distances from the main sites and facilities of the IP to the nearest site subject to health protection – residential building in the village of Rozino

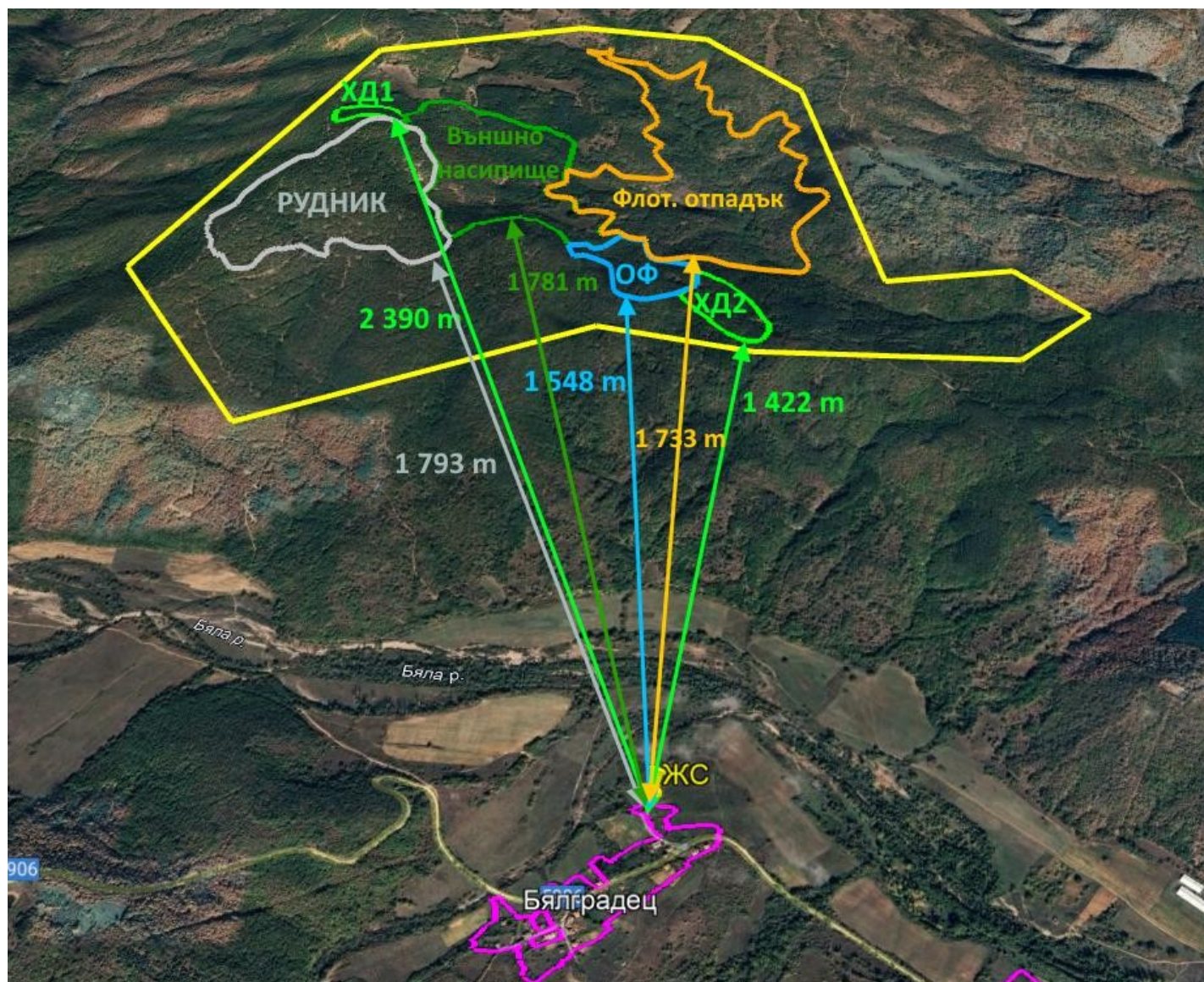


Figure No. IV.11-4. Distances from the main sites and facilities of the IP to the nearest site subject to health protection – residential building in the village of Bialgradets

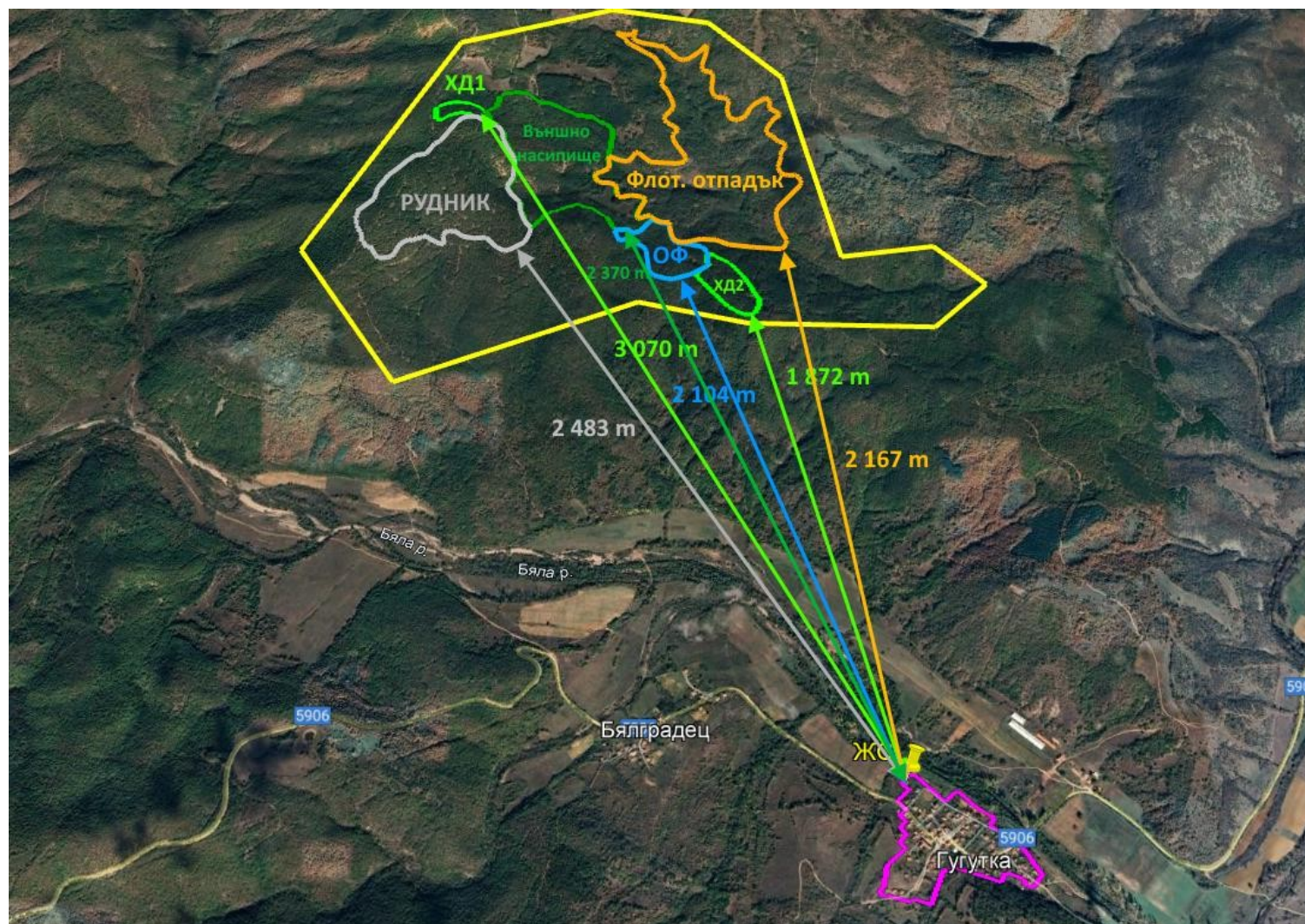


Figure No. IV.11-5. Distances from the main facilities and installations of the IP to the nearest facility subject to health protection – a residential building in the village of Gugutka

Given the mainly local impact of the activities related to the development of the deposit and the distance to the nearest health protection sites, including the nearest regulatory boundaries of the nearest populated areas, the scope of the study for the purposes of assessing the impact of the IP on the health and hygiene aspects of the environment and human health includes the population of the villages of Rozino, the villages of Byalgradets and Gugutka, Ivaylovgrad municipality, Haskovo region.

11.1. Health status of the population

For the purposes of assessing the impact of the IP on human health, an assessment of the potentially affected population was carried out.

Data for a 5-year period (2019-2023) in order to ensure a sufficient time interval for establishing trends in the health and demographic status of the population in the IP area (for the statistical/administrative units for which official data are available), as follows:

- official statistical data from the National Statistical Institute (NSI) for the period 2019-2023;
- tables of persons registered by permanent and current address for the period 2019-2023 in the villages of Rozino, Byalgradets, Gugutka, Ivaylovgrad municipality and Haskovo region, published on the website of the General Directorate "Civil Registration and Administrative Services" (DG GRAO);
- information provided in accordance with the Access to Public Information Act (APIA) by the Regional Health Inspectorate (RHI) - Haskovo (by letters ref. No. 93-11/10.10.2023 and Decision No. 14/2024);
- information provided under the APIA by the municipality of Ivaylovgrad, provided by letters ref. No. 30-00-528/1/16.10.2023 and ref. No. 30-00-563/1/04.12.2024;
- *Healthcare. Brief statistical reference books with annual data for 2019-2023*, published on the website of the National Center for Public Health and Analysis (NCPHA).

Population

The population in the IP area is as follows:

Table No. IV.11.1-1 Persons registered by permanent and current address (number), DG GRAO (for settlements, municipalities, and regions), NSI (for the country)

Administrative unit	Address registration	2019	2020	2021	2022	2023
Rozino village	Permanent	154	150	150	149	139
	present	58	56	54	48	50
village Byalgradets	permanent	133	135	137	137	142
	present	53	57	61	61	65
Gugutka village	permanent	154	154	154	154	141
	present	98	93	97	101	104
Ivaylovgrad Municipality	Permanent	7,893	7,792	7,652	7,573	7,487
	Current	6,131	5,983	5,801	5,632	5,675
Region	Permanent	293,571	291,314	288,400	285,747	235,416

Haskovo	Current	247,571	245,212	241,856	237,412	195,161
national average		6,951,482	6,916,548	6,838,937	6,447,710	6,445,481

Table IV.11.1-1 shows the following trends for the population in the IP area:

- All three settlements in the IP area have a very low population – less than 200 people – for the entire period under review. The change in population for the 5 years under review is as follows:
 - For the village of Rozino, the population at permanent address decreased by 9.7%, and at current address – by 13.8% for the period;
 - For the village of Byalgradets, the population by permanent address increased by 6.8% (9 people), and by current address – by 22.6% (12 people);
 - For the village of Gugutka, the population by permanent address decreased by 8.4%, but by current address it increased by 6.1%.
- The municipality of Ivaylovgrad also has a low population – less than 10,000 people, with the population decreasing by 5.1% at permanent address and by 7.4% at current address during the period under review. The population of the Haskovo region is also declining, but at a much faster rate – over the period, the population by permanent address decreased by 19.8%, and by current address – by 21.2%;
- By comparison, the average population for the country for the period decreased by 5.1%, which corresponds to the decrease in the population of the municipality of Ivaylovgrad by permanent address, and is much more favorable than the decrease in the population of the region. For the settlements, with the exception of the village of Byalgradets, the population is declining at a faster rate than that of the country, but at a lower rate than that of the region.
- In 2023, the population of the three settlements located closest to the IP territory will account for only 5.6% of the population of the municipality of Ivaylovgrad by permanent address and 3.9% of the population of the municipality by current address. In relation to the region, the population of the three settlements accounts for 0.2% of the population by permanent address and 0.1% of the population by current address.
- The data show a significant imbalance in the distribution of the population between towns and villages (71.5% of the population of the Haskovo region in 2023 lives in towns), which is characteristic of the whole country. This is an unfavorable factor in terms of the provision of health services and has a negative impact, especially on smaller and isolated settlements, such as the three settlements in the IP area.

Age structure of the population

Data on the age structure of the population are available at the municipal, regional, and national levels, as presented in

Table IV.11.1-2:

Table No. IV.11.1-2. Age structure of the population for 2019-2023
(converted into %), NSI

Year	Administrative unit	Below working age	Working age	Above working age
2019	Ivaylovgrad Municipality	12.5	56	3
	Haskovo Province	15	57.9	26
	Bulgaria	15.3	59.8	24.9
2020	Ivaylovgrad Municipality	12.7	55.4	31.9
	Haskovo Province	15.5	57.9	26.6
	Bulgaria	15.4	59.8	24.8

Year	Administrative unit	Below working age	Working age	Above working age
2021	Ivaylovgrad Municipality	12.4	55	32
	Haskovo Province	15	58.1	26.4
	Bulgaria	15.5	60	24.5
2022	Ivaylovgrad Municipality	11.4	54	34.6
	Haskovo Province	15.2	56.3	28.5
	Bulgaria	15.2	58.5	26.3
2023	Ivaylovgrad Municipality	11.5	54.1	34.4
	Haskovo Province	15.1	56.3	28.6
	Bulgaria	15.2	58.5	26

The table above shows that the age structure is ageing for all administrative units (the number of people above working age significantly exceeds the number of people below working age), with the problem becoming more acute over the period under review at all three administrative levels. The following graph shows a comparison of the age structures for 2023.

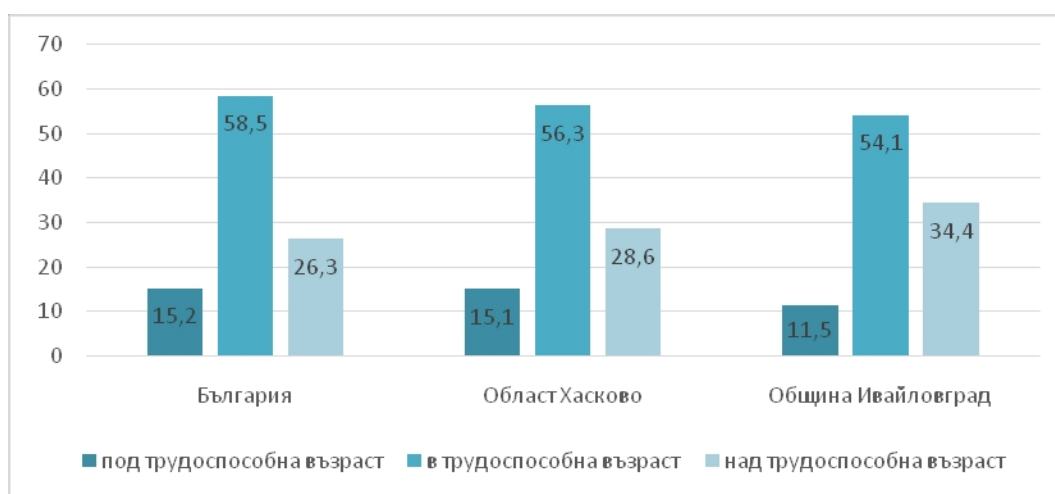


Figure IV.11.1-1. Population below working age, working age, and above working age for 2023, NSI (data presented in %)

Figure IV.11.1-2 shows that for both the municipality of Ivaylovgrad and the district of Haskovo, the age structure is less favorable than the national average. It is most unfavorable for the municipality, where the percentage of young people and people of working age is lowest, and the percentage of people over working age is highest – over 1/3 of the population.

Birth rate, overall and infant mortality, natural increase

Data on live births and overall mortality (number) for the three settlements are presented in Table No. IV.11.1-3:

Table No. IV.11.1-3. Birth rate (BR) and overall mortality (OM) in the villages of Rozino, Byalgradets, and Gugutka, NSI, Ivaylovgrad Municipality

Settlement	2019		2020		2021		2022		2023	
	R	OS	R	OS	R	OS	R	OS	R	OS
Rozino village	1	0	0	1	1	0	1	0	2	0
village of Byalgradets	0	NA	0	NA	2	NA	0	NA	0	NA
Gugutka village	0	0	0	0	0	0	1	2	0	0

The table shows individual cases for both birth and death rates.

Data on birth rates, mortality rates, infant mortality rates, and natural growth for the municipality, region, and country are presented in **Table No. IV.11.1-4**:

Table No. IV.11.1-4. Birth rate, total and infant mortality, natural increase,

NSI, RZI-Haskovo

Statistical region	Year	Live births - birth rate per 1,000 inhabitants, ‰	Deaths - total mortality per 1,000 live births, ‰	Infant mortality per 1,000 live births - ‰	Natural increase per 1,000 inhabitants, ‰
Municipality of Ivaylovgrad	2019	7.6	20	NA	-12.4
	2020	6.1	22.9	NA	-16.8
	2021	5.9	31.9	NA	-26.0
	2022	5.8	26.8	NA	-21.0
	2023	6.6	23	ND	-16.4
Haskovo Province	2019	8	16.7	8	-8.7
	2020	7.4	19.7	8.4	-12.3
	2021	7.6	23.1	4.8	-12.1
	2022	7.8	20.3	4.9	-12.5
	2023	7.8	16.8	8	-9.0
For the country	2019	8.8	15.5	5.6	-6.7
	2020	8.6	18	5.1	-9.4
	2021	8.5	21.7	5.6	-13.2
	2022	8.8	18.4	4.8	-9.6
	2023	8.9	15.7	4.9	-6.8

Note: The birth and overall mortality rates for the municipality of Ivaylovgrad are calculated in per mille as the ratio of live births and deaths, respectively, to the average annual population for the respective year.

The data in **Table IV.11.1-4** show the following:

- In terms of **birth rates**, the values and trends are most unfavorable for the municipality, followed by the district; for both administrative levels, they are more unfavorable than the national average. Both the municipality and the region are experiencing a decline in birth rates, in contrast to the country as a whole, where there has been a slight increase over the period.
- In terms of **overall mortality**, the values show an analogy with fertility – the most unfavorable/high values are for the municipality, followed by those for the region. A negative trend of increase is observed at all three levels for the period;
- **Infant mortality** is an indicator of the quality of medical care, but it is also influenced by the standard of living and health culture of the population. It is higher for the region, where the values vary over the period, compared to the country. A positive trend is the decrease in infant mortality for the period for both the region and the country.
- For all three levels, **natural growth** is negative for the entire period, with an unfavorable downward trend. The values are most unfavorable for the municipality, followed by those for the region.
- Overall, **both the municipality and the region have more unfavorable values** for the analyzed indicators, mainly due to the deteriorating age structure of the population and the migration of young people to larger settlements.

Deaths by cause of death

The following figures present data on **deaths by cause** for the Haskovo region and the country for the period 2019-2023, presented by disease class according to the *International Classification of Diseases (ICD-10)*:

Class I Certain infectious and parasitic diseases
Class II Neoplasms
Class III Diseases of the blood, blood-forming organs, and certain disorders involving the immune mechanism
Class IV Diseases of the endocrine system, disorders of nutrition and metabolism
Class V
Class V Mental and behavioral disorders
Class VI Diseases of the nervous system
Class VII Diseases of the eye and its adnexa
Class VIII Diseases of the ear and mastoid process
Class IX Diseases of the circulatory organs
Class X Diseases of the respiratory system
Class XI Diseases of the digestive system
Class XII Diseases of the skin and subcutaneous tissue
Class XIII Diseases of the musculoskeletal system and connective tissue
Class XIV Diseases of the genitourinary system
Class XV Pregnancy, childbirth, and the puerperium
Class XVI Certain conditions arising during the perinatal period
Class XVII Congenital anomalies (developmental defects), deformities, and chromosomal aberrations
Class XVIII Symptoms, signs, and abnormalities detected in clinical and laboratory tests, not classified elsewhere
Class XIX Injuries, poisoning, and certain other consequences of external causes
Class XX External causes of morbidity and mortality
Class XXII Codes for special purposes, including COVID-19

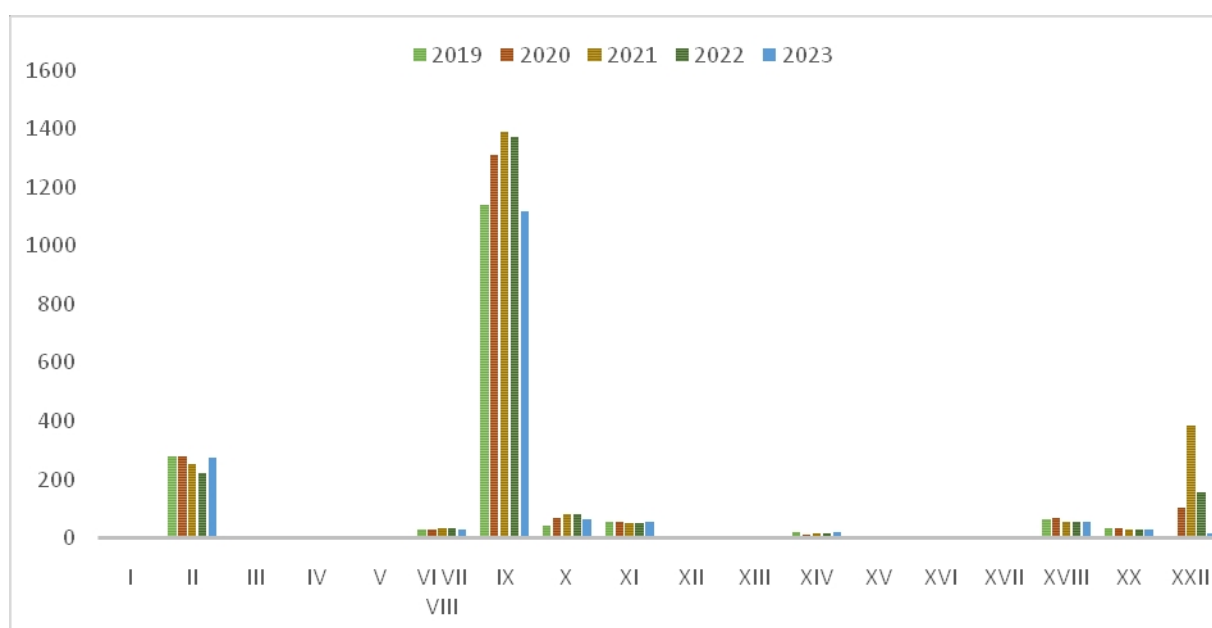


Figure IV.11.1-2. Deaths by cause, broken down by disease class for the Haskovo region for 2019-2023 (per 100,000 people), *NSI*

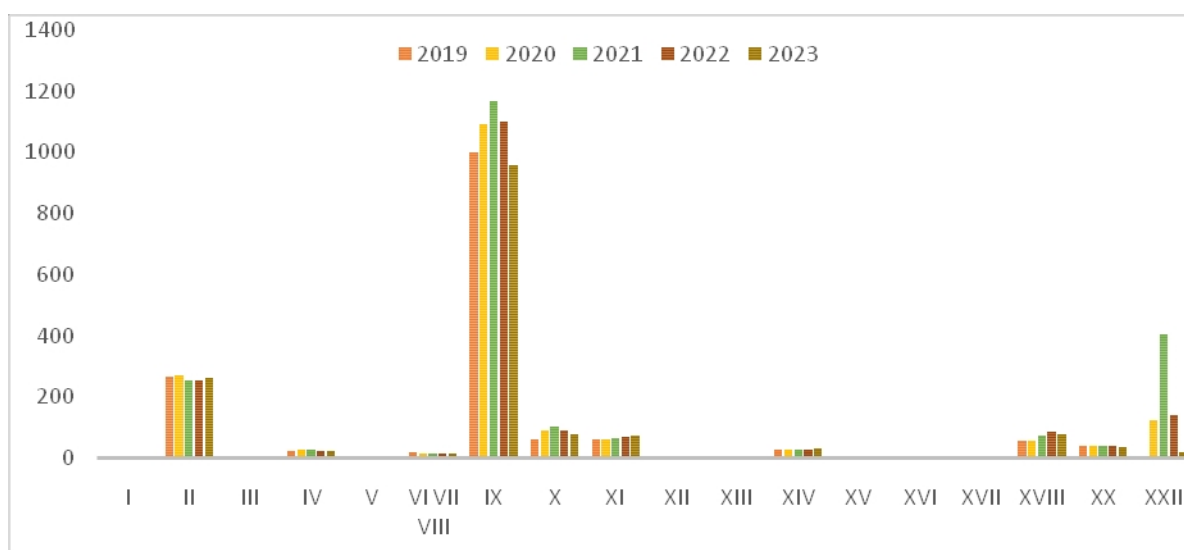


Figure IV.11.1-3. Deaths by cause, broken down by disease class for Bulgaria for 2019-2023 (per 100,000 people), NSI

A comparison of the data, including trends and values for the Haskovo region and for the country for 2019-2023, shows the following:

- The **leading cause** of death for the entire period, both for the region and for the country, is Class *IX Diseases of the circulatory system*. The values for the region are higher/unfavorable compared to the country, with a positive trend of decline observed for both the region and the country.
- The **second** leading cause of death, also for the entire period, both for the region and for the country as a whole, are diseases in *Class II Neoplasms*. The values for the region are higher/unfavorable compared to the country average, with a positive downward trend observed for the entire period, both for the region and for the country as a whole.
- **Thirdly**, at the beginning of the period, diseases in Class *XVIII Symptoms, signs and abnormalities detected in clinical and laboratory tests, not classified elsewhere*, which decreased during the period and at the end of the period were replaced by class *X Diseases of the respiratory system* (which after 2019 showed an increase and then decreased, but at the end of the period had a higher value than at the beginning of the period).

On average for the country, diseases of class *X Diseases of the respiratory system* rank **third** for the entire period, showing a similar trend in values for the period as in the region – they increase after 2019, but decrease in the last two years. However, at the end of the period, they are higher than in 2019. The values in the region are lower than the national average, which is a positive difference for the region.

The increase in values after 2019 for diseases in classes IX and X, which is observed both for the country and for the region, can be explained by the COVID-19 pandemic¹. People suffering from cardiovascular diseases are among the most affected groups (given that heart diseases, such as ischemic heart disease and myocardial infarction, reduce the body's ability to cope with the stress of the infectious process, and that COVID-19 is associated with a variety of mechanisms that affect the cardiovascular system and cause damage). The development of cardiovascular complications due to COVID-19 is associated with increased mortality and more severe disease progression, which is confirmed by the data for the period under review. The explanation for the trends observed for respiratory diseases is similar, as COVID-19 affects the respiratory system.

As for neoplasms, they have a multifactorial origin, with the main causes of their development being related to lifestyle (standard of living, harmful habits, unhealthy diet) and infections, as well as the working environment, environmental pollution, and others.

Infant mortality by cause

The following two figures present data on deaths of children under 1 year of age by cause for the region and the country (per 1,000 live births):

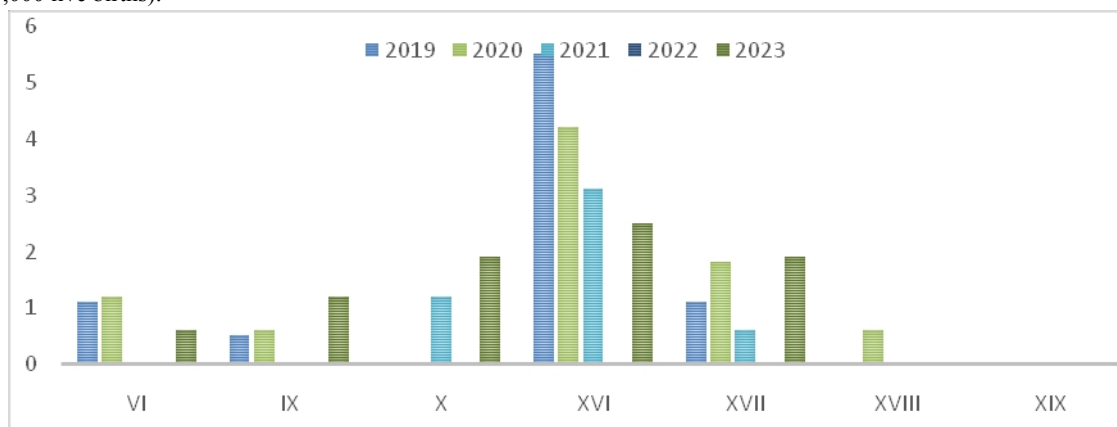


Figure IV.11.1-4 Infant mortality by cause, broken down by disease class for the Haskovo region for 2019-2023 (per 1,000 people), RZI-Haskovo (*according to information provided by RZI-Haskovo, no data is available for 2021)

¹ Cardiovascular system and COVID-19, Damyan Boychev, Naydenka Zlatareva, Ivo Petrov, *Bulgarian Cardiology* 27(3): 16-23, DOI: 10.3897/bgcardio.27.e67571

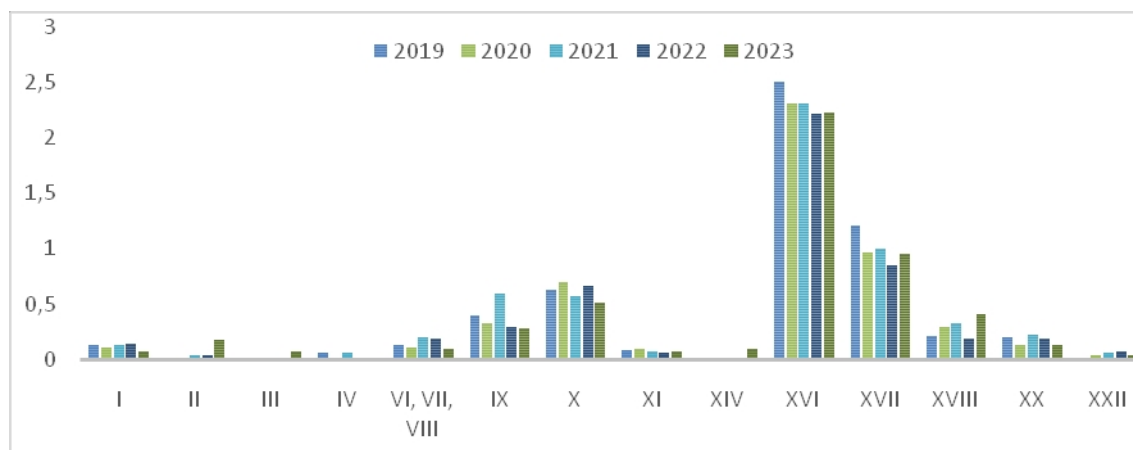


Figure IV.11.1-5. Child mortality by cause, distributed by disease class for the country for 2017-2021 (per 1,000 people), NSI

As can be seen from the graphs in **Figures IV.11.1-4 and 5**, the leading causes of mortality in children under 1 year of age for both the country and the region are classes *XVI Certain conditions originating in the perinatal period* and *XVII Congenital anomalies (developmental defects), deformities and chromosomal aberrations* (i.e. the typical disease categories associated with infant mortality). Compared to the country as a whole, the values for the region for the two leading causes are higher/unfavourable. A positive trend for the region is that for most of the disease classes there are no deaths, and for those where there are (with the exception of the two leading classes), they are isolated, with no discernible trend. Infant mortality does not indicate the presence of increased health risks in the IP area.

Morbidity and incidence among the population

Information on morbidity and incidence among the population is available only for the Haskovo region (there is no average data for the country).

Data on **morbidity** among the population are shown in **Figure IV.11.1-6:**

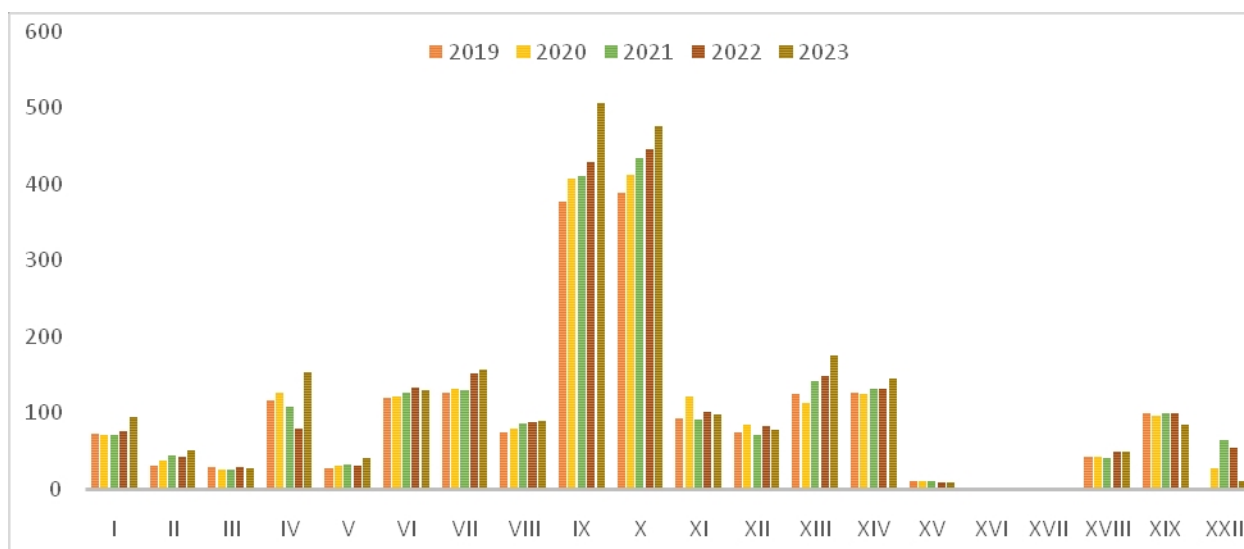


Figure IV.11.1-6. Morbidity of the population for the Haskovo region 2019-2023 (per 1,000 people), RZI-Haskovo

The morbidity data for the period under review show that respiratory diseases are the leading cause of morbidity, followed by diseases of the circulatory system, with the values/cases increasing over the period and, at the end of the period, diseases of the circulatory system ranking first and respiratory diseases second.

In third place at the beginning of the period are diseases of class *VII Diseases of the eye and its adnexa*, which also increase over the period, but are displaced by diseases of class *XIII Diseases of the musculoskeletal system and connective tissue* at the end of the period, which increase at a faster rate.

Data on *the incidence of disease* in the population of the Haskovo region for the period 2019-2023 are shown in **Figure IV.11.1-7**:

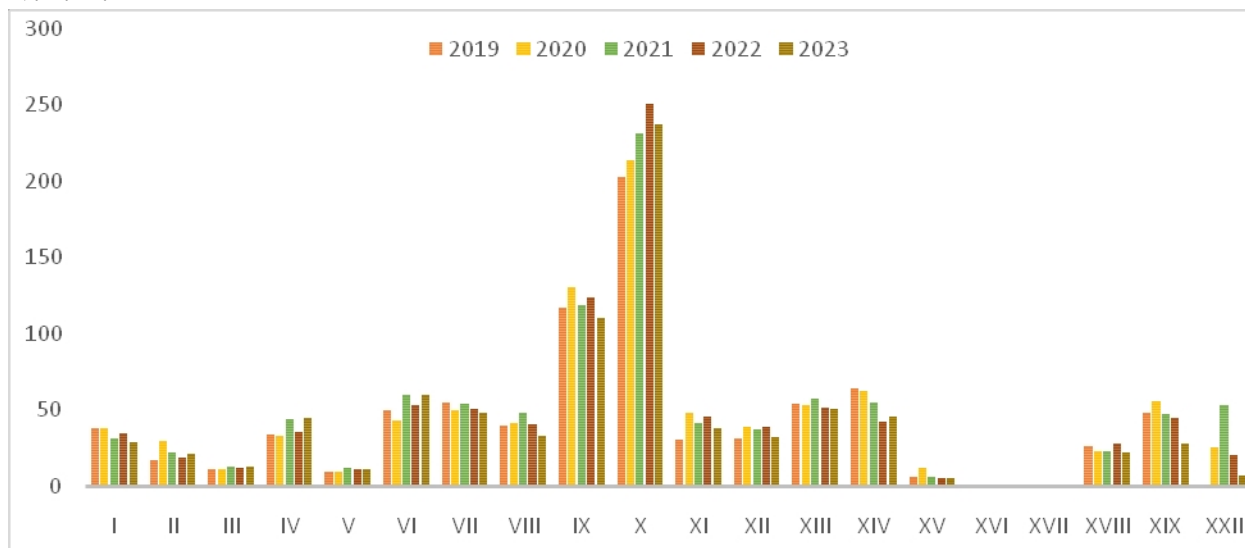


Figure IV.11.1-7. Morbidity of the population in the Haskovo region 2019-2023 (per 1,000 people), *RZI-Haskovo*

In terms of morbidity, the top two causes for the region for the period under review are respiratory diseases, followed by circulatory diseases, with respiratory diseases increasing over the period, but showing a positive downward trend in the last year, and circulatory diseases decreasing over the period as a whole. In third place at the beginning of the period are diseases of class *XIV (diseases of the genitourinary system)*, and at the end – class *VI (diseases of the nervous system)*.

Hospitalized morbidity of the population

The data on *hospitalised morbidity* for the region and the country are presented in the following two figures:

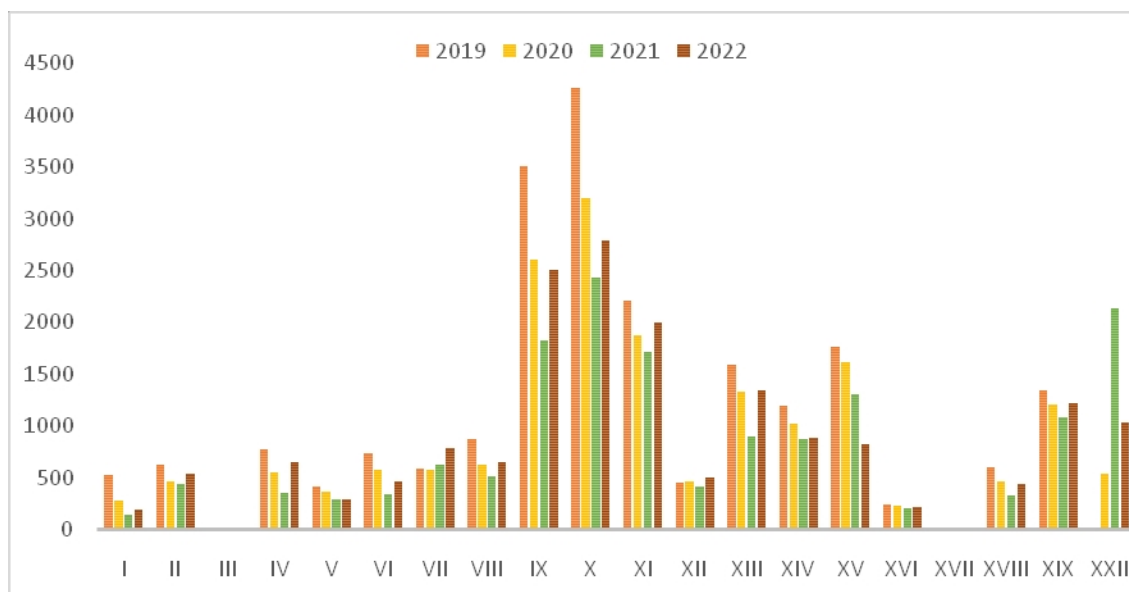


Figure IV.11.1-8. Hospitalized morbidity of the population for the Haskovo region 2019-2022 (per 100,000 people), RZI-Haskovo (no data available for 2023)

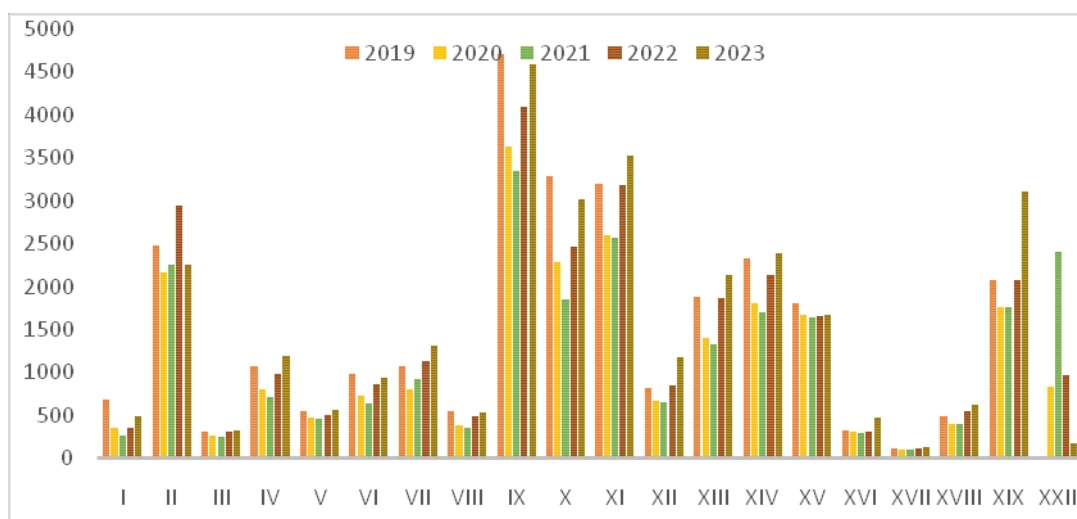


Figure IV.11.1-9. Hospitalized morbidity by disease class for Bulgaria for 2019-2023 (per 100,000 people), NCPHA

The following trends and conclusions can be drawn from the data in **Figures IV.11.1-8 and 9**:

- The leading causes of hospitalization at the national level are disease classes IX (diseases of the circulatory system), X (diseases of the respiratory system) and XI (diseases of the digestive system) at the beginning of the period under review, with diseases of the circulatory system (class IX) remaining in first place at the end of the period, followed by diseases of the digestive system (class XI), COVID-19 in third place, and neoplasms (class II) in fourth place. A favourable trend is noted in the decrease in the values of the leading causes of hospitalisation for the two leading disease classes – IX and X.

- For the Haskovo region, the leading causes of hospitalisation for the period are also diseases from classes X, IX and XI. For all three leading causes, there has been a decrease in hospitalisations for the period, which is positive;
- When compared, the hospitalization rates for the leading disease classes show that for the region, the rate is higher only for class X, while the rates for classes IX and XI are lower, and therefore more favorable.

11.2. Risk factors related to the population and human health

Risk factors for the population and human health can be conditionally analyzed in three groups (according to how they are considered in the *Annual Reports of the Minister of Health on the State of Health of Citizens* – the latest such report was published in December 2024 and refers to 2023²) – risk factors related to the socio-economic environment (social determinants of health), **risk factors related to lifestyle**, and **risk factors related to the environment and the working environment**. Their analysis shows the following:

Risk factors related to the socio-economic environment

According to the *Regional Profile of Haskovo Province for 2023*³ – **Figure No. IV.11.2-1**, economic development in the province is defined as average, and social development as unsatisfactory.



Figure No. IV.11.2-1. Regional Profile of Haskovo Province, 2023.

In terms of **economic development indicators**, the region is among the three regions in the country with the lowest gross domestic product, lowest wages, and low average monthly pension. Poverty is relatively high, with 26% of the population living below the national poverty line, compared to 20.6% in the country.

²<https://www.mh.government.bg/bg/politiki/godishen-doklad-za-zdraveto/>

³https://www.regionalprofiles.bg/var/docs/2024_BG/26-Haskovo-2024-BG.pdf

The share of the working-age population is below the national average, with employment declining and unemployment rising. The educational structure of the workforce remains a challenge for the local labor market, with the share of university graduates in the region at 19%, compared to 31% on average for the country. Investment activity in the region also remains weak.

The infrastructure is at a good level, above the national average, and local taxes are below the national average.

Social development indicators show that the natural growth rate for the region is below the national average, as is the population density. The same applies to the proportion of children in kindergartens and the coverage of the school education system. The proportion of students in relation to the population is declining.

Healthcare suffers from a shortage of doctors and hospital beds, with indicators also below the national average. The life expectancy of the local population is increasing and remains relatively high – 73.4 years compared to 73.5 years in the country. The proportion of people with health insurance in the region is increasing, but is slightly below the national average.

The amount of household waste generated is increasing, but it is below the national average, and the percentage of waste sent for recycling is very high – 97% compared to 76% on average for the country. The disturbed areas are significantly more limited than the national average – 0.1% for the region compared to 0.4% on average for the country.

Lifestyle-related risk factors

The main risk factors in this group are smoking, unhealthy eating, low physical activity, and alcohol use and abuse.

Smoking remains a major behavioural risk factor for chronic non-communicable diseases. Over 80% of smokers are from the low- and middle-income population group, with a study by the National Statistical Institute (NSI) for the period 2013-2022 showing an increase in cigarette consumption per capita in households.

Spending on alcoholic beverages is also increasing, with the country ranking among the top countries in terms of alcohol consumption. Drug use is also a problem.

Low physical activity is one of the main risk factors for the onset and development of chronic non-communicable diseases, which, in combination with other factors, leads to higher morbidity and mortality from ischemic heart disease, cerebrovascular disease, diabetes, hypertension, malignant neoplasms, etc. People with low physical activity have a 20-30% increased risk of mortality. According to data from the 2020 National Health Risk Factors Survey conducted in the country, over 60% of respondents over the age of 20 are physically inactive, with children being the main problem.

Risk factors related to the working environment

The municipality of Ivaylovgrad is mainly engaged in agriculture, but it is underdeveloped and ranks among the most backward rural areas in the South Central Region. As a long-established sector, agriculture has good risk management practices in place, but recently there has been an increase in risks related to climate change and psychosocial risks in the workplace.

Health determinants of the environment – current situation

In order to assess the potential impact of the IP on the health and demographic status of the population, it is necessary to analyze the state of environmental factors that affect human health (the so-called environmental health determinants).

Environmental risk factors include **atmospheric air, drinking water, bathing water, soil, waste, noise, non-ionising radiation, ionising radiation, hazardous chemicals, and, in recent years, climate change.**

From the analysis of the state of the environmental components and factors in the IP area, carried out in the other sub-points of **section IV** of the EIA Report, the following conclusions can be drawn about the state of environmental health risk factors:

Air quality – According to the analyses in **section IV.1.2** of the EIA Report, there are no significant sources of pollution in the IP area: there are no roads with heavy traffic; there is no developed industry; there are no large settlements and, accordingly, domestic heating does not have a significant impact on ambient air quality. Within the boundaries of the settlements, the maximum possible average annual concentrations of PM₁₀ and PM_{2.5} are several times lower than the permissible limits.

Drinking water – The area of the IP does not affect facilities for the extraction of water for drinking and domestic needs, and sanitary protection zones have been established around them.

The Rosino catchment is located 2,300 meters from the mine boundary where mining will take place and 1,300 meters from the buffer zone with a radius of 1,000 meters from the water intake facility. As can be seen from Figure II.1.2-1, the catchment is close to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir.

Within the territorial scope of the Rosinovo deposit, there is only a dry well (P-19) near the village of Rozino on the road to the village of Gugutka (not exported) and the Anas fountain near the village of Gugutka (not used). The deposit, including the concession area, falls within the scope of the underground water body BG3G000PtPg049 Fractured waters - Eastern Rhodope complex, designated as a drinking water protection zone from underground water bodies with code BG3DGW000PtPg049. The water body is in good chemical status and has a low exploitation index (not at risk in terms of quantitative status).

According to the latest published *Report with analysis and assessment of the quality of water intended for drinking and domestic purposes in the Haskovo region for 2024 by the Regional Health Inspectorate - Haskovo*⁴, there is no data on established deviations in water quality according to chemical indicators Group A + additionally included indicators, as well as according to microbiological indicators Group A, indicators from Group B, including radiological indicators for the three nearest settlements in the area of the IP.

⁴<https://www.oid.rzi-haskovo.org/wp-content/uploads/2013/11/%D0%93%D0%BE%D0%B4%D0%B8%D1%88%D0%B5%D0%BD-%D0%B4%D0%BA%D0%BB%D0%B0%D0%B4-%D0%92%D0%B8%D0%9A-2024%D0%B3-%D0%95%D0%9F.pdf>

Bathing waters – The concession area is not located within or near bathing areas/recreational areas and water sports areas within the meaning of the Water Act.

Soils – The results of soil sample analyses in the IP area (according to the Regional Annual Reports of RIEW-Haskovo) show that the soils are in good ecological condition in terms of biogenic element reserves, heavy metal and metalloid content, and persistent organic pollutants.

Waste – At present, no waste is generated on the concession area, nor has any illegally dumped waste been found.

Noise – Currently, no extraction or primary processing of natural resources is carried out in the territory of the Rosino deposit or in its immediate vicinity. No activities that could be a source of noise, vibrations, or harmful radiation in the environment are carried out in the area of the deposit. There is no heavy traffic on the road network in the area of the investment project, and it can be concluded that road transport is not a significant source of noise for the area. The background noise in the nearby residential areas is currently generated by the daily activities of the inhabitants. The current noise levels do not pose a risk to the population of the settlements closest to the deposit.

Non-ionising radiation – According to the *Annual Report on the monitoring of sources of non-ionising radiation in the Haskovo region for 2024 by the Regional Health Inspectorate in Haskovo*⁵, the power density values do not exceed the norm for populated areas (10µ/Wcm²), regulated by Ordinance No. 9/1991 on the maximum permissible levels of electromagnetic fields in populated areas and the establishment of hygiene protection zones around emitting objects (State Gazette, No. 35/1991, as amended and supplemented in State Gazette, No. 8/2002).

Ionizing radiation – No excessive radiation background levels have been detected in the municipality.

Hazardous chemicals – *At present*, no activities involving the storage and use of hazardous chemicals are carried out in the concession area or in its vicinity. The nearest enterprise with a risk potential for a major accident involving hazardous substances is 45 km away.

Climate change - Climate change has primary and secondary effects on people and human health. Primary effects directly impact human health, like through heat and cold waves and floods. Secondary effects indirectly affect human health through other climate-influenced factors, such as pollen, vector-borne diseases, fires, contaminated food, water, and air, and damaged crops. The primary and secondary health effects of climate change can be differentiated into the following groups: heat-related morbidity and mortality; morbidity and mortality related to extreme weather events; cardiovascular diseases, including strokes, asthma, respiratory allergies and respiratory diseases; diseases caused by food and nutritional factors; water-related diseases; mental health and stress-related disorders, neurological diseases and disorders. Key future vulnerabilities are as follows:

⁵<https://www.old.rzi-haskovo.org/wp-content/uploads/2022/08/%D0%94%D0%BE%D0%BA%D0%BB%D0%B0%D0%B4-%D0%95%D0%9C%D0%9F-%D0%A5%D0%B0%D1%81%D0%BA%D0%BE%D0%B2%D0%BE-2024.pdf>

- Impact of temperature and humidity on health - these include an expected increase in: the number of deaths from cardiovascular disease and strokes in large cities during the summer due to heat waves and the urban heat island effect; vector-borne diseases; campylobacteriosis; respiratory diseases due to the impact of PM in warmer air; and allergic diseases due to earlier flowering and increased concentrations of pollen, spores, and other health effects related to meteorological conditions. These include an expected increase in: mortality due to extreme weather events and fires, with this increase being greater among vulnerable groups; water- and food-borne diseases due to damaged infrastructure; and post-traumatic stress disorder;
- Change in health effects related to precipitation - this includes an expected increase in: the occurrence of cryptosporidiosis and campylobacteriosis due to a combination of more frequent rainfall and higher average annual temperatures; and infections caused by non-cholera vibrio (enteritis in which vibrio cholerae is not isolated) due to heavier rainfall and higher humidity levels.

These vulnerabilities are significant in a global context and should be taken into account in the future implementation of the IP.

In summary, the analysis of the health and demographic status of the population in the IP area shows that:

- *In terms of **population**, the three settlements closest to the IP territory are extremely sparsely populated, accounting for an insignificant percentage of the population of the municipality and the region. The trends in the population of the settlements in the IP area and the municipality of Ivaylovgrad are more favorable than the average for the region and less favorable than the average for the country.*
- *The process of demographic aging of the population continues, with **the age structure** in the municipality of Ivaylovgrad and the district of Haskovo being less favorable than the national average. This is due to the depopulation of the three settlements and the high proportion of the population above working age, which for the municipality is over 1/3. The problem is considered to be extremely significant, as it determines the reproduction of the population and the labor force in the future⁶ ;*
- *The **birth rate, overall mortality rate, and natural growth rate** are the most unfavorable for the municipality, mainly due to the deteriorating age structure of the population and the migration of young people to larger settlements and abroad. **Infant mortality** has decreased over the period, which is a positive trend, with the causes in the region being the same as the national average;*
- *In terms of **causes of death**, both for the region and for the country, diseases of the circulatory system are in first place, followed by*

⁶ According to the Annual Report on the Health Status of Citizens in the Republic of Bulgaria for 2023, <https://www.mh.government.bg/bg/politiki/godishen-doklad-za-zdraveto>

neoplasms – higher/unfavorable for the region, but with a positive downward trend at the end of the period for both administrative levels. The values are higher for the region. In third place for the country and the region (for the region – at the end of the period) are diseases of the respiratory system, which have been declining in recent years and are lower in value for the region compared to the national average. The leading causes of **hospitalization** (hospitalized morbidity) are diseases of the circulatory, respiratory, and digestive systems, with a positive downward trend. The values for hospitalizations by leading disease categories show that the region has higher values only for hospitalizations in category X, while the values for hospitalizations in categories IX and XI are lower, and therefore more favorable. The higher values for the region in terms of causes of death and hospitalized morbidity are also linked to the deteriorating age structure of the population.

- The state of the environmental health determinants in the IP area does not indicate any problems or deteriorated indicators, including obstacles to the implementation of the IP. Overall, the data on the state of the population do not show any deterioration in indicators attributable to environmental health determinants in the area; the reasons for the observed trends are mainly socio-economic.

V. DESCRIPTION OF THE ELEMENTS UNDER ART. 95, PAR. 4, WHICH ARE LIKELY TO BE SIGNIFICANTLY AFFECTED BY THE INVESTMENT PROPOSAL: POPULATION, HUMAN HEALTH, BIOLOGICAL DIVERSITY (E.G. FAUNA AND FLORA), SOIL (E.G. ORGANIC MATTER, EROSION, COMPACTION, SEALING), WATER (E.G. HYDROMORPHOLOGICAL CHANGES, QUANTITY AND QUALITY), AIR, CLIMATE (E.G. GREENHOUSE GAS EMISSIONS, IMPACTS RELATED TO ADAPTATION), TANGIBLE ASSETS, CULTURAL HERITAGE, INCLUDING ARCHITECTURAL AND ARCHAEOLOGICAL ASPECTS, AND LANDSCAPE (THE DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS ON THE ELEMENTS REFERRED TO IN ARTICLE 95(4) SHALL COVER THE DIRECT EFFECTS AND ALL INDIRECT, SECONDARY,

CUMULATIVE, CROSS-BORDER, SHORT-TERM, MEDIUM-TERM AND LONG-TERM, PERMANENT AND TEMPORARY, POSITIVE AND NEGATIVE CONSEQUENCES OF THE INVESTMENT PROPOSAL AND TAKES INTO ACCOUNT THE ENVIRONMENTAL PROTECTION OBJECTIVES WHICH ARE RELEVANT TO THE INVESTMENT PROPOSAL)

1. Atmospheric air and climatic factors

The extraction and processing of polymetallic ores from the Rosino deposit does not involve the release of greenhouse gas emissions into the atmosphere in quantities that could affect climate change in the area, including cumulatively.

Climate change manifests itself in long-term changes in the amount and annual distribution of precipitation, temperature, humidity, wind direction, atmospheric pressure distribution, and other climatic factors. Precipitation patterns are changing and extreme weather events are becoming more frequent, causing disasters such as floods and droughts.

It is important to note again that the implementation of the IP will not contribute significantly to climate change. More detailed information is provided in section 6.6.

1.1. Sources of air pollution related to the implementation of the investment proposal – during construction, during operation, and during closure and recultivation

The company's investment proposal includes the phased development of the two sections of the Rosino deposit. Once the excavation work in Section 1 is complete, all equipment will be moved and concentrated on the excavation and preparation of Section 2. Only mining operations will continue in Section 1 until the planned geological reserves are fully depleted, i.e., simultaneous activities will be carried out in both sections.

This report covers the period of the project implementation during which maximum air pollution is expected. This is the first 4 years of the project implementation, when mining activities will be carried out simultaneously with the opening of the deposit and the dumping of the overburden on an external dump. After

the fourth year, internal dumping of the overburden in the mine pit will begin, which will result in significantly less unorganized dust emissions into the atmosphere compared to transport and dumping outside the mine pit.

During the development, operation, and closure of the Rosino deposit, activities will be carried out that will lead to the release of dust and gas emissions into the atmosphere. The sources of emissions will be **unorganized**.

By source type, unorganized emissions can be considered as area *emissions (drilling and blasting, removal and disposal of overburden and ore, loading and unloading of extracted materials, crushing of extracted raw materials, exhaust emissions from internal combustion engines of construction equipment, etc.)* and linear (*dust and exhaust emissions from internal combustion engines of transport equipment and from its movement on quarry roads*).

The implementation of the IP does not envisage the operation of an organised source of emissions into the atmosphere.

UNORGANIZED SOURCES OF POLLUTION:

Construction, excavation, and mining works are sequential processes which, for the purposes of the analyses here, do not need to be considered separately. All activities related to unorganized dust emissions into the atmosphere can be carried out in one year.

Air pollution in the area of the Rozino deposit will be mainly due to dust emissions from:

- rock blasting activities;
- loading and unloading of the overburden;
- loading and unloading of ore;
- processing of the extracted ore using a crushing plant;
- the area of the overburden dump;
- the operation of internal combustion engines in mining (industrial) equipment for the extraction and loading of rock mass;
- operation of internal combustion engines of heavy-duty equipment for quarry transport;
- movement of mining equipment on quarry roads.

The industrial equipment required for mine construction, extraction, raw material processing, and quarry transport is: a drilling machine for drilling blast holes; a quarry-type excavator; a bulldozer; a front loader; a crushing and sorting plant; a water tanker; dump trucks for internal quarry transport (*55 t load capacity*); etc.

The following methods are applicable for determining and calculating emissions of harmful substances into the air:

- AP-42 8.19.2 Crushed stone processing, 1994—the document presents emission factors for drilling and blasting rock materials;
- Methodology of the European Environment Agency (EEA), developed under the European Monitoring and Evaluation Programme (EMEP) to the Convention on Long-range Transboundary Air Pollution, last updated in 2023.

Below are the calculations for emissions of harmful substances depending on the sources of emissions and activities that lead to unorganized emissions into the atmosphere.

Emissions of harmful substances are presented for the sources that will have the greatest impact on air quality in the area, namely:

- mining (industrial) equipment for extracting and loading rock mass;
- heavy-duty equipment for quarry transport;
- loading and unloading of mined material;
- processing of extracted construction materials using a mobile crushing plant;
- dump for overburden.

Emissions from the operation of industrial equipment:

Diesel fuel will be used to power industrial and transport equipment (*drilling rig, excavator, bulldozer, front loader*).

The operation of internal combustion engines of industrial equipment will release harmful gases into the atmosphere, which are generally: carbon oxides, nitrogen oxides, sulfur oxides, soot, unburned hydrocarbons, etc. The quantities of harmful gases can be calculated using the methodology of the European Environment Agency, updated in 2023.

The emission factors of the main pollutants from the operation of off-road equipment used for industrial purposes (*NFR sector - 1.A.2.g.vii Mobile Combustion in manufacturing industries and construction – Table 3.1*) are presented in Table No. V.1-1.

Table No. V.1-1. Emissions from industrial equipment at the Rozino deposit

Pollutant	Emission factor g/t fuel
Soot/carbon	1306
CH ₄	8
CO	10774
CO ₂	3160
N ₂ O	135
NH ₃	8
NM VOC	3377
NO _x	32629
PM10/PM2.5	2104
Cadmium	0.01
Mercury	1.
Chromium	0.05
Nickel	0.07
Selenium	0.01
Zinc	1.0
Greenhouse gas emissions	
CO ₂	3160
N ₂ O	135

Pollutant	Emission factor g/t fuel
CH ₄	83

Emissions from industrial equipment are not regulated under current legislation.

Emissions from internal combustion engines are characteristic of this type of activity and are unavoidable, with the majority of these emissions being released within the site. The expected concentrations of pollutants in the ground-level atmospheric layer are below the MPC for gases in the air in the working environment. The exhaust gases from internal combustion engines are released into the atmosphere at high temperatures, as a result of which they quickly disperse at altitude. The precipitation of pollutants in the ground-level atmospheric layer occurs at a short distance from the source (*up to 200 m*) and over a large area, which ensures compliance with the standards for air quality in the working environment.

Calculation of greenhouse gas emissions from industrial equipment:

Greenhouse gas emissions can be calculated based on the relative fuel consumption for ore discovery/extraction. With a relative fuel consumption of $3.75 \text{ dm}^3/\text{t}$ of raw material/excavation, it can be calculated that the maximum total fuel consumption of the industrial equipment at the Rozino deposit will be up to $16,256 \text{ t/y}$. The maximum greenhouse gas emissions can be calculated as follows:

- 51.4 t/y CO_2 emissions;
- $2.2 \text{ t/y N}_2\text{O}$ emissions or $654 \text{ t/y CO}_{2\text{eq}}^7$;
- 1.3 t/y emissions of CH_4 or $34 \text{ t/y CO}_{2\text{eq}}$.

Emissions from mining/blasting of rock mass:

According to AP-42 8.19.2 Crushed stone processing, 1994, the emission factor for drilling and blasting rock materials is 0.00004 kg/t (kg PM_{10} per ton of blasted rock). The planned annual production is $5,070,000 \text{ t}$ of rock mass (*ore + sterile rock mass*), with two blasts per week planned.

The dust emissions that will be released into the atmosphere from drilling and blasting activities are 203 kg/year . PM_{10} and $\text{PM}_{2.5}$ or 0.0064 g/s .

Depending on the explosive used, toxic gases will also be released into the atmosphere, which can be equated to the so-called conditional carbon monoxide. Conditional carbon monoxide is a combination of the following toxic gases:

$\text{CO} + 6.5\text{NO}_x + 2.5(\text{SO}_2 + \text{H}_2\text{S})$, [l/kg], where

6.5 and 2.5 are the respective coefficients for the greater toxicity of nitrogen and sulfur gases compared to the toxicity of CO.

⁷https://www.moew.government.bg/static/media/ups/tiny/2017/07/Metodika_final.pdf

In this particular case, the ore will be extracted using coarse-grained ammonium nitrate explosive mixtures (*Emulit 100, ANFO, or RIOGEL*), which have been selected for their proven qualities in practice.

The amount of toxic gases formed during an explosion is directly dependent on the oxygen balance of the specific explosive substance. In explosives with a positive oxygen balance, the amount of nitrogen oxides increases and carbon monoxide decreases. In explosives with a negative oxygen balance, carbon monoxide increases and nitrogen oxides decrease accordingly.

Below, calculations will be made for the amount of toxic gases released into the atmosphere based on the available information on the explosive substances.

Calculations based on the oxygen balance of the BB:

First, calculations will be made for toxic gases based on the oxygen balance of the BB, for which data is available. The oxygen balance of one of the selected BBs (*Emulit-100*) is

"-5", and the amount of toxic gases can be determined theoretically from the following figure:

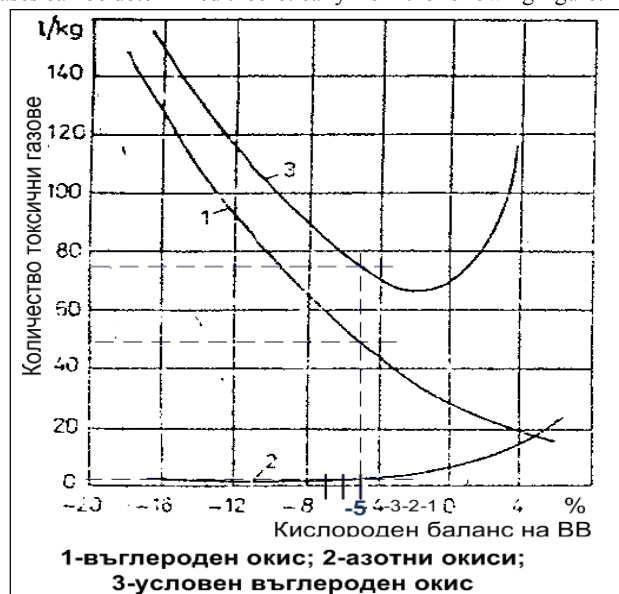


Figure No. V.1.1-1. Effect of the oxygen balance of explosives on the amount of toxic gases released

According to the figure above (*Textbook on Explosive Works – State Publishing House "Technika" – Sofia, 1988*), when explosives detonate, 75 l/kg of toxic gases, expressed as carbon monoxide, are released into the atmosphere.

According to the manufacturer's data, a maximum of 933 l/kg of gases are generated during an explosion. It can be assumed that the detonation of 1 t of explosives releases approximately 933,000 l of gas products. According to data from the use of ANFO explosives with 94.5% porous ammonium nitrate and 5.5% diesel fuel (KB +0.14%), the gas emissions per 1 kg of explosive are as follows: 142 l/kg CO₂; 22.24 l/kg NO_x; 159 l/kg cond. CO. The tests were performed according to standard BDSN 13631 – 16 in 142 m³ pressure-supporting chamber in existing

test facility. According to another source⁸, when using ammonium nitrate/petroleum explosive (ANPE), **~176 kg CO₂ is released per ton of explosive** during detonation.

When blasting, the gaseous products of the explosion, including toxic gases, are distributed as follows:

- part of the gases enter the atmosphere;
- part of the gases are absorbed by the blasted rock and fine-grained dust;
- some of the gases fill the cracks and pores in the surrounding rock – they are released very slowly by diffusion and can remain there for a long time.

With the exception of dust, which settles at relatively short distances from the source, gas pollutants will mainly rise in height and disperse over long distances from the IP site. Carrying out 1-2 blasts per week is not likely to lead to a breach of the established CAQ standards.

Calculation of greenhouse gas emissions from blasting of rock mass:

Greenhouse gas emissions can be calculated based on the relative CO₂ emission value for 1 t of explosive – 176 kg/t CO₂. Using a maximum of 727,200 kg of explosive per year will result in up to 128 t/y of CO₂ emissions.

Emissions from loading of raw materials and unloading of the excavation:

In accordance with the section "Industrial processes and product use" – "Quarrying and mining of minerals other than coal" (NFR Category 2.A.5.a), dust emissions can be calculated using the following formulas:

$$E_{PM10} = k_{pms-PM10} \times k_{mat.hand} \times \left(\frac{U}{k_U} \right)^{1.3} \times \left(\frac{M}{k_M} \right)^{1.4} \times Q_{mat.handled}$$

$$E_{PM2.5} = k_{pms-PM2.5} \times k_{mat.hand} \times \left(\frac{U}{k_U} \right)^{1.3} \times \left(\frac{M}{k_M} \right)^{1.4} \times Q_{mat.handled}$$

Where:

- $E_{PM10/PM2.5}$ – emissions of PM₁₀ or PM_{2.5}, in kg/year;

- U – average annual wind speed, m/s (1.8 m/s);

- M – moisture content, % (6.6 %);

- $Q_{mat.handled}$ – quantity of materials loaded/unloaded, t/y;

$Q_{mat.handled} = 5070000, t/yr.$, when loading from the mine area to the open pit for transport to the open dump and the ore for transport to the bunker for uncrushed ore in the enrichment plant (Area source No. 1);

$Q_{mat.handled} = 3540000, t/yr.$, when unloading the ore in the warehouse to the bunker for uncrushed ore in the enrichment plant (Area source No. 2);

⁸<https://www.agg-net.com/resources/articles/drilling-blasting/air-decking-and-the-environment#:~:text=Explosives%20work%20by%20producing%20large,176kg%20of%20CO2%20is%20p>

$Q_{mat.handled} = 3300000, t/yr.$, when unloading the excavated material onto the open dump area (Area source No. 3);

- $K_u - 2.2 s/m$;
- $K_M - 2$;
- $k_{mat.hand} - 0.0016 kg/t$;
- $k_{pms-PM10} - 0.35$;
- $k_{pms-PM2.5} - 0.053$.

The results of the calculations are as follows:

- 411.13 kg/year (0.013037 g/s) PM_{10} and 62.26 kg/year (0.001974 g/s) $PM_{2.5}$ from loading activities carried out on the territory of the mine (Area source No. 1);
- 287.06 kg/year (0.009103 g/s) PM_{10} and 43.47 kg/year (0.001378 g/s) $PM_{2.5}$ from unloading activities and scraping ore from the warehouse to the bunker for uncrushed ore in the enrichment plant (Area source No. 2);
- 267.6 kg/year (0.008486 g/s) PM_{10} and 40.52 kg/year (0.001285 g/s) $PM_{2.5}$ from unloading the overburden onto the open dump area (Area source No. 3).

Emissions from ore processing at the enrichment plant (Area source No. 2):

A technology involving crushing of the mined ore by a crushing plant has been adopted.

The feed hopper of the crushing plant is loaded, which results in unorganized dust emissions.

According to Table 3.2 of the section "Industrial processes and product use" – "Quarries and extraction of minerals other than coal" (NFR Category 2.A.5.a), the emission factor for loading/unloading is 0.00055 kg/t (kg PM_{10} per t of ore) and 0.00014 kg/t for $PM_{2.5}$.

Up to 1,770,000 t of ore are loaded annually into the receiving hopper of the TSI, which may result in unorganized emissions of:

- 973.5 kg/year (0.0309 g/s) PM_{10} ;
- and 247.8 kg/year (0.0079 g/s) $PM_{2.5}$.

This is followed by three stages of crushing: primary jaw crusher, followed by secondary and tertiary cone crushers, ore screening, unloading into a covered buffer storage for crushed ore and reloading through a crushed ore silo and to the ball mill.

Emissions can be calculated using the following formula from NFR Category 2.A.5.a:

Where:

$$E_{PM_{10}, PM_{2.5}} = P \times \left(\frac{E_{PM_{10}, PM_{2.5}}}{Flow_{cru}} \times Flow_{cru} \times (1 - ER_{cru}) + EF_{PM_{10}, PM_{2.5}}^{sc} \times Flow_{sc} \times (1 - ER_{sc}) + EF_{PM_{10}, PM_{2.5}}^{TP} \times Flow_{TP} \times (1 - ER_{TP}) \right)$$

- (kg/year) – emission of PM_{10} or $PM_{2.5}$;

- EF_{PM10} (kg/t) – emission factor for crushing (cru), screening (sc) and unloading (TP) processes;
- $Flow_{cru/sc/TP}$ (% of the production process) – the amount of ore that has undergone crushing (cru), screening (sc) and unloading (TP) processes;
- $ER_{cru/sc/TP}$ – reduction coefficient (%), depending on the technology used to reduce emissions in crushing (cru), screening (sc) and unloading (TP) processes
- P (t/year) – annual productivity.

The reduction coefficients can be calculated using the following equation: Where:

$$1 - ER = \frac{(1 - Eff) \times Use + (1 - Use)}{Use}$$

- ER – reduction factor (%);
 - Eff (%) – efficiency of the proposed technology (determined according to Table 3-3 NFR Category 2.A.5.a).
- In the case of irrigation in the relevant process, the Eff coefficient is: 50% for crushing; 75% for screening.

It is important to note that irrigation of the ore processing operations in the crushing plant is envisaged. In this specific case, the ore is considered dry (moisture content below 1.3%) when it is initially unloaded onto the receiving hopper of the TSI, during the first screening and primary crushing. After these processes, the ore is considered wet (moisture content above 1.3%). According to Table 3.2 of NFR Category 2.A.5.a, the emission factors for the various ore processing processes are as follows:

Process	EF for dry ore kg/t		EF for wet ore kg/t	
	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
Crushing – primary	0.001	0.0006	0.	0.0000
Crushing – secondary	0.0012	0.0006	0.0002	0.00005
Crushing – tertiary	0.0012	0.0006	0.0002	0.00005
Sifting	0.0043	0.00028	0.00037	0.000025
Overloading	0.0005	0.000014	0.00002	0.0000065

Emissions from ore crushing, screening, and reloading processes can be calculated as follows:

$$E_{PM10} = 1770000 \times (0.0012_{cru1} \times 1 \times 0.5 + 0.00027_{cru2} + 0.00027_{cru3} + 0.0043_{sc1} \times 1 \times 0.25 + 0.00037_{sc2} \times 1 + 0.000023_{TP} \times 3)$$

$$E_{PM2.5} = 1770000 \times (0.0006_{cru1} \times 1 \times 0.5 + 0.00005_{cru2} + 0.00005_{cru3} + 0.00028_{sc1} \times 1 \times 0.25 + 0.000025_{sc2} \times 1 + 0.0000065_{TP} \times 3)$$

The following dust emissions will be generated from ore processing activities:

- 4697.58 kg/year (0.149 g/s) PM₁₀;

➤ and 910.665 kg/year (0.0289 g/s) PM_{2.5}.

The subsequent processing of the ore by grinding in a ball mill (operating in a closed circuit with a group of hydrocyclone classifiers) and enrichment does not result in emissions into the atmosphere.

Wind erosion from the sterile rock mass dump area (open pit):

Emissions from wind erosion from stockpile areas can also be calculated using the EEA methodology developed under EMEP.

In the section "Industrial processes and product use" – "Quarries and extraction of minerals other than coal" (NFR Category 2.A.5.a), point 3.3.5 presents emissions from wind erosion.

The following calculation formulas are used:

$$E_{PM10} = k_{wind.erosion} \times AD_{PM10} \times \left(\frac{s}{k_s}\right) \times \left(\frac{(1-p)}{k_{working.days}}\right) \times \left(\frac{I}{k_I}\right) \times A \times (1-ER)$$

$$E_{PM2.5} = k_{wind.erosion} \times AD_{PM2.5} \times \left(\frac{s}{k_s}\right) \times \left(\frac{(1-p)}{k_{working.days}}\right) \times \left(\frac{I}{k_I}\right) \times A \times (1-ER)$$

Where:

- $E_{PM10/PM2.5}$ – emissions of PM₁₀ or PM_{2.5}, in kg/year;
- p (%) – average percentage of days per year with atmospheric precipitation above 0.254 mm (average 86 days per year⁹) – p=0.23;
- s (%) – average sludge content on the surface of the embankment – s=0.5%;
- I – percentage of time with wind speed >19.3 km/h (5.36 m/s)¹⁰.
I=3.7333;
- A (m²) – exposed surface area of the erosion deposit;
- AD – aerodynamic factor (0.5 for PM₁₀ and 0.2 for PM_{2.5});
- $k_{wind.erosion}$ (kg/m²) – 1.12x10E-04x1.7x365;
- k_s – 1.5;
- $k_{working.days}$ (%) – 235x365E-1;
- k_I – 15;
- ER (%) – emission reduction factor – the worst-case scenario is assumed, with a value of "0" for ER;

$$A = nb_{stockpile} \times r^2 \times \sqrt{(1 + \tan(\theta)^2)}$$

$$r = \sqrt[3]{\left(\frac{\frac{w}{\rho} \times 3}{\pi \times \tan(\theta)}\right)}$$

where

⁹ Climate Reference Book, Precipitation in Bulgaria, BAS, 1990.

¹⁰ Climate Reference Book, Volume 4 Wind, Bulgarian Academy of Sciences, 1990.

- $A (m^2)$ – exposed surface area of the erosion deposit. An area of 32,590 m^2 has been calculated;
- nbstockpile – number of piles;
- $r (m)$ – radius of the pile. A radius of 168 m has been calculated;
- $w (t)$ – weight of the deposited material. $w=7317310 t$;
- $\rho (t/m^3)$ – density of the material. A value of 2.54 t/m^3 has been assumed;
- $\theta (^\circ)$ – angle of deposition. An angle of 30° was assumed.

The calculated wind erosion from the area of the sterile rock mass embankment is as follows:

- 767 kg/year (0.0243 g/s) PM_{10} ;
- 307 kg/year (0.00973 g/s) $PM_{2.5}$.

Transport emissions:

A dump truck is used to transport the ore and overburden. The overburden is transported by road to the external dump for the first

4 years, after which internal stockpiling in the mine pit is planned. The more difficult option will be considered, in which transport from the mine to the external stockpile is carried out along the following internal quarry road:

- an unpaved internal quarry road (gray line in Figure V.1.1-2) with a maximum transport distance of 4 km;

The ore is transported by road to the covered warehouse at the uncrushed ore bunker in the enrichment plant. This is done via the following internal road:

- an unpaved internal road (orange line in Figure V.1.1-2) with a maximum transport distance of 1550 m.

The concentrated end product will be transported for processing to the end user, according to the hypothetical options presented in **Figure II.1.2-2**.

The expected number of trucks for transporting the product is a total of 30 trucks/week, each truck with a payload of 25 t, distributed over three working days per week. The client plans to use electric trucks, as they do not emit harmful substances into the air or noise from internal combustion engines.

The quarry roads are marked in gray and orange in the following figure.

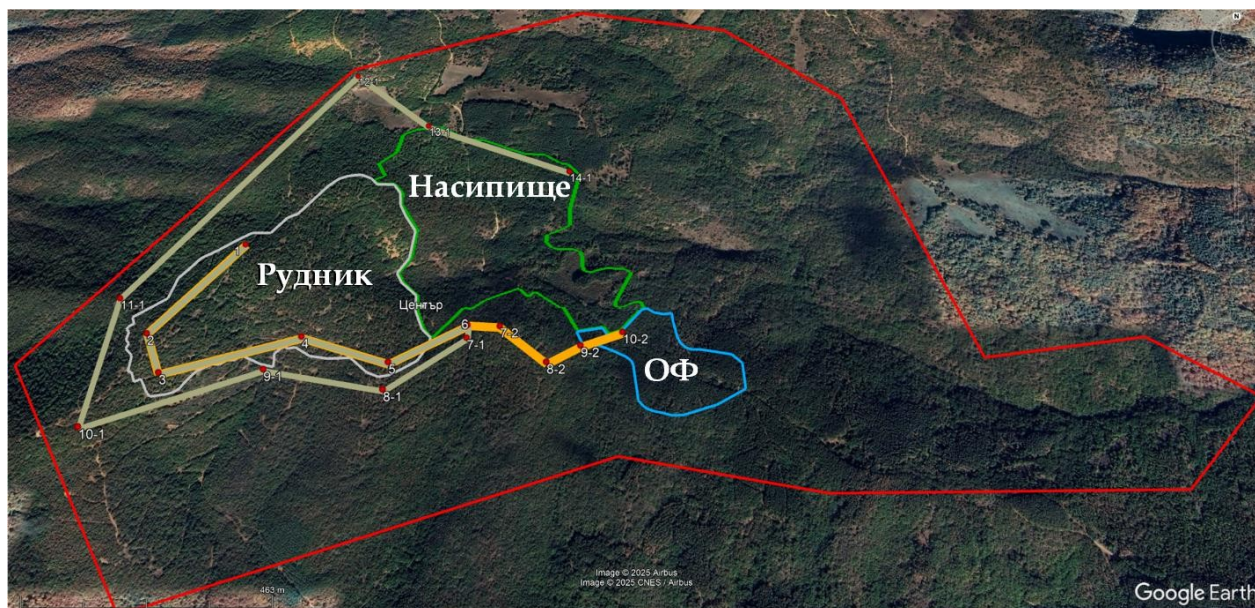


Figure No. V.1.1-2. Internal quarry roads

Emissions from transport can be calculated using the latest methodology of the European Environment Agency (EEA), developed under the European Monitoring and Evaluation Programme (EMEP) to the Convention on Long-range Transboundary Air Pollution. The methodology was developed to assist the countries that are parties to the Convention in preparing their annual emission reports, as well as in relation to the European Directive on national emission ceilings (NEC Directive). The version updated in 2023 was used.

The section "Industrial processes and product use" – "Quarries and extraction of minerals other than coal" (*NFR Category 2.A.5.a*) examines the various sources of pollution.

Transport on unpaved quarry roads:

Unpaved quarry roads are located within the boundaries of the mine and the external spoil tip.

The following formula is used to calculate emissions from transport on unpaved quarry roads:

$$E_{PM10} = k_{PM10} \times \left(\frac{s}{k_s}\right)^{0.9} \times \left(\frac{W_{dumper}}{k_w}\right)^{0.45} \times d_{unpaved} \times \left(1 - \frac{p}{k_{day}}\right) \times (1 - ER)$$

$$E_{PM2.5} = k_{PM2.5} \times \left(\frac{s}{k_s}\right)^{0.9} \times \left(\frac{W_{dumper}}{k_w}\right)^{0.45} \times d_{unpaved} \times \left(1 - \frac{p}{k_{day}}\right) \times (1 - ER),$$

Where:

- $E_{PM10/PM2.5}$ – emissions of PM10 or PM2.5, in kg/year;
- s – sludge content on the road surface (%) – 9.15 average value for quarry roads made of crushed rock;
- W_{dumper} – weight of trucks – 55 t when performing internal quarry transport;
- $d_{unpaved}$ – annual transport distance on unpaved quarry roads;

- ER – emission reduction factor (%) – the worst case scenario with a value of "0" is assumed;
- p – number of days per year with atmospheric precipitation above 0.254 mm – 86 days¹¹. In dry weather, quarry roads will be watered, which can be equated to a minimum of 0.254 mm of precipitation. The value of p=186;
- $k_{PM10} = 0.422 \text{ kg/km}$;
- $k_{PM2.5} = 0.042 \text{ kg/km}$;
- $k_w = 2.72 \text{ t}$;
- $k_s = 12$;
- $k_{day} = 365$.

The results obtained for emissions from transport activities are as follows:

➤ $0.004860889 \text{ g/(m.s)}$ PM_{10} and $0.000483796 \text{ g/(m.s)}$ $PM_{2.5}$ when transporting the overburden on internal roads within the deposit (*Linear source 1*);

➤ $0.002607211 \text{ g/(m.s)}$ PM_{10} and $0.000259481 \text{ g/(m.s)}$ $PM_{2.5}$ when transporting the ore on internal quarry roads to the enrichment plant (*Linear source 2*).

Transportation on paved quarry roads:

Paved quarry roads are roads outside the mine boundary within the mine boundary and the external spoil heap.

The following formula is used to calculate emissions from transport on unpaved quarry roads:

Where:

$$E_{PM10} = k_{PM10} \times (sL \times k_{sL})^{0.91} \times (W_{dumper} \times k_w)^{1.02} \times d_{paved} \times \left(1 - \frac{p}{k_{day}}\right)$$

$$E_{PM2.5} = k_{PM2.5} \times (sL \times k_{sL})^{0.91} \times (W_{dumper} \times k_w)^{1.02} \times d_{paved} \times \left(1 - \frac{p}{k_{day}}\right)$$

- $E_{PM10/PM2.5}$ – emissions of PM_{10} or $PM_{2.5}$, in kg/year;
- sL – sludge content on the road surface (g/m^2) – 8.3 g/m^2 average value;
- W_{dumper} – weight of trucks – 55 t;
- $d_{unpaved}$ – annual transport distance on paved quarry roads;
- p – number of days per year with atmospheric precipitation above 0.254 mm – 86 days¹². In dry weather, quarry roads will be watered (*at least 100 days per year*), which can be equated to a minimum of 0.254 mm of precipitation. The value of p=186;
- $k_{PM10} = 0.62E-03 \text{ kg/km}$;
- $k_{PM2.5} = 0.15E-03 \text{ kg/km}$;
- $k_{sL} = 1 \text{ (m}^2/\text{g)}$;
- $k_w = 1.1 \text{ t}^l$;
- $k_{day} = 4 \times 365$.

¹¹ Climate Reference Book, Precipitation in Bulgaria, Bulgarian Academy of Sciences, 1990.

¹² Climate Reference Book, Precipitation in Bulgaria, Bulgarian Academy of Sciences, 1990.

The results obtained for emissions from transport activities are as follows:

- 0.000694358 g/(m.s) PM_{10} and 0.000184805 g/(m.s) $PM_{2.5}$ when transporting the overburden on internal roads within the deposit (*Linear source 1*);
- 0.000372446 g/(m.s) PM_{10} and 9.91248E-05 g/(m.s) $PM_{2.5}$ when transporting the ore along internal quarry roads to the enrichment plant (*Linear source 2*).

Calculation of greenhouse gas emissions from transport activities:

Greenhouse gas emissions can be calculated using the following emission factors:

- for CO_2 - 3181.89 g/kg (*Tables 3-12 and 3-13 of NFR Category 1.A.3.b, 2024*);
- for N_2O - 0.07 g/kg (*Table 3-7 of NFR Category 1.A.3.b, 2024*);
- for CH_4 - 0.21 g/kg (*Table A1-0-4 of NFR Category 1.A.3.b, 2024*);

With fuel consumption of 216.8 g/km (*Table 3-15 of NFR Category 1.A.3.b, 2024*) and maximum mileage of up to 480,000 km/y from the mine to the dump (*road length ≈ 4.0 km*) and 96,546 km/y from the mine to the processing plant (*road length ≈ 1.5 km*), the following greenhouse gas emission values are obtained:

- 398 t/y CO_2 emissions;
- 0.07 t/y emissions of N_2O or 2.6 t/y CO_{2eq}^{13} ;
- 0.21 t/y emissions of CH_4 or 0.7 t/y CO_{2eq} .

TOTAL EMISSIONS FROM THE DEVELOPMENT OF THE ROZINO DEPOSIT:

The main pollutant that will be emitted throughout the entire period of operation of the deposit is dust. Below is information on dust emissions in the 10 and 2.5 μm fractions. The sources are divided according to their type (*area and linear sources*).

Table V.1.1-2 Emissions from area sources

Activity	PM_{10}	$PM_{2.5}$
	g/s	g/s
Emissions from mine operations - Area source 1		
Drilling and blasting operations	0.006	0.0064
Loading of mine waste and overburden onto dump trucks	0.013037	0.001974
Total emissions from Area Source 1	0.0194	0.00837
Emissions from the landfill - Area source 2		
Unloading of the overburden	0.008486	0.001285
Wind erosion from the outer embankment	0.0382	0.0152
Total emissions from Area Source 2	0.046686	0.016565
Emissions from OF activity - Area source 3		
Unloading of ore in the warehouse to the bunker for uncrushed ore	0.009103	0.001
Scooping ore with an excavator to load the TSI bunker		
Unloading of ore onto the TSI	0.0309	0.007
Crushing in the TSI (<i>primary, secondary, and tertiary</i>)	0.064	0.022
Screening in TSI	0.08	0.005

¹³ https://www.moew.government.bg/static/media/ups/tiny/2017/07/Metodika_final.pdf

Activity	PM ₁₀	PM _{2.5}
	g/s	g/s
Unloading from TSI in a covered buffer warehouse for crushed ore	0.001	0.00
Transshipment through the crushed ore silo and to the ball mill	0.002	0.0007
Total emissions from Area Source 3	0.1890	0.036

Table V.1.1-3 Emissions from point sources

Linear source No.	PM ₁₀	PM _{2.5}
	g/(m.s)	g/(m.s)
Linear source No. 1 Emissions from internal transport, from the mine to the dump	0.000694358÷ 0.002433758	0.000184805÷ 0.000242231
Linear source No. 2 Emissions from internal quarry transport, from Mine to OF	0.000372446÷ 0.001305397	9.91248E-05÷ 0.000129915

1.2. Assessment of the impact on atmospheric air and climatic factors in accordance with the norms and standards in force in the country

a) During construction and operation

The analyses in point V.1.1 show that the activities to be carried out at the IP site are mainly a source of dust in the ambient air.

According to *Ordinance No. 12 of July 15, 2010, on standards for sulfur dioxide, nitrogen dioxide, fine dust particles, lead, benzene, carbon monoxide, and ozone in the atmosphere*, the following standards for the protection of human health have been established:

- 50 µg/m³ average daily standard (ADS) for PM₁₀;
- 40 µg/m³ annual average standard (AAS) for PM₁₀;
- 20 µg/m³ AAN for PM_{2.5}.

At this point, the dispersion of pollutants will be modeled depending on their sources and the time of operation. In this case, the worst-case scenario has been adopted—the period of implementation of the investment project during which maximum air pollution is expected, or the first four years of implementation of the investment project, when mining activities will be carried out simultaneously with the opening of the deposit and the dumping of overburden on an external dump. The calculated concentrations will be compared with the applicable standards for the protection of human health.

The activities to be carried out at the IP site will generate a total of three area sources and two linear sources (*internal transport with 55-ton trucks from the mine to the dump and from the mine to the OF*) of pollution.

In order to assess the impact on air quality as a result of the implementation of the IP, a calculation of the dispersion of pollutants (PM₁₀ and PM_{2.5}) in the ground-level atmospheric layer was made. The calculations were performed in accordance with the Methodology for determining the dispersion of harmful emissions from vehicles and their concentration in the ground-level atmospheric layer, approved by the Ministry of Environment and Water - software product "Traffic Oracle". The software product consists of two main modules: EMISSIONS and DIFFUSION.

The EMISSIONS module calculates the emission of certain harmful substances in the exhaust gases from internal combustion engines of motor vehicles, defined on the basis of the Joint EMEP/CORINAIR Atmospheric Emission Inventory Guidebook. In this case, this module has not been used, as the emissions have been calculated in accordance with the latest EEA methodology developed under the European Monitoring and Evaluation Programme under the Convention on Long-range Transboundary Air Pollution (see sub-point V.1.1).

The emissions calculated in the previous sub-point were used as input data for the DIFFUSION module, which calculates the concentration of pollutants from point and area sources in the surface layer of the atmosphere. Based on the input meteorological information, the module provides the maximum possible single pollution event under the most unfavorable meteorological conditions or the average annual concentrations of pollutants, depending on the respective wind rose.

Dimensions of the studied area of airspace: - length (east-west) – 4,000 m; - width (north-south) – 4,000 m (see Figure No. V.1.2-2).

Below is the data for each source as entered into the program:

Area source 1 – Rosino Mine with an area of $\approx 261,900 \text{ m}^2$ – the boundary of the mine is approximated to a regular shape (black rectangles in Figure V.1.2-1) due to the limitations of the Traffic Oracle program.

X1	U1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
1413	1843	585	448	5	1	0.019437	0.00837

Area source 2 – External landfill with an area of $\approx 247,000 \text{ m}^2$ – the boundary of the landfill is equated to a regular shape (black rectangles in Figure V.1.2-1) due to the limitations of the Traffic Oracle program.

X	U1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
2005	1943	395	625	5	1	0.046686	0.016565

Area source 3 (see Figure V.1.2-1) – OF with an area of $\approx 51300 \text{ m}^2$ – the boundary of the embankment is equated to a regular figure:

X1	Y1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
2447	1735	225	228	5	1	0.189003	0.0368

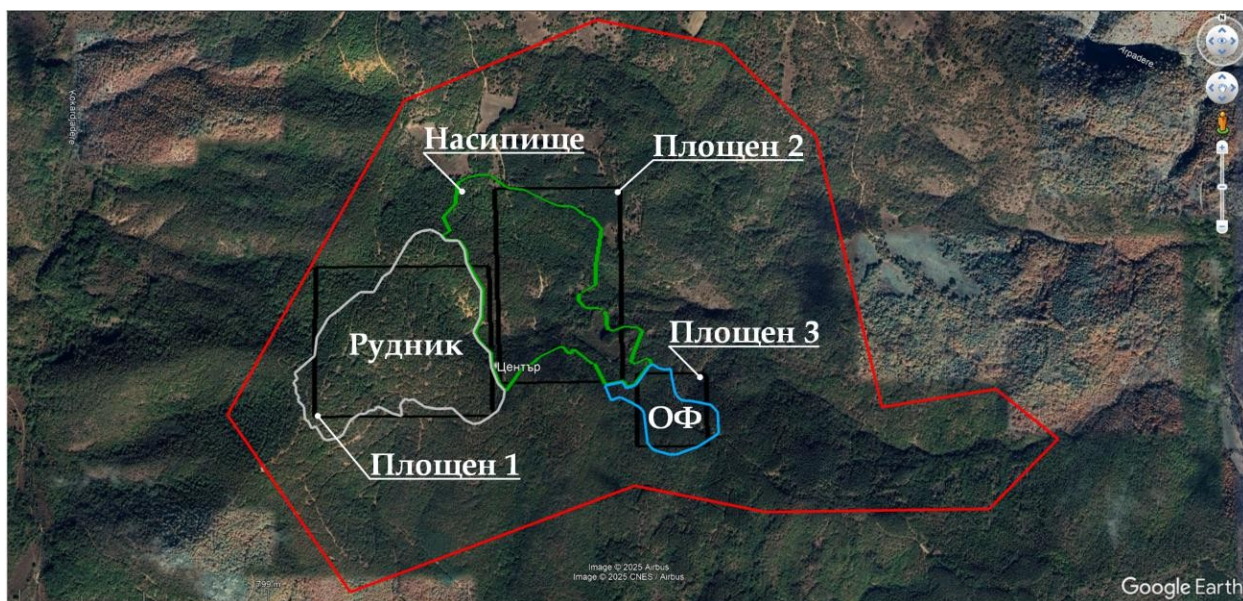


Figure No. V.1.2-1. Area sources in the territory of the Rozino deposit

Linear source 1 – internal quarry transport with trucks with a load capacity of 55 t from the Rosino Mine to an external spoil tip:

Unit	X1	U1	X2	U2	width	FPCH10	FPCH2.5
point-to-point	m	m	m	m	m	g/(m.s)	g/(m.s)
1-2	1558	2192	1397	1928	6	0.002433758	0.000242231
2	1397	1928	1451	1821	6	0.002433758	0.000242231
3	1451	1821	1740	1915	6	0.002433758	0.000242231
4-5	1740	1915	1940	1843	6	0.002433758	0.000242231
5	1940	1843	2103	1943	6	0.002433758	0.000242231
6-7.1	2103	1943	2104	1907	6	0.000694358	0.000184805
7.1-8.1	2104	1907	1938	1771	6	0.000694358	0.000184805
8.1-9.1	1938	1771	1674	1827	6	0.000694358	0.000184805
9.1-10.1	1674	1827	1321	1685	6	0.000694358	0.000184805
10.1-11.1	1321	1685	1309	2030	6	0.000694358	0.000184805
11.1-12.1	1309	2030	1731	2810	6	0.000694358	0.000184805
12.1-13.1	1731	2810	1945	2605	6	0.000694358	0.000184805
13.1-14.1	1945	2605	2316	2430	6	0.002433758	0.000242231

Linear source 2 – internal transport by trucks with a load capacity of 55 t ore from the Rozino Mine to the OF:

Unit	X1	U1	X2	U2	width	FPCH10	FPCH2.5
point-to-point	m	m	m	m	m	g/(m.s)	g/(m.s)
1-2	1558	2192	1397	1928	6	0.001305397	0.000129915
2	1397	1928	1451	1821	6	0.001305397	0.000129915
3	1451	1821	1740	1915	6	0.001305397	0.000129915
4	1740	1915	1940	1843	6	0.001305397	0.000129915
5	1940	1843	2103	1943	6	0.001305397	0.000129915

Teacher	X1	U1	X2	U2	width	FPCH10	FPCH2.5
point-to-point	m	m	m	m	m	g/(m.s)	g/(m.s)
6-7.2	2103	1943	2175	1939	6	0.000372446	9.91248E-05
7.2-8.2	2175	1939	2282	1839	6	0.000372446	9.91248E-05
8.2-9.2	2282	1839	2355	1883	6	0.000372446	9.91248E-05
9.2-10.2	2355	1883	2447	1919	6	0.000372446	9.91248E-05

Given the different sources of pollution and the use of different modules from the Traffic ORACLE program, it is necessary to introduce discrete receptors – in the houses closest to the Rosino site. The discrete receptors have the following coordinates:

- Rozino village with coordinates (according to UTM) 408523.23 *m* E, 4589687.88 *m* N, which correspond to the following conditional coordinates: on the X-axis – 2047 and on the Y-axis – 3606;
- the village of Byalgradets with coordinates (according to UTM) 409072.2 *m* E, 4586233.58 *m* N, which correspond to the following conditional coordinates: on axis X – 2596 and on axis Y – 152.

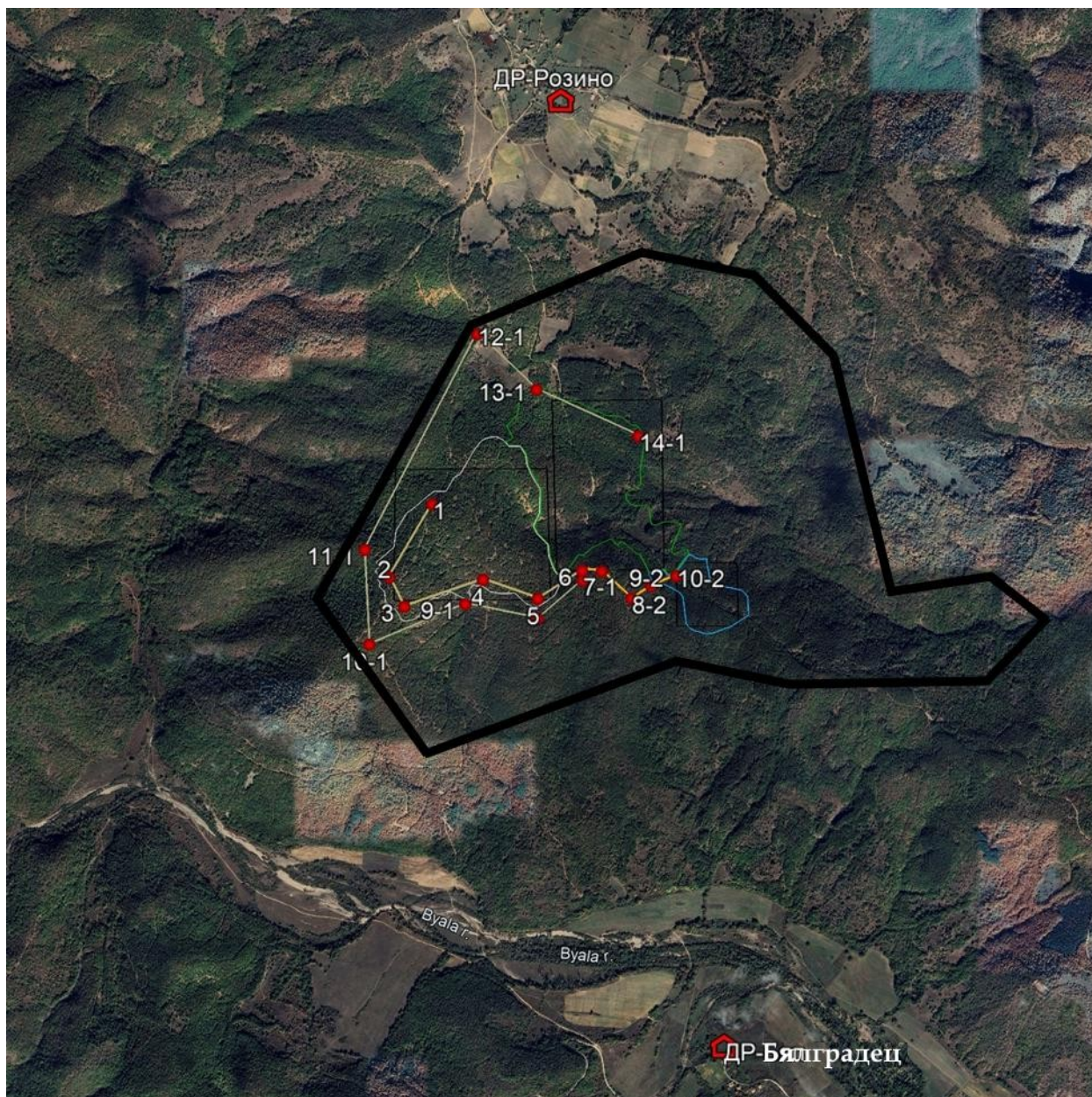


Figure No. V.1.2-2. Studied area of airspace with marked sources of pollution and discrete receptors

The methodology used allows for the calculation of maximum single and average annual concentrations emitted from area and linear sources. In this case, the main pollutant of the atmospheric air will be dust, for which the SDN and SGN are determined in the fraction with a particle size of $10 \mu m$ and the SGN in the fraction of $2.5 \mu m$. The results of the program's calculations for average annual concentrations of pollutants in the atmospheric air are presented below. The program is not applicable for calculating average daily concentrations.

Due to certain limitations of the program, two simulations of linear sources were performed consecutively – first, a model of Linear Source 1 was created, followed by a model of Linear Source 2. This was followed by a separate model of area sources. The results obtained from the linear sources, recorded in text (DAT) files, are summed using the SUPERPOSITION module from the Traffic ORACLE package in order to

comply with the principle of superposition. This is followed by the summation of the total file for the linear sources with the file for the area sources. The results for the calculated average annual values (AAV) expressed by isolines are superimposed on a satellite image of the area using the Surfer program.

The results for the average annual concentrations of PM_{10} from linear sources are presented in the appendix – working files from the program. The maximum calculated AAV for PM_{10} within the boundaries of the nearest populated areas are as follows:

- Rozino village – $10.9 \mu g/m^3$;
- Byalgradets village – $0.4 \mu g/m^3$.

The results for the average annual concentrations of $PM_{2.5}$ from linear sources are presented in the appendix – working files from the program. The maximum calculated CCS for $PM_{2.5}$ within the boundaries of the nearest populated areas are as follows:

- Rozino village – $1.3 \mu g/m^3$;
- village of Byalgradets – $0.08 \mu g/m^3$.

The results for the average annual concentrations of PM_{10} from area sources are presented in the appendix – working files from the program. The maximum calculated AEC for PM_{10} is $30.9 \mu g/m^3$ (within the concession area), with an AEC of $40 \mu g/m^3$. In the nearest populated areas, the maximum AACs are as follows:

- Rozino village – $0.03 \mu g/m^3$;
- Byalgradets village – $0.67 \mu g/m^3$.

The results for the average annual concentrations of $PM_{2.5}$ from area sources are presented in the appendix – working files from the program. The maximum calculated AEC for $PM_{2.5}$ is $6.2 \mu g/m^3$ (within the concession area), with an AEC of $20 \mu g/m^3$. In the nearest populated areas, the maximum AECs are as follows:

- Rozino village – $0.01 \mu g/m^3$;
- Byalgradets village – $0.13 \mu g/m^3$.

The results of the summation of all sources of pollution in the area of the Rozino deposit, using the SUPERPOSITION module from the Traffic ORACLE package, are recorded in a text (DAT) file (**Electronic Appendix No. 2.1.**).

The maximum calculated CCS for PM_{10} , after summing the working files from the linear and area sources, in the nearest populated areas (in the discrete receptors), is as follows:

- Rozino village – $10.96 \mu g/m^3$;
- village of Byalgradets – $1.07 \mu g/m^3$.

with an average annual standard for the protection of human health of $40 \mu g/m^3$.

The maximum calculated CGS for $PM_{2.5}$, after summing the working files from linear and area sources, in the nearest populated areas (in discrete receptors), is as follows:

- Rozino village – $1.32 \mu g/m^3$;
- village of Byalgradets – $0.22 \mu g/m^3$.

with an average annual standard for the protection of human health of $20 \mu g/m^3$.

The following two figures show the isolines of the total ground-level concentrations of pollutants from the operation of the Rosino deposit, depicted using the Surfer program.

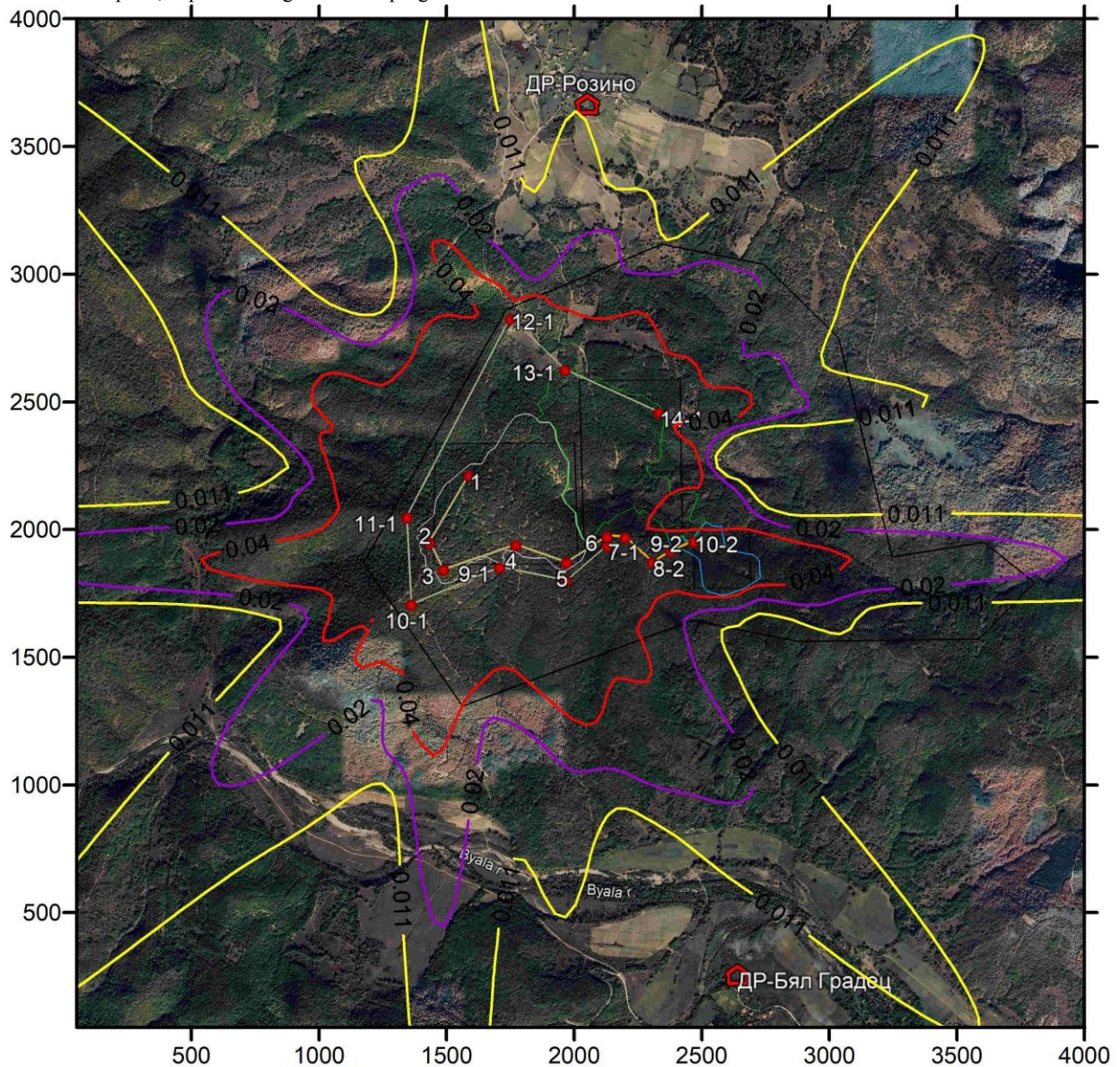


Figure No. V.1.2-3. SGS of PM_{10} as a result of the operation of the Rosino deposit, mg/m^3

The figure above shows the isolines of PM_{10} distribution in the atmospheric air as a result of the exploitation of the Rosino deposit. The red isoline encloses the area where it is possible to exceed the average annual standard for the protection of human health of $40 \mu g/m^3$. As can be seen from the figure, this zone is mostly located within the concession area. Within the boundaries of the nearest residential areas, the maximum levels of the pollutant fall below $11 \mu g/m^3$ (the yellow isoline in the figure).

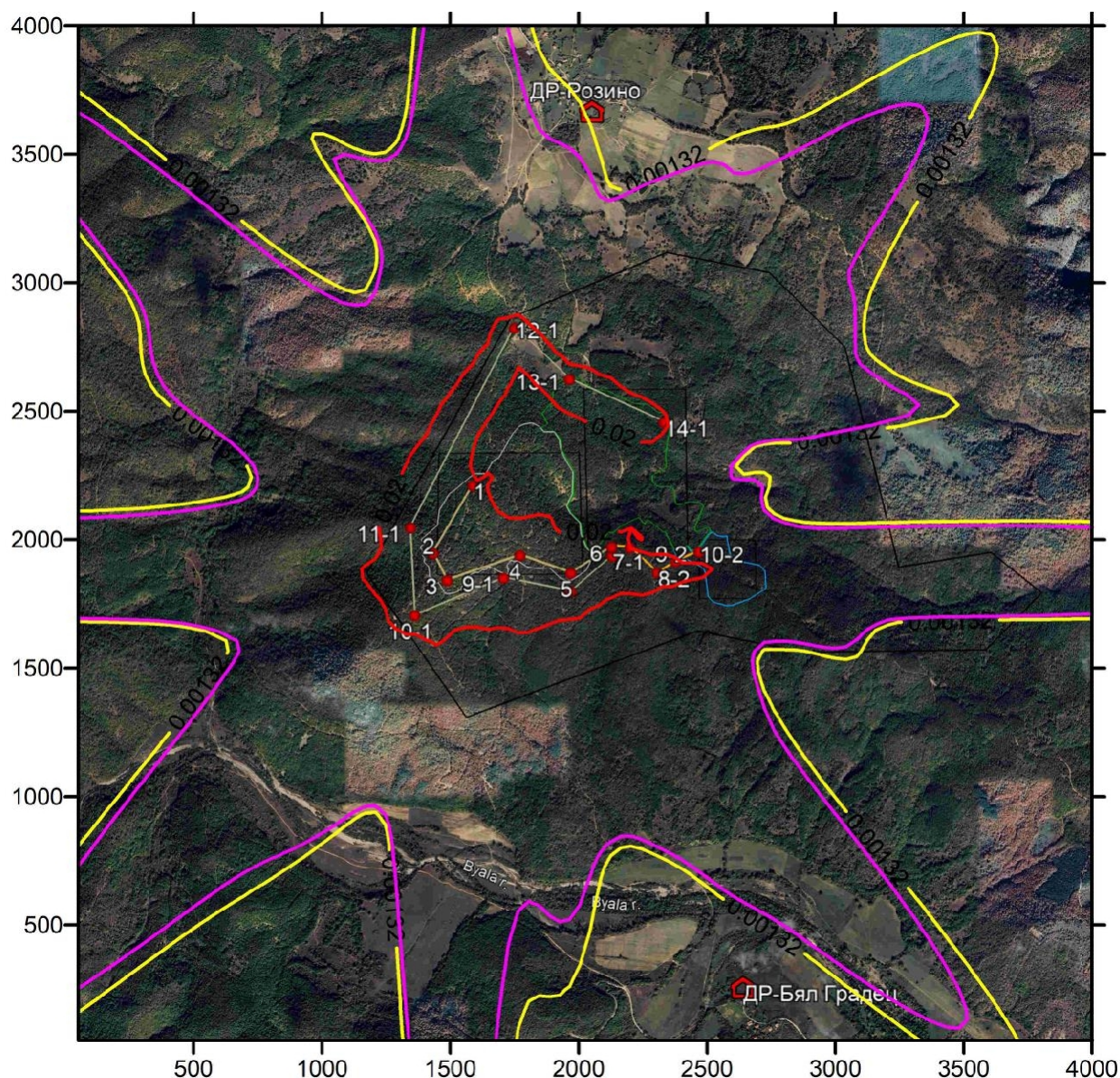


Figure No. V.1.2-4 SGS of $PM_{2.5}$ as a result of the operation of the Rosino deposit, mg/m^3

In the figure above, the red isoline encloses the area where the average annual standard for the protection of human health of $20 \mu g/m^3$ for the pollutant $PM_{2.5}$ may be exceeded. This area falls almost entirely within the concession area. Within the boundaries of the nearest residential areas, the maximum levels of the pollutant fall below $1.5-1.32 \mu g/m^3$ (the pink and yellow isolines in the figure).

Overall, the exploration and extraction activities in the concession area of the Rozino deposit will not have a significant impact on the ambient air quality of the nearby settlements. The maximum calculated AACs for PM_{10} and $PM_{2.5}$ are significantly below the permissible levels for the protection of human health.

In connection with a letter from the Ministry of Environment and Water (MOW) ref. No. EIA-68-65/20.10.2025, an additional analysis was made of the dispersion of dust pollutants in the ambient air during drilling and blasting operations at the IP site. As specified above, the modeling program used and approved in Bulgaria is not applicable for

calculating average daily concentrations, but maximum single concentrations can be calculated. For the sake of completeness of the analysis, modeling of the maximum single pollution of the atmospheric air with PM_{10} will be performed, i.e., the maximum hourly concentrations of the pollutant will be calculated. If the maximum concentration does not exceed the average daily standard for the protection of human health, this proves that the blasting operations on the site cannot affect the quality of the ambient air.

With a total of 88 blasts per year (or twice a week), the maximum PM_{10} emission will be 0.0267 g/s. It is important to note that in this case, the most conservative approach has been adopted—maximum removal of overburden and maximum extraction of raw materials, or a total of 5,070,000 t/y. **It is not possible for the maximum annual extraction of raw materials to coincide with the maximum amount of overburden removed.** The calculated emission of PM_{10} during the blasting of a total of 57,613.6 t/d and an emission factor of 0.00004 $kgPM_{10}/t\text{blasted mass}$ is, as we specified, 0.0267 g/s.

On the days when blasting works are carried out, the following sources of pollution will not be active: loading of the mine mass and overburden onto dump trucks; unloading of the ore in the warehouse to the bunker for uncrushed ore; and unloading of the overburden; movement of heavy equipment. It is assumed that on the days when blasting works are carried out, the enrichment plant will be in operation and wind erosion from the spoil heap, which is not affected by the production process on site, will occur.

Below is data for each source as entered into the program:

Area source 1 – Rosino Mine:

X1	U1	X2	U2	H	Int.	FPCH10
m	m	m	m	m		g/s
1413	1843	585	448	5	1	0.02667298

Area source 2 – External embankment for excavation:

X1	U1	X2	Y2	H	Int.	FPCH10
m	m	m	m	m		g/s
2005	1943	395	625	5	1	0.0382* ¹

*¹ Includes wind erosion from the embankment

Area source 3 – Enrichment plant:

X	U1	X2	Y2	H	Int.	FPCH10
m	m	m	m	m		g/s
2447	1735	225	228	5	1	0.189003

Using the third module of the Traffic Oracle program, "Maximum Possible Single Pollution," the worst meteorological conditions were calculated, under which the maximum concentrations of the pollutant under study were calculated. The results of the program are as follows: wind speed 2.5 m/s, direction from the west (315°) and atmospheric stability class E.

For the sake of completeness of the analysis and calculation of the maximum possible hourly concentrations in the entire studied area, sequential modeling was performed

separately for each of the eight wind directions (0; 45; 90; 135; 180; 225; 270; 315 deg). Then, using Excel software, a single DAT file was created, which included the maximum ground-level concentrations from the eight DAT files. The combined file was used to plot the isolines of the average hourly concentrations of the pollutant on a map of the area.

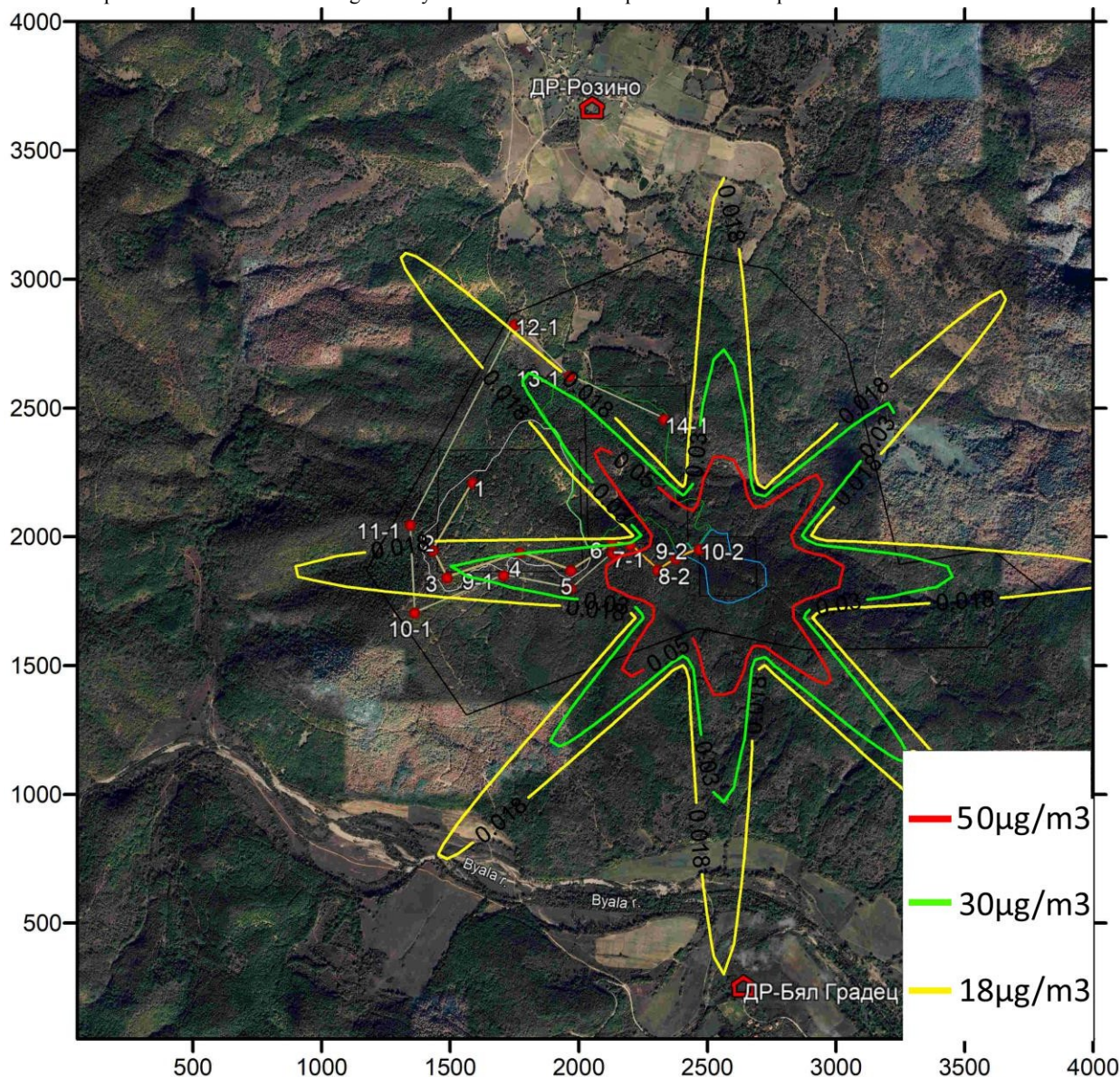


Figure No. V.1.2-5 Maximum single concentrations of PM_{10} during blasting operations mg/m^3

The results for the maximum single concentrations of PM_{10} are presented in the appendix – working files from the program. The maximum calculated concentration of PM_{10} within the boundaries of the nearest populated areas (the villages of Rozino and Byalgradets) is below $18 \mu g/m^3$ (the yellow isoline in the figure).

The calculations show that the maximum single concentration of PM_{10} that would occur over a short period of time (at the relevant wind speed and direction, and atmospheric stability class) would be lower than even the average daily standard for the protection of human health of $50 \mu g/m^3$.

It can be concluded that the explosive activities on the territory of the IP, together with the other sources of pollution, cannot lead to a violation of the established average daily norm for the protection of human health for PM_{10} .

Conclusion:

Based on the modeling, it can be concluded that the operation of the will not lead to atmospheric air pollution above the permissible levels. Within the boundaries of populated areas, dust concentrations will be within the permissible levels for the protection of human health.

b) During closure and recultivation

Reclamation activities (*technical and biological*) have a significantly lower impact on atmospheric air. The sources are again unorganized and consist of dust and exhaust gases from the equipment used—excavators, bulldozers, and dump trucks. In this phase, mining equipment and technological equipment are not in operation.

Due to the significantly smaller volume of work compared to the construction activities and the operation of the deposit, it can be concluded that the closure and recultivation will have a negligible impact on the ambient air quality in the area of the investment proposal.

Summary conclusions on the impact on atmospheric air:

By type of impact: insignificant, with constant frequency during the extraction period;

By territorial scope of impact: local, mainly on the concession area;

Frequency of impact: constant, daily, until the closure of the activity and recultivation of the disturbed areas;

Duration of impact: continuous, for the term of exploitation of the deposit, recoverable to a certain extent, with well-executed recultivation activities;

Cumulative and combined impacts on the environment: The IP will not have a significant cumulative effect on the CAW in the area.

2. Surface and groundwater

- ***Surface water***

Mining and processing activities include the operation of an open pit mine, a crushing plant with conventional crushing, grinding, and flotation processing to obtain gold concentrate.

Water management for the site has been carefully planned and designed, with a comprehensive strategy based on the principle of sustainability and minimisation of the impact of mining activities on both groundwater and surface water. The protection of the country's water resources is also an important part of the strategy. The project plans to completely close the cycle of water affected by the site for internal use under normal operating conditions.

An integrated approach to water quality management within the production site has been developed. The report on integrated and sustainable water management is presented in **Text Appendix No. 11**. It is based on the division of surface water into two streams:

- water affected by mining activities - water from production cycles, tailings ponds, ore pits, and open-pit mines;
- water that has not been in contact with production - surface water, rainwater, runoff water, water from undisturbed forest areas.

This functionality allows for sustainable water management by minimizing the amount of contact water in circulation at any given moment during operation. The main challenge for operation will be to find a balance between water surplus and water shortage, especially considering that the annual evaporation rate exceeds the annual precipitation rate.

The water management strategy is based on experience from previous projects, the requirements of the regulatory authorities, and the Investor's requirements for continuous improvement. The integrated approach adopts the principles of minimizing wastewater quantities, for which a strategy has been developed for the minimal use of fresh water and its maximum reuse within the production site.

It is also important to understand and assess the risk due to the impossibility of preventing extreme rainfall events. Generally speaking, in the event of extreme rainfall, or rather a combination or sequence of rainfall events, there is a possibility that the level of the contact water storage facilities will rise. In this regard, the results of the specific scenarios described in detail in *the Report on Integrated and Sustainable Water Management* show that the design maximum water level (forced water level) in the tailings pond sedimentation lake corresponding to a rainfall event with the relevant regulatory security under Bulgarian legislation of 0.1% (1 in 1000 years) remains below the crest wall level. The free height varies during the period of operation from 0.37 m at the beginning to 0.54 m at the end of operation. This means that no water overflow is expected.

Additionally, measures for managing the filtration flow under the facilities are considered, so that the infiltrated contact water is captured and returned to circulation, while at the same time an injection curtain is constructed to separate contact from non-contact groundwater. Thanks to this barrier at depth, the mixing of the two flows and the spread of contact water filtering downstream along the Yuren River is prevented. Yuren Dere.

The integrated approach to water management in the development of the Water Management Strategy for the Project: *Extraction and primary processing of gold-bearing ores from the Rosino deposit* is a sustainable approach that uses the best mining practices for water management. The current project has adopted a "zero discharge" approach to surface and groundwater, which is necessary for the project to be approved by the Competent Authority.

The main principles of the surface water management strategy/plan are as follows:

- Development of a system for capturing non-contact water from the surrounding slopes and its controlled discharge for storage and return to circulation to a fresh water storage reservoir;
- Collection of contact water runoff from the ore dump and open pit mine and its discharge to the tailings pond or contact water storage pond, avoiding discharge of contact water into the environment;
- Protecting unlined channels against erosion through appropriate hydraulic design, limiting flow velocities to maximum permissible levels;
- Providing spillways to non-contact water facilities, sized for the maximum theoretical rainfall event to prevent uncontrolled overflow through the wall body;
- Ensuring the necessary free volume in the contact water reservoirs so that, at the relevant regulatory assurance of the rainfall event, the forced water level is lower than the overflow edge level of the relevant contact water facility.
- Ensuring a strategy for closing the three water storage facilities after the end of the facility's operation.

Water balance modeling shows that approximately 300,000 m³ of active volume will be required for the fresh water reservoir, and to achieve this, the reservoir has been designed with a total allowable volume of 365,000 m³. This ensures that there will be no water shortage in the factory (OF). The modeling shows that a water import of 50 l/s for 5 months of the year is sufficient to supply the project based on this water volume.

The water balance analysis shows that approximately 14,000 m³ of active volume is required to implement a contact water reservoir, which is why the reservoir is designed with a total volume of 25,000 m³, equivalent to approximately 7 days of storage at maximum pump flow in the reservoir.

The projected peak volume of water entering the tailings pond sedimentation lake (SMO) is approximately 50,000 m³ for a dry year scenario, 115,000 m³ for an average year scenario, and 220,000 m³ for a wet year scenario. The tailings pond is sized to collect this water and ensure its reliable inclusion in the production plant's cycle. The most important and significant result of the water balance modeling, along with strategic water management, is that the design maximum water level in the water storage reservoir remains below its overflow edge throughout the entire life of the deposit. This means that there will be no overflow of water from the reservoir even in the event of an extreme water event.

A conceptual block diagram of the water balance processes for the entire site has been developed based on the inflows and outflows presented below.

Incoming flows:

- Incidental total rainfall directly on the open pit areas, the tailings pond settling pond, the contact and fresh water reservoir;

- Outflow from the catchment basin from internal and external areas (the outflow from natural catchment basins located upstream is diverted to the fresh water reservoir);
- Fresh water with a flow rate of 50 l/s from the Arpa Dere River at the Rozino pumping station for the months of January to May (i.e., 5 months of the year);
- Subsurface water inflows from the open pit mine and other filtration;

At this stage, it is assumed that the outflow is from precipitation. Snowmelt inflows represent less than 10% of annual precipitation and are not expected to significantly change the dynamics of the water balance.

Outflows:

- Evaporation from water surfaces in the open pit mine, the tailings pond settling pond, and the contact and fresh water reservoirs;
- Water carried away in tailings and/or filtration flows from the tailings pond;
- Water for domestic use, consisting of 50 liters per person per day for a staff of up to 300 people (75% of which, after treatment, is returned through the tailings pond for use in the production facility); and
- Water for irrigation, varying throughout the months from 140 m³ (February) to 10,510 m³ (August) and taken from the tailings pond.
- Forced evaporation through an evaporator installation to control the level in the contact water pond;

No pollution of surface waters with wastewater from workers' daily activities (domestic sewage) is expected. As described above, after treatment, the wastewater is returned through the tailings pond for use in the production facility.

Impact assessment

a) During construction

From the start of construction activities on the site until the end of the second year, construction work will be carried out to build the walls of the tailings pond. There will be no production activity and the water at this stage is classified as construction water. Surface water will be managed by permanent and temporary open channels. The catchment areas are shown in Figure V.2-1.

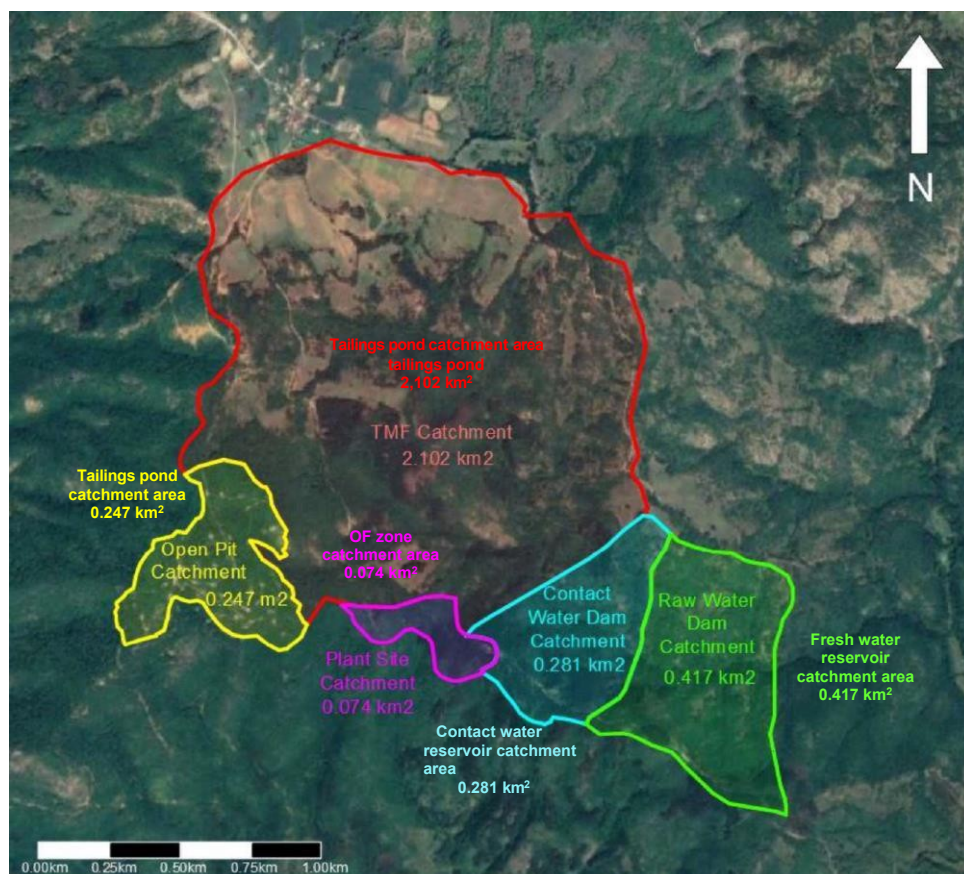


Figure No. V.2-1 Catchment areas during construction (until the second year).

During the construction period, temporary sedimentation ponds will be constructed along the watercourse to capture solid runoff and discharge clarified water into the Yuren Dere river valley.

No negative impact on surface waters is expected during the construction phase due to the absence of objective reasons for this.

b) During operation

In order to manage the runoff from the areas above the facilities during the operation of the site, two channels have been developed - a northern diversion channel along the northeast side and a southern diversion channel south of the site. They will discharge collected water to the fresh water storage reservoir and, respectively, to the contact water storage lake. From the beginning of year 3 onwards, the northern diversion channel will start operating at the northeast end of the tailings storage facility, extending to the fresh water storage reservoir area north of the site. This configuration will remain unchanged until the end of mining operations prior to closure.

The catchment areas formed during the operational period of the facility are shown in Figure 5, and the characteristics of the catchment areas are presented in Table No. V.2-1 and Figure No. V.2-2.

Table No. V.2-1 Characteristics of the catchment areas during the site's operational phase.

Catchment	Area (km ²)	Length of watercourse, (m)	Average slope of terrain, (%)	Time to flow time, (mins)
Tailings pond	0.858	911	26.69	12.09
Contact water tank water	0.233	374	24.52	7.03
Fresh water tank	1.632	3482	22.67	48.27
Enrichment plant	0.118	899	19.75	14.89
Open pit mine	0.239	not applicable	not applicable	Not applicable

The bottom of the mine is expected to reach an elevation of 435 m. According to the drilling work carried out, no underground water has been reached at this elevation and therefore no additional water inflow to the pit is expected other than that from rainfall and snowfall.

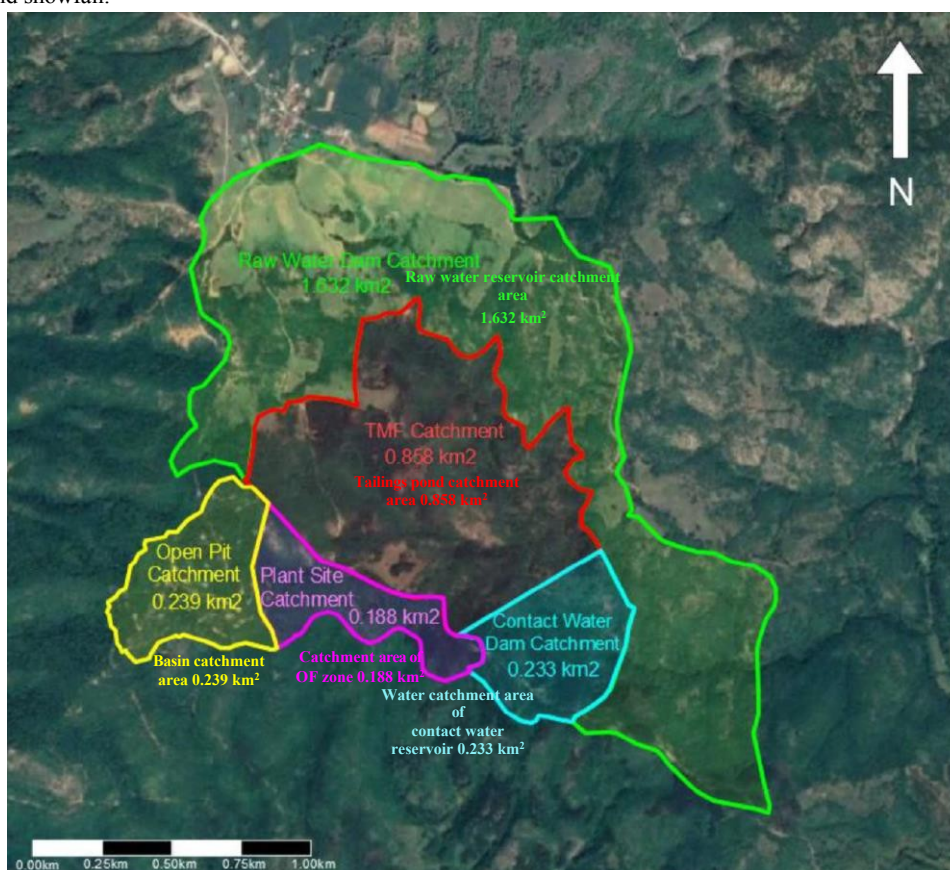


Figure No. V.2-2 Catchment areas during operation

The water quantities falling within the boundaries of the mine and the dumps as a result of rain and snowfall will be directed to the lowest parts of the respective facility. In the mine pit, a sump is planned to be formed at each working level to collect surface water, which will be used to irrigate the mine roads. If necessary, excess mine water will be pumped out and redirected to the contact water facility to replenish the circulating water. All dumps will be constructed and

developed with slopes at each stage to ensure gravity drainage of surface water back to the outer edges. A surface water drainage system will be constructed and the water will be directed to the ore processing plant or to the contact water reservoir. The upper horizons of the pit, which have an open contour, will facilitate the gravitational redirection of rainwater and its removal outside the perimeter of the pit, which would reduce the need for drainage during the extraction of the mine.

Bottled water will be supplied for drinking purposes. For sanitary and domestic needs, a contract will be concluded with the water supply company for the supply of water from a reservoir owned by the water supply company, located 800 m from the domestic premises in the OF area. Such infrastructure is already in place and it is technically possible to connect it to the future facility. The exact routes will be determined during the working design phase.

There are no plans to build a central sewerage system due to the lack of a treatment plant near the site. As an alternative, the possibility of using use services of mobile sanitary facilities which to be maintained by a specialized company that will periodically collect the generated water according to a schedule and transport it to a licensed treatment plant. Another option is to design and build a mobile treatment plant tailored to the consumption of the facility, which will be removed after the facility has been decommissioned and closed. According to the preliminary design, to compensate for the expected approximate 125,000 to 310,000 m³ annual water deficit in the supply to the installation will be supplied by a pumping station from the Arpa Dere River located about 1.7 km east of the site.

It is planned to pump water directly from the Arpa River during the wet months of the year (from January to May inclusive). The water intake from the Arpa River will be close to the confluence with the Yuren River and adjacent to the existing pumping station in the village of Rozino. This pumping station is designed to pump water from a spring that flows into the whirlpool. The flow rate of this spring varies between 6 and 11 l/s throughout the year, depending on the season. It has been calculated that the flow rate required to maintain the village of Rozino is in the order of 0.34 l/s. The excess water from the spring, after the relevant justification, could be used for the industrial needs of the site throughout the year. It is planned that the water intake will be carried out from a naturally formed pool without the need to build a dam or other construction works blocking the river.

The surface runoff from the open pit mine will be used as the primary source of water for the production facility. This water is pumped from the sumps of the open pit mine to the OF reservoirs. The water stored in the tailings pond is the second source of water for the plant, with the fresh water reservoir being used as a source of supplementary water (third source) if the water from the open pit mine and the tailings pond is not sufficient or of the required quality to meet the factory's water needs.

During the operational phase, no negative impact on surface waters is expected due to the absence of objective reasons for this.

C) During closure and reclamation

The possibilities for introducing accelerated evaporation technology to remove water from the contact water reservoir and the system as a whole during site closure and reclamation have been studied.

The concept of accelerated evaporation is to disperse approximately 5 l/s of water from the tank (for each device) 18 m into the air with an average droplet size of less than 100µm. This is achieved with mobile mechanical evaporation devices, allowing the goal of "zero discharge" at the site during the closure phase to be achieved. The devices are mounted either on the ground or on floating platforms. This allows for operational flexibility and relocation depending on wind direction. With this system, all water that has not evaporated is captured within the reservoir's catchment area.

The forecast for accelerated evaporation, even at a minimum efficiency of 30%, is up to 3028 m³ per month per device. The equipment will be actively used in the process of closing the site (as provided for in the investment intention 5-year period of active conservation) when the collected drainage water in the contact reservoir will evaporate during the summer months to provide sufficient free volume for drainage water during the winter period when evaporation is ineffective.

The climate in the area is favorable for enhanced evaporation. The high average temperatures and relatively low humidity during the months of April to September indicate that this could be the optimal period for enhanced evaporation.

Also, upon closure of the facility, the suction pipe of the pumping station drawing water from the Arpa River during the operation of the facility will be dismantled with minimal impact on the riverbed.

During the closure and recultivation phase, no negative impact on surface waters is expected due to the absence of objective reasons for this.

With regard to water abstraction from the Arpa Dere River, we emphasize the following:

The planned water intake for the project is seasonal, with a flow rate of up to 50 l/s and an operating period from January to May (5 months per year). Water abstraction is planned near an existing pumping station near the village of Rozino, where drinking and domestic water supply to the population takes priority over industrial water use. ***Water abstraction for the IP will be carried out on the basis of a permit issued in accordance with the Water Act, which sets out specific conditions and requirements for water use, ensuring the provision of water for the drinking and domestic needs of the population in the IP area.***

The water deficit of 125,000–310,000 m³ indicated in the Report on Integrated and Sustainable Water Management (**Text Annex No. 11**) represents a balanced assessment of the needs of the production facility under different scenarios, and not an unconditional planned water abstraction from the Arpa River. The main principle of the project is to minimize the use of fresh water and maximize the reuse of water in circulation.

Groundwater

The investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area" is limited and only requires the use of groundwater when necessary. The hydrogeological study conducted so far in the area of the deposit has established that the groundwater has an insignificant flow rate for technological needs. Therefore, an additional study of the hydrogeological conditions and the potential of the groundwater is planned.

The inflow of groundwater collected in the sumps of the pit will be pumped to the plant as a priority in order to meet the requirements of the technological plant. If there is excess water, it will be pumped to the tailings pond for temporary storage.

Groundwater from the open pit mine will be used as the primary water source for the production plant. This water is pumped from the sumps of the open pit mine to the OF tanks.

In order to reduce the amount of contact infiltrated water, a decision has been made to line the bottom and walls of the contact water tank with an insulating screen. In principle, no filtration water should seep from the tank, except in the event of a membrane defect. Water from any leaks will join the flow of filtration water coming from the tailings storage facility. The contact filtration water that has passed through any breaches in the screen, as well as the filtration water under the base of the facility, will enter the contact water reservoir either directly through the surface drainage or after being captured by the drainage curtain and pumped back into the contact water reservoir.

The filtered water passing through the curtain will be stopped by the injection barrier. The injection curtain acts as a barrier not only to the contact filtered water but also to the non-contact water. It prevents the mixing of the two flows, which is why we can say with certainty that the contact filtration flows are limited to the contact water reservoir and are not expected to cause groundwater contamination.

Impact on water from the PVR – results from a test explosion.

Once again, we emphasize that the Rosino catchment is located 2,300 meters from the contour of the mine where mining will take place and 1,300 meters from the buffer zone with a radius of 1,000 meters from the water intake facility. As can be seen from Figure II.1.2-1, the catchment is close (620 m) to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir.

Text Appendix No. 12 contains a report on a test explosion.

The main analyses and conclusions are as follows:

1) Subject and scope of the study.

Experimental blasting was carried out on the territory of the Rozino deposit in order to assess the main parameters of the side effects on:

- people and populated areas
- protected areas and sites under Natura 2000
- surface and groundwater
- construction structures technical infrastructure and mining equipment
- ecosystems in areas of potential impact

The analysis covers the explosive-seismic effect, shock wave, noise, scattering of individual rock fragments, as well as an overall assessment of safety during future operation.

2) Parameters of the experimental blasting carried out.

Total number of drill holes: 12, grouped into 3 blast fields × 4 drill holes. Drill hole length: 6 m

Diameter: 102 mm

The parameters are identical to those in the conceptual design for the exploitation of the deposit.

The measurements were carried out with specialized certified equipment.

3) Protected sites and sensitive receptors

Two zones with potential impact on Natura 2000 have been identified: Eco zone 1 – R = 600 m

Eco zone 2 – R = 800 m Additional control

receptors:

Yuren Dere – 650 m Byala

Reka River – 1050 m Rozino

village – 1200 m

Water collection station – 705 m

Graphically presented in Appendix 1: "Protected sites and separation boundaries" of the PVR Report.

4) Explosive-seismic impact

The assessment was carried out in accordance with the requirements of:

- Regulation No. 9/2010 on maximum permissible vibration values
- International standards and norms for seismic protection

5) Results

The measured velocities of vibrations in the explosions are significantly below the permissible values for populated areas and buildings.

The calculated equivalent magnitude is $M < 1$, which is below the seismic sensitivity threshold.

The parameters of relative deformation, acceleration, and displacement are units of an order below the seismicity for the area ($K_s = 0.1$).

Conclusion:

The explosive seismic impact does not pose a risk to buildings, facilities, water bodies, or the population.

6) Shock wave and noise

The assessment is made in Regulation No. 6/2006, Regulation No. 6/2005 and international practices.

Results:

The established levels of UVF in the experimental PVRs are below the applicable limit values for facilities and populated areas.

As it moves away, the wave transitions into sound with levels falling within the regulatory daily limits.

The graphical analysis (Figure 7 of the PVR Report) confirms the compliance of the results with European and national standards.

Conclusion:

The generated UVW and noise do not pose a risk to humans, fauna, or building structures.

7) Scattering of individual rock fragments

The assessment was carried out in accordance with the requirements of the PBTIR (Annex No. 7 of the PIR Report EIA Report).

The safe distances were calculated using formal dependencies.

All controlled receptors are located outside the minimum risk radius. The design of the charge, the setting, and the location of the boreholes ensure a low level of potential dispersion.

8) Impact on groundwater

No vibration or dynamic parameters exceeding the natural seismicity of the area have been identified.

Conclusion: *The results obtained give reason to conclude that, provided the recommended maximum mass of explosives in a delay interval is observed, no exceedance of the vibration velocity at depth is expected which would have a seismic impact on groundwater and water supply sources, and the implementation of the investment proposal will not have a negative impact on drinking water sources that are not directly affected by the extraction works.*

Text Appendix No. 16 presents a report on the hydrogeological conditions in the area of the investment proposal under assessment. The conclusions of this report are as follows:

Hydrogeological parameters and filtration coefficients

The hydrogeological studies and experimental filtration tests confirm that the aquifers horizons in the area of the deposit "Rosino", area "Tintyava", have very low water conductivity and limited water abundance. The determined filtration coefficients for the Paleogene sediments and metamorphic basement are in the range of 2.11×10^{-7} to 2.13×10^{-9} m/s, which indicates a highly limited underground runoff and lack of potential for significant groundwater migration.

Potential risk of seepage from SMO

Based on the geological parameters, low natural permeability, and planned waterproofing measures (HDPE geomembrane, drainage layers, infiltrate collector), it is established that the potential for seepage from the SMO to groundwater is minimal. The rock masses act as a natural hydrogeological barrier, which in

Combined with engineering measures, this eliminates the risk of impact on groundwater.

In addition, the results of the available geochemical and ARD tests for waste materials show no potential for acid drainage generation, which is a key prerequisite for limiting the risk of acidification and secondary mobilization of metals.

Potential seepage during backfilling of the pit

Backfilling will be carried out with non-aggressive, inert sterile rock mass with no potential for acid drainage. The low filtration capacity of the surrounding rocks and the absence of local aquifers ensure that no infiltration or contamination of groundwater is expected during backfilling.

Impact of blasting

Analysis of the structural-geological and hydrogeological conditions shows that the existing fracturing is poorly developed and inherited. The controlled application of blasting will not generate significant new water-conducting fractures and will not alter the mechanical or filtration properties of the water-bearing rocks.

Impact on drinking water sources

The development of the Rozino deposit does not and cannot affect the drinking water sources in the area. This is evidenced by:

- the lack of a hydraulic connection between the IP zone and the water intake facilities;
- the different depth and nature of the aquifers;
- the absence of established groundwater in the mine area outside the limited local occurrences.

The flow rate of the water sources will not be reduced by the IP's activities, and no change in the groundwater regimes is expected.

Impact on the chemical status of water

Chemical analyses of groundwater and surface water (2019–2023) show a stable parametric composition, with no traces of pollution or negative trends. The project has no potential to deteriorate the chemical status or pH of groundwater and surface water.

Summary conclusion from the Report on the hydrogeological conditions in the area of the assessed investment proposal:

Based on all studies, tests, and analyses conducted, it has been established that:

- The hydrogeological conditions are characterized by low water conductivity and limited underground drainage.
- No seepage or contamination from SMO or reverse filling is expected.
- Explosive work have affect affect negatively on the and filtration properties.
- The IP does not affect the drinking water supply in the area and does not pose a risk to water intake facilities.
- The chemical status of groundwater and surface water will not be impaired.

The development of the Rosino deposit does not pose a risk to groundwater, drinking water sources, or the quality and quantity of groundwater and surface water in the area.

Summary conclusions on the impact on water:

The analyses and conclusions in this report show that a categorical guarantee for the protection of surface and groundwater can be achieved by implementing the proposed and assessed project solutions of the IP as formulated in section II and by implementing the measures and recommendations of this report, presented in section IX.

- ***Surface waters***

During all stages of implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area," the impact on surface waters is determined to be insignificant. The surface water used from the Arpa Dere River is up to 10% of the average annual water volume and **is not expected to have a negative impact (including transboundary)**, respectively, no discharge of waste water into surface water bodies is planned. A "zero discharge" approach has been adopted.

- ***Groundwater***

The implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area **is not expected to have a negative impact** on groundwater and will not lead to a deterioration in the chemical and quantitative status of the affected groundwater body BG3G000PtPg049 Fissure waters - Eastern Rhodope complex.

As a technological option, a variant for water abstraction from the terrace of the Arpa Dere River is envisaged through the construction of a pumping station in the area of the existing Rosino pumping station.

It is planned that extraction will take place 1,300 m from the boundary of the buffer zone of the Rozino catchment, with a radius of 1,000 m, and 2,300 m from the catchment itself, so no negative impact on the drinking water protection zone is expected. A clean water reservoir will be built at the point of the concession area closest to the catchment.

Extraction works will be carried out in the infiltration zone without reaching the water level. The passive inflow of groundwater will be pumped to the installation as a priority in order to meet the technological requirements of the OF.

The impact on the chemical condition of groundwater will be neutralized by lining the bottom and walls of the contact water tank with an insulating screen and by constructing a system to capture any leaks, including a drainage curtain and an injection barrier.

3. Soils

3.1. Size of affected areas

The total planned concession area is 2,753 decares, of which **1,179 decares** will be disturbed. The buffer zone covers an area of 1,574 decares. Part of the facilities will be developed in already worked/disturbed areas and no new land will be taken, with this "overlap" amounting to 262 decares.

3.2 Sources of pollution

Soil pollution during the implementation of the investment project may occur directly – from spills of petroleum products and lubricating oils, and indirectly from emissions.

Petroleum products and fuel lubricants that may be released in the event of accidents in the machines for extraction and processing of the raw material are potential soil pollutants. These are local and insignificant and are immediately localized and removed. They cannot affect the soil of the adjacent areas. If the operating instructions for the equipment are followed and proper maintenance is carried out, the risk of such contamination is minimal.

Technically sound machinery and equipment will be used in compliance with work and technological discipline, thus avoiding damage from transport and production mechanisation and contamination from fuels and lubricants. In the event of such pollution, the contaminated layer will be removed and disposed of in an appropriate manner.

The deposition of dust emissions may be of the following origin:

- from mining activities (non-permanent dust emissions - with a limited radius of impact);
- during stockpiling (geological materials are usually wet, and this could only be expected during the driest months of the year - with a limited radius of impact);
- soil contamination from open linear sources (internal and external transport routes) - with a limited radius of impact, mainly on both sides of the roads;
- from PVR, salvo and single blast.

A primary jaw crusher will be used to crush the ore, followed by secondary and tertiary cone crushers, which are of the closed type. In addition, an irrigation system will maintain air quality in each of the buildings where the crushers are located.

The dust emissions generated in the mining and stockpiling processes do not differ in chemical composition from that of the soil-forming rocks in the area and therefore do not pose a risk of changing soil properties and fertility.

Deposition of other emissions: Result of deposition on the surface of aerosols and gases containing toxic organic compounds. Possible sources of soil pollution at are the blasting operations carried out , construction machinery,

transport vehicles. The exhaust gases released into the atmosphere contain CO, NO_x, SO₂, CH₄, and dust. Emissions are limited in time and quantity.

Compaction from construction and operational mechanisation. This type of degradation impact is expected mainly in the process of preparatory activities in the mine fields, preliminary removal of overburden and construction of accompanying facilities, including water reservoirs. The type of damage is temporary.

The rock masses from the excavation operations, which will be dumped in the designated filled-in areas, are not a source of toxic substances and do not pollute the soils adjacent to these areas.

3.2. Impact assessment

The topsoil and soil cover will be separated and temporarily deposited. The deposited soil materials will be used for the recultivation of the areas disturbed by the activity.

The extraction works will be designed in such a way as to prevent the conditions for intensive erosion processes.

The soils will be affected by the mining activity as follows:

- Direct impact when removing the soil layer during the opening works of the mine fields and the construction of the accompanying facilities, including water reservoirs. Soil materials are planned to be stored in landfills for use in future recultivation activities.

- Direct impact from the disposal of deposited humus/soil materials, overburden, and SMO.

As a result of the open-pit exploitation of the deposit, a significant part of the land will be technogenic-anthropogenic disturbed, while the rest will be degraded.

According to the classification scheme for damaged land, technogenic disturbed land from excavations with removed earth masses belongs to the class "Disturbed land" with permanent damage and a third degree of impact, i.e., completely destroyed land.

Damaged land from trampling, tracks, minor excavations or embankments, covered in places with construction and industrial waste, overmoistened or eroded, is classified as "degraded land" with a first degree of impact and can be restored with little effort.

a) Construction

The impact on the soil will begin with the start of preparations for mining activities, the construction of the OF, the mining waste facility, the deployment of mining equipment, mobile toilets, etc. According to Article 43 of the Environmental Protection Act, the topsoil layer is subject to special protection, therefore, before the start of construction, the topsoil layer will be removed and deposited separately in soil depots. These activities shall be carried out without causing contamination or damage to the soil in the neighbouring areas. Subsequently, the topsoil and soil shall be used for the recultivation of the land.

The impact during the excavation activity can be defined as mechanical disturbance of the soil genetic profile, resulting from the removal of the soil cover and the associated qualitative and quantitative losses. The type of land damage according to Bulgarian legislation (Instruction RD-00-11/1994 on determining the type and degree of pollution of agricultural land by land area and the regime for its use) is "01. Removed soil masses," type of damage - "013. Quarries and open-pit mines." The damage is permanent.

The main man-made disturbances are the pits, followed by the embankments, OF, SMO, water reservoirs, humus/soil depot, and internal roads.

The most significant impacts are precisely at this stage.

As a result of the excavations, the soil will be directly disturbed, but in order to reduce the impacts, the subsequent stages provide for backfilling of the worked-out areas and gradual technical and biological recultivation. Technical recultivation mainly involves filling in the excavated areas and forming horizontal surfaces where possible, while biological recultivation will be carried out using plant species suitable for the region.

b) Operation

For the disposal of flotation waste, a technology has been selected for thickening to 70-75% solid content using a thickener, where water is separated from the waste (thickening) before disposal. This technology achieves several positive effects:

- efficiency in terms of water use;
- minimal potential for liquefaction (free sliding or flowing) or rupture of the wall of the hydraulic structure, which would be a risk to the adjacent land;
- easy handling – filling and shaping of the landfill, with a view to minimizing the impact on the surrounding terrain;
- improved stability of the landfill body, allowing for its gradual upgrading due to reduced water content;
- compliance with the natural geographical, geological, geotechnical, and geochemical conditions at the site. Considering that the landfill is carried out from the highest point to the lowest point of the landfill, it should be noted that this creates a prerequisite for the gradual recultivation of the worked slopes.

The activities in the concession area during operation will not have a significant physical impact on the surrounding land and soil, except for dust from the movement of motor vehicles and construction machinery. To overcome this, regular watering of roads and areas with intense dust emission is planned during dry periods.

Provided that the technological and environmental regulatory requirements are complied with by the workers, no physical degradation processes (acidification, significant alkalization, over-moistening, swamping, salinization

and others), nor pollution with toxic organic and inorganic chemicals (harmful aerosols, sudden pollution, etc.).

After completion of the extraction and processing works, a comprehensive recultivation of the disturbed areas will be carried out using soil materials from the construction phase.

c) Closure and recultivation

In connection with the restoration of the environment, it is necessary to design the future technical and biological recultivation. A good practice is to carry out a preliminary assessment of the proposed recultivation activities, the advantages of the proposed rehabilitation measures, and the minimization of negative impacts on the environment.

It should be noted that on older open-cast mining dumps, as a result of self-established vegetation, gray-brown soils with the beginnings of a soil-forming process and a granular-crumby structure are found in the top 10-20 cm.

Leaving the concession area is linked to the completion of a certain amount of work on the technical and biological recultivation of the disturbed areas and the removal of unnecessary facilities.

Detailed designs will be prepared in the working phase for all activities related to the abandonment of the concession area. Technical recultivation includes levelling works on the sites. This levelling is an integral part of the filling operations and is carried out at the expense of operating costs. Therefore, only minimal levelling activities are planned during the recultivation process to remove any negative forms that may arise during the consolidation process and to ensure the necessary slopes for natural water drainage. The easement strips along the outer edge of the pits and embankments, as well as the disturbed terrain, are planned to be restored through biological reclamation.

The closure and recultivation project should provide for the following tasks:

- removal, storage, and utilization of soil material from undisturbed terrain where mining operations are to be developed;
- sequential, phased implementation of technical and biological recultivation activities on decommissioned areas, where possible;
- taking the necessary care of the plantations for the statutory period of time after the biological recultivation has been carried out.

The necessary volumes of soil materials for the recultivation of the sites shall be provided from those that will be removed during their exploitation.

According to Regulation No. 26, recultivation restores the land's suitability for use as close as possible to its original state, and if this is not possible, another type of use is created by shaping a suitable landscape.

In order to create more favorable soil conditions and a more favorable nutrient regime for the recultivated areas, fertilization with appropriate fertilizers is planned. The care required, for example, for grasslands for the regulatory period of 5 years, includes watering, fertilizing in early spring, and mowing.

In conclusion, it can be summarized that the implementation of the investment proposal is expected to have the following impact on this component of the environment:

Summary conclusions on the impact on soils:

In terms of impact: significant, negative within the extraction areas, as well as under all adjacent facilities (soil depots, SMO, OF, water reservoirs, internal roads) and insignificant for the neighboring areas. In case of non-compliance with production discipline, there is a risk of trampling of adjacent land and dust pollution spreading beyond the boundaries of the concession area.

Territorial scope of the impact: local, within the disturbed areas of the concession area;

Frequency of impact: constant, daily, until the closure of the activity and recultivation of the areas;

Duration of the impact: long-term, for the duration of the concession, recoverable to a certain extent, with well-executed recultivation activities;

Cumulative and combined impacts: not expected, given the significant distance to other active deposits in the vicinity.

4. Subsoil and mineral diversity

Subsoil and mineral diversity are directly negatively affected by the implementation of the IP.

The useful resources, according to Article 2, paragraph 1 of the ZPB, belong to the group of metal minerals. Data on the morphology of the ore bodies, the general mineral composition, and the mineralization of the ore are presented in Section IV of this report.

The changes in the geological environment that will occur as a result of the implementation of the investment proposal can be defined in the following areas:

- Excavation works carried out in connection with the open-pit mining of the mineral.
- Excavation works carried out in connection with the construction of relevant additional facilities. These mainly affect the cover and the upper part of the earth's surface.
- Embankment works related to the production activity of the mines. This includes spoil heaps, soil dumps, and SMO, as part of the accumulated materials will be used later in the recultivation. As a result of the filling works, only the local thickness of the cover horizon will change.

After a positive EIA decision, the Client shall develop: A mine waste management plan, A comprehensive working project for extraction from the deposit,

accompanied by a recultivation project. Annual projects are developed on the basis of these projects. If the approved projects are complied with, no negative impact on the subsoil should be expected in terms of the full extraction of useful resources.

The impact during the individual stages of the implementation of the investment project is as follows:

a) Construction (exposure and preparation for extraction of reserves)

The impacts at this stage are related to the start of development of the sites and the commencement of mining activities, namely mine construction, during which the mineral resources are exposed and additional facilities are built – dumps, SMO, OF, water reservoirs, internal roads, power lines. At this stage, the impacts on the subsoil are direct in terms of the formation of the future mine and indirect in terms of the other accompanying facilities.

b) Exploitation (extraction of reserves)

During this stage, the significant impact on the subsoil will be realized – extraction of reserves.

The exploitation of the deposit involves two main ways of impacting the geological environment: the formation of artificial voids in the geological environment (excavations) and artificial seismic impact during drilling and blasting operations in the extraction process.

The seismic impact on the geological environment is generated during the blasting operations planned for the extraction of the mineral. The specifications for each of the PVRs will be developed in detail in the relevant working designs, which must take into account the distances to existing buildings, facilities, and infrastructure in the vicinity.

For the purposes of the EIA, experimental blasting has been carried out on site and under similar conditions to assess the side effects of the explosion on the environment and to make recommendations for the management of technological blasting operations during the exploitation of the Rosino deposit in an open manner, with the results obtained through measurements with specialized equipment. The assessment of the explosive-seismic impact and the UVV was made according to the generally accepted methodology in global explosive practice (including that embedded in the software application of specialized seismographs, based on the interrelationship between the impact of the explosion (seismic effect/shock wave) and the amount of explosive material detonated and the distance to the protected objects, expressed as the so-called "equivalent distance").

The report on the assessment of the side effects of the explosion on the environment for the Rosino deposit is presented in **Text Appendix No. 12**. The conclusions are as follows:

1) The selected system for the development of the Rosino deposit, according to the conceptual design: low working steps (5 m), resp. short boreholes (~6 m) with a relatively small diameter (76-102 mm), is one of the most environmentally friendly technologies for the extraction of minerals using explosive blasting of

rock mass. The use of modern systems for initiating explosives charges complements the possibilities for effective management of the side effects of the explosion.

2) Measurements taken using specialized equipment during experimental blasting in the Rosino deposit area show seismic impact values lower than the maximum permissible safety standards for people and buildings, including the standard for ensuring comfort in protected areas, according to Regulation 9/12.02.2010.

3) The values of the recorded results from measuring the impact of UV/noise at a distance of 800 m from the site of the experimental blasting carried out within the boundaries of the Rozino deposit are significantly lower than the maximum permissible standards of the regulatory framework in force in Bulgaria for safe impact and the restrictions adopted in global blasting practice.

4) The impact of noise from the blasting works is lower than the registered background noise measured the day before and on the day of the experimental blasting works. According to those present at the explosion, the sensation at a distance of 600 m and 800 m was like "faint distant thunder," suggesting a sensation below Level I of human impact (Table 3 of the Report).

5) The values recorded from the measurement of the lateral impact of the explosion in the Rosino deposit area fit into the cloud of results obtained from studies conducted in Bulgaria under similar mining, natural, and technological conditions. This allows the following:

- ✓ Using the mathematical formulas derived from these studies, to predict the explosive-seismic impact and the impact of the explosive charge for the conditions of the the Rosino deposit depending on the distance to the protected objects and the mass of the explosive charge detonated in a delay interval;
- ✓ Effectively manage the impact of the seismic effect and UAV/noise of the explosion on people and the environment within acceptable limits by changing the parameters of the PVR (mass of the charge detonated in a single delay interval, length of the drive, sequence of detonation of the charges, direction of development of the explosion process, etc.).

The following conclusions can be drawn from the assessment of the impact of blasting operations on people and the environment:

- The blasting technology envisaged for the development of the Rozino deposit complies with the standards for safe impact on people and buildings facilities outside the danger zone when applying drill-and-blast rock breaking at all three diameters of the blast holes provided for in the conceptual design (76, 89, and 102 mm) when detonating each drill charge with a separate (independent) delay interval, with the maximum mass of the drill charge not exceeding 30 kg, according to the forecast calculations based on the experimentally established dependencies of the side effect of the explosion on the distance and mass of the charge;
- Given the location of the deposit in the Natura 2000 area, the technology of IIBP should be applied with the possible minimum side impact of blasting operations on the environment. Within the specified parameters

of the PVR (Table 9), the technology with the lowest levels of side effects is blasting using charges with a mass of up to 14 kg. If there are no other aggravating conditions for the PVR technology, it is recommended to work with a diameter of the blast holes $d=76\text{mm}$.

- With the development of deep mining, working conditions change. In this regard, periodic control measurements with specialized equipment, updating mathematical dependencies (3) and (5) with specific data for the deposit, determining the levels of impact and, if necessary, adjusting the parameters of the PVR.

Of particular importance in the design and implementation of the PVR is to find the most acceptable option in which the side effects of the explosion are minimized, does not exceed the permissible norms and at the same time ensures the maximum effect of the explosive destruction of the massif, in accordance with the expected parameters, such as: achieving the specified grain size distribution of the broken rock mass, minimal displacement of the blasted material, minimal losses and depletion of the ore, etc.

The main factors for controlling the side effects of blasting are as follows:

- Knowledge and compliance with the physical, mechanical, and structural characteristics of the rock mass—the necessary balance for effective combination of the "rock resistance to destruction-explosive energy" process;
- Determination of the effective length of the blast;
- Choosing a suitable inert material for the charge, ensuring maximum use of the explosive energy to destroy the rock mass and minimising its side effects. In this case, the priorities are UVB and noise;
- Application of techniques to minimize the side effects of the explosion,

such
as:

- increasing the length of the blast,
- reducing the mass of the charge (smaller diameter boreholes, spaced charges);
- applying appropriate blasting patterns (directing the demolition front and the direction of movement of the blasted rock mass, minimizing the charge mass in a delay interval, etc.);
- use of protective coatings.

The use of modern detonation systems allows each charge to be detonated with a separate/independent delay interval. This provides a double effect: on the one hand, the effect of millisecond (short-delay) sequential detonation of the charges is used for better fragmentation of the blasted mass, and on the other hand - minimizes the explosive-seismic load on the environment by dispersing the energy of the explosion, by initiating the minimum possible mass of explosives in a delay interval.

It should be noted that with the development of the mine below the upper boundary contour, the impact of UVW and noise will be further limited by the barrier function of the non-working boards.

When mining minerals near urban areas, the timing of blasting is agreed with the local community in order to avoid the element of surprise and to establish the most acceptable time for carrying out blasting operations with a view to reducing the unpleasant effect on the comfort of local residents – most often this is during daylight hours within the working day.

Additional recommendations

It is recommended that measurements and expert analysis of the explosive-seismic impact be carried out in order to take measures in the design and implementation of technological blasting works to preserve the stability of the non-working and working steps with the development of the mine in depth.

For all sites in the mine complex that fall within the hazardous zone of impact of blasting works, the design and implementation of technological blasting works shall be carried out in accordance with the requirements of Chapter Six of the PBTWR: "Special Blasting Works."

c) Closure and reclamation

Closure and reclamation is the final stage in the life of mining sites. During this stage, activities are carried out for the closure, decommissioning, and subsequent reclamation of mining and processing facilities, sites, equipment, and unnecessary infrastructure. This stage also includes mandatory monitoring.

During technical liquidation (dismantling of machinery and equipment, removal of used equipment) and reclamation, no impact on the geological environment is expected.

Summary conclusions on the impact on the subsoil:

By type of impact: negative and irreversible for natural resources

By territorial scope of impact: local, on the territory of the extraction sites;

Frequency of impact: continuous, throughout the concession period

<i>Duration</i>	<i>duration</i>	<i>of</i>	<i>impact:</i>
long-term,	for the	of the concession	

Cumulative and combined impacts: could be expected in relation to the depletion of gold-bearing ore reserves in the region.

5. Landscape

a) Construction and operation

As a result of the implementation of the investment proposal, the landscape in the area of the sites will be further affected by human activity, and in particular by technological activity. No changes are expected in the landscape features of the area as a whole, but

an area with an industrial landscape will be created. The operation of the deposit will change the main type of landscape locally, but with well-organized work, no significant changes in the internal structure and functioning of the landscapes that could cause additional disturbances to the ecological balance will be allowed.

The unfavorable anthropogenic change will have a greater impact on the relief, soil cover, vegetation, and wildlife. The impact will be local, with a territorial scope within the working areas of the concession area. It will be permanent in duration – for the period of the concession term, with a complex and cumulative nature in relation to the territory of the mining areas and the industrial site, but not outside it. The implementation of the project will result in a complete change of part of the landscape into a technogenic one (high degree of anthropogenisation), but for the neighbouring undeveloped areas, the sustainability of the landscapes will be preserved in their functioning.

The areas will be developed using open-pit mining, which will inevitably involve blasting and excavation work, as well as the movement of heavy machinery and equipment. The implementation of the project will significantly change the appearance of the territory, creating a modified relief with a pronounced elevation difference and no vegetation. The functioning and structure of the landscape will change from horizontal to vertical and will encompass the components of geological base, relief, soils, and vegetation. The purpose of the land will change, forming a "technogenic landscape."

The adverse impact resulting from the operation of the facility will manifest itself in several ways:

- physical removal of areas;
- destruction of vegetation;
- temporary change in the quality of the components of the natural environment.

Undoubtedly, the development of the deposit will irreversibly affect the existing landscape. During exploitation, the areas of man-made landscapes will increase at the expense of the others. Open-pit mining of the raw material will lead to changes in geographical forms, changes in land use, create conditions for the development of erosion processes, pollution of the natural environment surrounding the site with non-toxic dust and aerosols, changes in the food base of animal species and their disturbance. Noise, dust, and aerosol pollution in the areas surrounding the site will disrupt the normal rhythm of life in the existing populations and may cause the elimination of individual specimens, but not the populations as a whole.

b) Closure and recultivation

In order to minimize to a certain extent the negative effects of the mining operations and to restore the landscape in the area, it is planned to carry out phased recultivation measures on the worked-out areas through technical and biological recultivation. The aim of recultivation is to achieve a better organized space, in line with the terrain conditions and more suitable for future use. The recultivation measures will

restore to a certain extent the altered functional state of the worked-out areas in the deposit and the surrounding area and restore the disturbed landscape.

Summary conclusions on the impact on the landscape:

By type of impact: direct, with a high degree of anthropization for the extraction areas and accompanying facilities, and indirect for adjacent areas in their immediate vicinity, in terms of expected visual changes;

By duration of impact: long-term - for the duration of the concession;

By territorial scope of impact: local, within the developed and exploited areas of the concession area;

Cumulative and combined impacts on the environment: the cumulative impact on the landscape at this stage could not be observed due to the remoteness of other developed underground resource deposits.

6. Flora and fauna

6.1. Description and analysis of the impacts of the investment proposal on flora

The impacts on flora that such projects may have are:

1. Direct destruction of vegetation *within the boundaries of the investment proposal elements.* The entire area of the individual elements of the IP plus small areas remaining enclosed between them, in particular between the individual elements and the access roads to them (Fig. V.6.1-1), is considered to be affected. Thus, the directly affected area amounts to 146.58 ha.

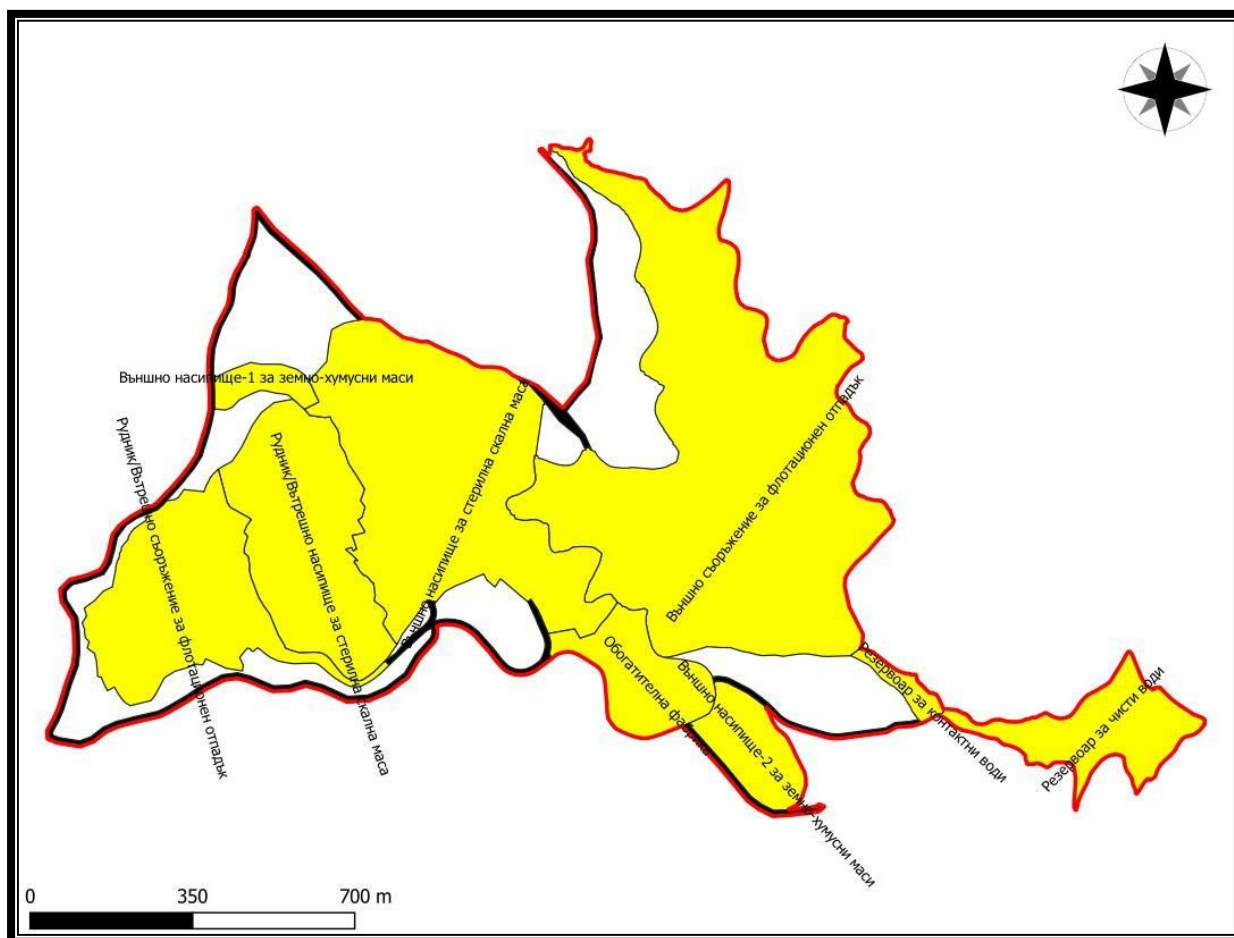


Figure V.6.1-1: Area considered to be directly affected (red outline) by the implementation of the IP. Yellow polygons – IP elements; black lines – access roads to them.

2. Damage to vegetation as a result of pollution during extraction and drilling and blasting operations (including seismic impact, shock waves, debris, dust, and NOx). According to the pollution analysis, no excessive levels of dust and NOx are expected outside the concession area. Seismic impact, shock waves, and debris alone cannot cause permanent damage to vegetation or species habitats. This is also supported by field observations around other active mines and quarries in the country, where natural habitats have been found immediately adjacent to their edges.

3. Fragmentation - when an area (polygon) occupied by a given type of vegetation is affected in such a way that the remaining part(s) of it are insufficient in size to retain the characteristics of the affected type of vegetation, or these characteristics are negatively affected. The deterioration or even loss of these characteristics is due to the so-called "edge effect", whereby the abiotic factors (e.g. sunlight, air humidity, soil moisture, etc.) and/or the biotic factors of the environment (species composition of the tree, shrub, or grass layer) change in the strip immediately adjacent to the boundary of the polygons occupied by a given type of vegetation (according to Andren 1994, Bennett & Saunders 2010, Didham 2010, Fahrig 2003, Franklin et al. 2002).

4. Destruction of individuals of plant species *within the boundaries of the IP elements*. This impact is assessed only for conservation-significant species, if any are present within the boundaries of the directly affected area. The assessment of other species is included in that for the direct destruction of vegetation.

5. Invasion of non-native and/or invasive plant species when using such species in *biological recultivation*. When using species characteristic of the area, no impact is expected, so it will not be assessed separately.

According to our mapping of the vegetation in the IP area, polygons or parts thereof of 9 habitat types fall within the boundaries of direct impact (of the 11 identified; Table V.6.1-1, Annex V.1.1-1 of the EIA). Four of them are included in Annex 1 of the Biodiversity Act and are subject to protection in the Rhodopes-East Special Protection Area. The impact on them is assessed in the EIA.

Of the remaining 5 with more limited distribution (in terms of area), only C2.31 Upper reaches of permanent, slow-flowing rivers and streams is included. We have included the middle reaches of the Yurendere in this habitat type, even though it dries up during the hot summer months. This fact, as well as its rocky bottom, determines the complete absence of macrophytic vegetation. This makes the habitat of low conservation value. The remaining 4 types of vegetation are of secondary origin, widespread both in the area and in the country, and sometimes occupying large areas. Some of them are undesirable from a nature conservation point of view, as they occupy areas of conservation-significant habitats, e.g., coniferous crops. Most often, their spread is the result of human intervention, either direct or indirect, due to the adaptability of the species that make up these habitats.

Since this type of vegetation is precisely the one that settles in the place of fragmented areas of habitats of conservation importance (with the exception of coniferous crops), its fragmentation cannot change its characteristics or affect the type of vegetation. In the case of coniferous crops, their fragmentation will lead to an increase in the participation of autochthonous species and the gradual "absorption" of individual fragments by neighboring vegetation types.

Therefore, it can be concluded that the impact on the other five types of vegetation will be **insignificant**.

Data from our field studies and information on the biology and ecology of the relevant plant species show that the IP will affect or may affect individuals of five species with higher conservation value – Black Sea fritillary (*Fritillaria pontica*), aborted limodorum (*Limodorum abortivum*), butterfly orchid (*Orchis papilionacea*), autumn spiral (*Spiranthes spiralis*), and red anemone (*Anemone pavonina*). All five species are widespread in the Eastern Rhodopes and/or in the country, but usually with small populations. An exception is the red anemone, which, for example, is numerous in the Madzharovo area. Its absence in the IR indicates that even if it is present here, its populations will be small. A huge population of

The conclusion can be drawn that even if the implementation of the IP leads to the destruction of specimens of these five species, these will be isolated individuals. In combination with their relatively wide distribution and/or the wide distribution of suitable habitats in the area, and/or their relatively good adaptability, the risk of extinction of these species is low. In combination with their relatively wide distribution and/or the wide distribution of suitable habitats in the area and/or their relatively good adaptive abilities, the impact on these species can be considered **insignificant**.

6.2. Description and analysis of the impacts of the investment proposal on the fauna

The impacts on fauna that such projects may have are:

1. Direct destruction of species habitats *within the boundaries of the elements*

of the IP. The entire area of the individual elements of the IP plus small areas remaining closed between them, in particular between the individual elements and the access roads to them (Fig. V.6.1-1), is considered affected. Thus, the directly affected area amounts to 146.58 ha.

2. Damage to species habitats as a result of pollution from mining and drilling and blasting operations (including *seismic impact, shock waves, debris, dust, and NOx*). According to the pollution analysis, no excessive levels of dust and NOx are expected outside the concession area. Seismic impact, shock waves, and debris alone cannot permanently damage vegetation or species habitats. This is also supported by field observations around other active quarries in the country, where natural habitats have been found immediately adjacent to their edges. Damage to the habitats of species associated with the aquatic environment may occur during mine construction due to increased water turbidity.

3. Fragmentation of species habitats - when an area (polygon) occupied by a habitat of a given species is affected in such a way that the remaining part(s) of the same are insufficient in size to preserve their characteristics as a habitat for that species. Many species require a certain size of polygons with potential habitats in order to be used by the species in question, and this size is species-specific.

4. Barrier effect resulting from the development of the site, dividing polygons with species habitats or biocorridors, so that individuals of the species in question do not have free access to the separate parts of the polygon. This may be due to the inability of individuals of certain species to cross the quarry field, or their "unwillingness" to do so due to disturbance. The results are impossible or difficult migration (in the broad sense of the word, it can be daily, related to feeding, or seasonal, related to certain abiotic factors or reproduction, or during dispersal), and/or fragmentation of the populations of the affected species. The nature of the IP does not suggest a barrier effect for birds and bats due to its low height and the high mobility of these groups.

5. Disturbance to individuals of animal species from *the movement and operation of construction, mining, and transport equipment and people*, as well as from *drilling and blasting operations*. There are not many studies dealing with the impact of noise on biodiversity. Even fewer are available. For example Hirvonen (2001) measured a noise level threshold of 56 dBA, above which a significant impact on water birds nesting near a newly built motorway was observed. Based on a review of the available literature, Archer (2014) predicts a significant impact of impulse noise on biodiversity, resulting in abandonment of the area at maximum noise levels above 80 dBA. Shannon et al. (2015) review the existing literature on the subject (68 publications on terrestrial fauna). On this basis, the authors calculate a median of 60 dBA equivalent noise level as the threshold above which noise-induced impacts on terrestrial fauna are observed, which is supported by a substantial number of publications.

The impact may lead to abandonment of habitats in the disturbance area, reduced nesting success and/or abandonment of nests with eggs and/or young in more sensitive species (some mammals, birds). The impact of disturbance is species-specific. For the most sensitive species, the maximum range of this impact from the generated noise is set at 110 m from the elements of the IP during normal operation. At this distance, the expected equivalent values are around 55 dBA. During blasting operations, disturbance may be caused by seismic impact, shock waves and debris, as well as impulse noise. At the GUSV quarry (deposit "Studen"), approximately 650 m from the blast field (with 61 boreholes), an equivalent noise level of approximately 54 dBA was measured (EIA for the IP for the extraction of construction materials – dolomites from the "Studen" deposit, section "Zavodski Stroezi 2," in the territory of the villages of Studena and Krapets, Pernik municipality). During the experimental blasting carried out in connection with the current IP, maximum levels of 64 dBA on average were recorded at 800 m. From the above, it can be concluded that there will be no significant disturbance at a distance of more than 700 m from the boundaries of the mine.

6. Mortality of animal species during *the movement and operation of transport and construction equipment*. This impact will be observed mainly during the mining construction period, as there is a possibility of the presence of animal species within the boundaries of the project elements. Small, slow-moving species or small individuals of all species inhabiting the construction area that are not good at moving around may be affected. During the exploitation period, such an impact is not expected or will be insignificant due to the unsuitability of the IP site for habitation by these species.

Bird mortality may also be observed from the power line. When using poles with an unsuitable design, this may be caused by electric shock in the case of 20 kV power lines. In the case of higher voltage power lines, there is no risk of electric shock, but there is a possibility of birds colliding with the lightning protection cable.

Reclamation will not have any additional negative impact on animal species.

Invertebrates

The development of this type of IP is invariably associated with the direct destruction of the entire set of biotic components within the IP boundaries.

During construction:

There will be direct destruction of habitats. This phase involves the felling of trees and shrubs, deforestation, removal of soil substrate, and exposure of open mines. Changes in vegetation will lead to changes in the composition of invertebrate fauna. The geobiotic, stratobiotic, and epigeobiotic invertebrate fauna will be affected. The habitats in these areas will be destroyed. There will also be changes in the fauna of the soil substrate and rock mass disposal sites.

There will also be fragmentation of habitats of species requiring a wider range of their living territory. Given the specificity and lifestyle of invertebrates, this effect can be considered insignificant.

A barrier effect for invertebrates is also unlikely.

There will inevitably be disturbance (some species are highly sensitive to human presence) and mortality of individuals (direct destruction during development or collision with transport equipment, etc.).

During operation:

At this stage, the impacts will be the same, given the phased development of the site. They may be somewhat mitigated, as most of the animals will have already left the area or died.

Permanent changes in the local fauna are expected in the areas where sterile rock masses will be deposited. The areas where the earth mass will be removed and stored will be most affected. In addition to the top layer, the rock layer will also be disturbed during the opening of the mine and will also be deposited.

During closure and recultivation:

The recultivation of these areas is a very difficult and slow process. At this stage, an improvement in the environment and, to some extent, a restoration of habitats and populations is expected. The factors of disturbance, mortality, and dust and gas pollution will continue to have an impact, but to a lesser extent.

Such "interventions" in the natural environment usually lead to a change in the edifying plant species, resulting in uncharacteristic succession rather than habitat restoration ("imitation" of primary succession). Pioneer species and communities of invertebrates characteristic of the early stages of succession will appear. The areas where the earth mass will be removed will be most affected.

If recultivation is not carried out properly, there is a risk of invasion by aggressive species (introduction of alien, invasive, and synanthropic animals that will change the species structure, being enemies and competitors of local species).

The undesirable consequences for invertebrate fauna can be mitigated by implementing the entire package of proposed measures to mitigate the negative impact of the IP on biodiversity as a whole.

Vertebrates

During our field studies, including work on other projects, in this part of the Eastern Rhodopes, where the IP is located, we have identified 139 species of vertebrates (Table IV.6.1-1) that could also be found in the area based on the available habitats. Some species of amphibians and reptiles, storks, birds of prey, the nightjar, the blue tit, some woodpeckers (grey, black, middle spotted) and songbirds, and the wolf have a higher conservation status. All of them are subject to protection in the two protected areas within the IP – SPA "Rhodopes - East" (under the Habitats Directive) and SPA "Biala Reka" (under the Birds Directive). Exceptions are the yellow-bellied snake (*Ophisaurus apodus*), the northern goshawk (*Accipiter gentilis*), the red-breasted flycatcher (*Ficedula parva*) and the wildcat (*Felis silvestris*).

The yellow-bellied toad has not been recorded in the IR. Given its habitat preferences, the IR offers little habitat for this species – grassy and shrubby habitats and sparse forests in its northern periphery, a small part of which are directly affected. Therefore, the impact on its habitats will be **insignificant**. Their peripheral location relative to the IP determines an **insignificant** barrier effect. The species is vulnerable to trampling, but given the fact that it has not been recorded in field studies, its population in the area is small, and there is a risk to individual specimens. With the implementation of the measures provided for in the EIA with regard to reptiles, the impact can be **eliminated**.

The northern goshawk has been found in the Yuren Dere area. The species nests in tall forests in the mountains and plains, in riparian forests, and in coniferous plantations. It hunts practically everywhere (Golemanski 2011, personal observations). The impacts on it will be the same as those described in the EIA for the sparrowhawk (*Accipiter nisus*). If activities commence during the nesting season, in the presence of a nest within or near the IP, there is a risk that it will be destroyed or abandoned, leading to the loss of eggs and/or young. If this happens, the impact on the population of the species in the area could be **significant**. Mortality can also be observed from the power line. If poles with an inappropriate design are used, this may be caused by electric shock in the case of 20 kV power lines. In the case of higher voltage power lines, there is no risk of electric shock, but there is a possibility of birds colliding with the lightning protection cable. The impacts can be **eliminated** by applying the measures provided for in the EIA with regard to the bird species subject to protection in the Biala Reka Special Protection Area.

The red-breasted flycatcher was recorded only during migration. The species nests mainly in old beech forests with a natural structure at 600-1550 m above sea level (Golemanski 2011). During migration, it is found in a variety of habitats, including urban parks (personal observations). Therefore, the impact on its habitats during migration will be **insignificant**. Since the species does not nest in the area, disturbance to migrating individuals will also be **insignificant**. **There will be no mortality**.

The wildcat in Bulgaria prefers old, tall forests, but in their absence it settles in a variety of other habitats – forests, scrublands, where it makes its dens and raises its young. It prefers to hunt in open habitats (Pesev et al. 2004,

Macdonald & Barrett 1993, personal observations). The IP includes potential habitats for the species, but these are widespread throughout the Eastern Rhodopes, so the impact on them will be **insignificant**. The species has not been recorded in the IR, but its presence here is possible. Even if this is the case, when disturbed, mammals move their dens, including their young, out of the area of disturbance. The impact on any individuals inhabiting the area will be **insignificant**. **There will be no impact** on the population of the species in the area.

The impacts on the species included in Annex 2 of the Biodiversity Act are discussed and analyzed in detail in the EIA.

The other species, although included in Annex 3 of the Biodiversity Act or in the Red Book of Bulgaria (with the category "Near Threatened"), are widespread and have relatively large populations both in the Eastern Rhodopes and in the country. Therefore, the impact on their habitats during migration will be **insignificant**. They use a wide range of habitats, some of which are anthropogenic. Therefore, the impact on their populations and habitats in the area will be **insignificant**.

Summary conclusions on the impact on flora and fauna, from the perspective of the EIA report:

By type of impact: direct and indirect, insignificant in scale;

In terms of territorial scope of impact: local to the IP site and indirect, partially up to a maximum of 700 m;

Frequency of impact: daily, during working hours, and twice a week for the PVR;

Duration of impact: for the duration of the concession;

Cumulative and combined impacts: analyzed in detail in the EIA.

7. Cultural and historical heritage

The potential significant impacts on cultural heritage sites are the result of all main and ancillary activities and the construction of facilities envisaged in the investment proposal at all stages of its implementation. The same activity may have different impacts on different cultural heritage sites, which are receptors of these impacts. These differences are determined mainly by the location of the site in relation to the project route and the scope of all main and auxiliary facilities and planned construction activities. Cultural heritage sites are invariably linked to the terrain and are, by their very nature, an anthropogenic part of the environment. Due to their specific characteristics, they differ from other receptors of impact (such as water, air, soil, landscape, flora and fauna) in several ways: they are directly affected by construction and excavation activities; their disruption is an irreversible process, their restoration is impossible, and the loss of scientific information is irretrievable.

In this regard, the assessment of the impact on cultural heritage sites is made taking into account the sensitivity of the receptor (type

of the site, its cultural and historical significance, and its location in relation to the boundaries of the investment proposal) and the degree of impact (type of planned activities).

With regard to the archaeological sites registered to date and located in the vicinity of the concession area, it is not necessary to assess the impact separately for each one, as none of them is directly threatened. However, the identified archaeological sites near the investment proposal give reason to assume that there are unknown sites in the area. Therefore, it is imperative to take the measures provided for in the specialized regulatory framework for the protection of cultural heritage.

Impact forecast

Construction works pose a significant risk of damaging cultural values. Firstly, the most serious threat to archaeological sites is posed by earthworks – the removal of topsoil and its temporary storage; geological exploration excavation works, mining activities, and the recultivation of disturbed land. All types of excavation work can affect cultural layers, destroy archaeological structures, or destroy artifacts. In addition, there is a risk that the implementation of the IP may threaten unknown archaeological sites.

The degree of threat to archaeological sites also depends on their specific characteristics – type, chronology, thickness of the cultural layer, presence of architectural elements, parameters of the protection zones, etc. The sites closest to the areas where active excavation activities will take place are most seriously endangered.

As a result of the preliminary analysis of the expected negative impacts of the activities related to the implementation of the investment proposal, it has been clarified that each of them may, to varying degrees, pose a potential threat to the integrity of cultural values.

a) Construction

Negative impacts on cultural heritage sites may occur during excavation works within the concession area. Archaeological cultural values are most seriously threatened, as they are also the most difficult to identify due to their specific characteristics. It is very likely that unknown archaeological sites will also be affected by the construction works. For this reason, and in accordance with the requirements of Article 161(2) of the Cultural Heritage Act, archaeologists must monitor the construction works. In the event of archaeological sites being discovered, Articles 148 and 160 of the Cultural Heritage Act shall apply.

b) Operation

The operation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area" may pose a threat to cultural values located within its boundaries. The change in the cultural and traditional landscape in the area should also be noted as an indirect impact.

c) Closure and recultivation

At this stage, negative impacts on cultural heritage sites can be expected in the event of humus extraction outside the concession area.

Summary conclusions on the impact on cultural and historical heritage:

By type of impact: direct, insignificant when applying regulatory requirements;

By territorial scope of impact: local, within the work areas;

Frequency of impact: temporary, until removal of the top soil layer; recultivation of the land;

Duration of impact: during construction and operation;

Cumulative and combined impacts: not expected, provided that the legal measures are implemented.

8. Waste

The waste generated by the activity is divided into two groups: waste falling within the scope of the Waste Management Act and mining waste falling within the scope of the Mining Act.

8.1. Expected type and quantity of waste generated during construction, operation, closure, and recultivation of the investment proposal. Waste classification

The different types of waste are presented and classified by name and code in accordance with Annex 1 to Article 5(1) and Article 6(1)(1) of Ordinance No. 2 of 23 June 2014 on the classification of waste, issued by the Ministry of Environment and Water and the Ministry of Health (State Gazette No. 66/2014).

◆ Waste generated during the construction of the investment proposal

The construction phase is largely related to the organizational activities for the development of the deposit, *as well as to the preparation for extraction by uncovering the reserves.*

The following are planned rehabilitation of existing road connections, creation of a site for servicing the mining equipment, construction of the power supply network, construction of the OF, creation of an administrative and residential complex, installation of a mobile crusher for the needs of the retaining walls (dikes) of the SMO, and construction of a retaining wall.

Preparation for extraction continues with excavation work related to the formation of soil depots – two for the earth and humus mass, which will be collected selectively where possible and stored separately, the formation of the SMO, and the development of a temporary dump for low-grade ore.

✓ **Hazardous waste**

During construction and preparation for extraction, hazardous waste will mainly be generated from the construction equipment at the site (above-ground complex, OF), for carrying out excavation work and preparing for the extraction of reserves.

Hydraulic oils

Used hydraulic oils (non-chlorinated, synthetic, and other hydraulic oils) will be generated during emergency/unplanned replacement of hydraulic oils from the hydraulic systems of the equipment used in the construction of the OF and other necessary facilities, during the preparation and opening of the deposit and loading of the excavated material. The unforeseen replacement of used hydraulic oils will be carried out at a designated site with compacted insulating material that prevents the penetration of petroleum products into the soil, located within the concession area. The oils will be collected in metal barrels and will be transported and delivered in a timely manner for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA).

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: *13 01 10* – Non-chlorinated mineral-based hydraulic oils.*

Amount of waste – 0.540 tons/year.

Gear oils

Waste motor oils from gearboxes, engines, and gearboxes (non-chlorinated, synthetic, and other motor oils) will be generated during emergency/unplanned oil changes of the equipment used in construction activities at the site and for the preparation and excavation of the site and loading of the excavated material. The unforeseen replacement of used motor oils from gearboxes, engines, and reducers will be carried out at a designated site with compacted insulating material that prevents the penetration of petroleum products into the soil, located within the concession area. The oils will be collected in metal barrels and will be transported and delivered in a timely manner for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: *13 02 05* – Non-chlorinated mineral-based engine, lubricating, and gear oils*

Amount of waste – 0.420 tons/year

Oil filters

Used oil filters will be generated during emergency/unplanned replacement of used oils from the equipment used for construction, preparation and exposure of the deposit, loading of the exposure and replacement of used oil filters. Unforeseen replacement of oil filters will be carried out at a designated site with compacted insulating material that prevents the penetration of petroleum products into the soil, located within the concession area. Oil filters will be

collected in metal containers and promptly transported and handed over for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 16 01 07* – *Oil filters*

Amount of waste – 3 pcs/year

Brake fluids

Used brake fluids will be generated during emergency/unplanned replacement of brake fluid from faulty brake systems of the equipment used for construction, site excavation, and loading of the excavated material. Unplanned replacement of brake fluids will be carried out at a designated site with compacted insulating material that prevents petroleum products from penetrating the soil, located within the concession area. Waste brake fluids will be collected in metal barrels and promptly transported and handed over for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 16 01 13* – *Brake fluids*

Amount of waste – 0.012 tons/year

Rechargeable batteries

The waste will be generated during the unforeseen replacement of worn-out rechargeable batteries from the equipment used for construction, preparation, and excavation of the deposit and loading of the excavated material. Worn-out rechargeable batteries will be collected in metal containers and promptly transported and handed over for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 16 06 01* – *Lead accumulator batteries*

Amount of waste – unpredictable at this stage.

Rags for cleaning equipment and protective clothing

The waste is generated during the cleaning of the equipment used for construction, preparation and excavation of the deposit and loading of the excavated material, and from the contamination of work clothes during work. The waste cloths and clothes are generated on the territory of the respective site. The waste will be collected and temporarily stored in a metal barrel at the place of its generation in a designated area until quantities are accumulated for transfer for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act for this waste.

Code according to the classification of waste, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 15 02 02* – *absorbents, filter materials (including oil filters,*

not mentioned elsewhere), wiping cloths, protective clothing contaminated with hazardous substances.

Amount of waste – 0.015 tons/year

✓ **Other non-hazardous waste Paper and cardboard packaging;**

Paper and cardboard packaging is generated when unpacking delivered equipment parts, electronic sensors, and consumables for installation activities. Paper and cardboard packaging will be collected separately and transferred for subsequent treatment, based on written contracts, to persons holding a document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 15 01 01 - Paper and cardboard packaging

Amount of waste – 0.015 tons/year

Plastic packaging

Plastic packaging is discarded when the materials delivered in it, necessary for construction and installation activities, are released. Plastic packaging will be collected separately and transferred for subsequent treatment, based on written contracts, to persons holding a document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 15 01 02 - plastic packaging

Amount of waste - 0.015 tons/year

Wood

Wood packaging is generated when unpacking wooden crates from the delivered machinery and equipment needed for the construction of the OF and other facilities during the construction and installation activities. Wood packaging will be collected separately and transferred for subsequent treatment, based on written contracts, to persons holding a document under Article 35 of the Waste Management Act.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 15 01 03 - wood packaging

Amount of waste – 0.015 tons/year

✓ **Construction waste**

Concrete unsuitable for reuse

During the construction of the OF, sites for the placement of necessary machinery and equipment, a site for servicing the mining equipment, etc., a negligible amount of unusable concrete will be generated. The unusable concrete will be stored at a temporary storage site at the place of formation until it is transferred to legal entities that apply the waste management hierarchy and/or to be transferred to Regional system for management of waste with the aim

its utilization in accordance with the Ordinance on the Management of Construction Waste and the Use of Recycled Construction Materials.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 17 01 01 – Concrete

Amount of waste – 4.2 tons, total for the construction

Plastic

Unusable plastic, mainly fasteners, will be generated during the construction of the OF and other facilities necessary for the extraction and processing of polymetallic ores.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 17 02 03 – plastic

Amount of waste – unpredictable at this stage. The amount will be determined during the preparation of the technical design, section "Construction Waste Management Plan."

Iron and steel

Metal waste will be generated during the construction of the OF and other facilities necessary for the operation of the deposit. The main waste will be angles, rails, profiles, construction iron, reinforcement, etc. The waste will be transported for recycling.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 17 04 05 – cast iron and steel

Amount of waste - unpredictable at this stage. The amount will be determined when preparing the technical design, section "Construction Waste Management Plan."

Soil and stones

During the rehabilitation of existing road connections and the construction of new ones to the mine, the installation, the dumps, and the water reservoirs, the formation of the SMO and other necessary infrastructure, waste soil and stones will be generated.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 17 05 04 soil and stones other than those mentioned in 17 05 03

Amount of waste - unpredictable at this stage. The amount will be determined when preparing the technical design, section "Construction Waste Management Plan."

✓ Mixed household waste

Before the start of extraction works at the Rozino deposit, the following will be generated waste from the daily activities of the workers who will be carrying out construction activities. The waste will be collected in metal "Beaver" type containers and sent for sorting (separation of paper, metal, and plastic packaging for recycling, separation of biodegradable waste for composting, and reduction of the amount of biodegradable waste destined for landfill) to the Regional Waste Management Association

Waste Management (RSUO) for the Kardzhali region "Non-profit Association "For Clean Rhodopes" together with household waste from the municipality of Ivaylovgrad.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 20 03 01 – *Mixed household waste*

Amount of waste – up to 0.350 kg/person/day.

Mining waste generated during the preparation for extraction and processing of polymetallic ores

Pursuant to Article 22b of the Waste Management Act and Article 15 of the Ordinance on the Management of Mining Waste, mining waste generated during the extraction and processing of polymetallic ores from the "Tintyava" area, are classified as "non-inert and non-hazardous waste", namely:

- code 01 01 01 - waste from the exposure and extraction of metal minerals, which will be deposited in a sterile rock mass dump;

- code 01 03 06 - residues from enrichment, other than those mentioned in 01 03 04 and 01 03 05, which will be deposited in the form of paste.

- Waste from the exploration and extraction of metal ores

Due to the hardness of the rocks, it is accepted practice to separate the ore and rock overburden from the massif by drilling, followed by millisecond initiation and detonation using a NONEL system.

The rock waste at the Rozino deposit, which does not contain any useful components but covers the ore-bearing rocks or is mixed with them, must be selectively removed and deposited.

In general, the processes for the selective removal of sterile overburden are: conducting PVR with a millisecond delay to separate the sterile from the massif, loading by means of a backhoe loader onto dump trucks and transport to a sterile dump.

The total projected volume of sterile rock mass to be extracted from the deposit amounts to approximately 26.5 million tons or approximately 10.8 million m³. The maximum annual volume is expected to be 3.3 million tons/year (1.3 million m³/year).

The planned volumes of sterile rock are to be dumped in the SMO, east of the mine pit.

After the fourth year (after the depletion of the reserves in section 1), the backfilling of the excavated areas will begin.

The height of the working steps in the open pit is assumed to be 5 ÷ 10 m.

The loading of the open pit and the ore is planned to be carried out with a hydraulic backhoe loader with a bucket volume of 6 m³, and after the blasting and ventilation of the mine, the excavator will stand next to the blasted field and begin loading the blasted pile. The overburden is to be transported by dump trucks.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014

- 01 01 01 - waste from the exploration and extraction of metal minerals Amount of waste - 3.3 million tons/year (1.3 million m³/year) or 26.5 million tons/10.8 million m³ for the entire extraction phase

- Enrichment residues

The waste after processing is expected to be deposited after compaction to 70-75% solid matter. This method is preferred over conventional tailings storage due to the following factors:

- Higher percentage of recycled water use;
- Lower consumption of "fresh" water;
- Smaller landfill area;
- Significantly increased stability coefficient of landfills containing compacted flotation waste;
- Significantly reduced risk of compromising the support structures;
- Significantly increased potential for phased recultivation. When depositing flotation waste with a water/solid ratio of

25%/75%, the area and volume of the facility is reduced by about 10÷15 decare compared to conventional disposal, where the water/solid ratio is 45%/55%, i.e., the circulating water is reduced by about 20÷25%.

To reduce the water content in the flotation waste, a thickener is planned to be installed on the territory of the enrichment plant, where the flotation waste will be dewatered.

After the depletion of the reserves in Section 1 and the progress of mining operations in Section 2, it is planned to start backfilling the excavated areas, which again complies with best practices for open-pit mining. Backfilling is expected to start as early as the 4th or 5th year of operation.

The positive effects of backfilling are:

- Significant reduction in the area required for storage of sterile rock mass (overburden) and flotation waste after processing (if this option proves to be viable in terms of quality);
- Significant reduction in the time during which external embankment formation will be used and, respectively, much faster recultivation of the external embankment and, possibly, the external facility for storage of flotation waste.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014

- 01 03 06 - enrichment residues other than those mentioned in 01 03 04 and 01 03 05 Amount of waste - 11.2 million tons for the entire period of operation.

◆ Waste generation during the operation of the investment proposal

During mining activities, the exploitation of the deposit and the processing of the raw material, the following waste activities will be carried out:

Hazardous waste

Some of the waste may be generated by quarry equipment for extraction, loading, and transportation during the operation of the deposit only in the event of an emergency/unforeseen replacement on the territory of the extraction site.

Non-chlorinated mineral-based hydraulic oils

Used hydraulic oils (non-chlorinated, synthetic, and other hydraulic oils) will be generated during emergency/unplanned replacement of hydraulic oils from the hydraulic systems of quarry extraction equipment, loading and transporting polymetallic ores during the operation of the deposit, and other hydraulic oils generated during unforeseen replacement.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 13 01 10* – Non-chlorinated mineral-based hydraulic oils.

Amount of waste – 1,200 tons/year

Synthetic hydraulic oils

Waste synthetic hydraulic oils will be generated during emergency/unplanned replacement of synthetic hydraulic oils from the hydraulic systems of quarry equipment for extraction, loading and transporting polymetallic ores during the operation of the deposit, and other hydraulic oils generated during unforeseen replacement.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 13 01 11* – Synthetic hydraulic oils.

Amount of waste – 1,200 tons/year

Synthetic motor and lubricating oils and gear oils

Used synthetic motor and lubricating oils from gearboxes, engines and gearboxes will be generated during emergency/unplanned oil replacement from quarry equipment for extraction, loading, and transportation of the extracted raw material during operation of the deposit and the facilities at the deposit site.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, MOEW and MOH: 13 02 06* – Synthetic motor and lubricating oils and oils for gearboxes

Amount of waste – 0.450 tons/year

Rags for cleaning equipment and protective clothing

The waste is generated during the cleaning of the quarry equipment used for extraction, loading, processing, and transportation of the extracted ores and from the contamination of work clothes during work in the quarry and other facilities. Discarded cloths and clothing are generated on the territory of the respective mining area and on the site of the OF and other sites. Discarded rags and clothing will be collected and temporarily stored in a metal barrel at the place of their generation at a designated site until quantities are accumulated for transfer for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act for this waste.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 15 02 02* – absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated with dangerous substances

Amount of waste — 0.250 tons/year

Packaging containing residues of hazardous substances or contaminated with hazardous substances

The waste is generated during the use of hazardous substances necessary for the processing (enrichment) of the mined ores in the OF and other facilities. Discarded packaging will be collected and temporarily stored at the place of its generation in a designated area until quantities are accumulated for transfer for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act for this waste.

Code according to the classification of waste, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 15 01 10* – Packaging containing residues of dangerous substances or contaminated with dangerous substances

Amount of waste – 0.150 tons/year

Rechargeable batteries

Waste will be generated during the technological and unforeseen replacement of worn-out rechargeable batteries from quarry equipment used for the extraction, loading, and transportation of mined ore during the operation of the deposit.

The replacement of worn-out rechargeable batteries from quarry equipment for extraction, loading, and transporting the extracted ore at the deposit will be carried out at a designated site with compacted insulating material that prevents the penetration of hazardous substances into the soil, located within the concession area, as well as in the mechanical workshop. Depreciated rechargeable batteries generated during replacement will be collected in metal containers and promptly handed over for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act for the specific type of waste. Waste composition – lead, sulfuric acid.

Code according to the waste classification, Ordinance No. 2 of 23.07.2014, Ministry of Environment and Water and Ministry of Health: 16 06 01* – Lead accumulator batteries

Quantity of waste – unpredictable at this stage.

No hazardous waste will be stored on the territory of the IP, but will be transported in a timely manner.

Household waste

Mixed household waste

During the operation of the Rosino deposit, household waste will be generated from the daily activities of the workers. The waste will be collected in metal "Beaver" type containers and sent for sorting (separation of paper, metal, and plastic packaging for recycling, separation of biodegradable waste for composting and reduction of the amount of biodegradable waste intended for landfill) in the Regional Waste Management System and landfill of the residual fractions in a regulated landfill for non-hazardous waste, together with municipal solid waste.

Code according to the classification of waste, Ordinance No. 2 of 23.07.2014, MOEW and the Ministry of Health.

20 03 01 – mixed municipal waste Amount of waste – up to 0.035 kg/person/day

◆ **Waste expected to be generated during closure and reclamation**

The waste that will be generated during the recultivation of the site is similar to the waste generated during the construction activities and preparation of the site for operation – concrete, contaminated rags, household waste, with the exception of mining waste.

8.2. Collection, transport, recovery, and disposal of waste

8.2.1. Waste during the construction of the investment proposal (preparation for extraction)

➤ **Hazardous waste**

Hydraulic oils, gear oils, oil filters, brake

fluids and storage batteries with electrolyte and other consumables for quarry equipment

Unplanned/emergency replacement of consumables at the site will be carried out at a designated area with compacted insulating material that prevents petroleum products from penetrating the soil, located within the concession area. Waste generated during unforeseen replacement of consumables will be collected in metal containers/barrels and will be transported in a timely manner and handed over for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA) for the specific type of waste.

Rags for cleaning equipment and protective clothing

Waste cloths and clothing are generated during the cleaning of equipment used for construction, preparation, and excavation of the deposit and loading of the excavated material, as well as from the soiling of work clothes during work. The waste will be collected and temporarily stored in a metal barrel at the place of its generation in a designated area at the place of generation until quantities are accumulated for transfer for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA) for this waste.

➤ **Other non-hazardous waste**

Paper and cardboard packaging, plastic packaging and wood

generated during the construction of the facilities on site from discarded delivered equipment parts shall be collected separately and transferred for subsequent treatment, on the basis of written contracts, to persons holding a document under Article 35 of the Waste Management Act.

➤ **Construction waste**

Concrete, plastic, iron, steel, soil, and rocks that are not suitable for reuse and are generated during the construction and preparation of the mining site will be stored at temporary storage sites at the place of generation until they are transferred to legal entities that are authorized to handle them.

stones generated during the construction and preparation of the extraction site shall be stored at pre-storage sites at the place of generation until they are transferred to legal entities that apply the waste management hierarchy and/or transferred to the Regional Waste Management System for recovery in accordance with the Ordinance on Construction Waste Management and the Use of Recycled Construction Materials.

➤ **Mixed household waste**

Before the start of mining operations at the Rozino deposit, waste will be generated from the daily activities of the workers who will carry out the construction works and prepare the deposit for mining. The waste will be collected in metal "Beaver" type containers and transferred for sorting (separation of paper, metal, and plastic packaging for recycling, separation of biodegradable waste for composting, and reduction of the amount of biodegradable waste destined for landfill) to the Regional Waste Management Association (RWMA) for the Kardzhali region "Non-profit association "For Clean Rhodopes" together with household waste from the municipality of Ivaylovgrad.

➤ **Mining waste**

- **Waste from the exploration and extraction of metal minerals**

Due to the hardness of the rocks, it is accepted that the ore and rock overburden should be separated from the massif by drilling, followed by millisecond initiation and detonation using the NONEL system.

The rock waste at the Rozino deposit, which does not contain any useful components but covers the ore-bearing rocks or is mixed with them, must be selectively removed and deposited.

In general, the processes for the selective removal of sterile overburden are: conducting PVR with a millisecond delay to separate the sterile from the massif, loading by means of a backhoe loader onto dump trucks and transport to a sterile dump.

The planned volumes of sterile mass are to be deposited in the SMO, east of the mine pit.

After the fourth year (after the depletion of the reserves in section 1), the backfilling of the excavated areas will begin.

Enrichment residues

Post-processing waste is expected to be deposited after compaction to 70-75% solid matter. This method is preferred over conventional tailings storage.

When depositing flotation waste with a water/solid ratio of 25%/75%, the area and volume of the facility are reduced by about 10÷15 decares

compared to conventional disposal, where the water/solid ratio is 45%/55%, i.e. the circulating water is reduced by about 20÷25%.

To reduce the water content in the flotation waste, a thickener is planned to be installed on the territory of the enrichment plant, where the flotation waste will be dewatered.

After the depletion of the reserves in Section 1 and the progress of mining operations in Section 2, it is planned to start backfilling the excavated areas, which again complies with best practices for open-pit mining. Backfilling is expected to start as early as the 4th or 5th year of operation.

The positive effects of backfilling are:

- Significant reduction in the area required for storage of sterile rock mass (overburden) and flotation waste after processing (if this option proves to be viable in terms of quality);
- Significant reduction in the time during which external dumping will be used and, respectively, much faster recultivation of the external dump and, possibly, the external facility for storage of flotation waste.

8.2.2. Waste during the operation of the investment proposal Hazardous waste

Non-chlorinated mineral-based hydraulic oils, synthetic hydraulic oils, synthetic motor and lubricating oils, and oils for gearboxes and storage batteries

Unplanned replacement of consumables at the site will be carried out at a designated area with compacted insulating material that prevents oil products from penetrating the soil, located within the concession area. Waste generated during unforeseen replacement of consumables will be collected in metal containers/barrels and will be handed over in a timely manner for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA) for the specific type of waste.

Rags for cleaning equipment and protective clothing

Waste generated during the cleaning of quarry equipment used for the extraction, loading, processing, and transportation of mined ores and from the contamination of work clothes during work in the OF and other facilities will be collected in a metal barrel and delivered in a timely manner for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA) for this waste.

Packaging containing residues of hazardous substances or contaminated with hazardous substances

Packaging discarded during the use of hazardous substances shall be collected and delivered in a timely manner for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the WMA for this waste.

Household waste

Mixed household waste

Waste will be collected in metal containers of the "Beaver" type and sent for sorting (separation of paper, metal, and plastic packaging for recycling, separation of biodegradable waste for composting, and reduction of the amount of biodegradable waste destined for landfill) at the Regional Waste Management Association (RWMA) for the Kardzhali region "Non-profit association "For Clean Rhodopes" together with household waste from the municipality of Ivaylovgrad.

◆ Waste expected to be generated during closure and recultivation

The waste that will be generated during the recultivation of the site is similar to the waste generated during the construction activities and preparation of the site for operation – concrete, contaminated rags, household waste, with the exception of mining waste.

8.3. Transport scheme for waste transportation. Need for waste storage sites

The treatment of mining waste is part of the "Mining Waste Management Plan" in accordance with the Ordinance on Mining Waste Management (published in State Gazette No. 5/2016).

Waste from the exposure and extraction of metal minerals after conducting a millisecond delay PVR to separate the sterile material from the mass will be loaded by a backhoe loader onto dump trucks and transported to a sterile waste dump. Subsequently, a bulldozer will shape the body of the dump.

The rock waste dump is planned to be of the bulldozer type. The sterile rock mass loaded onto motor vehicles will be delivered to the dump area and unloaded. Subsequently, a bulldozer will shape the body of the dump.

It is planned to develop one external embankment and, after the fourth year, to start internal embankment formation in the mine pit.

The boundary between the external and internal dumps is conditional, following the contour of the pit in Section 1.

As regards the flotation waste after processing, it is planned to be deposited after thickening to 70-75% solid matter. The disposal of the waste involves the separation of water (thickening) before its disposal.

When depositing flotation waste with a water/solid ratio of 25%/75%, the area and volume of the facility is reduced by about 10-15 decares compared to conventional disposal, where the water/solid ratio is 45%/55%, i.e., the circulating water is reduced by about 20-25%.

After the depletion of the reserves in Section 1 and the progress of mining operations in Section 2, it is planned to start backfilling the excavated areas, which again complies with best practices for open-pit mining. Backfilling is expected to start as early as the 4th or 5th year of operation.

Transportation of hazardous and industrial waste

Waste generated outside the concession area will be transported by other legal entities. Hazardous and industrial waste should be collected separately and transferred for subsequent treatment, based on written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act (WMA).

The investment proposal does not provide for the utilization of other waste during the operation of the facility.

Documentation and reporting of waste management activities

A report must be made on the types and quantities of waste generated by the activity (production and hazardous). The report is made once a year for the total amount of waste, in accordance with the applicable regulations.

The following waste will be generated within the scope of the ZPB: 01 01 01 - waste from the exploration and extraction of metal minerals, which will be deposited in a sterile rock mass dump and coded 01 03 06 - residues from enrichment, other than those mentioned in 01 03 04 and 01 03 05, which will be deposited in the form of paste.

Pursuant to Article 22d, paragraph 4 of the ZPB, as part of the IP, a proposal for the management of mining waste has been prepared and is presented in **Text Annex No. 9** to this report. No other mining waste is expected to be generated.

The IP does not provide for any other waste treatment activities other than the disposal of mining waste.

Summary conclusions on the impact of waste:

By type of impact: insignificant;

By territorial scope of impact: limited, within the working areas;

Frequency of impact: for waste falling within the scope of the Waste Management Act - temporary; for waste from mining activities - permanent, daily, until the closure of the activity and recultivation of the sites;

Duration of impact: continuous, for the term of operation of the deposit, reversible;

Cumulative and combined impacts on the environment: not expected due to the territorial limitation of the impact and the implementation of technical and biological recultivation.

9. Hazardous substances

a) Construction and operation

During the construction and operation of the quarry, **diesel fuel** will be used for the loading and transport equipment and auxiliary self-propelled equipment used in ore extraction. It will be stored in steel tanks with a total

capacity of 42.5 tons (with an average density of 0.85) - 50,000 liters - 55 m³. The number and dimensions of the tanks will be in accordance with the Project for the Construction of a Gas Station under the Spatial Development Act.

Diesel fuel will be delivered by mobile tankers, with a maximum available quantity of 42.5 tons on site.

During the construction and operation of the mine and the OF,

fuel and lubricants for the service equipment.

The necessary lubricants, hydraulic and cooling oils, and greases will be delivered in packaging that will be returned to the suppliers on a full-empty basis.

The following will be available on site in a storage room:

- Prista® M10 De engine oil, 2 barrels of 110 kg each, totaling 0.22 t, and
- Prista AN 68_100 lubricating oil, 2 barrels of 110 kg each, totaling 0.22 tons.

The main explosive material to be used is expected to be an ammonium nitrate-fuel oil explosive mixture (ANFO) and/or emulsion explosives. The blasting operations will be carried out by an external contractor who will deliver the necessary explosives immediately before the operations, so there is no likelihood of explosives being present on site. **It is planned that the explosives will be provided by a specialized company and will not be stored on site.**

No **chemicals or mixtures** are required in the extraction process. These will be used in the enrichment process. The reagent distribution area includes the storage and preparation of the following reagents:

Foaming agent: methyl isobutyl carbinol (MIBC). The maximum quantity available on site will be 6.6 tons, located in: a storage room, a solution storage tank with a total capacity of 480 kg – 500 liters – 0.6 m³, and a solution delivery tank with a total capacity of 60 kg – 64 liters – 0.06 m³ with a solution dosing system.

Collector: potassium amyl xanthate (PAX). The maximum quantity available on site will be 18.7 tons, located in: a storage room, a solution storage tank with a total capacity of 1,440 kg – 9,600 liters – 10 m³ and a solution delivery tank with a total capacity of 480 kg – 3200 liters – 3.5 m³ with a solution dosing system. The tanks also have two circulation pumps in operating/standby mode, which deliver the PAX solution to the flotation area;

Activating agent: copper sulfate (CuSO₄.5H₂O). The maximum quantity available on site will be 45 tons, located in: a storage room, a solution preparation tank with a total capacity of 3000 kg – 20000 liters – 20 m³ and a solution delivery tank with a total capacity of 1500 kg – 10,000 liters – 10 m³ with a solution dosing system.

Sulphidising reagent: sodium hydrogen sulphide (NaHS). The maximum quantity available on site will be 48 tonnes, located in: a storage room, a tank for preparing the solution with a total capacity of 3600 kg – 23980 litres – 25 m³ and a solution delivery tank with a total capacity of 1200 kg – 8000 liters – 8 m³ with a solution dosing system.

Collector: Aerofloat 404 (A404). Maximum available quantity site will be 3.6 tons, located in: a storage room, a tank for preparing the solution with a total capacity of 360 kg – 2400 liters – 2.5 m³ and a solution delivery tank with a total capacity of 60 kg – 400 liters – 0.4 m³ with a solution dosing system.

Flocculant (mixture): The maximum quantity available on site will be 2.2 tons, located in an automatic machine for pre-preparation of polymer solution doses. The flocculant distribution system includes a powder flocculant hopper, a feed screw, a mixing tank with a stirrer, a storage tank with a stirrer, and two dosing pumps. Tomal PolyRex, an automatic machine for the preliminary preparation of polymer solution doses, will be used. This allows for the correct preparation of the solution and aging of the flocculant. The two dosing pumps feed the mixed flocculant to the thickeners of both the concentrate and the production waste. Before being added to the thickener, each line will have a built-in mixer for further dilution of the flocculant to 0.02% by volume.

The delivery, transport, preparation of solutions, use, disposal, and treatment of packaging are in accordance with regulatory requirements.

The chemicals and mixtures to be used during construction (preparation for extraction), operation of the deposit, and during closure and recultivation are classified according to their physicochemical, toxicological, and ecotoxicological properties in accordance with the requirements of Regulation (EC) 1272/2008 on the classification, labeling, and packaging of substances and mixtures (CLP).

Classification of hazardous substances

The classification of hazardous substances is in accordance with the requirements of Regulation (EC) No. 1272/2008 on classification, labeling, and packaging of substances and mixtures (CLP).

According to the risk potential assessment of the company, carried out in accordance with the guidelines in Annex 3 to Article 103, paragraph 1 of the Environmental Protection Act, the company is not classified as a "High/low risk potential company".

Table V.9-1 Classification of hazardous substances in accordance with the requirements of Regulation (EC) No. 1272/2008 on the classification, labeling, and packaging of substances and mixtures.

Chemical name ¹	CAS No	EC No	Hazard category(ies) according to Regulation (EC) No 1272/2008 on classification, labeling, and packaging of substances and mixtures (CLP) (OJ L 353/1, 31 December 2008)	Classification according to Annex No. 3 to Article 103(1) of the Environmental Protection Act ²	Design capacity of the technological facility/facilities (in tons) ³	Available quantity (in tons) ⁴	Physical properties ⁵
1	2	3	4	5	6	7	8
Diesel fuel	6833 4-30 5	269 882-7	Flammable liquid, category 3 H226: Flammable liquid and vapor Toxic if inhaled, category 1, H304: May be fatal if swallowed and enters airways Skin irritant, category 2 H315: Causes skin irritation Acute toxicity, category 4 H332: Harmful if inhaled Carcinogenic, category 2 H351: Suspected of causing cancer STOT RE 2 H373: May cause damage to organs through prolonged or repeated exposure Chronic aquatic hazard, category 2 H411: Toxic to aquatic life with long-lasting effects, Category 2	Specifically listed, Part 2, item 34, (c) gas oils (including diesel fuels, home heating oils, and gas oil blends); Part 1, Section P, P5c Flammable liquids, Category 2 or 3, not covered by P5a and P5b (due to code H226) Part 1, Section E, E2 Hazardous to the aquatic environment in the Chronic Hazard Category, Category 2 (due to code H411)	42.5	42.5	Liquid, stored under normal conditions
Foaming agent - Methyl isobutyl carbinol	108 11	203 551-7	Flammable liquid, Category 3, H226 Specific target organ toxicity - single exposure, Category 3, H335	Part 1, Section P, P5c Flammable liquids Flammable liquids, Category 2 or 3, not covered by P5a and P5b (due to code H226)	10	10	Liquid

Potassium amyl xanthate	2720 73	220 329-5	Flam. Solid 1 H228 Acute Tox. 4 H302 Acute Tox. 4 H312 Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT Single Exp. 3 H335	Not applicable	27	27	Dust
Collector A404 (mixture)	-	-	Corrosive to metals, Category 1 H290 Skin corrosion/irritation, Category 1 H314 Serious eye damage/eye irritation, Category 1 H318 Skin sensitization, Category 1 H317 Short-term (acute) aquatic hazard, Category 2 H401 Long-term (chronic) aquatic hazard, Category 2 H411	Part 1, Section E, E2 Hazardous to the aquatic environment in Category Chronic Hazard, Category 2 (due to code H411)	0.4	0.4	Liquid
Flocculant (mixture)	-	-	Serious eye damage/eye irritation; Category 1 H318	Not applicable	3	3	Flakes and pellets
Sodium hydrogen sulfide	240- 778-0	1672 1-80 5	Met. Corr. 1 H290 Acute Tox. 3 H301 Skin Corr. 1B H314 Eye Dam. 1 H318 Aquatic Acute 1 H400	Part 1, Section E, E1 Hazardous to the aquatic environment in Category Acute Hazard, Category 1, or Chronic Hazard, Category 1 (due to code H400) Part 1, Section H, H2 Acute toxicity (due to code H301)	48	48	Flakes
Copper sulfate	7758 99-8	231 847-6	Acute Tox. 4 H302 Skin Irrit. 2 H315 Eye Irrit. 2 H319 Aquatic Acute 1 H400 Aquatic Chronic 1 H410	Part 1, Section E, E1 Hazardous to the aquatic environment in Acute Hazard Category 1 or Chronic Hazard Category 1 (due to codes H400 and H410)	28	28	Solid

Text Appendix No. 13 contains the Safety Data Sheets and instructions for safe use, as well as all correspondence related to the classification under Article 103 of the Environmental Protection Act.

b) Closure and recultivation

Reclamation works will be carried out in stages and will be completed at the end of the concession period. For this purpose, a technical and biological reclamation project will be developed, which is not related to the use and storage of hazardous substances.

Summary conclusions on the impact of hazardous substances *By type of impact:*

insignificant;

By territorial scope of impact: local, within the work areas;

Frequency of impact: temporary

By duration of impact: for the of operation of the deposit, recoverable;

Cumulative and combined impacts: not expected due to the territorial limitation of the impact.

10. Hazardous energy sources and radiation

10.1. Forecast of the expected noise pollution of the environment during the construction, operation, closure, and recultivation of the investment proposal.

The implementation of the investment proposal is associated with noise emissions from the industrial machinery, mining and technological equipment used, and from the PVR.

The extraction activities at the Rozino deposit will not be accompanied by the emission of ionising radiation: electromagnetic waves, gamma rays, or the emission of particles resulting from radioactive decay. In the area where the deposit in question is located, there is no data on exceeded natural gamma radiation background levels in the raw material, nor on morbidity among the population as a result of such impacts.

To limit the harmful effects of environmental noise, *Directive 2002/49/EC of 25 June 2002 on the assessment and management of environmental noise* is applied. The main requirements of Directive 2002/49/EC have been transposed into our national legislation through *the Law on Protection against Environmental Noise* and the subordinate regulations thereto.

Regulation No. 6 of 2006 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values for environmental noise indicators in residential and public buildings, in areas and territories intended for residential construction, recreational areas and territories, and mixed-use areas, methods for assessing noise indicator values and the harmful effects of noise on public health the basic indicator for assessing noise impact has been defined as the equivalent noise level $Leq, dB(A)$ for the three periods of the day, as follows:

- daytime (07:00-19:00) with a duration of 12 hours,
- evening (19:00-23:00) with a duration of 4 hours,

- night (23:00-07:00) with a duration of 8 hours.

The limit values for noise levels in different territories and planning zones areas in urban and non-urban areas are regulated by Ordinance No. 6 of 2006 and are listed in the following table:

Table No. V.10.1-1. Limit values for noise levels in different territories and planning zones in urbanized areas and outside them

Territories and planning zones in urbanized territories and outside them	Equivalent noise level dB(A)		
	Day	Evening	night
Residential areas and territories	55	50	45
Central urban areas	60	55	50
Areas exposed to heavy traffic traffic	60	55	50
Production and storage areas and zones	70	70	70
Public and private recreation areas	45	40	35
Areas for medical facilities and sanatoriums	45	35	35
Areas for research and educational activities	45	40	35
Quiet areas outside agglomerations	40	35	35
Note: The limit value for the maximum noise level when an aircraft flies over a) Construction and operation of airports			

a) Construction and operation

The construction phase of the IP includes activities related to the construction of internal quarry roads, preparation of sites for embankments (*for topsoil and overburden*), an enrichment plant, and construction of a working front.

The construction phase will run parallel to the mining activities, which will be carried out during the first year of the project's implementation, but the phase can be conditionally divided into the construction of the enrichment plant and the other activities related to the gradual uncovering and mining of the raw material and its processing.

During the excavation and mining activities, noise will be emitted from the following activities:

- noise during the construction of the enrichment plant;
- noise from industrial equipment generated during the removal of overburden, extraction, and processing of ore;
- noise from transport equipment transporting the overburden to the dump site and the ore to the OF site. A total of up to 32 trips per hour (*round trip*) of heavy equipment traveling on internal service roads will be sufficient.

Noise from industrial equipment:

During the construction phase and development of the deposit, typical equipment for construction activities and open-pit mining will be used: excavators, bulldozers, dump trucks, front loaders, drills, jaw crushers, etc.

The equivalent noise levels of the main machinery to be used in the operation of the Rosino deposit are as follows:

Excavator/Bulldozer	105 dB(A)
Front loader	109 dB(A)
Dump trucks	68-90 dB(A)
Impact-rotary drill	110 dB(A)

Noise from transport equipment:

To determine the equivalent A-weighted noise levels in the IP area from the movement of heavy-duty equipment, a formula was used, which is described in detail in sub-point V.10.2.

Noise from blasting works:

With regard to this source of intermittent noise, a test explosion was carried out and a report was prepared on the assessment of the side effects of the explosion on the environment for the site: Rosino deposit, Kardzhali municipality. (Attached to the EIA). An expert engineering analysis and assessment of the side effects of the explosion on the environment was carried out, based on measurements taken with specialized equipment during experimental blasting works carried out in the project contour of the Rozino mine. The results and predicted impacts are presented in sub-point V.10.2.

b) Closure and recultivation

The heavy-duty and industrial equipment used does not differ significantly from the equipment used in the construction phase. In this phase, industrial sources for the extraction and processing of the already extracted underground resources are not exploited, so it can be assumed that the impact is significantly weaker compared to the phase of discovery and extraction of the deposit.

10.2. Assessment of the expected noise impact

Depending on the duration of the impact, noise can be:

- Constant noise, whose level changes by less than 5 dB(A) over time during individual work operations;
- Non-constant/variable, where the noise level changes by more than 5 dB during different work operations. It can be:
 - intermittent noise, when its level drops suddenly for short intervals and repeatedly to the ambient level;
 - fluctuating noise, when its level varies continuously;
 - impulse noise – perceived as separate blows and consisting of one or more pulses of sound energy, with the duration of each pulse being less than 1 s.

Basic noise characteristics of:

- constant noise is the noise level in dB(A);
- Variable noise is the equivalent noise level in dB(A).
- impulse noise is the peak sound pressure level in dB(C).

Noise from the construction of the OF:

During the construction of the OF, noise will be generated mainly by the operation of construction equipment.

Depending on the technical condition of the equipment, the expected noise levels immediately adjacent to the source will be in the range of 80÷max105 dB(A). To calculate the distance at which there will be a negative impact from the operation of the machines (noise above the permissible standards for residential areas and zones – 55 dB(A)), the Method for measuring noise from local and industrial sources was used – "Regulation No. 6 of 2006 on environmental noise indicators...". The following formula was used:

$\Delta L_{\text{dist.}} = L_{\text{Acq,T}}(*) - L_{\text{Atemp,T}} - \Delta L_{\text{Leqr}}$, where:

- $\Delta L_{\text{distance}}$ - the reduction in noise level in dB(A) depending on the distance (point of impact), determined according to the graph in Fig. 4.1 of Regulation No. 6.

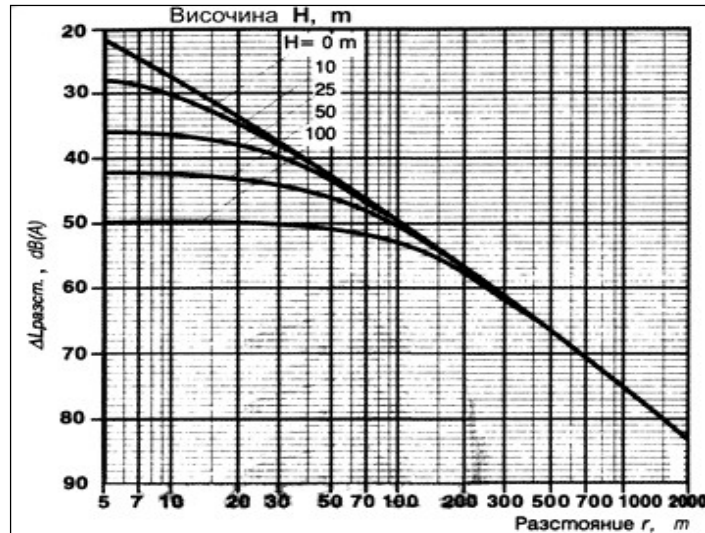


Figure No. V.10.2-1. Determination of $\Delta L_{\text{distance}}$ - reduction in noise level in dB(A) depending on distance r

- $L_{\text{Acq,T}}(*)$ is the initial equivalent level of the noise source in dB(A) - in this case, the maximum noise that will be emitted during the operation of the machines - 105 dB(A).
- $L_{\text{Arep,T}}$ - the equivalent A-weighted noise levels at the points of impact - the permissible noise standard for residential areas and zones is 55 dB(A) during the day.
- ΔL_{Leqr} - reduction in noise level in dB(A) from greenery, etc. - in the worst case, the reduction is 0 dB(A).

According to calculations based on the methodology, within a radius of 100 m from the noise source, the maximum noise load will be up to 55 dB(A), and at 150÷200 m from the noise source, the maximum values will be up to 45 dB(A) and the impact on the environment will be insignificant.

The maximum noise level at the protection sites (the nearest residential building, 1580 m from the OF site) is expected to be a maximum of only 25 dB(A), which is 30 dB(A) below the noise level limits for residential areas and territories.

With regard to the noise factor, the Contracting Authority will fulfill its obligations in accordance with the requirements of Ordinance No. 2 on the protection of workers from risks related to exposure to noise at work by ensuring maximum noise levels in the working environment of no more than 85 dB(A), and, if necessary, the necessary organizational measures to

reducing the harmful effects of this factor (*appropriate work and rest regime for workers, personal protective equipment, etc.*).

Noise from industrial equipment during exploration, extraction, and processing:

Regulation No. 6 of 2006 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values for environmental noise indicators in residential and public buildings, in areas and territories intended for residential construction, recreational areas and territories, and mixed-use areas, methods for assessing noise indicator values and the harmful effects of noise on public health the basic indicator for assessing noise impact has been defined – equivalent noise level $Leq, dB(A)$ for the three periods of the day.

The limit values for noise levels in the various territories and planning zones in urbanized areas and outside them are regulated by Ordinance No. 6 of 2006 and are specified in Table No. V.10.1-1.

Activities at the quarry site will be carried out until 2 p.m. during the day and in the evening. Activities at the OF site will be carried out around the clock. Several industrial noise sources with corresponding contours and geometric centres will be located at the Rosino deposit site. The most severe possible scenario for the operation of the deposit has been considered—operation of all noise sources in close proximity to residential buildings. These are the following sources of industrial noise:

- contour around the equipment servicing the external spoil heap – the geometric center is located about 1800 m from the nearest residential building in the village of Byalgradets;
- contour around the mining equipment (*excavator; bulldozer; front loader; dump trucks*) – the geometric center is located about 1800 m from the nearest building in the village of Byalgradets;
- contour around the enrichment plant – the geometric center is located approximately 1700 m from the nearest building in the village of Byalgradets. Its location is stationary.

In order to assess the possible impact on noise levels as a result of the implementation of the IP, it is assumed that the limit values of noise levels at the boundary of the site where activities emitting noise into the environment are carried out correspond to the noise levels for production-storage areas and zones of 70 $dB(A)$. In this case, the maximum noise levels emitted by individual sources are also taken into account.

For the purposes of the calculations, the following have been used *Assessment of noise from local and industrial sources* in accordance with Annex No. 3a to *Regulation No. 6 of 2006 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values for environmental noise indicators in residential and public buildings, in areas and territories intended for residential construction, recreational areas and territories, and mixed-use areas, methods for assessing noise indicator values and the harmful effects of noise on public health, and a methodology for determining the total sound power emitted into the environment by an industrial enterprise, and*

determining the noise level at the point of impact, approved by Order No. RD-613/08.08.2012 of the Minister of Environment and Water.

The areas of some contours are calculated using Figure No. V.10.2-1 (*Determination of ΔL_{dist} - reduction of the noise level in dB(A) depending on the distance r*) from Annex No. 3a to Ordinance No. 6 of 2006.

The level of total sound power L_p , dB(A), emitted into the environment from the geometric center of the noise sources limited by the measurement contours is determined by the formula:

where:

$$L_p = \bar{L} + 10 \lg \frac{2S}{S_0}, \text{dB(A)}$$

\bar{L} is the average noise level along the respective contour - 70 dB(A);

S area bounded by the corresponding measuring contour, [m²];

$S_0 = 1 \text{ m}^2$.

The data for the selected contours emitting industrial noise into the environment from the activities within the scope of the IP are presented in Table No. V.10.2-1.

Table No. V.10.2-1. Selected contours of industrial noise during the implementation of the IP

Contour	Geometric center coordinates UTM		S	L _p
	along X	along Y	m ²	dB(A),
1. Extractive activities at the site	408416	4587909	5000	110
2. Enrichment plant	409023	4587938	51300	120
3. Activities on filling and compacting of sterile rock mass	408899	4588018	150	105

The locations and coordinates of the nearest objects subject to enhanced noise protection are presented in Table No. V.10.2-2 and Figure No. V.10.2-2 below.

Table No. V.10.2-2. Coordinates of the nearest objects subject to enhanced noise protection

Object	UTM coordinate system	
	along X	along Y
Residential building in the village of Byalgradets	409072.2	4586233.58
Residential building in the village of Gugutka	409799.0	4585826.00
Residential building in the village of Rozino	408523.23	4589687.88

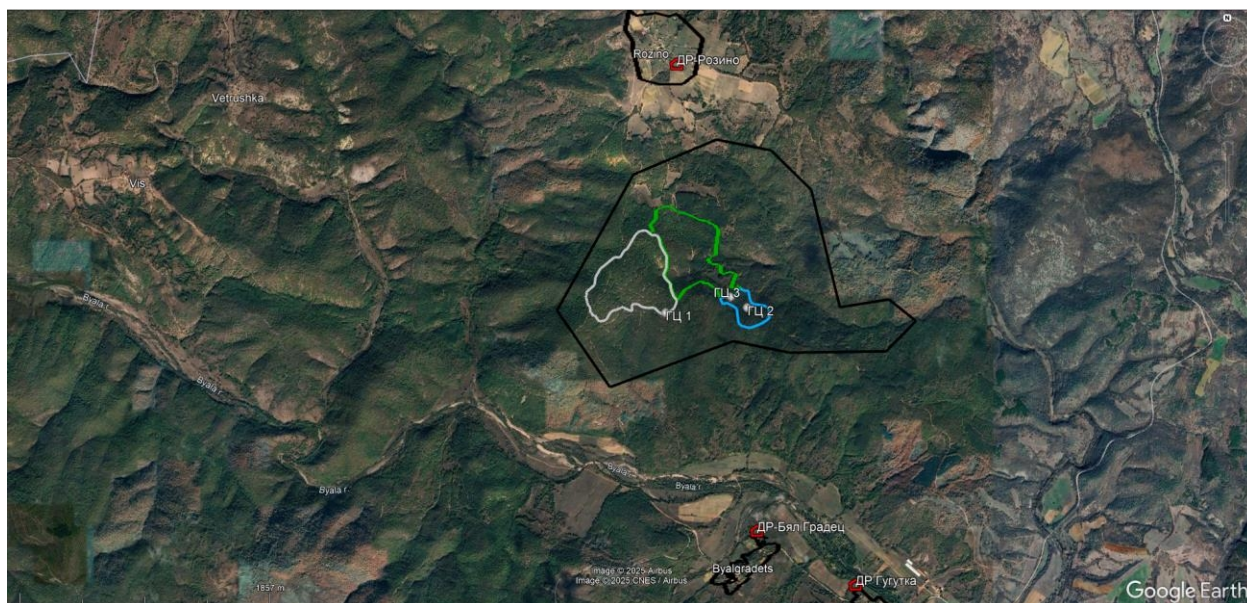


Figure No. V.10.2-2. Location of industrial noise sources and the nearest sites subject to enhanced noise protection

According to the methodology, the noise level at the point of impact is calculated using the formula:

Where:

$$L = L_p - 20 \times k_n \times \lg r - 8, dB(A)$$

- L_p is the total sound power level (see Table V.10.2-1);
- r is the distance between the selected point and the geometric center of the area bounded by the corresponding measurement contour, m (see Table V.10.2-4);
- k_n is a coefficient that takes into account the additional reduction in noise level depending on the absorption properties of the ground surface.

$k_n = 1.4 \div 1.2$ for a ground surface covered with trees and shrubs;

$k_n = 1.1$ for grassy ground surface;

$k_n = 1.0$ for earth surface with loose soil;

$k_n = 0.9 \div 0.8$ for surfaces covered with asphalt, ice, or water.

Between the noise sources and the nearby protected areas, there is a ground surface covered with trees and bushes. For k_n , a value of "1.4" is assumed.

The total noise levels from several sources are calculated as follows:

- the noise level at the point of impact from each source is calculated separately;
- the noise levels are compared and adjusted to the higher level according to Table 2 of the Methodology (see Table No. V.10.1-3)- if there are more than two noise sources, the correction to the higher level is made sequentially between the first two sources and a correction is added to the resulting value depending on the difference with the third source, and so on.

Table No. V.10.2-3. Determination of the sum of the assessment levels from the individual point sources

Difference between the summed levels, dB(A)					1	2	3	4	5	6	7	8	9	10
Correction	to	the higher	level	for	+3	+2	+1.8	+1.5	+1.2	+1.0	+0.8	+0.6	+0.5	+0.4

Obtaining the total level, dB(A)										
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Table No. V.10.2-4 presents the results of the calculations according to the methodology in tabular form:

Table No. V.10.2-4. Results of calculations for noise levels from each source

Source No	village of Byalgradets		Gugutka village		Rozino village	
	r m	L dB(A)	r m	L dB(A)	r m	L dB(A)
1	4	5	6	7	8	9
1. Mining activities at the site	1799	10.9	2200	8.4	3060	4.4
2. Enrichment plant	1705	21.5	2250	18.1	1820	20.7
3. Activities related to filling and compacting sterile rock mass	1793	5.9	2370	2.5	1712	6.5

In the area of sensitive sites subject to enhanced noise protection, the maximum noise levels will be negligible. The results for the total noise levels in the area of each site subject to enhanced noise protection are presented in Table No. V.10.2-5.

Table No. V.10.2-5. Total noise levels

Impact location	Calculated total noise levels	Permissible levels according to Regulation No. 6	Risk of damage to human health as a result of excessive noise levels
	ΣL dB(A)	dB(A)	YES / NO
1	2	3	4
Byalgradets village	21.9	45	NO
Gugutka village	18.5	45	NO
village of Rozino	20.7	45	NO

In the area of sensitive sites subject to enhanced noise protection, the maximum noise levels reach insignificant values - 18.5÷21.9 dB(A), with permissible levels of 45-55 dB(A). It is important to note that at these noise levels (up to 21.9 dB(A)), the actual mining activities at the IP site will not be heard by people in nearby settlements.

NOISE FROM TRANSPORT EQUIPMENT:

The following formula was used to determine the equivalent A-weighted noise levels in the IP area from the movement of heavy equipment:

$L_{Atter,T} = L_{Equiv,T(*)} + \Delta L_{dist.} + \Delta L_{real.} + \Delta L_{ref.} + \Delta L_k$, [dB(A)] where:

$L_{Atter,T}$ is the equivalent A-weighted noise level in decibels [dB(A)] at the points of impact;

$L_{Acq,T(*)}$ is the initial equivalent noise level in $dB(A)$ for the respective time interval of the day at a distance of 7.5 or 25 m from the axis of the outer lane and at a height of 2 m above the road surface, determined by the following formulas:

➤ at a distance of 7.5 m:

$$L_{Aeq,T(7.5)} = L_{Aeq,T(25)} + \Delta L_{ск.} + \Delta L_{наст.} + \Delta L_{накл.} + 6.95;$$

➤ at a distance of 25 m:

$$L_{Aeq,T(25)} = L_{Aeq,T(25)} + \Delta L_{ск.} + \Delta L_{наст.} + \Delta L_{накл.} - 1.23.$$

The base equivalent noise level $L_{Aeq,T(25)}$ in $dB(A)$ at a distance of 25 m from the axis of the end strip is determined by the formula:

$$L_{Aeq,T(25)} = 37.3 + 10 \lg [N (1 + 0.082 p)], \text{ where:}$$

N is the average hourly traffic intensity for the relevant period of the day for motor vehicles per hour (MPS/hour).

- $N = 32$ trucks per hour (*round trip*) for transporting 13,890 t/d of extracted raw material and spoil with a truck load capacity of 55 t;

- p - the structure of the traffic flow, determining the number of freight motor vehicles as a percentage of the total traffic intensity N - $p = 100$;

- V_{TK} - Average speed of trucks:

$$V_{TK} = 20 \text{ km/h.}$$

- $\Delta L_{ск.}$ - correction in $dB(A)$, taking into account the influence of the maximum permitted speed of light vehicles $V_{ЛК}$ and freight vehicles V_{TK} ; depending on the flow structure.

$$\Delta L_{ск.} = L_{ЛК} - 37.3 + 10 \lg [(100 + (10^{0.1 L_{Кс}} - 1)p) / (100 + 8.23 p)], \text{ dB(A)}$$

$$L_{Кс} = L_{ЛК} - L_{TK}$$

$$L_{ЛК} = 27.7 + 10 \lg (1 + (0.02 V_{ЛК})^3) \quad L_{TK} = 23.1 + 12.5 \lg (V_{TK})$$

- $\Delta L_{наст.}$ - correction in $dB(A)$, taking into account the influence of the type of road surface

$$\Delta L_{road} = 0$$

- $\Delta L_{incl.}$ - correction in $dB(A)$, taking into account the influence of the longitudinal slope

$$\Delta L_{slope} = 0$$

- $\Delta L_{distance.}$ - the reduction in noise level in $dB(A)$ depending on the distance r between the noise source (*the emission point located at a height of 0.5 m in the middle of the direction under consideration*) and the point of impact (*the calculation point*) without taking into account the influence of the earth's surface and atmospheric conditions. It is calculated using the formula:

$$\Delta L_{dist.} = 15.8 - 10 \lg (r) - 0.0142 (r)^{0.9}, \text{ [dB(A)]}$$

- $\Delta L_{real.}$ - the reduction in noise level in $dB(A)$ due to the influence of the earth's surface and atmospheric conditions, depending on the average height hm of noise propagation (*hm is the distance from the middle of the line connecting the noise source and the calculation point to the terrain; on flat terrain, the value of hm is the arithmetic mean of the height of the noise source and the calculation point*). It is determined by the formula:

$$\Delta L_{rel.} = -4.8 \exp [- (hm / r) \cdot (8.5 + 100/r) 1.3], \text{ [dB(A)]}$$

$\Delta L_{exp.}$ - the reduction in noise level in $dB(A)$ from screening facilities and reflections, determined by appropriate methods; depending on the specific conditions

screening facilities may include noise barriers and walls, natural hills, greenery, etc. **The calculations below are made in the worst case scenario, without taking into account screening facilities.**

The calculated equivalent noise level at a distance of 5 m from the internal quarry roads does not exceed 40 dB(A). No change in background noise levels from heavy equipment traffic is expected within the boundaries of the nearest populated areas.

NOISE FROM EXPLOSIVE ACTIVITIES:

When explosives are detonated to break up rock formations during open-pit mining, part of the energy released by the explosion is transferred to the air, generating a shock wave that propagates at a speed of over 600 m/s. As it moves away from the site of the explosion, its speed decreases and, after reaching 343 m/s, this SAW becomes a sound wave.

The impact of the shock wave during blasting operations is assessed using the following indicators:

- Overpressure at the wave front, P_a or dB;
- Frequency, Hz.

The permissible maximum values of the impact of shock waves/noise in technological industrial explosions are regulated in the following areas:

1. Protection of building structures and facilities
2. Protection of human health and comfort

The impact of UAV on buildings and other building structures (collectively referred to as "facilities") depends on:

- The duration of the impact of UVB upon reaching the facility,
- The location of the object relative to the front of the UVB – frontal or parallel to its propagation.
- The reaction of the object depending on its construction.

The criteria accepted in global explosive practice for the safe impact of UAVs on building structures are:

$P_+ \leq 0.4 \text{ kPa}$ (146 dB) - complete preservation of the integrity of the structure;

$P_+ \leq 0.7 \text{ kPa}$ (150.88 dB) - partial damage (up to 1%) to the integrity of the glazed parts of buildings;

$P_+ \leq 7.0 \text{ kPa}$ (170.88 dB) - damage to part of the building structure, mainly 100% destruction of the glazed parts;

$P_+ \leq 30.0 \text{ kPa}$ (183.52 dB) - risk level for the human auditory organ;

The frequency (f) generated by the UAV has a decisive influence on the human organism. According to recent studies, when it resonates with the internal frequencies of certain human organs, it affects the psyche of more sensitive individuals. It has been established that in industrial explosions, the carrier frequency ranges from 0.1 to 100 Hz. At long distances (outside the protected area), it is in the range of 1-10 Hz, which is not perceived by the human auditory system. At $f > 20 \text{ Hz}$, the UAV reproduces a sound that can be heard at long distances and affects people. Accepted in global practice

The "noise" threshold at which the frequency generated by the UAV is not perceived by a normal human organism is $f \leq 20 \text{ Hz}$ (I. Cholakov, I. Ivanov, V. Bozadzhieva).

The following table presents the predicted values of the impact of UAV in *Pa* and converted to *dB(C)* for assessing the level of noise impact in technological explosions with parameters of PVR with a diameter of the explosive boreholes of 76, 89, and 102 mm in the most severe conditions possible: fresh rock.

Table No. V.10.2-6. Calculated values of the impact of UAV/noise

МАСИВ		ТИП В.В.	ОХРАНЯВАНИ ЗОНИ	Разстояние	PPV/P+=H.SD ⁸								
					Н	PPV	β	Н	P+	β	Н	P+	β
					19004.4	mm/s	-2.307	3059.1	Pa	-1.151	175.3	dB (C)	-0.087
РУДА	Свежи скали	АНФО	Зона на отцепление	450	0.33	0.45	0.59	7.6	8.4	9.2	116	117	118
			Еко зона 1 - Н-2000	600	0.17	0.23	0.30	5.4	6.0	6.6	113	114	116
			Юрен дере	650	0.14	0.19	0.25	4.9	5.5	6.0	112	114	115
			Водосъбирател	705	0.12	0.16	0.21	4.5	5.0	5.5	111	113	114
			Еко зона 2 - Н-2000	800	0.09	0.12	0.16	3.9	4.3	4.7	110	112	113
			р. Бяля река	1050	0.05	0.06	0.08	2.8	3.2	3.5	108	109	110
			с. Розино	1200	0.03	0.05	0.06	2.4	2.7	3.0	106	108	109
			ЕМУЛСИОННО В.В.	Зона на отцепление	450	0.38	0.61	0.79	7.9	9.3	10.1	117	119
		Еко зона 1 - Н-2000		600	0.20	0.31	0.41	5.7	6.7	7.3	114	116	117
		Юрен дере		650	0.16	0.26	0.34	5.2	6.1	6.6	113	115	116
		Водосъбирател		705	0.13	0.22	0.28	4.7	5.5	6.0	112	114	115
		Еко зона 2 - Н-2000		800	0.10	0.16	0.21	4.1	4.8	5.2	111	113	114
		р. Бяля река		1050	0.05	0.09	0.11	3.0	3.5	3.8	108	110	111
		с. Розино		1200	0.04	0.06	0.08	2.6	3.0	3.3	107	109	110
		НОРМАТИВНИ ИЗИСКВАНИЯ		DIN 4150-Жилищни сгради	mm/s	5.00			-			-	
DIN 4150-Много чувствителни конструкции	mm/s			3.00			-			-			
Наредба 9/12022010 - Ден	mm/s			1.07			-			-			
Ниво I на въздействие върху човека (табл.3)	Pa			-			20			-			
	dB(C)			-			-			120			
Наредба 6/Наредба 6/15082005-Долни стойности на експозиция за предприемане на действие	Pa			-			112			-			
	dB(C)			-			-			135			

The calculated forecast values of the impact of UAV/noise according to the derived dependencies are at the upper limits of the data range (*complete preservation of the integrity of the structure*), which represents the forecast in the most severe possible impacts for the cases studied.

The expert engineering analysis of the impact of UV/noise has established the following:

- The calculated values of the impact of UV/noise are below the lower exposure value for action to be taken, as regulated by *Ordinance 6 of 15.08.2005 for the minimum requirements for ensuring the health and safety of workers exposed to risks related to noise exposure (< 112 Pa / < 137 dBC)* and lower than Level I of human exposure (< 20 Pa / < 120 dBC) (see *Table No. V.10.2-7*).

Table No. V.10.2-7. Impact of noise levels on humans

Levels	IMPACT ON HUMANS: sensation, amplifying factors, and reaction	Pa	dB(C)
Level I	Similar to distant thunder. Awakening of sensitive people	20	120
Level II	Loud thunderous sound: Surprise reaction; awakening of sleeping people	50	128
Level III	Similar to a fist hitting a table. Rattling of glass, movement of unsecured objects on	100	134

Level	EFFECT ON HUMANS: sensation, aggravating factors, and reaction	Pa	dB(C)
	shelves. Fear reaction; awakening of sleeping people;		
Level IV	Strong impact; Clearly audible with background noise; rattling of glass; vibrations of weak structures. Fear reflex; Animals look around and react	200	140
Level V	Very loud noise. Windows rattle; buildings vibrate. Fear in more people.	50	148
Comparison	Maximum value, recommended from NC, accepted for sound load	250	142

Table No. V.10.2-8. Impact of noise levels on building structures and facilities

IMPACT ON BUILDING STRUCTURES AND FACILITIES	Level	
	Ra	dB(C)
Loose objects fall and move on shelves	10	134
Cracks in the ceiling; Wallpaper and poorly executed plaster may fall off.	15	138
Damage to windows	25	142
Cracking of paint and wallpaper on light walls Plaster cracking from wooden walls Plaster falling in strips Objects on walls and shelves may fall	350 50	145 148
Recommended value by Nitro Consult	250	142

Due to the specific nature of technological blasting, it is considered that there is no uniform standard for comfort in the field of blasting from the impact of noise from blasting works for urbanized areas near open mines and quarries, within the meaning of Ordinance 6 of 2006. (*maximum permissible standard for residential areas during the day - 55 dBA*).

The forecast values from the experimental blasting works, determined by the derived dependence when detonating charges corresponding to the parameters of the preliminary design of the PVR for the implementation of the technological blasting works in the development of the Rosino deposit in terms of the side impact of the UBB/noise from the explosion - under the most severe conditions - borehole diameter 102 mm and charge weight up to 30 kg, detonated in a single delay interval, show that the predicted impact level at a distance of 1200 m (*to the first buildings in the village of Rozino*) is 108-109 dB(A), which is classified as "Moderately loud noise" (*see Table V.10.2-7*) and is within the range of impact between "normal conversation in a group" and "telephone conversation" (*see Table V.10.2-9*).

Table V.10.2-9. Noise level values for individual sources

NOISE LEVELS AT:	dB(A)	≈dB(C) 31.5Hz*
Whispering	10	47
Quiet conversation between two people	40	8

NOISE LEVELS AT:	dB(A)	≈dB(C) 31.5Hz*
Normal conversation in a group	60	10
Phone conversation	75	115
Loud speech	80	120
Automatic washing machine	80	120
Car transport	75	115
Vacuum cleaner	75	115
*Minimum frequency values in the calculator		

Table No. V.10.2-10. Noise levels at individual sources

EFFECTS OF NOISE ON HUMAN HEALTH		
Noise, dB(A)	Impact on humans	
0	Limits of noise perception	No effect on health
10	Very quiet noise	No effect on humans
30	Quiet noise	Slight effect on humans
5	Moderately loud noise	Hinders communication, stresses the psyche
75	Very loud noise	Impossible to work, affects the hearing apparatus
100	Unpleasant loud noise	Damaging hearing device, causes psychological disorders, damages a number of other organs
120-150	Painfully loud noise	Hearing loss

At the same time, it should be noted that the duration of exposure to noise generated by technological blasting operations on the scale of mineral extraction in our country is in the order of 1-2 s, while safe exposure at such an impact value (up to 109 dBC) is more than 8 hours (see Table No. V.10.2-11).

Table No. V.10.2-11. Noise level and exposure time without impact on health

NOISE LEVEL WITHOUT HEALTH IMPACT	
Noise level, dB(A)	Exposure time,
85	8 hours
88	4 hours
91	2 hours
94	1 hour
97	30 min
100	15 min
103	7.5 min
106	3.8 min
109	1.9 min.
112	57 sec.
115	28.5 sec.
118	14.3 sec.
121	7.1 sec.
124	3.6 sec

NOISE LEVEL WITHOUT IMPACT ON HEALTH	
Noise level, dB(A)	Exposure time,
127	1.8 sec.
130	0.9 sec.

In order to ensure the comfort of people living near open-pit mines and quarries, it is planned to use the most commonly applied approach in the development of mineral deposits – consultation with the public in the area on the most appropriate/acceptable time for carrying out technological blasting works.

When mining operations are carried out below the upper contour level, the impact of UV radiation and noise will be further limited by the shielding function of the non-working boards.

Conclusions in accordance with the Report on the Assessment of the Side Effects of the Explosion on the Environment for the site: Rosino Deposit, Kardzhali Municipality:

The measurements taken using specialized equipment during experimental blasting in the Rosino deposit area show seismic impact values lower than the maximum permissible standards, including the standard for ensuring comfort in protected areas, in accordance with *Regulation No. 9 of February 12, 2010 on the maximum permissible vibration values in residential premises*.

The values of the recorded results from the measurement of the impact of UVV/noise at a distance of 800 m from the site of the experimental blasting carried out within the boundaries of the Rosino deposit are significantly lower than the maximum permissible standards of the regulatory framework in force in Bulgaria for safe impact and the restrictions adopted in global blasting practice.

The impact of noise from the blasting works is lower than the registered background noise measured the day before and on the day of the experimental blasting works.

According to those present at the blasting, the sensation at a distance of 600 m and 800 m was like "distant thunder."

The values recorded from the measurement of the lateral impact of the explosion in the Rosino deposit area fit into the cloud of results obtained from studies conducted in Bulgaria under similar mining, natural, and technological conditions. This allows the mathematical formulas derived from these studies to be used to calculate the explosive-seismic impact and the impact of the UAV for the conditions at the Rosino deposit, depending on the distance to the protected object and the mass of the explosive charge detonated in a delay interval.

The following conclusion can be drawn from the assessment of the impact of blasting operations on people and the environment:

➤ the PVR technology envisaged for the development of the Rosino deposit complies with the standards for safe impact on people and buildings when applying drill-and-blast rock breaking for all three diameters of explosive drill holes (76, 89, and 102 mm) when detonating each drill charge with a separate (*independent*) delay interval.

10.3. Vibrations

Excessive levels of general vibrations – it is known from literature that heavy-duty machines generate excessive levels of general vibrations. These are more pronounced in older machines. Drivers of heavy-duty trucks, excavators, and bulldozers will be exposed to general vibrations. General vibrations mainly damage the musculoskeletal system and the vascular system, and through the resonance effect, they also have an adverse effect on a number of internal organs.

Local vibrations – Drivers of mine service vehicles will be exposed to local vibrations. The adverse health effect is manifested in damage to the sensory and microvascular systems of the upper limbs. This effect is more pronounced when working in a supercooled microclimate.

Operators of excavators and heavy machinery will be exposed to general and local vibrations. With new and modern equipment, they may not exceed the permissible limits. Excessive vibration levels in some of these machines (*especially older equipment*) can lead to damage to the vestibular apparatus, the musculoskeletal system, damage to parenchymal organs, and the development of vibration disease, which is a common occupational disease among this type of worker. In the presence of sources of vibration in the working environment, the Contracting Authority shall ensure compliance with the regulatory requirements - BDS 12.1.012-80 for general production vibrations and BDS 16013-84 for local production vibrations.

10.4. Radiation

Laboratory tests show that the samples from the site and the materials comply with the requirements specified in Annex No. 3, Table 3 of the NRZ for the specific activity of natural radionuclides, for the release of large quantities of materials from regulation. There is no danger to the environment, to workers at the site, or to the population, and therefore no specific measures or actions need to be taken to ensure radiation safety.

The results of gamma spectrometric analyses, compared with the standards under the applicable regulations, show that the materials removed from the site do not pose a threat to the environment and would not lead to a change in the natural radiation background at the site. The measured radioactivity in the surveyed strata is low enough not to cause contamination and spread of radioactive isotopes to other components of the environment.

Mining activities in the productive horizon are not a source of increased radionuclide content and will not lead to a sudden or gradual increase in radioactivity in sterile rock mass, mine waste, and wastewater.

In principle, during the extraction and processing of polymetallic ores, fluids and solid particles are extracted from the earth's interior, which often contain natural radioactive isotopes such as Uranium-238, Thorium-232, Radium-226 and 228, Radon-222 (gas). These elements can accumulate in rock formations, pipelines, reservoirs, and sediments, as well as in the water accompanying the extraction. The Rozino deposit is a conventional deposit for the extraction and processing of polymetallic ores. Based on laboratory tests of rock material extracted

rock material from borehole RTD-015 at various depths up to 166 m, **no geological units with high radioactivity have been identified/registered.**

Pursuant to Article 7 of the NRZ, in the case of activities involving materials with elevated levels of natural radionuclides, an enterprise intending to commence a specific activity under Article 1 shall submit to the Chairman of the NRA, two months prior to the commencement of the activity, information on the activity and the specific activities of the relevant materials and an assessment of the expected doses.

With a view to preventive protection, periodic dosimetric monitoring by an accredited laboratory is recommended for the upcoming exploration and mining activities. by an accredited laboratory, which shall include measurement of the gamma radiation dose rate at characteristic points on the site and gamma spectrometric analysis of representative samples of rock materials and flotation waste generated by the activity.

The main environmental impacts in the presence of elements or layers with increased radioactivity may be:

Contamination of soil and groundwater

Given the proposed preventive measures and process management conditions, there is no reason to believe that waste or waste water containing potentially radioactive elements will enter the soil, surface and groundwater, or aquifers and cause contamination.

Contamination of surface water

Given the proposed preventive measures and process management conditions, there is no reason to believe that wastewater and materials that may contain radioactive substances will leak into surface water bodies and cause radiation contamination. Strict water management measures have been taken.

Air pollution

Radon vapors – a radioactive gas that could be released into the air during drilling and blasting operations. Radon is a known carcinogen, especially when inhaled chronically. Since the presence of people is prohibited during drilling and blasting operations, this hypothesis is not applicable.

Welding activities will be carried out during the construction of the enrichment plant. Welding activities involve a combined effect of chemical exposure and radiant energy—ultraviolet and infrared, as well as rays from the visible spectrum. The intensity of infrared radiation varies from 100 to 2450 W/m^2 depending on the technical characteristics and mass of the heated metal. For ultraviolet radiation, the total spectral density at a distance of 1 m is specified. From the heating zone - 0.4 - 162 W/m^2 . Infrared and ultraviolet radiation affect the visual analyzer, so it is necessary to work with personal protective equipment such as goggles or helmets.

10.5. Assessment of the impact of drilling and blasting operations

The main requirement when performing technological blasting operations in open-pit mining is to achieve maximum blasting effect, consisting of the following:

➤ complete breaking of the rock mass (without thresholds and lifting of the horizon) with a conditioned grain size distribution of the blasted mine mass;

➤ control of side impacts of explosion in the of the established safe levels for humans and the environment.

The side effects accompanying the explosion, which are subject to assessment and management in technological blasting operations, include:

- the explosive-seismic effect,
- generation of a shock wave (SW)/noise (*discussed in sub-point*

V.10.2),

- scattering of individual rock fragments,
- release of harmful gaseous products during detonation (*discussed in sub-sections V.1.1 and V.1.2*).

This sub-point discusses the impact of blasting operations in terms of rock fragmentation.

When conducting blasting operations on steep slopes and when the upper line of the blasting section is higher than the others by more than 30 m, the radius of the danger zone shall be determined in accordance with Article 15 of Annex No. 7 to the PBTW, depending on the angle of inclination or the elevation of the explosion site relative to the level of the protected zone. The safe distance (R) shall be as follows:

- down the slope in a westerly direction - $R = 360 \text{ m}$;
- down the slope in a southerly direction - $R = 380 \text{ m}$;
- along the slope in an easterly direction - $R = 400 \text{ m}$.

The radius of the protected area from the dangerous effects of blasting operations is the maximum of those determined by various factors, namely:

1. Impact of blasting on people $R = 94 \div 140 \text{ m}$,

2. By the spread of rock fragments

➤ on flat terrain: $R = 320 \text{ m}$;

➤ when blasting towards a slope: $R = 400 \text{ m}$.

3. According to Art. 143 of the PBTVR, in the case of technological blasting of boreholes

charges ($d \leq 110 \text{ mm}$):

➤ the safe distance for people cannot be less than $R = 300 \text{ m}$,

➤ when blasting in the direction of a slope, the safe distance for people is $R = 450$

m.

**Given that the terrain where the deposit is located is hilly, the
the radius of the protected zone is accepted as not less than $R = 450 \text{ m}$.**

The designated zones in which the maximum permissible levels of lateral impact of technological blasting operations during the exploitation of the Rosino deposit should not be exceeded are at a distance (R) from the outer contour of the Rosino project mine, as follows:

- Separation zone: $R=450 \text{ m}$
- Eco zone 1 – Natura 2000: $R=600 \text{ m}$
- Eco zone 2 – Natura 2000: $R=800 \text{ m}$
- Water catchment area: $R=705 \text{ m}$
- Yuren Dere (*contour of the SPA by bird habitats*): $R= 650 \text{ m}$

➤ Rozino village:

R=1200 m

The implementation of the technological blasting works during the exploitation of the involves blasting the rock mass with explosives placed in blast holes with a diameter ranging from 76 to 102 mm. The main explosive to be used is expected to be an ammonium nitrate-fuel oil (ANFO) explosive mixture and/or emulsion explosives.

Using the derived dependencies for seismic effect, UVV, and noise, the predicted impact levels of single borehole charges with maximum explosive mass in them were calculated depending on the distances to the protected areas (*see Table V.10.2-3*). For comparison, the same table also shows the maximum permissible levels according to the accepted Bulgarian and international standards.

As can be seen from the results in Table V.10.2-3, when each borehole charge is detonated with a separate delay interval, the calculated values of the explosive seismic impact for all three charge diameters (*of the explosive boreholes*) are significantly lower than the permissible standards for all factors: for people, buildings, and facilities, including the requirements for comfort.

Conclusions in accordance with the Report on the Assessment of the Side Effects of the Explosion on the Environment for the site: Rosino Deposit, Kardzhali Municipality:

The selected system for developing the Rosino deposit, according to the conceptual design: low working steps (5 m), resp. short boreholes (~6 m) with a relatively small diameter (76-102 mm), is one of the most environmentally friendly technologies for the extraction of minerals using explosive rock breaking. The use of modern systems for initiating explosives charges complements the possibilities for effective management of the side effects of the explosion.

The values recorded from the measurement of the side effects of the explosion in the Rosino deposit area are consistent with the results obtained from studies conducted in Bulgaria under similar mining, natural, and technological conditions. This allows the mathematical formulas derived from these studies to be used to calculate the explosive-seismic impact and the impact of the explosive charge for the conditions at the Rosino deposit, depending on the distance to the protected object and the mass of the explosive charge detonated in a delay interval.

The following conclusions can be drawn from the assessment of the impact of blasting operations on people and the environment:

The PVR technology envisaged for the development of the Rozino deposit complies with the standards for safe impact on people and buildings when applying drill-and-blast rock breaking for all three diameters of the explosive boreholes (76, 89, and 102 mm) when detonating each drill charge with a separate (*independent*) delay interval.

Given the location of the deposit in the Natura 2000 area, the PVR technology should be applied with the minimum possible side impact of blasting on the environment. Within the specified parameters of the PVR, the technology with the lowest levels of side effects is the blasting technology using charges with a diameter of 76 mm. If there are no other aggravating conditions for the PVR technology, it is recommended to work with a diameter of the explosive boreholes $d=76\text{ mm}$.

The results obtained show that, when the specified technological parameters are observed during blasting, the predicted levels of seismic impact at various distances outside the mine contour are:

- below the requirements of Article 1 of Annex No. 7 "Instructions for determining safe distances for blasting operations" to Article 141 of the PBTWR;
- below the permissible maximum vibrations that do not disturb human comfort, in accordance with the requirements of *Ordinance No. 9 of February 12, 2010, on the maximum permissible vibration values in residential premises*;
- the calculated values of the explosive-seismic impact are significantly lower than the permissible standards: for people, buildings, and facilities, including below the requirements for ensuring comfort.

It is recommended that, in the case of explosive drilling at a distance of less than 300 m from a populated area, protective geotextiles be used as a precautionary measure to prevent the scattering of rock fragments and the risk to the population and the environment.

10.6. Conclusions

Noise and vibrations

1. As a result of the implementation of the IP, the impact of noise will be localised to the site. There will be no increase in background noise in residential areas above the permissible levels.
2. The movement of heavy equipment will not lead to a significant increase in background noise levels.
3. In the protected area, no objects subject to enhanced protection or residential areas will be affected during the blasting works.
4. The degree of impact will be insignificant for workers when preventive measures and personal protective equipment are used.

The sources of noise and vibration will be unorganized with limited territorial coverage. The impact will be short-term and of varying frequency.

By type of impact: insignificant;

Territorial scope of impact: local;

Frequency of impact: temporary, during the working phase (*on weekdays*)

Duration of impact: periods of construction, operation and closure, and recultivation

Cumulative and combined impacts: insignificant.

Radiation

The machinery and equipment used in exploration, extraction, closure, and reclamation are not sources of magnetic, electromagnetic, thermal, or other types of radiation.

Under normal conditions working operation, the of IP there lead lead to radioactive contamination of environmental components.

Summary conclusions on the impact of radiation on the natural radiation background

By type of impact: not expected under normal operating conditions; in possible emergency situations – insignificant negative impact, without cumulative effect;

By territorial scope of impact: local, within the the concession area; no impact on the local population and protected areas;

Frequency of impact: very low

Duration of impact: for the period of operation, but only in case of an emergency;

Cumulative and combined impacts on the environment: The IP will not have a measurable cumulative effect on the radiation parameters of the area.

11. Assessment of the health and hygiene aspects of the environment and the risk to human health

The impacts are analyzed in relation to the workers at the site and the nearby population for the individual stages of the implementation of the IP.

11.1. Assessment of the risk and impact on health during construction

The construction phase of the project includes activities for the construction of internal quarry roads, preparation of sites for embankments (for topsoil and overburden), an enrichment plant, and construction of a working front.

A. Risk factors and impact on workers

Bottled water will be provided for workers' drinking needs. Water from a clean water tank will be used for domestic needs (for sanitary facilities). ISOBOX mobile trailers are planned for the administrative and domestic complex.

Construction activities are characterized by specific working environment conditions such as a complex of production factors – microclimate, noise and vibrations, dust, toxic gases, chemicals. The analysis of their impact is as follows:

Unfavorable microclimate – The microclimatic conditions at the open-air work site depend on the climate and meteorological conditions in the area (analyzed in detail in **section IV.1.1** of the EIA Report). During the summer, unfavorable microclimatic conditions can be observed due to the combination of high air temperatures and intense evaporation. During the winter and transitional seasons, meteorological conditions are characterized by low temperatures, often combined with strong winds and precipitation.

Exposure to an unfavorable microclimate (high or low temperatures, humidity, rain, snow, ultraviolet radiation) is associated with effects of overheating or cooling of the body (overstrain of thermoregulation), risk of colds, and given the trends in climate change, more and more temperature and precipitation anomalies are expected, and consequently more frequent occurrences of adverse climate.

UV rays mainly affect the surface of the skin and eyes, but they are also known to suppress the immune system. Acute, excessive exposure to UV rays can lead to painful but reversible inflammation of the cornea and conjunctiva, which feels like "sand in the eye," as well as inflammatory reddening of the skin (erythema, synonymous with sunburn). Long-term exposure to high UV rays increases the risk of developing both white (non-melanoma) and black (melanoma) skin cancer, as well as cataracts. While acute health effects are delayed by several hours, the latency period for diseases caused by chronic exposure to UV rays is in the order of decades.

The risks are minimized by wearing appropriate work and protective clothing, tailored to specific weather conditions, providing rooms for warming up and resting, and providing appropriate fluids (hot drinks in winter and fruit drinks in summer).

High noise levels – The source of noise is construction and transport equipment, as well as drilling and blasting operations. The equivalent noise levels of the main machinery to be used in the operation of the deposit range from 68 to 110 dB(A). The effects on workers are categorized as specific (auditory effects of noise) and non-specific (extra-aural effects of noise):

- *Hearing disorders* due to noise exposure in the workplace are among the most significant occupational diseases. It is believed that hearing vulnerability is significantly higher after the age of 40. The consequences for the hearing organ can be:
 - masking effect of noise, or difficulty in distinguishing sounds in the presence of background noise;
 - auditory fatigue (temporary decrease in the activity of the auditory receptor as a result of short-term exposure to noise) – disappears within a week after rest;
 - occupational deafness (damage to hearing function due to prolonged exposure), the most severe stage of which is practical and complete deafness – with prolonged exposure to noise levels above 85 dB(A);
 - acute acoustic trauma – occurs when unprotected ears are suddenly exposed to very intense noise exceeding the pain threshold (e.g., explosions during combat operations). It is characterized by acute pain and ringing in the ears, hearing loss, and may be accompanied by rupture of the eardrum and lesions of the ossicles in the middle ear.
- *Extra-aural effects of noise* – these are related to the indirect impact on the nervous, endocrine, cardiovascular, and other systems as a result of the stress factor of noise:
 - The impact on the central nervous system can lead to disturbances in the psychomotor sphere (when exposed to intense and very intense noise) – the effect may manifest itself in difficulties in performing mental and motor activities simultaneously, problems with concentration, and difficulty recovering after work.

very intense noise, dizziness and gait disturbance are possible, posing a threat to individual and collective safety;

- Noise causes increased secretion of adrenaline and aldosterone, changes in electrolytes with an increase in serum calcium and magnesium, and increased excretion of magnesium and phosphates.
- Excessive noise increases cardiovascular risk. The prevailing opinion is that there is a positive correlation between arterial hypertension and noise exposure, an increase in serum cholesterol and triglycerides.

To prevent adverse effects, measures are taken and instructions are implemented to comply with the rules for the operation of construction and transport equipment, a rational work and rest regime, and extended annual leave. The most important measure is to limit exposure time by rotating workers from different professions. Technical measures include soundproofing the cabins of construction and transport equipment and choosing the right speed for vehicles. For outdoor workers, the use of ear defenders is mandatory, and compliance with the exposure limit values should be ensured in accordance with *Regulation No. 6 on the minimum requirements for ensuring the health and safety of workers at risk from exposure to noise, including based on periodic noise measurements*.

General and local vibrations – Technical characteristics and control measurements show that heavy-duty and construction machinery generate general vibrations at excessive levels. These are more pronounced in older machines. Truck, excavator, and bulldozer drivers will be exposed to general vibrations. General vibrations mainly damage the musculoskeletal system and the vascular system, and through the resonance effect, they also have an adverse effect on a number of internal organs.

Workers operating jackhammers and tampers will also be exposed to local vibrations. The adverse health effect is manifested in damage to the sensory and microvascular systems of the upper limbs. This effect is more pronounced when working in a supercooled microclimate.

Compliance with the requirements and limit values set out in *Regulation No. 3 on the minimum requirements for ensuring the health and safety of workers exposed to risks related to vibration exposure taking into account the vibrations from aircraft*, based on measurements. The main technical measure for limiting vibrations, including noise, is vibration and noise insulation of machine cabins and compliance with the technical characteristics for general vibrations of construction and transport equipment.

Radiation - Welding activities will be carried out during the construction of the enrichment plant. Welding activities involve a combined effect of chemical exposure and radiant energy - ultraviolet and infrared, as well as rays from the visible spectrum. The intensity of infrared radiation varies from 100 to 2450 W/m² depending on the technical characteristics and mass of the heated metal. For ultraviolet radiation, the total spectral density at a distance of 1 m is specified. From the zone of heating - 0.4 - 162 W/m². Infrared and

ultraviolet radiation have an impact on the visual analyzer, which is why it is necessary to work with personal protective equipment such as goggles or helmets.

Air pollution – Has a negative impact, mainly damaging the functions of the respiratory, cardiovascular, and immune systems. The main pollutants are:

- *High dust levels* – activities will be carried out outdoors. Under the most unfavorable climatic conditions (dry and windless weather), dust particles may reach high concentrations. These dust emissions are unorganized and will depend largely on meteorological conditions (wind, humidity, temperature, atmospheric stability), the characteristics of the soil particles, the type and quality of the inert materials, and other conditions. The inhalable and respirable (PM4) fractions of dust and respirable free crystalline silica are of hygienic significance. Dust particles enter the body through inhalation, with larger particles remaining in the upper respiratory tract and finer particles reaching the lower respiratory tract, causing damage to lung tissue. High dust levels are a risk factor for the development of general lung diseases associated with the irritating effect of dust, such as rhinitis, chronic bronchitis, and their complications, as well as for the development of occupational dust pathology (pneumoconiosis). Pneumoconiosis is an occupational lung disease associated with the accumulation of dust in the lungs. These include silicosis, which is caused by free crystalline silica, which can be found in soil and released into the lower atmosphere during excavation and filling work. Silicosis is a fibrotic disease of the lungs caused by inhalation and deposition of free crystalline silica.
- *Carbon monoxide* – emitted by vehicles. It enters the body through inhalation, where it binds to hemoglobin in the blood, forming carboxyhemoglobin, whose bond is much more stable than that of oxyhemoglobin. Its harmful effect stems from the disruption of oxygen transport to the tissues. Carboxyhemoglobin leads to tissue hypoxia and disturbances in organs and tissues sensitive to oxygen deficiency – the heart, brain, blood vessels, and blood cells. The health risk is assessed based on the amount of carboxyhemoglobin formed in the body, which depends on its concentration in the air and the duration of exposure.
- *Nitrogen and sulfur oxides* – when in contact with the body, they are converted into acids that have an irritating and corrosive effect – mainly affecting the respiratory system – breathing disorders, disorders of the immune defense of the lungs, exacerbation of existing diseases (asthma, cardiovascular diseases, chronic lung diseases);
- *Exhaust emissions from diesel engines* – a complex mixture of particles, liquid aerosols, gases, and vapors formed as a product of diesel combustion during the operation of diesel engines. The composition of the mixture depends on the type

of the engine, the quality of the diesel fuel, and the operating conditions. The mixture includes several substances with proven carcinogenic effects. Short-term exposure can cause irritation to the eyes, nose, throat, and lungs. Prolonged exposure may increase the risk of developing chronic respiratory diseases, including lung cancer.

According to the assessment of the impact on air quality carried out in **section V.1** of the EIA Report, the expected concentrations of pollutants in the ground-level atmospheric layer are below the MPC for gases in the air in the working environment. The exhaust gases from the internal combustion engine are discharged into the atmosphere at a high temperature, as a result of which they quickly disperse at altitude. The deposition of pollutants in the ground-level atmospheric layer occurs at a short distance from the source (up to 200 m) and over a large area, which ensures compliance with the MPC standards for the working environment.

In accordance with the requirements of *Ordinance No. 13 on the protection of workers from risks related to exposure to chemical agents at work* and *Ordinance No. 10 on the protection of workers from risks related to exposure to carcinogens, mutagens, or substances toxic to reproduction at work* in the Occupational Safety and Health Plan, periodic measurements of the inhalable and respirable fractions of dust, respirable free crystalline silica, exhaust gases from diesel machinery, transport and service equipment (COx, NOx, SOx, incompletely combusted hydrocarbons, soot, various types of oils, as well as the reagents used in the enrichment process), in compliance with the requirements of BDS EN 689:2018+A1:2019. 10.

Measures to limit exposure to dust and other pollutants in the ambient air should include spraying the terrain (as a technical measure), instructions for safe work, appropriate personal protective equipment, preliminary and periodic medical examinations, and persons with chronic lung and cardiovascular diseases should not be allowed in workplaces associated with dust exposure.

Exposure to hazardous chemicals – only diesel fuel (diesel fuel will not be stored on site but will be delivered for refueling equipment in mobile tanks), motor oil, and lubricating oil (2 barrels of 110 kg each) will be used during the construction phase. The health hazards are as follows:

- **Diesel fuel:**
 - Toxic if inhaled, category 1, H304: May be fatal if swallowed and enters the respiratory tract;
 - Skin irritant, category 2 H315: Causes skin irritation;
 - Acute toxicity, category 4 H332: Harmful if inhaled;
 - Carcinogenic, category 2 H351: Suspected of causing cancer;
 - STOT RE 2 H373: May cause damage to organs through prolonged or repeated exposure.
- **Prista® M10 De engine oil:**
 - Skin irritant, category 2 H315: Causes skin irritation;
 - Serious eye damage, Category 1 H318: Causes serious eye damage;

- Serious eye damage/eye irritation, Category 2 H319: Causes serious eye irritation;
- Reproductive toxicity, category 2 H361: Suspected of damaging fertility or the unborn child.
- **Prista AN 68_100 lubricating oil:**
 - Acute toxicity (oral), category 4 H302: Harmful if swallowed;
 - Sensitization – skin, category 1 H317: May cause an allergic skin reaction;
 - Serious eye damage, category 1 H318: Causes serious eye damage;

Work with chemicals is carried out in accordance with the safety data sheets, which should be available on site and workers should be familiar with them and instructed on safe working practices.

Physical strain - Work in the extraction and processing of polymetallic ores is largely mechanized. At the same time, there are also work operations that require manual labor and considerable physical effort. In terms of physical effort, it can be categorized as moderately heavy and heavy physical work. The effects are managed with appropriate work schedules and instructions for performing activities, including changing work posture and taking breaks during the work shift.

Work-related injuries – these are associated with risks of slipping, tripping, falling, as well as being struck by falling objects, working in awkward positions, and injuries from machinery and equipment. They are prevented by applying specific instructions for safe work and appropriate work clothing.

In summary, the impact on workers at this stage is short-term, fully controllable, and reversible when adequate measures are taken to ensure safety at work, which makes it insignificant in terms of degree and significance.

B. Risk factors and impact on the nearby population

Based on the results, the impact of the construction/preparatory activities on the extraction areas and facilities on the other components and factors of the environment, assessed in the other sub-points of **section V** of the EIA Report, the risks and impacts on the health and hygiene aspects of the environment in the nearby settlements, respectively for the nearest sites subject to health protection, are as follows:

- **With regard to the quality of ambient air in nearby settlements:**

Once they enter the respiratory system, atmospheric pollutants, including dust particles, have a negative effect on the physiological self-cleaning mechanisms of the respiratory tract, prolonging the exposure time and, accordingly, their harmful effect. Depending on their size and aggregate state, they are distributed in the different parts of the respiratory system, with the smallest ones reaching the pulmonary alveoli, where, together with the volatile organic compounds adsorbed on their surface, they enter the pulmonary macrophages and thus into the entire organism. Adverse health effects may manifest as

acute symptoms, which are most often reversible and completely disappear after the end of short-term exposure, while frequent exceedances of atmospheric pollutant threshold values and cumulative long-term exposure can provoke permanent functional and morphological changes in the respiratory tract, leading to chronic diseases or exacerbation of existing ones.

In general, the potential harmful effects of exposure to atmospheric pollutants, including fine particulate matter, are expressed in:

- Decreased lung function;
- Increased susceptibility of the body to respiratory infections;
- Complicated course of existing cardiovascular diseases;
- Complicated course of existing chronic respiratory diseases, including asthma;
- Reduced average life expectancy.

They are associated with a higher probability of:

- Lung cancer;
- Problems with development of the (low weight at birth) and delayed functional development of the respiratory system;
- Increase in the number of hospitalizations;
- Increase in visits to emergency medical centers;
- Increase in the number of visits to general practitioners;
- Increased use of medication.

Construction activities are associated with unorganized emissions of harmful substances into the atmosphere from the operation of construction and transport equipment. According to the analyses in **section V.1** of the EIA Report, the expected concentrations of pollutants in the ground-level atmospheric layer are below the MPC for gases in the air in the working environment. The exhaust gases from the internal combustion engines are discharged into the atmosphere at high temperatures, as a result of which they quickly disperse at altitude. The deposition of pollutants in the ground-level atmospheric layer occurs at a short distance from the source (*up to 200 m*) and over a large area, so atmospheric pollutant concentrations are not expected to reach the nearest populated areas. The planned irrigation of the land will further limit the spread of atmospheric pollutants.

- **With regard to water, including drinking water sources and facilities:**

According to the assessments carried out in **section V.2** of the EIA Report, no negative impact on surface water is expected during construction activities. The analysis of the impact on groundwater for this stage shows that the planned design solutions (lining with an insulating screen on the bottom and walls of the contact water tank, drainage curtain, injection barrier) will prevent groundwater contamination. No deterioration in the quantitative status of the affected groundwater body is expected either. Accordingly, no risks to human health related to the quality or quantity of water for drinking and domestic purposes are expected.

- **With regard to soil quality in the area:**

The soil cover is directly affected only in the extraction area as a result of its removal to expose the reserves. The impact on the soil of adjacent areas is solely due to emissions from vehicles parked in the immediate vicinity of the road – to a low degree, of low significance, local in nature and reversible. In this regard, no negative impact on the soil of arable land for agricultural production is expected, and there are no risks to human health.

- **With regard to harmful physical factors (noise, vibrations, non-ionising and ionising radiation):**

The health risks associated with exposure to noise and vibrations are discussed above in relation to workers on site.

The analysis and assessment of the impact of noise (carried out in **section V.10** of the EIA Report) show that during the construction activities for the construction of the OF, the maximum noise load within a radius of 100 m from the noise source (construction equipment) will be up to 55 dB(A), and at 150÷200 m from the noise source, the maximum values will be up to 45 dB(A) and the impact on the environment will be insignificant. The maximum noise level in the protection areas (the nearest residential building—1548 m from the OF site—in the village of Bialgradets) is expected to be a maximum of only 25 dB(A), which is 30 dB(A) below the noise level limits for residential areas and territories.

The vibrations are entirely localized in and immediately adjacent to the construction and transport equipment used and do not reach the nearby population.

The activities for the construction phase are not associated with the generation of non-ionising and ionising radiation, so the population will not be exposed to radiation-related risks.

- **With regard to waste and hazardous chemicals:**

The management of **the generated waste** in accordance with the requirements of the regulatory framework ensures that there is no impact or risk to the health of the nearby population.

When **hazardous substances** (diesel fuel and fuel-lubricating oils for the construction phase) are used correctly in accordance with regulatory requirements and safety data sheets, no impact on the nearby population is expected, which will not be affected in the event of an accident (given the small quantities of hazardous chemicals that will be present on site and the sufficient distance from the nearest sites subject to health protection).

- **With regard to climate change:**

The consequences of climate change are only relevant to workers at the site, as they (if current climate change trends continue, particularly in terms of temperature and precipitation) will be exposed to more extreme weather events. The impact is controllable and adjustable with appropriate work clothes and personal protective equipment, by choosing the right time for work and rest, and by providing suitable living and sanitary conditions. Accordingly, no consequences for the nearby population are expected.

- **Visual impact:**

The relief features and the presence of tree vegetation in the areas between the disturbed areas and the nearest settlements, including the planned buffer area within the concession area, will prevent the visual impact of the construction activities, as the disturbed areas are not expected to be visible to the population.

11.2. Risk and impact assessment during operation (extraction of reserves and processing of raw materials in the OF)

A. Risk factors and impact on workers

The risk factors for **outdoor workers** (50 people) involved in mining activities, at the stockpiles, and at the flotation tailings facility overlap with those for the construction phase, with the addition of risks associated with drilling **and blasting operations (BOR)**. BOR are associated with the sudden release of toxic gases, dust, intense noise, vibrations, and shock waves):

- Explosive seismic impact – As a result of the high expansion rate of the gases during the explosive reaction, a high-pressure front is formed in the atmosphere around the charge, which can cause damage to machinery, equipment, buildings, people, animals, etc. at a certain distance;
- Shock wave – occurs when detonating below the earth's surface. If this factor is not controlled, the structures of nearby adjacent facilities may be damaged;
- Flying debris – As a result of rock fragments being ejected from blasting operations, damage may be caused to persons present within the danger zone, which is generally unacceptable according to regulations/standards;
- Impact of toxic gases - as a result of the explosion, a gas-dust cloud forms in the atmosphere above the explosion site, containing toxic gases produced by the explosive reaction, which are dangerous to people caught in the concentrated cloud. Depending on the specific meteorological conditions at the time of the explosion, this cloud disperses and dilutes at a certain distance from the site of the explosion.

The impact of the blast wave is within the permissible limits in compliance with the relevant regulations related to the correct determination of safe distances during blasting (including dangerous areas in terms of flying rock fragments, the distance of seismic action of the explosion, the safe zone in relation to the shock wave, the safe distances in relation to the toxic gases), compliance with the rules and standards for drilling and blasting operations, and the use of appropriate personal protective equipment by workers. For the specific IP, additional measures are provided to secure and limit the scope and degree of impact of the PVR – use of protective covers against flying rock fragments. The protective covers can be in the form of heavy covers – rubber blasting mats, geogrids or geotextiles, or in the form of light covers – coarse and finer meshes in combination with rubber conveyor belts discarded after use. The effect of protective coverings is such that, when properly placed on the blast field, they limit the scattering of fragments. Blasting mats reduce the noise and dust generated during blasting operations. The individual protective covers are placed in such a way that the explosive gases

to be released. This reduces the pressure from the explosive gases and allows the covers to stop rock fragments and dust. Another significant advantage is that the covers can be used multiple times. The appendix contains *a report assessing the indirect impact of the explosion on the environment for the site: Rosino deposit, Kardzhali municipality* (attached to the EIA) (attached to the EIA), and in **section V.10.4** of the EIA Report, an assessment of the impact of the PVR is made, according to which the parameters of the safe distance and the radius of the protected zone from the dangerous impact of the blasting works (not less than 450 m) are determined. The results in **Table V.10.2-3** show that when each drill charge is detonated with a separate delay interval, the calculated values of the explosive seismic impact for all three diameters of the charges (of the explosive boreholes) are significantly lower than the permissible standards for all factors: for people, buildings, and facilities, including the requirements for comfort.

The risk factors for **workers in the OF** (70 people) are determined by the nature of the activities performed – crushing and transportation, storage of crushed ore in a covered buffer warehouse, grinding, flotation using reagents (foaming agent: methylisobutylcarbinol (MIBC), collector: potassium amyl xanthate (PAX), activating agent: copper sulfate ($\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$), sulfidizing reagent: sodium hydrogen sulfide (NaHS), collector: Aerofloat 404 (A404), Flocculant (mixture)), thickening of flotation waste, thickening of concentrate and filtration, hazardous waste generated.

During ore enrichment, workers are exposed to aerosols with a complex composition (dust in the crushing units and vapors in the flotation units), noise, vibrations, and an uncomfortable microclimate.

Workers operating the crushing units and conveyor belts do not have a fixed workplace, as they move around the various machines and are mainly exposed to dust and an unfavorable microclimate. Closed rooms are provided with adequate ventilation, and workers are provided with the necessary protective clothing and personal protective equipment.

Reagents are stored in an isolated, separate storage facility, from where they are fed through an automated system to the flotation departments. Workers have no direct contact with them. A detailed description of **the reagents** and their hazard categories, including those related to human health, is provided in **section V.9** of the EIA Report. Their storage and handling are in accordance with the Safety Data Sheets, which ensures that workers are protected from harmful effects.

Workers in the flotation departments hold operator positions, and the processes are controlled automatically, which minimizes exposure to toxic chemical reagents. The vessels in which flotation takes place are open, and the content of harmful substances in the vapors is minimal, within the limits permissible for the working environment, according to design data. Adequate ventilation is provided.

The processes are automated and controlled by monitors and sensors that detect any possible deviation from the normal production process, in which case the operation of the installation is automatically stopped.

Design measures have been taken to limit the release of pollutants, such as a sprinkler system to prevent secondary dust emission, including during

unloading and during the crushing process itself. This will maintain good air quality in each of the crushing buildings. The storage facilities for the crushed material are covered, which will prevent dust dispersion.

Sump pumps are installed on the floor of the flotation plant to collect any spills from the circuit and transport them to the appropriate points in the flotation scheme.

With regard to **the hazardous waste generated**, the risks to workers' health are as follows:

- Waste hydraulic oils with code 13 01 10*, gear oils with code 13 02 06*, oil filters with code 16 01 07* pose the same hazards as the products from which they are derived – discussed above;
- Brake fluids with code 16 01 13* - the health risks depend on the content of the specific brake fluid, which, depending on its specific composition, may have properties that are toxic to reproduction (damage to fertility and the fetus), harmful to the eyes (severe irritation), or acutely toxic (harmful if swallowed);
- Accumulator batteries with code 16 06 01* - the health risks of end-of-life lead accumulators stem from their components (lead, sulfuric acid, lead dioxide, lead sulfate), with potential health effects related to inhalation hazards (corrosive to mucous membranes), skin hazards (highly aggressive, causes severe burns), the eyes (highly aggressive, causes severe burns, can damage the cornea and lead to blindness), the digestive tract (corrosive, can cause burns to the mouth, throat, and stomach);
- Rags for cleaning equipment and protective clothing with code 15 02 02* - may be contaminated with the chemicals described above and therefore pose the same potential risks and hazards to human health.

Instructions for safe handling of all hazardous waste should be prepared them.

With regard to **noise in the working environment**, the Contracting Authority shall fulfill its obligations under the requirements of *Ordinance No. 6 on the minimum requirements for ensuring the health and safety of workers at risk from exposure to noise*, by ensuring compliance with noise limits, including on the basis of periodic noise measurements, and, where necessary, organizational measures to reduce the harmful effects of this factor (appropriate work and rest regime for workers, personal protective equipment, etc.).

With regard to the risks of **radiation exposure**, the activities do not include the extraction or processing of materials with established elevated levels of natural radionuclides. Geochemical, spectral, and mineralogical studies to date have not shown elevated concentrations of radioactive elements (U, Th, Ra) in either the ore or the surrounding rocks. The samples of flotation waste (ARD analyses) also show no indications of radiological activity or acid-generating potential. The waste materials are classified as harmless, non-acid-generating, and non-hazardous, confirming the stability of the mineral composition and the absence of the possibility of radionuclide mobilization. Additionally, sampling and laboratory analysis were performed on 17 representative samples—one from

the flotation tailings and 16 samples from rock mass at various depths within the deposit. The results of the laboratory analysis show that the samples from the site and the materials comply with the requirements specified in Annex No. 3, Table 3 of the NRZ for the specific activity of natural radionuclides, for the release of large quantities of materials from regulation. There is no danger to the environment, to workers at the site, or to the population, and therefore no specific measures or actions need to be taken to ensure radiation safety. In this regard, for the specific IP, there is no need to take measures for radiation protection, control, and limitation of exposure in accordance with the Ordinance on Radiation Protection in Activities with Materials with Increased Content of Natural Radionuclides.

Instructions for safe work will be prepared and implemented for each job position, and compliance with them will ensure the prevention of health risks, incidents, and accidents.

The risks are defined as long-term, fully controllable, and reversible, and are therefore considered insignificant.

B. Risk factors and impact on the nearby population

- **With regard to the quality of ambient air in nearby settlements:**

The assessment of the impact on ambient air carried out in **section V.1.2** of this EIA Report shows that in the worst-case scenario (the period of implementation of the IP in which maximum air pollution is expected, or the first 4 years of implementation of the IP, when mining activities will be carried out simultaneously with the opening of the deposit and the dumping of overburden on an external dump), the activities will not have a significant impact on ambient air quality, as the maximum calculated average annual values of PM_{10} and $PM_{2.5}$ are significantly below the permissible levels for the protection of human health.

- **With regard to water, including drinking water sources and facilities:**

According to the assessments carried out in **section V.2** of the EIA Report, no negative impact on surface water is expected. The analysis of the impact on groundwater shows that the planned design solutions (lining with an insulating screen on the bottom and walls of the contact water tank, drainage curtain, injection barrier) will prevent groundwater contamination. Furthermore, no deterioration in the quantitative status of the affected groundwater body is expected.

- **With regard to soil quality in the area:**

The soil cover is directly affected only in the extraction area as a result of its removal to expose the reserves. The impact on the soil of adjacent areas is solely due to emissions from vehicles parked in the immediate vicinity of the road – to a low degree, of low significance, local in nature and reversible.

- **With regard to harmful physical factors (noise, vibrations, non-ionising and ionising radiation):**

The assessment of the expected noise impact made in **section V.10.2** of the EIA Report shows that:

- **The noise from industrial equipment during exploration, extraction, and processing** shows that the expected noise levels reaching the nearest objects subject to health protection – residential buildings in the villages of Byalgradets, the village of Gugutka, and the village of Rozino, are significantly below the norm of 45÷55 dB(A), including the noise levels from each source – **Table No. V.10.2-4**, as well as the total noise levels – **Table No. V.10.2-5** above. In the area of sensitive sites subject to enhanced noise protection, the maximum noise levels reach insignificant values - 18.5÷21.9 dB(A), with permissible levels of 45-55 dB(A). It is important to note that at these noise levels (up to 21.9 dB(A)), the actual mining activities at the IP site will not be heard by people in nearby settlements;
- The noise from transport equipment, calculated as an equivalent level at a distance of 5 m from the internal quarry roads, does not exceed 40 dB(A). No change in background noise levels from heavy goods vehicle traffic is expected within the boundaries of the nearest settlements;
- The noise from blasting activities has been determined on the basis of experimental blasting works - the predicted impact level at a distance of 1200 m (to the first buildings in the village of Rozino) is 108-109 dB(A), which is classified as "Moderately loud noise" (see **Table No. V.10.2-7**) and is within the range of impact between "normal conversation in a group" and "telephone conversation" (see **Table No. V.10.2-6**). At the same time, the exposure time to the noise generated by technological blasting operations on the scale of mineral extraction in Bulgaria is in the order of 1-2 s, with safe exposure at this impact value (up to 109 dBC) being more than 8 hours.

No disturbance of background **radiation** or radioactive contamination of the air, water, or soil is expected on the territory of the IP. The machinery and equipment used in exploration, extraction, closure, and recultivation are not sources of **magnetic, electromagnetic, thermal, or other types of radiation**.

- **With regard to waste and hazardous chemicals:**

The management of generated **waste** in accordance with regulatory requirements ensures no impact or risks to the health of the nearby population.

When **hazardous substances** are used correctly in accordance with regulatory requirements and safety data sheets, no impact on human health is expected. No explosive substances will be stored on the site.

- **With regard to climate change:**

The implementation of the IP has no potential to impact the local climate, as the consequences of climate change observed and predicted for the country and the specific area will not be affected by the implementation of the IP. In this regard,

the nearby population is not expected to be affected by climate change resulting from the IP.

- **Visual impact:**

Similar to the construction phase, no adverse visual impact is expected.

The analyses and assessments of the impact of the IP on the living environment and human health show that during the period of operation, no exceedances of environmental and human health protection norms and standards are expected, as a result of which there is no reason to expect the IP to lead to changes in the currently observed trends in the health status of the population, analysed in section IV.11.

11.3. Risk and impact assessment during closure and recultivation

Reclamation activities on land disturbed by the extraction and processing of raw materials will include technical and biological reclamation. Phased reclamation during operation and final reclamation are planned.

The liquidation of the mining areas will consist of the evacuation of mining machinery, production and logistics facilities.

During recultivation activities, the risk factors are: toxic gases from the internal combustion engines of the equipment used, dust, noise, and vibrations—the impact is mainly on workers—similar to the construction phase.

During closure and recultivation, no adverse health effects on the population of the surrounding settlements are expected.

During closure and recultivation, no adverse health effects on the population of the surrounding settlements are expected.

Conclusions on the impact on human health:

By type of impact: direct and indirect – for workers at the site, with no significant adverse effects (no exceedances of environmental and human health protection norms and standards are expected) for the nearby population;

Territorial scope of impact: local, mainly for the areas with activities and in the immediate vicinity, with no significant impact on the nearest sites subject to health protection;

Frequency of impact: daily, within the working day;

Duration of impact: temporary - for the construction phase, long-term - for the operation phase

Cumulative and combined impacts: insignificant - in terms of atmospheric air and noise.

12. Transboundary impacts

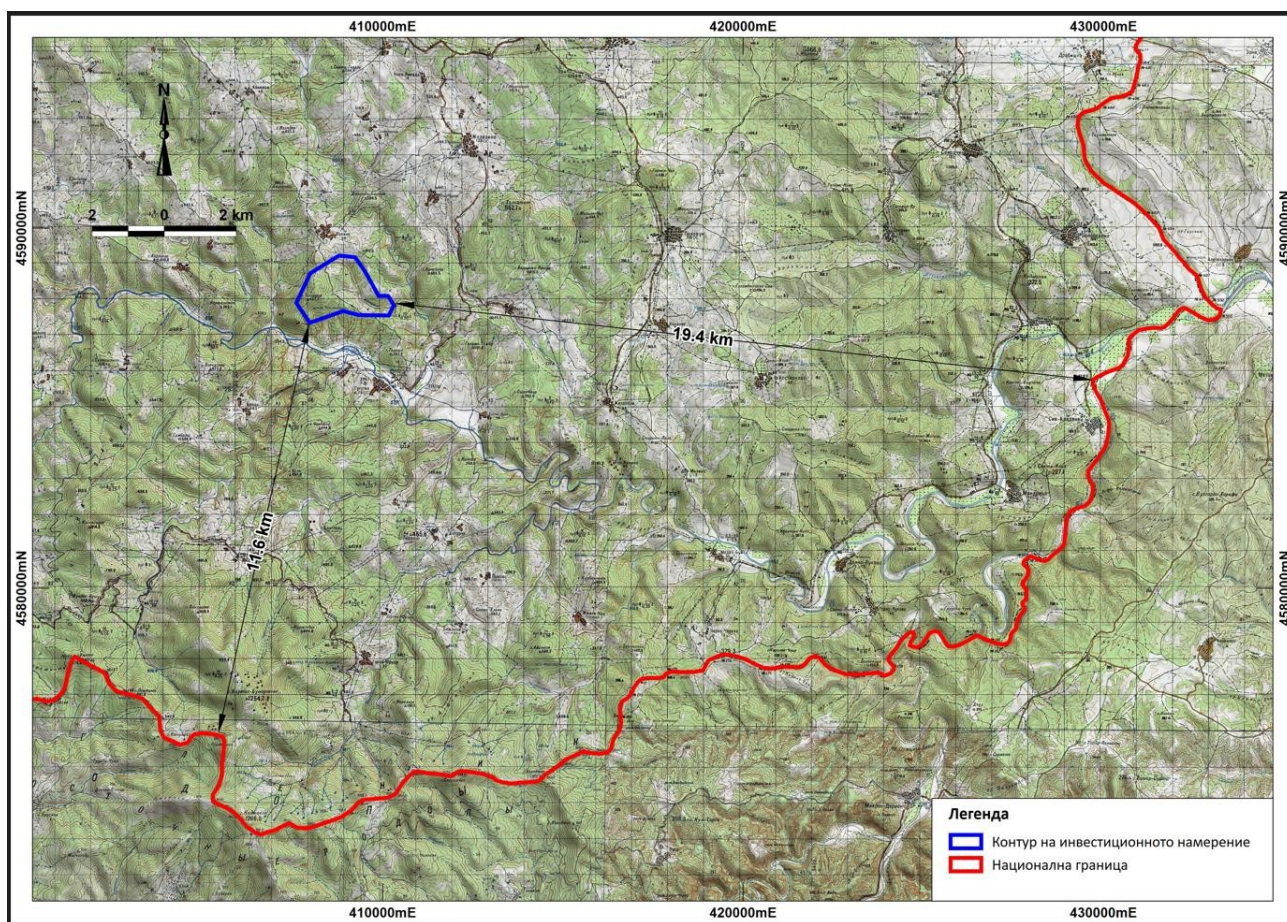
Given the scope, scale, and degree of impact, the expected impact

on the components of the environment can be classified as permanent – for the duration of operation, reversible – after the tenth year, with local territorial scope, low intensity, no cumulative effect, no exceeding of national and European emission limits, no significant negative impacts on human health, environmental components and factors.

In connection with a letter from the Minister of Environment and Water ref. No. 99-00-587/27.05.2024, pursuant to Article 98(1) of the Environmental Protection Act, a notification has been prepared and sent to the potentially affected party, the Republic of Greece, in connection with the EIA procedure and in accordance with the requirements of the Convention on EIA in a transboundary context. The notification was prepared in accordance with Decision I/4 of the First Meeting of the Parties to the Convention.

By letter ref. No. EIA-68/23.10.2024, the Ministry of Environment and Water received an official response from the Greek side confirming its willingness to participate in the EIA procedure as an affected party. In view of this, the scope of the assessment examines in detail the transboundary aspects of the impact, with particular attention paid to the "Water" component.

It should be expressly noted that, within the framework of the EIA procedure, the analysis of potential impacts has been assessed and confirmed, including through the use of appropriate mathematical models and forecasts **made for the most severe operating conditions of the deposit at maximum production capacity.**



The following impacts can be predicted based on environmental components and factors:

Atmospheric air

The emission of dust and gas emissions during the various phases of the project's implementation will be limited to the area of the deposit, making it local, with pollutants settling at short distances around the work sites. **It is not possible to emit pollutants that would overcome the relief features of the area (presence of mountain elevations and river valleys) and reach the territory of the Republic of Greece, especially in concentrations that would cause air pollution.**

For the sake of completeness of the above statement, additional modeling will be carried out of the dust pollution that would reach the territory of the Republic of Greece, even without taking into account the mitigating effect of the relief features of the area.

The emissions that will be generated by the activity of the Rosino deposit, area Tintyava deposit are calculated in sub-point V.1.1.

The emissions calculated in sub-point V.1.1 are used as input data for the DIFFUSION module, which calculates the concentration of pollutants from linear and area sources in the surface layer of the atmosphere. Based on the input meteorological information, the module provides the maximum possible single pollution event under the most unfavorable meteorological conditions or the average annual concentrations of pollutants, depending on the respective wind rose.

Dimensions of the studied area of airspace: - length (east-west) – 18,000 m; - width (north-south) – 18,000 m (see Figure V.12-2).

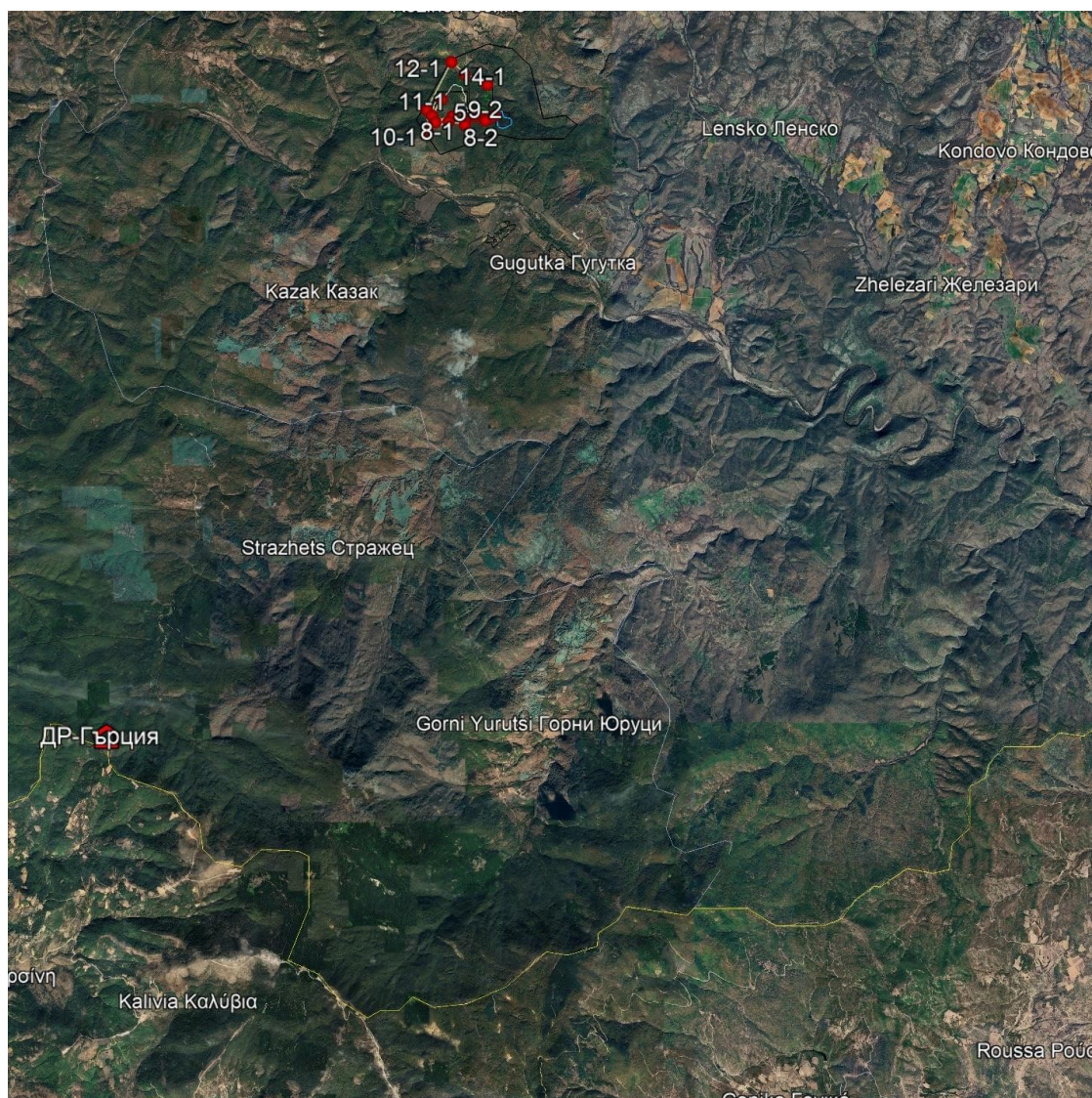


Figure No. V.12-2. Studied area of airspace with marked sources of pollution and discrete receptor – the nearest territory of Greece

Below are the data for each source as entered into the program. It should be noted that the pollution sources are located in the northern part of the study area (see Figure V.12-2) in order to assess the impact on the CAW mainly in the direction of Greece. The assessment of the impact on the CAQ in the IP area is presented in detail in sub-point V.1.2 and does not need to be repeated.

Area source 1 – Rosino Mine with an area of $\approx 261\,900 \text{ m}^2$ – the boundary of the mine is equated to a regular shape (black rectangles in Figure V.1.2-1) due to the limitations of the Traffic Oracle program.

X1	U1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
7102	16212	585	448	5	1	0.019437	0.00837

Area source 2 – External landfill with an area of $\approx 247\,000 \text{ m}^2$ – the boundary of the landfill is approximated to a regular shape (black rectangles in Figure V.1.2-1) due to the limitations of the Traffic Oracle program.

X1	Y1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
7694	16311	395	625	5	1	0.046686	0.016565

Area source 3 (see Figure V.12-2) – OF with an area of $\approx 51300 \text{ m}^2$ – the boundary of the embankment is equated to a regular figure:

X1	Y1	X2	Y2	H	Int.	FPCH10	FPCH2.5
m	m	m	m	m		g/s	g/s
8136	16103	225	228	5	1	0.189003	0.036

Linear source 1 – internal transport with trucks with a load capacity of 55 t from the Rosino Mine to an external spoil tip:

Unit	X1	U1	X2	U2	width	FPCH10	FPCH2.5
point-to-point	m	m	m	m	m	g/(m.s)	g/(m.s)
1-2	7247	16560	7086	16296	6	0.002433758	0.000242231
2	7086	16296	7140	16189	6	0.002433758	0.000242231
3-4	7140	16189	7429	16283	6	0.002433758	0.000242231
4	7429	16283	7629	16211	6	0.002433758	0.000242231
5-6	7629	16211	7792	16311	6	0.002433758	0.000242231
6-7.1	7792	16311	7793	16275	6	0.000694358	0.000184805
7.1-8.1	7793	16275	7627	16139	6	0.000694358	0.000184805
8.1-9.1	7627	16139	7363	16195	6	0.000694358	0.000184805
9.1-10.1	7363	16195	7010	16053	6	0.000694358	0.000184805
10.1-11.1	7010	16053	6998	1639	6	0.000694358	0.000184805
11.1-12.1	6998	16398	7420	1717	6	0.000694358	0.000184805
12.1-13.1	7420	17178	7634	1697	6	0.000694358	0.000184805
13.1-14.1	7634	16973	8005	16798	6	0.002433758	0.000242231

Linear source 2 – internal transport by trucks with a load capacity of 55 t ore from the Rozino Mine to the OF:

Unit	X1	U1	X2	U2	width	FPCH10	FPCH2.5
point-to-point	m	m	m	m	m	g/(m.s)	g/(m.s)
1-2	7247	16560	7086	16296	6	0.001305397	0.000129915
2	7086	16296	7140	16189	6	0.001305397	0.000129915
3	7140	16189	7429	16283	6	0.001305397	0.000129915
4	7429	16283	7629	16211	6	0.001305397	0.000129915
5	7629	16211	7792	1631	6	0.001305397	0.000129915
6-7.2	7792	16311	7864	16307	6	0.000372446	9.91248E-05
7.2-8.2	7864	16307	7971	16207	6	0.000372446	9.91248E-05
8.2-9.2	7971	16207	8044	16251	6	0.000372446	9.91248E-05
9.2-10.2	8044	16251	8136	16287	6	0.000372446	9.91248E-05

The methodology used allows for the calculation of maximum single and average annual concentrations emitted from area and linear sources. In this case, the main pollutant of the atmospheric air will be dust, for which the SDN

and SGN in the 10 μm particle size fraction and SGN in the 2.5 μm fraction. The results of the program's calculations for average annual concentrations of pollutants in the atmospheric air are presented below. The program is not applicable for calculating average daily concentrations.

Due to certain limitations of the program, two simulations of linear sources were performed consecutively – first, a model of Linear Source 1 was created, followed by a model of Linear Source 2. This was followed by a separate model of area sources. The results obtained from the linear sources, recorded in text (DAT) files, are summed using the SUPERPOSITION module from the Traffic ORACLE package in order to comply with the principle of superposition. This is followed by summing the total file for the linear sources with the file for the area sources. The results for the calculated average annual values (AAV) expressed by isolines are superimposed on a satellite image of the area using the Surfer program.

The results for the average annual concentrations of PM_{10} and $\text{PM}_{2.5}$ from linear sources are presented in the appendix – working files from the program.

The results for the average annual concentrations of PM_{10} and $\text{PM}_{2.5}$ from area sources are presented in the appendix – working files from the program.

The results of the summation of all sources of pollution in the area of the Rosino deposit, using the SUPERPOSITION module from the Traffic ORACLE package, are recorded in a text (DAT) file (**Electronic Appendix No. 2.1**).

The following two figures show the isolines of the total ground-level concentrations of pollutants from the operation of the Rosino deposit in the area of Greece – they are depicted using the Surfer program.

The figure above shows the isolines of PM_{10} distribution in the atmospheric air as a result of the operation of the Rosino deposit. The red isoline encloses the area where the average annual standard for the protection of human health of $40 \mu\text{g}/\text{m}^3$ may be exceeded. Within the borders of Greece, the maximum levels of the pollutant fall to just $1.5 \mu\text{g}/\text{m}^3$ (*the green isoline in the figure*) with an average annual standard for the protection of human health of $40 \mu\text{g}/\text{m}^3$.

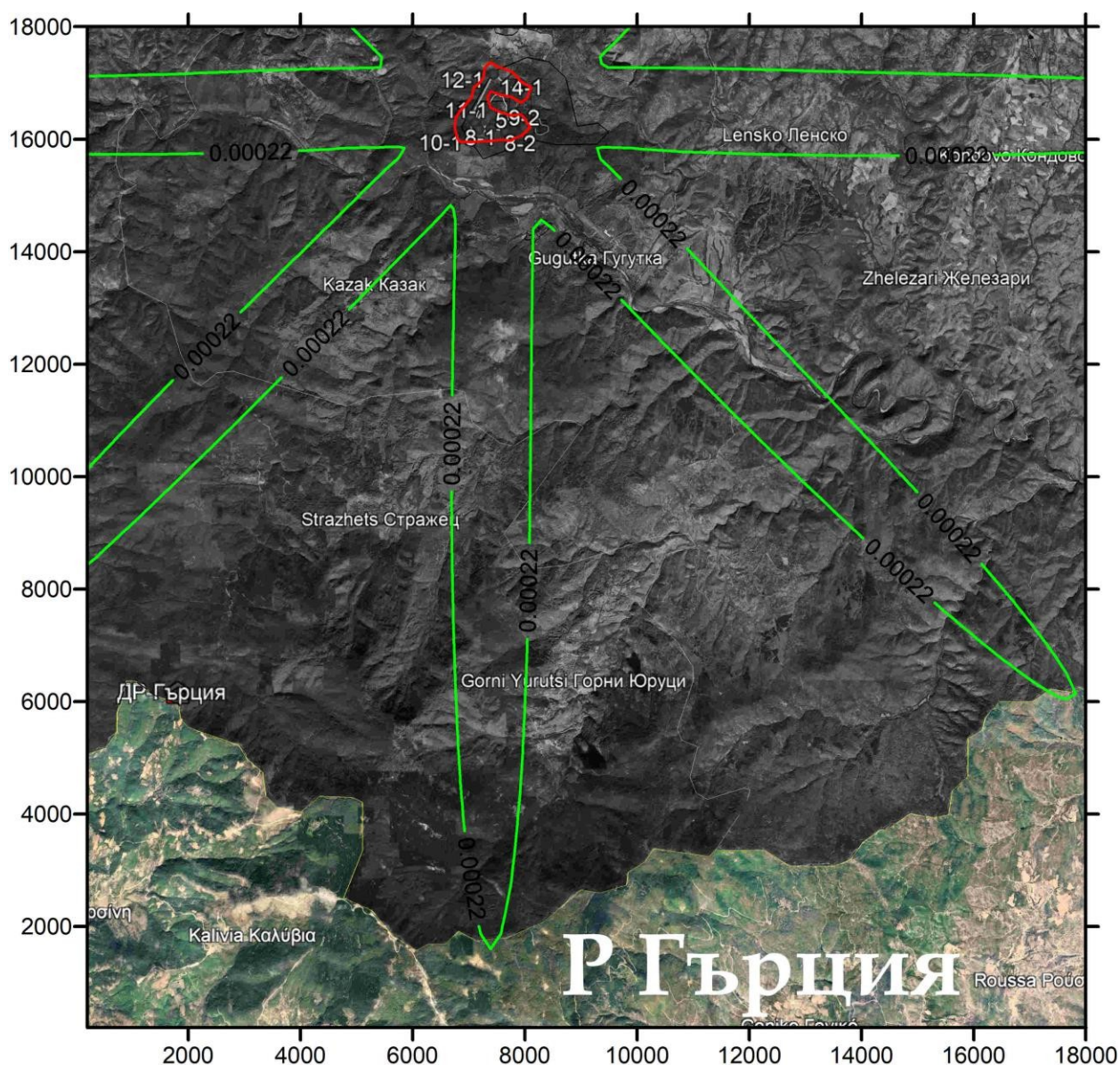


Figure V.12-4 AER of $PM_{2.5}$ as a result of the operation of the Rosino deposit in the area of Greece, mg/m^3

In the figure above, the red isoline encloses the area where the average annual limit for the protection of human health of $20 \mu g/m^3$ for the pollutant $PM_{2.5}$ may be exceeded. Within the borders of Greece, the maximum levels of the pollutant fall to only $0.22 \mu g/m^3$ (green isolines in the figure) at the average annual standard for the protection of human health of $20 \mu g/m^3$.

Based on the calculations and models of emission dispersion from the implementation of the IP, it can be concluded that no transboundary impact is expected. The maximum dust values that may be dispersed outside the borders of our country are negligible.

Surface and groundwater

The Republic of Greece is divided into 14 water management basins. The area of Ivaylovgrad is adjacent to zone GR12 - the geographical region of Thrace. The EIA Report will use data from the Thrace River Basin Management Plan (GR12). Figure V.12.2-5. Location of Ivaylovgrad and the Thrace Water Management Basin (GR12)

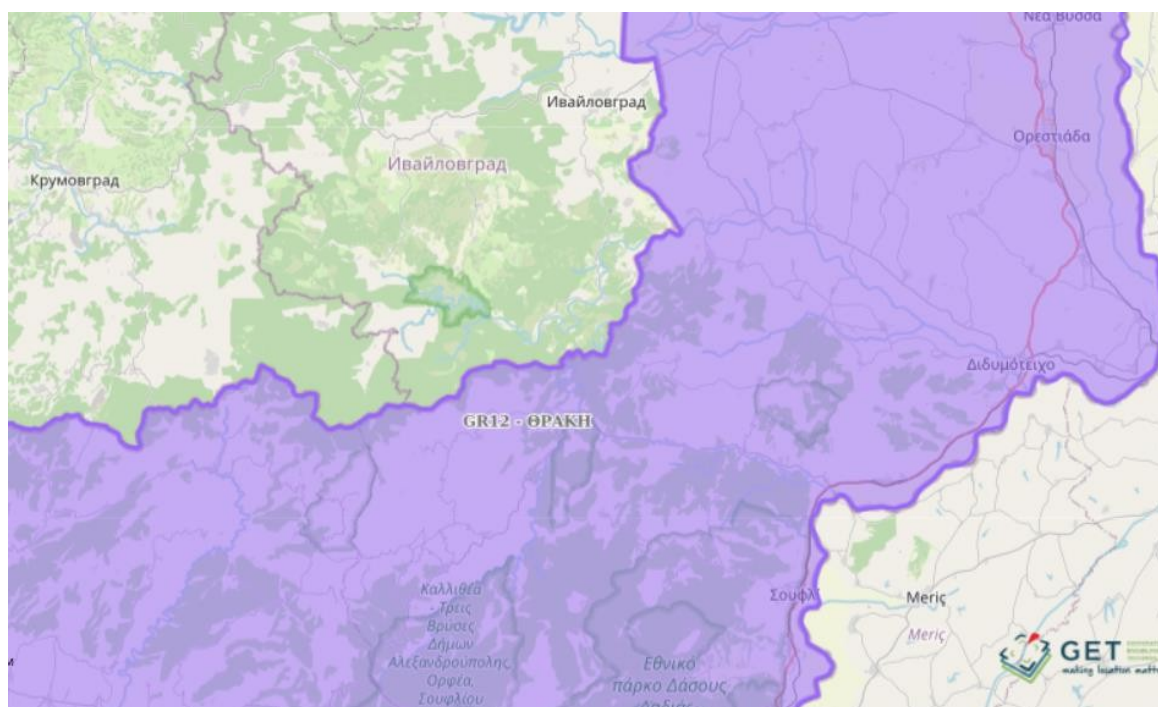


Figure No. V.12.2-5. Location of the town of Ivaylovgrad and the Thrace Water Management Basin (GR12)

The Trakia Water Management Basin (GR12) is a transboundary basin management area. The western part of the basin borders the territory managed by the Bulgarian Water Management Directorate for the Western Black Sea Region, where the Nestos and Despatis rivers are transboundary. The central and eastern parts border the Bulgarian IBR BD, where the transboundary rivers are the Arda (Ardas) and Luda Reka (Erythrotamos). The Evros River basin is also transboundary, as it is partially located in the territory of the Bulgarian IBR BD RRB in the Eastern Aegean Sea (the rivers). The Maritsa (Evros) River forms the border between Bulgaria and Greece for 12 kilometers, as well as between Greece and Turkey, with the exception of a section upstream of Nova Vissa, where the river flows through Turkish territory.

On Greek territory, the Biala River flows into the Luda River - Eritropotamos.

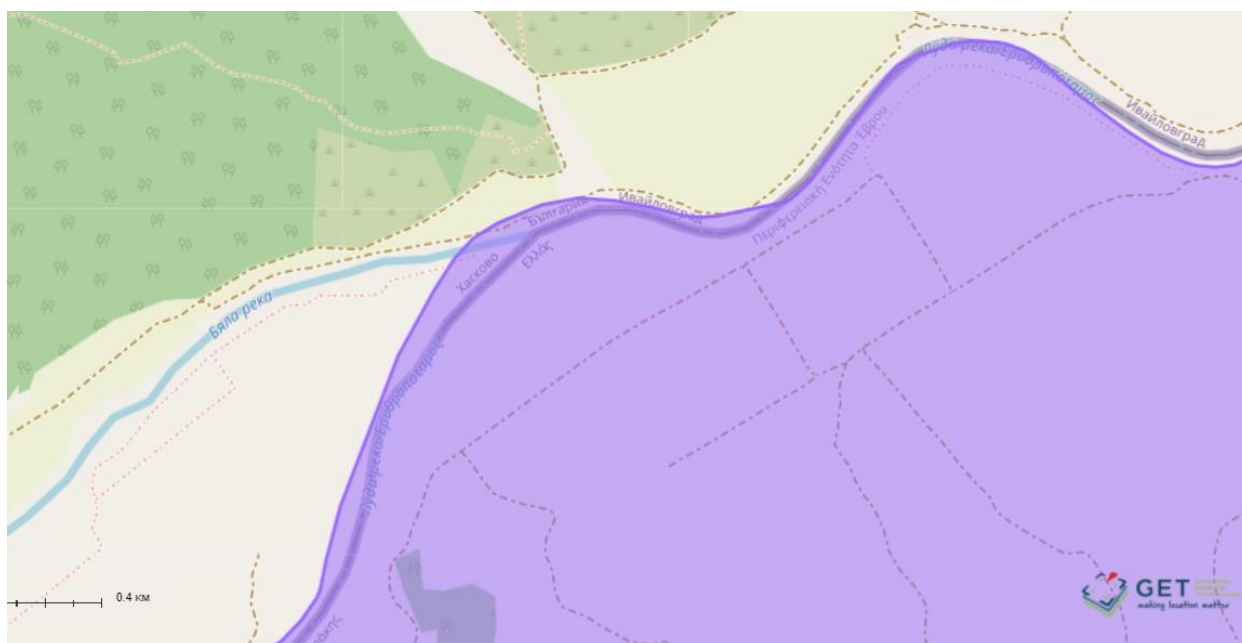


Figure No. V.12-6. Location of the confluence of the Byala River (Bulgarian territory) and the Luda River (Greek territory)

There are two groundwater bodies bordering the IP area: Drosinio, with code GR120B100, and Soufli – Didimoticho, with code GR12BT150.

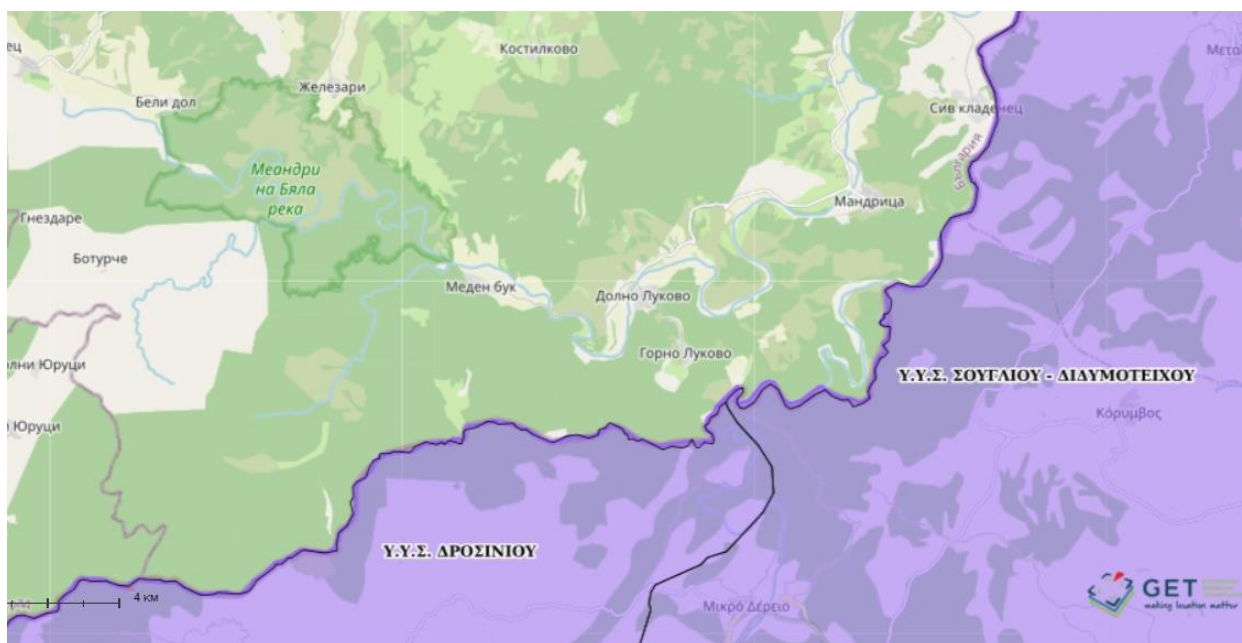


Figure No. V.12-7. Boundary groundwater bodies

At all stages of construction, operation, and recultivation of the , no transboundary impact is expected on the ecological and chemical status of surface waters, runoff, and water quantities entering the territory of the Republic of Greece from the Luda and Byala river basins.

As described in the previous sections of the report, in order to fill the open reservoir for non-contact water, it is planned to use water from the Arpa Dere River during the period January-May, when there is sufficient runoff in the river, in the area of the Rosino pumping station (PS)

"Rosino" at a flow rate that will provide a water quantity of 50 l/s (expected total volume of 648,000 m³). This flow is equal to approximately 10% of the average annual water volume, which guarantees the ecological minimum in the river (Table No. V.12-1).

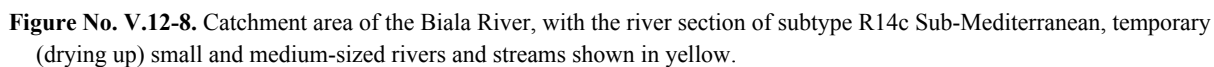
Table No. V.12-1 Hydrological data for the Arpa Dere River.

Water body	F km ²	Нер. m	Mo l/s/km ²	Cv	Cs 2Cv	Qep. l/s	Wep. 10 ⁶ m ³	Q95% l/s	W95% l/s
Arpa Dere River	69.4	519	14	0.61	1.22	972	30.6	241	7.6

The Arpa Dere River is a left tributary in the middle course of the Byala River. Water intake of a total of approximately 648,000 m³ for the months from January to May (inclusive) represents about 0.54% of the average water quantities for the Biala River during this period, according to data from HMS 62800, Biala River, Dolno Lukovo village (Table No. V.12-2).

Table No. V.12- 2 Q avg.	Water quantities by month (in million m ³)											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
HMS 62800, Bela River, Dolno Lukovo village - F=448												
Q avg	24	39.1	27	17	12	5.4	1.1	0.5	0.6	3.0	9.6	23.9
Biala River (to the border) - F=593.8												
Q avg	31.1	50.6	36.0	23.0	15.6	7	1.5	0	0.8	3.9	12.4	30.9

During the summer months, no water abstraction from surface waters is planned due to the fact that the lower sections before the Bulgarian-Greek border, from the village of Meden Buk/Dolno Lukovo to the state border (subtype R14c Sub-Mediterranean, temporary (drying up) small and medium-sized rivers and streams), dry up to the state border (subtype R14c Sub-Mediterranean, temporary (drying up) small and medium-sized rivers and streams), dry up to separate pools with varying frequency of occurrence over the years (Figure No. V.12-1).



Horizon	Q ср. - р. Бяла, с. Долно Луково (%)	Q ср. - р. Бяла (до границата) (%)
I	24,0	31,0
II	39,0	50,0
III	28,0	36,0
IV	18,0	23,0
V	12,0	16,0
VI	6,0	7,0
VII	1,0	2,0
VIII	0,5	0,5
IX	0,5	1,0
X	3,0	4,0
XI	10,0	13,0
XII	24,0	31,0

The flow of the Biala River is influenced by the Mediterranean climate and

fluctuates within very wide limits. The coefficient of variation of the discharge at the village of Dolno Lukovo is very high – 0.616, as is the coefficient of asymmetry – 1.785. The runoff module is low due to the insignificant altitude – 11.7 l/sec per km². The monthly minimum runoff at the village of Dolno Lukovo becomes almost zero at the end of summer (August-September) due to the Mediterranean climate influence.

The Biala River and its tributaries are characterized by a natural runoff regime – there are almost no reservoirs built to regulate it. At the border with Greece, the Biala River flows into the Luda River.

The Luda River is a river whose catchment area is located in southern Bulgaria and northeastern Greece, in the region of Eastern Macedonia and Thrace. It is over 100 km long, 20.2 km of which are on Bulgarian territory. The river is the last major right tributary of the Maritsa. It drains the southeastern parts of the Eastern Rhodopes. On Greek territory, the waters of the Luda

River (Erythrotamos, Chervena River) in its lower course are widely used for irrigation of agricultural land located on both sides of its valley. These hydrological data show that the Byala River plays a very limited role in the formation of the flow of the

Luda River on Greek territory during the summer period. On the other hand, the Luda River The Luda River, fed by its catchment area, maintains a year-round flow on Greek territory (Figure No. V.12-10, Figure No. V.12-11, Figure No. V.12-12).



Figure No. V.12-10. The Luda River (Erythrotamos) on Greek territory near Metaxades (September).



Figure V.12-11. The Luda River (Erythropotamos) on Greek territory near Vrızika (September).



Figure No. V.12-12. The Luda River (Erythropotamos) on Greek territory near Didimotiho before the mouth (September).
In this regard, the planned water intake from the Arpa Dere River to fill the open

reservoir for non-contact water during the operation of the Rozino deposit, with a total volume of 648,000 m³ and limited to the months from January to May (practically outside the active irrigation season) is not expected to have a negative transboundary impact on the quantitative status of surface waters.

No impact on surface water is expected, either in terms of quality or quantity. The IP provides for the construction of two consecutively located reservoirs (the second of which is for non-contact water, i.e. conditionally clean), which eliminates even the slightest possibility of water separated from the IP entering water bodies. There are no plans to discharge industrial and domestic sewage into surface water bodies or into the sewerage network of populated areas. All collected water will be reused in the technological cycles.

For the water supply of the site for technological needs, a hydrological survey has been carried out to determine the availability of water resources from surface water bodies. **The possibility of such water use has been established without causing a decrease in water quantities and disruption of the natural water flow.** Water use will only be possible after obtaining a permit in accordance with the Water Act.

No impact on the chemical and quantitative status of groundwater bodies is expected either. A hydrogeological survey was also carried out in the area of the deposit, which found that the groundwater has an insignificant flow rate. Given the planned depth of the mine, there is no reason to believe that there could be a direct impact on groundwater bodies or drinking water sources, with corresponding sanitary protection zones and permits for exploitation in accordance with the Water Act.

In view of this, it cannot be assumed that there will be any negative impact on the quantity and quality of water in Greece.

Subsurface

The harmful impact is mainly concentrated on the geological environment, as non-renewable natural resources will be extracted. The data from the geological surveys and the proposed extraction technology for the deposit give reason to believe that, if the investment proposal is implemented, part of the territory will be affected by the extraction activity, **but the entire area will not be affected in a way that would lead to changes in the sustainability of the geological environment and its quality characteristics, let alone lead to transboundary effects.**

Land and soil

Given the nature of the activity—open-pit mining of natural resources—the soils will be directly affected, locally and only on the territory of the Republic of Bulgaria. This could in no way have an impact on the soils in the neighboring country. **After timely phased technical and biological recultivation, they will be restored to the maximum extent possible.**

Noise

The analyses and calculations in Section V prove that the implementation of the IP will not lead to an increase in background noise in nearby settlements. The maximum noise levels that will reach the sites subject to enhanced noise protection are lower than the background noise in the settlement and the surrounding natural environment.

Due to the remoteness of the territory of the Republic of Greece, it is not possible for increased equivalent noise levels to reach it. The noise from the excavation, extraction, and dumping activities and the processing of the ore will be completely eliminated in the vicinity of the IP site. It is not possible for the area of Greece to have an impact on background noise levels.

With regard to blasting operations, the experimental blasting carried out proves that no negative cross-border impact can be expected. Blasting operations have lower levels than the recorded background noise even in nearby protected sites, measured before and on the day of the experimental blasting operations.

Biological diversity

Given the impact on two protected areas of the Natura 2000 ecological network, an assessment has been made of the compatibility of the IP with the subject and objectives of conservation in these areas. The Byala River is a protected area for the conservation of wild birds, and the habitats of protected bird species must be protected, as well as activities to restore habitats must be carried out if necessary to improve their conservation status. Its entire catchment area within the country also falls within the Rhodopes-East Special Protection Area. **It is unacceptable to have a significant negative impact on the areas of the Natura 2000 national ecological network, which in turn is a prerequisite for preventing damage to biodiversity in the territory of Greece. The activity will only be possible after the IP has been approved in accordance with the Biodiversity Act.**

Waste

The proposed method of treating the waste generated by the activity does not give rise to any assumptions of environmental risks from its management. The deposited flotation waste will have minimal moisture content, and two consecutive water reservoirs will be built under the SMO, the second of which will be for non-contact (conditionally clean) water. **This eliminates the possibility of pollutants entering the water, even in the event of disasters, and reaching the territory of Greece.**

Landscape

Due to the significant distances to the border with Greece, taking into account the hilly and mountainous terrain, which acts as a natural barrier both to the spread of pollutants in the atmosphere and in visual terms, **no visual or landscape impacts are to be expected.**

Health risk

The assessments and analyses of the impact of the IP on the various phases of implementation (construction, operation, closure and recultivation) show that

the adverse effects are local in scope – mainly within the boundaries of the directly affected areas and within the concession area. The nearest populated areas are affected by insignificant concentrations of dust particles and noise, well below the relevant standards. Given the significantly greater distance of 11.6 km from the boundary of the concession area, the analyses show that **there are no prerequisites to suggest the emergence of a cross-border risk to the health of the population in the border areas of the Republic of Greece, as can be seen from the assessments of the other components and factors of the environment, including air quality, noise, water, soil, and hazardous chemicals.**

VI. DESCRIPTION OF THE LIKELY SIGNIFICANT EFFECTS OF THE INVESTMENT PROPOSAL ON THE ENVIRONMENT, RESULTING FROM:

6.1. The construction and operation of the investment proposal, including demolition, destruction, and decommissioning activities, if applicable

The various stages of implementation of the investment proposal are described in detail in Section II of this Report. They include mine construction, operation of the deposit, and closure and recultivation.

The likely consequences of the impact of the investment proposal on the environment resulting from the implementation of the various stages are discussed in detail in Section V of this report, with a summary of the impact presented for each component and factor. Based on the assessment, no significant negative impacts have been identified that would make the implementation of the IP impossible. The proposed measures should be implemented to mitigate the identified impacts.

6.2. Use of natural resources, in particular subsoil, soil, water, and biodiversity, taking into account, as far as possible, the sustainable availability of these resources

The purpose of the IP is the open-pit mining and processing of polymetallic gold-silver ore from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region, and the municipality of Krumovgrad, Kardzhali region. Permit No. 467/28.02.2017 of the Minister of Energy authorizes the exploration and prospecting of metal minerals and underground resources in the Tintyava area, on the basis of which the existence of reserves of commercial value has been established. This is the basis for the current IP.

Given the nature of the IP, **the subsoil** will be directly affected by the development of the mining site and the extraction of natural resources. The reserves in the Rozino deposit amount to 11.3 million tons of ore with a content of 1.33 g/t gold and 26.6 million tons of overburden, as described in the Appendix to the final Report on reserves.

The consequences of the impact on the subsoil are directly related to the optimal extraction of the mineral within the boundaries of the mines. A phased technical and biological recultivation is planned, whereby the mined areas will be restored to the maximum extent possible.

The soils will be directly affected by mining and processing operations. It is planned to remove the surface layer for subsequent use in the recultivation phase.

reclamation. The future concession area covers **2,753 decares, of which 1,179 decares will be disturbed**. These areas include the land required for open-pit mines, sterile rock dumps, soil dumps, industrial sites, mine roads, and water reservoirs. The expected impacts on land and soil during the construction and operation of the deposit are mechanical disturbance and destruction of the integrity of the soil profile on the aforementioned areas. Technical and biological recultivation will minimize these impacts to a certain extent.

Water

The use of surface water is related to the planned water abstraction from the Arpa Dere River in the period from January to May inclusive. at a flow rate that will provide a water quantity of about 50 l/s (expected total volume of 648 000 m³), equal to up to 10% of the average annual water quantity, in this way this way ensuring the ecological minimum in the river will be guaranteed. It is planned that the water intake will be carried out from a naturally formed pool without the need to build a dam or other construction works blocking the river. A strategy has been developed for the minimal use of fresh water and its maximum reuse within the production site. As a technological option and only when necessary, there is a provision for water intake from the terrace of the Arpa Dere River (underground water body BG3G000PtPg049) by means of the construction of a station in the of the existing PS "Rozino".

Biological diversity

The IP does not envisage the use of natural resources from the plant and animal world. All possible impacts on biodiversity, including indirect/indirect ones, are assessed above in section V.

6.3. Emissions of pollutants, noise, vibrations, non-ionising radiation and radiation; the occurrence of harmful effects and the disposal and recovery of waste

With regard to pollutants in the ambient air

A quantitative and qualitative assessment of the pollutants emitted into the atmosphere from the implementation of the IP is given in point V.1. The maximum expected average annual levels of pollutants in populated areas from the development of the

"Rozino" are as follows:

- up to 11.05 µg/m³ for PM₁₀ and 1.34 µg/m³ for PM_{2.5} in the area of the village of Rozino, with average annual standards for the protection of human health of 40 and 20 µg/m³.
- 0.6 µg/m³ for PM₁₀ and 0.15 µg/m³ for PM_{2.5} in the area of Byalgradets village.

With regard to harmful physical factors, during all three stages of the project implementation, the activities carried out on the territory of the deposit are not expected to be a source of excessive noise for the residential areas in the region. At the site and along the boundaries of the deposit, the noise limit for production areas of 70

dBA will only be exceeded in the vicinity of operating equipment. On the project sites, noise from production activities is mainly a factor in the working environment.

Within the boundaries of the nearest populated areas, no change in background noise levels is expected from the activities at the concession site, including the movement of heavy equipment on internal quarry roads.

When carrying out blasting activities, the predicted impact level is classified as "Moderately loud noise", within the impact range between "normal group conversation" and "telephone conversation". The noise impact is below the lower exposure value for action.

The calculated values of the explosive-seismic impact are significantly lower than the permissible standards for all factors: for people, buildings, and facilities, including the requirements for comfort.

With regard to radiation

Laboratory tests show that the samples from the site and the materials comply with the requirements specified in Annex No. 3, Table 3 of the NRZ for the specific activity of natural radionuclides, for the release of large quantities of materials from regulation. There is no danger to the environment, to workers at the site, or to the population, and therefore no specific measures or actions need to be taken to ensure radiation safety.

The results of gamma spectrometric analyses, compared with the standards under the applicable regulations, show that the materials removed from the site do not pose a threat to the environment and would not lead to a change in the natural radiation background at the site. The measured radioactivity in the surveyed geological units is low enough not to cause contamination and spread of radioactive isotopes to other components of the environment.

Mining activities in the productive horizon are not a source of increased radionuclide content and will not lead to a sudden or gradual increase in radioactivity in sterile rock mass, mine waste, and waste water.

In principle, during the extraction and processing of polymetallic ores, fluids and solid particles are extracted from the earth's interior, which often contain natural radioactive isotopes such as Uranium-238, Thorium-232, Radium-226 and 228, Radon-222 (gas). These elements can accumulate in rock formations, pipelines, reservoirs, and sediments, as well as in the water accompanying the extraction. The Rozino deposit is a conventional deposit for the extraction and processing of polymetallic ores. Based on laboratory tests of rock material extracted from borehole RTD-015 at various depths up to 166 m, **no geological units with high radioactivity have been identified/registered.**

Pursuant to Article 7 of the NRZ, for activities involving materials with elevated levels of natural radionuclides, an enterprise intending to commence a specific activity under Article 1 shall submit to the chairperson of the NRA, two months prior to the commencement of the activity, information on the activity and the specific activities of the relevant materials and an assessment of the expected doses.

With a view to preventive protection, it is recommended that periodic dosimetric monitoring be carried out for the upcoming exploration and mining activities, including measurement of the gamma radiation dose rate and gamma spectrometric analysis of the rock materials and flotation waste generated by the activity by an accredited laboratory.

The main consequences for the environment, in the presence of elements or layers with increased radioactivity, may be:

Contamination of soil and groundwater

Given the proposed preventive measures and process management conditions, there is no reason to believe that waste or waste water containing potentially radioactive elements will enter the soil, surface and groundwater, or aquifers and cause contamination.

Contamination of surface water

Given the proposed preventive measures and process management conditions, there is no reason to believe that wastewater and materials that may contain radioactive substances will leak into surface water bodies and cause radiation contamination. Strict water management measures have been taken.

Air pollution

Radon vapors – a radioactive gas that could be released into the air during drilling and blasting operations. Radon is a known carcinogen, especially when inhaled chronically. Since the presence of people is prohibited during drilling and blasting operations, this hypothesis is not applicable.

Welding activities will be carried out during the construction of the enrichment plant. Welding activities involve a combined effect of chemical exposure and radiant energy – ultraviolet and infrared, as well as rays from the visible spectrum. The intensity of infrared radiation varies from 100 to 2450 W/m^2 depending on the technical characteristics and mass of the heated metal. For ultraviolet radiation, the total spectral density at a distance of 1 m is specified. From the heating zone - 0.4 - 162 W/m^2 . Infrared and ultraviolet radiation affect the visual analyzer, so it is necessary to work with personal protective equipment such as goggles or helmets.

With regard to waste

The extracted overburden and flotation waste will be transported to the SMO, which is classified in category "B" according to the requirements for mining waste facilities under Article 22b, paragraph 4 of the ZPB.

The limited amount of hazardous and non-hazardous production waste from the operation of the machinery and equipment will be transferred for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act for the specific type of waste.

Household waste will be generated from the daily activities of the personnel. It will be collected in containers for mixed household waste located on the production site. This waste will be transported periodically, based on a contract with the company transporting household waste in the municipality of Ivaylovgrad.

The investment proposal does not provide for the disposal and recovery of waste on the concession area.

6.4. Risks to human health, cultural heritage, or the environment, including as a result of accidents or disasters

A detailed analysis of the risks to **human health** and an assessment of these risks are provided in section V.11 of the Report, both in relation to the population and to workers in the affected areas. The results of the analysis and assessment show that the population and workers on the site are not exposed to significant risks during all stages of the project implementation, because:

- under normal operation, no exceedances of environmental and human health standards are expected in the nearest populated areas, and for workers, occupational health and safety instructions, appropriate and reasonable work and rest schedules, and appropriate personal protective equipment to minimize exposure will be applied; risks and discomfort characteristic of the specific activities;
- the activity is not related to the storage of hazardous chemicals in quantities that could cause a major accident; An Emergency Plan will be implemented for the stages of the IP's implementation, which will specify specific actions

Risks in emergency situations and accidents

The production processes involved in ore extraction and processing involve the use of machinery, which can cause serious accidents. As a result of emergency situations and accidents involving mechanization, transport equipment, and equipment in the OF and SMO, leaks and spills of petroleum products (oils, fuels) may occur. These would be small in quantity and cover an insignificant area when the equipment used is new or technically sound. They can be easily and quickly eliminated by ensuring the constant availability of absorbents for fuel and lubricants at a location specified in the emergency plan. It is also expected that cases of specific pollution will be extremely rare, as they represent deviations from the normal technological regime.

Accidents and injuries to personnel are possible if the requirements of the regulations for healthy and safe working conditions are not complied with.

There would be risks to **cultural heritage**, including as a result of accidents and disasters, if the requirements of the Cultural Heritage Act are not complied with.

There is a possibility that there are archaeological sites in the concession area which, due to their characteristics, cannot be located using non-destructive methods. In the event of traces of archaeological substance being found, Articles 72 and 160 of the Cultural Heritage Act shall apply.

Risks to **the environment** and human health may arise in the event of the following natural disasters:

Earthquakes

According to the current seismic zoning of the Republic of Bulgaria, the area of the deposit falls within a territory with a probability of an earthquake occurring with an impact level of I-VII on the MSK scale. The seismicity coefficient for the area is $K_s = 0.10$.



Figure No. VI.6.4-1. Seismic zoning of Bulgaria

Depending on the severity of the earthquake, the following damage can be expected:

- up to VI degree – minor
- VI-IX degree – severe.

There are no infrastructure facilities built on the territory of the deposit, with the exception of existing forest roads.

Landslides

There are no registered landslides in the area of the deposit, according to the register and map of landslides prepared by Geozashchita EOOD – Pernik branch. There are two registered landslides in the territory of the town of Ivaylovgrad – on Yane Sandanski Street and Paisiy Street.

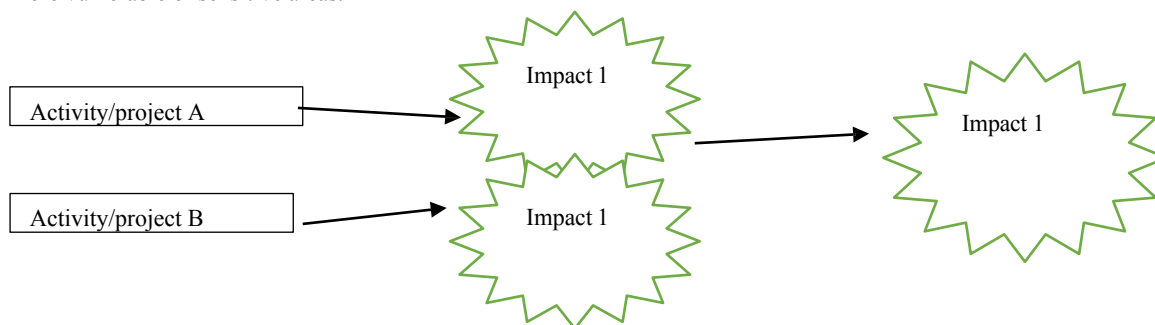
The area of the deposit is not located in an area with significant potential risk of flooding.

The area of the deposit is not located in an area with significant potential flood risk.

6.5. Combining the impact with the impact of other existing and/or approved investment proposals, taking into account all existing environmental problems related to areas of particular ecological importance that are likely to be affected or related to the use of natural resources

Assessment of cumulative impacts

Cumulative effects may result from individually insignificant but collectively significant actions that are carried out over a period of time or concentrated in a specific location. The assessment of cumulative impacts is particularly important in the EIA process, as some environmental components and factors may already be exposed to certain impacts and the additional load may lead to values close to critical levels. In such a case, the additional impact would have an irreversible negative effect on the more vulnerable or sensitive areas.



The other aspect necessary for assessing cumulative impact is the presence of other activities with the same nature of impact, located within the geographical scope where potential environmental interactions may act together with the IP, creating a more significant (or less significant) overall impact.

Activities involving the extraction of inert materials from rivers are not included in the analysis, as the nature of the impact differs significantly.

The approach used to assess cumulative impacts is based on a common methodological framework, namely an assessment of the potential cumulative impacts of existing, approved, or pending approval and/or development projects on environmental components/factors.

For the purposes of the cumulative impact assessment, information from the Public Registers of the Ministry of Environment and Water on completed and ongoing EIA procedures for investment proposals was used, as well as data from the National Concession Register.

The analysis of the current state of the environmental components and factors has established that there are no identified problems related to environmental parameters and the presence of pollution on the sites intended for development. In this sense, no combination of the impacts caused by the implementation of the investment proposal with existing ones is expected.

However, it is possible that the impacts will combine with other impacts from similar activities carried out in relative proximity, which would lead to a cumulative impact. The assessment of cumulative impacts should include all sites that have the same qualitative impact on the environment (e.g., emissions into the atmosphere, surface and groundwater, harmful physical factors, noise, waste accumulation, use and storage of hazardous substances), and the impacts should be considered by pollutants emitted from the elements of the IP into the environment during their operation.

Text Annex No. 14 presents a list of other IPs, plans, programs, or projects that may have a cumulative impact with the current IP.

Cumulative impacts of the IP under consideration

The review of the potential occurrence of cumulative impacts should be carried out by environmental components and factors:

- ***atmospheric air***, including emissions from extraction, processing, and other activities – presented below;
- ***water*** – with regard to surface and groundwater, there is no prerequisite for a cumulative effect, as the IP does not provide for the discharge of waste water from the site's activities, as well as domestic sewage into surface and/or groundwater. The current project has adopted a "zero discharge" approach;
- ***Soils*** – the IP will be implemented in an urbanized area unaffected by economic activities, therefore cumulative impacts could only be expected if other deposits in the vicinity were developed. At this stage, no such deposits have been identified.
- ***Geological environment*** – the IP involves the extraction of natural resources from the specific deposit. Cumulative impacts could be expected in relation to the depletion of gold-bearing ore reserves in the region.
- ***harmful physical factors*** - there is no prerequisite for cumulative impacts due to the insignificant effect on background noise levels in nearby settlements (discussed in detail in section V.10.2). The results of the review for the presence of IPs in the area of the Rosino deposit in Table VI.6.5-1 and Table VI.6.5-2 show that there are no conditions for cumulation with other IPs, plans, programs, or projects.
- ***Landscape*** - since the activity will be carried out in a natural environment, cumulative impact could only be observed if there are other developed underground resource deposits located nearby. At this stage, no such deposits have been identified.
- ***Biodiversity*** - a cumulative effect would arise from plans, programs, and projects/investment proposals that **have had, are having, or will have** the same impact on flora and fauna as the current IP. Outside the natural habitats and species, including birds, subject to protection in the Rhodopes-East Special Protection Area and the Byala Reka Special Protection Area, the IP affects to an insignificant extent plant communities and habitats of species of conservation importance, so that the cumulative impact on them **will also be insignificant**. The cumulative impact on natural habitats and species, including birds, subject to protection in both areas, is discussed and analyzed in detail in the EIA report.
- ***Waste*** - with regard to **waste**, there is no prerequisite for cumulative impacts, as materials from the excavation works will be used to backfill the excavated areas and for technical recultivation, and part of the land occupied by the mining waste facility will be released.

- **Hazardous substances** - given the scale and activities to be carried out on the site, there is no prerequisite for a cumulative effect and no significant combined effect on the components of the environment and human health is expected from the impact of the approved investment proposals. The distance between the investment proposal and those with a similar impact is considerable, and no interaction with them can be assumed. In view of this, no combination of the consequences of the individual impacts can be expected.

The hazardous substances that will be used in the operation of the facility are listed in the Classification Report pursuant to Article 103, paragraph 1 of the Environmental Protection Act and Annex No. 1 of the Ordinance on the Prevention of Major Accidents Involving Dangerous Substances and the Limitation of their Consequences, and the conclusion of the report is that the enterprise is not classified as having a high or low risk potential, which is confirmed by a letter from the Regional Inspectorate of Environment and Water Resources – Haskovo, ref. No. PD-279-(18)/19.06.2023.

The explosive materials will be delivered immediately before the explosion by a licensed supplier who will perform the PVR.

- **Cultural heritage** - there are no established reasons to expect cumulative impacts on cultural values.

With regard to **atmospheric air**, there is no prerequisite for cumulative effects due to the small scope of dispersion of pollutants from the activity at the IP site (*discussed in detail in point V.1.2*). According to the information provided on the existence of other IPs, plans, programs, or projects that could have a cumulative impact with the current IP (**Text Annex No. 14**), the only ones in the territories of the villages of Rozino and Gugutka are the Forest Management Plan (FMP), Hunting Management Plan (HMP) and Plan for Activities for the Protection of Forest Areas from Fires (PAPFAF) of the Territorial Division (TD) State Forestry (SF) "Ivaylovgrad". These plans cannot have a cumulative negative impact on the quality of the ambient air in the study area. Investment proposals that could have a cumulative negative impact are related to the extraction and/or processing of underground resources. The table below shows the land areas in the municipality of Ivaylovgrad where investment proposals for the exploration and extraction of underground resources are planned, along with a preliminary analysis of the likelihood of a possible cumulative effect:

Table VI.6.5-1 Distance from the boundaries of the IP and the land areas where activities for the exploration, extraction, and/or processing of underground resources are planned

Land	Distance to the boundaries of the concession of the Rosino deposit km	Possible cumulative effect YES/NO/Possible
Ivaylovgrad	>12.5	NO
Belopoliane village	>16.5	NO
Brusino village	>6.5	NO
village of Bubino	>12.0	NO
Gornoseltsi village	>11.0	NO
village of Dolno Lukovo	>11.0	NO

Land	Distance to the concession boundaries of the Rosino deposit	Possible cumulative effect
Zhelezin	>2	Possible
Kobilino village	>6.5	NO
Kostilkovo village	>8.5	NO
Mandritsa village	>14.0	NO
Meden Buk village	>7.5	NO
Nova Livada village	>4.5	NO
Odrinets village	>15.0	NO
village of Oreshino	>11.5	NO
village of Planinets	>4.5	NO
village of Plevun,	>5.5	NO
village of Pokrovan	>11.5	NO
village of Pastrook	>1.2	Possible
Sborino village	>6.0	NO
Sv. Svirachi	>12.5	NO
Siv Kladenets village	>18.5	NO
Sokolenci village	>1.5	Possible
Huhla village	>17	NO
Cherni Rid village	>6.5	NO
Chernichino village	>13.0	NO

The above shows that in the territories of the villages of Zhelezin, Pastrook, and Sokolentsi, which are close to the IP site, there are planned activities that are likely to have a cumulative impact. A more detailed analysis is needed of the likelihood of a cumulative impact for each IP for which it is assumed that extraction/excavation activities will be carried out in the vicinity of neighboring settlements. The table below shows all IPs that are expected to be implemented near the Rosino deposit site.

Table VI.6.5-2 Description of IPs in the vicinity of the concession area of the Rosino deposit and assessment of the likelihood of a cumulative effect

Approval decision No. and issuing authority	Pos. No. in Fig. VI.6.5-1	Name of IP	Affected land	Assessment of the likelihood of a cumulative effect
45-OS/2008 ed of the Ministry of Environment and Water	2	Comprehensive working project for the search and study of rock facing materials in area "Pastrook"	village of Pastrook and village of Zhelezin, municipality of Ivaylovgrad, Haskovo region	The working project covers the territory of two land areas, including the construction boundaries of the villages of Pastrook and Zhelezin. At present, there is no commercial discovery and no outline of a future concession has been defined. Accordingly, it is not possible to assess a possible cumulative effect. However, it should be noted that the location of area "Pastrook" is northeast of the deposit "Rozino" and not is

Approval decision No. and issuing authority	Item No. in Fig. VI.6.5-1	Name of the IP	Affected land	Assessment of the likelihood of a cumulative effect
				There may be a cumulative effect on air quality in the area of the villages of Rozino, Byalgradets, and Gugutka, which are located north or south of the concession area.
112-OS/2009 iss. of the Ministry of Environment and Water	3	Comprehensive working project for the study of rock facing materials in area "Dyulina Mahala", village of Zhelezin, municipality of Ivaylovgrad, Haskovo region	village Zhelezin, municipality of Ivaylovgrad, Haskovo region	The contour of the "Dyulina Mahala" area is more than 5 km away from the IP. At such a distance, it is not possible to have a negative cumulative effect.
24-OS/2011 issued of the Ministry of Environment and Water	1	"Comprehensive working project for the exploration of underground resources - rock facing materials in area "Chervenka Dol"	village Sokolentsi, municipality of Ivaylovgrad, Haskovo region	The contour of the "Chervenka Dol" area is more than 3 km north of the IP. At such a distance, it is not possible for there to be a negative cumulative effect. In addition, the "Chervenka Dol" area is located north of the village of Rozino, while the current IP is located south of it. Given such a location, it is not possible to have accumulation of dust concentrations from the two deposits.
06-OS/2023 iss. of the Ministry of Environment and Water	4	Comprehensive working project (CWP) for the exploration of underground resources - rock facing materials in area "Tabakova cheshma"	village Zhelezin, municipality Ivaylovgrad, Haskovo Province	The contour of the Tabakova Cheshma area is more than 4 km northeast of the IP. It is not possible to have a negative cumulative effect at such a distance.

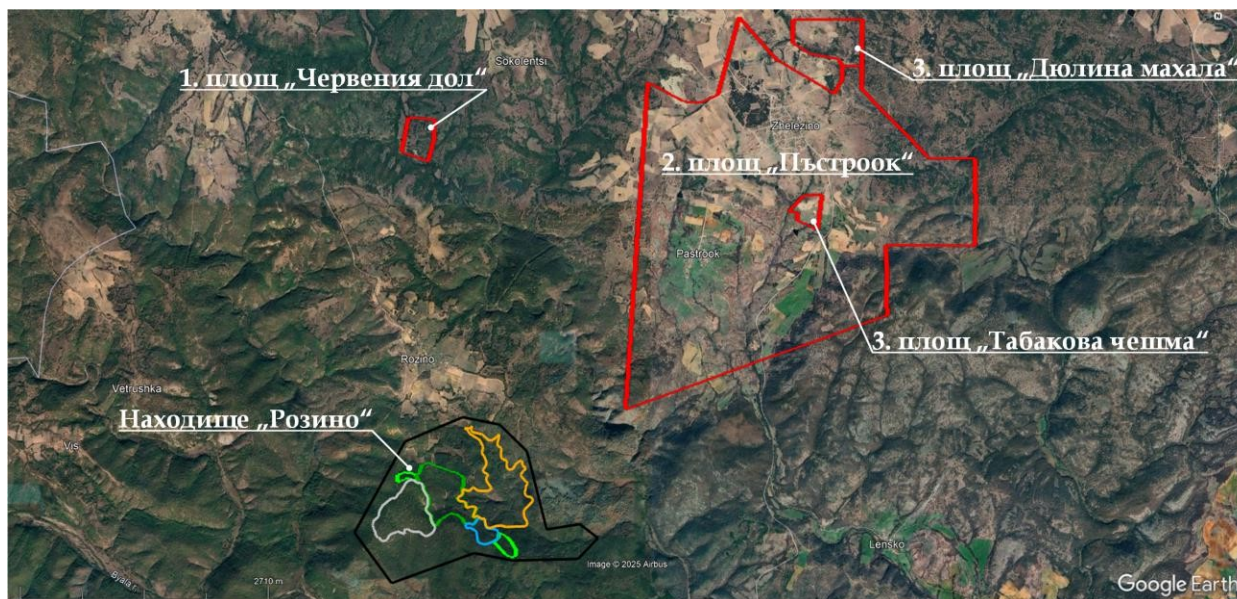


Figure No. VI.6.5-1. Location of the IP in neighboring territories

With regard to **health and hygiene aspects**, the above analyses and assessments of air quality, noise, soil, water, hazardous chemicals show that no cumulative negative effects on the health of the population or workers at the site are expected as a result of the implementation of the nearest IPs for the extraction of underground resources, given the other IPs in the area presented in *Text Annex No. 14*.

Summary of cumulative impacts:

❖ **Atmospheric air:**

The impact on atmospheric air quality is local in scope and is not expected to have a cumulative effect.

❖ **Land and soil:**

The land affected by mining will be more than 1 km away from other exploration sites. areas, preserving the current use between them and without forming large arrays with changed purpose. In accordance with the regulations and in the event that the exploration areas are granted concessions for extraction, all natural resource extraction must have developed plans for the recultivation of the affected areas, which include the use of the soil layer for recultivation.

❖ **Subsoil, mineral diversity:**

The subsoil is directly affected by mining activities. Due to the significant distance between the various active deposits for the extraction of polymetallic ores and gneisses, there would be no impact on the subsoil that could lead to negative geological phenomena such as increased seismic activity, subsidence, landslides, rockfalls, surface ruptures of the earth's crust, etc. Control over the extraction of established reserves is exercised by the state, through the Ministry of Energy, in accordance with the *National Strategy for the Development of the Mining Industry (2015)* and through the terms and conditions of the concession agreements for extraction. According to

data from the mining strategy prepared in 2015, Bulgaria ranks third in copper production and fourth in gold production in Europe, which shows our country's leading position in European ore mining. The vision of the "2030" strategy is for the Republic of Bulgaria to be a regional leader in the rational use of underground resources and the development of mining communities. The mining industry in the Republic of Bulgaria is a structurally important sector and one of the main drivers of economic development. The mining industry is developing through the effective, comprehensive, and long-term utilization of underground resources in accordance with the requirements for sustainable development, covering three main aspects: economic, environmental (green mining industry), and social (corporate social responsibility).

❖ ***Landscape:***

The type of landscape changes with the development of surface mining sites.

This change is limited to the size of the concession area. The distance between the sites and the terrain do not allow for the creation of large areas with a man-made landscape. As an additional measure to limit the impact, recultivation plans are implemented, whereby restoration is carried out to a degree that is as close as possible to the original landscape type.

❖ ***Noise from the extraction, processing, and transport of the extracted raw material:***

The impact on background noise levels in nearby sites subject to enhanced noise protection is insignificant and no cumulative effect is expected.

❖ ***Population and human health***

No cumulative impact on the health and hygiene aspects of the environment, respectively on the population and human health, including with regard to workers at the site.

6.6. Impact of the investment proposal on the climate (e.g., the nature and extent of greenhouse gas emissions) and the vulnerability of the investment proposal to climate change

According to the EC Guidance on integrating climate change and biodiversity into EIA, 2013, the following aspects should be taken into account when assessing climate change processes and EIA:

- the impact that projected climate change will have on the proposed project, potentially in the long term, as well as the resilience and ability of the project to cope with these impacts;
- long-term trends, with and without the project under assessment, should be taken into account, avoiding "snapshot" analyses;
- assess exposure and perform risk assessment taking into account different scenarios for sensitivity, exposure, and vulnerability of the project.

The following scenarios should be considered:

- ✓ extreme weather conditions that could either adversely affect the implementation and operation of the project or worsen its impact on biodiversity and other environmental aspects;

- ✓ dynamic trends in environmental parameters and quality related to time;
- ✓ best-case and worst-case scenarios related to the above two parameters.

On the other hand, the assessment must take into account the Climate Change Mitigation Act, which implements the state policy on climate change mitigation, and *the National Strategy for Adaptation to Climate Change and Action Plan* adopted by Decision No. 621 of the Council of Ministers of 25.10.2019.

The National Strategy serves as a reference document setting out a framework for climate change adaptation (CCA) actions and priority areas until 2030, identifying and confirming the need for climate adaptation actions for the economy as a whole and at sector level, while also highlighting the consequences of inaction. The mining industry is not included in the strategy as a sector of the economy and no targets or risks have been set for it. Only the risks to natural gas extraction and supply are considered.

For its part, the extractive industry is a consumer of water. This is also the case for the assessed IP. Therefore, given its characteristics and elements, we will include the water sector in this assessment.

The strategic objectives for the water sector are:

- ❖ Improving adaptation management;
- ❖ Strengthening the knowledge base and awareness of adaptation;
- ❖ Improving adaptive management of water system infrastructure.

In the medium and long term, the main risks to the water sector expected as a result of projected climate change and described in the sectoral assessment report, part of the National Strategy for Adaptation to Climate Change, are as follows:

- ***The dangers of flooding and drought*** have been identified as the most significant for the water sector. Higher flood risks affect the entire country, while more severe droughts threaten areas with projected water shortages. Areas that use groundwater sources are expected to have a lower risk of shortages, given the projections that climate change will not affect groundwater availability, the projected decline in Bulgaria's population, and the slow growth of industrial and agricultural activities. A high risk of shortages can be expected in areas with surface water supplies and intensive tourism activities, which are expected to increase.
- The Black Sea region appears to be most vulnerable to the risk of shortages because it uses surface water and is the most visited by tourists. The poor condition of infrastructure in this region adds another dimension to the increased risk. This risk is not relevant to the IP.
- ***The key vulnerabilities to these climate hazards*** (and their impact on water scarcity) are:
 - *Infrastructure condition and preparedness*: Overloaded, ageing,

poorly maintained infrastructure and therefore highly vulnerable and most likely inadequate to cope with climate change.

O *Human factor*, operator, or user *readiness*: The population and infrastructure operators have no historical experience and no good practices in place for floods and droughts and are therefore highly vulnerable.

O Hydroelectric power plants - vulnerable to droughts - this is not relevant to the IP.

O *Water services* (water supply, sewerage, land improvement) – vulnerable during droughts – this is partially relevant to the IP, as water is needed for technological purposes for its implementation.

➤ **The main risks to the managed systems** are therefore risks to infrastructure and services:

O Damage, improper operation, and low-level or insufficient services;

O Risks to hydroelectric power plants due to low or high river flows
- this is not relevant to the IP.

➤ **The main risks for natural systems** are damaged biodiversity, which is due to both floods and droughts.

In the "Analysis and Assessment of the Risk and Vulnerability of Sectors in the Bulgarian Economy to Climate Change," developed with the financial support of the European Regional Development Fund of the EU through the Operational Program "Environment 2007-2013," the mining sector is not examined, but it is mentioned as one of the main consumers of water. The assessed IP confirms this and in this regard we will examine the risks mentioned in relation to water, which are associated with extreme events: extreme temperatures and extreme precipitation.

According to the same document, the assessment of the vulnerability of the water sector due to climate change is as follows:

Table VI.6.6-1. Assessment of the vulnerability of the water sector according to the "Analysis and assessment of the risk and vulnerability of sectors in the Bulgarian economy to climate change"

System/indicator	Climate scenarios IPCC AR5	Probability of occurrence in the 2016-2035 time horizon			Expected impact (positive +, insignificant or none 0 and negative -)			Sensitivity level 1 – low 2 – moderate 3 – high		
		3	4	5	6	7	8	9	10	11
1	2	3	4	5	6	7	8	9	10	11
Leads	Scenario	$\Delta T^{\circ}C$	$\Delta P\%$	Ex **	$\Delta T^{\circ}C$	$\Delta P\%$	ΔEx	$\Delta T^{\circ}C$	$\Delta P\%$	ΔEx
Amount of surface waters	RCP2.6	1.5-2.0	0	**	-	+	+	3	3	3
	RCP4.5	1.5-2.0	0							
	RSP6	1.0	0-10							
	RSP8.5	1.5-2.0	0							
Amount of groundwater	RCP2.6	1.5-2.0	0	**	-	+	+	3	2	3
	RCP4.5	1.5-2.0	0							
	RSP6	1.0	0							
	RSP8.5	1.5-2.0	0							
Quality of water	RCP2.6	1.5-2.0	0-10	**	-	-	-	2	2	3
	RCP4.5	1.5-2.0	0-10							
	RSP6	1.0	0							
	RSP8.5	1.5-2.0	0							

Sushi	RCP2.6	1.5	0	+	-	+	-	3	3	3
	RCP4.5	1.5	0							
	RSP6	1.0	0							
	RSP8.5	1.5	0							
Floods	RCP2.6	1.5	0	**	-	+	-	3	3	3
	RCP4.5	1.5	0							
	RSP6	1.0	0							
	RSP8.5	1.5	0							
Total points sensitivity								17	15	18
Amount Maximum points								15	9	16
Resilience/Vulnerability								0.37	0.55	0.37

where: $\Delta T^{\circ}C$ – temperature index, $\Delta P\%$ – precipitation index, ΔEx – extreme events index

The sector's sensitivity index to climate change in the time horizon up to 2035 is set at 1.25.

The adaptation capacity is "insufficient" and rated at 3 points.

Vulnerability index (V) = Sensitivity (S)/Adaptation capacity (Ac) $V=1.25/3 = 0.41$

According to this index value, the sector is defined as "moderately resilient" to climate change in the time horizon up to 2035.

The next level is "vulnerable."

Vulnerability Index Assessment Scale

<u>Index value</u>	<u>Resilience/vulnerability</u>
0.80	Extremely resilient
0.50	Very resilient
0.20	<i>Moderately resilient</i>
0.01	Vulnerable

Indicators of the sector's sensitivity to possible climate change show a trend of increasing extreme temperatures and extreme precipitation, deterioration of water quality, mainly due to a significant reduction in runoff or flooding, as well as large fluctuations in runoff over time.

The water sector shows increased sensitivity to indicators of changes in water quantity and quality, as well as to extreme temperatures and precipitation and, respectively, to the risk of floods and droughts.

Integrated water resources management and integrated flood and drought risk management are of paramount importance in the process of adapting to changes affecting the water sector. This approach will also be applied to the assessed IP.

In view of the above and based on the characteristics of the IP presented in Section II of this EIA, the key vulnerabilities of the project to climate hazards can be defined as follows:

- *Condition and preparedness of infrastructure:* overloaded, ageing, poorly maintained infrastructure and therefore highly vulnerable and most likely inadequate to cope with climate change.

The IP is for entirely new construction and this risk will be avoided with modern design solutions and construction techniques.

- *Human factor, operator, or user preparedness:* the population and infrastructure operators have no historical experience and no good practices in place for floods and droughts and are therefore highly vulnerable.

The project facilities, which are part of the IP, will be operated by well-trained personnel and this risk will be avoided.

- *The main risks to the managed systems* are therefore risks to infrastructure and services - damage, malfunction, and low or insufficient service levels.

The IP provides for modern process control systems and this risk will be avoided.

- *The main risks to natural systems* are damage to biodiversity due to both floods and droughts.

The IP contains a set of measures aimed at protecting biodiversity in the IP area, which will minimize this risk.

Taking into account these aspects of the impact of climate change, it can be said that the specific activity proposed essentially involves the development of a new mining facility using modern technologies that are compatible with the parameters of the environment in which they will be implemented and with the application of appropriate safety measures. In this sense, and given the above risks, the project itself could not cause negative impacts on the climate.

Measures to adapt new engineering projects to climate change are usually aimed at ensuring an appropriate level of resilience to the impacts of climate change, which include both natural phenomena such as more severe floods, sudden torrential rains, heat waves, severe storms, as well as chronic phenomena such as changes in average precipitation, thunderstorms, and strong winds. Given the location of the future facility, the risk of fires should also be considered.

In order to ensure operational safety and protect technological facilities, the elements of the IP must be climate-resistant, designed in such a way as to ensure that the development of the mining complex does not increase the vulnerability of neighbouring natural and social structures.

Assessment of the IP's vulnerability to climate change

In order to assess the vulnerability of the IP to climate change, the climatic characteristics of the area in which the activity will be carried out should be taken into account.

The area is predominantly influenced by the Mediterranean climate, especially with regard to Mediterranean cyclones. In addition, due to its greater openness to the north during the winter months, the influence of cold continental air masses, which invade from the north, is noticeable. Active

Cyclonic activity during the winter months causes both relatively high temperatures and increased precipitation, which is mostly frontal in nature. The average January temperature is positive and varies between 1 and 2°C. Sometimes the rainfall is very intense, with up to 80 mm of precipitation observed within 24 hours.

Summer is characterized by scarcer precipitation, very high extreme temperatures, average July temperatures between 23 and 25°C, and many sunny days. It is the influx of hot tropical air masses that causes the onset of dry periods. The total rainfall in summer (June, July, August) for the period 1976-2005, as in spring, varies between 150 and 200 mm.

Winds are northwesterly, with active manifestation in the valleys and mountainous areas. There is also the occurrence of foehn winds.

As mentioned above, the mining industry sector is not covered in the strategic documents. However, this sector is a water consumer, as is the assessed IP, which provides for water consumption and management, so the main risks related to the "Water" sector, as indicated in the strategic and reference documents, will be considered, namely: extreme precipitation (rain), extreme positive temperatures (heat waves and droughts), and floods. Given the location, the specific requirements for the site and the activity it carries out, the following should be added: landslides, forest fires, strong winds, and storms.

The area has a mild Mediterranean climate and there is no need to consider extremely low temperatures, extreme snowfall, and snow drifts.

With regard to landslides, it should be noted that according to the Register of Landslides in Bulgaria, maintained by the Ministry of Regional Development and Public Works, the area of the assessed IP does not fall within a landslide zone.

There are two registered landslides in the town of Ivaylovgrad, but they are very far from the IP contour:

- Ivaylovgrad, district 63, Yane Sandanski Street;
- Ivaylovgrad, Paissiy Street, block 63.

Fig.

Карта на свлачищата

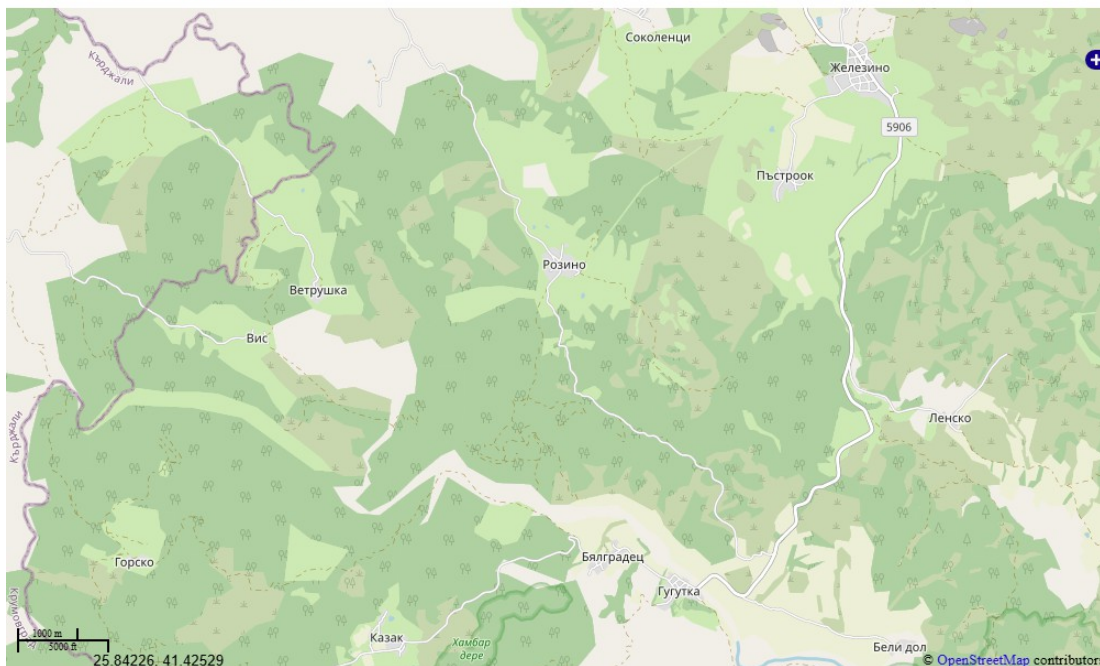


Fig. VI.6.6-1. Map of landslides according to the Landslide Register

According to the third PUDR of the IBR (2022–2027), adopted by Decision No. 937/28.12.2023 of the Council of Ministers, the IP area does not fall within an area with significant potential flood risk. Given the location of the site (at the top of the hill) and the relief, there is no need to consider this risk, as all surface water flows downhill through the adjacent streams to the bed of the Biala River.

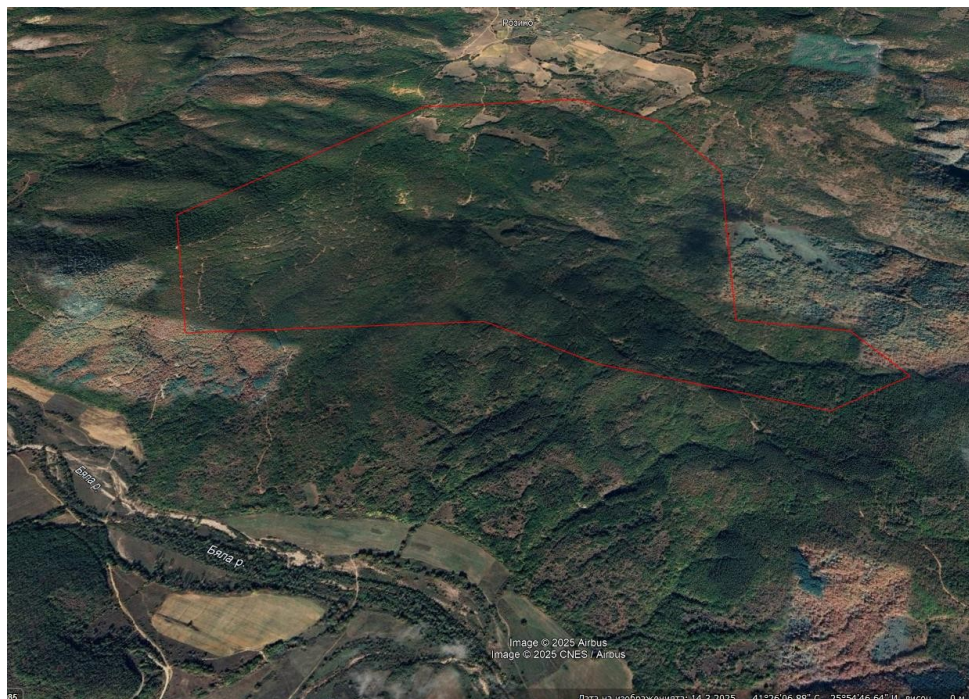


Fig. VI.6.6-2. View of the relief within the boundaries of the future concession area of Google Land

Based on the methodological documents, the assessment of the sensitivity, exposure, and vulnerability of the IP was carried out on a three-level scale:

SENSITIVITY / EXPOSURE / VULNERABILITY	
HIGH	
MEDIUM	
LOW	

The sensitivity of the IP is considered based on the geographical and climatic characteristics of the area.

Sensitivity assessment

- **High sensitivity:** climatic variables (hazard) can have a significant impact on goods and processes, inputs, production, and transport links;
- **Medium sensitivity:** climate variables (hazard) may have a slight impact on assets and processes, inputs, yields, and transport links;
- **Low sensitivity:** climate variables (hazard) have no (or negligible) impact.

The exposure of the IP is analyzed in terms of current climate conditions and similarly for future conditions. The current and projected intensity and frequency of exposure to climate impacts on the IP are also taken into account, in accordance with the geographical location and climate characteristics.

Exposure assessment:

- Exposure with **strong impacts** of climate phenomena, relative to the current and future state of the climate;
- Exposure to **moderate impacts** of climate phenomena (hazard) relative to the current and future state of the climate;
- Exposure with **low impacts** of climate phenomena (hazard) relative to the current and future state of the climate.

The vulnerability of the project is determined by identifying climate phenomena or extreme manifestations thereof that may impact the project, based on sensitivity and exposure, both for current and future conditions. This analysis is performed using a matrix in which Vulnerability = Sensitivity x Exposure.

Vulnerability Assessment Matrix

SENSITIVITY	EXPOSURE			
		LOW	MEDIUM	HIGH
	LOW			
	MEDIUM			
	HIGH			

Legend

Vulnerability	low	medium	high
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Risk analysis is based on vulnerability analysis and focuses on identifying risks and opportunities associated with medium or high vulnerability.

This consists of analyzing the probability and magnitude of the consequences of the effects associated with the risk of situations identified in the vulnerability assessment, while analyzing the significance of the risk to the success of the project. The risk analysis matrix used is presented in detail in the following table

Risk classification matrix (general classification framework)

				Impacts, I				
				Insignificant 1	Minor 2	Moderate 3	Significant 4	Catastrophic 5
Probability, L	5	Almost certain	95	5	10	15	20	25
	4	Probably	80	4	8	12	16	20
	3	Moderate	50	3	6	9	12	15
	2	Unlikely	20	2	4	6	8	10
	1	Rarely	5	1	2	3	4	5
Risk level				Low	Medium	High	Extreme	

The sensitivity of the IP to climate change is analyzed in relation to a set of key climate factors that have been selected based on the specific requirements of the IP, as well as taking into account the characteristics of the area where the project will be implemented, namely: extreme precipitation, extremely high temperatures, drought and forest fires, local erosion and landslides in the facilities.

This approach is also in line with the main guidelines of the EC Guidance on integrating climate change and biodiversity into EIA, 2013, including with regard to possible scenarios for sensitivity, exposure, and vulnerability of the project.

The specific hazards for the IP can be summarised as follows:

Extreme precipitation, torrential rains, and flooding of facilities

Intense short-term rainfall and torrential rains pose a significant risk to the open pit mine, spoil heaps (overburden) and tailings storage facility. Extreme amounts of rain in a short period of time can result in the following:

- *Flooding of the open pit mine and facilities:* A sharp increase in surface runoff can lead to the filling of mine pits with water, erosion of slopes, and difficult access/evacuation. Without adequate drainage, there is a risk of temporary interruption of mining and damage to equipment.
- *Overflow and failure of the SMO:* In the event of extreme rainfall exceeding the design parameters, the capacity of the facility may be exceeded. There is a risk of overflow through the wall or emergency spillway, which will carry the water into the contact water reservoir.
- *Undermining and landslides:* Heavy surface runoff on open embankments (open pits, embankments) can lead to erosion at the base and instability of the slopes. Extreme water flows can cause

material landslides, especially if no retaining terraces or drainage ditches have been constructed.

- *Damage to infrastructure:* Mine roads, open trenches, pipelines, and other ancillary facilities are vulnerable to torrents—pavements may be washed away, sewers may be filled with sediment, and the foundations of structures may be compromised.

Extreme heat and drought

Prolonged periods without rainfall (droughts), combined with extremely high summer temperatures, have the following potential impacts on the project:

- *Water shortage for technological needs:* The enrichment process (flotation) requires a constant supply of process water. During prolonged droughts, the flow rate of water sources (river flow, groundwater) may decrease, compromising the factory's water supply. In an extreme scenario—completely dried-up surface water sources—production will have to be restricted or temporarily halted if there is not enough water in the reservoirs or no other backup water sources.
- *Increased dust:* Dry climatic conditions lead to the drying out of open surfaces – embankments, roads, exposed mine sites – and to the generation of more dust during operation and movement of machinery. The lack of moisture in the soil increases the tendency for dust to be carried by the wind and when machinery passes by. This creates a risk of exceeding dust concentrations (PM₁₀/PM_{2.5}) in the air, especially in combination with wind. Droughts and heat waves can also worsen local air quality by trapping pollutants – for example, in conditions of stagnant air masses or temperature inversions during anticyclonic weather, polluted dusty air is more difficult to disperse.
- *Risk to workers' health and safety:* Extremely high temperatures (e.g., above 35–40°C during the day) worsen outdoor working conditions – increased risk of heatstroke, dehydration, and reduced work capacity. Miners and operators of heavy equipment outdoors are particularly vulnerable. Drought also increases the likelihood of dust in the workplace, which, combined with the heat, can cause respiratory discomfort.
- *Deterioration of vegetation and recultivated areas:* Prolonged dry periods hinder the growth of any compensatory afforestation or grassing on recultivated embankments and SMOs. This reduces the resistance of the terrain to erosion (the lack of vegetation cover leaves it unprotected) and potentially prolongs the period of full ecological recovery after closure.

Forest fires

Higher temperatures and longer dry periods during the summer lead to a higher risk of forest and field fires. In the project area (southeastern Bulgaria, near the Eastern Rhodopes), summer fires are not uncommon. The project's vulnerability to fires is expressed in the following:

- *Direct impact on the site from an external fire:* If a large forest fire breaks out in the neighboring forest areas (e.g., during a dry August), it can spread to the mining infrastructure—buildings, facilities, fuel and chemical storage facilities. The most vulnerable areas are open storage areas, rubber conveyor belts, power lines, vehicles, and other fire-prone elements. A fire in the chemical storage area would be particularly critical.
- *Internal fires in plantations and dry slopes:* Open embankments, dry vegetation on reclaimed land or along roads can also ignite from a flying spark, unextinguished fire or accident (e.g. a machine catching fire). In dry and hot weather, a small ignition can turn into an uncontrollable fire covering part of the production site.
- *Smoke and air quality:* Even without direct damage, a large forest fire nearby will cause smoke to fill the area and pollute the air with fine dust particles (soot) and toxic gases. This would require evacuation or suspension of work until the situation is brought under control in order to protect the health of workers.
- *Secondary effects:* After a fire on deforested slopes, local erosion increases with subsequent rains (the soil loses its stability without vegetation). Thus, fires indirectly increase the risk of landslides and floods in the future concession area.

Local erosion and landslides at the site

Soil erosion and landslide processes in the site area may be exacerbated by climate change, especially in the mountainous and hilly terrain of the mining site. The combination of more intense rainfall (torrential rains) and loss of vegetation (due to drought or human intervention) leads to the following vulnerabilities:

- *Surface erosion of embankments and exposed areas:* Heavy rains can wash away the surface layer of exposed embankments, especially in the absence of protective vegetation or geotextiles. Erosion furrows are formed, which weaken the integrity of the slopes. This not only wastes material and disrupts the landscape, but can also lead to turbidity in reservoirs.
- *Undermining of facility foundations:* Prolonged rainfall, especially after a drought (when the soil is compacted and does not absorb water), causes significant surface runoff. If the drainage system cannot cope, the water can undermine embankments (e.g., at SMOs) or the foundations of retaining walls, causing subsidence and potential breaches.
- *Landslides and rockfalls:* The sudden change from drought to heavy rain poses a risk – dry and cracked earth quickly absorbs water, becomes heavy, and loses strength. This increases the likelihood of landslide processes on the steep slopes of the mine or on embankments, especially if the geological conditions are predisposed (clay, loess, etc.). A landslide could bury part of the mine or damage infrastructure (roads, buildings).
- *Wind erosion during dry periods:* In addition to water erosion, embankments are also exposed to deflation (the removal of material by wind) during dry weather. This is a form of

erosion which, although slow, leads to loss of topsoil and dust emissions. It is most commonly observed on unsealed dry surfaces (e.g., open strata with mining waste).

Assessment of the vulnerability of the IP to climate change

Main risks	Sensitivity	Exposure		Vulnerability	Risk analysis
		Current	Future		
Extreme rainfall, torrential rains and floods in facilities Floods can be: - torrential - from intense rainfall (with a rare recurrence interval of over 60–80 l.m ²), which are due to the large amount of water that fell on the earth's surface, insufficient throughput capacity of drainage facilities. They can cause significant damage to the site: water can undermine the foundations of the facilities and slopes, causing damage to engineering structures, including flooding of the open pit mine and facilities, overflow and failure of SMO, damage to mining infrastructure.	average	low	average	average	Slight probable 20%, given all included technical decisions
Extreme heat and drought Extremely positive temperatures are defined as outdoor air temperatures above + 35°C. It is also important to the duration of the effects of high temperature. The combination of high temperature and strong sunshine can lead to: a shortage of water for technological needs, which would limit or halt, albeit temporarily, production; increased dusting and, in this regard, a risk to health and safety of workers; deterioration of the condition of vegetation and recultivated areas.	average	low	medium	medium	A little probable 20%, given all the duration of technical decisions
Forest fires Higher temperatures and more long dry periods during the summer leading to a higher risk of forest and field fires, which may yes: directly affect the object; cause internal fires in plantations and dry slopes; worsen local air quality; to exert secondary effects, manifested in the occurrence of local erosion during subsequent rainfall.	average	low	medium	medium	Low likely 20%, take adequate measures for fire prevention protection

Main risks	Sensitivity	Exposure		Vulnerability	Risk analysis
		Current	Future		
Local erosion and landslides at the site Soil erosion and landslide processes in the area may intensify under the impact of climate change. The combination of more intense rainfall (torrential rain) and loss of vegetation due to drought can lead to: surface erosion of embankments and exposed areas; undermining of the foundations of structures; the occurrence of local landslides and rockfalls, and wind erosion during dry periods.	low	low	low	low	Rare 5%
Key vulnerabilities to the identified climate hazards: - Poor condition and preparedness of infrastructure: poorly maintained infrastructure; unpreparedness of the human factor, which causes high vulnerability. These assumptions are irrelevant to the IP, given its characteristics, the specific purpose of the facility, and the obligations to ensure the safety of workers and equipment	low	low	low	low	Rare 5%
The main risks for managed systems: risks to infrastructure and facilities, material damage, improper operation, and low level or insufficient quality of management. The IP has a high level of system management and these risks are not present.	low	low	low	low	Rare 5%
Risks to natural systems and biodiversity could be identified, given the location of the site and the main risks to which it is exposed, as listed above.	Medium	low	Medium	Medium	Unlikely 20%, if all planned preventive measures are implemented

Summary of the analysis results

Sensitivity: The facility includes components that may be affected by climate change/risks in a certain way. The IP has a medium sensitivity to impacts on assets and processes related to the location of project components and climate factors: extreme precipitation, extreme positive temperatures, droughts, and forest fires, which could also lead to risks to natural systems and biodiversity. Sensitivity is low in relation to local erosion processes.

Exposure: the location of the IP is in an area where the climate risk factors discussed above are identified as unlikely and of low intensity, with the exception of extreme precipitation, extremely high temperatures, and droughts. Summers are characterized by scarce rainfall, very high extreme temperatures, average July temperatures between 23 and 25°C, and many sunny days. It is precisely the influx of hot tropical air masses that causes periods of drought, which would also pose risks to natural systems and biodiversity around the IP.

Vulnerability: The project has a medium level of vulnerability to the relevant climate risk factors: extreme rainfall, extreme positive temperatures, droughts, and forest fires, given its exposure, the nature and protection of the facilities, the current climate data for the area, and the forecasts for the period up to 2100. The vulnerability is medium, given the potential risks to natural systems and biodiversity.

Risk assessment: According to climate change projections in Bulgaria, the average annual air temperature is expected to increase between 1.6°C and 3.1°C by 2050, with the expected temperature increase being more significant during the summer season (July to September). The matrix approach to project assessment applied above shows an average risk, with a low probability of 20%, on the basis of which **measures for adaptation to the identified climate risks** should be proposed.

In response to the identified risks, the project provides for a package of engineering, technical, and organizational measures aimed at increasing resilience to climate change. These measures are in line with national adaptation priorities (improving infrastructure resilience, protecting natural resources and health) and with the European Adaptation Strategy (for "smarter, faster and more systematic adaptation" to climate change) and are as follows:

Measures for extreme rainfall and flooding:

- **Expanded drainage systems and drainage:** Sustainable drainage channels, shafts, and slopes for rapid removal of surface water from critical areas (mines, embankments) are already included in the design stage. The dimensions of the drainage facilities are designed for a higher frequency of so-called **rainfall with a recurrence interval of 1% (100-year rain)**, with an allowance for climate trends (e.g., +20% intensity). Systems of ditches are provided around the top of the slopes to divert storm water away from the mine walls and embankments. Internal drainage systems are being built along the horizons of the open-pit mine to carry water to pumping points. The pumping stations have reserve capacity for extreme situations and redundant power supplies.
- **Reserve free volume and control in the SMO:** The facility is designed with increased **free volume (freeboard)** above the maximum operating level to accommodate extraordinary inflows during heavy rainfall. **An overflow/discharge channel** is designed for emergency discharge of water to the water reservoirs, with a capacity exceeding the historically maximum storm runoff. The SMO wall is constructed with

a safety factor that takes into account the potential for slurry formation when wet. During operation, precipitation and the level in the basin will be monitored; if extreme rainfall is forecast, the level will be lowered in advance (controlled discharge of water to the reservoirs) in order to free up additional buffer volume.

- **Reinforcement and terracing of embankments:** The embankment dumps are designed in terraces (step-like) with a specified maximum slope height and berms that interrupt runoff and reduce the energy of the water. Anti-erosion mats or geogrids are laid on the slopes to retain the surface layer. Drainage pipes are installed in the steepest areas for internal drainage to prevent the accumulation of pore water. Around the perimeter of the embankments, ditches are dug again to catch the water before it reaches the slope. After the embankments have been formed, technological recultivation (covering with humus and grassing) will be carried out as quickly as possible to minimize bare soil surfaces susceptible to erosion.
- **Flood emergency response plan:** An internal plan is being developed to regulate the steps to be taken in the event of a forecast or occurrence of extreme rainfall. It includes: prior shutdown and securing of electrical equipment in the mine, moving equipment to high places, readiness of emergency pumps and teams; maintaining constant contact with the National Institute of Meteorology and Hydrology for weather warnings (hazard codes). In the event of potential overflow in the SMO, controlled discharge through emergency drains to the reservoirs to prevent wall rupture. Training scenarios are conducted at least once a year.

The above measures aim to make the facility "**climate-proof**" for extreme rainfall, in line with the principles of "**infrastructure resilience**" set out in both the national adaptation strategy and the European strategy (requirement for *climate-proofing* of new projects).

Measures during droughts and heat waves

- **Provision of backup water sources and capacity:** To mitigate the risk of water shortages, the project envisages the construction of a **backup reservoir (tank)** on site to store water during the wet season (winter/spring runoff) and provide it during summer droughts. The reservoir is sized to ensure at least 1-2 months of autonomous operation of the factory. In addition, the possibility of an alternative water source is being explored – for example, a borehole or water supply from existing water infrastructure – to be used in exceptional circumstances. Water recycling within the process is also a key measure: the maximum proportion of water from the SMO will be recirculated (over 70–80%), thus reducing dependence on fresh water supplies.
- **Dust suppression and management:** During dry and windy periods, enhanced measures will be implemented to limit dust emissions. This includes **regular watering** of technological roads and stockpiles with water sprinklers (water trucks) – with increased frequency during droughts. Where practical, **alternative dust suppression agents** will be used, such as biodegradable binding agents or hygroscopic salts to retain moisture in the surface layer

layer and reduce dust emissions. **Dust collection installations** (bag filters, aspiration) are provided on the conveyor belts and vibrating mills in the enrichment plant, which will operate effectively even in a dry atmosphere. Controlling the speed of trucks on dirt roads (e.g., limiting it to 30 km/h) is also a measure to reduce dust emissions.

- **Heat protection and working conditions:** To protect staff during hot weather, adaptive working conditions will be introduced, e.g., avoiding heavy physical activity in the open pit during the peak afternoon hours. A schedule with early morning and late afternoon shifts will be implemented on days with a forecast >35°C. Workers are provided with **cooled rest areas/rooms**, sufficient water for hydration, and personal protective equipment against the sun (hats, light breathable clothing). They are instructed to recognize the symptoms of heat stress. A medical station will be equipped for emergency assistance in case of heatstroke. Heavy equipment (dump trucks, excavators) is equipped with air conditioning, which also reduces the risk to operators.
- **Fire prevention:** During dry periods when the risk of fire is high (e.g., when a "code red" forest fire warning has been issued), additional precautions are taken: all open fires are prohibited, welding or other hot work outdoors is restricted, and fire watch duties are assigned. **Firebreaks** are created around the perimeter of the site (where there are forests) – areas cleared of vegetation with a width of ~10 m, which serve as a barrier against possible ground fires. Fire hydrants and reservoirs on site are checked regularly, especially before the summer season. Staff are trained in how to respond to forest fires (evacuation routes, use of fire extinguishers, etc.). These measures are closely related to the topic of fire safety, which is discussed in detail in the next section.

Through the above measures, the project aims to ensure *production sustainability* even in extreme drought and heat conditions, in line with the principles of the national Action Plan for Adaptation, which emphasizes the importance of business continuity in conditions of climate stress.

Fire protection measures

- **Firebreaks and buffer zones:** As mentioned, there will be deforested and plowed strips around critical facilities (chemical storage, transformer station) that are free of dry vegetation to stop advancing fires. In the SMO, after the end of operation, sustainable afforestation with species less susceptible to fire, such as green buffers, is planned.
- **Fire monitoring and early warning:** The company will maintain contact with the regional directorate "Fire Safety and Civil Protection" (FSCP) and forestry administrations to exchange information in case of increased fire danger. The possibility of installing **thermal cameras or smoke sensors** at high points (e.g., observation towers or pylons) to detect signs of fire in the surrounding landscape in real time is being considered. If smoke/fire is detected, the notification and extinguishing plan will be activated immediately.

- **Firefighting equipment and training:** The site will have its own primary firefighting resources: fire trucks or tankers equipped with pumps; portable motorized sprayers; firefighting tools (shovels, brush beaters). There will be large-capacity fire extinguishers at key locations. Staff undergo annual fire response training, including evacuation and initial firefighting simulations. Backup power is provided to water pumping stations so they can operate during a fire (when power outages are common).
- **Forest fire plan:** A detailed emergency plan will be developed with procedures in case of a forest fire in the vicinity. It will include evacuation criteria – for example, if the fire reaches a distance of less than 1 km and there are strong winds towards the site, all employees who are not involved in firefighting will be evacuated to a safe place (a pre-determined assembly point). The plan will outline coordination actions with local authorities: providing information on hazardous substances present at the site that could react in a fire; readiness to assist professional firefighting teams with equipment (bulldozers for clearing firebreaks, water tanks).

These measures follow national fire safety regulations and the recommendations of the European Adaptation Strategy, which calls for *the integration of climate risks such as fires into site management*. The aim is to minimize damage and ensure that even in extreme fire situations, the impact on the project and the environment will be limited.

Measures against erosion and landslides

- **Engineering-geological studies and reinforcement:** Before the start of excavation works, detailed engineering-geological studies were carried out to identify potential landslide areas. In areas of identified instability (e.g., deep clay layers), preventive measures are being taken—building retaining walls or anchoring the slopes with steel rods and geogrids. This will make the mine slopes more stable in case of over-wetting. The slopes of the open-pit mine are designed with gentle inclines and intermediate berms to ensure stability when saturated with water.
- **Rapid recultivation and bioengineering measures:** Immediately after forming a slope or embankment where no further activities are planned, technogenic recultivation is carried out—i.e., covering with a layer of soil *and grassing/afforestation with deep-rooted plant species*. The vegetation acts as a natural anti-erosion shield – the roots stabilize the soil, and the above-ground biomass reduces the force of falling drops and wind erosion. Local drought-resistant grasses and shrubs will be used to quickly colonize the terrain. In areas with a high risk of erosion, hydroseeding can be used – spraying seeds, mulch, and adhesive under pressure onto the slope, which ensures rapid grassing.
- **Runoff control and sediment capture:** Again, water management is key – in addition to drainage, *sedimentation basins* (small reservoirs) are built around the perimeter of the areas with fill material to capture the sediment carried away

sediment carried away by heavy rain. The two water reservoirs prevent eroded fill material from entering nearby rivers. These facilities retain the sediments, and the deposited material can later be returned. The degree of filling of the sedimentation basins is constantly monitored and cleaned when necessary.

- **Slope monitoring:** This includes regular inspections and instrumental monitoring (e.g., prismatic reflectors and tachymeters measuring micro-movements) of the most critical slopes—the SMO wall, large embankments, and high mine walls. If a trend of subsidence or cracks is detected, additional reinforcement measures are taken immediately (e.g., unloading mass from the top, drainage through horizontal drains, construction of support berms at the base). The early warning system for landslides will allow for the evacuation of equipment and personnel from the endangered area and timely stabilization.

Through these measures, the project aims to minimize long-term geotechnical risks. This is in line with the requirements of **Regulation No. RD-02-20-1 (2012)** on design in geodynamic processes (landslides) and with the recommendations of the Ministry of Environment and Water for the integration of climate factors in the spatial planning of industrial sites. This approach also follows the European priority for

"nature-based solutions" (measures based on nature), as it makes maximum use of natural stabilizing agents such as vegetation.

Other organizational measures

Along with specific technical solutions, the following is envisaged at the organizational level: inclusion of **a section on "Climate Risks"** in the company's Risk Management Plan; annual review and update of adaptation measures in line with the latest climate data; training of management staff in *adaptive management* – i.e. flexible planning of production according to seasonal forecasts (e.g. increasing production during cooler/wetter periods and reducing it during periods of climate stress). This is in line with the objective of

"building institutional capacity for adaptation" in the national strategy.

With the above measures, the IP for ore extraction and processing at the Rosino deposit, Tintyava area, fits into the strategic framework for adaptation: it reduces its vulnerability and improves its preparedness for the inevitable consequences of climate change. This also ensures that the project's contribution to the local economy will be sustainable even in a changing environment.

Calculation of greenhouse gas emissions from the IP

The calculations are presented in detail in section V.1, with the final results presented here:

Calculation of greenhouse gas emissions from industrial equipment:

Greenhouse gas emissions can be calculated based on the relative fuel consumption for ore discovery/extraction. With a relative fuel consumption of $3.75 \text{ dm}^3/\text{t}$ of raw material/excavation, it can be calculated that the maximum total fuel consumption of industrial equipment at the Rosino deposit will be up to $16,256 \text{ t/y}$. The maximum greenhouse gas emissions can be calculated as follows:

- 51.4 t/y CO₂ emissions;
- 2.2 t/y emissions of N₂O or 654 t/y CO_{2eq};
- 1.3 t/y emissions of CH₄ or 34 t/y CO_{2eq}.

Calculation of greenhouse gas emissions from blasting rock:

Greenhouse gas emissions can be calculated based on the relative CO₂ emission value for 1 t of explosive – 176 kg/t CO₂. Using a maximum of 727,200 kg of explosive per year will result in up to 128 t/y of CO₂ emissions.

Calculation of greenhouse gas emissions from transport activities:

Greenhouse gas emissions can be calculated using the following emission factors:

- for CO₂ - 3181.89 g/kg;
- for N₂O - 0.07 g/kg;
- for CH₄ - 0.21 g/kg;

With fuel consumption of 216.8 g/km and a maximum mileage of up to 480,000 km/y from the mine to the dump (road length ≈ 4.0 km) and 96,546 km/y from the mine to the processing plant (road length ≈ 1.5 km), the following greenhouse gas emission values are obtained:

- 398 t/y CO₂ emissions;
- 0.07 t/y N₂O emissions or 2.6 t/y CO_{2eq};
- 0.21 t/y CH₄ emissions or 0.7 t/y CO_{2eq}.

6.7. Technologies and substances used

The Rosino deposit will be developed using open-pit mining methods and explosives. Specialized mining equipment will be used for this purpose, including excavators, bulldozers, dump trucks, etc.

Blasting will be carried out by a specialized company, which will deliver the explosives immediately before blasting.

The soil layer and overburden will be removed and deposited in the appropriate soil and overburden dumps, and will be used in the recultivation of the worked areas.

Hazardous chemicals, preparations, and products, as well as diesel fuel for the equipment used, will be used in the OF. Their use will be in accordance with safety standards.

A technology for compacting and dewatering flotation waste has been selected in order to reduce the impact.

The recultivation activities will use almost the same equipment as at the beginning of the development.

VII. DESCRIPTION OF THE AVAILABLE RESULTS OF OTHER RELEVANT ASSESSMENTS UNDER NATIONAL LEGISLATION, RELATED TO THE INVESTMENT PROPOSAL AND PREPARED PRIOR TO THE EIA REPORT

For the Comprehensive Working Project (CWP) for the exploration and prospecting of metal minerals in the Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region and the municipality of Krumovgrad, Kardzhali region, in 2017, a notification was submitted in accordance with the Ordinance on the conditions and procedure for assessing the compatibility of plans, programs, projects, and investment proposals with the subject and objectives of the protection of protected areas (the Ordinance on the Environment). In response, the Ministry of Environment and Water in letter ref. No. NSP-93/30.05.2017 stated that the CRP is not subject to the procedure under Chapter Six of the Environmental Protection Act, but falls within the scope of Article 2, paragraph 2 of the Ordinance on the Compatibility Assessment. Since the area affects two protected areas – "Bjala Reka" and "Rhodopes - East" – a procedure was carried out under Chapter Two of the Ordinance on Environmental Protection and Decision No. 09-OS/2017 was issued, approving the CRP.

It should be noted that the exploration area is significantly larger than the area of the assessed IP. The Tintyava study area covers 52,900 decares, while the IP area covers 2,753 decares, of which 1,179 decares will be disturbed.

To date, no other assessments have been carried out under national legislation prior to the current one for this investment proposal.

The following documents, completed and signed by the persons who prepared them, are attached to the EIA:

1. Text Appendix No. 10 Hydrological assessment of the outflow in the Biala River and its tributary Arpa Dere
2. Text Appendix No. 11 Water management
3. Text Appendix No. 12 Test blasting report
4. Text Appendix No. 16: Hydrogeological assessment.

The conclusions of the above-listed documents contain answers to a number of questions and are included in this report.

VIII. DESCRIPTION OF THE FORECASTING METHODS OR DATA USED TO DETERMINE AND PREPARE THE ASSESSMENT OF SIGNIFICANT ENVIRONMENTAL IMPACTS, INCLUDING DETAILS OF THE DIFFICULTIES (E.G. TECHNICAL DEFICIENCIES OR LACK OF KNOW-HOW) ENCOUNTERED BY THE INVESTMENT PROPOSAL CONTRACTOR WHEN GATHERING THE NECESSARY INFORMATION, AND THE MAIN ELEMENTS OF UNCERTAINTY

Laws, regulations, methodologies, methodological guidelines, instructions, orders, decrees, rules, strategies, plans, programs, and literature used

in the preparation of the EIA

General

- The Environmental Protection Act (EPA), published in State Gazette No. 91 of 25 September 2002 and subsequent amendments)
- Regulation on the conditions and procedure for conducting an EIA (published in State Gazette No. 25 of 18 March 2003, as amended)
- European Commission guidance on EIA procedures at the EIA report stage for investment proposals

- EC guidance on integrating climate change and biodiversity into EIA, 2013
- European Commission Guidance on "Guidelines for the assessment of indirect and cumulative impacts and interactions of impacts," May 1999.

Atmospheric air

- Clean Air Act - published in State Gazette 45/1996, last amended in State Gazette 41/2024.
- Ordinance No. 7 of May 3, 1999, on the assessment and management of atmospheric air quality (issued by the Ministry of Environment and Water and the Ministry of Health, published in State Gazette No. 45 of May 14, 1999, effective as of January 1, 2000/
- Regulation No. 12 of July 15, 2010 on standards for sulfur dioxide, nitrogen dioxide, fine particulate matter, lead, benzene, carbon monoxide, and ozone in ambient air - Published in State Gazette No. 58 of 2010, last amended and supplemented in State Gazette No. 79 of 2019.

Methods used:

- Methodology of the European Environment Agency (EEA) developed under the European Monitoring and Evaluation Program (EMEP) to the Convention on Long-range Transboundary Air Pollution, 2023 - *NFR Category 2.A.5.a; NFR sector - 1.A.2.g.vii*
- Emissions Factors & AP-42, 8.19.2 Crushed stone processing, 1994;
- Emissions Factors & AP 42, 13.2.4 Aggregate Handling And Storage Piles
- Methodology for determining the dispersion of harmful emissions from vehicles and their concentration in the ground-level atmospheric layer

Water

- Water Act (published in State Gazette No. 67 of July 27, 1999, and last amended in State Gazette No. 79 of September 17, 2024);
- Ordinance No. 1 of October 10, 2007, on the study, use, and protection of groundwater (published in State Gazette No. 87/2007, last amended and supplemented in State Gazette No. 102 of December 23, 2016);
- Ordinance No. 3 of October 16, 2000, on the conditions and procedures for the study, design, approval, and operation of sanitary protection zones around water sources and facilities for drinking water supply and around mineral water sources used for therapeutic, preventive, drinking, and hygiene purposes (published in State Gazette No. 88 of October 27, 2000).
- Regulation No. H-4 of 14.09.2012 on the characterization of surface waters, Issued by the Minister of Environment and Water, published in State Gazette No. 22 of 5 March 2013, effective as of 5 March 2013, last amended and supplemented No. 67 of 4 August 2023, effective as of 4 August 2023.
- Regulation on Environmental Quality Standards for Priority Substances and Certain Other Pollutants, adopted by Council of Ministers Decree No. 256 of 1 November 2010, published in State Gazette No. 88 of 9 November 2010, effective as of 9 November 2010, last amended and supplemented, No. 97 of 11.12.2015, in force since 11.12.2015.

Subsurface

- Law on Underground Resources (published in State Gazette No. 23 of March 12, 1999);
- Regulation on the Management of Mining Waste (published in State Gazette No. 5/2016);

Soils

- Soil Act (published in State Gazette No. 89/06.11.2007, as amended)
- Forestry Act (published in State Gazette No. 19 of 8 March 2011, as amended)
- Agricultural Land Protection Act (published in State Gazette No. 35/1996, as amended)
- Regulations for the Implementation of the Agricultural Land Protection Act (published in State Gazette No. 84/1996, as amended)
- Ordinance No. 3/01.08.2008 on standards for the permissible content of harmful substances in soils (State Gazette No. 71/2008)
- Ordinance No. 26/02.10.1996 on the recultivation of disturbed land, improvement of low-yielding land, removal and utilization of topsoil (State Gazette No. 89/1996, amended and supplemented by State Gazette No. 30/2002)
- Regulation on the categorization of agricultural land when changing its intended use, State Gazette No. 90 of 24.10.1996, last amended and supplemented, State Gazette No. 55/2017
- Regulation No. 4/12.01.2009 on soil monitoring. Published State Gazette No. 19/13.03.2009

Landscape

- European Landscape Convention (Ratified by Law on October 13, 2004; Published in State Gazette No. 94 of 2004; in force since March 1, 2005).
- Regional landscape zoning of the country. Geography of Bulgaria. Monograph. BAS. Sofia. 1996
- Typological landscape zoning of the country. Geography of Bulgaria. BAS. Sofia. 1996

Biological diversity Methodology

Field studies of plant habitats and plant and animal species was carried out in May 2017, August and September 2018, May, June, and July 2019, and June 2022. Data from our other studies and observations in this part of the Eastern Rhodopes, from August 2014, July and September 2016, April, May, and June 2018, July 2020, March and May 2022, and March 2025, were also used.

The study area (SA) was defined as a 110 m buffer around all elements of the investment proposal (IP) plus a 700 m buffer around the two mines. At this distance, we expect the maximum impact of disturbance on more sensitive species – birds of prey, black storks, large mammals, as a result of the presence of machinery and people during construction and operation, as well as a result of drilling and blasting during operation. The entire area of the individual elements of the IP plus small areas remaining closed between them, in particular between the individual elements and the access roads to them, is considered to be affected.

The initial mapping of habitats in the study area was performed using remote sensing methods (Brainerd et al 2006). Using QGIS Desktop 3.4 Madeira (WGS 84/UTM 35N coordinate system), the study area was delineated around the boundaries of the IP (see above). Based on visual interpretation of satellite images (Google Earth, 5.2.1.1588) and data from the project "Mapping and determining

the conservation status of natural habitats and species - phase I" (MOEW 2022) as a reference, polygons with homogeneous habitats were manually delineated in a GIS environment (Quantum GIS 2.14.8-Essen). The principles and methods of this mapping are based on the CORINE land cover methodology (Commission of the European Communities 1994). During the fieldwork, the pre-outlined polygons within the buffer zone were verified. Subsequently, the necessary corrections were made and the habitats were classified according to EUNIS (Davies et al. 2004).

During the fieldwork, descriptions of characteristic sites were made in order to obtain the most complete picture possible of the existing habitats in the study area. The route method was used to describe the identified communities. The geobotanical descriptions use species names according to Kozhuharov (1992) and Asyov et al. (2012), and the plant species assessments are according to the five-point Braun-Blanquet scale (Guinochet 1973). The "Guide for the Identification of Habitats of European Importance in Bulgaria" (Kavrakova et al. 2009) was used to identify habitats of conservation importance.

Conservation-significant plant species (listed in the appendices of the Red Data Book of Bulgaria or the Biodiversity Act) were identified using the route method.

Invertebrates were studied using the standard pitfall trap method, which involves plastic containers with a capacity of 500 ml, half-filled with a supersaturated solution of acetic acid and salt, buried to the level of the substrate. Flying and other species not caught in the traps were observed directly while walking through the areas. The suitability of certain habitats for specific species was also assessed.

The field study of amphibians, reptiles, and mammals was carried out using the route method—the researcher walked at a moderate pace, observing the terrain on both sides. Specific microhabitats—e.g., piles of stones, puddles, and fountain troughs—were studied in more detail. Individuals found or traces of their activity (footprints, excrement, shelters, etc.) were recorded using GPS devices.

The route method and stationary observations were used in the study of the avifauna. When moving along the route, the time of observation of individual birds was recorded (with an accuracy of several minutes). This makes it possible to determine their approximate location based on data from the GPS device track. Birds were identified through direct visual observations and acoustically by their species-specific sounds. Binoculars with 10x50 magnification and a 20-60x80 spotting scope were used for visual observations.

The assessment of the project's impact on bats is based on our own field studies conducted on September 14-16, 2018, May 24-28, 2019, and June 20-25, 2019, covering the migration period of some species, shelter occupation, and rearing of young, as well as on available literature and archival information on the presence of bats in the area. Benda et al. (2003) also summarize the available information on bats in the area. During the field studies, the suitability of potential bat habitats within the scope of the IP and IR was verified. The choice of methodology for field work and analysis of results in this study is in line with the recommendations of EUROBATS and the Swedish National Energy Administration (Ahlen 2003, Rodrigues et al. 2008, Petrov 2008). The methodology and approach for field research described below have been applied repeatedly in field studies on bats in the Republic of Bulgaria.

A specific method for assessing the species composition and activity of bats during the above-mentioned studies was the registration and analysis of echolocation and social ultrasounds using a Transect Tranquility detector. The recordings obtained were analyzed using the specialized software BatSound 3.1 for Windows, taking into account the following basic sound parameters: duration of

individual sounds (ms), time interval between successive sounds (ms), sound frequency with maximum energy (kHz), highest and lowest frequency (kHz), and the specific shape of the sonogram. Recordings with the Detector are made within 1 hour after sunset for an interval of 180 min. during the dark part of the day when bats are active. The recordings are made at three operating frequencies and in the range of 30-120 Hz. GPS devices combined with portable computers are used to identify the geographical location of the points at which the measurements are taken. The map of the area was obtained via an internet connection to Google Earth, which provides real-time access to a three-dimensional model of the Earth with detailed satellite images of every point on the Earth's surface.

Standard ornithological nets measuring 6 and 12 meters were also used, and hollows were checked with an endoscope in old and dead trees with available cracks, open bark, and hollows. The study was conducted using a transect and point method for a multi-species study "from point and in motion" ("walk and spot counts").

The calculations and analyses of the impacts on natural habitats and species subject to protection in the areas (affected areas, distances, mortality risk, probability of disturbance) were performed in a GIS environment (QGIS Desktop 3.4 Madeira, Google Earth Pro 7.3.6.10201) based on our mapping and data from the project "Mapping and determining the conservation status of natural habitats and species - phase I" (MOEW 2022), provided by the Ministry of Environment and Water under the Access to Public Information Act.

Regulatory documents

- Biological Diversity Act (published in State Gazette No. 77 of 9 August 2002, as amended);
- Protected Areas Act (published in State Gazette No. 133 of 11.11.1998 and subsequent amendments);
- Guidance document "Extraction of mineral resources for non-energy purposes and Natura 2000", EC, 2010.

Health risk

- Health Act;
- Health and Safety at Work Act;
- Disaster Protection Act;
- Regulation No. 5 on the order, manner, and frequency of risk assessment;
- Regulation No. 7 on the minimum requirements for healthy and safe working conditions at workplaces and when using work equipment;
- Regulation No. 15 on the conditions, procedure, and requirements for the development and introduction of physiological work and rest regimes during work;
- Regulation on the determination of the types of work for which reduced working hours are established;
- Regulation No. 3 on mandatory preliminary and periodic medical examinations of workers;
- Regulation No. 2 on the minimum requirements for safe working conditions when performing construction and installation works;
- Regulation No. 6 on the minimum requirements for ensuring the health and safety of workers at risk from exposure to noise;
- Regulation No. 3 on the minimum requirements for ensuring the health and safety of workers exposed to risks related to vibration exposure;

- Regulation No. 9 on the maximum permissible vibration levels in residential premises;
- Regulation No. 10 on the protection of workers from risks related to exposure to carcinogens, mutagens, or substances toxic to reproduction at work;
- Regulation No. 3 on the minimum requirements for the safety and health protection of workers when using personal protective equipment at work;
- Regulation No. RD-07-3 on minimum requirements for the microclimate at workplaces, including parameters such as temperature, humidity, and air velocity;
- Regulation No. 16 on physiological norms and rules for manual handling of loads;
- Regulation No. 6 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values of environmental noise indicators, the methods for assessing the values of noise indicators and the harmful effects of noise on the health of the population;
- The Ordinance on Radiation Protection in Activities with Materials with Increased Content of Natural Radionuclides.

Assessment methodology used:

The analyses and assessments of the current situation and the expected impact on the population, human health, and the health and hygiene aspects of the environment were carried out using the following methodological approach:

- 1) Consultations during the EIA procedure (at the stage of the Terms of Reference for the EIA) with the relevant competent authorities for the protection of human health and the health and hygiene aspects of the environment, and taking into account their requirements and recommendations when developing the EIA Report;
- 2) Determining the scope of the impact based on the project's projections, its location, the expected impacts on the environment (and in particular with regard to air, water, and harmful physical factors that are of greatest importance for underground resource extraction projects), including the use of information from EIA procedures for similar facilities that have already been approved/are in the process of implementation/have been put into operation;
- 3) Analysis of the current state of health and hygiene aspects of the environment within the scope of the IP's impact based on available data from official sources – NSI, NCPHA, RZI-Haskovo, Ivaylovgrad Municipality;
- 4) Identification of risk factors for the health of workers and the population;
- 5) Assessment of the expected health impacts in terms of nature, degree, significance, duration, frequency, and cumulative effect (on workers and the population) in accordance with the level of detail of the investment proposal;
- 6) Proposing measures to limit as much as possible the adverse effects of the implementation of the investment proposal on human health and the health and hygiene aspects of the environment;
- 7) Forming a conclusion on the admissibility of the investment proposal in relation to the applicable regulatory requirements and standards for the protection of human health.

Harmful physical factors

- Law on Protection against Environmental Noise (published in State Gazette No. 74/2005 and last amended in State Gazette No. 101/2020)
- Ordinance No. 6 of 26.06.2006 on environmental noise indicators, taking into account the degree of discomfort during different parts of the day, the limit values of environmental noise indicators, methods for assessing noise indicator values and the harmful effects of noise on public health (published in State Gazette No. 58/2006, last amended and supplemented in State Gazette No. 24/2022)
- Regulation on the essential requirements and conformity assessment of machinery and equipment operating outdoors with regard to the noise they emit into the air (published in State Gazette No. 11/2004, last amended and supplemented in State Gazette No. 87/2017)
- The Ordinance on Radiation Protection, adopted by Council of Ministers Decree No. 20 of 14 February 2018, as amended and supplemented.
- Regulation on radiation protection in activities involving materials with elevated levels of natural radionuclides.

Methods used:

- Methodology for determining the total sound power emitted into the environment by an industrial enterprise and determining the noise level at the point of impact
- Method for measuring noise from road traffic
- Assessment of noise from local and industrial sources in accordance with Annex No. 3a to Regulation No. 6 of 2006.

Waste

- Waste Management Act (published in State Gazette No. 86/30.09.2003 and subsequent amendments)
- Ordinance No. 2 on the classification of waste (published in State Gazette No. 44 of 25.05.2014 and subsequent amendments)

Hazardous substances

- Regulation (EC) No. 1272/2008 on classification, labeling, and packaging of substances and mixtures (CLP)

Cultural and historical heritage

- Cultural Heritage Act (published in State Gazette No. 19 of 13.03.2009 and subsequent amendments) and related subordinate legislation.

IX. DESCRIPTION OF THE MEASURES ENVISAGED TO AVOID, PREVENT, REDUCE AND, WHERE POSSIBLE – ELIMINATION OF THE ESTABLISHED SIGNIFICANT ADVERSE EFFECTS ON THE ENVIRONMENT AND HUMAN HEALTH, AND DESCRIPTION OF THE PROPOSED MONITORING MEASURES (FOR EXAMPLE, THE PREPARATION OF AN ANALYSIS AFTER THE IMPLEMENTATION OF THE INVESTMENT PROPOSAL),

EXPLAINING TO WHAT EXTENT THE SIGNIFICANT ADVERSE EFFECTS ON THE ENVIRONMENT AND HUMAN HEALTH WILL BE AVOIDED, PREVENTED, REDUCED OR ELIMINATED SIGNIFICANT ADVERSE EFFECTS ON THE ENVIRONMENT AND HUMAN HEALTH; THE DESCRIPTION SHOULD COVER BOTH THE CONSTRUCTION AND OPERATION STAGES AND CONTAIN A PLAN FOR THE IMPLEMENTATION OF THE MEASURES

In order to prevent, reduce and, where possible, eliminate the harmful effects on the environment and human health that are expected as a result of the implementation of the investment proposal, measures have been proposed by the team of independent experts preparing the EIA report, and the measures and requirements from the opinions received as a result of consultations on the report's terms of reference. If specific conditions arise during the operation of the deposit over time, other additional measures will be taken.

The activity of the site should be carried out under strict internal control with regard to environmental protection and safe working conditions, as well as active ongoing state control by the Regional Inspectorate of Environment and Water, the Regional Directorate of Internal Affairs, the Regional Health Inspectorate, and the Labor Inspectorate.

A mandatory condition for the operation of the site is the existence of a self-monitoring plan for environmental components and factors, the parameters of which will be agreed with the competent environmental authorities.

With regard *to the subsoil*, the following measure should be emphasized: - strict compliance with the plans for the development and recultivation of the affected areas for the duration of the concession and on an annual basis, as well as compliance with the Mine Waste Management Plan, after their approval by the competent authorities.

With regard *to the PVR*: The use of modern blasting systems allows each charge to be detonated with a separate/independent delay interval. This has a dual effect: on the one hand, the effect of millisecond (short-delay) sequential detonation of the charges is used for better fragmentation of the blasted rock mass, and on the other hand - minimal explosive-seismic stress on the environment by dispersing the energy of the explosion, by initiating the minimum possible mass of explosives in a delay interval.

Practical management of explosive-seismic parameters in the area of "Active explosive-seismic impact" zone is achieved by:

- charge mass
- charge construction
- performing contour blasting (at a distance of about 15 m from the non-working steps)
- the connection scheme of the boreholes in the blast field and the delay interval.

With the development of deep mining, working conditions are changing. In this regard, periodic control measurements with specialized equipment, updating of the mathematical dependencies determining the levels of side effects of blasting operations in the near and far zones of influence, and, if necessary, correction of the parameters of the PVR and taking of possible

additional control measures. It is important to note that a separate and individual PVR passport must be prepared for each specific blasting operation.

Additional recommendation to the PVR

It is recommended that measurements and expert analysis of the explosive-seismic impact be carried out in order to take measures in the design and implementation of technological blasting works to protect the stability of the non-working and working steps with the development of the mine in depth.

For all sites in the mine complex falling within the hazardous zone of impact of blasting works, the design and implementation of technological blasting works shall be carried out in accordance with the requirements of Chapter Six of the PBTWR: "Special Blasting Works".

Recommendations for non-ionizing radiation and radiation

For the purpose of preventive protection, in order to prevent contamination resulting from fluids and solid particles extracted from the earth's interior, which may contain natural radioactive isotopes such as Uranium-238, Thorium-232, Radium-226 and 228, Radon-222 (gas), the following risk prevention and management measures should be applied:

- Periodic monitoring and control of the radioactivity of mining waste.
- Use of protective equipment and safe technologies in mining, where the presence of naturally occurring radioactive isotopes such as Uranium-238, Thorium-232, Radium-226 and 228, Radon-222 (gas) has been proven.
- Strict treatment and storage of naturally occurring radioactive waste materials, if such materials are detected on the basis of periodic monitoring.
- Legal regulation by national and international bodies (e.g., IAEA – International Atomic Energy Agency) if the activity falls under this hypothesis. Pursuant to Article 7 of the REGULATION on radiation protection in activities involving materials with elevated levels of natural radionuclides An enterprise that intends to commence a specific activity under Article 1 shall submit to the Chairman of the NRA, two months prior to the commencement of the activity, information on the activity and the specific activities of the relevant materials and an assessment of the expected doses.

Table IX-1. Measures to prevent, reduce or, where possible, eliminate harmful effects on the environment

No.	Measures	Implementation period	Implementation results
ATMOSPHERIC AIR			
1.	Development of effective blasting technology with reduced toxic gas and dust emissions	Design	Limiting the release of toxic gases and adverse effects on the health of workers at the site

No.	Measures	Implementation period	Results of implementation
2.	Watering of internal and external transport routes in dry and windy weather	Construction and operation	Reduction of dust pollution in the area and soil protection
3.	Periodic watering of the terrain in loading and unloading areas	Construction and operation	Limiting of dust emissions in the lower atmosphere
4.	Development and approval of working instructions for the of loading and unloading work	Construction and operation	Limiting emissions of dust in the layer of the atmosphere
5.	Do not overload vehicles	Construction, operation and closure and recultivation	Limit of dust emissions in the lower atmosphere
6.	Use of technically sound mechanization, maintaining good technical condition of excavation, mining, processing and transport equipment	Construction, operation and closure and recultivation	Reduction of harmful emissions into the atmosphere. Protection of water and soil
7.	Prevent mining and transport equipment from idling	Construction, operation and closure and recultivation	Reduction of emissions from combustion engine gases
8.	Blasting activities shall be carried out when the wind is blowing in the appropriate direction – from the nearest populated area towards the mine	Operation	Ensuring the dispersion of gas and dust emissions in the opposite direction to the populated area. direction
9.	Use of protective coatings when performing blasting operations in the outer contour of the mine near populated areas	Operation	Limiting dust emissions when carrying out blasting activities
10.	Ensure and comply with the minimum height of the piles of extracted materials	Operation	Limiting of dust emissions in the lower atmosphere
WATER			
11.	Do not allow work under static water level of groundwater.	Operation	Prevent direct contamination of groundwater.

12.	Restriction of activities that increase the risk of direct or indirect discharge of hazardous substances or other pollutants into groundwater.	Construction, operation and closure and recultivation	Prevention of direct pollution of groundwater.
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No.	Measures	Implementation period	Results of implementation
13	Prevention of discharge of waste water, including domestic sewage, into surface waters and/or its discharge into groundwater.	Operation	Prevention of direct pollution of surface and groundwater.
14.	Use of serviceable construction and transport equipment within the concession area	Construction, operation and closure and recultivation	Prevention of surface and groundwater pollution.
15.	Prevent pollution of the Biala River and its tributaries, the Arpa Dere, Yulan Dere, and Kokardzha Dere, with construction materials and fuel and lubricants materials from transport equipment.	Construction and operation	Achievement of the objectives for BG3MA100R270 Biala River and its tributaries set out in the third RBMP - maintaining good ecological status and preventing deterioration.
16.	Prevention of storage of waste in areas with removed soil layer.	Construction	Prevention of groundwater pollution.
17.	Initiation of a procedure for issuing a permit/permits for water abstraction from the East Aegean Basin Directorate.	Construction	Compliance with the regulatory framework for water use and protection.
18.	Maintenance of the water supply network for clean and contact water, including the adjacent facilities of the water cycle, and periodic monitoring and prevention.	Operation	Prevention of spills of waste water (including contact water) and contamination of surface and groundwater.
19.	Prohibition of repair work within the boundaries of the investment proposal, except in cases of emergency	Construction, operation and closure and recultivation	Prevention of surface and groundwater pollution.
20.	Ensuring limited access to the water intake facility/facilities.	Operation	Prevention of spills and overconsumption of natural resources.
MINERAL RESOURCES			

21.	When developing the comprehensive project for extraction from the deposit, include the implementation of phased technical and biological recultivation, taking into account the technical characteristics of the sub-sites and specific	Design	Restoration of the affected areas to the maximum extent possible

No.	Measures	Implementation period	Results of implementation
	vegetation.		
22.	All activities related to harvesting and processing shall be carried out within the boundaries of the concession area	Construction and operation	Compliance with the ZPB
23.	Strict compliance with the approved comprehensive and annual working plans for the development and recultivation of the deposit	Construction, operation and recultivation	Compliance of the regulatory framework
24.	Strict compliance with the approved Mine Waste Management Plan	Construction and operation	Compliance with the ZPB
25.	Application of techniques to minimize the side effects of the explosion, such as: <ul style="list-style-type: none"> - increasing the length of the drive, - reducing the mass of the charge (smaller diameter boreholes, spaced charges); - application of appropriate blasting schemes (directing the demolition front and the direction of movement of the blasted rock mass, minimizing the charge mass in a delay interval, etc.); - use of protective coatings. 	Operation	Ensuring safety at work
26.	In open-pit mining of minerals near urban areas, the blasting time shall be agreed with the local community in order to avoid the surprise effect and to establish the most acceptable time for carrying out blasting works with a view to reducing the unpleasant effect on the comfort of the residents in the area – most often this is during daylight hours within the working day.	Operation	Ensuring safety at work
LAND AND SOIL			
27.	Removal and storage of soil and humus from the concession area, in accordance with the requirements of Ordinance 26/02.12.1996 (last amended and supplemented	Construction and operation	Use of soil and humus for reclamation activities

No.	Measures	Implementation period	Results of implementation
	State Gazette, No. 22/2002). Determine and mark the locations for temporary storage of topsoil within the boundaries of the designated site.		
28	Develop a plan and monitor the soil in accordance with Article 29, paragraph 1, item 2 of the Soil Act	Construction, operation and closure and recultivation	Timely identification of negative processes occurring in the soil and forecasting their development, with the ultimate goal of protecting
29.	Gradual recultivation of the affected areas and use of the soil and materials from the excavation stored in the landfills	Operation Closure and recultivation	Prevention of hazardous physical and geological phenomena
30.	Prevention of soil contamination outside the work areas.	Operation	Soil protection in the area
WASTE			
31.	The generated waste shall be collected separately and delivered in a timely manner for transport and subsequent treatment.	Construction, operation and closure and recultivation	Prevention of waste dispersion and soil and water pollution
32.	The waste generated shall be transferred for subsequent treatment, on the basis of written contracts, to persons holding the relevant document under Article 35 of the Waste Management Act.	Construction, operation and closure and recultivation	Management of waste in accordance with the Waste Management Act.
33.	Use of technically sound vehicles for the transport of hazardous and industrial waste within and outside the concession area. Hazardous waste shall be transported only in closed metal containers/barrels.	Construction, operation and closure and recultivation	Prevention of waste dispersion and soil and water pollution
34.	Waste from emergency replacement of petroleum oils shall be collected in a manner that allows for their regeneration – in closed containers that are chemically resistant, prevent spillage or leakage, are marked, and are stored in a designated area. Spillage or leakage, are marked and stored in	Construction, operation and closure and recultivation	Prevention of spillage and pollution of soil and water. Waste management in accordance with the Waste Management Act

No.	Measures	Implementation period	Results of implementation
	Closed.		
35.	In cases of accidental spillage of oils or other pollutants, the contaminated soil shall be removed immediately and transported to a waste site that has a document under Article 35 of the Waste Management Act for this type of waste.	Construction, operation and closure and recultivation	Prevention of spillage and pollution of soil and water. Waste management in accordance with the Waste Management Act
36.	Placement of containers for household waste	Construction, operation and closure and reclamation	Management of waste in accordance with the Waste Management Act
HAZARDOUS SUBSTANCES			
37.	The use of hazardous substances (diesel fuel, oils, greases) shall be carried out in accordance with the measures for the prevention of accidents, emissions or spills and for the control of exposure, as specified in the relevant regulatory/administrative act, in the Safety Data Sheets and the instructions for safe use.	Construction, operation and closure and recultivation	Protection of the environment and human health from the impact of hazardous chemical substances
LANDSCAPE			
38.	Designing technical, biological, and landscape-planning recultivation in accordance with and adjacent landscapes	Design	Ensuring the natural integration of the restored areas into the surrounding landscape
39.	Implementation of phased and timely reclamation (technical and biological) of the disturbed areas, to be carried out in accordance with the approved reclamation for recultivation	Operation, closure, and recultivation	Acceptable landscaping of the site, integration of the recultivated terrain to the local landscape
BIOLOGICAL DIVERSITY			
40.	For outdoor lighting, use lighting fixtures with sodium lamps (emitting mainly in the red and yellow part of the spectrum, which have a significantly weaker attraction effect on nocturnal insects, in compared with mercury-vapor lamps (), which	Design, construction, and operation	Limiting the strong attraction effect of lamps, which leads to disorientation of nocturnal insects and their easy death. Reducing the mortality of insects, including those subject to protection in

No.	Measures	Implementation period	Results of implementation
	emit significant amounts of blue and ultraviolet rays). Limit the number of lamps to 2 per hectare.		ZZ.
41.	Only tree and shrub species native to the country should be used for recultivation. The list of species should be approved by an expert botanist.	Design and recultivation	Preserving the character of the vegetation in the area, including natural habitats subject to protection under the Biodiversity Act, as well as the ecological integrity of the area. protected natural habitats, subject to protection in the zone. Preventing the spread of invasive species.
42.	No movement of machinery outside the roads and approaches to the individual elements of the IP shall be allowed. Movement shall be carried out along pre-determined routes, marked with clear and permanent markings.	Construction and operation	Prevent of further destruction of vegetation in the areas of movement of machinery, including natural habitats subject to protection in the SPA. Restriction of disturbance of animals and their mortality, including for species subject to protection in the SPA.
HARMFUL PHYSICAL FACTORS			
43.	During implementation the Investment Proposal, use modern mechanisation, leading to a reduction in noise pollution in the environment, which is in accordance with the requirements of the Ordinance on the essential requirements and conformity assessment of machinery and equipment operating outdoors with regard to noise, emitted by them into the air (State Gazette No. 11/2004).	Design, construction, operation a nd closure a nd recultivation	Lower noise emissions in the environment from the machines and motor vehicles used
44.	Rational selection of the parameters of the charge design (length of the pre-drilling, length of the charge, length of the drive, spacing of the charge,	Operation	Control of side effects during blasting operations (including the impact on the subsoil, protected buildings and

No.	Measures	Implementation period	Results of implementation
	diameter of the borehole), selection of suitable inert material for backfilling, correct selection of bottom or top initiation of charges, application of appropriate blasting patterns (direction of the demolition front and direction of movement of the blasted rock mass, minimization of the charge mass in a delay interval, etc.); and a system for initiating the charges		equipment)
45.	Systematic monitoring shall be carried out to ensure compliance with the permissible limit values for noise levels in the environment and the living environment.	Operation	Minimization of the impact of noise on workers
46.	Perform own periodic measurements of noise indicators in accordance with Art. 27 of Ordinance No. 54/2010 on the activities of the national system for monitoring environmental noise and on the requirements for conducting own monitoring and providing information from industrial sources of environmental noise	Operation	Control of the hygiene standard of 70 dBA for industrial zones
47.	Do not allow mining and transport equipment to run idle	Operation	Reduction of noise pollution
48.	Use of protective coverings when carrying out blasting work in the outer contour of the mine near populated areas.	Operation	Limiting dust emissions when carrying out blasting activities
CULTURAL AND HISTORICAL HERITAGE			
49.	Preliminary archaeological studies – search for archaeological sites within the future concession area, pursuant to Article 161, paragraph 1 of the Cultural Heritage Act, in order to establish the existence of unknown sites and taking measures for their preservation.	Before the start of construction and extraction activities	For to not prevent destruction of unknown archaeological sites
50.	Rescue excavations (in case	Before the start	If registered

No.	Measures	Implementation period	Results of implementation
	archaeological sites are found on the land that will be directly affected within the concession area)	construction and extraction activities	archaeological sites. In the event of the discovery of structures and finds that show signs of cultural value, the activity shall be stopped immediately and Article 72 of the Cultural Heritage Act shall apply.
HEALTH AND HYGIENE ASPECTS			
51.	A Health and Safety Plan shall be drawn up for the construction, operation, closure, and recultivation phases, which shall provide for periodic control measurements of factors in the working environment, including chemical agents, and, based on the results, to adjust the parameters of the activities (including the PVR) and measures for the protection of workers' health.	Before the start of construction	Ensuring of safe and healthy working conditions for workers on site during the various stages of project implementation
52.	Workers shall be provided with appropriate work clothing and personal protective equipment, depending on the work performed. Yes their suitability and correct use shall be monitored.	Construction, operation and closure and recultivation	Reduction of negative impacts on workers' health
53.	Development and implementation of a work and rest regime during work.	Construction, operation and closure and recultivation	Reduction of occupational injuries
54.	Providing workers with cold and hot drinks during hot and cold periods of the year, respectively.	Construction, operation and closure and recultivation	Provision of healthy and safe working conditions
55.	Mine workings and access routes to them that pose a risk of people or animals falling, as well as sinkholes, collapses, and landslides within the boundaries of the mine, shall be marked with warning signs and fenced off with concrete posts and metal mesh or barbed wire	Construction, operation and closure and recultivation	Prevention of occupational accidents

56.	Regular conducting of briefings for workers on site, training, initial and	Construction, operation and closure	Ensuring of healthy and safe conditions for
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No.	Measures	Implementation period	Results of implementation
	Periodic medical examinations	Reclamation	Labor
57	Trained persons shall be provided at the site to provide first aid in in case of accidents, as well as a first aid kit with the necessary medicines and bandages.	Construction, operation nd closure nd recultivation	Ensuring of healthy a nd safe working conditions

Section VI of the EIA proposes mitigation measures for the affected SCIs of the Natura 2000 National Ecological Network:

- Special Conservation Area "Rhodopes - East", code BG0001032, for the protection of natural habitats and wild flora and fauna;
- Special Conservation Area "Biala Reka", code BG0002019, for the protection of wild birds.

Proposals by the Ministry of Environment and Water, made in a letter ref. No. EIA-68-65/20.10.2025, quote:

"In the OBOC report, in section IX "Description of the measures envisaged to avoid, prevent, reduce and, where possible, eliminate the significant adverse effects on the environment and human health" on page 250, we propose additions in connection with the objective described in the report *"The implementation of the measures should lead to the maximum preservation of the populations of plant and animal species found on or in the immediate vicinity of the IP"*:

3.1. On page 256, measure 41, replace the words "only autochthonous" with "local plant species suitable for the region." It is not possible to find a sufficient number of seedlings, cuttings, or seeds of autochthonous species. The material for recultivation comes from the available numbers and species in existing nurseries, and it is important that they are not foreign but local species that will benefit the environment.

3.2. On page 256, add a new measure 42 for the design and construction phases, with the result of implementation being preserved biodiversity, with the following text
"Activities for preparing the site of the investment project shall commence outside the nesting and rearing period from March 15 to June 30." This is a compensatory measure for the text described on page 167 "When activities begin during the nesting season, if there is a nest within or near the IP, there is a risk that it will be destroyed or abandoned, resulting in the loss of eggs and/or young. If this happens, the impact on the population of the species in the area could be significant."

3.3. Add a new measure 43 for the design and construction phases, with the result of implementation being preserved biodiversity, with the following text: "Vehicles and machinery shall not leave the existing/designated roads when carrying out the relevant activities described in the IP."

3.4. Add a measure for the safety of electricity poles, related to the text on page 165: "Bird mortality can also be observed from power lines. When using poles with an inappropriate design, this can be caused by electric shock in 20 kV power lines. In power lines with higher voltage, there is no risk of electric shock, but there is a possibility of birds colliding with the lightning protection cable."

3.5. For the five protected species described on page 167, the yellow-bellied snake (*Ophisaurus apodus*), the northern goshawk (*Accipiter gentilis*), the red-breasted flycatcher (*Ficedula parva*) and the wildcat (*Felis silvestris*), feasible, measurable, and controllable measures should be listed in the table, indicating who is responsible for their implementation and setting a condition for scientific consultation and monitoring during their implementation.

Comment by the authors of the EIA: The proposals made are entirely within the powers of the Ministry of Environment and Water, which, at its discretion and within the scope of its competence as an environmental authority, may propose conditions and measures to be included in the EIA decision. Given the obligation of the authors of the EIA report to be independent in carrying out the assessment, formulating measures to prevent and reduce impacts, the declarations signed by each of the experts under Article 83(4) of the Environmental Protection Act, and the criminal liability in this regard, we refrain from expressing an opinion on the proposals and recommendations made.

Measures from the EIA:

- ❖ Mining construction should start outside the periods 1 April – 15 August and 20 November – 10 March.

The specified periods are consistent with the nesting of bird species subject to protection in the Byala Reka Special Protection Area. They include the nesting period of the northern goshawk (nest building begins in early April; Simeonov et al. 1990), the breeding season of the wildcat (birth is in April; Peshev et al. 2004), most of the active season of the yellow-bellied toad, including its breeding season, as well as its hibernation period.

- ❖ When constructing a 20 kV power line, the poles should be of a type that prevents electric shock to birds, or the live parts should be insulated in an appropriate manner. The measure should be consulted with an expert ornithologist at the design stage.
- ❖ When constructing a power line above 20 kV, deflecting (contact) plates (or diverters), rotating spheres or spirals made of phosphorescent material shall be installed on the lightning protection cable. Their type, lengthwise arrangement, and density should be consulted with an expert ornithologist at the design stage.

Measure concerning the yellow-bellied snake (*Ophisaurus apodus*), the northern goshawk (*Accipiter gentilis*), the red-breasted flycatcher (*Ficedula parva*) and the wildcat (*Felis silvestris*), set out in the EIA:

- ❖ Mining construction should begin outside the periods 1 April – 15 August and 20 November – 10 March.

The specified periods are consistent with the nesting periods of the bird species subject to protection in the Byala Reka Special Protection Area. They include the nesting period of the northern goshawk (nest building begins in early April; Simeonov et al. 1990), the breeding season of the wildcat (birth is in April; Peshev et al. 2004), most of the active season of the yellow-bellied flycatcher, including its breeding season, as well as its hibernation period.

The red-breasted flycatcher has only been observed during migration (the species nests in old beech forests, which are absent in the area). During this period, it can be found anywhere, including in green spaces between blocks of flats in large cities (personal

obs.). There will be practically no impact on the species. No measures are necessary for the species.

X. DESCRIPTION OF THE EXPECTED SIGNIFICANT ADVERSE IMPACTS OF THE INVESTMENT PROPOSAL ON THE ENVIRONMENT AND HUMAN HEALTH, RESULTING FROM THE VULNERABILITY OF THE INVESTMENT PROPOSAL TO THE RISK OF MAJOR ACCIDENTS AND/OR DISASTERS THAT ARE RELEVANT TO IT; THE RELEVANT INFORMATION MUST BE OBTAINED THROUGH A RISK ASSESSMENT; THE DESCRIPTION SHALL INCLUDE THE APPLICABLE MEASURES INTENDED TO PREVENT OR MITIGATE THE SIGNIFICANT ADVERSE CONSEQUENCES OF THESE EVENTS ON THE ENVIRONMENT AND HUMAN HEALTH, AS WELL AS DETAILS OF THE PREPAREDNESS AND PROPOSED RESPONSE TO SUCH EXCEPTIONAL SITUATIONS.

1. Description of the expected significant adverse effects of the investment proposal on the environment and human health from the risk assessment

There are no conditions for a major accident to occur at the IP site according to the criteria for reporting a major accident under Annex 5 of the Environmental Protection Act.

2. Description of the applicable measures envisaged to prevent or mitigate the significant adverse effects of a major accident

No measures are provided for as it is not possible for a major accident to occur at the IP site.

XI. POSITIONS AND OPINIONS OF THE AFFECTED PUBLIC, OF THE COMPETENT AUTHORITIES FOR DECISION-MAKING ON THE EIA OR THEIR AUTHORIZED OFFICIALS AND OTHER SPECIALIZED AGENCIES AND INTERESTED STATES – IN A TRANSBOUNDARY CONTEXT, OBTAINED AS A RESULT OF THE CONSULTATIONS HELD

For the investment proposal, documentation has been submitted to the Regional Inspectorate of Environment and Water Resources (RIEW) – Haskovo, pursuant to Article 4, paragraph 1 of the Ordinance on the conditions and procedure for conducting an EIA. The affected municipalities and mayor's offices have been notified.

By letter ref. No. 99-00-587/27.05.2024, the Minister of Environment and Water requested the Director of RIEW – Haskovo to forward the entire file to the Ministry of Environment and Water, accepting that the Minister is the competent authority for the procedure. By letter ref. No. PD-279-(38)/2023/29.05.2024, the Director of the Regional Inspectorate of Environment and Water Resources (RIEW) – Haskovo complied with this request.

In accordance with the requirements of Article 95(1) of the Environmental Protection Act, the Contracting Authority identified the interested natural and legal persons with whom it had held consultations to determine the scope and content of the EIA report, as follows:

- Ministry of Environment and Water;
- Ministry of Health;
- Regional Inspectorate of Environment and Water Resources (RIEW) – Haskovo;

Table XI-1. Summary of the consultations held on the scope of the EIA and how the comments received were reflected

<i>Organization</i>	<i>Opinion</i>	<i>Reasons for acceptance/rejection</i>
1. BD IBR with center Plovdiv, ref. No PU-02-231(1) dated 18.12.2024	Re: Conducting consultations to determine the scope and content of the environmental impact assessment (EIA) of investment proposal (IP) "Extraction and processing of polymetallic ores from deposit "Rosino", area "Tintyava", located in the territories of the villages of Rozino and Gugutka, municipality of Ivaylovgrad, Haskovo region".	
	1. The EIA report should include maps on an appropriate scale showing the exact location of the planned activities in the investment proposal. The report should also include the planned depth of extraction.	Accepted It is accepted reflected in the report
	2. Information on the status of surface and groundwater bodies affected by the IP shall be presented.	Accepted and reflected in point V.2. of the EIA report.
	3. Describe whether the implementation of the investment project affects: water bodies within the meaning of the Water Act, sanitary protection zones, water sources for drinking and domestic water supply, canals, and other water management facilities and water protection zones pursuant to Article 119a of the Water Act. It should be noted that the underground water body BG3G000PtPg049 - Fissured waters - Eastern Rhodope complex, according to Section III of the RBMP of the IBR, has been declared a drinking underground water body within the meaning of Article 119, paragraph 1, item 1, in conjunction with paragraph 4, item 1 of the Water Act.	It is accepted and reflected in point V.2. of the EIA report.
	4. The activities envisaged in the IP related to surface and groundwater should be examined in detail. The assignment describes that the IP provides for the construction of two consecutively located reservoirs (the second of which is for non-contact water, i.e. conditionally clean), which eliminates even the slightest possibility of water separated from the IP entering water bodies.	This is accepted and reflected in point V.2. of the EIA report.
	Given the client's intentions to fill the non-contact water reservoir from the Arpa Dere River, in the area of the (PS) Rosino, it is necessary for the Company to implement appropriate and applicable measures for the reuse of rainwater, waste water, and drainage water, which should be included in a closed cycle, in order to reduce the planned water abstraction and ensure the efficient use of water.	A report on integrated and sustainable water management has been developed and approved.
	The construction of drainage ditches around the perimeter of the mine field and the open pit should be envisaged in order to collect rainwater and snowmelt from higher elevations and prevent surface water from entering the mine pit.	A Report on Integrated and Sustainable Water Management has been developed and approved.
	5. The EIA should consider the possible impact of the investment proposal on surface waters in terms of compliance with the provisions of Article 116(1)(4) of the Water Act and the measures set out in the IBR's RBMP (2016-2021) relevant to the current IP.	Accepted and reflected in point V.2. of the EIA report.

Organization	Opinion	Reasons for acceptance/rejection
	6. An assessment should be carried out and presented on the presence of negative changes in the hydromorphological regime of the Apra Dere River from the implementation of the IP and related to the planned water intake for filling the non-contact reservoir, prepared by experts in the relevant field.	Accept is developed Hydrological assessment of the of river Biala river and its tributary, the Arpa Dere River.
	<p>7. It should be noted that the following sources of groundwater for drinking and domestic water supply are located in the area of the IP:</p> <ul style="list-style-type: none"> About 2000 m south of point 7 describing the contour of the concession area is the TK of PS "Gugutka" for drinking and domestic water supply to the villages of Gugutka and Byala Gradets, municipality of Ivaylovgrad, region of Haskovo. Around the water intake facility there is no xml-ph-0002@dee Around the water intake facility there is no built SOZ according to Regulation No. 3/10.10.2000 About 500 m east of point 6, which marks the boundary of the concession area, is the Rozino water intake facility, located in the territory of the village of Pastrok, Ivaylovgrad municipality, for drinking and domestic water supply, owned by the State Forestry. There is no sanitary protection zone around the water intake facility in accordance with Ordinance No. 3/10.10.2000. It is evident that there are water sources for drinking and domestic water supply in the area of the IP without a defined sanitary protection zone, which fall within a buffer zone with a radius of 1000 m. <p>It is evident that there are water sources for drinking and domestic water supply in the area of the IP without a defined sanitary protection zone, which fall within a buffer zone with a radius of 1000 m. In view of this, the prohibitions and restrictions in accordance with Annex 1 to the National Catalogue of Measures for the RBMP.</p>	Taken into account
	An assessment should be made as to whether individual sections of the IP fall within the future zones II or III of the sanitary protection zone of nearby water sources for drinking and domestic water supply to the population. If they do, it should be borne in mind that there are certain prohibitions, restrictions, and limitations in cases of proven necessity in accordance with Ordinance No. 3/16.10.2000 on the conditions and procedures for the study, design, approval, and operation of sanitary- protection zones around water sources and facilities for drinking water supply and around mineral water sources used for therapeutic, prophylactic, drinking, and hygiene needs (published in State Gazette No. 88 of 27.10.2000).	Information has been requested from the BDIB under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIB (Text Annex No. 15) explicitly states that "At present, we have no information about the existence of future II or III zones of the SOWZ for nearby water sources for drinking and domestic water supply."

	8. Include in the EIA report a description of the hydrogeological conditions and factors (at the base of carried out hydrogeological studies and	Accepts is reflected in the report.
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Organization	Opinion	Reasons for acceptance/rejection
	submitted to the BDIBR hydrogeological report), affecting the quantity and quality of groundwater in the area, in order to clarify the impact of the exploitation of the Rosino deposit on groundwater, specifically on the water sources for drinking and domestic water supply to the settlements in the area of the deposit. The study should also include information on the existence of water intake facilities submitted by the Municipality of Ivaylovgrad with ref. No. PU-01-183(3)710.05.2023, the Municipality of Krumovgrad, ref. No. PU-01-183(4)712.05.2023 and "V and K" EOOD, Haskovo, ref. No. PU-01-183(2)/03.05.2023. This part of the report should be prepared by the relevant qualified person (engineer geologist-hydrogeologist).	
	9. In connection with the plan to use the flotation waste after the sixth year to backfill the pit of Section 2 of the mine and the likelihood of a risk of migration of hazardous substances to groundwater, a characterization of the mining waste should be prepared in order to determine its properties and behavior.	Accepted. Preliminary qualitative studies have been carried out in laboratory tests, which do not indicate the presence of hazardous substances. At the exploitation stage these studies should be repeated repeated.
	10. Drilling and blasting works will be used for the operation of the Rosino deposit. In this regard, an assessment should be made of the impact of drilling and blasting works on groundwater in the area of the IP and, in particular, on water sources for drinking and domestic water supply. A report on the impact of drilling and blasting operations on groundwater in the Rosino deposit area should be submitted to the IBRA. If necessary, measures should be proposed to protect drinking water sources.	Accepted. A report on drilling and blasting works has been prepared and submitted.
	11. Forecast and assessment of the expected impact on surface and groundwater and water protection areas during the operation of the facility, taking into account the conclusions and results of the impact assessment and, if necessary, measures to prevent negative impact on them.	Accepted and reflected in section V.2. of the EIA report.
	12. When preparing the EIA, it should be taken into account that a procedure is currently underway to update the RBMP, which will be valid for the period 2022-2027, and part of these activities is the updating of the objectives for the protection of surface and groundwater, as well as the measures for their achievement. The preparation of the EIA should be aligned with the stages of the RBMP update, respectively the environmental objectives and projects of the RBMP. The information and documents will be published periodically and made publicly available on the website of the BD IBR.	This is accepted and reflected in point V.2. of the EIA report.

Organization	Opinion	Reasons for acceptance/rejection
2. Water Supply and Sewerage EOOD, Haskovo, Haskovo, Ref. No. 2950 of 18.12.2024	Re: Conducting consultations to determine the scope and content of the environmental impact assessment (EIA) of an investment proposal (IP) for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region."	
	1. No pollution of surface and groundwater supplying the settlements along the Biala River shall be allowed.	Adopts , reflected in the report.
	2. Activities that pollute underground aquifers shall not be permitted.	Accepted , reflected in the report.
	3. When using explosives for extraction, require an opinion from a hydrogeologist certifying that the explosions will not affect underground water sources.	Accepted , reflected in the report.
	4. To protect drinking water sources in terms of flow rate and chemical indicators in the area of the investment proposal	Accept is reflected in the report.
3. Ministry of Agriculture and Food, Regional Directorate "Agriculture" – Haskovo, Ref. No. D-407-1 of 04.12.2024	Re: Terms of reference for the scope and content of the EIA for the investment project "Extraction and processing of polymetallic ores from Rosino, Tintyava area, located in the territories of the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region" In connection with your letter received by the Regional Directorate of Agriculture - Haskovo, with attached Terms of Reference for the scope and content of the environmental impact assessment report for the implementation of the investment project for "Extraction and processing of polymetallic ores from "Rozino", Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad Municipality, Haskovo Region," with the client Tintyava Exploration AD, after reviewing the documentation provided and within the scope of our competence, we hereby inform you: The submitted assignment has been prepared in accordance with the requirements of Article 10, paragraph 3 of the Ordinance on the conditions and procedure for performing an environmental impact assessment, in view of which the Regional Directorate of Agriculture - Haskovo has no objections or recommendations regarding its content and scope.	Positive opinion.
4. Ministry of Energy, ref. No. E-26-T-749 of 19.12.2024 RE	RE: Conducting consultations to determine the scope and content of the environmental impact assessment (EIA) of an investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region In connection with the Terms of Reference for the scope and content of the EIA for the above-mentioned investment proposal sent to us, I would like to inform you that after reviewing the data contained therein, relevant to the deposit and the plan for	

Organization	Opinion	Reasons for acceptance/rejection
	mine waste management (MWM) it has been established that:	
	1. Boundary point No. 15 of the Rosino deposit extends 2.8 m beyond the planned concession boundary, and therefore, with the approval by the competent environmental authority of the parameters of the investment proposal as set out, the requirements of Article 37, para. 1 of the Underground Resources Act (<i>When granting a concession, a concession area shall be determined, which includes: 1. the area of the deposit or separate sections thereof, and 2. the areas necessary for the implementation of the concession activities, other than extraction</i>).	A correction has been made.
	2. The statement "The reserves in the Rozino deposit amount to 13.6 million tons of ore, and the overburden to 26.5 million tons" on page 10 is not in accordance with the supplement to the geological report adopted by the SEC (Specialized Expert Commission for Reviewing and Accepting Geological Reports Submitted to the Ministry of Energy) supplement to the geological report.	A correction has been made.
	3. The Ministry of Energy has no objections to the rest of the Terms of Reference for the scope and content of the EIA.	Positive opinion.
5. Ministry of Health, ref. No. 26-00-2518 date 27.12.2024	In connection with your letter received by the Ministry of Health, requesting an opinion on the scope and content of the environmental impact assessment report (EIA) for an investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territories of the villages of Rosino and Gugutka, municipality of Ivaylovgrad, Haskovo region," we would like to inform you of the following: We propose that, in addition to the assessment of the impact on environmental factors and components, a separate health assessment be prepared, in which these issues are elaborated and examined in detail in the following technical aspects:	--
	1. Complete, comprehensive, and well-illustrated information on the location and exact distances from the nearest populated areas and other sites subject to health protection within the meaning of § 1, item 3 of the Additional Provisions of the Ordinance on the Conditions and Procedure for Performing an Environmental Impact Assessment (State Gazette, No. 25 of 2003, amended amended State Gazette No. 3 of 2011) to all sites that are potential sources of harm included in the investment proposal. The information to be provided in M3 for assessment must be accompanied by cartographic material.	Accept it is reflected in the report.
	2. The current state of the individual factors and components of the environment in the area (atmospheric air, surface and groundwater, soil, noise, etc.).	Accepted is reflected in the report.
	3. Identification of risk factors for damage to human health from the environment, working environment, and living environment during the construction, subsequent operation, and decommissioning phases of all facilities and	Accepted is reflected in the report.

Organization	Opinion	Reasons for acceptance/rejection
	facilities related to the investment proposal.	
	4. Detailed and comprehensive information on the extent of the expected adverse impact on the individual components and factors of the environment and living conditions, with particular attention to:	Accept Accepted reflected in the report.
	4.1. The future impact on surface and groundwater and soil in the area, and hence on all water sources used for drinking and domestic purposes, with or without an established sanitary protection zone (SPZ), which are affected or could be affected as a result of the operation of the facilities. The EIA report must include up-to-date information on:	Its adoption is reflected in the report.
	- the existing drinking water supply to the settlements located in the vicinity of the IP - water bodies and water intake facilities for drinking water supply, SOS, data on the quantity and quality of water supplied for drinking and domestic purposes to consumers in accordance with the requirements of Ordinance No. 9/2001 on the quality of water intended for drinking and domestic purposes (published in State Gazette No. 30/28 March 2001);	Accepts is reflected in the report.
	- analysis and assessment of the possible impact of the implementation of the investment project during the construction and operation phases - impact on surface and groundwater in the area of the site;	Accepted is reflected in the report.
	- It is necessary to recommend measures to limit water pollution in the region.	Accept it is reflected in the report.
	Scenarios for emergency situations and disasters, including spills from the tailings pond and their impact on the quality of water in drinking water sources, surface water, and groundwater, should be considered.	Partially accepted. Flotation waste is not liquid and cannot cause spills.
	In view of the above, and the plans to build a pumping station in the immediate vicinity of the pumping station for the PBV, a specialized hydrological and/or engineering-geological assessment should be prepared and implemented for the EIA to answer the following questions regarding the pressure and risk to water from the implementation of the IP:	Accept . The following : Hydrological assessment of the outflow in r. Bialariver and the tributary its r. Arpa ditch; Report on the hydrogeological conditions in the of the investment proposal for the Rosino deposit; Report on integrated and sustainable management of water and Report of assessment of the side effects of
	- is there a risk of affecting the drinking water supply of the settlements in the area; will the IP reduce the flow rate of the water sources for drinking water supply; will the IP change the quality of the water used for drinking water needs by the population in the area	
	- Is it likely that contaminated drainage and mine water will be discharged outside the territory of the mine and tailings storage facility? Will the IP worsen the chemical condition and change the active reaction of surface and groundwater in the area?	

Organization	Opinion	Reasons for acceptance/rejection
	<p>- How will the use of drilling and blasting activities and water abstraction for needs on quantity and quality of water from industrial of water</p> <p>water sources for drinking and domestic water supply, on surface and groundwater.</p>	the explosion on the environment.
	<p>With regard to soil, the risk of soil contamination with heavy metals and other hazardous substances should be assessed, and specific measures should be envisaged against possible contamination of adjacent land as a result of the impact of the investment project.</p>	Accepted. The relevant analyses have been carried out on the spread of potential pollutants. There are no sources of heavy metals and hazardous substances that could contaminate the soil.
	<p>4.2. The possible impact on atmospheric air quality, by modeling the expected pollution (including the generation and spread of unpleasant odors) from point and area sources. The analysis of atmospheric air quality should cover all the nearest settlements located in the area of the IP, as well as all sites subject to health protection within the meaning of § 1, item 3 of the additional provisions of the EIA Ordinance. The distances to the nearest facilities subject to health protection</p> <p>The protection should be presented on map material.</p>	It is accepted that the relevant modeling and calculations have been made.
	<p>The EIA Report should examine in more detail the sources of atmospheric air pollution, providing a detailed analysis of the deposition of pollutants in the surface atmospheric layer, as follows:</p>	<p>Accepted, relevant modeling and calculations have been made in accordance with the applicable methodologies.</p> <p>Based on the modeling data and calculations, measures have been proposed.</p>
	<p>- The expected emissions of dust and harmful substances from construction, transport, and operational activities should not be interpreted in isolation; the potential cumulative load should be assessed.</p>	
	<p>- It is necessary to prepare and present a mathematical model for the spread to the nearest populated areas of organised and unorganised emissions during the preparatory (construction) and operational periods, originating from the mine, tailings storage facility and other auxiliary sub-sites.</p>	
	<p>- The modeling should also include linear models for transport flows serving the site and for transporting the enriched ore to its final destination, calculating their contribution to unorganized dust and gas emissions in the populated areas through which the vehicles will pass.</p>	
	<p>- The EIA report should present in detail measures to reduce the local impact of the expected dust and gas emissions.</p>	
	<p>4.3. Expected noise and vibration pollution, such as be made</p>	Accept , done are

Organization	Opinion	Reasons for acceptance/rejection
	<p>the relevant calculations of the estimated noise and vibration levels from the operation of the facilities at the boundary of the regulatory and residential zones of the nearest settlements and in the residential zone itself. The Rosino deposit, Tintyava area, is located in the territories of the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region, with distance data provided only for the village of Rosino, which is located about 1.2 km south of the village. To the east and south is the border with Greece, and to the north and west are the municipalities of Lyubimets, Madzharovo, and Krumovgrad.</p>	<p>the relevant calculations, according to applicable methodologies.</p>
	<p>The activities during the various phases of the project's implementation are expected to lead to an increase in background noise in the area in the immediate vicinity of the "Rozino".</p> <p>With regard to the population in the area, there may be impacts as a result of increased noise pollution from transport and construction machinery traffic. It is necessary to assess the impact of risk factors during the operation phase on the health of people living in the nearest settlements in the villages of Rozino, Byalgradets, and Gugutka and the nearest residential buildings to the concession area.</p>	<p>It is accepted that the relevant calculations have been made in accordance with applicable methodologies.</p>
	<p>For the operational phase, the main impacts are related to mining and processing activities. Workers at the site will be directly exposed to health risk factors.</p> <p>For each type of activity, established good practices for healthy and safe working conditions should be provided to minimize the specific risks of the working environment.</p> <p>It is also necessary to forecast the expected noise impact on the environment and living conditions from drilling and blasting works and crushing activities during operation.</p> <p>An assessment of the applicability of the best available techniques should be prepared, given the expected high health risk, regardless of what is stated on page 6 of the information, namely that "Open-pit mining and processing by flotation of natural raw materials is outside the scope of Annex 4 to the Environmental Protection Act, and therefore no integrated permit is required under Chapter Seven, Section Two of the Environmental Protection Act to implement the project. Therefore, there is no need to prepare an assessment of the applicability of the best available techniques in relation to the proposed technologies."</p> <p>Propose measures to limit noise impact, as well as additional measures to limit it in the working environment;</p>	<p>Accepted, the relevant calculations have been made in accordance with applicable methodologies.</p>
	<p>4.4. The implementation of the investment proposal is expected to generate the following types of waste, which can be divided into two main groups:</p>	<p>Acceptance It is accepted reflected in the report.</p>

Organization	Opinion	Reasons for acceptance/rejection	
	<ul style="list-style-type: none"> - Waste falling within the scope of the Waste Management Act; - mining waste falling within the scope of the Underground Resources Act. <p>The EIA report should include measures for their safe management.</p> <p>The EIA report should be structured to describe all types of waste by hazardous and non-hazardous groups that will be generated and managed during the operation of the IP. Their impact on the environment, the working and living environment, and human health should be assessed. Particular attention should be paid to the likelihood of leaching and seepage of heavy metals and other hazardous substances from the tailings storage facility into the surrounding soil and groundwater, as well as the risk of dust carrying from the flotation waste to the surrounding areas and populated areas during periods of drought. In this regard, special measures should be proposed for the tailings storage facility.</p>		
	5. Identification of new risk factors and pollutants, if any are expected during the implementation of the investment proposal.	Accept	Accepted reflected in the report.
	6. Determination of the potentially affected population and territories, areas, and/or sites subject to health protection, depending on the territorial scope of the impacts on the environment and living conditions. This should be done on the basis of mathematical modelling of the spread and forecast calculations of the expected concentrations and levels of harmful substances released into the environment and living conditions	Accept	it is reflected in the report.
	7. Forecast assessment of the expected reduction in environmental and living environment pollution by individual pollutant types as a result of the introduction of new, more high-tech and environmentally friendly production processes and equipment	Accepted, as reflected in the formulation of the IP and in the report.	
	8. Characterization of individual risk factors in terms of their impact on human health and comparison with current hygiene standards and requirements, both for the working environment and for the affected residential areas. Identification of the most significant risk factors for the affected population and workers at the site.	Acceptance	it is reflected in the report.
	9. Assessment of the possibilities for combined, complex, cumulative, and remote impact of risk factors, both for workers and for the population exposed to adverse effects, taking into account the production activities of other manufacturing enterprises in the area, and the road sections of the municipal and national road infrastructure.	Accept	it is reflected in the report.

	10. Analysis of the health and demographic status of the population in the nearest settlements based on current data on the demographic situation (according to indicators fertility, mortality, natural growth, child	Accept is reflected in the report.
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Organization	Opinion	Reasons for acceptance/rejection
	mortality, etc.) and morbidity by level and structure. The data should be compared with those for the region and the country as a whole. A forecast assessment of the impact after the implementation of the investment proposal should be made, reviewing and assessing the health status of the potentially affected population with analysis and interpretation of demographic indicators and morbidity indicators for the areas (based on data for the last available 3-5 year period) in which the population may be exposed to the impact of the construction and operation of the investment proposal	
	11. An assessment of the risk of damage to human health should be carried out, providing evidence that the inhabitants of the settlements will not be exposed to health risks in terms of pollution of the living environment, and proposing measures for health protection and risk management.	Accept Accepted reflected in the report.
6. RIOSV – Haskovo, ref. No. PD-279-(46) dated 20.12.2024	Re: Conducting consultations to determine the scope and content of the environmental impact assessment (EIA) of an investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territories of the villages of Rosino and Gugutka, municipality of Ivaylovgrad, region of Haskovo	--
	Based on the presented version of the terms of reference for the scope and content of the environmental impact assessment (EIA) of an investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area," we have the following comments:	
	When preparing the EIA for the investment proposal, more detailed information should be included on the formation and management of flotation waste, accompanied by drawings or diagrams of the facilities and the process and technology of waste disposal.	Accept Accepted reflected in the report.
	The wastewater generated in this process should be examined in detail, including data on its quantity, quality, and treatment, if necessary.	It is accepted it is reflected in the report.
	Include clear and summarized information on all wastewater streams generated in the assessment. Provide substantiated information on the quantities of contact and non-contact wastewater generated, and provide data and justification for the volumes of the relevant facilities and reservoirs.	Accept , reflected in the report.
	Prepare a water balance and prove that no larger quantities of water will be generated that will need to be discharged during periods of high water (if surface water from the site also enters the non-contact water reservoir).	Accepted, a Report on integrated and sustainable water management has been prepared.
	Particular attention should also be paid to the risk of spills of waste sludge or process water, as well as other emergency situations, and effective measures should be put in place to prevent them.	According to the formulated IP, there is no "waste sludge". There is flotation waste, which is not is liquid, and is

Organization	Opinion	Reasons for acceptance/rejection
		dewatered.
7. Ministry of Environment and Water, Ref. No. EIA-68-28 of 14.02.2025	Re: Terms of reference for the scope and content of the environmental impact assessment (EIA) of the investment proposal (IP) "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region	
	Based on the information presented in the assignment, we have the following comments and recommendations, which need to be reflected in the final version and taken into account when preparing the EIA report:	
	1. With regard to the requirements of Chapter Six of the Environmental Protection Act (EPA):	
	1.1. Pursuant to Article 96, paragraph 1, item 1 of the EPA, the EIA report must contain a detailed description of the investment proposal, including all processes and activities within the scope of the IP. In this regard, we note that in order to carry out a comprehensive assessment of the environmental impact of the IP, it is necessary to submit a Passport for drilling and blasting works.	It is accepted it is accepted reflected in the report.
	1.2. The EIA report shall contain complete and comprehensive information on all activities included in each of the proposed alternatives, illustrated with relevant maps and schematic material.	Accepted , reflected in the report.
	1.3. Describe the alternatives for implementing the IP in an equivalent manner.	Accepted. Potential, reasonable alternatives are presented in section III of the report. When formulating the assessed IP, the limitations of the receiving environment were taken into account in advance, namely: limiting the IP's footprint on the earth's surface and the direct impact on the smallest possible area; the existence of Natura 2000 protected areas; the prohibitions and restrictions arising from the Water Act and the Water Management Plan; the requirements of the Biodiversity Act for maximum preservation of natural ; management of the flotation

Organization	Opinion	Reasons for acceptance/rejection
		waste using the most modern and environmentally friendly technology. Due to this no other reasonable alternative has been formulated.
	1.4. The EIA report should clearly indicate the new facilities and existing facilities that will be used in the course of the implementation of the investment project—enrichment plant, roads, pumping station, power line, etc. for each of the proposed options.	There are no existing facilities on the territory of the future concession area, nor are there any other reasonable alternatives.
	1.5. The report should contain a conclusion regarding the preferred option for implementation of the investment project, in accordance with the prepared environmental impact assessment.	Practical alternatives. The IP has no alternatives.
	1.6. We note that, pursuant to Article 11(1) of the EIA Ordinance, up-to-date data, current knowledge, and assessment methods shall be used in the preparation of the EIA report.	We accepted reflected in the report.
	1.7. In point 8, "List of necessary annexes, lists, and others" of the submitted assignment, the list of annexes should be supplemented with a written declaration under Article 11, paragraph 4 of the EIA Ordinance from each of the experts and the manager of the collective, signed personally.	Accepted. Attached to the EIA report.
	1.8. In section 9.4 of section 9, "Stages, phases, and deadlines for the development of the EIA report," the requirement to prepare a report assessing the degree of impact (OSV) on protected areas, set out in letter ref. No. EIA-68-17/18.11.2024 from the Ministry of Environment and Water.	Noted.
	2. With regard to the "Water" component:	
	2.1. Public interests are infringed when, as a result of water abstraction or use, there is a risk of: restricting overall water abstraction or use; jeopardising the country's defence and security; violating the conditions of river basin management plans; negative impacts on the banks, facilities, water quality, and protected areas, or in the case of water wastage - Article 49, paragraph 1 of the Water Act;	Reported is in the formulation of the IP.
	2.2 Not to violate acquired rights to water abstraction and use for which permits have been issued and which are exercised under this law, etc. - Article 49, paragraph 3 of the Water Act;	This should be included as a condition in the EIA Decision.
	2.3. The conditions set out in the opinion of the BDIBR, ref. No. EIA-68- 13/26.09.2024 of the Ministry of Environment and Water (ref. No. PU-10-182-16/ 26.09.2024 of the BDIBR). Including No mining activities shall be carried out within a radius of 1000 m from water intake facilities around which no sanitary	Reported in the report. Should be included as a condition in the EIA Decision.

	protection zone has been established.	
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Organization	Opinion	Reasons for acceptance/rejection
	2.4. In coastal floodplains and lands belonging to reservoirs, the following are prohibited: waste disposal and treatment, washing and servicing of vehicles and equipment, waste disposal - Article 134 of the Water Act;	Reported in the report. Should be included as a condition in the EIA Decision.
	2.5. To protect against the harmful effects of water, the following are prohibited: disturbing the natural state of river beds, river banks and coastal floodplains, the use of river beds as landfills for waste, earth and rock masses, the storage or warehousing of materials that would significantly increase the destructive power of water during floods - Article 143 of the Water Act.	Reported in the report. Should be included as a condition in the EIA Decision.
	2.6. According to the IP, no discharge into water bodies is planned. However, there is a risk of water infiltration into the underground water body BG3G000PtPg049 - Fissure waters - Eastern Rhodope complex. In this regard, the following results and studies from the studies carried out should be presented in the EIA:	Accepted. The following have been prepared: Hydrological assessment of the outflow in the Biala River and its tributary Arpa Dere; Report on integrated and sustainable water management and Report on the assessment of the side effects of the explosion on the environment
	2.6.1. Results from determining the hydrogeological parameters of the aquifers, as well as determining the filtration coefficient of the rock types in the area of the Rozino deposit, Tintyava area;	
	2.6.2. Determination of the potential risk of water seepage from the tailings pond into the groundwater in the area.	
	2.6.3. Determination of the potential risk of water seepage from the backfilling of the pit with waste rock;	
	2.6.4. Assessment of the impact of blasting on the mechanical properties of water-bearing rocks. Possibility of additional cracks appearing.	
	2.6.5. Analysis and assessment of the impact of blasting operations, analysis and assessment of the impact of ore extraction and material removal from the mine pit, as well as analysis and assessment of the impact of deposited material (in the tailings pond and during backfilling) on water intake facilities intended for drinking and domestic water supply to the population located in the deposit area "Rozino", "Tintyava" area. This includes water intake facilities used by the water supply and sewerage company and the municipality of Ivaylovgrad, with and without established sanitary protection zones.	
	2.6.6. For the water intake facility located 500 m away - the "Rozino" catchment, intended for drinking and domestic water supply to settlements in the area, around which no sanitary protection zone has been established, an assessment of the possible area under the specified operating regime of the facility, which would fall within the sanitary protection zone, should be presented with a view to preventing subsequent prohibitions and restrictions on use.	A survey has been conducted of all available water sources around the future concession area. 800 m east and 1800 m south of the boundaries of IP are located water supply and sewerage facilities – Haskovo PS Rozino (in

Organization	Opinion	Reasons for acceptance/rejection
		<p>the terrace of Arpa Dere) and PS Gugutka (on the terrace of the Biala River), Figure No. IV.2.2-1, Table No. IV.2.2-11 and Table No. IV.2.2-12. Information has been requested from the BD IBR under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIBR (Text Annex No. 15) explicitly states that "At present, we have no information about the existence of future II or III zones of the SOWZ for nearby water sources for drinking and domestic water supply."</p>
	<p>2.6.7. Assessment of impact of all activities on the and quantitative composition of the water extracted in the area for drinking and domestic water supply.</p>	<p>Accepted. The following have been prepared: Hydrological assessment of the outflow in the Biala River and its tributary Arpa Dere; Report on integrated and sustainable water management and Report on the assessment of the side effects of the explosion on the environment.</p>
	<p>3. Regarding the "Atmospheric Air" component</p>	
	<p>Data from the website of the Regional Inspectorate of Environment and Water Resources (RIEW) - Haskovo (https://haskovo-riew.egov.bg/wps/portal/haskovo-riosv/control/air) and the annual air quality bulletins published on the website of the Executive Environment Agency (https://eea.government.bg/bg/dokladi/God_bul_KAV/index)</p> <p>The investment proposal should not lead to additional air pollution in the area and, in this regard, during the planned construction and</p>	<p>Noted. In principle, compliance with the regulations is mandatory.</p>

Organization	Opinion	Reasons for acceptance/rejection
	operational (including explosive) activities, the specific applicable provisions of Articles 70 and 11 of Ordinance No. 1 on standards for permissible emissions of harmful substances (pollutants) released into the atmosphere from facilities and activities with stationary emission sources (published in State Gazette No. 64 of 2005).	
	4. With regard to the "Biodiversity" component:	
	<p>4.1. Information has been provided on the implementation of technical recultivation followed by biological recultivation, with the aim of ensuring that the facility achieves a sustainable and maintenance-free status after decommissioning. The two bullet points at the top of page 30 on biological recultivation should be edited as follows:</p> <p>"It includes:</p> <ul style="list-style-type: none"> ➤ Reforestation of areas designated for return to the forest fund by establishing a nursery for planting and growing seedlings of native tree and shrub species (oak, black pine, hawthorn, rosehip, etc.) that will be needed for recultivation; ➤ Grassing of land intended to be restored as agricultural land by purchasing grass mixtures of Bulgarian species, planting, and cultivation. 	The experts preparing the EIA report sign declarations of independence and objectivity in their work, as well as of non-interference in the formulation of the IP, and do not accept proposals for textual edits. The proposal may be made in another appropriate manner, in accordance with the rights of the competent environmental authority.
	4.2. Edit the entire text and write all Latin names of plant and animal species (where not already done) in italics, in accordance with the International Taxonomic Nomenclature.	Accepted.
	4.3. Based on the lists of protected plant and animal species in the IP area compiled during field observations, the EIA report should present practical, feasible, measurable, and, accordingly, controllable measures to prevent, reducing or eliminating significant adverse impacts, to be implemented during the construction, operation, closure, and recultivation phases. The implementation of the measures should lead to the maximum preservation of the populations of plant and animal species found on or in the immediate vicinity of the IP.	Accepted.
	4.4. A cumulative assessment of biodiversity from existing similar activities in the vicinity of the IP shall be presented in the report.	Accepted.
	5. With regard to "Climate"	
	When identifying risks during the assessment, additional measures for adaptation to climate risks should be provided for.	No identified risks related with the IP, respectively not imposed imposed.
	6. With regard to the "Waste" factor:	

Organization	Opinion	Reasons for acceptance/rejection
	6.1. Two months prior to the implementation of the investment project, the contracting authority shall classify all waste that will be generated before and after the implementation of the investment project in accordance with Article 7 of Ordinance No. 2 on the classification of waste.	The proposals should be included as conditions in the EIA decision.
	6.2. The contracting authority shall keep records in accordance with Article 10 of Ordinance No. 1 on the procedure and forms for providing information on waste activities, as well as the procedure for keeping public registers in the National Information System "Waste" (NISW).	
	6.3. The contracting authority shall transfer all waste generated to persons holding the necessary document under Article 35 of the Waste Management Act (WMA) for the relevant waste code, on the basis of a concluded contract.	
	6.4. The contracting authority shall comply with the requirements of the WMA and the subordinate legislation for its implementation.	The proposal has no practical meaning. Compliance of the law is mandatory even if not expressly stated.
	7. With regard to the "Soils" component:	
	7.1. When carrying out capital mining and construction works and removing the topsoil during the first and second years, during operation, ore extraction, and deposition of earth and topsoil, the provisions of Section II - Removal, storage, and utilization of topsoil and Section III Determination of areas for recultivation, utilization of topsoil, and sites for topsoil deposits of Ordinance 26 on the recultivation of disturbed land, improvement of low-yielding land, removal and utilization of topsoil.	The proposals should be included as conditions in the EIA decision.
	7.2. When developing the recultivation project, the requirements of Article 16, paragraph 1 of Ordinance 26 on the recultivation of disturbed land, improvement of low-yield land, removal and utilization of the topsoil layer, as well as Article 17 of the same provision concerning the procedure for coordinating recultivation projects.	
	7.3. Describe in detail the processes that damage the soil, in accordance with Article 12 of the Soil Act (SA), and in the performance of mining and construction works, removal of topsoil during the first and second years, during operation and ore extraction, describe and comply with the relevant provisions of Article 13 of the SA, including points 1, 2, 4, 5, and 10.	All processes are described. Compliance with the applicable legislation is mandatory and does not require explicit mention. IP does not provide for the performance of production activities leading to salting,

Organization	Opinion	Reasons for acceptance/rejection
		acidification and contamination of soils with harmful substances.
	<p>8. With regard to hazardous chemicals and the risk of major accidents and/or disasters:</p> <p>The EIA report should include the following measures at the construction and operation stages related to the planned use of hazardous substances or mixtures:</p>	The proposals should be included as conditions in the EIA decision.
	<ul style="list-style-type: none"> Supplies of hazardous chemicals and mixtures should be accompanied by safety data sheets (SDS) in Bulgarian, complying with the requirements of Regulation (EU) 2020/878 of the Commission amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). For activities related to the storage and use of hazardous substances and mixtures, the following shall be complied with the conditions specified in the ILB. 	
	<ul style="list-style-type: none"> Servicing (maintenance and repair, e.g. oil changes, refueling, lubricants, etc.) of machinery and equipment, transport, installation, and loading/construction equipment shall be carried out at specialized and secure locations and repair bases, preventing spills of fuels and lubricants from construction and transport equipment. 	
	The EIA report should assess the vulnerability of the IP to the risk of major accidents and/or disasters that are relevant to it, and the relevant information should be obtained through a risk assessment.	Information is provided in section VI.6.4. The enterprise is not classified as having risk potential, as confirmed by letter from the Executive Environment Agency ref. No. UK-3741/30.12.2021.
	The contracting authority should note that some of the attached SDSs are not up to date, in accordance with the requirements of Regulation (EU) 2020/878 amending Annex II to Regulation (EC) No. 1907/2006 concerning the registration, evaluation, authorization, and restriction of chemicals (REACH), and do not correctly reflect the classification of substances and mixtures specified in the report under Article 103 of the Environmental Protection Act (incoming). and the restriction of chemicals (REACH) and do not correctly reflect the classification of substances and mixtures specified in the report under Article 103 of the Environmental Protection Act (ref. No. EIA-68-19/04.12.2024). The contracting authority shall submit an ILB in Bulgarian, prepared in accordance with the requirements of Regulation (EU) 2020/878, and an updated report on the classification carried out under Article 103 of the Environmental Protection Act, if necessary. The report under Article 103 of the Environmental Protection Act shall be accompanied by appropriate documentation proving the method of classification, origin, type, and composition of the technological waste tailings that will be generated during the flotation process.	At present, there are no valid ILBs related to the specific production, as the activity does not exist yet, but is planned for the future. ILBs published on the Internet from similar existing productions in the country or data from Database data for the classification list and

Organization	Opinion	Reasons for acceptance/rejection
		<p>labeling of the European Chemicals Agency. The process of classifying OCHV is extremely dynamic and actual ILB will only be available after obtaining a mining concession, constructing the OF and before it is put into operation, which will take at least about 5 years, provided that there are no appeals against the administrative acts issued. Then a new classification of the enterprise will have to be made, based on the actual ILB of the OWMS used. The report includes a proposal for mining waste management, which shows the classification of flotation waste.</p>
	<p>9. With regard to the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo, 1991) In a letter ref. No. EIA-68/23.10.2024 from the Ministry of Environment and Water, published on the Ministry's website, the Greek government informed the Republic of Bulgaria that it intends to participate in the environmental impact assessment procedure for the investment project "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region. For this purpose, you must submit the EIA report and the SEA report on the protected areas for the above-mentioned IP in Greek for submission to the Greek side.</p>	<p>The report contains an additional analysis of the transboundary impacts, set out in point V.12.</p>
8. Ministry of Agriculture and Southeast	<p>Re: Your letter Ref. No. 32/13.11.2024 and our letter Ref. No. ASD-09-335/18.11.2024, regarding consultations to determine the scope and the content of the environmental impact assessment (EIA) of the investment proposal for "Extraction and processing of polymetallic</p>	<p>Positive opinion.</p>

Organization	Opinion	Reasons for acceptance/rejection
State Enterprise, State Forestry Ivaylovgrad, Ref. No. ASD-09-50 of 10.02.2025	<p>ores from the Rosino deposit, area ..Tintyava, located in the territory of the villages of Rosino and Gugutka, Ivaylovgrad municipality, Haskovo region.</p> <p>After reviewing the scope and content of the assignment provided to us for the environmental impact assessment (EIA) of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the territory of the villages of Rozy and Gugutka, Ivaylovgrad municipality, Haskovo region, and on the basis of Article 95, paragraph 3 of the Environmental Protection Act, TP DGS Ivaylovgrad has no proposals or objections to the task as prepared and gives a positive opinion on it</p>	

Table No. XI-2 Initial assessment of the quality of the EIA, made by letter from the Ministry of Environment and Water, ref. No. EIA-68-65/20.10.2025, and the manner in which the comments are reflected in the report.

No	Organization	Opinion	Reasons for acceptance/rejection
1	Ministry of Environment and Water, ref. No. EIA-68-65/20.10.2025 Re	<p>Re: <i>Assessment of the quality of the environmental impact assessment report, including the report assessing the degree of impact for the investment proposal (IP) "Extraction and processing of polymetallic ores from the "Rosino", Tintyava area, Ivaylovgrad municipality"</i></p> <p>After reviewing the above-mentioned environmental impact assessment report (EIA), including the attached impact assessment report (IAR) submitted to the Ministry of Environment and Water (MOCB) with ref. No. OBOC-68-30/08.08.2025 for quality assessment, significant omissions and inconsistencies were found, which do not allow a decision to be made.</p>	
		<p>1. Regarding the OBOC report:</p> <p>Pursuant to Article 14, paragraph 4 of the Ordinance on the Conditions and Procedure for Performing Environmental Impact Assessments (the EIA Ordinance), the quality assessment of the EIA report is negative. The following ambiguities and omissions have been identified:</p>	
		1. Under the "Water" component:	
		<p>1.1. According to the "Reference on consultations consultations and the of reflection of the opinions received" it was established that part of the questions raised</p>	<p>Accept . To the EIA are attached the following documents, supplemented in accordance with the comments and signed by the persons who prepared them:</p>

	<p>The conditions and comments from the MOCB opinion on the scope and content of the OBOC have been accepted and reflected in the report. A "Report on Integrated and Sustainable Water Management," a "Hydrological Assessment of the Outflow in the Byala River and its Tributary, the Appa Dere River," and a "Report on the Assessment of the Side Effects of the Explosion on the Environment" have also been prepared and submitted.</p> <p>In the OBOC report, Table XI-1. <i>"Summary of consultations held and how the opinions received were reflected", regarding the component ;Water" for items 2.6.1. -2.6.5. it is stated that</i></p> <p><i>"Hydrological assessment of the outflow in the Biala River and its tributary, the Appa Dere River," "Report on integrated and sustainable water management" and "Report on the assessment of the side effects of the explosion on the environment", but after reviewing them, it was found that they lack the required:</i></p> <ul style="list-style-type: none"> • results from determining the hydrogeological parameters of the aquifers, as well as determining the filtration coefficient of the rock types in the area of the "Rozino," area "Tintyava"; • determination of the potential risk of water seepage from the tailings pond into the groundwater in the area; • determination of the potential risk of water seepage from the backfilling of the pit with waste rock; • assessment of the impact of blasting on the mechanical properties of water-bearing rocks. Possibility of additional cracks appearing; • analysis and assessment of the impact of blasting operations, analysis and assessment of the impact of ore extraction and material removal from the mine pit, as well as analysis and assessment of the impact of deposited material (in the tailings pond and during backfilling) on the water intake facilities intended for drinking and domestic water supply to the population located in the area of the Rosino deposit, Tintyava area. This includes water intake facilities , used by Water supply and sewerage and Municipality 	<ol style="list-style-type: none"> 1. Text Appendix No. 10 Hydrological assessment of the outflow in the Biala River and its tributary Arpa Dere 2. Text Appendix No. 11 Water management 3. Text Appendix No. 12 Test blasting report 4. Text Appendix No. 16: Hydrogeological assessment. <p>The conclusions of the above-listed documents contain answers to the questions posed.</p>
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		Ivaylovgrad with and without established COZ.	
		<p>1.2. Water balance modeling shows that approximately 300 000 m³ of active volume will be required for the fresh water reservoir, and to achieve this, the reservoir has been designed with a total allowable volume of 365 000 m³. Modeling shows that a water inflow of 50 l/s for 5 months of the year is sufficient to supply the project based on this water volume. According to the preliminary design, to compensate for the expected annual water deficit of approximately 125,000 to 300,000 m³ in the plant's water supply, water will be supplied from a pumping station on the Apra Dere River located approximately 1.7 km east of the site. It is planned to pump water directly from the Apra Dere River during the wet months of the year (from January to May inclusive). Water will be taken from the Apra Dere River near its confluence with the Yuren Dere River and adjacent to the existing pumping station in the village of Rozino. This pumping station is designed to pump water from a spring that flows into the whirlpool. The flow rate of this spring varies between 6 and 11 l/s throughout the year, depending on the season. It has been calculated that the flow rate required to supply the village of Rozino is approximately 0.34 l/s. The excess water from the spring, after the relevant justification, could be used for the industrial needs of the site throughout the year. It is planned that the water intake will be carried out from a naturally formed pool without the need to build a dam or other CMP activities blocking the river.</p> <p>Bottled water will be supplied for drinking purposes, and industrial water will be used for domestic purposes.</p> <p>There are no plans to build a central sewerage system due to the lack of a treatment plant near the site.</p> <p>A "zero discharge" approach has been adopted and there are no plans to discharge wastewater into surface water bodies.</p> <p>From the above, it is clear that the planned water intake from the Apra Dere River will be maintained and there are no plans to reduce the quantities, nor has the possibility of reducing them been considered.</p>	<p>The water balance modeling and the planned water intake quantities have been made taking into account the water quantities necessary for the implementation of the IP, according to the descriptions of the IP's provisions, and there is no justified need to reduce these water quantities. They have been calculated on the basis of the IP's requirements, in accordance with technological needs and expected requirements.</p> <p>The hydrological assessment presented in Text Appendix No. 10 defines the main hydrological characteristics necessary to justify the water use regime. For the Apra Dere River (in the section before the confluence with the Yuren Dere River), the average annual discharge (discharge rate) is estimated at 1.037 m³/s, which corresponds to an annual discharge of 32.707 million m³/year. On this basis, an ecological minimum (ecological minimum) of 0.104 m³/s has been defined, accepted as 10% of the discharge rate, which should be guaranteed in the planning and operation of water abstraction, along with the priority provision of water supply for the population.</p>
		1.3. Information from the River Basin Management Plan (RBMP) for the Eastern Black Sea region is presented in tabular form for the connection of terrestrial ecosystems with groundwater	Accepted. The analysis is presented in point II.2 Groundwater, pp. 72-78.

		<p>water body BG3G000PtPg049. There is no analysis of compliance with the provisions of Article 116(1)(4) of the Water Act - all waters and water bodies shall be protected from depletion, pollution, and damage in order to maintain the necessary quantity and quality of water and a healthy environment, preserving ecosystems, conserving the landscape, and preventing economic damage, including ensuring the development of aquatic ecosystems and related terrestrial ecosystems, and the measures set out in the 2022-2027 RBMP that are relevant relation to the present IP.</p>	
		<p>1.4. The OBOC report provides information on the planned water abstraction and the possible impact on the surface water body. To fill the open reservoir for non-contact water, it is planned to use water from the Appa Dere River during the period January-May, when there is sufficient flow in the river, in the area of the pumping station (PS) "Rozino" at a flow rate that will provide a water quantity of 50 l/s (expected total volume of 648,000 m³). This flow, equal to about 10% of the average multi-year water quantity, guarantees the ecological minimum in the river. Hydrological data for the Apa Dere River are presented in tabular form. The Apa Dere River is a left tributary in the middle course of the Byala River. Water abstraction of a total of about 648,000 m³ for the months from January to May (inclusive) represents about 0.54% of the average water quantities for the Byala River during this period, according to data from XMC 62800, Byala River, Dolno Lukovo village (according to the table provided).</p> <p>In connection with the information presented in the OBOC report, it is stated that the planned water abstraction from the Appa Dere River to fill the open reservoir for non-contact water during the operation of the Rozino deposit, with a total volume of 648,000 m³ and limited to the months from January to May (practically outside the active irrigation season), is not expected to have a negative transboundary impact on the quantitative status of surface waters. The annexes to the OBOC report present a hydrological assessment of the outflow in the Biala River and its tributary, the Appa Dere River, near the village of Gugutka, Ivaylovgrad Municipality, Haskovo Region. The presented development is without signature. In , the attached Hydrological Assessment lacks analysis and conclusions regarding the specific amount of water intake provided for in the IP and</p>	<p>Accepted.</p> <p>Text Appendix No. 10 to the EIA contains a supplemented, in accordance with the comments, and signed by the persons who prepared it, "Hydrological assessment of the outflow in the Biala River and its tributary Arpa Dere."</p> <p>The planned water abstraction from the Arpa Dere River has been assessed on the basis of a hydrological survey and complies with the requirement to maintain an ecological minimum (ecomimum) of 0.104 m³/s, defined as 10% of the average annual flow of the Arpa Dere River before it joins the Yuren Dere River. There is an existing pumping station in the area for supplying water to the village of Rozino with a flow rate of 10 l/s, and the planned water use for the investment project is at an average consumption of ~8 l/s and technical capability for mode 1 pump – 50 l/s / 2 pumps – 100 l/s to balancing tanks. The hydrological analysis shows that in an average year, full-capacity water abstraction is possible in January–May and December, thus ensuring both the eco-minimum and the water supply to the settlement; in June–November, the water flow is below the eco-minimum and therefore water abstraction is permissible only at rainfall, providing a momentary flow of over 0.164 m³/s (164 l/s) – the sum of the eco-minimum and the maximum amount for the village.</p>

		the impact it will have on the outflow.	Rozino and the capacity of one pump (50 l/s). Additionally, it has been noted that the water-drawing lagoon at the water intake is about 50 m ³ , which requires the regime to be linked to available inflow/rainfall events in order to ensure normal operation. In conclusion, the application of this seasonal and conditional water pumping regime aims to prevent shortages for drinking and domestic needs and to ensure compliance with the eco-minimum, while at the same time providing the necessary quantities for implementation of the IP.
		<p>1.5. The OBOC report states that the IP does not affect drinking water supply facilities and sanitary protection zones for these facilities. Within the territorial scope of the future concession area "Rozino" there is only one cyx well (P-19) near the village of Rozino on the road to the village of Gugutka (not in use) and the "Anas" fountain (G-1) near the village of Gugutka (not in use). In the wider area around the IP site, other water sources have been identified that are used for watering and irrigation, as well as those that are not used or have dried up. 800 m east and 1800 m south of the boundaries of the future concession area "Rozino" are located facilities of VIK - Haskovo PC Rozino (on the terrace of the Arta Dere, PBT BG3G000PtPg049) and Gugutka (on the terrace of the Byala Reka River, BT BG3MA100R270), permits under the Water Act and without established sanitary protection zones.</p> <p>No assessment has been made as to whether individual sections of the IP fall within future sanitary protection zones in connection with the presence of water intake facilities for drinking and domestic water supply less than 1000 m from the boundaries of the future concession area, for which no CO3 has been established.</p>	<p>The assessment is presented in the EIA report submitted to the Ministry of Environment and Water in August 2025. It explicitly states: A survey of all available water sources around the future concession area has been conducted. At 800 m east and 1800 m south of the boundaries of the IP, there are water supply and sewerage facilities – Haskovo PS Rozino (on the terrace of Arpa Dere) and PS Gugutka (on the terrace of the Biala River), Figure No. IV.2.2-3, Table No. IV. 2.2-11 and Table No. IV. 2.2-12. Information has been requested from the BDIB under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIB (Text Annex No. 15) explicitly states that "At present, we have no information about the existence of future II or III zones of the SOWZ for nearby water sources for drinking and domestic water supply." In view of this, it is not possible to make such an assessment and our expert position remains unchanged.</p> <p>In addition, from a geological point of view, PS Gugutka and PS Rozino have no hydraulic connection with the Rozino deposit, as the water intake of PS Gugutka is from the river terrace of the Byala River,</p> <p>, and its tributaries located above</p>

			the deposit. PS Rozino is fed by karst springs east of Arpa Dere and its tributaries, in whose catchment area the Rozino deposit and specifically the discovered mine.
		1.6. The OBOC report does not include information on the characteristics of hydrogeological conditions and factors (based on hydrogeological studies and the hydrogeological report submitted to the East Aegean Sea Region Database) affecting the quantity and quality of groundwater in the area in order to clarify the impact of the exploitation of the Rozino deposit on groundwater, specifically on the water sources for drinking and domestic water supply to the settlements in the area. No hydrogeological report is presented in the annexes to the report, and no geologist-hydrogeologist is included in the team of experts who prepared the report.	Accepted. Information is included in point II.2 Groundwater, pp. 72-78. The hydrogeological report is presented in Text Appendix No. 16 and is signed by the authors. An engineer-hydrogeologist has been added to the team.
		1.7. The report provides information on drilling and blasting operations. A report assessing the side effects of the explosion on the environment is attached, but it is not signed and no document certifying the necessary classification of the author has been submitted. The Study assumes that, given that the relief where the deposit is located is a hill, the radius of the protected area is not less than R=450 m. The following conclusions can be drawn from the assessment of the impact of blasting operations on people and the environment, part of which is that: The PBP technology envisaged for the development of the "Rozino" deposit is in accordance with the standards for safe impact on people and construction facilities outside the danger zone when applying drill-and-blast rock breaking for all three diameters of explosive drill holes (76, 89, and 102 mm) provided for in the conceptual design when detonating each drill charge with a separate (independent) delay interval, with the maximum mass of the drill charge not exceeding 30 kg, according to the forecast calculations based on the experimentally established dependencies of the static impact of the explosion on the distance and mass of the charge. In conclusion, there is no conclusion specifically addressing surface and groundwater in the area, given that approximately 620 m east of the area is	The Rosino water intake is located 2,300 meters from the contour of the mine where mining will take place and 1,300 meters from the boundary of the buffer zone with a radius of 1,000 meters from the water intake facility. As can be seen from Figure II.1.2-1, the catchment is close to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir. We emphasize once again that extraction will take place 1300 m from the boundary of the buffer zone with a radius of 1000 m and 2300 m from the catchment itself, which is why we find no grounds for excluding the buffer zone zone around catchment "Rozino". The exclusion of this territory will make it impossible to build a reservoir for

		capture facility for drinking and domestic water supply.	<p>clean water necessary for the implementation of the IP. Test explosion: No were vibration or dynamic parameters that exceed the natural seismicity of the area.</p> <p>Conclusion: The results give reason to conclude that, provided the recommended maximum mass of the explosive is observed in a delay interval, the vibration velocity at depth is not expected to exceed which will have a seismic impact on groundwater and water supply sources and the implementation of IP has have negative impact on drinking water sources, which are not directly affected by the extraction works.</p> <p>The additions are made in Section V.2 of the report.</p>
		<p>1.8. The following measures are provided for in the IBR's 2022-2027 RBMP:</p> <ul style="list-style-type: none"> Annex 7.2.1 to Section 7 of the RBMP for the IBR provides for a measure entitled: Prohibitions and restrictions on activities in drinking water protection areas and in designated CO3 and buffer zones around water abstraction facilities/systems, action to implement the measure: DW_1_35 Prohibition on the extraction of underground resources, including inert materials, in a buffer zone with a radius of 1000 m from water intake facilities for underground water for drinking and domestic water supply. The measure has code DW_1; Annex 7.2.1 to Section 7 of the RBMP of the IBR provides for a measure entitled: Prohibitions and restrictions on activities in drinking water protection zones and in designated CO3 and buffer zones around water abstraction facilities/systems, action to implement the measure: DW_1_4 Compliance with prohibitions and restrictions in CO3 in accordance with the order defining the zone and the list in Annex No. 1 to the National Catalogue of Measures (PURB). The measure has code 	<p>Accepted. The report has been supplemented.</p> <p><u>Regarding the measure with code DW_1 and action for implementation of measure: DW_1_35:</u></p> <p>The information is on page 77. In addition, we emphasize that extraction will take place 1,300 m from the buffer zone with a radius of 1,000 m and 2,300 m from the catchment itself, which is why we find no reason to exclude the buffer zone around the Rozino catchment from the future concession area. The exclusion of this territory will make it impossible to build a clean water reservoir, which is necessary for the implementation of the investment project.</p> <p><u>Regarding measure code DW_1 and action for implementation of the measure: DW_1_4:</u></p> <p>The area of the IP does not affect facilities for the extraction of water for drinking and domestic needs, as well as established sanitary protection zones around them. The information is provided on pages 72–73 and Table No. IV. 2.2-12.</p> <p><u>Regarding measure code HY_3 and action for</u></p>

		<p>DW_1;</p> <ul style="list-style-type: none"> In Annex No. 7.2.1.; Section 7 of the RBMP of the IBR provides for a measure entitled: Prohibition on the extraction of inert materials less than 50 m from river banks, action for implementation of the measure: NY_3_1 Prohibition on the extraction of inert materials less than 50 m from river banks. The measure has code NY_3; Annex 7.2.1. to Section 7 of the RBMP of the IBR provides for a measure entitled: Prevention of the discharge of priority substances into groundwater, action to implement the measure: GD_1_2 Prohibition or restriction of activities that increase the risk of direct or indirect discharge of priority and hazardous substances or other pollutants into groundwater, including the exposure of groundwater to the surface by removing sediments and soils covering the water body. The measure has code GD_1. <p>In connection with the above, the OBOC report should be supplemented by:</p>	<p><u>implementation of measure: HY_3_1:</u> The Rosino IP does not provide for the extraction of inert materials in the vicinity (50 m) of river banks. <u>Regarding measure code GD_1 and action for implementation of the measure: GD_1_2:</u> Extraction works will be carried out in the infiltration zone without reaching the water level. Passive groundwater inflow will be pumped to the installation as a priority in order to meet the technological requirements of the OF. The impact on the chemical status of groundwater will be neutralized by lining the bottom and walls of the contact water tank with an insulating screen and by constructing a system to capture any breakthroughs, including a drainage curtain and an injection barrier. The information is provided on page 163.</p>
		<p>- All developments and appendices to the OBOC report should be signed and accompanied by documents certifying the necessary qualifications of the report's author.</p>	Completed.
		<p>- To characterize the hydrogeological conditions and factors (based on hydrogeological studies and the hydrogeological report presented in the "Eastern Black Sea Region" database) affecting the quantity and quality of groundwater in the area in order to clarify the impact of the exploitation of the Rosino deposit "Rozino" on groundwater, specifically on the water sources for drinking and domestic water supply to the settlements in the area. Information should also be included on the existence of water intake facilities submitted by the Municipality of Ivaylovgrad with ref. No. PU-01-183(3)/10.05.2023, the Municipality of Krumovgrad with ref. No. PU-01-183(4)/12.05.2023, and "V and K" EOOD, Haskovo, ref.</p>	<p>The company is not mentioned in the correspondence and does not have these letters. Upon additional request, the letter from the Municipality of Ivaylovgrad, ref. No. PU-01-183(3)/10.05.2023, was provided, which specifies a pressure tank (property 62953.177), a pumping station (property 59197.45.59), and a pressure water pipe – Rozino. The properties are outside the area of the IP. All facilities, including those mentioned by the Municipality of Ivaylovgrad, are shown in Figure No. IV.2.2-3. Table No. IV. 2.2-12. presents information for water intake facilities, in</p>

		PU-01-183(2)/03.05.2023. The information must be prepared by a qualified person (geologist-hydrogeologist) and the hydrogeological report must be attached to the OBOC report.	the IP area, obtained from BD IBR and VIK-Haskovo and in Table No. IV.2.2-11. Water sources within the territorial scope of the site subject to the IP or in a wider scope around it. We emphasize that there are only two water sources in the future concession area: R-19 Kladenets, Rozino village, the road to Gugutka, which is dry, and G-1 Fountain, Anas, Gugutka village, which is not in use.
		- Consider the possible impact of the IP on surface waters in terms of compliance with the provisions of Article 146, paragraph 1, item 4 of the Water Act - all waters and water bodies shall be protected from depletion, pollution, and damage in order to maintain the necessary quantity and quality of water and a healthy environment, preserving ecosystems, conserving the landscape, and preventing economic damage, including ensuring the development of aquatic ecosystems and related terrestrial ecosystems, and the measures set out in the 2022-2027 RBMP relevant to this IP.	The report has been supplemented. The analysis is presented on page 72.
		- An assessment should be made as to whether individual sections of the IP fall within future zones II or III of CO3 of nearby water sources for drinking and domestic water supply to the population. If they do, it should be noted that there are certain prohibitions, restrictions, and limitations in cases of proven necessity in accordance with Ordinance No. 3/16.1.2000 on the conditions and procedures for the study, design, approval, and operation of sanitary protection zones around water sources and facilities for drinking water supply and around mineral water sources used for therapeutic, prophylactic, drinking, and hygiene needs.	The assessment is presented in the EIA report submitted to the Ministry of Environment and Water in August 2025. It explicitly states: A survey of all available water sources around the future concession area has been carried out. At 800 m east and 1800 m south of the boundaries of the IP are the facilities of VIK – Haskovo PS Rozino (on the terrace of Arpa Dere) and PS Gugutka (on the terrace of the Biala River), Figure No. IV.2.2-3, Table No. IV. 2.2-11 and Table No. IV. 2.2-12. Information has been requested from the BDIB under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIB (Text Annex No. 15) explicitly states that " At present, we have no information about the existence of future zones II or III of the SSS in nearby water sources for domestic water supply "

			<p>water supply." In view of this, it is not possible to make such an assessment, and our expert position remains unchanged.</p> <p>In addition, from a geological point of view, PS Gugutka and PS Rozino have no hydraulic connection with the Rozino deposit, as the water intake of PS Gugutka is from the river terrace of the Byala River and its tributaries located above the deposit. PS Rozino is fed by karst springs east of Arpa Dere and its tributaries, whose catchment area does not include the Rozino deposit and, in particular, the open-pit mine.</p>
		<p>- The conclusions made in the Report on the assessment of the indirect impact of the explosion on the environment should be supplemented by including conclusions specifically related to surface and groundwater, bearing in mind that a drinking water supply catchment is located approximately 620 m east of the area. The drinking water supply source should be included among the sites to be protected in the report.</p>	<p>The Rosino water intake is located 2,300 meters from the perimeter of the mine where extraction will take place and 1,300 meters from the boundary of the buffer zone with a radius of 1,000 meters from the water intake facility. As can be seen from Figure No. II.1.2-1, the catchment is close to point 6 of the contour of the future concession area, with this point being below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir, and the quality of the water in it must also be protected.</p> <p>The report from the test explosion has been supplemented and presented in Text Appendix No. 12. According to the supplements: No vibration or dynamic parameters exceeding the natural seismicity of the area have been established. Conclusion from the report: The results obtained give reason to conclude that, subject to compliance with the recommended maximum mass of explosives in a delay interval, no</p>

			depth that would have a seismic impact on groundwater and water sources, and the implementation of the IP will not have a negative impact on drinking water sources, which are not directly affected by the extraction
		- The report should also consider the above measures that are relevant to the IP.	Reflected in the report.
		2. With regard to atmospheric air and climate:	
		2.1. Greenhouse gas emissions:	
		The OBOC report states that "the implementation of the IP will not contribute to climate change, i.e. no greenhouse gas emissions will be generated." This statement contradicts the report's own findings, which note that emissions from diesel engines in construction and transport equipment will be generated during construction and operation. The text also describes standard measures to limit greenhouse gas emissions (maintenance of equipment, prevention of idling, application of European standards), but there is no quantitative assessment.	Accepted. Corresponding additions have been made in sections IV.1, V.1, and VI.6.6.
		Other sources of greenhouse gas emissions have not been considered — from blasting, ore processing (energy-intensive processes), concentrate transport, and tailings pond operation and reclamation. Therefore, the information on greenhouse gases is insufficient. A quantitative calculation of emissions in tCO ₂ e/year for all stages and costing according to reference indicators.	Accepted. The relevant additions have been made in sections IV.1, V.1, and VI.6.6.
		2.2. Adaptation to climate change: In the report is included paragraph, in which are described "primary and secondary health effects" of climate change — heat waves and cold spells, vector-borne diseases, contaminated food and water, mental disorders. This information is accurate and useful, but it is presented in a general, reference manner and is not linked to the specific investment proposal. In conclusion, the authors state that "no significant impacts on biodiversity have been identified."	Accepted. The addition made to the report, section VI.6.6, is in line with the EC Guidance on integrating climate change and biodiversity into EIA, 2013.

		<p>significant negative impacts associated with the IP, and therefore no adaptation measures are required." This conclusion is not sufficiently substantiated. There is no analysis of the impact of climate risks characteristic of the region, such as:</p> <ul style="list-style-type: none"> • extreme precipitation and torrential rains - a risk to the mine, tailings storage facility, and waste dumps; • droughts and heat waves - water shortages for flotation, health risks for workers; • forest fires – a real threat in the Eastern Rhodopes; • landslides and erosion – possible intensification due to changing rainfall patterns. <p>These risks have not been assessed, nor have specific adaptation measures been proposed (e.g., engineering solutions for drainage, backup water sources, fire prevention measures, emergency plans).</p>	
		<p>2.3. The OBOC report does not refer to key documents that set the framework for integrating climate aspects:</p> <ul style="list-style-type: none"> • National Strategy for Adaptation to Climate Change and Action Plan • ; • European Strategy on Adaptation to Climate Change (2021). • European Strategy for Adaptation to Climate Change (2021). <p>In view of the above, with regard to climate change, the information in the report should be supplemented with:</p> <ul style="list-style-type: none"> • Quantitative assessment of greenhouse gas emissions from all stages and facilities, including costing; • An analysis of the project's vulnerability to climate risks and extreme events; 	<p>The addition to the report is in line with the EC Guidance on integrating climate change and biodiversity into EIA, 2013. The reference and comparing with objectives and priorities from strategic documents is carried out in environmental assessment procedures, but not in EIA procedures, as the level of detail of assessments differs significantly. According to Article 96, paragraph 1, item 5, letter e), the report for EIA must contain contain: the impact of the investment proposal on climate (e.g., the nature and extent of greenhouse gas emissions) and the of the investment proposal to climate change). Based on the analyses carried out and in response to the identified risks related to climate change, the project has provided for a package of engineering, technical and organizational measures aimed at increasing</p>

		<ul style="list-style-type: none"> Specific engineering and organizational measures for adaptation. 	<p>resilience to climate change. These measures are in line with national adaptation priorities (improving infrastructure resilience, protecting natural resources and health) and with the European Adaptation Strategy (for "smarter, faster and more systematic adaptation" to climate change) - Section VI.6.6 of the report.</p> <p>Greenhouse gas emissions cannot be quantified given the stage of development of the IP and the lack of a mining concession that would allow for detailed engineering design. Furthermore, the costing of emissions does not contribute in any real way to the EIA, as the process is dynamic and the IP could be implemented in about five years at the earliest, when quotas and prices will most likely be different.</p>
		<p>2.4. Air monitoring is not comprehensive enough—there is no comprehensive program for long-term control. The link with certain climatic factors, such as temperature inversions, etc., has not been taken into account. The analysis is limited to technical parameters and does not consider the cumulative effects with other sources of pollution. The link with health risks to the population is not covered in sufficient detail.</p>	<p>After the IP is approved and a mining concession is obtained, a self-monitoring plan will be developed, which must be agreed with the competent environmental authorities. Cumulative impacts are discussed in VI.6.5, and Text Annex 14 lists all other IPs included in the analysis.</p> <p>Health risks are discussed in detail in Section V.11 and Section VI.6.5.</p> <p>In accordance with the comment, the assessment of health risks to the population in section V.11 has been supplemented.</p> <p>The word "sufficient" is entirely subjective and does not indicate any specific omissions. It is therefore unclear what exactly is missing from the analysis that needs to be supplemented. The additions are at the discretion of experts who prepared the relevant sections.</p>
		<p>The OBOC report also does not consider the interactions between climate, air, and water within a single logical framework.</p>	<p>The analyses and assessments are made in accordance with</p>

			the methodological
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			guidelines and instructions of the EC, referred to in the EIA. None of them require a "single logical framework" and consideration of the interactions between climate, air, and water. There is no such regulatory provision or other methodological guidelines other than those mentioned.
		3. With regard to biodiversity:	
		In the OBOC report, in section IX "Description of the measures envisaged to avoid, prevent, reduce and, where possible, eliminate the significant adverse effects on the environment and human health" on page 250, we propose additions in connection with the objective described in the report, <i>"The implementation of the measures should lead to the maximum preservation of the populations of plant and animal species found on or in the immediate vicinity of the IP,"</i> we propose:	Comments by the authors of the EIA report on the remarks made on the plan of measures in section IX: The proposals made are entirely within the powers of the Ministry of Environment and Water, which, at its discretion and within the scope of its competence as an environmental authority, may propose conditions and measures to be included in the EIA decision. Given the obligation of the authors of the EIA report to be independent in carrying out the assessment, the formulation of measures to prevent and reduce impacts, the declarations signed by each of the experts under Article 83(4) of the Environmental Protection Act, and the criminal liability in this regard, we refrain from expressing an opinion on the proposals and recommendations made.
		3.1. On page 256, measure 41, the words "only autochthonous" should be replaced with "local plant species suitable for the region." It is not possible to find a sufficient number of seedlings, cuttings, or seeds of autochthonous species. The material for recultivation comes from the available numbers and species in existing nurseries, and it is important that they are not foreign but local species that will benefit the environment.	Explanation: An autochthonous species is a native species that has originated in a specific region or ecosystem through local natural evolution. These species occur naturally, are adapted to local conditions, and play a vital role in the health and biodiversity of the ecosystem. This term is synonymous with "native" or "indigenous" and is the opposite of exotic or introduced species. On the other hand, the more vague (from a scientific point of view) term "native" can mean a species that occurs in the area/region, such as acacia. To avoid ambiguity, the text of the measure uses the expression "trees native to the area"

			and shrub species" is replaced with the phrase "native tree and shrub species".
		<p>3.2. On page 256, add a new measure 42 for the design and construction phases, with the following result of implementation: protected biological diversity, with the following text</p> <p>"Activities related to the preparation of the project site shall commence outside the nesting and rearing period from March 15 to June 30." This is a compensatory measure for the text described on page 167</p> <p>"When activities commence during the nesting season, if there is a nest within or near the IP, there is a risk that it will be destroyed or abandoned, resulting in the loss of eggs and/or young. If this happens, the impact on the population of the species in the area could be significant."</p>	<p>Such a measure is included in the EIA:</p> <ul style="list-style-type: none"> - Mine construction should begin outside the periods 1 April – 15 August and 20 November – 10 March. <p>The periods indicated take into account the nesting of bird species subject to protection in the Byala Reka Special Protection Area. They include the nesting period of the northern goshawk (nest building begins in early April; Simeonov et al. 1990), the breeding season of the wildcat (birth is in April; Peshev et al. 2004), most of the active season of the yellow-bellied toad, including its breeding season, as well as its hibernation period.</p> <p>The measure is also recorded in the EIA.</p>
		<p>3.3. Add a new measure 43 for the design and construction phases, with the result of implementation being protected biodiversity, with the following text "Vehicles and machinery да не излизат извън съществуващите/определените roads when performing the relevant activities described in the IP."</p>	<p>The proposed measure in duplicates duplicates measure 42 included in the EIA.</p>
		<p>3.4. Add a measure for securing electricity poles, related to the text on page 165: "Bird mortality can also be observed from power lines. When using poles with an inappropriate design, this can be caused by electric shock in the case of 20 kV power lines. In the case of higher voltage power lines, there is no risk of electric shock, but there is a possibility of birds colliding with the lightning protection cable."</p>	<p>Such measures are laid down in the EIA:</p> <ul style="list-style-type: none"> - When constructing a 20 kV power line, the poles should be of a type that prevents electric shock to birds, or the live parts should be insulated in an appropriate manner. The measure should be consulted with an expert ornithologist at the design stage; - When constructing a power line above 20 kV, deflecting (contact) plates (or diverters), rotating spheres or spirals made of phosphorescent material shall be installed on the lightning protection cable. Type, lengthwise placement, and density them to to consult at stage design with an expert ornithologist.

		<p>3.5. for the 5 protected species, described on p. 167 the yellow-bellied snake (<i>Ophisaurus apodus</i>), the northern goshawk (<i>Accipiter gentilis</i>), the red-breasted flycatcher (<i>Ficedula parva</i>) and the wildcat (<i>Felis silvestris</i>) should be listed as enforceable, measurable, and controllable measures in the table, indicating who is responsible for their implementation and setting a condition for providing scientific advice and monitoring during their implementation.</p>	<p>The measures are also recorded in the EIA.</p> <p>A measure concerning these species is included in the EIA: - Mining construction should begin outside the periods 1 April – 15 August and 20 November – 10 March.</p> <p>The periods indicated take into account the nesting of bird species subject to protection in the Byala Reka Special Protection Area. They include the nesting period of the northern goshawk (nest building begins in early April; Simeonov et al. 1990), the breeding season of the wildcat (birth is in April; Peshev et al. 2004), most of the active season of the yellow-bellied toad, including its breeding season, as well as its hibernation period.</p> <p>The measure is also recorded in the EIA.</p> <p>The red-breasted flycatcher has only been observed during migration (the species nests in old beech forests, which are absent in the area). During this period, it can be found anywhere, including in green spaces between blocks of flats in large cities (personal observations). There will be virtually no impact on the species. Measures for the species are not necessary.</p>
		<p>4. With regard to "Soils" and "Subsoil and mineral diversity":</p>	
		<p>4.1. The OBOC report lacks a detailed analysis of mineral diversity outside of gold-bearing ores. The risk of geochemical processes (drainage, mobilization of heavy metals, etc.) has not been examined in depth.</p>	<p>Accepted. Added to section IV.4.</p>
		<p>4.2. Cumulative impacts have assessed too simplistic.</p>	<p>Not accepted. The statement is subjective and unfounded, both in terms of the criteria for assessing the quality of the EIA and the applicable methodology for analyzing cumulative impacts. The assessment of cumulative impacts is made according to environmental components and factors, in accordance with the European Commission's Guidance on the assessment of indirect and cumulative impacts and interactions between impacts, May 1999, xml-ph-0000@ec.europa.eu</p>

			Commission's "Guidelines for the assessment of indirect and cumulative impacts and interactions of impacts", May 1999, referred to in the report. At present there are no other guidelines available.
		4.3. The description of the ores—the main subject of the IP—is inconsistent and does not provide a realistic picture of their mineral and chemical composition. Gold is listed as the only element for extraction and recovery, and it is unclear whether complex use of the ores is planned, and there is no information about silver and other precious metals. In this regard:	Accepted. The answers to questions 4.3.1 to 4.3.4 are supplemented in section IV.4 of the report.
		4.3.1. How many types (or varieties) of ore have been identified in the Rosino deposit, Tintyava area, and what are they? The term "ore" is an economic concept and differs significantly from other similar terms, such as mineralization and mineralization. Therefore, the types of ore to be mined in the deposit must be justified in advance depending on the natural characteristics, the technology of extraction and the enrichment of the useful components. However, if there is only one type of ore for which reserves have been calculated, then this should be clearly stated throughout the report.	
		4.3. It is not clear why the ore from the deposit is first defined as polymetallic (in the title of the OBOC report), then as polymetallic (gold-silver) on page 11, and thirdly as polymetallic gold-silver (again on page 11). It is unclear what other metals are known, evaluated, and potentially extractable from the ore in the deposit in order for it to be classified as polymetallic. The report does not provide such data, and there is no basis for calling the ore from the deposit polymetallic.	
		4.3.3. In the OBOC report, the Rosino deposit in the Tintyava area is repeatedly referred to as gold-silver. Reserves of 11.3 million tons of ore with a gold content of 1.33 g/t are indicated. However, there is no mention of calculated reserves or resources of silver, nor of its presence in the ore at all. The expected end product from the implementation of the IP is also only gold-bearing concentrate. The flotation process for ore enrichment is described in detail , , with the target concentration of gold in	

		<p>the final concentrate is between 22 and 30 g/t, depending on its content in the source ore. It is not described how this process will be controlled and how the gold content will be determined. It is unclear what the loss of gold, silver, and other useful components that will go into the flotation waste will be.</p> <p>The presence of pyrite in the waste could create serious environmental problems in the area.</p>	
		<p>4.3.4 It is unclear what form the gold takes in the ore from the deposit. The answer to this question directly concerns the ore enrichment technology. The OBOC report mentions once that "no native gold has been found in the ore" (p. 39), while elsewhere it describes gold found only in individual samples (p. 85). It is highly likely that most of the gold in the deposit is present as an impurity in other minerals. With the form of gold presence in the ore unclear, what exactly will be the starting natural project (mineral or group of minerals) that will be subjected to enrichment by flotation in order to obtain the expected end product - gold-bearing concentrate with a content of Au g/t?</p>	
		<p>4.3.5. Regarding the impact on soils:</p> <p>When assessing soil contamination, only the soils within the IP area are taken into account. There is no information on the soils in the nearby villages and agricultural lands that are threatened by unorganized dust emissions as a result of drilling and blasting activities, crushing, transportation of crushed ore, grinding, and as a result of the deposition of fine dust flotation waste. In this regard, monitoring activities should be planned at selected sites for environmental control in the area before and after the start of exploitation of the deposit.</p>	<p>The claim that agricultural land is threatened by unorganized dust emissions is subjective and unfounded. The mathematical modeling of the spread of PM10 and PM2.5 and its illustration in the relevant figures (No. V.1.2-3 and No. V.1.2-4) clearly shows that the dust particles will settle within the concession area. Within the boundaries of the nearest residential areas, the maximum levels of PM10 fall below 11 µg/m³, which in no way can affect human health, let alone the soil. The flotation waste has a water to solid phase ratio of 25/75, which is achieved through thickening. This compacts the waste and reduces the possibility of dusting.</p> <p>After the IP is approved and a mining concession is obtained, a self-monitoring plan will be developed</p>

			own monitoring plan will be developed, which will necessarily include soil monitoring. The plan is coordinated and approved by the environmental authorities .
		4.3.6. On page 80 of the OBOC report, the text: <i>"The results of the analyses show compliance with the maximum permissible concentrations according to Ordinance No. 3/2008 on the standards for permissible content of harmful substances in soils and those specified in Annex 2 to Article 4 Standards for precautionary concentrations, MPC and intervention concentrations for persistent organic pollutants and petroleum products in soils for all indicators."</i> should be corrected. The results of the analyses should focus on the content of harmful substances in the soil being within the maximum permissible concentrations according to Ordinance No. 3/2008 on the standards for permissible content of harmful substances in the soil and those specified in Annex 2 to Article 4 - Standards for safe concentrations, MPC and intervention concentrations for persistent organic pollutants and petroleum products in soils for all indicators.	The text is not understood by the reader or is taken out of context. It is explicitly stated: "According to data from the Regional Report on the State of the Environment, prepared by RIEW-Haskovo, in 2022..." , i.e. this is data taken from the relevant report by RIEW-Haskovo and cannot be corrected. As can be seen from the map material, there are no industrial sources of soil pollution in the area of the IP, and therefore there is no contamination with UOZ and petroleum products.
		4.3.7. On page 153 of the report, after the text: "The humus layer and soil cover will be separated and temporarily deposited. The deposited soil materials will be used for the recultivation of the areas disturbed by the activity," text should be added regarding how the removal, storage, and utilization of the topsoil layer will be carried out and whether it will be done in accordance with the provisions of Section II of Ordinance No. 26 of 2.10.1996 on the recultivation of disturbed areas, improvement of low-yielding land, removal and utilization of the topsoil layer.	Reference to Ordinance No. 26/19 96 is made in point V.3.2. "Impact Assessment." Detailed and comprehensive information on the method of removal of the topsoil layer and subsequent recultivation is presented in sections II.2 and II.3 of the EIA. In order to avoid unnecessary repetition in the report, repetitions of already written information are avoided.
		4.3.8. On page 254 of the report: - Measure 27, in the sentence: "Mark the locations for temporary storage of topsoil within the boundaries of the designated site." - the words "and mark" should be deleted - after the quoted sentence , be add: „When	Comment by the authors of the EIA: The proposals made are entirely within the powers of the Ministry of Environment and Water, which, at its discretion and within the scope of its competence as an environmental authority, may propose conditions and measures to be included in the EIA decision. Given the obligation of the authors of the EIA to remain independent when carrying out the assessment,

		<p>the topsoil cannot be utilized immediately after its removal, it is stored in topsoil depots, in accordance with Article 10, paragraph 1 of Ordinance 26/02.12.1996.</p> <p>- Measure 28, in the sentence: "Developing a plan and monitoring the soil in accordance with Article 29, paragraph 1, item 2 of the Soil Act," the word "own" before "monitoring."</p>	<p>the formulation of measures to prevent and reduce impacts, the declarations signed under Article 83(4) of the Environmental Protection Act by each of the experts, and criminal liability in this regard, we refrain from expressing an opinion on the proposals and recommendations made.</p>
		<p>5. Regarding hazardous chemicals and the risk of accidents.</p>	
		<p>The text on page 122 under item 11.2 Risk factors related to the population and human health "Hazardous chemicals - No activities involving the storage and use of hazardous chemicals are carried out on the concession area or in its vicinity. The nearest enterprise with a risk potential for a major accident involving hazardous substances is 45 km away" is inaccurate and we suggest that it be clarified. The information contradicts the inventory list of OXBC (which will be used and stored) in Table V.9.1. Classification of hazardous substances in accordance with the requirements of Regulation (EC) 1272/2008 on the classification, labeling, and packaging of substances and mixtures, on page 186.</p>	<p>Not accepted. The text in section IV.11.2 refers to the existing/current status of risk factors and we confirm its validity. For greater clarity, the following clarification has been added: Hazardous chemicals – <i>At present, no activities involving the storage and use of hazardous chemicals are carried out on the concession area or in its vicinity. The nearest enterprise with a risk potential for a major accident involving hazardous substances is 45 km away.</i></p>
		<p>6. Upon review of the documentation from the Ministry of Health, the following shortcomings were identified from a health perspective:</p>	
		<p>6.1. Upon review of the documentation from the Ministry of Health, the following shortcomings were identified from a health perspective:</p>	
		<p>Following the analyses carried out with regard to the expected impacts on environmental factors, the following have not been done:</p> <p>- a description of the individual risk factors in terms of their impact on human health and their comparison with the applicable hygiene standards and requirements, both for the working environment and for the affected residential areas. Identification of the most significant risk factors for the affected population and workers at the site.</p>	<p>The risk factors are characterized and assessed in section V.11 of the EIA Report, separately for workers at the site and for the nearby population. An assessment has been made with regard to compliance with the applicable hygiene standards and requirements, with reference to the applicable regulatory regulations for the specific investment project and the actions to be taken/measures to be</p>

		<ul style="list-style-type: none"> - assessment of the possibilities for combined, complex, cumulative, and remote impact of risk factors, both for workers and for the population exposed to adverse effects, taking into account the production activities of other manufacturing enterprises in the area and the road sections of the municipal and national road infrastructure. - forecast assessment of the impact after implementation of the IP. Review and assessment of the health status of the potentially affected population with analysis and interpretation of demographic indicators and morbidity indicators for the areas (based on data for the last available 3-5 year period) where the population may be exposed to the impact of the construction and operation of the IP. - Comprehensive risk assessment, in a separate section, based on all analyses and assessments carried out in the report, for damage to human health, with a reasoned argument to prove that the inhabitants of the settlements will not be exposed to health risks in terms of pollution of the living environment, as well as to propose measures for health protection and risk management. 	<p>be taken with regard to safe and healthy working conditions for workers and the protection of public health.</p> <p>There are no other manufacturing plants or national roads in the area. This is stated in section II.1. and is evident from all figures in the report relating to the location, including Figure II.1.2-1 and Figure IV.11-1.</p> <p>The cumulative impact analysis is presented in Section VI.6.5. of the report, which explicitly states: <i>With regard to health and hygiene aspects, the above analyses and assessments of air quality, noise, soil, water, and hazardous chemicals show that no cumulative negative impacts on the health of the population or workers at the site are expected as a result of the implementation of the nearest IPs for the extraction of underground resources.</i> No cumulative impact is expected with other IPs either. Text Annex No. 14 to the EIA presents a comprehensive list and describes 92 other IPs, plans, and programs that have been considered for their cumulative effect. Apart from the IP for the exploration, prospecting, and extraction of underground resources, only forest management projects, forestry plans, and one IP for game management have been processed in the area, which have no potential for negative cumulation with the current IP for human health.</p> <p>The assessment of the health status of the potentially affected population is carried out in section IV.11.1 of the Report, using data for the last available 5-year period (2019-2023) according to the indicators</p> <p>in accordance with the instructions given in section 10 of the letter from the Ministry of Health ref. No. 26-00-2518 of 27.12.2024 (in</p>
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			<p>the scope of the consultations on the Assignment). As a result of the environmental impact assessments in section V of the EIA and the analyses and assessments in section V.11 on the impact of the IP on human health, no is expected the nearby population to be affected by excessive levels of pollutants in the ambient air and noise, including exposure to risks related to pollution soil soil, drinking water, impact on chemical substances.</p> <p>In this regard, the IP is not expected to lead to changes in the observed current current health and demographic trends in the nearby population. The health risk assessment is presented and structured according the sections of the report, in accordance with legal requirements, namely: IV.11 (current status of the population and health risk factors), V.11 (identification of risks and assessment of the impact of the IP on human health – including workers and the nearby population), VI.6.4, VI.6.5, VIII, IX, X, XII, and XV based on the Terms of Reference consulted at the previous stage of the procedure, including with the Ministry of Health.</p> <p>The EIA report is prepared as a single document, which also includes the assessment of human health, in accordance with Article 96, paragraph 1 of the Environmental Protection Act. In this regard, presenting the risk assessment in a separate section would be a violation of the regulatory structure of the report. In accordance with the comments of the Ministry of Health, the assessment in section V.11 of the impact of the investment proposal on human health has been supplemented.</p> <p>V.11 on the impact of the investment proposal on human health has been supplemented.</p> <p>We emphasize that, according to point 74 of § 1 of the additional provisions of the Environmental Protection Act, "Impact assessment" is a process that includes: a)</p> <p>the preparation of an EIA report by the client of the investment proposal</p>
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			- in accordance with Articles 95 and 96...". The experts who prepared the report strictly adhere to these legal provisions.
		<p>6.3. The documents do not discuss radiation protection measures related to the requirements of the Ordinance on Radiation Protection in Activities with Materials with Increased Content of Natural Radionuclides (Adopted by PMC No. 229 of 25.09.2012, published in State Gazette No. 76 of 5.10.2012, amended and supplemented in No. 110 of 29.12.2020). According to Annex No. 1 to Article 1, paragraph 1 of the Ordinance, the extraction and processing of polymetallic ores from the deposit covered by this IP fall within the scope of the Ordinance.</p>	<p>The EIA report is supplemented in Sections IV.10, V.10, VI.6.3, and IX.</p> <p>The results of the laboratory radiological analyses are presented in Text Annex No. 17.</p> <p>In response to comments 6.3, 6.4, and 6.5 related to radiation protection and the need to assess natural radionuclides in ore and waste, we provide the following clarification:</p> <p>1. Regulatory framework and applicability The activities provided for in investment proposal for the "Rosino", do not include extraction or processing of materials with established increased content of natural radionuclides (ERN).</p> <p>Regardless of that with orderfull compliance with the requirements of the Ordinance on Radiation protection in activities with materials with increased content of natural radionuclides (Council of Ministers Decree No. 229/25.09.2012, amended and supplemented State Gazette, No. 110/29.12.2020), an additional check and laboratory control is currently being carried out to confirm the absence of radiological risk.</p> <p>2. Sampling and laboratory analysis</p> <p>For the purposes of radiological assessment, 17 representative samples were collected – one from the flotation tailings and 16 samples from rock mass at various depths within the deposit. The samples were sent for gamma spectral analysis to the accredited laboratory "DIAL" EOOD – Bukhovo, in accordance with the requirements of the Ordinance.</p> <p>We are awaiting results and opinion from</p>

			<p>the laboratory by November 20, after which they will be officially presented as an appendix to the supplementary EIA report.</p> <p>3. Available data and preliminary assessment The available geochemical, spectral and mineralogical studies do not indicate the presence of increased concentrations of radioactive elements (U, Th, Ra) in the ore, nor in the rocks. The tailings samples tested (ARD analyses) also show no indications of radiological activity or acid-generating potential. The waste materials are classified as <i>harmless, non-acid-generating acid and non-hazardous</i>, confirming the stability of the mineral composition and the absence of the possibility of radionuclide mobilization.</p> <p>4. Connection with the former uranium mining site In the territory of the village of Planinets (about 5.5 km east of the Rozino deposit) there is a former (1960-1965) uranium exploration site Geological data show that this type of mineralization is limited to specific lithological horizons outside the Paleogene sedimentary basin of the "Rozino" deposit. "Rozino". Therefore, there are no geological prerequisites or hydrological connections for increased content of natural radionuclides in the area of the investment proposal.</p> <p>5. Conclusion Based on the available data and the upcoming results from laboratory analyses, no exceedance of the natural radiation background, nor risk for water, the population, and personnel.</p>
		<p>6.4. In the on OBOC is is considered The ionizing radiation factor has not been considered, and the health risk has not been assessed. Not</p>	<p>Accepted. The EIA report has been supplemented in sections IV.10, V.10, VI.6.3, and IX, although</p>

		<p>the attached results for radionuclide content in rock mass and waste (mining and flotation) are not included in the main documents or in the text of Appendix No. 9. With regard to ionising radiation, it is only stated that no exceedance of the natural radiation background for the population is expected, which is extremely insufficient from a risk assessment point of view.</p>	<p>The EIA scope assignment explicitly states: "Radiation: Ore extraction from the deposit and subsequent processing will not be accompanied by the emission of ionizing radiation, electromagnetic waves, gamma rays, or particles resulting from radioactive decay. There is no data on exceeded natural gamma radiation background levels or on morbidity among the population in the area where the IP is located.</p> <p>No harmful radiation or radioactive sources have been detected in the area of the IP.</p> <p>The implementation of the IP is not a source of ionising and non-ionising radiation in the environment in both phases – construction and operation. Therefore, we propose that radiation not be considered in the EIA report. During the consultation phase on the assignment, the Ministry of Health, in its letter ref. No. 26-00-2518 of 27.12.2024, did not comment on this proposal, but now considers it an omission.</p>
		<p>6.5. The OBOC report does not provide for monitoring of radiological indicators of environmental and living environment factors, as well as mining and flotation waste.</p> <p>We would like to point out that the former uranium mining site "Planinec" is located in the territory of the village of Planinec, 5 km away from the village of Rozino, Ivaylovgrad municipality. The existence of such a site suggests a possible increased content of natural radionuclides in the territory of the IP. As already noted, no data from analyses of radionuclide content in the ore from the deposit has been presented.</p> <p>Based on the above in points 4-6, the OBOC report should be supplemented with information on the ionising radiation factor, including the provision of the analysis report determining the radionuclide content in the rock mass of the site, samples taken at different depths, as well as in the flotation waste.</p>	<p>Accepted. The EIA report has been supplemented in sections IV.10, V.10, VI.6.3, and IX. See the response to the comment in point 6.4.</p>
		<p>6.6. Regarding atmospheric air, evident from</p>	<p>Accepted. The report has been supplemented in Sections IV.1,</p>

		<p>As stated in the report, the main pollutants will be the dust fractions PM_{10} and $PM_{2.5}$. The methodology used allows for the calculation of maximum single and average annual concentrations emitted from area and linear sources, but there is a significant weakness, as the software product used is not applicable for calculating average daily concentrations. With a total of 88 blasts per year, the risk of exceeding the average daily concentrations of PM_{10} on those days is significant. In this regard, evidence must be provided that the maximum permissible concentration (MPC) for average daily concentrations of PM_{10} will not be exceeded more than 35 times in a calendar year (Ordinance No. 12 of July 15, 2010, on standards for sulfur dioxide, nitrogen dioxide, fine particulate matter, lead, benzene, carbon monoxide, and ozone in ambient air).</p> <p>The report does not provide information on the expected number of motor vehicles (MPC), transport schemes, and linear models for external transport flows serving the site and for transporting the flotation concentrate to its final destination, calculating their contribution to unorganized dust and gas emissions in the populated areas through which the vehicles will pass. In this regard, the OBOC report should be supplemented with the necessary information.</p>	<p>V.1 and V.12.</p> <p>Methods approved by the Minister of Environment and Water have been used, as the results of these models can be verified by the Bulgarian competent authorities. The use of foreign methods does not allow this and is therefore not well accepted by the local authorities.</p> <p>With regard to the second paragraph: the EIA explicitly states that: "The concentrated end product is transported for processing to the end user via the national road network, which is not subject to analysis in this EIA." The IP, formulated by the Contracting Authority and subject to assessment, does not include the transport of the concentrate to the end user, as at this stage there is no commercial relationship with an installation that could process the concentrate, nor can there be any such relationship. This can only be clarified after the building permit has been obtained and mining activities have commenced. However, the EIA presents purely hypothetical possibilities for transport access to and from the concession area, Figure No. II.1.2-2. The client will use fully electric trucks, which</p> <p>do not emit harmful substances or noise into the environment.</p>
		<p>6.7. With regard to surface and groundwater, the OBOC report takes into account only some of the recommendations in the Terms of Reference for the scope and content of the OBOC, reflected in letter ref. No. 26-00-2518/27.12.2024 from the Ministry of Health. The operation of the facility will require significant amounts of water, and the OBOC report does not sufficiently clarify the public health implications for the quantity and quality of water for drinking and domestic use water supply in the area from the planned intensive water abstraction, e.g. from the water source "Fresh water with</p>	<p>The reports concerning groundwater and surface water and the PVR are supplemented with relevant conclusions and are presented in: Text Appendices Nos. 10, 11, 12, and 16.</p> <p>Water abstraction from Arpa Dere will be close to the confluence with Yuren Dere and adjacent to the existing pumping station in the village of Rozino. This pumping station is designed to pumps water from a spring that flows into the whirlpool. The flow rate of this spring, depending on</p>

		<p>a flow rate of 50 l/s from the Apra Dere River at the Rozino pumping station for the months of January to May (i.e., 5 months of the year). On page 149, it is noted that an approximate annual water deficit of 125,000 to 310,000 m³ is expected in the supply to the installation. In these circumstances, we consider that the planned water abstraction from the Apra Dere River in the vicinity of the existing pumping station in the village of is likely to create a shortage of water for domestic and drinking purposes, as the absence of such a risk has not been proven in the OBOC report and the expert reports attached to it. This concerns the adequacy of water supply both to the village of Rozino and to the settlements along the valley of the Biala River, a tributary of which is the Apra Dere River. There is no substantiated comment on the extent to which the data used for the analysis for the period 1961-1998 in "Table No. V.12-2 Average data on water quantities at two points on the Biala River" is currently up to date. There is no substantiated hydrogeological expertise on the following questions: Is there a risk of affecting the drinking water supply of the settlements in the area? Will the IP reduce the flow rate of the water sources for drinking water supply?</p> <p>The "Report on the assessment of the side effects of the explosion on the environment" cited on page 268, column 3 of Table XI-1 is inappropriate, as this document does not contain any text referring to the side effects of the explosion on the environment.</p> <p>"Report on the assessment of the side effects of the explosion on the environment" is incorrectly cited, as this document does not contain any text relating to the question posed in the Terms of Reference, how the use of drilling and blasting activities will affect the quantity and quality of water from drinking water sources, surface water, and groundwater. The text of the actual OBOC report also lacks an expert answer to this question.</p> <p>The OBOC report does not provide a definitive answer as to whether the IP will worsen the chemical status and change the active reaction of surface and groundwater in the area.</p> <p>Given the priority importance of protecting the purity of water resources, especially groundwater, whose quality is difficult to restore once polluted, it is necessary to categorically guarantee that the purity of surface and groundwater will be preserved.</p> <p>Last but not least, it is noted that for domestic use</p>	<p>varies between 6 and 11 l/s throughout the year. It has been calculated that the flow rate required to maintain the village of Rozino is in the order of 0.34 l/s. The excess water from the spring, after the relevant justification, could be used for the industrial needs of the site throughout the year. The information is provided on page 71.</p> <p>A contract will be concluded with the water supply and sewerage company for the supply of water for sanitary needs from a reservoir owned by the water supply and sewerage company, located 800 m from the residential premises in the OF area. Such infrastructure has been built and it is technically possible to connect it to the future site. The exact routes will be determined at the working design stage.</p> <p>Beyond the analyses and conclusions in this report, water protection in terms of quantity and quality is carried out through the conditions and measures set out in the relevant permits under the Water Act and the future EIA decision, if it is positive.</p> <p>A categorical guarantee for water protection can be achieved through the implementation of the proposed and assessed project solutions of the IP and through the implementation of the measures and recommendations in this report.</p>
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		(cleaning of sanitary facilities, etc.) industrial water will be used, but it is not specified what water will be used for hygiene purposes (hand washing, bathing, etc.), given that it should Regulation No. 9 for the quality of water intended for drinking and domestic use.	
		<p>6.8. Ore mining activities will generate certain potentially hazardous wastes that could pose a risk to human health. However, this risk has not been sufficiently addressed and assessed in the report. In this regard, the OBOC report should be supplemented.</p> <p>It should be noted that the enrichment waste designated in the OBOC report with the non-hazardous waste code "01 03 06 - enrichment residues other than those mentioned in 01 03 04* and 01 03 05*", is a mirror code for hazardous waste with codes 01 03 04* and 01 03 05*, according to Ordinance No. 2 on the classification of waste. This means that the classification of enrichment waste under code 01 03 06 should be established by conducting tests in accordance with the Ordinance to prove its non-hazardous properties after its formation. Otherwise, the waste should be classified under code 01 03 04* or 01 03 05*. In this regard, the OBOC report should include a measure requiring a procedure for the classification of enrichment waste due to the existence of mirror codes.</p>	<p>The terms "sufficient" or "insufficient" are subjective and immeasurable. There are no specific instructions for supplementation.</p> <p>Hazardous waste is generated by every industrial activity, and the specific IP is no exception. Detailed data on the types and quantities of waste generated, the methods of its management, and measures to reduce its impact are presented in points: II.4, IV.8, V.8, VI.6.3, VI.6.5, and IX. In point</p> <p>V.11 The assessment of the health risks posed by waste summarises the detailed assessment in section V.8, supplemented by the risks associated with hazardous waste. In addition, it should be noted that the classification of waste generated and its environmentally sound management is mandatory under the regulations and will be carried out at the appropriate stages after the IP has been approved. In this sense, the risk to human health is fully controllable and no extraordinary occurrence can be assumed, which requires additional investigation.</p>
		6.9. With regard to the physical factors of noise and vibration:	
		As stated above by the Ministry of Health, the report lacks forecasts for the expected number of heavy goods vehicles and transport schemes for external flows for the removal of flotation concentrate. There is also no assessment of the likely impact of the associated noise and vibrations on populated areas.	<p>It is explicitly stated in EIA is recorded, that:</p> <p>"The concentrated end product is transported for processing to the end user via the national road network, which is not subject to analysis in this EIA." The IP, formulated by the Contracting Authority and subject to assessment, does not include the transport of the concentrate to the end user, as at this stage there is no</p>

			and no commercial relationship with an installation that could process the concentrate can be established. This can only be clarified after the building permit has been obtained and mining activities have commenced. However, the EIA presents purely hypothetical possibilities for transport access to and from the concession area, Figure No. II.1.2-2. The contractor will use electric trucks that do not emit harmful substances or noise into the environment.
		When assessing the potentially affected population and territories in terms of the impact of individual risk factors on human health and comparing them with the applicable hygiene standards, the authors of the report considered that excessive noise and vibration levels are not expected either in the pre-operational stage or during the operation of the facility. With regard to the intermittent noise generated during blasting operations, a test explosion was carried out and a report was submitted assessing the indirect impact of the explosion on the environment for the site: Rosino deposit (attached to the OBOC report). The results and forecasts present the impact of the explosion on the environment, based on measurements taken with specialized equipment during experimental blasting operations carried out within the project perimeter of the Rozino mine. However, no comprehensive assessment of the living environment in the nearest settlements has been made.	<p>A comprehensive assessment of the living environment is provided in section IV.11 of the EIA Report, which contains analyses of the health status of the population based on available official data from the NSI, the Regional Health Inspectorate, and the National Center for Public Health and Analyses, as well as an analysis of the current state of environmental health determinants. The data in section IV.11 examine the existing situation.</p> <p>The assessment of the impact of the IP on the living environment and human health is carried out in section V.11 and supplemented in accordance with the comments made in the opinion of the Ministry of Health. The analyses and assessments show that no exceedances of human health protection norms and standards are expected for the nearest populated areas.</p>
		As mining operations progressed in depth, working conditions and environmental impact changed. Therefore, we believe that, regardless of the initial forecasts, it is necessary to include a measure in the OBOC report requiring periodic control measurements to be carried out, updating the mathematical models with specific data for the deposit, determining the levels of impact, and, if necessary, adjusting the parameters of the blasting activities.	<p>For each workplace, in compliance with the requirements of <i>Ordinance No. 5 on the procedure, manner, and frequency of risk assessment</i>, a risk assessment will be prepared, along with measures to manage the identified risks. This assessment shall be updated in the event of a change in the working conditions at the workplace in question, i.e. such an update shall be provided for and is required by law.</p> <p>provide for such an update, which is also required by law.</p>

			In addition, a measure related to the Health and Safety Plan has been added to point IX, which should provide for periodic control measurements of workplace factors, including chemical agents, and, based on the results, , if necessary, the parameters of the activities (including the PVR) and the measures for the protection the health of workers should be adjusted.
		6.10. Last but not least, we draw attention to the fact that the activities are planned to be carried out in an open manner, which in itself is a prerequisite for possible pollution of environmental factors (acoustic comfort, atmospheric air, including in closed rooms, vibrations, ionizing radiation). In this regard, the OBOC report should be supplemented with a more detailed assessment of the health risk to the environment and a number of measures should be proposed to prevent and reduce this impact.	<p>The health risk assessments carried out in section V.11 refer to the assessments of the impact of the IP on air quality and to the assessments of the impact of harmful physical factors. These assessments show that no exceedance of the established standards for air quality and noise is expected for the nearest populated areas and sites subject to health protection.</p> <p>As regards vibrations, they have a local impact and do not reach populated areas. As regards ionising radiation, there is no such radiation expected. The made</p> <p>The assessed impacts are addressed in Section IX of the EIA report, which recommends measures to prevent and reduce the impacts on workers and the population.</p> <p>For the assessed impacts, measures are recommended in section IX of the EIA to prevent and reduce the impacts on workers and the population.</p>
		6.11. Working environment:	
		Air pollution (page 208 of the OBOC report) in the working environment, the inhalable and respirable (PM4) fractions of dust and respirable free crystalline silica are of hygienic significance, rather than PM10 and PM2.5. According to Bulgarian legislation (Ordinance No. 13 of December 30, 2003, on the protection of workers from risks related to exposure to chemical agents at work), it is necessary to provide for periodic monitoring of the inhalable fraction (mg/m ³), respirable fraction (mg/m ³) and free crystalline silica (mass %), as well as exhaust gases from diesel machinery, transport and service equipment (COx, NOx, SOx, unburned hydrocarbons, soot, various types of oils, and	The assessment has been adjusted in the specified part of the EIA, in accordance with the instructions given, and the measures to be taken to limit dust in the working environment are also specified.

		<p>for the reagents envisaged in the enrichment process, in mg/m³), in compliance with the requirements of BDS EN 689:2018+A1:2019.</p> <p>It is necessary to include and describe in detail the engineering and technical measures that will be taken to reduce the levels of dust and chemical agents in the air of the working environment in order to reduce occupational exposure to the lowest possible levels, bearing in mind that PPE for respiratory protection are not a means of permanent protection for workers.</p>	
		<p>6.12. From the regulatory documents described in section "Health and hygiene aspects" (on page 248 of the report), it is clear that the health risk assessment did not take into account the applicable regulatory documents related to health requirements when assessing the health risk from the implementation of the IP.</p>	<p>No specific missing documents are indicated. However, the regulatory documents taken into account in the assessment have been supplemented and other sources of information have been used, at the discretion of the authors of the EIA.</p>
		<p>In conclusion, the Ministry of Health considers that the OBOC report should be revised and supplemented in accordance with the above and taking into account the recommendations in letter ref. No. 26-00-2518/27.12.2024 of the Ministry of</p> <p>The report has been revised and supplemented in accordance with the comments made.</p>	<p>The report has been revised and supplemented in accordance with the comments made.</p>
		<p>The requirements of Article 12(1)(4) of the OBOC Regulation, according to which the OBOC report should also include a list of the experts and the team leader who prepared the OBOC report, with each person signing against the sections of the report they developed, have not been fully met. The attached list of experts and the team leader does not contain any signatures.</p>	<p>The EIA Regulation is archaic with regard to the personal data of the experts who authored the EIA and does not reflect the requirements of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC. It is precisely with a view to protecting personal data, in accordance with the Regulation, that the list does not contain the signatures of the experts, and the declarations are provided only to the competent environmental authority.</p>
		<p>The declarations required under Article 12(1)(5) of the OBOC Regulation shall be submitted on paper with all validity requirements, including a wet signature, and the content on the electronic shall to is identical to the content of the paper medium. Acceptance of documents</p>	<p>The requirements of the EIA Regulation are not synchronized with the Electronic Document and Electronic Certification Services Act and Regulation (EU) No. 910/2014 of European Parliament and of the Council of 23 July</p>

		only with scanned or electronic signatures would not meet the requirements of the OBOC Regulation.	2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC. Under current legislation, a qualified electronic signature has the same legal effect as a handwritten signature.
		<p>8. An up-to-date opinion from the Basin Directorate is required.</p> <p>"Eastern Black Sea Region", given that Decision No. 920/31.12.2024 of the Council of Ministers adopted the River Basin Management Plan for the Eastern Black Sea Region 2022-2027. The Eastern Black Sea Region Basin Directorate, in a letter ref. No. OBOC-68-61/26.09.2025 to the MOCB, expressed an opinion (a copy of which is attached for reference), according to which part of the project concession area subject to the IP falls within the scope of the measure with code DW 1, code for implementation of the measure: DW 1 35 in the RBMP for the Eastern Black Sea Region 2022-2027 and must be excluded from the concession area of the "Rozino" the buffer zone within a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply (the "Rozino" catchment, located in the territory of the village of Pastrok, Ivaylovgrad municipality).</p>	<p>The Rozino catchment is located 2300 meters from the contour of the mine where mining will take place and 1300 meters from the buffer zone with a radius of 1000 m from the water intake facility. As can be seen from Figure II.1.2-1, the catchment is close to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir.</p> <p>We emphasize once again that extraction will take place 1300 m from the buffer zone with a radius of 1000 m and 2300 m from the catchment itself, which is why we find no reason to exclude the buffer zone around the Rozino catchment from the future concession area. The exclusion of this territory will make it impossible to build a clean water reservoir, which is necessary for the implementation of the investment project.</p>
		II. Regarding the Mine Waste Management Plan:	
		<p>The Ministry of Energy has been consulted on the submitted Mine Waste Management Plan (MWMP) attached to the OBOC report on the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, Ivaylovgrad municipality". In this connection, an opinion was received with ref. No. OBOC-68-62/06.10.2025 from the MOCB, according to which at this stage, no</p>	<p>Text Annex No. 9 presents a proposal for the management of mining waste, not a plan. Such a plan has not yet been developed, in accordance with the regulations, which expressly stipulate:</p> <p>Pursuant to Article 22d, paragraph 4 of the Underground Resources Act (ZPB), when the investment</p>

	<p>duly includes information on the management of mining waste in the Mining Waste Management Plan.</p> <p>The prepared PUMO does not reflect the client's intention for the management of mining waste in connection with the management of waste from the processing of raw materials at the Enrichment Plant. The information is presented as an intention, but does not reflect the capacity of the mining waste facility (MWF) - which is a tailings storage facility. Essentially, the facilities to be built to ensure the stability of the tailings storage facility are not specified, and there is no information on the overall physical stability of the MWF; only the area is specified without providing additional information. We would like to draw your attention to the fact that one of the conditions for categorizing the SMO, including the tailings storage facility, is to ensure the physical stability of the constructed facility, which is missing from the plan.</p> <p>The Mine Waste Management Plan must include conditions and measures, including programs to prevent harmful effects on the environment, in accordance with the requirements of Article 22g, paragraph 5 of the Underground Resources Act (URA). According to the requirements included in the content of the Mining Waste Management Ordinance (HYMO) in Annex No. 1, operators are required to submit such programs.</p> <p>In conclusion, we would like to draw your attention to the fact that when classifying mining waste, it is necessary to take into account the levels of cyanide concentrations specified in Article 22d, paragraph 6 of the ZPB in case they are used in the enrichment process.</p>	<p>A proposal (IP) for activities generating mining waste is subject to the procedure under Chapter Six of the Environmental Protection Act (EPA), and the investment proposal must include a proposal for the management of mining waste.</p> <p>The proposal for the management of mining waste has been prepared in compliance with these provisions and takes into account, to the extent possible, the regulatory requirements relating to the development of a Mining Waste Management Plan. The content follows the structure set out in the Ordinance on Mining Waste Management (published in State Gazette No. 5 of 19.01.2016 and subsequent amendments) and Directive 2006/21/EC on the management of waste from extractive industries.</p> <p>The mining waste management plan is prepared with the aim of preventing, reducing, or limiting their harmful impact on the components of the environment and will be prepared after the entry into force of the EIA decision approving the investment proposal for "Extraction and processing of polymetallic ores from the "Tintyava" area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region."</p> <p>This is also the requirement of Article 22d, para. 7 of the ZPB, which requires the Operator, together with the mine waste management plan, to submit to the Minister of Energy an EIA decision that has entered into force, issued in accordance with Chapter Six of the ZOOS, which contains and grounds, that</p> <p>the management of mining waste does not conflict with the plans and programs for</p>
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			<p>waste management under the Waste Management Act. The plan is approved by the Minister of Energy.</p> <p>However, additions have been made to the proposal for mining waste management, to the maximum extent possible and taking into account the stage of development of the IP - pre-investment study. The lack of working technical designs does not allow for realistic calculations of stability, forecasting, and sizing of additional facilities and others. At this stage, this is technically impossible. However, the proposal for mining waste management has been supplemented to the extent possible.</p> <p>The technology for enriching the mined ore, described in detail in the EIA, does not provide for the use of cyanides. This is also evident from the list of chemicals used.</p>
		<p>III. Regarding the application of the impact assessment report</p> <p>After reviewing the information presented in the report, in accordance with the criteria for assessing its quality set out in Article 24(3) of the Ordinance on the conditions and procedure for assessing the compatibility of plans, programs, projects, and investment proposals with the subject and objectives of the protection of protected areas (the Ordinance on the Environment), the following was established:</p> <p>The impact assessment report is structured in accordance with the requirements of Article 23(2) of the EIA Ordinance, but the information presented therein is incomplete and insufficient for making a reasoned decision, for the following reasons:</p>	
		<p>1. The proposed version of the EIA lacks the detailed analysis and assessment of the cumulative impacts resulting from the multiple projects submitted, as requested by letter ref. No. OBOC-68-17/18.11.2024 from the Minister of Environment and Water, a detailed analysis and assessment of the cumulative impacts resulting from the multiple areas provided for exploration and/or research and concessions for the extraction of underground resources within the boundaries of the protected area BG0001032 "Rhodopes-East", and in particular in the territory of</p>	<p>Text Annex No. 14 to the EIA describes 92 other IPs, plans, and programs, which are all available and accessible in the registers of the Ministry of Environment and Water at the time of preparation of the report.</p> <p>Annex II.1 to the EIA lists all IPs, plans, and programs with which the</p>

		<p>the municipality of Ivaylovgrad. The report should contain a detailed analysis of the potential impacts and cumulative effects of the existing permits for exploration and/or prospecting and concessions for extraction in protected area BG0001032 "Rhodopes-East" and protected area BG0002019 "Biala Reka". It is necessary to supplement point II of the EIA with the following analysis:</p>	<p>an assessment of the cumulative impact on natural habitats and habitats of species subject to conservation in protected areas. Appendix No. V.1.1-1 presents a map of habitat distribution (according to EUNIS) in the study area. A total of 452 other IPs are described in the annexes to the EIA. In order to assess the cumulative effect, in addition to the registers of the Ministry of Environment and Water, data on other IPs, plans, and programs were requested under the Access to Public Information Act from the Ministry of Environment and Water, the Regional Inspectorate of Environment and Water – Haskovo, and the Regional Inspectorate of Environment and Water – Smolyan. Such data was provided by the following decisions:</p> <ul style="list-style-type: none"> - Decision No. ZD-31/26.03.2025 of the Minister of Environment and Water. - Decision No. 8/18.03.2025 of the Director of RIEW Haskovo. - Decision No. 1/10.03.2025 of the Director of RIEW Smolyan. <p>All this information has been taken into account and is set out in the relevant annexes to the two reports.</p> <p>The EIA experts do not have access to other data that would be available within the system of the Ministry of Environment and Water. The comment is unsubstantiated, as it does not specify which IP, plan or programme is missing, and therefore we cannot report the alleged omission.</p>
		<p>- Analysis of the potential impacts that could lead to cumulative impacts as a result of the currently valid permits for prospecting and/or exploration within the boundaries of protected area BG0001032 "Rhodopes-East" for the protection of natural habitats and wild flora and fauna and protected area BG0002019 "Biala Reka" for the protection of wild birds;</p>	<p>Reflected in the EIA.</p>
		<p>- Analysis of potential impacts that may lead to cumulative impacts as a result of the currently valid concessions for the extraction of underground</p>	<p>Reflected in the EIA.</p>

		(approved investment intentions for extraction of underground resources) within the boundaries of protected area BG0001032 "Rhodopes-East" for the protection of natural habitats and wild flora and fauna and protected area BG0002019 "Biala Reka" for the protection of wild birds;	
		- Comprehensive analysis of potential cumulative impacts in relation to approved PPPs and IPs of a different nature within the boundaries of protected area BG0001032 "Rhodopes-East" for the protection of natural habitats and wild flora and fauna and protected area BG0002019 "Biala Reka" for the protection of wild birds.	Reflected in the EIA.
		In the analysis, the individual impacts that would arise as a result of the cumulative effect should be described and assessed by type and degree in relation to the species and natural habitats subject to protection in the protected areas, in accordance with Article 24, paragraph 3, item 4 of the Ordinance on Environmental Impact Assessment:	Reflected in the EIA.
		Description (characteristics, number) of other PPAs/IPs taken into account (in the same land area, municipality, protected area; not only of the same nature and regardless of who implemented them), in interaction with which the assessed project may have a significant negative impact on the protected area;	See the answer to point 1 above.
		In the cumulative effect analysis, it is necessary to determine: 1) the geographical boundaries within which the cumulative effect is to be studied, bearing in mind that these may vary for different types of impact (e.g., effects on water resources, noise, vibrations, atmospheric air, etc.) and may extend over different distances; 2) all possible sources of impacts arising from the project under consideration, together with other sources in the environment and other impacts that may arise from other proposed PPPs/IPs, the timing and phases of the PPPs/IPs; 3) the types of impacts (e.g., noise, reduction of water resources, chemical emissions, etc.) that may affect the structure and functions of the protected area, which are vulnerable to change; 3) the mechanism by which the potential cumulative effect occurs (e.g. by water, air, as a result of accumulation of	See the answer to point 1 above.

		impacts over time or space). Where a habitat or species in the area already has an unfavorable conservation status, or where the critical impact thresholds for specific habitat or species elements are exceeded (or where the area is subject to a cumulative effect that will lead to one of these conditions), any additional PPP/IP that, alone or in combination with others, adds additional impacts to these levels. The conclusions of the analysis should clearly indicate which elements of the project, in combination with which PPP/IP, have been taken into account in the decision-making process in relation to the effects of the combination. Simply stating that "there will be no cumulative impacts" is insufficient.	
		The EIA report does not include the information described in section II - Annex II-1.	Attached in both paper and electronic form.
		<p>The list of PPPs/IPs presented in the OBOC report in "Text Annex 14 Table Cumulative Effect Rosino" is incomplete in terms of approved IPs of a similar nature within the boundaries of 33 BG0001032 "Rhodopes-East," particularly in the territory of the municipality of Ivaylovgrad. It should be supplemented by consulting the public register with data on current or completed procedures for OBOC, which is available on the website of MOCB section preventive action/OBOC/Public registers by OBOC: https://www.moew.government.bg/bg/prevantivna-dejnost/ovos/publicni-registri-ovos/. All approved PPPs/IPs should be taken into account in the cumulative effect analysis.</p>	<p>Text Annex No. 14 to the EIA describes 92 other IPs, plans, and programs, which are all available and accessible in the registers of the Ministry of Environment and Water at the time of preparation of the report.</p> <p>Annex II.1 to the EIA lists all IPs, plans, and programs used to assess the cumulative impact on natural habitats and habitats of species subject to protection in protected areas. Annex V.1.1-1 presents a map of the distribution of habitats (according to EUNIS) in the study area. A total of 452 other IPs are described in the annexes to the EIA.</p> <p>In order to assess the cumulative effect, in addition to the registers of the Ministry of Environment and Water, data on other IPs, plans, and programs were requested under the Access to Public Information Act from the Ministry of Environment and Water, the Regional Inspectorate of Environment and Water – Haskovo, and the Regional Inspectorate of Environment and Water – Smolyan. Such data was provided with the following decisions:</p>

			<ul style="list-style-type: none"> - Decision No. ZD-31/26.03.2025 of the Minister of Environment and Water. - Decision No. 8/18.03.2025 of the Director of the Regional Inspectorate of Environment and Water Resources (RIEW) Haskovo. - Decision No. 1/10.03.2025 of the Director of the Regional Inspectorate of Environment and Water Resources in Smolyan. <p>All this information has been taken into account and is set out in the relevant annexes to the two reports.</p> <p>The EIA experts do not have access to other data that would be available within the system of the Ministry of Environment and Water. The comment is unfounded, as it does not specify which IP, plan or program is missing, so we cannot report the alleged omission.</p>
		<p>For example, in the presented analysis for assessing the cumulative impact in combination with other PPPs/IPs within the boundaries of 33 BG0001032 "Rhodopes-East" does not take into account the IP for "Extraction and processing of gold-bearing ores from the "Ada Tepe" section of the "Khan Krum" deposit, municipality of Krumovgrad, approved by Decision No. 18-8 of the OBOC, 11/2011 of the Minister of Environment and Water, in the analysis and determination of potential cumulative impacts. In this regard, the analysis in section II of the EIA should be supplemented by taking into account the parameters, characteristics, and affected habitats and species as a result of the implementation of the IP "Extraction and processing of gold-bearing ores from the Ada Tepe section of the Khan Krum deposit Khan Krum, municipality of Krumovgrad, approved by Decision No. 18-8, 11/2011 of the Minister of Environment and Water.</p>	<p>The Ada Tepe mine is included in the cumulative impact assessment. The additional information is as follows: The total area affected by the EIA Decision is 85 ha. According to the Reclamation Plan, all 85 ha, or 100% of the affected areas, must be restored in accordance with the EIA Decision. The area of recultivated land by the end of 2025 is 14.8512 ha. All steps of the open pit mine will undergo biological recultivation. The main objective of recultivation is to restore critical habitats such as 6220 and juniper habitats. At the request of the municipality of Krumovgrad, 6 ha must remain unrehabilitated, with a future purpose as a tourism and camping area with electricity and water supply – fresh water and WWTP. These areas include the OF administrative building, the WWTP for BFOV, and the existing road infrastructure to provide access to the tourist area. In fact, about 97% of the entire affected area will be recultivated. Data from implementation of reclamation are available at RIEW – Haskovo,</p>

		<p>2. In section V.1.1. of the EIA for protected area BG0001032 "Rhodopes-East" for the protection of natural habitats and wild flora and fauna, a direct impact on 17.3182 ha (0.122% of the habitat area in the protected area) of priority natural habitat 91AA* "Eastern forests of downy oak". The conclusion on the degree of impact at the same point is assessed as "insignificant". However, the EIA does not include reasons and there is no expert analysis of how the direct loss of natural habitat areas will affect its conservation status (CS) in the protected area and at the biogeographical level, in accordance with Article 22 of the Ordinance on EIA. The assessment should be carried out in relation to all PC parameters, including taking into account the analysis of the cumulative effect. Alternatives to the IP should be considered and assessed in terms of their impact on the priority natural habitat. Adequate mitigation measures should be proposed to reduce or eliminate the impacts on the natural habitat. The analysis should justify the presence or absence of the hypothesis under Article 33 of the Biological Diversity Act (BDA).</p>	<p>as submitted annually by DPM Krumovgrad.</p> <p>Reflected in the EIA.</p>
		<p>3. There is uncertainty regarding the information presented in the EIA on pages 39-42 regarding the expected direct or indirect impact on natural habitat 6210 "Semi-natural cyxu grassland and shrub communities on limestone (Festuco-Brometalia)" (*important orchid habitats). The EIA should specify whether the priority form of the natural habitat (*important orchid habitats) is subject to protection in the areas affected by the IP. To this end, in order to establish whether the areas affected by habitat 6210 have the characteristics of the priority form, in accordance with the "Guidelines for the identification of habitats of European importance in Bulgaria," an on-site inspection should be carried out during a suitable vegetation period for orchid species. Depending on the results of the inspection, the conclusions in the EIA report regarding the expected degree of impact on the natural habitats should be reviewed and revised habitats, and an analysis should be presented on how the direct loss of</p>	<p>Reflected in the EIA.</p>

		<p>Areas of the natural habitat will affect its PC in the protected area and at the biogeographical level, in accordance with Article 22 of the Ordinance on Environmental Protection. The assessment should be carried out with regard to all PC parameters, including taking into account the analysis of the cumulative effect. Alternatives to the IP should be considered and assessed in case of impact on the priority form of the habitat. Adequate mitigation measures should be proposed to reduce or eliminate the impacts on the natural habitat. As a result of the analysis, the presence or absence of the hypothesis under Article 33 of the Biodiversity Act.</p>	
		<p>4. The conclusions in Part V.2. of the EIA describe the species and habitats for which a negative impact is expected - 4 types of natural habitats are affected, habitats of 30 species subject to protection in 33 BG0001032 "Rhodopes-Eastern", fragmentation of habitats, as well as the habitats of 25 species, barrier effect for 12 species, mortality of individuals of 23 species. However, the analysis and conclusions in the EIA report lack an assessment of how these impacts will affect the PC of these species in terms of all PC parameters, including taking into account the analysis of the cumulative effect. The assessment should be carried out in relation to all PC parameters. Adequate mitigation measures should be proposed measures should be proposed to reduce or eliminate the impacts.</p>	Reflected in the EIA.
		<p>5. Similarly, with regard to the conclusions presented in Part V.2. of the EIA report concerning the 23 directly affected bird species subject to protection in 33 BG0002019 "Biala Reka". However, the analysis and conclusions in the EIA report lack an assessment of how these impacts will affect the PC of these species in terms of all PC parameters, including taking into account the analysis of the cumulative effect. The assessment should be carried out in relation to all PC parameters. Adequate mitigation measures should be proposed to reduce or eliminate the impacts.</p>	No conservation objectives have been set for the bird species subject to protection in the SPA, either at the site level or at the biogeographical and national levels (see REPORT UNDER ARTICLE 12 OF THE BIRDS DIRECTIVE).
		<p>6. Part VI. Proposals for mitigation measures need to be revised in light of the results of the impact analysis in Part V, as the version presented in the EIA is incomplete and inconsistent with the conclusions of the impact analysis. For example, in the impact analysis for some species</p>	Reflected in the EIA.

		birds (e.g., the short-toed eagle, etc.), mitigation measures are included, but these are not included in the measures in Part VI. Proposals for mitigation measures. This part should list all mitigation measures for all species and natural habitats for which they are proposed.	
		7. The alternatives proposed and described in the EIA are not consistent with the results and conclusions on the expected impacts on species and natural habitats and are not related to the reduction of these impacts. Adequate alternatives that take into account the identified impacts should be proposed, considered, and evaluated.	Reflected in the EIA.
		8. The applications described on the electronic medium attached to the EIA in part XIII. Appendices are not attached to the electronic version of the EIA.	Reflected in the EIA.
		<p><i>IV. With regard to the Convention on Environmental Impact Assessment in a Transboundary Context (Ecnoo, 1991):</i> <i>environment in a transboundary context (Ecnoo, 1991)•</i> By letter ref. No. OBOC-68-28/14.02.2025 from the Ministry of Environment and Water to the company Tintyava Exploration AD, in point 9 "With regard to the Convention on Environmental Impact Assessment in a Transboundary Context (ECoP, 1991)", <u>information was provided that the Greek government wishes and declares its participation in letter ref. No. OBOC-68/23.10.2024 from MOCB, on the environmental impact assessment procedure concerning the processed IP.</u> In this regard, a letter was sent with ref. No. OBOC-68-40/19.08.2025 from the Ministry of Environment and Water to the company "Tintyava Exploration" AD, informing it that, in accordance with the principles of international cooperation in environmental impact assessment, particularly in a transboundary context, it is necessary to provide in Greek one copy of the OBOC report with all annexes (including the impact assessment report - EIA) on paper and electronic media for assessing the quality of the report, the non-technical summary and the final version of the OBOC assignment, with comments and the results of the</p>	<p>It is striking that the competent authority refers only to the international act and its own letters, but not to the national legislation governing the practical application of the Convention at national level. No consideration was given to letter ref. No. 35-2/26.08.2025 from the Contracting Authority and ref. No. EIA-68-46/27.08.2025 from the Ministry of Environment and Water, in which the Contracting Authority expressed its position on the procedure in a transboundary context. This position remains unchanged and the Contracting Authority will fulfill its obligations in relation to the interest expressed by the Republic of Greece in participating in the procedure in accordance with the regulatory requirements, namely: Pursuant to Article 25, paragraph 1, items 5–7 of the Ordinance on the conditions and procedure for conducting an EIA: 1. Pursuant to the provisions of Article 25, paragraph 1, items 5–7 of the EIA Ordinance, the sequence of actions and the content of the documentation, when the Republic of Bulgaria is the country of origin in a transboundary EIA procedure, are as follows: (a) preparation of an EIA report; the developer is required to submit to the competent authority</p>

	<p>consultations with all affected municipalities and interested departments as soon as possible.</p> <p>To date, the Ministry of Environment and Water has not received a letter with an attached copy in Greek of the OBOC report with all annexes from the company Tintyava Exploration AD, which, according to Article 4 of the Convention on Environmental Impact Assessment in a Transboundary Context (ECPO, 1991), must be provided by the country of origin to the affected country. The Ministry of Environment and Water, as the competent authority, shall take all necessary and effective measures to prevent, reduce, and control significant adverse transboundary impacts resulting from the proposed activities, in compliance with the Convention on Environmental Impact Assessment in a Transboundary Context and Article 7 of Directive 2011/92/EC of the European Parliament and of the Council on the assessment of the effects of certain public and private projects on the environment.</p> <p>In implementing the procedure under Articles 3, 4, and 5 of the Convention on Environmental Impact Assessment in a Transboundary Context, no opportunity for participation has been provided to the affected country, the Republic of Greece. The right that the Ecnoc Convention and Directive 2011/92 grant to the public concerned in the affected countries is the right to actively and effectively participate in decision-making procedures. The same right is granted to the Bulgarian public concerned by national law. There is a constituted state in the consultation procedure on the report on the IP "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, Ivaylovgrad municipality". The failure to submit the necessary documentation for this consultation prevents its lawful conduct by the competent environmental authority, MOCB. The opinions expressed during the consultations in the Republic of Bulgaria and the Republic of Greece should be taken into account when preparing the environmental impact assessment report for the investment proposal of Tintyava Exploration AD, in its capacity as the contracting authority.</p> <p>view of the above, after necessary</p>	<p>an additional copy of the report, a translation of the whole or part of the report, if agreed between the competent authorities of the two countries, and a translation of the non-technical summary;</p> <p>b) assessment of the quality of the EIA report; in addition to all the requirements under Chapter IV, the competent authority shall pay particular attention to transboundary impacts and measures to prevent and limit them;</p> <p>c) sending the EIA report (its translation, if agreed) and the translation of the non-technical summary to the competent authority of the affected country and providing an opportunity for consultation on: potential transboundary impacts and measures to prevent or reduce the impact; possible alternatives to the investment proposal; other issues of mutual interest.</p> <p>This is also in line with the requirements of Article 5 of the Convention on EIA in a transboundary context, according to which consultations should be held: "After completing the environmental impact assessment documentation, the country of origin shall, without undue delay, initiate consultations with the affected country on, inter alia, the potential transboundary impact of the proposed activity and measures to reduce or eliminate its impact."</p> <p>In order to prevent procedural violations and to comply with the basic principle of sufficiency and completeness of documentation, after receiving a positive assessment of the quality of the two reports – the EIA Report and the Compatibility Assessment Report (CAR) with the protected areas</p>
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		<p>revision and supplementation of the investment proposal (IP) for "Extraction and processing of polymetallic ores from the "Rozino", area "Tintyava", located in the municipality of Ivaylovgrad, Haskovo region in accordance with the above comments regarding the OBOC and DOSV reports, given the lawful conduct of the cross-border procedure, the contracting authority of the investment proposal is obliged to ensure the uniformity of the content in the documentation in both Bulgarian and Greek.</p>	<p>from the Natura 2000 national ecological network, these will be translated and submitted to the Ministry of Environment and Water for further action.</p> <p>Such an approach would avoid possible procedural violations and multiple submissions of different versions of the reports to the affected country, which would confuse the administrative authorities of the Republic of Greece, as they have their own internal procedure and do not have a similar practice with different versions of the documentation.</p>
2.	<p>Basin Directorate "Eastern White Sea Region" Plovdiv, ref. Plovdiv, ref. No. PU-010-808(2) dated 26.09.2025</p>	<p>Re: <i>Opinion pursuant to Article 155, paragraph 1, item 23 of the Water Act for the investment project "Extraction and processing of polymetallic ores from the Rosino deposit, area "Tintyava", located in the municipality of Ivaylovgrad", commissioned by "Tintyava Exploration" AD,</i></p> <p>In response to your letter ref. No. OBOC-68-51/03.09.2025, requesting an updated opinion on the admissibility of the investment proposal in relation to the regimes set out in the River Basin Management Plan (RBMP) and the Flood Risk Management Plan (FRMP) for the Eastern Black Sea Region 2022-2027, We would like to inform you that additional information is required.</p> <p>The client's investment proposal provides for the extraction and processing of polymetallic (gold-silver) ores from the "Rozino" deposit. The future concession area covers 2,753 decares, of which 1,179 decares will be disturbed terrain. At the time of preparation of the EIA, no concession agreement for the deposit has been concluded.</p> <p>The main activities included in the proposal are:</p> <ul style="list-style-type: none"> - open-pit mining of polymetallic ores; - processing of the ore by flotation to obtain concentrate; - construction and operation of the necessary accompanying infrastructure - roads, water supply, electricity supply, material storage facilities, mining waste facilities, etc.; - gradual recultivation of the affected areas. 	<p>The Rozino catchment is located 2,300 meters from the mine boundary where mining will take place and 1,300 meters from the buffer zone with a radius of 1,000 meters from the water intake facility. As can be seen from Figure II.1.2-1, the catchment is close to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PVR, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir.</p> <p>We emphasize once again that extraction will take place 1300 m from the buffer zone with a radius of 1000 m and 2300 m from the catchment itself, which is why we find no reason to exclude the buffer zone around the Rozino catchment from the future concession area. The exclusion of this territory will make it impossible to build a clean water reservoir, which is necessary for the implementation of the investment project.</p>

		<p>The concession term is set at 35 years.</p> <p>The purpose of the investment project is the open-pit mining and processing of polymetallic gold-silver ore from the Rosino deposit, area</p> <p>The technological process of open-pit mining includes the exposure of natural resources, drilling and blasting (D&B) and crushing of the ore. The ore will be processed by flotation to obtain a concentrate, which will be the final product for the plant. No block metal is expected to be obtained. No block metal is expected to be obtained. The generated mining waste will be deposited in mining waste facilities.</p> <p>The estimated reserves and resources extend to a depth of approximately 195 meters, with about 95% of them at a depth of less than 120 meters and about 1% below 140 meters. The maximum depth of the mine pit is planned to be about 140 m from the surface. The bottom of the mine is expected to reach an elevation of 435 m.</p> <p>Blasting will be carried out by an external contractor who will deliver the necessary explosives immediately before blasting, so there is no likelihood of BB being present on site. The specified charge weight is mandatory when preparing the Project and Passport of the PBP for each individual blasting.</p> <p>With regard to earthworks, a selective earthwork technology using a bulldozer and motor vehicles is envisaged.</p> <p>Selective/separate disposal of:</p> <ul style="list-style-type: none"> - Soil and humus mass. - Sterile rock mass (overburden); - Flotation waste. <p>According to preliminary studies, the technological sequence for processing the extracted ore includes the following main accompanying activities:</p> <ul style="list-style-type: none"> - crushing and transportation; - storage of crushed ore in a covered buffer warehouse, which is a reinforced concrete platform covered with a shed with a feeder underneath; - grinding (ball mill) - flotation; - thickening of flotation waste and disposal of 	
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		<p>SMO;</p> <ul style="list-style-type: none"> - concentrate thickening and filtration; - accompanying activities - technological provision of: water, air, and reagents. <p>The implementation of the IP will require quantities of water for production needs (in the enrichment plant, for irrigation during dusting and for drinking and domestic needs of the staff).</p> <p>It is indicated that the hydrological survey, defined in the hydrological report, for the availability of water resources from surface water bodies shows that during the period January-May, when there is sufficient flow in the river, it is possible to use water from Arpa Dere, in the area of the pumping station (PS) "Rozino" at a flow rate that will provide a minimum water quantity of 50 l/s (expected total volume of 648,000 m³), equal to 10% of the average annual water quantity, as well as guarantee the ecological minimum in the river. During this period, an open reservoir for non-contact water will be filled through continuous water pumping.</p> <p>A possible option for water pumping is the construction of a pumping station in the area of the existing Požino pumping station, which is used to supply drinking water to the village of Požino. Due to the higher flow rate in February, March, and April, a higher flow rate of about 100 l/s can be used during these months to fill the non-contact water reservoir on days with higher rainfall.</p> <p>Rainwater will accumulate within the catchment area in the Rosio mine pit, depending on the exposure of the mine over the years. This water will be drained into an open reservoir for contact water and will be used in the technological process.</p> <p>A hydrogeological study conducted in the area of the deposit has established that the underground waters have an insignificant flow rate and their yield is extremely insufficient for technological needs.</p> <p>For optimal water consumption, part of the water will be recycled.</p> <p>No wastewater will be generated during the construction works.</p> <p>The following types of wastewater are expected to be generated at the site</p>	
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		<p>: production water from the flotation and dewatering of the concentrate, and domestic sewage from the workers at the mining site. All this water will be recycled, with the open contact water reservoir serving as a buffer volume.</p> <p>There are no plans to discharge production wastewater into water bodies or into the sewage system of populated areas.</p> <p>A local treatment plant (operating with active microbiological sludge) will be built to treat domestic sewage, and the treated water will be discharged into the contact tank.</p> <p>No discharge of domestic sewage into water bodies or into the sewage system of populated areas is planned.</p> <p>Surface water, rainwater, and water from mine drainage will be collected and discharged into the contact water tank.</p> <p>The wastewater described above will be generated throughout the entire life cycle of the mining facility.</p> <p>The closest water sources for drinking and domestic water supply from groundwater in the area of the Rozino deposit are:</p> <ul style="list-style-type: none"> - About 1630 m south of point 7 describing the contour of the future concession area is the TK of PS "Gugutka" for drinking and domestic water supply to the villages of Gugutka and Byal Gradets, municipality of Ivaylovgrad, Haskovo region. There is no SSS built around the water intake facility in accordance with Ordinance No. 3/10.10.2000. There is no sanitary protection zone around the water intake facility in accordance with Ordinance No. 3/10.10.2000. - There is no sanitary protection zone around the water intake facility in accordance with Ordinance No. 3/10.10.2000. About 620 m east of point 6 describing the contour of the future concession area is the Rozino water intake facility, located in the territory of the village of Pastrok, municipality of Ivaylovgrad, for drinking and domestic water supply, owned by the State Forestry. There is no sanitary protection zone around the water intake facility in accordance with Ordinance No. 3/10.10.2000. <p>In Annex No. 7.2.1. to Section 7 of the updated RBMP of the IBR, adopted by Decision No. 920/31.12.2024 of the Council of Ministers, , , , , , DW_1, , and</p> <p>name: Prohibitions and restrictions on activities in drinking water protection areas and designated</p>	
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		<p>sanitary protection zones (SPZ) and buffer zones around water intake facilities/systems, action for implementation of the measure: DW_1_35 Prohibition on the extraction of underground resources, including inert and construction materials, in a buffer zone with a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply.</p> <p>In view of the above circumstances, part of the project concession area subject to the IP falls within the scope of the mark set in the IBR 2022-2027 RBMP and needs to be excluded from the concession area of the "Rosino" deposit, the buffer zone within a radius of 1000 m from facilities for groundwater abstraction for drinking and domestic water supply (the "Rosino" catchment, located in the territory of the village of Pastrok, municipality of Ivaylovgrad).</p>	
Letter from the Ministry of Health ref. No. 04-09 - 119/10.09.2025	Letter from the Ministry of Health ref. No. 04-09 - 119/10.09.2025	<p>The analysis of the quality of the EIA report from a health perspective reveals the following shortcomings:</p> <ol style="list-style-type: none"> 1. The OBOC report does not take into account all the recommendations of the Ministry of Health set out in our letter ref. No. 26-00-2518/27.12.2024 2. In Section IV. "Description of the relevant aspects of the current state of the environment (baseline scenario) from page 102 to page 118, health and hygiene aspects are discussed, but in relation to the current state of the environment. 3. After the analyses made regarding the expected impacts on environmental factors, the following have not been done: <ul style="list-style-type: none"> - characterization of individual risk factors in terms of their impact on human health and comparison with applicable hygiene standards and requirements, both for the working environment and for the affected residential areas. Identification of the most significant risk factors for the affected population and workers at the site; - assessment of the possibilities for combined, complex, cumulative, and remote impact of risk factors, both for workers and for the population exposed to adverse effects, taking into account the production activities of other manufacturing enterprises in the area and the road sections of the municipal and national road infrastructure; - forecast assessment of the impact after the implementation of the investment proposal. <p>Review and assessment of health</p>	<p>Re point 1 – the relevant additions have been made to the EIA, as well as to all other attached documents for analysis with regard to the "water" component and the PVR.</p> <p>Re point 2 Section IV refers to the current state of the environment, respectively the health and hygiene aspects discussed in point IV.11 , i.e. the baseline scenario has been examined, and the impact assessment is in point V.11, in accordance with the regulatory structure of the EIA and the Terms of Reference consulted at the previous stage of the procedure.</p> <p>Re point 3, first indent: The impact assessment in point V.11 has been supplemented in accordance with the guidelines.</p> <p>At this stage, the specific IP does not have an organizational chart showing all the necessary positions, nor can the exact conditions and factors for each workplace be specified, so risk assessments for each workplace cannot be prepared at this stage of the IP's development. The risk factors are described and assessed in section V.11 of the EIA Report, separately for workers at the site and for the nearby population. An assessment has been made</p> <p>an assessment has been made of compliance with the applicable hygiene standards and requirements,</p>

	<p>the status of the potentially affected population with analysis and interpretation of demographic indicators and morbidity indicators for the areas (based on data for the last available 3-5 year period) where the population may be exposed to the impact of the construction and operation of the IP.</p> <p>- comprehensive risk assessment, in a separate section, based on all analyses and assessments carried out in the report, for damage to human health, with a reasoned argument to prove that residents of populated areas will not be exposed to health risks in terms of environmental pollution, as well as proposing measures for health protection and risk management.</p> <p>4. The documents do not discuss radiation protection measures related to the requirements of the Ordinance on Radiation Protection in Activities with Materials with Increased Content of Natural Radionuclides (Adopted by PMC No. 229 of 25.09.2012, published in State Gazette No. 76 of 5.10.2012, amended and supplemented in No. 110 of 29.12.2020). According to Annex No. 1 to Article 1, paragraph 1 of the Ordinance, the extraction and processing of polymetallic ores from the deposit covered by this IP falls within the scope of the Ordinance.</p> <p>5. The EIA does not consider the factor of ionising radiation, as the health risk has not been assessed. No results for the content of radionuclides in the rock mass and in the waste (mining and flotation) have been provided, either in the main documents or in text Annex No. 9. With regard to ionising radiation, it is only stated that no exceedance of the natural radiation background for the population is expected, which is extremely insufficient from a risk assessment point of view.</p> <p>6. The EIA does not provide for monitoring of radiological indicators of environmental and living environment factors, as well as mining and flotation waste.</p> <p>We would like to point out that the former uranium mining site "Planinec" is located in the territory of the village of Planinec, 5 km away from the village of Rozino, Ivaylovgrad municipality. The existence of such a site suggests a possible increased content of natural radionuclides in the territory of the IP. As already mentioned, no data from analyses of radionuclide content in the ore from the deposit has been presented. As already noted, no data from analyses of radionuclide content in the ore from the deposit has been presented.</p> <p>On the basis of the above in points 4-6, the EIA should</p>	<p>refer to the applicable regulations for the specific IP and the actions to be taken/measures to be implemented with regard to safe and healthy working conditions for workers and the protection of public health.</p> <p>Re point 3, second indent: There are no other production facilities or roads from the national road network in the area. This is set out in point II.1. and is evident from all figures in the report relating to the location, including Figure No. II.1.2-1 and Figure No. IV.11-1. The analysis of cumulative impacts is presented in Section VI.6.5. of the report, which explicitly states: With regard to health and hygiene aspects, the above analyses and assessments of air quality, noise, soil, water, and hazardous chemicals show that no cumulative negative impacts on the health of the population or workers at the site are expected as a result of the implementation of the nearest IPs for the extraction of underground resources. No cumulative impact is expected with other IPs either. In Text Appendix No.</p> <p>An exhaustive list is presented in Annex 14 to the EIA, describing 92 other IPs, plans, and programs that have been considered in terms of their cumulative effect. Apart from the IP for exploration, research, and extraction of PI, only forest management projects, forestry plans, one IP for archaeological activities, and one IP for game management have been processed in the area, which have no potential for negative cumulative effects on human health with the current IP.</p> <p>Re point 3, third indent: The assessment of the health status of the potentially affected population has been carried out in point IV.11.1 of the Report,</p>
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		<p>to be supplemented with information on the factor of ionising treatments, including the provision of analysis reports determining the content of radionuclides in the rock mass of the site, samples taken at different depths, as well as in the flotation waste.</p> <p>7. With regard to atmospheric air, as evident from the report, the main pollutants will be the PM10 and PM2.5 fractions. The methodology used allows for the calculation of maximum single and average annual concentrations emitted from area and linear sources, but there is a significant weakness in that the software product used is not applicable for calculating average daily concentrations. With a total of 88 explosions per year, the risk of exceeding the average daily concentrations of PM10 on those days is significant. In this regard, evidence must be provided that the MPC for average daily concentrations of PM10 will not be exceeded more than 35 times in a calendar year. Ordinance No. 12 of July 15, 2010, as amended and supplemented, State Gazette No. 79/2019).</p> <p>The Report does not provide information on the expected number of MPCs, transport schemes, and linear models for external transport flows serving the site and for transporting the flotation concentrate to its final destination, calculating their contribution to unorganized dust and gas emissions in the populated areas through which the vehicles will pass. In this regard, the EIA should be supplemented with the necessary information.</p> <p>8. With regard to surface and groundwater, the OBOC Report takes into account only some of the recommendations in the Terms of Reference, reflected in letter ref. No. 26-00-2518/27.12.2024 of the Ministry of Health. The operation of the facility will require significant amounts of water, and the Report does not sufficiently clarify the public health consequences on the quantity and quality of water for drinking and domestic water supply in the area from the planned intensive water abstraction, e.g. from the water source "Fresh water with a flow rate of 50 l/s from the Appa Dere River at the Rozino pumping station for the months of January to May (i.e. 5 months of the year)". On page 149, it is noted that approximately 125,000 to 310,000 m3 per year is expected</p>	<p>using data for the last available 5-year period (2019-2023) for the indicators in accordance with the guidelines provided in point 10 of the letter from the Ministry of Health ref. No. 26-00-2518 of 27.12.2024 (within the scope of the consultations on the Assignment). As a result of the environmental impact assessments in point V of the EIA and the analyses and assessments in point V.11 on the impact of the IP on human health, the nearby population is not expected to be affected by excessive levels of pollutants in the ambient air and noise, including exposure to risks related to soil contamination, , drinking water, or exposure to chemicals. In this regard, the IP is not expected to lead to changes in the current health and demographic trends of the nearby population.</p> <p>Re point 3, fourth indent: The health risk assessment is presented and structured in the relevant sections of the report, in accordance with the legal requirements, namely: IV.11 (current state of the population and health risk factors), V.11 (identification of risks and assessment of the impact of the IP on human health – including workers and the nearby population), VI.6.4, VI.6.5, VIII, IX, X, XII, and XV based on the Terms of Reference consulted at the previous stage of the procedure, including with the Ministry of Health.</p> <p>The EIA report is prepared as a single document, which also includes the assessment of human health, in accordance with Article 96, paragraph 1 of the Environmental Protection Act. In this regard, presenting the risk assessment in a separate section would be a violation of the regulatory structure of the report. In accordance with the comments of the Ministry of Health, the assessment in section V.11 of the impact of the investment proposal on human health has been supplemented.</p> <p>V.11 on the impact of the investment proposal on human health has been supplemented.</p>
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		<p>Given the priority importance of protecting the purity of water resources, especially groundwater, whose quality is difficult to restore once polluted, it is necessary to categorically ensure that the purity of surface and groundwater will be preserved.</p> <p>Last but not least, it is stated that industrial water will be used for domestic purposes (cleaning of sanitary facilities, etc.), but no mention is made of hygienic purposes (hand washing, bathing, etc.) what water will be used, given that it must meet the requirements of Ordinance No. 9 on the quality of water intended for drinking and domestic purposes.</p> <p>It is noteworthy that the EIA states that "The IP has adopted a 'zero discharge' approach to surface and groundwater. In this regard, the opinion of the East Aegean Sea Basin Directorate on this issue should be attached to the EIA.</p> <p>9. As a result of ore mining activities, certain potentially hazardous wastes will be generated, which could pose a risk to human health. However, this risk is not sufficiently addressed and assessed in the report. In this regard, the EIA should be supplemented.</p> <p>It should be noted that the enrichment waste designated in the report with the non-hazardous waste code "01 03 06 - enrichment residues other than those mentioned in 01 03 04* and 01 03 05*," is a mirror code for hazardous waste with codes 01 03 04* and 01 03 05*, according to Ordinance No. 2 on the classification of waste. This means that the classification of enrichment waste under code 01 03 06 should be established by conducting tests in accordance with the Ordinance to prove its non-hazardous properties after its formation. Otherwise, the waste should be classified under code 01 03 04* or 01 03 05*. In this regard, the OBOC report should include a measure requiring a procedure for the classification of enrichment waste due to the existence of mirror codes.</p> <p>10. With regard to the physical factors of noise and vibration:</p> <p>As mentioned above, the report lacks forecasts for the expected number of heavy goods vehicles, transport schemes for external flows for the transport of flotation concentrate. There is also no assessment of the likely impact of</p>	<p>subject of the assessment does not include the transport of the concentrate to the end user, as at this stage there is no commercial relationship with a facility that could process the concentrate, nor can there be. This can only be clarified after the building permit has been obtained and mining activities have commenced. However, the EIA presents purely hypothetical possibilities for transport access to and from the concession area, Figure No. II.1.2-2. The client will use fully electric trucks that do not emit harmful substances or noise into the environment.</p> <p>Re point 8. Accepted. All documents submitted under the "water" component and the PVR have been supplemented.</p> <p>The likelihood of a significant impact on water is expressed by the BD in connection with the requirements of Article 155, paragraph 1, item 23 of the Water Act regarding the admissibility of the IP and does not constitute a final conclusion.</p> <p>A contract will be concluded with the water supply company for the supply of water for sanitary purposes from a reservoir owned by the water supply company, located 800 m from the domestic premises in the OF area. Such infrastructure has been built and it is technically possible to connect it to the future facility. The exact routes will be determined at the working design stage.</p> <p>Zero discharge is discussed in letters from the BD IBR ref. No. PU-01-183(5)/26.05.2023 and No. PU-02-231(1)/18.12.2024, which are attached to the EIA.</p> <p>The terms "sufficient" or "insufficient" are subjective and immeasurable. There are no specific instructions for supplementation.</p> <p>From each one industrial activity is</p>
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	<p>the associated noise and vibrations on populated areas. When assessing the potentially affected population and areas in terms of the impact of individual risk factors on human health and comparing them with the applicable hygiene standards, the authors of the report considered that excessive noise and vibration levels are not expected either in the pre-operational stage or during the operation of the facility. With regard to the intermittent noise generated during blasting operations, a test explosion was carried out and a report was submitted on the assessment of the indirect impact of the explosion on the environment for the site: Rosino deposit, attached to the EIA. The results and forecasts present the impact of the explosion on the environment, based on measurements taken with specialized equipment during experimental blasting works carried out in the project contour of the Rozino mine. However, no comprehensive assessment of the living environment in the nearest settlements has been made.</p> <p>As mining operations progressed in depth, working conditions and environmental impact changed. Therefore, we believe that, regardless of the initial forecasts, the OBOC report should include a measure requiring periodic control measurements to be carried out, updating the mathematical models with specific data on the deposit determining the levels of impact, and, if necessary, adjusting the parameters of the blasting activities.</p> <p>11. Last but not least, we would like to point out that the activities are planned to be carried out in an open manner, which in itself is a prerequisite for possible pollution of environmental factors (acoustic comfort, atmospheric air, including in closed rooms, vibrations, ionizing radiation). In this regard, the EIA should be supplemented with a more detailed assessment of the health risk to the environment and a number of measures should be proposed to prevent and reduce this impact.</p> <p>12. Working environment Air pollution (page 208 of the EIA). In the working environment, the following are hygienically significant inhalable and respirable (PM4) particulate matter, and respirable free crystalline silica, rather than PM10 and PM2.5. According to Bulgarian</p>	<p>constitute hazardous waste, and the specific IP is no exception. Detailed data on the types and quantities of waste generated, the methods of its management, and measures to reduce its impact are presented in points: II.4, IV.8, V.8, VI.6.3, VI.6.5, and IX.</p> <p>In point V.11, the assessment of the health risks posed by waste summarises the detailed assessment in point V.8, supplemented by the risks associated with hazardous waste. In addition, it should be noted that the classification of waste generated and its environmentally sound management is mandatory under the regulations and will be carried out at the appropriate stages after the IP has been approved. In this sense, the risk to human health is fully controllable and no extraordinary risk can be assumed that would require additional investigation.</p> <p>Re: point 10: The EIA explicitly states that: "The concentrated end product is transported for processing to the end user via the national road network, which is not subject to analysis in this EIA." The IP, formulated by the Contracting Authority and subject to assessment, does not include the transport of the concentrate to the end user, as at this stage there is no commercial relationship with an installation that could process the concentrate, nor can there be any such relationship. This can only be clarified after the building permit has been obtained and mining activities have commenced. Nevertheless, the EIA presents purely hypothetical possibilities for transport access to and from the concession area, Figure No. II.1.2-2. The Client will use fully electric trucks that</p>
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		<p>legislation (Regulation No. 13/2003, last amended in State Gazette No. 28 of 02.04.2024, and Regulation No. 10/2003, last amended and supplemented in State Gazette No. 28 of 02.04.2024), it is necessary to provide for periodic monitoring of the inhalable fraction (mg/m3), respirable fraction (mg/m3) and free crystalline silica (mass %), as well as exhaust gases from diesel machinery, transport and service equipment (COx, NOx, SOx, unburned hydrocarbons, soot, various types of oils, as well as the reagents used in the enrichment process, in mg/m3), in compliance with the requirements of BDS EN 689:2018+A1:2019. 10. It is necessary to include and describe in detail the engineering and technical measures that will be taken to reduce the levels of dust and chemical agents in the air of the working environment in order to reduce occupational exposure to the lowest possible levels, bearing in mind that PPE for respiratory protection is not a means of permanent protection for workers.</p> <p>13. From the regulatory documents described in section "Health and hygiene aspects" (on page 248), it is clear that the health risk assessment does not take into account the applicable regulatory documents related to health requirements when assessing the health risk from the implementation of the NP.</p> <p>In conclusion, the Ministry of Health considers that the EIA should be revised and supplemented in accordance with the above and taking into account the recommendations in our letter ref. No. 26-00-2518/27.12.2024.</p>	<p>do not emit harmful substances or noise into the environment.</p> <p>A comprehensive assessment of the living environment is provided in section IV.11 of the EIA Report, which contains analyses of the health status of the population based on available official data from the NSI, the Regional Health Inspectorate, and the National Center for Public Health and Analyses, as well as an analysis of the current state of environmental health determinants. The data in section IV.11 examines the existing situation.</p> <p>The assessment of the impact of the IP on the living environment and human health is carried out in section V.11, supplemented in accordance with the comments made in the opinion of the Ministry of Health. The analyses and assessments show that no exceedances of human health protection norms and standards are expected for the nearest populated areas.</p> <p>Re: Section 11 The health risk assessments carried out in Section V.11 also refer to the assessments of the impact of the IP on air quality and the assessments of the impact of harmful physical factors. These assessments show that no exceedances of the established standards for air quality and noise are expected for the nearest populated areas and sites subject to health protection.</p> <p>Vibrations have a local impact and do not reach populated areas. No ionising radiation is expected. Additions have been made to sections IV.10, V.10, VI.6.3 and IX.</p> <p>For the assessed impacts, measures are recommended in section IX of the EIA to prevent and reduce the impacts on workers and the population.</p> <p>Under point 12, the assessment in the specified part of the EIA has been corrected in accordance with the instructions given,</p>
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Table No. XI-3. Assessment of the quality of the EIA, made by letter from the Ministry of Environment and Water No. EIA-68-91/12.02.2026, and the manner in which the comments are reflected in the report.

Organization	Opinion	Reasons for acceptance/rejection
<p>1. BD IBR with Plovdiv Center, ref. No PU-01- 808(6) from 30.01.2026</p>	<p>Re: <i>Assessment of the quality of the supplemented environmental impact assessment report (OBOC) for the investment proposal (IP) "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region."</i></p> <p>In response to your letter with outgoing number OBOC-68-73/16.01.2026r. requesting an opinion on the quality of the supplemented OBOC report,</p>	

Organization	Opinion	Reasons for acceptance/rejection
	as well as a ruling on the admissibility of the IP in relation to the regimes set out in the current River Basin Management Plan and Flood Risk Management Plan for the Eastern Black Sea Region 2022 - 2027, after reviewing the attached materials, the Basin Directorate "Eastern Black Sea Region" Plovdiv expresses the following opinion:	
	I. Regarding the supplemented Environmental Impact Assessment Report (EIA) for the investment proposal (IP) "Extraction and processing of polymetallic ores from the "Rosino" deposit, "Tintyava" area, located in the municipality of Ivaylovgrad, Haskovo region	
	<p>1. The EIA report states on page 72 that "Up-to-date information on the status of the groundwater body is presented on the basis of the Annual Bulletin on the Status of Surface and Groundwater Bodies in the Western Black Sea Basin Management Area for 2022 (published on May 12, 2023)."</p> <p>Also on page 72, it is stated that "The assessment of the chemical status of groundwater bodies in the Western Black Sea River Basin Management District is based on the measured values of pollutant concentrations and pollution indicators at monitoring points, the determination and comparison of the relevant 5 annual average values with the relevant quality standards in Annex No. 1 to Regulation No. 1 of 10.10.2007 for the study, use, and protection of groundwater, as well as a comparison of the average annual values of the relevant pollutants/pollution indicators with the relevant permissible values for each of the groundwater bodies included in the RBMP of the ZBR (2016-2021).</p> <p>It should be noted that with regard to the chemical status of groundwater bodies in <u>the Eastern Black Sea River Basin Management District</u>:</p> <ul style="list-style-type: none"> - An overall assessment of the chemical status of groundwater bodies in the RBMP (2022-2027) is published on the website of the Basin Directorate "Eastern Black Sea Region" Plovdiv - https://earbd.bg/indexdetails.php?menu_id=966, Annexes to Section 4 (Monitoring and assessment of the status of surface waters, groundwater, and water protection zones) - Annex 4.2.2.2.1. Obshta_ocenka_him_status GW. - According to the annual reports on the status of waters, for 	No comments. Positive opinion. The clarification regarding the chemical status of groundwater bodies is noted.

Organization	Opinion	Reasons for acceptance/rejection
	<p>the period from 2011 to 2024 inclusive in the territory of RIEW - Haskovo, an overall assessment of the chemical status for PBT is given.</p> <p>- Reports on the status of water bodies in the Eastern Black Sea region are published annually on the website of the Basin Directorate "Eastern Black Sea "</p> <p>Plovdiv https://earbd.bg/DOKLADI ZA SYSTOYaNIETO OF WATER BODIES IN THE TERRITORY OF ILR- c762.</p> <p>2. Maps are presented at an appropriate scale indicating the exact location of the IP. It is indicated that the bottom of the mine is expected to reach an elevation of 435 m.</p> <p>3. The EIA report characterizes the ecological status of the surface and groundwater bodies within the boundaries of the IP.</p> <p>4. Information is provided on water protection areas pursuant to Article 119a of the Water Act, sanitary protection zones (CO3), and water sources for drinking and domestic water supply.</p> <p>5. The report provides information on surface and groundwater. An integrated approach to water quality management within the production site has been developed. It is stated that the integrated approach adopts the principles of minimizing the quantities of wastewater, for which purpose a strategy has been developed for the minimum use of fresh water and its maximum reuse within the production site.</p> <p>6. The EIA report analyses compliance with the provisions of Article 116(1)(4) of the Water Act and the measures set out in the IBR's RBMP (2016-2021) relevant to the present IP.</p> <p>7. The OBOC report presents information on the planned water abstraction and the possible impact on the surface water body.</p> <p>8. The EIA report characterizes the hydrogeological conditions and factors. The annexes present a hydrogeological assessment and opinions from the relevant competent persons.</p> <p>9. The EIA report presents information on the drilling and blasting works. An assessment report on the side effects of the explosion on the environment is attached, subject: "Rosino deposit, Kardzhali municipality". The EIA report provides a forecast and assessment of the expected impact on surface and groundwater and provides for measures to prevent, reduce or eliminate the impact.</p> <p>10. The EIA report provides a forecast and assessment of the expected impact on surface and groundwater and sets out measures to prevent, reduce or, where possible, eliminate</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>harmful effects on the environment.</p> <p>The supplemented EIA for the IP "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region, will contain the necessary information regarding the water component, necessary for making a competent decision on the degree of impact, with a technical error noted in point 1 of this opinion.</p>	
	<p>II. Regarding the admissibility of the IP in relation to the regimes set out in the current River Basin Management Plan (RBMP) 2022-2027 and Flood Risk Management Plan (FRMP) for the Eastern Black Sea Region 2022-2027</p>	
	<p>1. Assessment of the admissibility of the IP in relation to the environmental protection objectives and measures set out in the River Basin Management Plan for the Eastern Black Sea Region (RBMP for the EBR) and the Flood Risk Management Plan for the Eastern Black Sea Region (FRMP for the EBR).</p> <p>1.1. Characteristics and purpose of the IP: The IP is related to the assessment of the quality of the supplemented environmental impact assessment report (OBOC) for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region.</p> <p>The client plans to extract and process polymetallic (gold-silver) ores from the Rosino deposit, Tintyava area, with the future concession area amounting to 2,753 decares, of which the disturbed areas will amount to 1,179 decares. The main activities included in the proposal are:</p> <ul style="list-style-type: none"> • Extraction of polymetallic ores by open-pit mining; • Processing of ore by flotation to obtain concentrate; • Construction and operation of the necessary supporting infrastructure - roads, water supply, electricity supply, material storage facilities, mining waste facilities, etc.; • Gradual recultivation of the affected areas. The concession term is set at 35 years. <p>The purpose of the investment project is the open-pit mining and processing of polymetallic gold- silver- ore from the deposit "Rosino", area "Tintyava". The technological process of open-pit mining includes exposing the natural resources, performing drilling and blasting works (DBW) and crushing the ore. The ore will be processed</p>	<p>No comments. Contains findings on the content of the EIA.</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p>by flotation, until a concentrate is obtained, which will be the final product for the installation. No block metal is expected to be obtained. The generated mining waste will be deposited in mining waste facilities.</p> <p>In connection with a letter from the Minister of Environment and Water ref. No. 99-00-587/27.05.2024, pursuant to Article 98, paragraph 1 of the Environmental Protection Act, a notification has been prepared and sent to inform the potentially affected party</p> <p>- the Republic of Greece, in connection with the OBOC procedure and in accordance with the requirements of the OBOC Convention in a transboundary context. The notification was prepared in accordance with Decision 1/4 of the First Meeting of the Parties to the Convention.</p> <p>By letter ref. No. OBOC - 68/23.10.2024, the MOCB received an official response from the Greek side confirming its willingness to participate in the OBOC procedure as an affected party. With this, the competent authority for conducting the OBOC procedure becomes the Minister of Environment and Water. The scope of the assessment examines in detail the transboundary aspects of the impact, with special attention paid to the "Water" component. The letters related to the transboundary procedure are presented in an appendix to the EIA.</p> <p>In view of the comprehensiveness of the analyses and assessment under the component "groundwater," the Contracting Authority commissioned the preparation of a "Report on the hydrogeological conditions in the area of the investment proposal for the Rozino deposit." The report was prepared by persons with the relevant expertise and was submitted to the MOCB by letter from the Contracting Authority ref. No. 4-2/28.04.2024. There are two opinions on the report - one from the BD IBR ref. No. PU-10-182(8)/12.05.2024 and one from an expert hydrogeologist. All documents are presented in an appendix to the EIA.</p>	
	<p>The EIA has been prepared on the basis of Article 96(1) of the Environmental Protection Act, in accordance with the consultations held with the affected parties and the public, additional studies conducted during the OBOC procedure, including letters from the MOCB ref. No. OBOC-68-17/18.11.2024 and ref. No. OBOC-68-28/14.02.2025. It was submitted for quality assessment to the MOCB in August 2025. By letter ref. No. OBOC-68-65/20.10.2025 (Text Annex No. 7A), a first negative assessment of the quality of the OBOC and EIA report was given, certain omissions were pointed out, and the report was returned for completion.</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>The current supplemented EIA reflects the comments made, with attention being paid to the response to the comment given in point 1.5 of the MOCB letter: "No assessment has been made as to whether individual sections of the IP fall within future sanitary protection zones in connection with the presence of water intake facilities for drinking and domestic water supply less than 1000 m from the boundaries of the future concession area, for which no sanitary protection zone has been established."</p> <p>A survey has been conducted of all available water sources around the future concession area. At 800 m east and 1800 m south of the boundaries of the IP, there are water supply and sewerage facilities - Haskovo PC Rozino (on the terrace of Appa Dere) and PC Gugutka (on the terrace of the Byala River). Information has been requested from the BD IBR under the Access to Public Information Act. In Decision No. ZDOI-01-9/31.01.2025 of the Director of the BDIBR on granting access to public information, it is stated that "At present, we have no information about the existence of future CO3 zones II or III in nearby water sources for drinking and domestic water supply" and, in view of this, no such assessment has been made in the report.</p> <p>With regard to the statement in the letter from the Plovdiv BDIBR ref. No. PU-01-808(2)/26.09.2025 that "At about 620 m east of point 6 describing the contour of the future concession area is the "Rozino" water intake, located in the territory of the village of Pastrok, municipality of Ivaylovgrad, for drinking and domestic water supply, owned by the State Forestry. There is no CO3 built around the water intake facility in accordance with Ordinance No. 3/10.10.2000. There is no CO3 built around the water intake facility in accordance with Ordinance No. 3/10.10.2000. Annex No. 7.2.1. to Section 7 of the updated RBMP of the IBR, adopted by Decision No. 920/31.12.2024 of the Council of Ministers, provides for a measure with code DW_1 and title: Prohibitions and restrictions on activities in drinking water protection areas and in designated sanitary protection zones (CO3) and buffer zones around water intake facilities/systems, action to implement the measure: DW_1_35 Prohibition on the extraction of underground resources, including inert and construction materials, in a buffer zone with a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply.</p>	
	<p>In view of the above circumstances, part of the project concession area covered by the IP falls within the scope of the measure set out in the IBR 2022-2027 RBMP and it is necessary to exclude from the concession area of the Rosino deposit the buffer zone within a radius of 1000 m radius from facilities for the abstraction of groundwater for drinking and domestic use</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>water supply (the Rozino catchment, located in the territory of the village of Pastrok, municipality of Ivaylovgrad).", the EIA specifies that the Rozino catchment is located 2,300 meters from the contour of the mine where extraction will take place and 1,300 meters from the boundary of the buffer zone with a radius of 1,000 meters from the water intake facility. The catchment is close to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material presented shows that no mining or PBP can be carried out in the 1000 m buffer zone (without a specified CO3), as there will be an artificial water intake facility there, necessary for the needs of the IP and representing a clean water reservoir. The EIA emphasizes that extraction will take place 1300 m from the buffer zone with a radius of 1000 m (without a defined CO3) and 2300 m from the catchment itself, therefore there is no reason to exclude the buffer zone around the Rozino catchment from the future concession area. The exclusion of this territory will make it impossible to build the clean water reservoir needed for the implementation of the IP. In addition, the report notes that the IP's catchment areas during operation are clearly indicated, and it is clear that there are no mining operations in the buffer zone of the Rozino catchment.</p> <p>The EIA assesses the expected impacts and formulates general and specific conclusions regarding the expected potential impacts, including their extent. Based on these conclusions, recommendations and measures are proposed to reduce the impacts, resolve any future environmental problems, and ensure the safe operation of the facility, guaranteeing the protection of human health, the environment, and the sustainable development of the area.</p> <p>The total concession area is 2,753 decares, of which 1,179 decares will be disturbed. The buffer zone covers 1,574 decares. Some of the facilities will be built on already developed/disturbed land, and no new land will be taken, with the "overlap" amounts to 261.9 decares.</p> <p>In compliance with the requirements set out in letter ref. No. PU-02-231/1/18.12.2024 from the BD IBR, drainage ditches will be built around the perimeter of the mine field and the open pit mine to collect rainwater and snowmelt from higher elevations and prevent surface water from entering the pit mine. regard their illustration</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>the site plan, it should be emphasized that they are marked hypothetically, taking into account the geodesy of the terrain at the moment. Their exact location will be determined after engineering calculations and the development of specific technical projects, with a view to their maximum efficiency in relation to the technical parameters of the overall future project. Therefore, in some places, the contour of the hypothetical trenches extends beyond the proposed concession area, which will be corrected at the technical design stage and will be adjusted to the concession area provided, as they will be constructed within this area.</p> <p>The bottom of the mine is expected to reach an elevation of 435 m. According to the drilling work carried out, no underground water has been reached at this elevation and therefore no additional water inflow to the pit is expected other than that from rainfall and snowfall.</p> <p>The water that has entered the mine and the dumps as a result of rain and snowfall will be directed to the lowest parts of the respective facility. In the mine pit, a sump is planned to be formed at each working level to collect surface water, which will be used to irrigate the mine roads. If necessary, excess mine water will be pumped out and redirected to the contact water facility to replenish the circulating water. All dumps will be constructed and developed with slopes at each stage to ensure gravity drainage of surface water back to the outer edges. A surface water drainage system will be constructed and the water will be directed to the ore processing plant or to the contact water reservoir. The upper horizons of the pit, which have an open contour, will facilitate the gravitational diversion of rainwater and its removal outside the perimeter of the pit, which would reduce the need for drainage during the extraction of the mine.</p> <p>Bottled water will be supplied for drinking purposes. For sanitary and domestic needs, a contract will be concluded with the water supply and sewerage company for the supply of water from a reservoir owned by the water supply and sewerage company, located 800 m from the domestic premises in the OF area. The existence of built infrastructure with technical capability for connection to the future facility. The exact routes will be determined during the working design phase.</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>The construction of a central sewerage system is not planned due to the lack of a treatment plant in the vicinity of the site. As an alternative, the possibility of using mobile sanitary facilities maintained by a specialized company has been considered, which will periodically collect the generated water according to a schedule and transport it to a licensed treatment plant. Another option considered is the design and construction of a mobile treatment plant tailored to the site's consumption, which will be removed once the site has ceased operations and been closed down.</p> <p>According to the preliminary design, to compensate for the expected annual water deficit of approximately 125,000 to 310,000 m³ in the supply to the installation, water will be supplied from a pumping station on the Apap Dere River located about 1.7 km east of the site.</p> <p>It is planned to pump water directly from the Apa Dere River during the wet months of the year (from January to May inclusive). The water intake from the Apa Dere River will be close to the confluence with the Yuren Dere River and adjacent to the existing pumping station in the village of Rozino. This pumping station is designed to pump water from a spring that flows into the whirlpool. The flow rate of this spring varies between 6 and 11 l/s throughout the year, depending on the season. It has been calculated that the flow rate required to maintain the village of Rozino is in the order of 0.34 l/s. The excess water from the spring, after the relevant justification, could be used for the industrial needs of the site throughout the year. It is planned that the water intake will be carried out from a naturally formed pool without the need to build a dam or other CMP activities blocking the river.</p> <p>The surface runoff from the open pit mine will be used as the primary source of water for the production facility. This water is pumped from the sumps of the open pit mine to the OF reservoirs. The water stored in the tailings pond is the second source of water for the plant, with the fresh water reservoir being used as a source of supplementary water (third source) if the water from the open pit mine and the tailings pond is not sufficient or of the required quality to meet the factory's water needs.</p> <p>During the operational phase, according to the EIA, no negative impact on surface waters is expected due to the absence of objective reasons for this.</p> <p>With regard to water abstraction from the Apra Dere River, the report states</p>	

Organization	Opinion	Reasons for acceptance/rejection
	<p>the following is stated:</p> <p>The planned water abstraction for the project is seasonal, with a flow rate of up to 50 l/s and an operating period from January to May (5 months per year). Water abstraction is planned near an existing pumping station near the village of Rozino, where drinking and domestic water supply to the population takes priority over industrial water use. Water abstraction for the IP will be carried out on the basis of a permit issued in accordance with the Water Act, which sets out specific conditions and requirements for water use, ensuring the provision of water for the drinking and domestic needs of the population in the IP area. The water deficit of 125,000-310,000 m³ is a balanced assessment of the needs of the production facility under different scenarios, and not an unconditional planned water intake from the Apra Dere River. The main principle of the project is to minimize the use of fresh water and maximize the reuse of water in circulation.</p> <p>The investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area" is limited and only involves the use of groundwater when necessary. The hydrogeological study conducted so far in the area of the deposit has established that the groundwater has an insignificant flow rate for technological needs. Therefore, an additional study of the hydrogeological conditions and the potential of the PBT is planned.</p> <p>It is planned that the inflow of groundwater collected in the sumps of the pit will be pumped to the plant as a priority in order to meet the requirements of the technological plant, and any excess water will be pumped to the tailings storage facility for temporary storage.</p> <p>Groundwater from the open pit mine will be used as the primary source of water for the production plant. This water is pumped from the sumps of the open pit mine to the OF tanks.</p> <p>In order to reduce the amount of contact infiltrated water, a decision has been made to line the bottom and walls of the contact water tank with an insulating screen. In principle, no filtration water should seep from the tank, except in the event of a deficit in the membrane. The water from any breaches will be join to the flow from filtration water coming from</p>	

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	<p>tailings storage facility. Contact filtration water that has passed through any breaches in the screen, as well as filtration water under the base of the facility, will enter the contact pond either directly through the surface drainage or after being captured by the drainage curtain and pumped back into the contact water reservoir.</p> <p>The filtration water that has passed through the curtain will be stopped by the injection barrier. In addition to being a barrier to the contact filtration water, the injection curtain is also a barrier to the non-contact water and prevents the two flows from mixing. The report states that the contact filtration flows are limited to the contact water reservoir and are not expected to cause groundwater contamination.</p> <p><u>With regard to drilling and blasting operations (DBO):</u></p> <p>The EIA report indicates the impact of BES on water, providing results from a trial explosion. It is emphasized that the catchment "Rozino" is located 2300 meters from the contour of the mine where mining will take place and 1300 meters from the buffer zone with a radius of 1000 m from the water intake facility. The figure clearly shows that the catchment is close (620 m) to point 6 of the contour of the future concession area, which is below the clean water reservoir. The map material shows that no extraction, respectively PBP, can be carried out in the 1000 m buffer zone, as there will be an artificial water intake facility necessary for the needs of the IP and representing a clean water reservoir. A report on a test explosion is presented in a text appendix. The main conclusions are as follows:</p> <ul style="list-style-type: none"> - The explosive seismic impact does not pose a risk to buildings, facilities, water bodies, or the population; - With regard to the impact on groundwater, no vibration or dynamic parameters exceeding the natural seismicity of the area have been identified. <p>The conclusion is that the results obtained give reason to conclude that, provided the recommended maximum mass of BB in a delay interval is observed, no exceedance of the vibration velocity at depth is expected that would have a seismic impact on groundwater and water supply sources, and the implementation of the IP will not cause a negative impact on drinking water sources that are not directly affected by the extraction works.</p>	

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	<p><u>Regarding the hydrogeological conditions in the area:</u> <i>A report on the hydrogeological conditions in the area of the investment proposal under assessment</i> is attached to the EIA. The conclusions of this report are as follows: <i>Hydrogeological parameters and filtration coefficients</i> The hydrogeological studies and experimental filtration tests conducted confirm that the aquifers in the area of the deposit "Rozino" and "Tintyava" have very low water conductivity and limited water abundance. The filtration coefficients determined for the Paleogene sediments and metamorphic basement are in the range of 2.11×10^{-7} to 2.13×10^{-9} m/s, which indicates a highly limited underground runoff and a lack of potential for significant groundwater migration. <i>Potential risk of seepage from SMO</i> Based on the geological parameters, low natural permeability, and planned waterproofing measures (HDPE geomembrane, drainage layers, infiltrate collector), it is established that the potential for seepage from the SMO to groundwater is minimal. The rock masses form a natural hydrogeological barrier which, in combination with the engineering measures, eliminates the risk of impact on groundwater. In addition, the results of the available geochemical and ARD tests for waste materials show no potential for acid drainage, which is a key prerequisite for limiting the risk of acidification and secondary mobilization of metals. <i>Potential seepage during backfilling of the pit</i> Backfilling will be carried out with non-aggressive, inert sterile rock mass with no potential for acid drainage. The low filtration capacity of the surrounding rocks and the absence of local aquifers ensure that no infiltration or contamination of groundwater is expected during backfilling. <i>Impact of blasting</i> Analysis of the structural-geological and hydrogeological conditions shows that the existing fracturing is poorly developed and inherited. The controlled application of blasting will not generate significant new water-conducting fractures and will not alter the mechanical or filtration properties of the water-bearing rocks. <i>Impact on drinking water sources</i> The development of the Rozino deposit does not and cannot affect</p>	

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	<p>drinking water sources in the area. This is evidenced by:</p> <ul style="list-style-type: none"> - the lack of hydraulic connection between the of IP and the water extraction facilities; - the different depth and nature of the aquifers; - the absence of established groundwater in the mine area outside the limited local occurrences. <p>The flow rate of water sources will not be reduced by the IP's activities and no change in groundwater regimes is expected.</p> <p><i>Impact on the chemical status of water</i></p> <p>Chemical analyses of groundwater and surface water (2019-2023) show stable parametric composition, with no traces of pollution or negative trends. The project has no potential to deteriorate the chemical status or pH of groundwater and surface water.</p> <p><i>Summary conclusion from the Report on the hydrogeological conditions in the area of the assessed investment proposal:</i></p> <p>Based on all studies, tests, and analyses conducted, it has been established that:</p> <ul style="list-style-type: none"> - The hydrogeological conditions are low low water conductivity and limited underground runoff. - No seepage or contamination from SMO or reverse filling is expected. - Explosive work have affect affect negatively the fracturing and filtration properties. - The IP does not affect the drinking water supply in the area and does not pose a risk to water intake facilities. - The chemical status of groundwater and surface water will not be impaired. <p>It has been concluded that the development of the Rosino deposit does not pose a risk to groundwater, drinking water sources, or the quality and quantity of groundwater and surface water in the area.</p> <p><i>Summary conclusions on the impact on water.</i></p> <ul style="list-style-type: none"> - Surface waters. During all stages of implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area," the impact on surface waters is determined to be insignificant. The surface waters used from the Appa Dere River are in quantities up to 10% of the average multi-year water quantities and is not expected to have a negative 	

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	<p>impact (including transboundary), and no discharge of waste water into surface water bodies is planned. The "zero discharge" approach has been adopted.</p> <p>- Groundwater. Implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, area Tintyava" is not expected to have a negative impact on groundwater and will not lead to a deterioration in the chemical and quantitative status of the affected groundwater body BG3G000PtPg049 Fissured waters - Eastern Rhodope complex.</p> <p>As a technological option, a variant for water abstraction from the terrace of the Appa Dere River is envisaged through the construction of a pumping station in the area of the existing Rozyno pumping station.</p> <p>It is planned that extraction will take place 1,300 m from the boundary of the buffer zone of the Rozino catchment, with a radius of 1,000 m, and 2,300 m from the catchment itself, so no negative impact on the drinking water protection zone is expected. A clean water reservoir will be built at the point of the concession area closest to the catchment.</p> <p>Extraction works will be carried out in the infiltration zone without reaching the water level. The passive inflow of groundwater will be pumped to the installation as a priority in order to meet the technological requirements of the OF.</p> <p>The impact on the chemical status of groundwater will be neutralized by lining the bottom and walls of the contact water tank with an insulating screen and by constructing a system to capture any breaches, including a drainage curtain and an injection barrier.</p> <p><u>With regard to transboundary impact</u></p> <p>The EIA report states that the area of Ivaylovgrad is adjacent to zone code GR12 - the geographical region of Thrace. The OBOC report will use data from the Thrace River Basin Management Plan (GR12). The Trakia Water Management Basin (GR12) is a transboundary river basin management area.</p> <p>The Thrace River Basin Management Area (GR12) is a transboundary river basin management area. The western part of the basin borders the territory managed by the Bulgarian Basin Directorate for Water Management in the Western Black Sea Region, where the Nestos and Despitis rivers are transboundary. The central and eastern parts border the Bulgarian IBR BD, where the transboundary rivers are Arda (Ardas) and Luda Reka (Eritropotamos).</p>	

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	<p>The Evros River basin is also transboundary in nature, as it is partially located on the territory of the Bulgarian IBR BD RRB of the Eastern Aegean Sea (the rivers). The Maritsa (Evros) River forms the border between Bulgaria and Greece for 12 kilometers, as well as between Greece and Turkey, with the exception of a section upstream of Nova Vissa, where the river flows through Turkish territory. On Greek territory, the Byala River flows into the Luda River - Eritropotamos.</p> <p>At all stages of construction, operation, and recultivation of the Rozino deposit, no transboundary impact is expected on the ecological and chemical status of surface waters, runoff, and water quantities entering the territory of the Republic of Greece from the Luda and Byala river basins.</p> <p>The planned water intake from the Appa Dere River to fill the open reservoir for non-contact water during the operation of the Rosino deposit, with a total volume of 648,000 m³ is limited to the months from January to May (practically outside the active irrigation season) and is not expected to have a negative transboundary impact on the quantitative status of surface waters.</p> <p>No impact on surface water is expected, either in terms of quality or quantity. The IP provides for the construction of two consecutively located reservoirs (the second of which is for non-contact water, i.e. conditionally clean), which eliminates even the slightest possibility of water separated from the IP entering water bodies. There are no plans to discharge industrial and domestic sewage into surface water bodies or into the sewerage network of populated areas. All collected water will be reused in the technological cycles.</p> <p>For the water supply of the site for technological needs, a hydrological survey has been carried out to determine the availability of water resources from surface water bodies. The possibility of such water use has been established without causing a decrease in water quantities and disruption of the natural water flow. Water use will only be possible after obtaining a permit in accordance with the Water Act.</p> <p>The report states that no impact on the chemical and quantitative status of groundwater bodies is expected. A hydrogeological study was conducted in the area of the deposit, which found that groundwater insignificant flow rate. Given the project</p>	

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	<p>depth of the mine, there are no grounds to believe that there could be a direct impact on underground water bodies or drinking water sources, with corresponding sanitary protection zones and permitted for exploitation in accordance with the Water Act. In view of this, the report states that no impacts can be expected</p> <p>impacts that could negatively affect the quantity and quality of water in Greece.</p>	
	<p>1.2. Location: The location of the NP falls within the boundaries of the surface water body (BT) "Biala River and its tributaries" with code BG3MAI00R270.</p> <p>The IP falls within the boundaries of the water protection zone - ZZ "Rhodopes - East" with code BG0001032, designated in accordance with Article 119a, paragraph 1, item 5 of the Water Act, included in Section 3, point 3.5.1. of the RBMP of the IBR. The IP falls within the boundaries of the water protection zone - ZZ "Byala Reka" with code BG0002019, designated in accordance with Article 119a, paragraph 1, item 5 of the Water Act, included in Section 3, point 3.5.2. of the RBMP of the IBR (as a very small part of the concession area is located outside the zone).</p> <p>The IP does not fall within the water protection zones under Article 119a, paragraph 1, item 1 (for surface waters), item 2, item 4, described in Section 3 of the RBMP of the IBR. The Rosino deposit, Tintyava area, does not fall within the boundaries of an established CO3 around a water source from a surface water body.</p> <p>IP "Extraction and processing of polymetallic ores from deposit "Rozino", area "Tintyava", located in the municipality of Ivaylovgrad, Haskovo region, falls within the scope of underground water body BG3G000PtPg049 - "Fissured waters - Eastern Rhodope complex".</p> <p>The groundwater bodies are designated as water protection zones pursuant to Article 119a, paragraph 1, item 1 of the Water Act. Within the groundwater bodies, there are designated water protection zones pursuant to Article 119a, paragraph 1, item 2 of the Water Act. Parts of the northern and eastern parts of the Rosino deposit, Tintyava area, fall within a vulnerable water protection zone included in Section 3, item 3.3.1 of the RBMP of the IBR. The Rosino deposit, Tintyava area, does not fall within the boundaries of established COZs around underground water sources or mineral water sources.</p> <p>The established groundwater sources for drinking and domestic water supply in the IP area are as follows:</p> <ul style="list-style-type: none"> - At approximately 1630 m south of point 7 describing the contour of the future concession area, there is a TK of PC "Gugutka" for drinking and domestic water supply to the villages of Gugutka and Byal Gradets, municipality of Ivaylovgrad, region of Haskovo. 	

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	<p>Haskovo. There is no CO3 built around the water intake facility in accordance with Ordinance No. 3/10.10.2000.</p> <p>- About 620 m east of point 6 describing the contour of the future concession area is the "Rozino" water intake facility, located in the territory of the village of Pastrok, municipality of Ivaylovgrad, for drinking and domestic water supply, owned by the State Forestry. There is no CO3 built around the water intake facility in accordance with Ordinance No. 3/10.10.2000. There is no CO3 built around the water intake facility in accordance with Ordinance No. 3/10.10.2000.</p> <p>The Rosino deposit, Tintyava area, is located outside the designated areas with significant potential flood risk in the IBR.</p>	
	<p>1.3. Status of water bodies and environmental protection objectives:</p> <p>1.3.1. Status according to the IIURB of the IBR: Surface water body with code BG3MA100R270 is defined as being in good ecological status and good chemical status. The environmental protection objective for this specific water body (in accordance with the provisions of Chapter X, Section III of the Water Act) is to maintain good ecological status and prevent its deterioration, to maintain good chemical status and prevent its deterioration, and to achieve the objectives for water protection areas.</p> <p>According to Section 4, points 4.2.2 and 4.2.3 of the RBMP of the IBR, groundwater body BG3G000PtPg049 is in good chemical status and good quantitative status. The environmental protection objective for groundwater body BG3G000PtPg049 is to maintain good chemical status and prevent deterioration.</p> <p>1.3.2. Status according to the latest annual assessment: For 2024, water body code BG3MA100R270 is determined to be in good ecological status and good chemical status according to the water matrix.</p> <p>1.3.3. Conclusion: For water body with code BG3MA100R270, the ecological and chemical status is maintained in accordance with point 1.3.1.</p>	
	<p>1.4. Measures in the IIURB and PUPH of the IBR.</p> <p>1.4.1. Measures in the RBMP of the IBR: The measures for achieving the objectives for the protection of groundwater and surface water and water protection areas are described in the annexes to Section 7 of the ITURB of the IBR. The following measures may be relevant to the specific IP:</p> <ul style="list-style-type: none"> Annex 7.2.1 to Section 7 of the RBMP of the IBR provides for a measure entitled: Prohibitions and restrictions on activities <p>activities in drinking water protection areas and in designated sanitary protection zones (SPZ) and buffer zones around water intake facilities</p>	

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	<p>facilities/systems, action to implement the measure: DW_135 Prohibition on the extraction of underground resources, including inert and construction materials, in a buffer zone with a radius of 1000 m from facilities for the abstraction of groundwater for drinking and domestic water supply. The measure has code DW_1;</p> <ul style="list-style-type: none"> Annex 7.2.1 to Section 7 of the RBMP of the IBR provides for a measure entitled: Prohibitions and restrictions on activities in drinking water protection zones and in designated sanitary protection zones (SPZ) and buffer zones around water abstraction facilities/systems, action to implement the measure: DW_1_4 Compliance with prohibitions and restrictions in CO3 in accordance with the order defining the zone and the list in Annex 1 to the National Catalogue of Measures (RBMP). The measure has code DW_1. Annex No. 7.2.1 to Section 7 of the RBMP provides for a measure entitled: Prohibition on the extraction of inert materials less than 50 m from river banks, action to implement the measure: HY_3_1 Prohibition on the extraction of inert materials less than 50 m from river banks. The measure has code NU_3; Annex 7.2.1 to Section 7 of the RBMP of the IBR provides for a measure entitled: Prevention of the discharge of priority substances into groundwater, action to implement the measure: GD_1_2 Prohibition or restriction of activities that increase the risk of direct or indirect discharge of priority and hazardous substances or other pollutants into groundwater, including the exposure of groundwater to the surface by removing sediments and soils covering the water body. The measure has code GD_1. <p>1.4.2. Measures in the IIUPH of the IBR: No measures are envisaged in the PUPH of the IBR for the CRP area, as it does not fall within the areas identified as having a significant potential risk of flooding in the IBR, nor within areas that may be flooded according to the maps of areas at risk of flooding, in the scenarios specified in Article 146e of the Water Act.</p> <p>1.4.2.1. Assessment of the possible increase in flood risk upon implementation of the IP. We believe that the implementation of the IP will not lead to a significant increase in flood risk.</p> <p>1.4.3. Specific requirements and measures for water protection areas. The entire concession area falls within the scope of protected area 33 "Rhodopes - East" with code BG0001032 and ZZ "Biala Reka" with code BG0002019 (with a very small part of the concession area located outside</p>	

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	<p>the area), with prohibitions and restrictions introduced by orders No. RD-267 of 31.03.2021 and No. RD-575/08.09.2008.</p> <p>Prohibitions and restrictions provided for in the Water Act with regard to this type of investment intentions.</p> <p>2.1. Prohibitions, restrictions, and requirements included in the Water Act:</p> <p>The prohibitions of Article 118a, paragraph 1, items 1, 2, 3, and 4 of the Water Act for the protection of groundwater from pollution must be observed.</p> <p>In compliance with the provisions of Article 156a, paragraph 1, item 2 of the Water Act, it is necessary at all stages of planning, design, construction, and maintenance of the facilities to be built to provide for measures to protect the waters of groundwater bodies from pollution.</p> <p>Water abstraction from surface or groundwater bodies is subject to a permit regime in accordance with Article 44(1) of the Water Act (WA).</p> <p>2.2. Prohibitions, restrictions, and requirements included in subordinate legislation to the WA:</p> <p>The measures in Annex No. 1 to the National Catalogue of Measures for ITURB, in the List of Activities, Prohibitions or Restrictions in Drinking Water Protection Areas in the section on groundwater, to the additional activities prohibited, 2. in the buffer zone within a radius of 1000 m from the water intake facility, where there is no designated COZ, relevant to the IP (activities from the CRP). For groundwater bodies or parts thereof located in the first horizon (which is exposed on the surface), the following prohibitions apply:</p> <ul style="list-style-type: none"> - Activities that lead to the indirect discharge of hazardous substances into the water body from the earth's surface or between the earth's surface and the water level. - Activities that lead to the indirect discharge of harmful substances into the water body between the earth's surface and the water level. - Extraction of underground resources, including inert and construction materials, below the water level. - Water abstraction that poses a risk to the quantity and quality of drinking water. <p>Activities that are not prohibited but may be permitted if special studies (OBOC procedure) prove that they will not affect the status of the waters in the protection zone and/or as a result of them there is no need for additional purification to ensure the necessary quality of drinking water. ensure the necessary quality of drinking water, to the same</p>	

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	<p>application, for groundwater bodies or parts thereof located in the first horizon (which is exposed on the surface) include:</p> <ul style="list-style-type: none"> - Activities that lead to the indirect discharge of harmful substances from the earth's surface into the water body. - Extraction of underground resources, including inert and construction materials between the earth's surface and the water level. - Extraction of underground resources in the area of water abstraction for drinking and domestic water supply to the population, without specific studies and research proving that the extraction activity does not lower the groundwater level and there is no risk of deterioration of its quality. - Construction of geological, hydrogeological, and engineering-geological research facilities, including water intake facilities for groundwater in the underground water body (aquifer). <p>In Annex No. 1 to the National Catalogue of Measures for Water Management, in the List of Activities, Prohibitions or Restrictions in Drinking Water Protection Areas in the section on groundwater, under additional prohibited activities, 2. in the buffer zone within a radius of 1000 m. from the water intake facility, where there is no designated COZ, relevant to the IP (activities from the CRP), for groundwater bodies or parts thereof located in second and subsequent horizons (which are not exposed on the surface), the following prohibitions apply:</p> <ul style="list-style-type: none"> - Extraction of underground resources. - Activities that violate the integrity of the impermeable layer above the groundwater body; - Water abstraction that poses a risk to the quantity and quality of drinking water. <p>Activities that are not prohibited but may be permitted if special studies (OBOC procedure) prove that they will not affect the status of the waters in the protection zone and/or will not require additional treatment to ensure the necessary quality of drinking water, the same applies to groundwater bodies or parts thereof located in second and subsequent horizons (which are not exposed at the surface):</p> <ul style="list-style-type: none"> - Construction of geological, hydrogeological, and engineering-geological research facilities, including water intake facilities for underground water in the underground water body (aquifer); 	

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	<p>- Extraction of underground resources in the water intake area for drinking and domestic water supply to the population, without specific studies and research proving that the extraction activity does not lower the level of groundwater and there is no risk of deterioration in its quality.</p> <p>Pursuant to Article 61; para. 1, item 1, letter "c" of Ordinance No. 1 of 10.10.2007 on the study, use, and protection of groundwater, the protection of groundwater from pollution and deterioration is carried out by applying the prohibitions under Art. 118a, para. 1 of the Water Act, prohibiting other activities on the surface and in the groundwater body that may lead to the indirect discharge of priority substances into groundwater, including the exposure of the groundwater level on the surface.</p>	
	<p>Conclusion on admissibility: The IP is admissible from the point of view of the RBMP and the RBMP of the IBR (2022-2027), the Water Act and its subordinate legislation, <u>subject to the following conditions:</u></p> <ul style="list-style-type: none"> • No pollution of surface and groundwater shall be allowed from the implementation and operation of the planned activities of the IP for "Extraction and processing of polymetallic ores from the "Tintyava" area, located in the municipality of Ivaylovgrad, Haskovo region. • No wastewater, including treated wastewater, shall be discharged outside the facilities (contact water tank, etc.) of the water recycling system. • Protection of drinking water sources in the area of the deposit "Rozino," "Tintyava" area in terms of their quantity and quality. • Water abstraction from surface or groundwater shall be carried out after a permit has been issued, in accordance with Article 44(1) of the Water Act. • The construction of new facilities in a water body shall be carried out after a permit has been issued, in accordance with Article 46, paragraph 1, item 1 of the Water Act. • The prohibitions specified in the orders of the Minister of Environment and Water for the declaration of the Rhodopes-East Special Protection Area with code BG0001032 and the Byala Reka Special Protection Area with code BG0002019 shall be observed. 	<p>The proposed conditions should be included in the EIA decision to be issued by the competent environmental authority.</p>
	<p>3. Information on existing and permitted impacts of the nature of the investment project. The East Aegean Basin Directorate does not have</p>	

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	systematic information on existing and permitted impacts of a similar nature for the area of the amendment and supplement to the CRP.	
	<p>4. Information on available water resources in the part of the groundwater body where water abstraction is planned, the risk of groundwater pollution during the construction of new wells, and requirements for the prevention of pollution.</p> <p>The IP is not related to water abstraction from groundwater.</p>	
	<p>5. A reasoned assessment of the significant impact on water and aquatic ecosystems.</p> <p>The planned activities under the IP for "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region, would not have a significant negative impact on water and aquatic ecosystems if the provisions of the Water Act and the requirements set out in points 2.1 and 2.2 of this letter are strictly complied with. .in present opinion conditions and compliance with the requirements under points 2.1 and 2.2 of this letter.</p>	
	<p>6. Conclusion on the applicability of Article 93, paragraph 9, item 3 of the Environmental Protection Act.</p> <p>We consider that Article 93 does not apply to the planned activities under the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region"; para. 9, item 3 of the Environmental Protection Act, as they do not fall within the scope of Annex No. 2 to the Environmental Protection Act.</p>	
<p>Ministry of Environment and Water Ref. No EIA-68-91/12.02.2026 Re</p>	<p>Re: <i>Assessment of the quality of the supplemented environmental impact assessment report, including the supplemented and revised report assessing the degree of impact of the investment proposal (IP) "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region"</i></p> <p>In connection with the above-mentioned supplemented environmental impact assessment report (OBOC), including the revised and supplemented impact assessment report attached thereto, submitted to the Ministry of Environment and Water (MOCB) under ref.</p> <p>No. OBOC-68-69/05.01.2026 and additional documents with ref. No. OBOC-68-71/ 16.01.2026, we hereby inform you of the following:</p>	
	<p>I. Regarding the OBOC report:</p> <p>After reviewing the submitted documentation, it was found that the content of the OBOC report complies with the requirements of Art.</p>	

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	96, para. 1 of the Environmental Protection Act (EPA). Pursuant to Article 14, paragraph 3, item 2 of the Ordinance on the Conditions and Procedure for Performing Environmental Impact Assessments (the EIA Ordinance), the assessment of the quality of the EIA report is positive, with omissions that are not material to the decision on the EIA. The quality of the documentation has been assessed in accordance with the criteria set out in Article 14, paragraphs 1 and 2 of the EIA Ordinance, and the following inaccuracies have been identified in the assessment of the supplementary EIA report for OBOC, the following inaccuracies were found, which should be corrected:	
	1. From the Ministry of Health	General comment: after a detailed review of the comments made by the Ministry of Health, it can be stated that the experts of the Ministry of Health most likely did not read and evaluate the supplemented EIA submitted to the Ministry of Environment and Water in December 2025, but rather an unknown document. Despite this, we present our responses below.
	<p>1.1. It is justified that according to data of Basin Directorate "Eastern Black Sea Region" the closest water sources for drinking and domestic water supply from groundwater in the area of the "Rozino" deposit are:</p> <ul style="list-style-type: none"> - about 1630 m south of point 7 describing the contour of the future concession area is located TK of PC for drinking and domestic water supply to the villages of Gugutka and Byalgradets, municipality of Ivaylovgrad, Haskovo region. There are no sanitary protection zones (CO3) around the water intake facility, in accordance with Ordinance No. 3 of 2000. - About 620 m east of point 6 describing the contour of the future concession area is the "Rozino" water intake facility, located in the territory of the village of Pastrook, municipality of Ivaylovgrad, for drinking and domestic water supply, owned by the State Forestry. There is no COZ built around the water intake facility, in accordance with Ordinance No. 3 of 2000. There is no COZ built around the water intake facility, according to Regulation No. 3 of 2000. <p>The Ministry of Health notes that neither the opinion of the East Aegean Region BD nor the OBOC report specifies the exact distance to PC "Rozino" and water intake facilities facilities managed by VIK Haskovo and used for drinking and domestic water supply in the village of Rozino. On this issue, the OBOC report states</p>	<p>The allegations of a lack of the aforementioned information do not correspond to the actual content of the EIA documentation and are completely at odds with the opinion of the competent water management authority – the Basin Directorate "East Aegean Sea region" ref. No. PU-01-808(6) of 30.01.2026 For reference – see previous point. The BDIBR found that all issues relating to the "water" component had been exhaustively addressed, namely:</p> <p>1) Maps have been submitted at an appropriate scale indicating the exact location of the IP. It is indicated that the bottom of the mine is expected to reach an elevation of 435 m.</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p>It is stated that "800 m east and 1800 m south of the boundaries of the future "Rozino concession area" there are water supply and sewerage facilities</p> <p>- Haskovo PC Rozino (on the terrace of the Appa Dere) and PC Gugutka (on the terrace of the Byala Reka River) are located, with no established CO3.</p> <p>Approximately 620 m east of the area is a catchment for drinking and domestic water supply. As is clear from the above, this catchment is owned by the State Forestry Service and is different from PC "Rozino".</p> <p>On pages 174, 261, and 398 of the OBOC report, it is noted that a technological option is envisaged for limited water abstraction from the terrace of the Appa Dere River through the construction of a pumping station in the area of the existing PC "Rozino", which is used for the drinking water supply of the village of Rozino, which is unacceptable from a health point of view. The Ministry of Health notes that this envisaged option is only marked as a possibility, but has not been analysed in the OBOC report and its annexes from a technological, hydrological, and health and environmental perspectives, including with regard to the possibility that its implementation could affect the amount of water used for drinking and domestic water supply in the surrounding settlements, which we consider to be an omission, and such an expert analysis should be provided.</p> <p>The Ministry of Health considers that no assessment has been made as to whether individual sections of the IP fall within future sanitary protection zones in connection with the existence of water intake facilities for drinking and domestic water supply for which no CO3 has been established.</p>	<p>2) The EIA report characterizes the ecological status of surface and groundwater bodies within the boundaries of the IP.</p> <p>3) <u>Information is provided on water protection zones pursuant to Article 119a of the Water Act, sanitary protection zones (CO3) and water sources for drinking and domestic water supply.</u></p> <p>4) The report presents information on surface and groundwater. An integrated approach to water quality management within the production site has been developed site. It is stated that the integrated approach adopts the principles of minimizing the quantities of waste water, for which purpose a strategy has been developed for the minimum use of fresh water and its maximum reuse within the production site.</p> <p>5) The EIA report analyses compliance with the provisions of Article 116(1)(4) of the Water Act and the measures set out in the IBR's RBMP (2016-2021) relevant to the present IP.</p> <p>6) The OBOC report presents information on the planned water abstraction and the possible impact on the surface water body.</p> <p>7) In , the EIA is made</p>

Organization	Opinion	Reasons for acceptance/rejection
		<p>characteristics of hydrogeological conditions and factors. The appendices contain a hydrogeological assessment and opinions from the relevant qualified persons.</p> <p>8) The EIA report contains information on drilling and blasting works. An assessment report on the side effects of the explosion on the environment is attached, subject: "Rosino deposit, Kardzhali municipality". "Rozino", municipality of Kardzhali".</p> <p>9) The EIA report contains a forecast and assessment of the expected impact on surface and groundwater, and measures are provided for prevent, reduce, or, where possible, eliminate of harmful effects on the environment. The conclusion reached by the BDIBR is that the supplemented EIA contains the necessary information regarding the component water, necessary for taking a competent decision regarding the degree of impact.</p> <p>At the same time, the Ministry of Health claims that there is a lack of information, which completely contradicts what is actually written in the EIA. It is unrealistic that one authority – the BDIBR – found the necessary information in the document, while the other – the Ministry of Health – did not. If the information was missing, the BDIBR would have stated the same.</p>

Organization	Opinion	Reasons for acceptance/rejection
		<p>The statement by the Ministry of Health does not comply with the criteria set out in Article 14 of the EIA Ordinance, with which does not comply with the regulatory requirements for the quality assessment stage.</p>
	<p>In the OBOC report, with regard to the same reservoir (referred to in places in the text as a "dam" or "facility"), the terms "non-contact", "clean", "conditionally clean," "fresh," and "freshwater" are used as synonyms in different contexts; this should be corrected by using only one term, e.g. "clean water reservoir," and clearly specifying all sources of water collection and abstraction from which water will flow into it.</p> <p>The same should be corrected and systematized for the contact water reservoir, which, for example, on page 21 is referred to as a "mixed water reservoir." Separately, on page 163 of the OBOC report, the terms "contact and non-contact groundwater," which essentially contradicts other texts on the absence of contact and impact on groundwater during the implementation of the IP.</p> <p>The Ministry of Health points out that the planned system for capturing possible breaches of the contact water reservoir, including a drainage curtain and an injection barrier, cannot guarantee 100% absence of water seepage from this reservoir towards the clean water reservoir. Such contact water entering the clean water tank is also provided for by means of overflows to the clean water facilities, dimensioned for a maximum theoretical rainfall event.</p>	<p>The naming of the various sub-projects of the IP is entirely at the discretion of the authors of the EIA, as the description of the IP provides sufficient clarity about its provisions, regardless of the terms used. The naming of the sub-projects does not change the proposed engineering solutions in essence.</p> <p>The statement on MZ, that "The planned system for detecting possible leaks in the contact water reservoir, including a drainage curtain and an injection barrier, cannot guarantee 100% absence of water seepage from this reservoir..." This is unfounded and unjustified, both technically and normatively, and is completely contrary to the project proposal, which provides double protection and was prepared by relevant competent specialists – construction engineers. engineers of hydraulic structures, which provide for: In order to reduce the amount of contact infiltrated water, a decision has been made to line the bottom and walls of the contact water reservoir with an insulating screen. In principle, from the reservoir should not</p> <p>should not</p>

Organization	Opinion	Reasons for acceptance/rejection
		<p>filtration water, except in the event of a membrane defect. Water from any breaches will join the flow of filtration water coming from the SMO. The contact filtration water through possible breaches in the screen, as well as filtration water under the base of the facility, will enter the contact reservoir either directly through the surface drainage or after being captured by the drainage curtain and pumped back into the contact water reservoir.</p> <p>The filtration water that has passed through the curtain will be stopped by the injection barrier. In addition to being a barrier to the contact filtration water, the injection curtain is also a barrier to the non-contact water and prevents the two flows from mixing. The report states that the contact filtration flows are limited to the contact water reservoir axis and are not expected to cause groundwater contamination.</p>
	<p>The Ministry of Health has concluded that the revised and supplemented OBOC report still does not provide a definitive answer to the question: Will the IP reduce the flow rate of the water sources used for drinking and domestic water supply in the area and will it create a shortage of water for drinking and domestic needs in the village of Rozino and the settlements along the Biala River valley?</p> <p>In addition, it is noted that, in connection with the above, the report and its annexes again do not provide a substantiated comment on the extent to which the data used data from the period 1961-1998 in "Table No. V.12-2. Average data on water quantities at two points on the Biala River" are relevant to the present</p>	<p>This statement does not correspond to the actual content of the EIA and the documents attached to it, and contradicts the opinion of the competent water management authority – BDIBR. For reference, see the previous point.</p> <p><i>The conclusions of the report on the test PVRs are:</i> the results obtained give</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p>moment. This is old data for a period 65-28 years ago, and given climate change, it is very likely that the current water volumes in the Biala River are lower.</p>	<p>There is reason to conclude that, if the recommended maximum mass of BB is observed within a delay interval, the vibration velocity at depth is not expected to exceed a level that would have a seismic impact on groundwater and water supply sources, and the implementation of the IP will not cause a negative impact on drinking water sources that are not directly affected by the extraction works.</p> <p>The conclusions of <i>the Report on the hydrogeological conditions in the area of the assessed investment proposal</i> are as follows:</p> <p><i>Hydrogeological parameters and filtration coefficients</i></p> <p>The hydrogeological studies and experimental filtration tests confirm that the aquifers in the area of the Rosino deposit, Tintyava area, have very low water conductivity and limited water yield. The filtration coefficients determined for the Paleogene sediments and the metamorphic foundation are in the range of 2.11×10^{-7} to 2.13×10^{-9} m/s, which indicates a highly limited underground outflow and a lack of potential for significant migration of groundwater.</p> <p>The water analysis is presented in section V.2, with pages 173-174 explicitly stating: "Impact on</p>

Organization	Opinion	Reasons for acceptance/rejection
		<p>drinking water sources The development of the Rozino deposit does not and cannot affect drinking water sources in the area. This is evidenced by:</p> <ul style="list-style-type: none"> • the lack of a hydraulic connection between the IP zone and the water intake facilities; • the different depth and nature of the aquifers; • absence of established groundwater in the mine area outside the limited local occurrences. The flow rate of water sources will not be reduced by the IP's activities and no change in groundwater regimes is expected. <p><u>The development of the "Rozino" does not pose a risk to groundwater, drinking water sources, or the quality and quantity of groundwater and surface water in the area."</u></p> <p>Table V.12-2 is part of the transboundary assessment and presents</p> <p>"Average data on water quantities at two points on the Biala River for the period 1961-1998 (based on data from the first RBMP of the IBR – Volume V, Biala River Basin)," which has an entirely retrospective, historical purpose, to examine the main trends in terms of surface waters, whose current status is described in section IV.2.</p>
	The OBOC report recommends that, in the case of explosive drilling at	In DOVOS is recorded (p. 228)

Organization	Opinion	Reasons for acceptance/rejection
	<p>distance less than 300 m to a populated area, protective geo-sheets should be used as a precautionary measure to prevent rock fragments from scattering and posing a risk to the population and the environment. The Ministry of Health considers this recommendation to be good, as it follows that the activity of the IP will not be 1200 meters from the nearest object subject to health protection, but will be 300 meters away, which is unacceptable from a health point of view.</p>	<p>"The safe distance for people cannot be less than R = 300 m. Therefore on p. 230 it is written</p> <p>"It is recommended that, in the case of explosive drilling at a distance of less than 300 m from a populated area, protective geotextile blankets be used as a preventive measure to prevent rock fragments from scattering and posing a risk to the population and the environment." The measure is entirely preventive, as there are no populated areas located less than 300 m from the extraction areas. This is evident from:</p> <ul style="list-style-type: none"> - Table No. IV.11-1. "Distances from the boundaries of the concession area to populated areas and sites subject to health protection"; - Table No. IV.11-2. "Distances from the affected areas/facilities in the concession area to the nearest facilities subject to health protection"; - Figure No. IV.11-1. "Distances from the boundaries of the concession area to the regulatory boundaries of the nearest populated areas"; - Figure No. IV.11-2. "Distances from the nearest directly affected areas in the concession area to the regulatory boundaries of the nearest populated areas." <p>The interpretation made by the Ministry of Health is completely incorrect.</p>
	<p>2. With regard to "Soils" and "Subsoil and mineral diversity":</p> <p>After reviewing the documents received and Table No. XI-1. Reference to the consultations held on the scope of the OBOC and the method</p>	<p><u>Table No. XI-1 is a reference for the consultations held on the scope of the EIA.</u></p> <p>With letter ref. No. EIA-68-</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p>of the opinions received, we found that the comments and proposals referred to in points 4.3.6., points 4.3.7 and 4.3.8 on page 8 of letter ref. OBOC-68-65/20.10.2025 from MOCB have not been accepted by the "authors of the EIA" with comments in the column "Reasons for acceptance/rejection". In this regard, we maintain our comments, which are essentially terminological and based solely on existing and applicable legislation, as follows:</p>	<p>65/20.10.2025, the first negative assessment of the EIA was given, and therefore the relevant table with consultations regarding the quality of the EIA is Table XI-2. Therefore, the Ministry of Health does not find answers to the questions they have raised in Table XI-1; they are in Table XI-2. The relevant additions are in line with the stages of the procedure on EIA and the related comments, without being revised retrospectively.</p>
	<p>2.1. On page 80 of the OBOC REPORT, the text: <i>"The results of the analyses show compliance with the maximum permissible concentrations according to Ordinance No. 3/2008 on the standards for permissible content of harmful substances in soils and those specified in Annex 2 to Article 4 - Standards for safe concentrations, MPC, and intervention concentrations for persistent organic pollutants and petroleum products in soils for all indicators."</i></p> <p>➤ The following text should be clarified and correctly reflected: The results of the analyses show <i>that the content of harmful substances in the soil is</i> within the maximum permissible concentrations according to Regulation No. 3/2008 on the standards for permissible content of harmful substances in soil and those specified in Annex 2 to Article 4 - Standards for safe concentrations, MPCs, and intervention concentrations for persistent organic pollutants and petroleum products in soil for all indicators.</p> <p>The proposal is justified by: The provision of Article 1 of Regulation No. 3/2008 on the standards for permissible content of harmful substances in soils refers to the determination of concentrations for permissible content of harmful substances in soils. In this sense, harmful substances in soils do not "comply" with these standards, but may exceed or be below the threshold of these concentrations. This is not a matter of correcting data, as understood by the authors of the EIA, and as stated in their comment on the Table.</p>	<p>General comment from : Given the EIA authors' obligation to be independent in carrying out the assessment, formulating measures to prevent and reduce impacts, the declarations signed under Article 83, paragraph 4 of the Environmental Protection Act by each of the experts, and the criminal liability in this regard, we do not accept to make corrections to our assessments and proposals for measures. The formulation of measures and conditions is entirely within the competence of the Ministry of Environment and Water, through the EIA decision that will be issued.</p> <p>There is no such text on page 80 of the EIA report. Page 80 contains tables related to groundwater bodies.</p>
	<p>2.2. On page 153 of the OBOC report, after the text: <i>"The following will be carried out</i></p>	<p>There is no such text on page 153 of the EIA report.</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p><i>separation and temporary storage of the topsoil and soil cover. The stored soil material will be used for the recultivation of the areas disturbed by the activity."</i></p> <p>➤ The following should be added: The removal, storage, and utilization of topsoil layer will be carried out in accordance with the provisions of Section II of Ordinance No. 26 of 2.10.1996 on the recultivation of disturbed land, improvement of low-yielding land, removal and utilization of topsoil.</p> <p>The proposal is based on: Ordinance No. 26 of 2.10.1996 on the recultivation of disturbed land, improvement of low-yielding land, removal and utilization of topsoil, which refers to various aspects of soil protection, in which the removal, storage, and utilization of topsoil is regulated solely by the provisions of Section II of the Ordinance.</p> <p>The aforementioned Regulation No. 26 is mentioned only twice in the supplementary report for OBOC—once on page 178, where the text refers to the recultivation of disturbed land, and a second time on page 293 in Section VIII. Description of the forecasting methods or data used to determine and prepare the assessment of significant environmental impacts, including details of the difficulties (e.g., technical shortcomings or lack of know-how) encountered by the investor in gathering the necessary information, and the main elements of uncertainty. Laws, regulations, methodologies, methodological guidelines, instructions, orders, decrees, rules, strategies, plans, programs, and literature used in the preparation of the EIA.</p> <p>This contradicts the statement by the authors of the OBOC report that, in rejecting our proposal for an addition: "In order to avoid unnecessarily burdening the report, repetitions of things already written are avoided."</p>	<p>text. This page presents calculations for emissions into the air.</p> <p>If we accept that this is a proposal, it should be addressed to a future EIA decision, if it is for the approval of the IP, which is entirely within the competence of the Ministry of Environment and Water.</p>
	<p>2.3. On page 254 of the report, in measure 27, in the sentence: "The locations for temporary storage of humus within the boundaries of the designated site should be determined and marked," <u>the words "and marked"</u> should be deleted.</p> <p>The proposal is justified by: According to the provisions of Article 26 of the Regulations for the Implementation of the Agricultural Land Protection Act, it is stated that in the explanatory note to the detailed development plan</p>	<p>There is no such text on page 254 of the EIA. This page presents data on water bodies in a transboundary context.</p> <p>If we assume that this is a proposal, it should be addressed to a future EIA decision, in case</p>

Organization	Opinion	Reasons for acceptance/rejection
	(PUU) for the site (route) of a given facility is determined by what part of the site (route) the topsoil will be removed from and at what depth it should be removed. When the topsoil cannot be utilized immediately after its removal, the plan shall specify the location, boundaries, and area of the site for the topsoil deposit. The cited normative act does not require "marking," which should be omitted.	that this is for the approval of the IP, which is entirely within the competence of the Ministry of Environment and Water.
	<p>2.4. On page 254, in measure 28, in the sentence: "Developing a plan and monitoring soils in accordance with Article 29, paragraph 1, item 2 of the Soil Act," the word "own" should be added before "monitoring."</p> <p>The proposal is justified by: The word "own monitoring" is a term from the Soil Act and, as noted, is in accordance with the provisions of Article 29, paragraph 1, item 2 of the Soil Act.</p>	<p>There is no such text on page 254 of the EIA. This page presents data on water bodies in a transboundary context.</p> <p>If we assume that this is a proposal, it should be addressed to a future EIA decision, if it is for the approval of the IP, which is entirely within the competence of the Ministry of Environment and Water.</p>
	<p>3. We hereby inform you that an up-to-date opinion has been requested from the East Aegean Sea Basin Directorate on the admissibility of the IP in relation to the regimes set out in the current River Basin Management Plan (PURB) and the Flood Risk Management Plan (PURPH) in the Eastern Black Sea Region region 2022-2027 From Basin Directorate</p> <p>"Eastern Black Sea Region", by letter ref. No. OBOC-68-88/30.01.2026 to MOCB, which we provide for your consideration, an opinion is expressed that the investment proposal is admissible from the point of view of the RBMP and the PUPH for the Eastern Black Sea Region 2022-2027, the Water Act and its subordinate legislation, subject to the conditions specified in the opinion.</p>	It is accepted for information. The conditions set by the BDIBR should be included in a future EIA decision, if the same is for the approval of the IP, which is entirely within the competence of the MOCB.
	<p>II. Regarding the intention to manage mining waste</p> <p>Following consultations with the Ministry of Energy on the submitted intention for mining waste management, an opinion was expressed with ref. No. OBOC-68- 78/19.01.2026, confirmed by an opinion with ref. No. OBOC-68-83/27.01.2026. According to this, on the basis of Article 82, in connection with the application of Article 22g of the Underground Resources Act and Ordinance for management of mining waste, Ministry of Energy, Directorate "Natural Resources, Concessions and Control" at this stage, accepts the prepared Mining Waste Management Plan only</p>	Positive opinion on the MWMP.

Organization	Opinion	Reasons for acceptance/rejection
	<p>as an intention to manage mining waste. The submitted "Mining Waste Management Plan" in terms of structure and content has been prepared in accordance with the provisions of Article 22a, paragraph 1 and Article 22c, paragraph 1 of the Underground Resources Act and meets the requirements of the Ordinance on Mining Waste Management.</p>	
	<p>III. Regarding the attached impact assessment report</p> <p>After reviewing the information presented in the revised and supplemented impact assessment report (IAR), in accordance with the quality assessment criteria set out in Article 24, paragraph 3 of the Ordinance on the conditions and procedure for assessing the compatibility of plans, programs, projects, and investment proposals with the subject and objectives of the protection of protected areas (the Ordinance on the Environment) and those requested by letter ref. No. OBOC-68-65/20.10.2025 of the MOCB, and on the basis of Article 39, paragraph 8, in conjunction with Article 24, paragraph 5, item 2 of the Ordinance on the Environment, the MOCB gives a positive assessment of the quality of the additions and revisions (DOSV) for the IP "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area, located in the municipality of Ivaylovgrad, Haskovo region", considering the following:</p> <ol style="list-style-type: none"> 1. The Environmental Impact Assessment Report (EIA) is structured in accordance with the requirements of Article 23, paragraph 2 of the Ordinance on Environmental Impact Assessment, and the information presented therein is current at the time of preparation of the report. 2. The EIA report contains a summary of the investment proposal, with a detailed and quantitative description of the elements and technical parameters that may have a significant impact on the subject and objectives of the protection of protected areas during the operation of the Rosino deposit. Information is also provided on the stages of implementation of the investment proposal, distributed over the term of the concession, as well as information and a description of the extraction technology. 3. The EIA report presents information on other plans, programmes, projects and investment proposals that are existing and/or in the process of development and approval, as well as an analysis and conclusions on the degree of cumulative effect on the subject and objectives of conservation in the protected areas affected by the investment proposal. 4. A description is made of the types of natural habitats, populations, and habitats of plant and animal species. 	<p>Positive assessment of the EIA.</p>

Organization	Opinion	Reasons for acceptance/rejection
	<p>animals subject to protection in the protected areas affected by the implementation of the IP.</p> <p>5. The nature and extent of the expected impact of the implementation of the IP on the natural habitats, habitats, and populations of species subject to protection in protected areas BG0001032 "Rhodopes-East" and BG0002019 "Biala Reka" have been determined.</p> <p>6. The EIA report provides for adequate mitigation measures to reduce the impact during the implementation of the IP, targeting all stages of the IP. Alternative solutions for the implementation of the IP have also been considered and evaluated.</p> <p>7. The necessary graphic materials - sketches, maps, etc. - have been added to the report as annexes.</p> <p>8. The experts who prepared the report have attached the necessary documents and declarations certifying compliance with the requirements of Article 9(1) of the Ordinance on Environmental Impact Assessment.</p>	

XII. CONCLUSION IN ACCORDANCE WITH THE REQUIREMENTS OF ART. 83, PAR. 5 OF THE EIA

The main conclusions regarding the estimated degree of impact expected as a result of the implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region, can be summarized as follows:

The harmful impact is mainly concentrated on the geological environment, as non-renewable natural resources will be extracted. The atmospheric air, soil, landscape, vegetation, and wildlife will also inevitably be affected, given the nature of the investment proposal—open-pit mining of metal minerals. The duration of their impact is limited to the period of the future concession, which is up to 35 years.

It should be expressly noted that the analyses of the impacts, the modeling of emissions that will be released into the atmospheric air, the impacts of drilling and blasting works, the impacts of noise, discomfort to the population, and the forecasts in this report are made for the most severe conditions of operation of the deposit at maximum production capacity.

Atmospheric air

Upon implementation of the measures specified in Section VII of this EIA, the impact on ambient air quality during the various phases of the project implementation will be limited to the area around the deposit. No change in the background levels of pollutants in the atmospheric air is expected in the nearest populated areas. No negative impact on human health is expected. The cumulative pollution of the urban environment will be negligible. Based on the calculations and models of the spread of emissions from the implementation of the IP, it can be concluded that no transboundary impact is expected.

Surface and groundwater

During all stages of the implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit, Tintyava area," the impact on surface waters is determined to be insignificant. The planned water intake from the surface waters of the Arpa Dere River (VT BG3MA100R270 Biala River and its tributaries) will be in quantities up to 10% of the average multi-year water quantities and is not expected to have a negative impact (including transboundary) on the Biala River catchment. The water at the site will be included in a closed cycle with minimal replenishment from water abstraction, rainwater, and treated process water, and there are no plans to discharge wastewater into surface water bodies. A "zero discharge" approach has been adopted.

Implementation of the investment proposal for "Extraction and processing of polymetallic ores from the Rozino deposit, Tintyava area is not expected to have a negative impact on groundwater and will not lead to a deterioration in the chemical and quantitative status of the affected groundwater body BG3G000PtPg049

Fissure waters - Eastern Rhodope complex. Extraction works will be carried out in the infiltration zone without reaching the water level. Passive groundwater inflow will be pumped to the installation as a priority in order to meet the requirements of the technological installation.

The impact on the chemical condition of the groundwater will be neutralized by lining the bottom and walls of the contact water tank with an insulating screen and by constructing a system for capturing any leaks, including a drainage curtain and an injection barrier.

As a technological option, limited water abstraction from the terrace of the Arpa Dere River is envisaged through the construction of a pumping station in the area of the existing Rosino pumping station.

There is no cumulative impact on water – no wastewater discharge is planned.

Based on the analyses made in this report, no transboundary impact on water is expected.

Subsurface

The analysis of the current state of the subsoil and the proposed extraction technology from the deposit give reason to believe that, upon implementation of the investment proposal, part of the territory will be affected by the extraction activity, but the entire area will not be affected in a way that would lead to significant changes in the stability of the geological environment and its quality characteristics. In compliance with the approved working projects for mining and recultivation and the mine waste management plan, it can be assumed that the underground resources will be extracted fully and without losses (waste), in accordance with the regulatory requirements.

Noise

The activities during the various phases of the project implementation will not lead to a change in the background noise levels in the nearby residential areas. The impact on noise levels in the area is local in scope and no cumulative effect is expected. Based on the calculations of noise propagation from the implementation of the IP, it can be stated with a sufficient degree of certainty that there is no possibility of cross-border impact.

Radiation

The results of gamma spectrometric analyses, compared with the standards under the applicable regulations, show that the implementation of the activity does not threaten the environment and would not lead to a change in the natural radiation background of the assessed site and its surroundings. The measured radioactivity in the surveyed geological units is low enough not to lead to contamination and spread of radioactive isotopes in other components of the environment. There is no danger to the environment, to the workers at the site, or to the population, and therefore no specific measures or actions need to be taken to ensure radiation safety.

Biological diversity

If the proposed measures are followed, the implementation of the investment project will have a minor negative impact on the plant and animal world.

Health risk

The main impact of the implementation stages of the IP is on the workers at the site, which is typical for this type of activity (mining industry). With appropriate personal protective equipment and compliance with the relevant requirements for healthy and safe working conditions, it will be reduced to insignificant, without endangering the health of workers.

No significant impact is expected on the nearby population and sites subject to health protection, as the IP does not lead to exceedances of environmental and human health protection standards. With the measures proposed in the EIA Report, including those for air quality, harmful physical factors, and water, adverse effects will be prevented/limited to the minimum possible.

For the other components and factors of the environment, including waste, the impact is insignificant, as it affects the territory that will be included in the future concession area and after the end of the operational life of the mine areas and the closure of the mining facility, the terrain will be recultivated to the maximum extent possible.

In accordance with the nature and extent of the anticipated negative impact, the team of experts who prepared this EIA report has made recommendations and proposed measures necessary to prevent, reduce, and, where possible, eliminate harmful effects on the environment and human health.

Based on the conclusions of the environmental and human health impact assessment, the conclusion of the team of independent experts who prepared the EIA report is that no significant negative impact on the environment and human health is expected as a result of the implementation of the assessed investment proposal, provided that the recommendations and proposed measures for prevention, reducing and, where possible, eliminating harmful effects on the environment and human health.

Based on a detailed analysis of the impacts of the construction, operation, closure, and recultivation of the investment proposal for "Extraction and processing of polymetallic ores from the Rosino deposit," Tintyava area, located in the territories of the villages of Rozino and Gugutka, Ivaylovgrad municipality, Haskovo region, on humans, the components of the environment and the factors affecting it, the authors of this EIA report recommend that the Higher Expert Environmental Council at the Ministry of Environment and Water approve the implementation of the investment proposal of TINTYAVA EXPLORATION AD, subject to the mandatory implementation of the proposed measures to reduce the potential

impacts identified in this assessment.

XIII. DESCRIPTION OF DIFFICULTIES (TECHNICAL REASONS, INSUFFICIENCY OR LACK OF DATA) ENCOUNTERED WHEN COLLECTING INFORMATION FOR THE PREPARATION OF THE EIA REPORT

No difficulties were encountered in collecting information for the preparation of the EIA report.

XIV. OTHER INFORMATION - AT THE DISCRETION OF THE COMPETENT AUTHORITY OR AN OFFICIAL AUTHORIZED BY IT

No other information has been received at the discretion of the competent authority or an official authorized by it.

XV. REFERENCE LIST DETAILING THE SOURCES USED FOR THE DESCRIPTIONS AND ASSESSMENTS INCLUDED IN THE REPORT

Sources of information:

Atmospheric air

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- Methodology for determining the total sound power emitted into the environment by an industrial enterprise and determining the noise level at the point of impact
- Method for measuring noise from road traffic
- Assessment of noise from local and industrial sources in accordance with Annex No. 3a to Ordinance No. 6 of 2006
- Concession agreements for existing deposits in the IP area

Health and hygiene aspects

- Statistical data for 2019-2023 (population – number, age structure, birth rate, mortality rate, natural increase, deaths by cause), published on the website of the National Statistical Institute (NSI);
- Table of persons registered by permanent and current address for the period 2019-2023 for the villages of Byalgradets, Rozino, Gugutka, Ivaylovgrad municipality and Haskovo region, published on the website of the General Directorate "Civil Registration and Administrative Services" (DG GRAO);
- Information provided under the Access to Public Information Act (APIA) by the Regional Health Inspectorate (RHI) - Haskovo (by letters ref. No. 93-11/10.10.2023 and Decision No. 14/2024);

- Information provided under the APIA by the Municipality of Ivaylovgrad, provided by letters ref. No. 30-00-528/1/16.10.2023 and ref. No. 30-00-563/1/04.12.2024;
- Annual report of the Minister of Health on the state of citizens' health for 2023;
- The regional profile of Haskovo Province for 2023;
- General development plan of the Municipality of Ivaylovgrad;
- Report with analysis and assessment of the quality of water intended for drinking and domestic use in the Haskovo region for 2024 by the Regional Health Inspectorate (RHI) in Haskovo;
- Annual report on the monitoring of sources of non-ionizing radiation in the Haskovo region for 2024 by the Regional Health Inspectorate in Haskovo;
- Healthcare. Brief statistical reference books with annual data for 2019-2023, published on the website of the National Center for Public Health and Analysis (NCPHA);
- Contemporary Hygiene and Environmental Problems, Zheni Staykova, St. Kliment Ohridski University Press, Sofia, 2018;
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Cultural heritage

- Registers of the National Institute for Immovable Cultural Heritage;
- The computer system "Archaeological Map of Bulgaria".

XVI.	DECLARATIONS COMPETENCE	DECLARATIONS OF THE EXPERTS	INDEPENDENCE	AND
	The declarations are presented in <i>Text Appendix No. 1</i> to the EIA.			

XVII. APPENDICES - TEXT AND ELECTRONIC

1. Text Appendices

1.1. Text Appendix No. 1 Information about the experts who prepared the EIA

- 1.1. List of experts under Article 83, paragraphs 1 and 2 of the Environmental Protection Act
- 1.2. Copies of diplomas for completed education – on electronic media
- 1.3. Written declarations of the experts under Article 11, paragraphs 3 and 4 of the Ordinance on the Procedure and Conditions for Performing an EIA – on paper

- 1.2. Text Annex No. 2** Permit No. 467/28.02.2017 of the Minister of Energy
- 1.3. Text attachment No. 3** Additional agreement No. 3/23.01.2023 to the Contract of 02.05.2017 between Tintyava Exploration AD and the Minister of Energy
- 1.4. Text Annex No. 4** Letter from the company ref. No. 017/08.05.2019 and letter from the Ministry of Energy ref. No. E-26-T-364/15.05.2020
- 1.5. Text attachment No. 5** Letters regarding the cross-border procedure
- 1.6. Text attachment No. 6** Letter ref. No. PU-01-183 (5)/26.05.2023 from the Director of the BDIBR
- 1.7. Text attachment No. 7** – Copies of letters on consultations held
 - 1.7.1. Letter from the Minister of the Ministry of Environment and Water – Sofia, Ref. No. OVO-68/28/14.02.2025
 - 1.7.2. Opinion on the assignment of the Director of BDIBR-Plovdiv with Ref. No. PU-02-231/1/18.12.2024
 - 1.7.3. Opinion on the assignment of RIOSV – Haskovo with Ref. No. PD-279/46/20.12.2024
 - 1.7.4. Opinion on the assignment from the Director of the Regional Directorate of Agriculture - Haskovo with Ref. No. D-407/1/04.12.2024
 - 1.7.5. Opinion on the assignment from the Regional Health Inspectorate - Haskovo, Ref. No. 26-00-2518/27.12.2024
 - 1.7.6. Opinion on the assignment from the Forestry Administration - Ivaylovgrad Ref. No. ASD-09-50/10.02.2025
 - 1.7.7. Opinion on the assignment from the Ministry of Energy, ref. No. E26-T-749/19.12.2024.
 - 1.7.8. Opinion on the assignment from VIK-Haskovo, ref. No. 2950/18.12.2024.
- 1.8 Text attachment No. 7A** Letter from the Ministry of Environment and Water, ref. No. EIA-68-65/20.10.2025 – initial quality assessment
- 1.9. Text Appendix No. 7B** Letter from the Ministry of Environment and Water, ref. No. EIA-68-91/12.02.2026 – second assessment of quality and BD IBR ref. No. PU-01-808(6) dated 30.01.2026
- 1.10. Text Annex No. 8** Register of affected properties
- 1.11. Text Appendix No. 9** Proposal for mining waste management
- 1.12. Text Annex No. 10** Hydrological assessment of the outflow in the Byala River and its tributary Arpa Dere
- 1.13. Text Annex No. 11** Report on integrated and sustainable water management
- 1.14. Text Appendix No. 12** Report on the assessment of the side effects of the explosion on the environment
- 1.15. Text Appendix No. 13** Information sheets for safety and correspondence related to the classification under Article 103 of the Environmental Protection Act
- 1.16. Text Annex No. 14** Other IPs, plans, programs, or projects that may have a cumulative impact with the present IP
- 1.17. Text attachment No. 15** Decision to grant access to public information No. ZDOI-01-9/31.01.2025 of the Director of the BD IBR
- 1.18. Text attachment No. 16** Report from a hydrogeological study. Letter from the BD IBR ref. No. PU-10-182(8)/12.05.2024 and opinion from an independent expert – hydrogeologist.
- 1.19. Text attachment No. 17** Protocols from radiological studies.

2. Electronic appendices

2.1. Electronic Appendix No. 2.1. DAT files of mathematical modeling

XVIII. NON-TECHNICAL SUMMARY

Presented in a separate appendix to the EIA.

XIX. REPORT ON THE ASSESSMENT OF THE COMPATIBILITY OF THE PROJECT WITH THE SUBJECT AND OBJECTIVES OF CONSERVATION IN PROTECTED AREAS OF THE NATIONAL ECOLOGICAL NETWORK NATURA 2000

The report is presented separately as a separate document to the EIA documentation.