

Notification about intention to perform the project

**"Construction of a landfill for hazardous waste in REC
Bitola"**

Contents

Notification about intention to perform the project	- 1 -
"Construction of a landfill for hazardous waste in REC Bitola"	- 1 -
1 Information about the investor	- 4 -
1.1. Name of the investor	- 4 -
1.2. Postal address of headquarters	- 4 -
1.3. Phone, fax and e-mail address of the developer	- 4 -
1.4. The name and surname of the designated contact person and their postal address, telephone, fax and e-mail address	- 4 -
2. Project characteristics	- 4 -
2.1. Category of the project proposal	- 4 -
2.2 Brief description of the proposed project	- 5 -
2.3 Description of the main processes including size, capacity, and resources invested at the beginning of the process	- 6 -
2.4 A plan showing the boundaries of the construction zone, including the land temporarily needed during the construction; the spatial shape of the construction zone (configuration, construction facilities, other facilities, construction materials, etc.) - 10 -	- 10 -
3. Project location	- 11 -
3.1. The municipality in which the facility is planned to be built	- 11 -
3.2 Project location, address and plot number	- 11 -
3.3 Maps and photographs showing the location of the project in relation to physical- geographic features	- 13 -
3.4 The natural and anthropological features that surround it	- 14 -
3.5 Designation for land use on or adjacent to the site and any future planned uses of the land	- 15 -
3.6 Zoning or Land Use Designation	- 15 -
3.7 Characteristics of protected areas	- 19 -
3.8 Sensitive areas	- 20 -
3.9 Data on possible alternative locations that were taken into account	- 20 -
4. Characteristics of possible impact	- 22 -
4.1. Impacts during the construction phase	- 22 -
4.2. Impacts during the operation phase	- 23 -
4.3. Measures included in the project draft to reduce, avoid or neutralize major negative impacts	- 27 -
4.4. Cross-border influence	- 28 -
5. Additional information	- 29 -
5.1. Specifying the authority of the state administration responsible for issuing a permit, that is, a decision for the implementation of the project	- 29 -
5.2. Date of notification	- 29 -
5.3. In cases where it is different from the investor - the name, surname, address and telephone number of the person who prepares the notice and of the persons participating in its preparation	- 29 -
5.4. The name and surname of the designated contact person and their postal address, telephone, fax and e-mail address	- 30 -
5.5. Signature of the person preparing the notification confirming the authenticity of the information contained therein (below)	- 30 -
5.6. A review that determines the need for an environmental impact assessment. - 30 -	- 30 -
ANNEX 1. Decision to approve the Feasibility Study for the Project: "Landfill for the storage of waste from cement-asbestos slabs in the compound of REK Bitola"	- 31 -

ANNEX 2. Urban documentation..... - 32 -
ANNEX 3. The public procurement contract for the works for execution of the project for
the rehabilitation of the reinforced concrete casing and the dew point of the cooling tower
of Block 2 - 33 -
ANNEX 4. The current balance of the investor Vatrostalna DOO, Skopje..... - 34 -
ANNEX 5. List for determining the need for an environmental impact assessment and the list
for determining the scope of the environmental impact assessment study (Annex II and III).. -
35 -

1 Information about the investor

1.1. Name of the investor

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2. Project characteristics

2.1. Category of the project proposal

The project proposal is included in Annex 1 of the Ordinance on the determination of projects and on the criteria used to identify the need for to implement environmental impact assessment procedure ("Official Gazette of the Republic of Macedonia" no. 74/05 , 109/ 09 and 164/12), item 8 which makes reference to: "Installations for waste disposal, incineration, co-incineration, physical and chemical treatment," according to which preparation of an environmental impact assessment study is mandatory.

2.2 Brief description of the proposed project

The overall goal of the Project “Construction of a landfill for hazardous waste in REK Bitola” is to achieve a safe and financially self-sustainable system for managing hazardous waste generated in this installation. The need for drafting the study arises from the Law on Waste Management (“Official Gazette of RNM” no. 216/2021). Article 66 paragraph (3) of this Law stipulates that for the construction of waste disposal installations, before the environmental impact assessment procedure is initiated pursuant to environmental regulations, the landfill founder shall prepare a feasibility study which is to be submitted to the expert body for approval. For purposes of his procedure, a Decision was issued for the approval of the Feasibility Study for the Project: “Landfill for the storage of waste from cement-asbestos slabs within the compound of REK Bitola” number UP1-11/2-1541/2023 from 28.07.2023 (see Annex 1). Also, the Law in Article 74 stipulates that the application for a landfill permit must be accompanied by a decision on the approval of an environmental impact assessment study approving the construction of the landfill, that is, a decision on the approval of an environmental protection report, adopted pursuant to the Law on the Environment. In light of this, **it is mandatory to determine the need to carry out a procedure for assessing the impact on the environment** in accordance with the Law on the Environment, i.e. the Ordinance on the determination of projects and on the criteria used to identify the need for to implement environmental impact assessment procedure (“Official Gazette of the Republic of Macedonia” no. 74/05, 109/09 and 164/12).

The proposed waste management project consists of the construction of a landfill for hazardous waste within the compound of REK Bitola. The quantity of waste that is to be landfilled is estimated at the total of 3,000 tons. The landfill will be designed to meet the necessary conditions for preventing pollution of the soil, groundwater or surface waters and for the efficient collection of leachate. The landfill lining shall be compliant with European and national requirements and standards and will include as a minimum a geological barrier, a geomembrane, a geotextile and a drainage layer (see more in point 2.3).

The location for the construction of a hazardous waste landfill is within the compound of the Stock Company ESM, Subsidiary REK Bitola, more specifically on the abandoned tailings in the vicinity of the Brod-Gneotino Mine. The urban documentation is given in Annex 2 of this document.

The purpose of the landfill is the disposal of waste containing asbestos, which will be generated from the cement-asbestos slabs from the reconstruction of Cooling Tower 2 in REK Bitola. Annex 3 shows the contract for the public procurement of works for the execution of the project for rehabilitation of the reinforced concrete casing and the dew point of the cooling tower of Block 2. Vatrostalna DOO, Skopje is the investor of this project, in view of the obligations arising from this agreement. Annex 4 shows the current balance of the investor Vatrostalna DOO, Skopje and of the author of this Letter of Intent as the contact person (“Maan Engineering,” Skopje).

Asbestos waste is generated as part of the reconstruction phase of Cooling Tower 2 and the waste generated by the installation itself and can be landfilled, considering that it cannot be recovered. Pursuant to the Law on Waste Management (Article 6, item 47) the landfill can also be on internal waste disposal location where the waste generator would be able to dispose of its own waste at the point of generation.

REK Bitola is an installation with an A Integrated Environmental Permit and in accordance with the Law on Environment and the Law on Waste Management (after receiving a positive decision concerning the environmental impact assessment) it needs to submit an application

for extending the A Environmental Permit in order to regulate the establishment of a landfill for waste containing asbestos on premises the installation. Pursuant to Article 65 paragraph (1), the entity engaged in waste management operations that requires obtaining an A-integrated environmental permit pursuant to environmental regulations, the permit from Article 64 is issued as part of the procedure for issuing the integrated environmental permit and is part of the integrated environmental permit. In this case, the authority that issues the A-integrated environmental permit shall determine whether the entity engaged in waste management meets the requirements of Article 64 of this Law which stipulates the issuing of permit for performing waste management activities. Pursuant to Article 64 paragraph (5), a **hazardous waste landfill can be established by a legal entity producing hazardous waste that, in accordance with environmental regulations, holds an A-integrated environmental permit pursuant to Article 74 of the said law.** An application for establishing a hazardous waste landfill can be submitted to the expert body exclusively for the purpose of disposal of the waste generated by the installation. The hazardous waste landfill cannot receive or dispose of hazardous or other type of waste generated by other legal entities.

Subchapter 2.3 provides more technical data about the project.

2.3 Description of the main processes including size, capacity, and resources invested at the beginning of the process

The core activity of the REK Bitola combine is the production of electricity, and it consists of steam power plants Bitola I, II and III (three blocks) with an input thermal power of 659 mwth each block, i.e. a total installed power of 1,977 mwth, with an average annual electricity production of 3.5 million mwh. Also, another activity carried out in REK Bitola is coal mining from the Suvodol and Brod-Gneotino mines, and disposal of waste ash and slag on a landfill. The combine is the leading installation for the production of electricity in the Republic of North Macedonia. With its three boilers and circulating steam generators, it caters for about 80% of the total energy demand in the country.

Blocks 1 and 2 were commissioned in 1984, and Block 3 in 1988. In order to modernize and reconstruct the Cooling Tower 2, for which funds have been secured, and the contractor is Vatrostalna DOO, Skopje, new casings were made for the tower. Work is underway to replace the asbestos part with new modern environmentally-friendly materials. The tower is 108 meters high. The undertaking will take place in two phases. The goal is to increase the efficiency of the tower, to save resources and contribute to the protection of the environment. However, the very activity of reconstruction generates waste that contains asbestos and requires proper disposal, considering that it cannot be reused or recovered. Landfilling is the last acceptable option for sustainable waste management, but remains necessary for the waste streams that cannot be used for recovery or thermal treatment.

To this end, it is proposed to carry out a project for construction of a landfill.

The construction of the landfill entails;

Infrastructure: the necessary infrastructure for the proper functioning of the landfill is as follows:

- Water tank
- Pollinator
- Tire washing system
- Technical water
- Fire protection zone
- Planting zone

Capacity: 3 000 t waste asbestos slabs

The construction of a hazardous waste landfill in REK Bitola will be beneficial on a social and environmental level. The proposed waste management system shall significantly improve the environmental conditions in both regions.

A landfill compliant with all national and European requirements shall enable long-term safe disposal of hazardous waste. All appropriate measures will be taken to avoid or minimize possible consequences.¹

Landfill bottom sealing system

According to the Rulebook on the conditions that landfills must meet (“Official Gazette of the Republic of Macedonia” no. 78/09), the sealing of the bottom of the landfill is a technical system of structures and measures that are built at the bottom and cover the bottom sides of the landfill, in order to prevent pollution of the soil, underground and surface waters. The bottom sealing system includes at least the following:

- Flexible synthetic waterproof membrane/geomembrane
- Drainage layer
- Drainage pipes for collecting the leachate

The protection of soil, underground and surface waters will be ensured through:

- **During the operational/active phase** of the landfill with a combination of geological barrier and layer at the bottom of the landfill and
- **During passive phase/ upon closure** with a combination of a geological barrier with a layer at the bottom of the landfill and with a combination of a geological barrier and an upper layer.

The geological barrier is determined by the geological and hydro-geological conditions surrounding the landfill, pursuant to paragraph (2) of the Rulebook, in order to ensure sufficient capacity and to prevent a potential risk to the soil and groundwater.

The base of the landfill and the flanks will consist of a mineral layer, which meets the requirements of thickness and permeability of water (determined by the coefficient of water permeability, K) which provides protection of the soil, underground and surface waters, at least equivalent to that resulting from the following parameters:

- Hazardous waste landfill: $K \leq 1.0 \times 10^{-9} \text{ m/s}$; thickness $\geq 5 \text{ m}$

Where the geological barrier does not naturally meet the above conditions it can be artificially created by applying a layer of mineral for sealing and using other appropriate technical

¹<https://www.undp.org/sites/g/files/zskgke326/files/migration/lb/Asbestos-Handling-and-Disposal-Guidelines.pdf>

measures to ensure equivalent protection of soil, groundwater and surface water. The artificially formed geological barrier should be at least 0.5 meters thick.

Regarding the minimum statutory requirements, the system for sealing the bottom of the landfill will be done through a single-layer system to be placed at the bottom of the landfill in REK Bitola:

- Mineral layer with minimum thickness of 5 m and permeability coefficient of $K \leq 1.0 \times 10^{-9} \text{ m/s}$
- An artificial layer of minerals with a thickness of 0.5 m of improved soil or similar, which provides the same protection as a mineral layer with thickness of 1 m and a coefficient of water permeability $K \leq 1.0 \times 10^{-9} \text{ m/s}$.
- Geo-membrane with a thickness greater than 2 mm;
- A gravel drainage layer with a thickness of 0.5 cm and permeability of $K \geq 1.0 \times 10^{-3} \text{ m/s}$.

Landfill surface sealing system (surface sealing)

Surface sealing and after-care of the landfill shall be conducted in a manner that minimizes the ingress of surface water into the landfill cells and provides protection of air and surface water from pollution from the waste cells.

The objective of the surface sealing system is to provide:

- Minimal infiltration of water into the waste;
- To allow surface drainage and maximize runoff;
- Control of landfill gas emissions, and
- Physical separation between the waste and flora and fauna.

The surface sealing system will consist of the following layers :

- A surface layer of soil with thickness of at least 1.0 m;
- Drainage layer with thickness greater than 0.5 m with a coefficient of water permeability $K \geq 1.0 \times 10^{-4} \text{ m/s}$;
- A dense mineral layer with a thickness greater than 0.6 m with a coefficient of water permeability $K \leq 1.0 \times 10^{-9} \text{ m/s}$.
- Flexible synthetic waterproof membrane/geomembrane more than 1 mm thick.

A leachate collection system needs to be established. The basics of this leachate collection system are:

- The inflow of rainwater should be reduced as much as possible. The leachate collection system is designed in correlation to the surface waters management plan, as they are largely connected. In order to prevent leakage into the body of the landfill, embankments will be created parallel to the landfill base.
- The collection and drainage system is expected to ensure long-term collection of the leachate and any mixing with rainwater must be ruled out.
- The leachate management system is selected according to the following requirements:

1. Its installation must not cause damage, deformities or displacement of the insulation system,
2. The pipes should be hydraulically efficient and should withstand chemical, industrial and physical loads, not only during the operation phase, but also during after-care of the landfill following its closure (50 years; 40 °C; waste density: 1.5 Mg/m³),
3. A free flow of leachate towards the collection tank should be enabled and the leachate should be treated in a fairly simple manner,
4. The hydraulic height of the leachate should not exceed 50 cm above the geomembrane.
5. In the proposed design, the leachate flows under the force of gravity from different points and slopes of the landfill towards the collection pipes,
6. The landfill basin is designed to have slopes of about 5% longitudinally towards the main drainage pipe.

Collection of leachate shall be done through pipes that will be placed so as to ensure effective flow of the discharge to the lower levels of the basin, installed in the drainage layer in a special formation. The collection pipes will be made of HDPE perforated at 2/3 of their diameter and with a nominal diameter of D = 500 mm (central collection pipe at the bottom “deep point”) and D = 250 mm (“fishbone” shape). The diameter will be chosen with consideration made to the rainfall data in the area, as well as the slopes of the landfill. The pipes will be installed in the gravel layer. For installation of the leachate collection pipes, the landfill will be built according to a special formation. According to the proposed design, a main pipe will be placed in which the leachate will be collected by force of gravity, which will then be collected in a tank at the bottom of the landfill. The pipe will enter the central manhole W located outside of the landfill and from there the leachate is directed towards the leachate collection tank via HDPE DN500 PN10 pipe. The manholes will be made of HDPE. At the end, a network of collection pipes will be established in the area where the wheels will be washed in order to transfer the contaminated water to the leachate collection tank by force of gravity.

The financial analysis is expected to demonstrate whether there is economic viability of the project and whether the project will be financially desirable for execution. A simple analysis is expected to show that the economic net present value (ENPV) of the project is positive, so that it is socially beneficial to implement the project compared to the scenario where the project is not implemented.

In essence, the project should be analysed from the following aspects: economic, financial, social, environmental impact, etc. The analyses will show the monetary impact of the project and a conclusion can be drawn as to whether the project is desirable and worth to be implemented. All these aspects will be separately analysed in the Environmental Impact Assessment Study. In general, for purposes of this Letter of intent, it should be emphasized that a comparative analysis will be made of the proposed possible scenarios managing the asbestos waste, namely:

- Transportation of waste from REK Bitola to the Landfill “Drisla” – S1 (scenario 1)
- Landfilling on the existing non-compliant landfill used for municipal waste disposal S2 - (scenario 2)
- Construction of a landfill for the landfilling of waste containing asbestos at its own location within REK Bitola compound S3 - (scenario 3)

The scenarios will be evaluated according to several criteria, which will be part of the Environmental Impact Assessment Study.

The total investment value of the preferred Scenario 3 (design price) is MKD 71 million. The detailed analysis of Project implementation investment is given in the Bill of Quantities with design prices, prepared by the Construction Institute of Macedonia in July 2023.

2.4 A plan showing the boundaries of the construction zone, including the land temporarily needed during the construction; the spatial shape of the construction zone (configuration, construction facilities, other facilities, construction materials, etc.)

Annex 5 shows the planning documentation of REK Bitola, where the planned project will be implemented. The Mining and Energy Combine “Bitola” (abbreviated as REK “Bitola”) is the largest subsidiary of AD Elektrani of Macedonia (Stock Company “Power Plants of Macedonia” and is located on the outskirts of Pelagonia, near the city of Bitola. The plant, whose main activity is the production of electricity and coal, is the largest within the Macedonian electricity supply system. The plant is composed of the units PE Rudnici, i.e. the “Suvodol” Mine and the “Brod-Gneotino” Mine, and PE Termolektrana, i.e. Steam Power Plant “Bitola.” The project will be implemented within the Brod-Gneotino mine section.



Figure 1. View of the planned location within REK Bitola Compound

3. Project location

3.1. The municipality in which the facility is planned to be built

The location of the landfill is within the compound of REK Bitola near the town of Meglenci, which is located in the Municipality of Novaci.



Figure 1. Satellite image of REK Bitola site with geographic position and coordinates

The proposed location administratively belongs to the Municipality of Novaci and is located northeast of the settlement of Novaci at about 5.3 km direct distance. Concerning the approximate direct distance from nearby settlements, the proposed location is located: 2.4 km to the south-southwest of the settlement of Meglenci (which is the nearest settlement), 4.4 km southeast of Gorno Aglarci and 5 km east of the settlement Dobromiri.

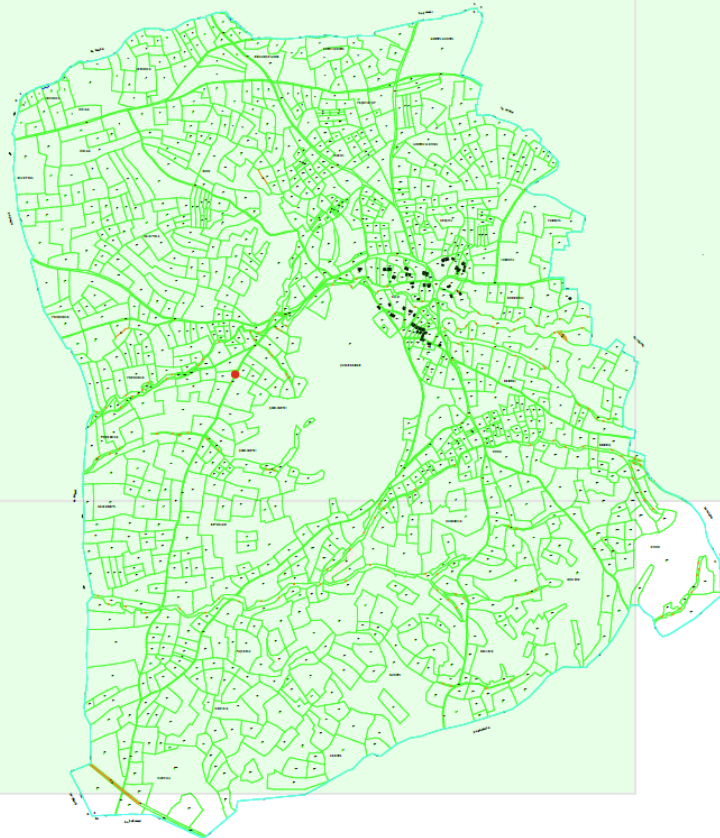
The proposed location can be accessed from the settlement of Novaci, which is connected by a road network with the regional road R-1311.

3.2 Project location, address and plot number

The location of the project is in the State owned ESM - Skopje, "11 Oktomvri" st. no. 9, 1000 Skopje, Republic of North Macedonia REK Bitola subsidiary, address: Novachki pat, village Novaci b.b., phone: 02 3076 200, mobile phone: 075 400 100, email: contact@esm-snabduvanje.mk

part 1

part 2



3.3 Maps and photographs showing the location of the project in relation to physical-geographic features

The “Podinska jaglenova serija” deposit (PJS), as a deeper part of the “Suvodol” deposit, is located 15 (km) east of Bitola, in the area of the villages of Suvodol, Vranjevac, Biljanik and Aglarci.

This coal bearing terrain is located on the western parts of the Selechka mountain. The terrain in the western part is flat with an absolute altitude of about 620 m while towards the south and east it gently ripples, reaching the altitude of 720m to the east. Further to the east, the terrain rises more steeply, so that at about 5 km from the eastern border of the mine it reaches a maximum height of 1432 m (Djaula peak). To the southeast, the terrain also grows at the distance of some 3 km, reaching the altitude of 1052 m (Golem Kamen). To the northeast, at about 3 km, the Kula peak dominates with an altitude of 1102 m.



Fig. 2. Panoramic view of REK Bitola (cooling tower 2 is the first from the right)

Table: Coordinates of the contour points of the exploitation field

Point XY

1 4,543,500 7,544,000

2 4,543,500 7,545,500

3 4,545,500 7,542,250

4 4,545,500 7,546,000

5 4,547,500 7,542,250

6 4,547,500 7,545,500

Table: Coordinates of the contour points of the PJS site

Point XY

1 4,544,250 7,543,300

2 4,544,250 7,544,100

3 4,547,100 7,543,300

4 4,547,100 7,544,100

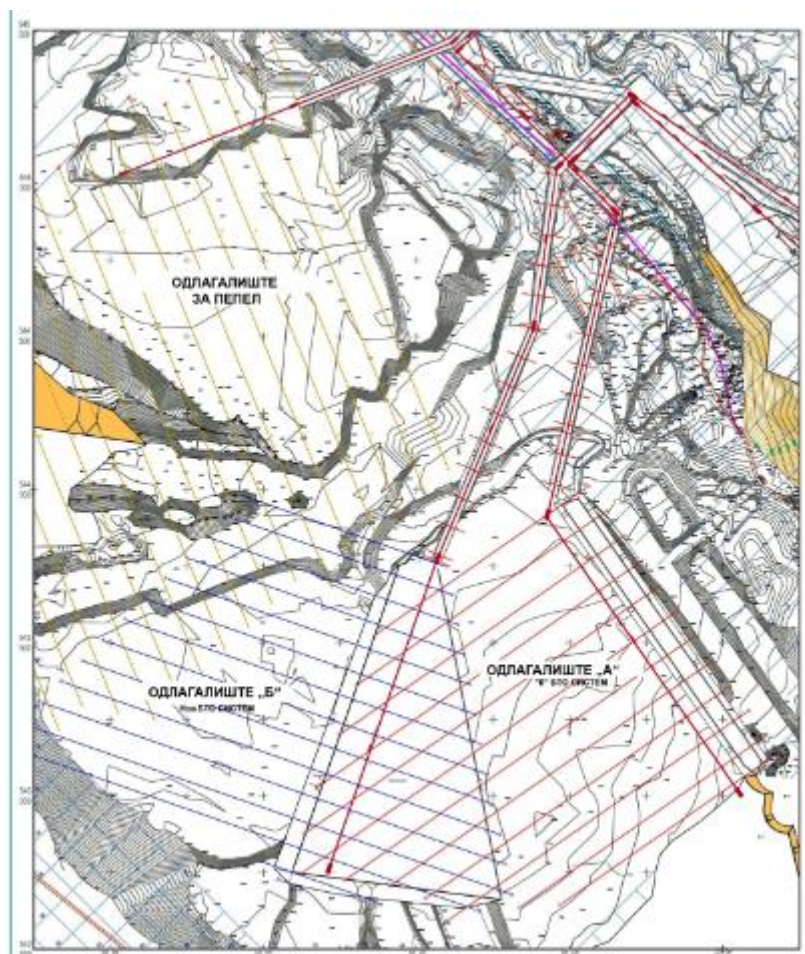


Figure 3. Micro locations within REK Bitola

3.4 The natural and anthropological features that surround it

The nearest settlement is Meglenci. The settlement is positioned north-east of the site and the direct line from the settlement to the site in question is about 1.2 km. The settlement of Gorno Aglarci is located north-northwest of the site, at a direct distance of about 2.4 km, and the settlement of Novaci is located southwest of the site at a direct distance of about 4 km.

The site is part of the “Brod-Gneotino” lignite mine. The concession site belongs to ELEM/REK Bitola. However, the following can be noted:

- According to the drawings provided by REK Bitola, there are two boundaries, one internal corresponding to the concession area, and one internal corresponding to the exploitation area. Mining activities are limited only within the exploitation field.
- The total area under concession is 1225 ha, and the surface area required for the construction of the CPUO is only 17.5 ha, of which 6.1 ha is partially included in the concession area and covers 0.5% of the area.

According to the above, the construction of the landfill can be justified because it will not cause negative impacts on the exploitation activities of ELEM/REK Bitola.

There are no hydrant points on the site. Crna Reka flows 6.5 km from the site and is the main drainage artery for the entire area. The nearest access to the utility services and the telecommunication network is located in the nearest settlement of Meglenci and the nearest electrical installation of REK "Bitola."

In the wider area, there is no archaeological site within a distance of 3 km. Furthermore, there are no tourist sites within the distance of about 5 km. The closest archeological site is the church "St. Nedela" in Bitola, with code 109, located to the west at a distance of about 14 km.

3.5 Designation for land use on or adjacent to the site and any future planned uses of the land

The Mining and Energy Combine "Bitola," a subsidiary of AD ELEKTRANI NA SEVERNA MACEDONIJA (Stock Company Power Plants of North Macedonia), is the largest producer of electricity in the Republic of North Macedonia. This steam power plant is primarily coal powered. For the needs of REK Bitola, AD ELEM has a concession on the mine and pays an annual fee for the issued concession of 7.1 million denars, i.e. 115,000 EUR. The surface is 11.43 km².

The main technical and infrastructural characteristics of the site are given below:

- The altitude of the location ranges from 886 to 908 meters (on average 897 m).
- The proposed location can be accessed via the main road E-65, which connects Kichevo and Ohrid. There is no need for an additional access road.
- The location is connected to public utility networks.

3.6 Zoning or Land Use Designation

The land is under the concession of AD ELEM and is intended for coal exploitation.

Coordinates: 40°57'57"N 21°32'1"E



Figure 4. Brod-Gneotino mine

Soil and Geology

REK Bitola and the concession of Brod - Gneotino is on a location that is part of the so-called Pelagonian massif (Pelagonian horst - anticlinorium), and the bottom picture shows the general geological composition of the place and its location within the Pelagonian massif.

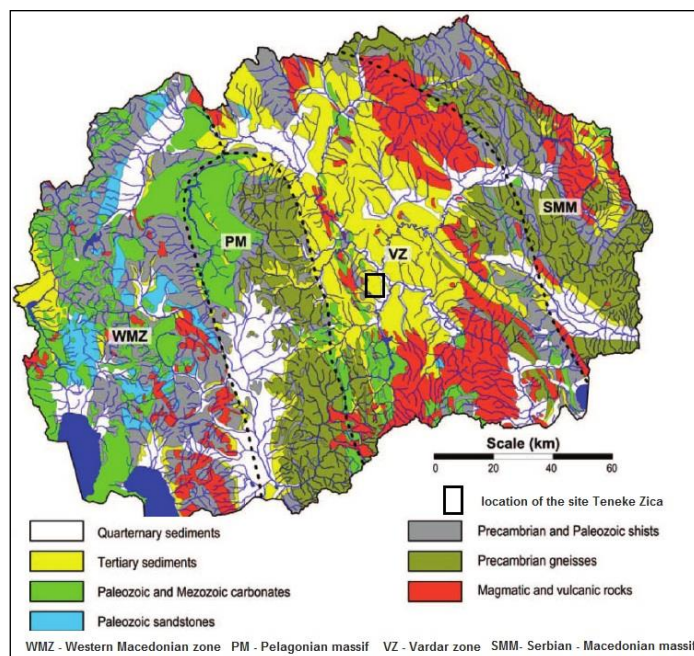


Figure 5. Geological map of the state with separate tectonic zones

The Pelagonian horst - anticlinorium is an area with a very specific lithological composition, tectonic structure and degree of metamorphosis.

Administratively, REK Bitola is territorially located within the Municipality of Novaci, which is located in the southern part of the country.

According to the regional geological map, the territory of the Municipality of Novaci has a diverse geological composition with different rocks of different ages. In the western parts there are Pliocene and Quaternary sediments, in the central parts there are mostly Precambrian gneiss-micaschist series, and in the eastern part there are a variety of rocks: Paleozoic marble, Cambrian phylloids, serpentinites from the Jurassic period, Turonian and Senonian sediments from the Cretaceous period, Pliocene quartzlatites, and quartzlatite breccia, as well as Quaternary alluvium sediments.

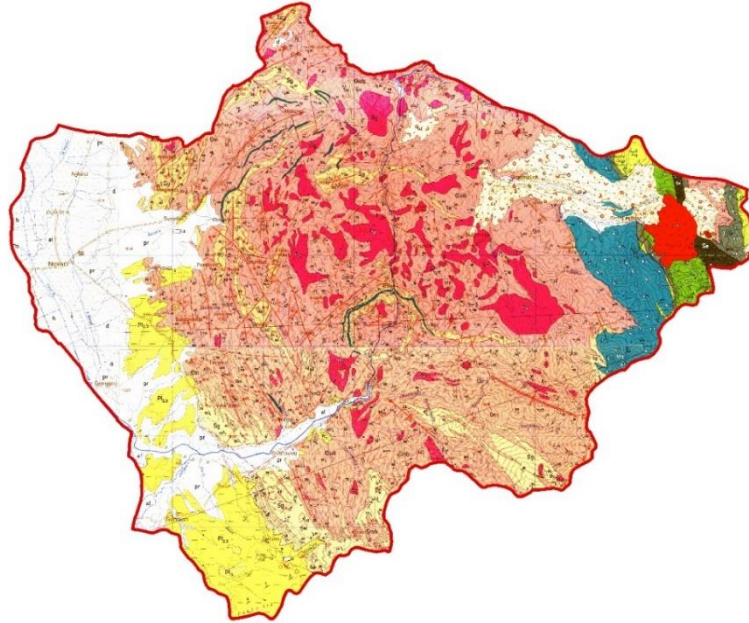


Figure 6. Geological map of Novaci Municipality

This is a description of the various rock formations that can be found on the territory of Novaci, grouped according to the respective geological areas:

- Precambrian, represented by banded muscovite gneisses (Gm), two-mica banded gneisses (Gmb), micaschists (Sm), garnet micaschists (Smg), marble series (M) and granodiorite ($\delta\gamma$).
- Paleozoic, made up of greenschists (Sco), graphitic schists (Sgr), metamorphosed conglomerates and sandstones, phyllites, etc. (Sq), metamorphic diabbases ($\beta\beta$), phyllites, shale and metasandstones (Sgse) and granitex (γ).
- Mesozoic, represented by sediments from the Cretaceous and Triassic periods, namely: conglomerate (T_1), coated and massive limestone ($T_{2,3}$), sediments from the Cretaceous - Turonian period (K_2^2) and Cretaceous sediments - Senonian (K_2^3).
- Cenozoic with Pliocene sediments (Pl), glacial-fluvial sediments (fgl), diluvium (d), proluvium (pr) and alluvium (a).

The examined area where the construction of the regional landfill is planned covers an area of about 18 ha. The entire area intended for landfilling (and ancillary facilities) was investigated and the lithological units that made up the entire area were identified. The identified units are presented on a detailed map of the area (as presented in the image below of the geological map).

The researched area is part of the "Suvodol" lignite mine located on the north-western border of the previously completed surface excavation.

Based on the detailed engineering geological mapping of the research area, its geological structure is also defined in correlation to the basic engineering geological map OGK (1:100 000) – Map Bitola K34-103 and Vitolshite K34-104. The lithological structure of the terrain

includes Precambrian garnet-staurolitic mica schists, Pliocene sediments represented by clay-like sand and gravel, Quaternary sediments represented by proluvial materials built from dusty sands and gravel, as well as formations of artificial creation (embankment) created from the deposited tailings material.

Most of the research area is covered by an embankment of tailings material represented by clay, sand, gravel and rock fragments. Proluvial sediments are found in the northern part, represented by dust, sand, gravel and boulders, while Pliocene is represented by a very small area in the eastern part, which is filled with clay-like sand and gravel. Along the edges of the researched area, rocks of Precambrian age are found covered with garnet-staurolitic mica schists.

Garnet-staurolitic mica schists (Sg) are gray in colour, with finely folded to pleated rocks, composed of quartz, muscovite and almandine, and staurolite at times. These surfaces are degraded and decomposed to the extent of fragments, sand and dust. This type of rock belongs to the group of well petrified rocks. According to the construction standards GN200, these Precambrian rocks belong to the IV - V category, the excavation of which involves the use of a hydraulic hammer and, if necessary, blasting.

Pliocene sediments (Pl) in the researched area are characterized by a light brown to yellowish colour represented by clay-like sand and gravel mixed with humus material. They are homogeneous, medium to well compacted. According to the construction norms GN200, these Pliocene sediments belong to III category, the excavation of which takes place mechanically with an excavator or manual excavation.

Proluvial sediments (pr) in the research area are characterized by a dark brown color represented by dust, sand and gravel with the presence of boulders mixed with humus material. They aren't homogeneous, and are low-to-medium compacted. According to construction standards GN200, these proluvial sediments belong to category III, whose excavation is carried out mechanically with an excavator or manual excavation.

Embankment (N) on the research site is mostly covered with tailings material characterized by clay, sands and rock fragments. They are not homogeneous and poorly compacted. According to construction standards GN200, this embankment belongs to category III, whose excavations are carried out mechanically with an excavator or manual excavation.

The photo below shows an open profile composed of proluvial materials. Macroscopically, it can be observed that these materials are dominated by sand fractions with a significant presence of fine-grained sericite, while the clay component is less present. Pieces of the surrounding rocks (gneisses and quartz) appear locally, without any proper order.

As can be seen in the photos below, most of the area covered by the study is covered by these sediments.

On the other hand, in the central and northeastern parts of the area covered by the study, there are fragments of Pliocene gravel mixed with coal and coal dust, which remain undisturbed.

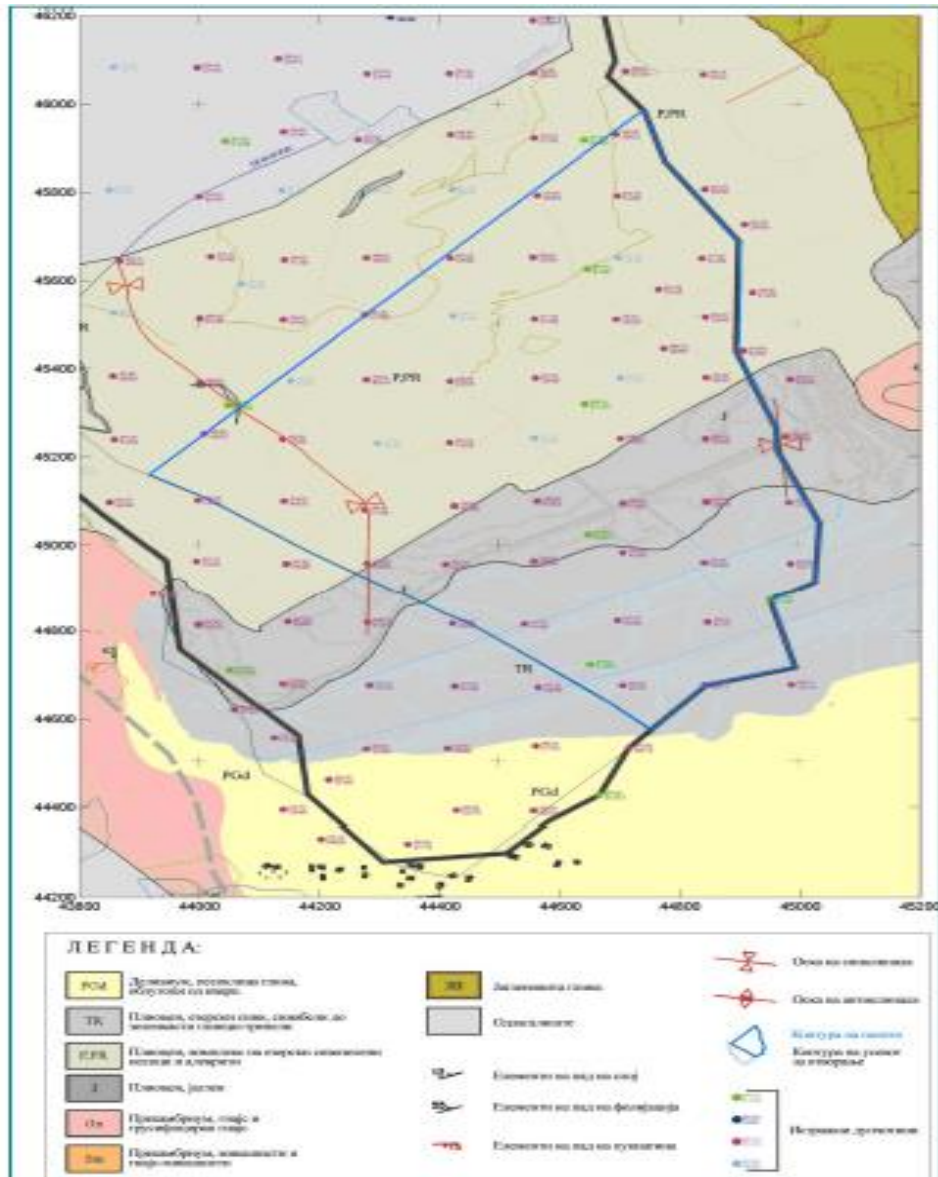


Figure 7. Overview geological map

3.7 Characteristics of protected areas

The main features of the environment and ecology of the site are given below:

- The proposed site is located approx. 3.2 km north of the Emerald location "Gorna Pelagonia" (MK0000034).
- In view of the landscape, the optical isolation is at a low level from the R-1311 road, as well as the surrounding settlements.
- In the immediate vicinity of the proposed site there are deposits for mining minerals.

3.8 Sensitive areas

The closest protected area is the Emerald area “Gorna Pelagonija” (MK0000034) which is located about 2 km (direct distance) north of the site. The boundaries of the Emerald area MK0000034 are aligned with the boundaries of the area designated by the European Environment Agency “Lokvi - Golemo Konjare” as Monument of nature.

The soil at the site is pathogenic due to the presence of a non-compliant municipal landfill and ore excavation sites located in the vicinity. According to Corine Land Cover 2012, the site is on grassland.

3.9 Data on possible alternative locations that were taken into account

There are 3 proposed solutions for the Project:

- Transportation of waste from REK Bitola to Landfill “Drisla” - S1 (scenario 1)
- Landfilling of the existing non-compliant landfill used for municipal waste disposal S2 - (scenario 2)
- Construction of a landfill for the disposal of waste containing asbestos at own location within REK Bitola compound S3 - (scenario 3)

The evaluation matrix contains the scores for each scenario against all criteria. The factors for each of the evaluated scenarios are derived from calculations, literature review and other data. A basic requirement for landfill design is cost estimation. The main sub-systems are construction costs, operational costs and maintenance costs – all of which play a key role in estimating the total project cost under each of the alternative scenarios.

One of the basic methods for estimating the cost of these facilities is the statistical method which is used if data are available. These data relate the initial expenditures and/or operating costs to the planning capacity or the actual amount of waste that can be expected. The relative costs are influenced by factors such as treatment technology, human resource involvement factor, the legal framework, etc.

As for the technological and environmental characteristics of the scenarios and the legal framework for the waste management projects, especially for the implementation of this Project – construction of a hazardous waste landfill, they are presented in detail in chapters 5 of this feasibility study.

The functioning of each alternative scenario according to the criteria evaluated in PROMETHEE is as follows:

	Financially			Technically				Environmentally					Socially - institutionally	
	F1	F2	F3	T1	T2	T3	T4	E1	E2	S1	S2	S3	S4	S5
S1	5.5	6.5	7	7	6	6	6	6	9	6	6	7.5	7	5
	–													
S2	6.5	7	7	6	6	6	6	6.5	8	5	5	3	5	5
S3	8.5	7.5	8	9	9	8.5	6	8.5	7	9	9	9	7	9

Table 1. Effect of each of the alternative scenarios according to the legal, environmental, technical and financial criteria

Continuing the present way how things operate, which mostly implies temporary storage at a location within REK Bitola, will lead to a significant impact on the environment. The uncontrolled disposal of waste in inappropriate locations, the possibility of waste incineration and its inappropriate handling significantly increase the potential for soil, water and emissions pollution. Negative impacts on biodiversity and the landscape may also be caused. With the “business as usual” scenario, a significant hazard to human health can be expected.

S1 (scenario 1) - Transport of waste from REK Bitola to Landfill “Drisla” - shows that it is ranked second; the lowest ranked is S2 - (scenario 2) - Landfilling in the existing non-standard landfill that is used for the disposal of municipal waste; and the best scenario according to this method is S3 - (scenario 3) - Construction of a landfill for the disposal of waste containing asbestos at its own location within REK Bitola.

According to the above, it can be concluded that the asbestos-containing waste management system proposed by this study consists of the construction of a new landfill for the disposal of asbestos-containing waste together with other main facilities.

Although the implementation of the new hazardous waste management system in REK Bitola requires capital costs, it is still essential and indispensable, and will lead to positive effects in the installation as well as for the community. Appropriate management of hazardous waste will eliminate unwanted impacts on the environment and human health, encourage proper management of all waste streams within REK Bitola installation and improve the quality of work and life.

The proposed solution, compared to the basic scenario, as well as the solutions (alternatives) that were considered in the various phases of the project, will have positive effects on human health, land, air and water pollution and will minimize the costs of hazardous waste management. Apart from the above-mentioned impacts on the environment, the proposed solution will enable full acceptance by the local community and its greater involvement; as well as fulfilling the requirements outlined by national and EU legislation.

4. Characteristics of possible impact

4.1. Impacts during the construction phase

Construction activities typically generate many kinds of impacts, most of which are temporary. Site preparation, earthworks, possible construction works for better access to the site are likely to result in (1) emissions of dust and other air pollutants (2) noise and vibration, (3) removal and degradation of vegetation, (4) soil compaction (5) the possible release of pollutants in soil, groundwater and surface waters.

Earthworks are the main source of dust emissions in the air, while emissions of other air pollutants (SO₂, NO_x, CO, CO₂) are inevitable when operating construction and transportation machinery and construction activities.

During construction, noise is generated from the operation of construction machinery and equipment. Permissible noise levels are determined by national legislation.

During construction, different types of waste are expected to be generated:

- (1) hazardous waste (used engine oils from machinery),
- (2) household waste and
- (3) remaining non-hazardous waste.

Water pollution can occur as a result of uncontrolled dumping of excavated material or other wastes and substances. These effects are limited to the duration of construction and do not pose a serious threat to the environment. However, utilizing good construction practices can help to either avoid or significantly reduce these effects.

Contamination of soil can occur as a result of leakage of liquid substances from vehicles and machinery, such as: fuel, engine oil, antifreeze, etc., and also from improper management of sanitary and other waste waters. Improper disposal of excavation waste material can also have its impact on the soil.

During construction, there will be no significant impacts on the flora and fauna, they will be limited mainly to the perimeter of the site and will relate to the impact of excavation of vegetation. The occupied territory is degraded, it is located on the site of REK Bitola, and the wild vegetation has no environmental importance, so the impact is expected to be insignificant.

Regarding the landscape, the landfill will not change the original identity of the area in terms of aesthetics and will be a new element of its physiognomy, which normally happens with these types of works.

Also, the optical isolation is at a good level from the E65 road (Ohrid-Kicevo), as well as from the surrounding settlements. Impacts will be limited during the construction period due to dust generation, and are characterized as short-term low impacts.

Due to the transportation of materials, the population will not be affected by inconvenience caused by construction works. On the other hand, there will be positive outcome for the population, because employment opportunities will be created in many different professional fields.

Based on the above, the conclusion is that most of the accidental impacts are insignificant, short-term, reversible and localized, and are limited on premises the site and for the duration of the landfill construction period. Some of them, which are permanent, are not significant

and are common for any project. Employment opportunities should also be seriously considered as positive.

4.2. Impacts during the operation phase

This section provides an overview of the identification of possible impacts on various environmental sectors and their preliminary assessment based on the construction of a hazardous waste landfill.

4.2.1. Impacts on flora and fauna

The vegetation of the site is very sparse and low and no significant species can be found there. In general, the wider area is highly degraded due to the existence of a coal mine which is within the compound of REK Bitola. This fact has led to the deterioration of the wider area. Also, the site is not in a protected area and the nearest area is very far away, approximately 3.2 km (> 3 km). Besides, presence of special types of flora and fauna has not been observed near the site. In general, the impact on flora and fauna is characterized as low due to the absence of high and significant vegetation and habitats (higher shrubs, trees, etc.), which occur during the construction period and there will be no new impacts during operation.

4.2.2. Impacts on the landscape and visual environment

The wider area of the site where the hazardous waste landfill is planned includes mineral excavation mine located near the site and existing lignite mining installations of REK Bitola. In addition, the site is adjacent to a non-compliant municipal landfill located to the north of it. The location is at a large distance (approximately 5.3 km) from the largest populated settlement in the wider area (the village of Novaci). The nearest settlement to the site is Meglenci, at a distance of about 2.4 kilometers.

The location can be accessed via the R-1311 road, which serves as the entrance to the REK Bitola installation, so the optical isolation from the road is low. In general, the optical isolation from the Meglenci settlement is also low. The operation of the landfill will not increase traffic on the main road, considering the use of trucks, given that it is on premises the REK Bitola compound, so this will not be considered as significant and the impact can be characterized as low due to the fact that the environment is already degraded. Two dirt roads are already intersecting the the planned location, so it was decided to use the southern road as the starting axis for setting up the landfill, considering the required dimensions and field configuration of a compliant landfill.

Another impact during landfill operation is its aesthetic deterioration, but due to the fact that the aesthetics and landscape of the wider area are extremely degraded, the impact can be characterized as insignificant.

4.2.3. Impacts on the cultural-historical heritage

In the wider area of the location where the landfill will be established, there are no cultural-historical monuments or archaeological sites within a radius of 3 km. Therefore, no impact is

anticipated on the cultural-historical heritage resulting from the implementation of this project.

4.2.4. Impacts on air quality

Air emissions created during the construction phase mostly consist of emissions from vehicles, trucks, construction machinery, as well as dust from earthworks and excavations.

Air emissions that will be created during the construction phase consist of exhaust gases due to the use of vehicles and machinery for transporting the materials needed for construction of the facilities. Below is a realistic estimate of the vehicles and machinery that would be used and that are necessary for the construction of all facilities:

- 4-5 track loaders
- 4-5 wheeled excavators
- 3-4 collection equipment
- 10-12 / vans

The machinery runs on diesel and the composition of the fuel gas is well known. Their main components are carbon monoxide (CO), carbon dioxide (CO₂), sulfur dioxide (SO₂), nitrogen oxides (NO_x), unstable hydrocarbons.

Regarding the exhaust emissions at the construction site itself, the relatively small number of vehicles and machinery, combined with their distance from the populated residential areas, the use of land covered by the study primarily for mining activities, and the deterioration due to the existence of mineral extraction sites near the location, are an absolute guarantee that the effect on air quality will be negligible. Regarding the effect on air caused by the roads on which trucks will pass, taking into account the small number of roads, most of which are far from the densely populated areas, no significant increase in air pollutant concentrations is expected. The movement of heavy machinery on the construction site can cause “clouds” of dust that can be easily prevented or limited because this is a phenomenon with local impact. Furthermore, during the transport of construction materials (sand, soil material, etc.), when they are not covered, there is possibility of local emission of dust from fine particles.

Dust emissions are unavoidable during construction work. Apart from the deterioration of air quality, it also has a negative impact on the aesthetics of the environment (visual impact from dust). Fugitive dust emissions can be generated during loading or unloading of construction materials and from pile erosion caused by winds.

Dispersion of dust and fine materials is expected to be limited and local, and no significant impacts are expected. The impacts in the wider area will be small.

This distance from the nearest settlements is sufficient and ensures that there will be no problems with dust dispersion in residential areas, but nevertheless it is necessary to take all measures to mitigate the problem of dust emissions. Although there are no legal limitations on dust concentration, it is estimated that during construction measures need to be taken to reduce the impacts, so as to reduce them to the minimum.

4.2.5. Impacts of noise and vibration

Noise can be caused by different parts of the landfill. More specifically, traffic noise of trucks unloading debris at the landfill, noise from compaction of residues, covering of waste and other activities on the soil contribute to increase the noise level.

Considering that hazardous waste landfills are located at a distance of approximately 3.5 km away from populated areas and the noise limit will not exceed the allowed threshold in accordance with national and EU regulations, the impact of noise and vibration can be considered negligible.

4.2.6. Impacts on water quality/hydrology/soil

The main impacts on water quality, hydrology and soil from different parts of the landfill are shown below.

Landfill: Landfill leachate cannot occur because there will be no aerobic and anaerobic microbial decomposition. There will be no impacts.

Other infrastructure: Wastewater may arise from (i) washing of the machinery and flooring of the facility and (ii) staff facilities. These wastewaters will be collected and treated with an appropriate method, in order to be discharged according to EU and national regulations (in a treatment plant). There will be no impacts.

4.2.7. Social impact

The landfill will have positive impact on the socio-economic characteristics of the area, due to the fact that:

- ✓ They will lead to efficient waste management and new employment opportunities, which will consequently have a positive impact on the economic development of this area.
- ✓ They will provide environmental benefits through proper management of hazardous waste.
- ✓ By applying the relevant national legislation and the regulations of the European Union, there will be no unwanted impacts on staff and people living in the vicinity of REK Bitola.

4.2.8. Impacts on climate

There will be no significant impact/changes, considering that it is not an organic waste that affects global warming, which comes mainly from CH₄, released as biodegradable waste in the anaerobic conditions in landfills.

The impact on climate change of this project can be characterized as neutral.

4.2.9. Impacts assessment

The construction of a landfill for hazardous waste is characterized as high importance in terms of environmental protection, at the same time improving the quality of life of people working in REK Bitolano and beyond.

A preliminary impact assessment was carried out for both the construction and operation phase of the landfill, depending on the type of impact, duration, level of impact and its reversibility. Impact assessment are presented in the following tables.

CONSTRUCTION PHASE									
Category of assessment	Level of assessment	INFLUENCE							
		Flora and fauna	Landscape and visual environment	Cultural and historical heritage	Air quality	Noise and vibration	Water quality/hydrogeology /soil	Social impact	Climate
Type	Positive							√	
	Negative	√	√		√	√	√		√
	Neutral			√					
Significance	High								
	Medium						√		
	Low	√	√		√			√	√
	Negligible			√		√			
Duration	Long lasting		√						
	Temporarily	√		√	√	√	√	√	√
Reversible	Irreversible								
	Partially reversible	√	√						
	Fully reversible			√	√	√	√	√	√
Cumulative/Synergistic	Possibly				√	√			√
	Impossible	√	√	√			√	√	

OPERATION PHASE									
Category of assessment	Level of assessment	INFLUENCE							
		Flora and fauna	Landscape and visual environment	Cultural and historical heritage	Air quality	Noise and vibration	Water quality/hydrogeology /soil	Social influence	Climate
Type	Positively								√
	Negatively		√		√		√	√	
	Neutral	√		√		√			
Importance	High								
	Medium				√	√	√		
	Low		√					√	√
	Insignificant	√		√					
Duration	Long lasting	√	√	√	√	√	√	√	√
	Temporarily								
	Irreversible								√

OPERATION PHASE									
Category of assessment	Level of assessment	INFLUENCE							
		Flora and fauna	Landscape and visual environment	Cultural and historical heritage	Air quality	Noise and vibration	Water quality/hydrogeology /soil	Social influence	Climate
Reversibility	Partially reversible	√	√	√	√			√	
	Fully reversible					√	√		
Cumulative/Synergistic	Possibly		√		√	√	√		√
	Impossible	√		√				√	

4.3. Measures included in the project draft to reduce, avoid or neutralize major negative impacts

During the construction period of the landfill, mitigation measures will be applied in order to prevent, minimize and control the impact on air quality, noise and vibration impact, the impact on soil and water quality/hydrology. Some basic measures that should be applied are:

- Careful handling of waste.
- Regular maintenance of vehicles.
- Regular wetting of excavation areas when needed.
- Regular maintenance and operation of all machinery and worksite vehicles.
- Installation of noise barriers at appropriate locations if needed.
- Waste should be collected and stored properly in order to dispose of it properly in an environmental and sanitary manner.
- During the design, the earthwork balance will be taken into consideration (the cut and fill quantities). Excess material can be used for covering material during operation phase and in case of even remaining excess, it will be intended to be used in other public works. Otherwise it will be disposed properly.
- Ensuring the collection of sanitary wastewater through mobile sanitary facilities and their final treatment.
- Appropriate covering of construction materials for minimizing dust, when needed.

This section provides an overview of possible mitigation measures during landfill operations.

- Establishment of perimeter plantations along the perimeter of the mine site.

- Strict compliance with proper rules concerning operational phase in order to prevent nuisance in surrounding area.
- Gradual restoration of the new landfill site with plantation.
- Dust minimization by wetting when necessary.

Other infrastructure:

- Perimeter plantation with vegetation in order to minimize the spreading of dust.
- Spraying with water, if necessary, in different areas within the center to prevent dust generation.
- Appropriate covering of the materials and substances that may cause dust, when needed.
- Main mechanical facilities and noise-producing machinery should be restricted and isolated in closed facilities to minimize noise.
- The noise level outside the landfill will be very low.
- Regular maintenance of machinery and trucks and their replacement when necessary.
- Establishing a monitoring system in order to prevent and reduce the noise level.
- Employees will take all measures to protect against noise.
- Construction of a sealing system to the landfill in accordance with the national and EU regulations.
- Construction of an appropriate wastewater treatment plant where all wastewater streams will be treated efficiently.
- Construction of a peripheral ditch around the site, in order to collect rainwater.
- Water resulting from cleaning should be processed at least with an oil separator.
- Special waste water (machine oils and other liquids derived from maintenance of trucks) should be collected and treated accordingly.

Works for final coverage for minimizing water precipitation in the landfill body.

4.4. Cross-border influence

REK Bitola and the concession of the Brod-Gneotino Mine, where the project is planned, are in close proximity to the border with R. Greece. Pursuant to the Law on Environment, Article 93 regulates the assessment of the cross-border environmental impact of the project which is carried out on the territory of the Republic of Macedonia. This is why an English version is also submitted as enclosure to this notification, which may serve the state administration body responsible for

environmental affairs of the Republic of North Macedonia to inform the affected state about measures that are included in the project draft to aimed to reduce, avoid or neutralize any major negative impact.

An analysis of the likely impacts of this project will be made for the operational phase of exploitation, regarding the media and the areas of the environment. Impacts are analyzed using the following parameters: Positive, Negative / Large, Medium, Small, None / Direct, Indirect, Cumulative / Short-term, Medium, Long-term / Reversible, Irreversible / Likelihood of occurrence (Certain, Possible , Impossible) / Location (Local, Surrounding, Cross-Border). The impacts will be considered when performing the following activities: digging, transportation and depositing of waste, repumping of part of the surfaced ground and rainwater, movement of transport vehicles, operation of bulldozers, preventive and ongoing maintenance of equipment.

We believe, however, that this project will not have a cross-border impact, given the fact that it is primarily small-scale and short-term, and in addition, all the measures listed in point 4.3 will be applied, which will be elaborated in detail in the environmental impact assessment study.

5. Additional information

5.1. Specifying the authority of the state administration responsible for issuing a permit, that is, a decision for the implementation of the project

The competent authority for issuing a decision is the Ministry of Environment and Spatial Planning of the Republic of North Macedonia, address: Ploštad Presveta Bogorodica no. 3, 1000 Skopje.

5.2. Date of notification

Submitted Notice of the intention to perform the project with number 11-5616/1 on October 4, 2023. Based on the Notification of the Department of Environment dated November 31, 2023, an additional Notification of the intention to carry out the project with number 11-5616/3 is submitted.

5.3. In cases where it is different from the investor - the name, surname, address and telephone number of the person who prepares the notice and of the persons participating in its preparation

The investor of the project is VATROSTALNA DOO Skopje, the project will be realized at LOCATION: AD ESM, REK BITOLA Subsidiary

Address: str. Nikola Kljusev 3, Skopje 1000

Phone: +389 (02) 3293-000

mail: vatrostalna@vatrostalna.com vatrostalna@mail.net.mk

5.4. The name and surname of the designated contact person and their postal address, telephone, fax and e-mail address

prof. dr. Dame Dimitrovski, assessment expert for environmental impact assessment,

st. Ruđer Bošković no. 18. 1000 Skopje

Tel. 071714111,

E-mail address: d.dimitrovski@yahoo.com

5.5. Signature of the person preparing the notification confirming the authenticity of the information contained therein (below)

5.6. A review that determines the need for an environmental impact assessment

Given in APPENDIX 5

Skopje, December 2023

EIA expert:

prof. dr. Dame Dimitrovski, signature

**ANNEX 1. Decision to approve the Feasibility Study
for the Project: “Landfill for the storage of waste
from cement-asbestos slabs in the compound of REK
Bitola”**

ANNEX 2. Urban documentation

ANNEX 3. The public procurement contract for the works for execution of the project for the rehabilitation of the reinforced concrete casing and the dew point of the cooling tower of Block 2

**ANNEX 4. The current balance of the investor
Vatrostalna DOO, Skopje**

ANNEX 5. List for determining the need for an environmental impact assessment and the list for determining the scope of the environmental impact assessment study (Annex II and III)

APPENDIX 5

APPENDIX II: Checklist for DETERMINING THE NEED FOR A PROJECT ENVIRONMENTAL IMPACT ASSESSMENT

Questions to consider	Yes / No /? / Not Applicable (NA) (N / A - if the issue is relevant to the specific project)	Whether this will lead to significant impacts? Yes / No /? - Why
Brief Project description: See letter of intent		
1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)?	Yes	The construction and operation of the project will cause physical (topographic) changes on the site. No change is proposed for the water bodies.
2. Will construction or operation of the project use natural resources such as land, water, materials or energy, especially any resources which are not renewable or are in short supply?	No	The project will not use resources that are not renewable and are rare. The operation of the landfill will require covering material.
3. Will the project involve use, storage, transport, installation or production of substances or materials that could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?	No	The project includes transportation and disposal of hazardous waste.
4. Will the project produce solid waste during construction or operation or decommissioning?	No	The project will not generate solid waste during construction.
5. Will the project release pollutants or any hazardous, toxic or noxious substances to air?	No	There are none, but control measures are proposed that should be implemented according to the best available techniques.
6. Will the project cause noise and vibration or release of	Yes	During the construction and operation phase, there will be noise and vibrations mainly on

Questions to consider	Yes / No /? / Not Applicable (NA) (N / A - if the issue is relevant to the specific project)	Whether this will lead to significant impacts? Yes / No /? - Why
light, heat energy or electromagnetic radiation?		premises the project location. No impact is expected until the town of Meglenci.
7. Will the project lead to risks of land or water contamination due to discharge of pollutants onto land or into surface water, coastal waters or the sea?	No	During normal operation of the project, technical measures will be implemented to control stormwaters, which will prevent the possibility of soil and water pollution.
8. Is there a risk of accidents during the construction or operation of the project that could affect human health or the environment?	Yes	The main risk that could affect human health or the environment is possible fires during waste disposal activities. Measures will be taken to prevent these risks.
9. Will the project lead to social changes, such as in terms of demographics, traditional lifestyles, employment?	No	The project will not lead to major social changes. It will improve the quality of life through better waste management and create jobs in the sector.
10. Are there other factors to consider such as subsequent development that could lead to environmental impacts or the possibility of cumulative impacts with other existing or planned activities on the site?	No	No
11. Are there any areas on or around the location which are protected by international, national or local legislation due to their ecological, landscape, cultural or other values, which could be affected by the project?	No	There is no impact on significant and protected areas.
12. Are there any other areas on or around the location which are sensitive from an	No	There is no surface water body near the site.

Questions to consider	Yes / No /? / Not Applicable (NA) (N / A - if the issue is relevant to the specific project)	Whether this will lead to significant impacts? Yes / No /? - Why
environmental perspective, such as wetlands, water sheds or other water bodies, coastal zone, mountains, forests, and which might be affected by the project?		
13. Are there any other areas on or around the location used by protected, important or sensitive species of fauna and flora, such as breeding, nesting, foraging, resting, wintering or migration, which could be affected by the project?	No	No
14. Are there any inland, coastal, marine or underground waters on or around the location which could be affected by the project?	No	No
15. Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?	No	No
16. Are there any transport routes or facilities on or around the site that the public uses to access that may create environmental problems?	No	No
17. Are there roads or facilities on or around the site where the public has accessed or blocked them that cause environmental problems that could be affected?	No	The area where the project will be implemented is sparsely populated and no impacts on public roads or facilities are expected.
18. Is the project in a location where it is likely to be visible to a large number of people?	Yes	No. The nearest settlement is Meglenci, which is about 3.4 kilometers away and has only 20 inhabitants.

Questions to consider	Yes / No /? / Not Applicable (NA) (N / A - if the issue is relevant to the specific project)	Whether this will lead to significant impacts? Yes / No /? - Why
19. Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?	No	There is no cultural heritage or cultural monument on the site or in the vicinity.
20. Is the project located on an empty space (that has never been built on), resulting in a loss of vacant ("greenfield") land?	No	No
21. Is there any current land use on or around the location (e.g. for habitats, gardens, other private property, industry, commerce, recreation, open public spaces, community centers, agriculture, forestry, tourism, mining or quarries) that could be affected by the project?	No	Adjacent to the proposed site is a non-compliant municipal landfill and coal mining deposits.
22. Are there any plans for future land uses on or around the location which could be affected by the project?	No	No
23. Are there any areas on or around the location which are densely populated or built, which could be affected by the project?	No	No
24. Are there any areas on or around the location which are occupied by sensitive land uses, e.g. hospitals, schools, places of worship, community centers, which could be affected by the project?	No	No
25. Are there areas on or around the site that contain important, high-quality or scarce resources such as groundwater, surface waters, forests, agricultural land, fisheries,	No	No

Questions to consider	Yes / No /? / Not Applicable (NA) (N / A - if the issue is relevant to the specific project)	Whether this will lead to significant impacts? Yes / No /? - Why
tourism resources or minerals that could be affected by the project?		
26. Are there areas on or around the site that are already subject to pollution or environmental damage, pursuant to legal environmental standards, that could be affected by the project?	No	No
27. Is the area where the project is located susceptible to earthquakes, runoffs, landslides, land erosion, flooding or extreme/adverse climate conditions such as large temperature inversions, fogs, severe winds, which could lead to the project causing environmental problems?	No	No

APPENDIX III

EIA SCOPING CHECKLIST: PROJECT CHARACTERISTICS QUESTIONS

No. –	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc.)?				
1.1	Permanent or temporary change of land use, land cover or topography, including an increase in the intensity of land use?	Yes.	There is need for land use. Project activities will cause physical changes in the landscape including changes in topography, current use of land and the visual aspects of the area.	No. Land use effects will be limited to and near REK Bitola where land has already been devastated.
1.2	Clearing of existing land, vegetation and buildings?	Yes	There will be limited clearing of vegetation during groundworks and grading.	No. A limited loss of scarce vegetation is expected, but not of endangered or protected species under national or international law.
1.3	Creation of new land uses?	Yes	Only on perimeter of the location.	No.
1.4	Pre-construction investigations, eg. boreholes, soil testing?	Yes	Standard geotechnical and hydrogeological research will be implemented.	No.
1.5	Construction works?	Yes	Construction work will affect land use and topography.	No. Construction activities will be limited with short-term impacts.
1.6	Works on demolition?	No	/	/
1.7	Temporary sites used for construction works or housing of construction workers?	No	/	/
1.8	Buildings, structures or earth embankments that include linear, i.e. longitudinal structures (power lines, phone lines, railway infrastructure, highways), excavation and	Yes	Only the excavations for buildings.	No.

No. -	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
	filling or excavations for buildings?			
1.9	Underground works including mining or construction of a tunnel?	No	/	/
1:10	Cultivation works on barren land?	No	/	/
1:11	Digging excavation?	Yes	The project envisages digging and leveling during landfill construction.	Significant impact is not expected, due to the limited digging volume.
1:12	Coastal structures, eg. walls and sea ports?	No	/	/
1:13	Offshore installations?	No	/	/
1:14	Manufacturing processes?	No	/	/
1:15	Facilities for storing goods and materials?	No	/	/
1:16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Yes	The project envisages waste disposal. All wastewater that will be generated during the project, and it will be collected and treated accordingly.	No, considering that many mitigation measures will be implemented according to the best available techniques.
1:17	Facilities for long-term housing of workers?	No	/	/
1:18	New road, rail or sea traffic during construction or operation?	No	Maybe reconstruction or upgrade of the existing access road will be needed.	No
1:19	New land, rail, air, water or other transport infrastructure including new or altered routes and stations, ports, airports etc.	No	/	/
1:20	Closing or diverting existing transport routes or infrastructure leading to change in traffic?	No	/	/
1:21	New or diverted power lines or pipelines?	No	/	/
1:22	Water catchments, dam construction, underwater channel, realignment or other changes to the hydrology of watercourses or aquifers?	No	/	/

No.	Questions to be considered in the scope of the EIA?	Yes No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
1:23	Waterway bridges?	No	/	/
1:24	Collection or transfer of water from ground or surface waters?	No	/	/
1:25	Changes in waterbodies or in the land surface affecting drainage or runoff?	No	/	/
1:26	Transportation of personnel or materials for construction, operation or closure of a facility?	Yes	Transport of workers, materials and waste is expected in all stages of the project	No. It is not expected that the transport of waste will significantly increase the intensity of traffic in the region.
1:27	Long term dismantling or decommissioning of the installation or rehabilitation works?	No	/	/
1:28	Ongoing activity during decommissioning which could impact the environment?	No	/	/
1:29	Influx of people to an area, either temporarily or permanently?	No	/	/
1:30	Introduction of foreign (external) species?	No	/	/
1:31	Loss of native species or genetic diversity?	No	/	/
1:32	Activities other than the above?	No	/	/
2. Will the construction or operation of the project use natural resources such as land, water, materials or energy, particularly non-renewable or scarce resources?				
2.1	Land, especially undeveloped or agricultural land?	No	/	/
2.2	Water?	Yes	Water will be used for washing and sanitation.	No. The landfill does not require significant water consumption.
2.3	Minerals?	No	/	/
2.4	Aggregates (sand, gravel, crushed stone)?	Yes	The project implementation will require a certain quantity of aggregates. During operation, a small quantity of aggregates will be used.	No.
2.5	Forests and trees?	No	/	/

No. —	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
2.6	Energy including electricity and fuels?	Yes	Fuel is necessary for equipment and vehicles.	No, for the purpose of installation and type of technology used.
2.7	Other resources?	Yes	The operation of the landfill will require covering with soil. Part of the material will be produced in the construction phase. Possibly part of the material will be externally provided.	No.
3. Will the project involve the use, storage, transportation, placement with, or production of substances or materials that could be harmful to human health or the environment, or that would raise concerns about actual or perceived risks to human health?				
3.1	Does the project involve use of substances or materials that are hazardous or toxic to human health or the environment (flora, fauna, water supplies)?	No	No.	/
3.2	Will the project result in changes in occurrence of disease or affect disease vectors (eg. Disease transmitted by insects or water)?	No	/	/
3.3	Will the project impact people's well-being, for example by changing living conditions?	Yes	The project will improve the quality of life through better management of hazardous waste.	Yes, it will have a significant positive impact on people's living conditions as well as on the environment
3.4	Are there any particularly vulnerable groups of people who could be affected by the project, eg. Hospital patients, the elderly?	No	/	/
3.5	Other reasons?	No	/	/
4. Will the project produce solid waste during construction, operation or facility closure?				
4.1	Tailings or mining waste?	No	/	/
4.2	Municipal waste (household or commercial wastes)?	Yes	During construction and operational, municipal waste will be generated due to the	No.

No.	Questions to be considered in the scope of the EIA?	Yes No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
-			presence of workers on the site.	
4.3	Hazardous or toxic waste (including radioactive waste)?	No	No	/
4.4	Other waste from industrial processes?	No	No	No
4.5	Excess products?	No	/	/
4.6	Sludge from sewage or other sludges from effluent treatment?	No	/	/
4.7	Construction or demolition waste or debree?	No	/	/
4.8	Excess (redundant) machinery or equipment?	No	/	/
4.9	Contaminated soils or other material?	No	/	/
4:10	Waste from agricultural activities?	No	/	/
4:11	Any other solid waste?	No	/	/
5. Will the project release pollutants or any hazardous, toxic or harmful substances into the air?				
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources?	Yes	There will be no emissions from stationary sources. There will be emissions from mobile sources (vehicles for transport of materials in the construction phase and transport of waste in the operational phase of the project).	No.
5.2	Emissions from production processes?	Yes	<u>Landfill</u> : Asbestos landfills are not a source of landfill gas which results from the anaerobic decomposition of organic materials and consists mainly of CO ₂ and CH ₄ , which are the main greenhouse gases. Dust may be generated during landfill operations as a	No.

No.	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
-			result of daily capping procedures.	
5.3	Emissions from materials handling including storage or transport?	Yes	The transport of materials in the construction phase and during the transport of waste in the operational phase, particles and exhaust gases will be emitted.	No. Air emissions will be short-term (during construction) and limited to the operation phase.
5.4	Emissions from construction activities including plant and equipment?	Yes	Air emissions are expected from the construction equipment and transport vehicles.	No. The impact will be short and insignificant.
5.5	Dust or odors from handling of materials including construction materials, sewage and waste?	Yes	Yes. Dust and odours will be released during collection and transportation of waste, until the landfilling.	No. The project foresees appropriate measures to prevent these emissions.
5.6	Emissions from waste incineration?	No	No	No
5.7	Emissions from burning of waste in open air (eg. shredded materials, construction debris)?	No	No	No
5.8	Emissions from some other sources?	No	No	No
6. Will the project cause noise and vibration or release of light, heat or electromagnetic radiation?				
6.1	From operation of the equipment, eg. engines, ventilation plant, crushers?	Yes	Noise and vibration will be produced during operation of the loading equipment.	No. The installation will be located in a remote area where there will be no inhabitants in a radius of at least 3.5 km. The effect of noise and vibration can be considered insignificant.
6.2	From industrial or similar processes?	No	/	/
6.3	From construction or demolition works?	Yes	During the construction phase noise and vibration will be generated.	No
6.4	From blasting or piling?	No	/	/

No.	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
6.5	From construction activities or traffic for operation purposes?	Yes	Due to transportation of materials and inert waste.	No
6.6	From lighting or cooling systems?	No	/	/
6.7	From sources of electromagnetic radiation (taking into account the effects on nearby sensitive equipment on humans)?	No	/	/
6.8	From some other sources?	No	/	/
7. Will the project lead to risks of land or water contamination from the discharge of pollutants onto land or into surface water, coastal waters or the sea?				
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	No	The project involves disposal of hazardous waste.	No, set of measures will be applied to prevent contamination of soil and water.
7.2	Discharge of waste water or other effluents (treated or untreated) in water or in the ground?	Yes	The project will generate waste stormwater.	No. Waste water will be treated accordingly
7.3	By deposition of pollutants emitted to air, land or water?	No	/	/
7.4	From other sources?	No	/	/
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?	No	/	/
8. Is there a risk of accidents during the construction or operation of the project that could affect human health or the environment?				
8.1	From explosions, spillages, fires etc.; from storage, handling, use or production of hazardous or toxic substances?	No	/	/
8.2	From events beyond the limits of normal environmental protection, e.g. from failure of systems to control pollution?	No	/	/
8.3	For other reasons?	No	/	/
8.4	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, etc.)?	Yes	The landfill may be affected by earthquakes.	No. it will be constructed in compliance with statutory requirements.

No.	Questions to be considered in the scope of the EIA?	Yes No/ ?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
9. Will the project lead to social changes, such as in terms of demographics, traditional lifestyles, employment?				
9.1	Changes in size, age, population structure, social groups etc.	No	/	/
9.2	By resettlement of people or demolition of homes or communities or community facilities, such as schools, hospitals, social facilities?	No	/	/
9.3	Through bringing new residents or creating new settlements?	No	/	/
9.4	By placing increased demands on local facilities or services, e.g. on housing, education, health?	No	It will use local labor	No.
9.5	By creating new jobs during construction or operation or causing loss of jobs with effects on unemployment and the economy?	Yes	The project is expected to create new jobs during construction and operation phase which will have a positive impact on the local population.	The direct effect may be limited, but the indirect effect might be remarkable.
9.6	Some other reasons?	No	/	/
Question: Are there other factors to consider such as subsequent development that could lead to environmental impacts or the possibility of cumulative impacts with other existing or planned activities on the site?				
10.1	Will the project lead to pressure for consistent development that could have a significant impact on the environment, such as a increased number of dwellings, new roads, new supporting industries or institutions?	No	/	/
10.2	Will the project lead to the creation of auxiliary facilities or development boosted by the project that could impact the environment, such as: <ul style="list-style-type: none"> • Ancillary infrastructure (roads, electricity supply, waste treatment or waste water etc.). • Housing development • Extractive industries 	No	/	/

No.	Questions to be considered in the scope of the EIA?	Yes No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why
-	<ul style="list-style-type: none"> • Supply industries • Other? 			
10.3	Will the project result in after-care for the location upon termination of operation of the installation which could have an environmental impact?	Yes	Once closed, the landfill will have to be rehabilitated and monitored for the prevention of possible negative environmental impact	No. Closure and subsequent activities related to the landfill will be subject to a special project pursuant to waste management regulations.
10.4	Will the project set a precedent for future developments?	Yes	Yes. It's an environmental friendly and development project, which can serve as positive example for other similar projects	
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No	/	/